

# APPENDIX

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## NATURAL HERITAGE ASSESSMENT REPORT



CITY OF BRAMPTON

# NATURAL HERITAGE ASSESSMENT

## LAGERFELD DRIVE MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT

MARCH 17, 2021





# NATURAL HERITAGE ASSESSMENT

## LAGERFELD DRIVE MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT

CITY OF BRAMPTON

FINAL REPORT

PROJECT NO.: 141-15409-00

DATE: MARCH 17, 2021

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March 17, 2021

CITY OF BRAMPTON  
Public Works & Engineering,  
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**Attention: Mr. Mario Goolsarran, P. Eng., PMP**

Dear Mr. Goolsarran,

**Subject: Natural Heritage Assessment Lagerfeld Drive Municipal Class Environmental Assessment**

WSP Canada Inc. (WSP) has been retained to complete a Natural Environment Assessment as part of the Class "C" Environmental Assessment for Lagerfeld Drive in the City of Brampton. The area studied can be described as Part of Lots 11 and 12, Concession 4 West of Chinguacousy Road, and Part of Lots 11 and 12, Concession 5 West of Chinguacousy Road, City of Brampton, Regional Municipality of York.

This report provides a description of the existing conditions within the Study Area based on a review of secondary source information and the results of the 2014 and 2017 site investigations. A high-level impact assessment has been provided for the preferred alignment, along with recommendations to minimize and/or mitigate these impacts to the extent possible. Please find the document attached for your records.

Thank you for the opportunity to complete this assignment. Please contact the undersigned with any questions or comments.

Yours truly,

A handwritten signature in black ink, appearing to read 'E. Fitzpatrick'.

Erin Fitzpatrick, M.Sc.  
Ecologist, Environment

EF/WB/ham

WSP ref.: 141-15409-00

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March 17, 2021

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March 17, 2021

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# 1 INTRODUCTION

WSP has been retained to complete a Natural Environment Assessment as part of the Class “C” Environmental Assessment (EA) for Lagerfeld Drive between the Mount Pleasant GO Station and west of Mississauga Road in the City of Brampton. The natural environment report focuses on an area that can be described as lands southwest of Creditview Road, extending southwest approximately 700 m past Mississauga Road, to approximately 100 m north of the CN rail line and bounded to the south by Bovaird Drive. This area can be described as Part of Lots 11 and 12, Concession 4 West of Chinguacousy Road, and Part of Lots 11 and 12, Concession 5 West of Chinguacousy Road, City of Brampton, Regional Municipality of York and is herein referred to as the “Study Area”. Refer to **Figures 1 and 2** for location details.

This study is being conducted in support of a Class EA for the east-west extension of a collector road (Lagerfeld Drive) from the Mount Pleasant Go Station to west of Mississauga Road and is to determine the presence and extent of natural heritage features and associated constraints within the Study Area. This information was used during the evaluation of alternatives and aided in the selection of the preferred alternative. This report provides a description of the existing conditions within the Study Area and includes descriptions of natural features on and adjacent to the Study Area, as determined through reviews of secondary source information and direct observation during the site investigation. Potential environmental impacts of the preferred road alignment are discussed along with suggestions for the minimization and/or mitigation of these impacts.

# 2 ENVIRONMENTAL POLICY CONTEXT

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## 2.1 PROVINCIAL POLICY STATEMENT

The Provincial Policy Statement (PPS) (Ontario Ministry of Municipal Affairs and Housing (OMMAH), 2014) is a planning document that provides a framework for, and governs development within, the Province of Ontario. To preserve various ecological resources deemed significant in the Province, development lands must be assessed for the presence of natural heritage features prior to construction. These natural heritage features (listed below) are both defined and afforded protections under the PPS. Linkages between natural heritage features, surface water and groundwater features are also recognized and afforded similar protections under the policy. Section 2.1.2 of the PPS also requires that the diversity and connectivity of all-natural heritage features and the long-term ecological function of natural heritage systems be maintained, restored or improved where possible. Further to this, natural heritage systems within Ecoregions 6E and 7E are to be identified as per Section 2.1.3.

Under the PPS (OMMAH, 2014), development or site alteration is prohibited within significant wetlands in Ecoregions 5E, 6E and 7E and in significant coastal wetlands, but may be allowed adjacent to these features provided the adjacent lands have been evaluated and it has been demonstrated that there will be no negative impacts to these features or their ecological functions. Development may be permitted in or adjacent to significant wetlands north of Ecoregions 5E, 6E and 7E, significant woodlands and significant valleylands in Ecoregions 6E and 7E (excluding islands in Lake Huron and the St. Mary's River), significant wildlife habitat, and significant areas of natural and scientific interest (ANSI), provided there will be no negative impacts to these features or their ecological function due to the proposed undertaking. In addition, development and site alteration is not permitted in fish habitat unless in accordance with provincial and federal legislation.

Natural heritage features as defined by the PPS (OMMAH, 2014) include:

- A) *Fish Habitat;*
- B) *Habitats of Endangered and Threatened Species;*
- C) *Significant Areas of Natural and Scientific Interest (ANSI);*
- D) *Significant Wetlands;*
- E) *Significant Coastal Wetlands;*
- F) *Other Coastal Wetlands in Ecoregions 5E, 6E and 7E;*
- G) *Significant Wildlife Habitat;*
- H) *Significant Woodlands in Ecoregions 6E and 7E (excluding islands in Lake Huron and the St. Mary's River);*  
and,
- I) *Significant Valleylands in Ecoregions 6E and 7E (excluding islands in Lake Huron and the St. Mary's River).*

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## 2.2 ENVIRONMENTAL ASSESSMENT ACT

The *Ontario Environmental Assessment Act*, R.S.O., 1990 (the EA Act) requires that projects corresponding to a given class of undertakings (e.g., municipal road, transit, water and wastewater projects) follow an approved Class Environmental Assessment (Class EA) process. Municipal projects are classified as Schedule A or A+, Schedule B, or Schedule C, based on their potential for environmental impacts. Schedule C Class EAs have the greatest potential for environmental impacts.

Regardless of classification, each Class EA must consist of the following:

- a description of the purpose of the undertaking;
- a description of, and a statement of, the rationale for the undertaking, the alternative methods of carrying out the undertaking, and the alternatives to the undertaking;

- a description of:
  - the environment that will be affected or that might reasonably be expected to be affected, directly or indirectly,
  - the effects that will be caused or that might reasonably be expected to be caused to the environment, and
  - the actions necessary or that may reasonably be expected to be necessary to prevent, change, mitigate or remedy the effects upon or the effects that might reasonably be expected upon the environment, by the undertaking, the alternative methods of carrying out the undertaking and the alternatives to the undertaking;
- an evaluation of the advantages and disadvantages to the environment of the undertaking, the alternative methods of carrying out the undertaking and the alternatives to the undertaking; and
- a description of any consultation about the undertaking by the proponent and the results of the consultation. 1996, c. 27, s. 3.

This report focuses on a description of the existing environmental conditions and will be used to inform the selection of the preferred alternative. Impacts that may occur as a result of the proposed development, and the actions necessary to prevent, change, mitigate or remedy these potential impacts will be addressed during later stages of the project.

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## 2.3 FISHERIES ACT (FA), 1985

The federal *Fisheries Act* (FA) is under the jurisdiction of Fisheries and Oceans Canada (DFO). Its focus is to protect the productivity of recreational, commercial and Aboriginal fisheries by focusing protection on real and significant threats to fish and the habitat that supports them. The federal FA sets clear standards and guidelines for routine projects conducted in or near waterbodies that support fish that are part of, or that support a, commercial, recreational or Aboriginal fishery. If the proposed works falls within fish habitat (below the ordinary high-water mark), a review under the FA is required.

Following the passage of Bill C-68, new fish and fish habitat protection provisions of the FA are in force as of August 28, 2019. The new provisions are:

- provide protection for all fish and fish habitats;
- restore the prohibition against ‘harmful alteration, disruption or destruction of fish habitat’ (HADD); and,
- prohibit activities, other than fishing, that cause ‘the death of fish’.

In the event that a project cannot be feasibly relocated or redesigned to eliminate the harmful alteration, disruption, or destruction (HADD) of fish habitat, mitigation measures and or habitat compensation may be required. Common mitigation measures include, but are not limited to, working within fisheries timing windows to minimize interference with fish migration and spawning, ensuring fish passage around obstructions during and after construction, implementing measures to control siltation at construction sites, and choosing the least harmful equipment and methods necessary for the proposed project.

Any activities taking place in waterbodies that DFO has determined are exempt or can follow the DFO prescribed Measures to Protect Fish and Fish Habitat to avoid causing a HADD in fish habitat, the activity may proceed without DFO review. Any activity which is assessed to cause a potential HADD in fish habitat must be submitted to DFO for review, to determine requirements for an *Authorization* under the FA.

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## 2.4 ENDANGERED SPECIES ACT (ESA), 2007

The *Endangered Species Act* (ESA) (Ontario, 2007) is a legislative document that strives to: identify Species at Risk by using the best available information; protect Species at Risk and their critical habitat needs, promote their

recovery; and support stewardship activities that assist in the protection and recovery of Species at Risk. The ESA provides protection to Extirpated, Threatened and Endangered species listed on the Species at Risk in Ontario (SARO) List (Government of Ontario (Ontario), 2018). Section 9 and 10 of the Act states that no person shall:

- kill, harm, harass, capture or take a living member of an Extirpated, Endangered or Threatened species listed on the SARO List;
  - possess, transport, collect, buy, sell, lease, trade or offer to do any of the aforementioned actions, for any part or derivation of any living or dead member of a species listed as Extirpated, Endangered or Threatened on the SARO List;
  - damage or destroy the habitat of a species listed as Endangered or Threatened on the SARO List.
- 

## 2.5 CONSERVATION AUTHORITIES ACT

The *Conservation Authorities Act* (1990) gives individual conservation authorities the power to regulate development and activities in, or adjacent to, river or stream valleys, Great Lakes and large inland lakes and shorelines, watercourses, hazardous lands and wetlands. Regulations made under the Conservation Authorities Act specify the Development, Interference with Wetlands and Alterations to Shorelines and Watercourses Regulations managed by individual Conservation Authorities. These regulations apply to lands within river or stream valleys, flood plains, wetlands, watercourses, lakes, hazardous lands or lands within 120 m of a Provincially Significant Wetland or wetlands greater than 2 hectares, or lands within 30 m of non-provincially significant wetlands. Development or site alteration within these regulated areas may be permitted provided development is conducted in accordance with existing policies.

The Study Area is located within the jurisdiction of the Credit Valley Conservation Authority (CVC). Regulation 160/06 made under the Conservation Authorities Act specifies the Development, Interference with Wetlands and Alterations to Shorelines and Watercourses Regulations managed by the CVC. Development or site alteration within these regulated areas may be permitted by the CVC if, in its opinion, the control of flooding, erosion, dynamic beaches, pollution, or the conservation of land will not be affected by the development.



# 3 DESKTOP REVIEW

Information related to existing natural heritage features within the Study Area was collected from a variety of sources, including the OMNRF Natural Heritage Information Centre (NHIC) database, Ontario Breeding Bird Atlas, the Peel Region Official Plan (2018), the City of Brampton Official Plan (2015), the Mount Pleasant Secondary Plan (2010), and relevant background studies. Together with field observations, this information will be used to describe the existing environmental conditions within the Study Area and identify potential constraints to development. References for documents used throughout the report are provided in the Literature Cited section.

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## 3.1 BACKGROUND STUDIES

The Study Area has been covered by a variety of studies over the past 10 years, including, but not limited to:

- Mississauga Road Improvements from North of Bovaird Drive West to Mayfield Road Municipal Class Environmental Assessment (AECOM, 2013);
- Bovaird Drive (Regional Road 107) Transportation Corridor from Lake Louise Drive / Worthington Avenue to 1.45 km west of Heritage Road in the City of Brampton Class Environmental Assessment (AMEC, 2013);
- Mattamy Community Draft Plan (Savanta, 2011);
- Phase 1: Subwatershed Characterization and Integration of the Northwest Brampton Subwatershed Study (AMEC, 2010); and,
- Heritage Heights Subwatershed Study (AMEC, 2012).

A summary of each project and the geographic area covered by each of these studies is provided in the following sections, along with a description of the natural environment information available therein.

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### 3.1.1 MISSISSAUGA ROAD CLASS ENVIRONMENTAL ASSESSMENT

The Mississauga Road Class Environmental Assessment was conducted to assess the short term and long-term road improvement requirements for Mississauga Road between Bovaird Drive and Mayfield Road in the City of Brampton. As part of the EA, the terrestrial and aquatic existing conditions were assessed. This included mapping of vegetation communities within 30 m of the right-of-way (AECOM, 2009) and an assessment of watercourse and drainage crossings, as well as a meander belt study of the Huttonville Creek within the vicinity of Mississauga Road (AECOM, 2010). Recommendations for bridge design were included within the meander belt study report and Environmental Study Report (AECOM, 2013).

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### 3.1.2 BOVAIRD DRIVE CLASS ENVIRONMENTAL ASSESSMENT

The Bovaird Drive Class Environmental Assessment was completed to address planned transportation corridor improvements between Lake Louise Drive / Worthington Road and 1.45 km west of Heritage Road in the City of Brampton. An Environmental Impact Study was completed by Dougan and Associates (2012) to evaluate the potential for impacts to the terrestrial environment and included surveys for resident wildlife (birds and amphibians) and documentation of vegetation communities using Ecological Land Classification (ELC) (Lee et al., 1998). An assessment of impacts was provided along with recommendations for mitigation and compensation of impacts. Surveys of aquatic habitat, including the highly sensitive Huttonville Creek were completed by C. Portt and Associates (2012).

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### **3.1.3 MATTAMY COMMUNITY DRAFT PLAN**

Savanta Inc. was retained by Mattamy (Credit River) Ltd. to complete a scoped Environmental Impact Study in support of a draft plan approval for a commercial subdivision on lands owned by Mattamy (Savanta Inc., 2011). The EIS focused on lands bounded by the rail line to the north, Mississauga Road to the southwest, and Bovaird Drive to the southeast. Due to the well-studied nature of the subject area, Savanta did not complete additional field surveys; rather, they synthesized information from available studies to assess the potential for indirect and direct impacts to natural heritage features within the Study Area. Specifically, they relied on information presented within the Final Huttonville Fletchers Subwatershed Study (HFSWS) (AMEC, 2011), Final Sub-Area 51-1 Environmental Implementation Report (EIR) (Stonybrook Consulting Inc. et al., 2011), and the Final Comprehensive Fisheries Compensation Plan (CFCP) (Mount Pleasant Landowners Group, 2011).

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### **3.1.4 NORTH WEST BRAMPTON SUBWATERSHED STUDY**

The report prepared by AMEC for Phase 1 of the North West Brampton Subwatershed Study focused on Subwatershed Characterization and Integration for Huttonville Creek and Fletcher's Creek. The Study Area included lands bounded in the north by Mayfield Road, in the east by McLaughlin Road and Creditview Road, in the south by Wanless Drive and Bovaird Drive West, and to the west by Winston Churchill Boulevard. Phase 1 of the study integrated background and preliminary field data from hydrology/hydraulics, hydrogeology, water quality, stream morphology, aquatic and terrestrial ecology to determine the form, function and linkages of environmental features within the Study Area. Subsequent phases of the study built on the findings of Phase 1 to assess current and future impacts, develop management strategies, implementation plans, and requirements for long-term monitoring.

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### **3.1.5 HERITAGE HEIGHTS SUBWATERSHED STUDY**

The Heritage Heights lands encompass the West Huttonville Creek sub-catchment and other small sub-catchments that drain directly into the Credit River. The Subwatershed Study is a four-phase study that addresses subwatershed characterization and integration, subwatershed impact analysis, management strategies and implementation, and a long-term monitoring plan. Phase 1 of the study provides an overview of terrestrial natural heritage features (including ELC) and hydrologic / hydraulic features, water quality, stream morphology, etc. (AMEC, 2012).

# 4 STUDY AREA

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## 4.1 STUDY AREA DESCRIPTION

The Study Area is located within the Northwest Brampton Urban Development Area within the Urban System as outlined in Schedule D – Regional Structure in the Peel Region Official Plan (2018). It is not located in the Oak Ridges Moraine Conservation Plan Area, Greenbelt Plan Area, or the Niagara Escarpment Plan Area. A woodland within the western portion of the Study Area (**Figure 2**) is identified as a Core Area within the Greenlands System in Peel Region (Schedule A; 2013).

At the municipal level, the Study Area is located within a designated Residential Area (east of Mississauga Road), and a Corridor Protection Area (west of Mississauga Road). The woodland within the western portion of the Study Area and land surrounding the Huttonville Creek and associated tributaries are designated Open Space on Schedule A - General Land Use Designations (2015). Valleylands, watercourses, woodlands, and other Natural Heritage Features are mapped on Schedules D and E of the City of Brampton Official Plan (2015).

The Study Area overlaps three secondary plan areas, including Fletcher's Creek, Mount Pleasant and Huttonville North. Naturalized areas (riparian corridors, valleylands, and woodlands) east of Mississauga Road have been identified as part of the Natural Heritage System within the Mount Pleasant Secondary Plan (2010). Studies in support of the Huttonville North Secondary Plan and schedules are currently underway and were not publicly available at the time of report preparation. Preliminary concept plans for this area identify the West Huttonville Creek valley corridor as a potential linkage area within the Greenlands System. Portions of the Study Area within the Fletcher's Creek Secondary Plan Area are restricted to highly developed, anthropogenic areas and are not part of the Natural Heritage System.

# 5 SITE INVESTIGATION

To supplement background information and to verify existing conditions within the Study Area, site visits were conducted on three days between May and November 2014 to confirm the presence of natural heritage features and to determine general characteristics of the Study Area. Prior to the site visits, a review of background information, satellite images and topographic maps was conducted to identify potential natural heritage features and species of conservation concern.

Breeding bird surveys were conducted on June 24 and July 4, 2014. A fish habitat assessment was completed within the right-of-way on November 12, 2014 to verify conditions within the proposed crossing locations at Mississauga Road. A single vegetation survey was completed from the road-side on November 12, 2014 to verify existing vegetation mapping for lands adjacent to Mississauga Road and Bovaird Drive. Observations from this survey were used in conjunction with satellite imagery and results from background studies to identify dominant vegetation communities within the Study Area using the Ecological Land Classification (ELC) System for Southern Ontario (Lee et al., 1998; and Lee, 2008) An additional site visit was conducted on June 29, 2017 to review terrestrial and aquatic habitats that may be impacted by proposed design alternatives in regulated Redside Dace habitat. This survey focused on lands east of Mississauga Road. Refer to **Figures 2 and 3** for aquatic habitat observations and vegetation communities within the Study Area, respectively. Site visit details are provided in **Table 5-1**.

**Table 5-1 Details of Site Visits**

<b>Date</b>	<b>Time / Duration</b>	<b>Weather Conditions</b>
June 24, 2014	7:30 AM to 11:30 AM	Overcast skies, ± 22 °C, light breeze, no trace of precipitation
July 4, 2014	7:02 AM to 10:15 AM	Partly cloudy, ± 18 °C to 25 °C, light breeze, no trace of precipitation
November 12, 2014	8:30 AM to 11:30 AM	Overcast skies, ± 2 °C, fresh breeze, no trace of precipitation
November 12, 2014	12:00 PM to 1:30 PM	Overcast skies, ± 2 °C, fresh breeze, light rain
June 29, 2017	8:00 AM to 3:00 PM	Overcast skies, ± 20 °C, light breeze, trace of precipitation

During the site visits, photographs of the Study Area were taken, and observations of wildlife, vegetation or natural features were recorded. A list of species observed during the site visits can be found in **Appendix A**.

# 6 EXISTING CONDITIONS

The following sections outline the Natural Heritage Features identified within the Study Area as described within the information sources reviewed during report preparation and verified during the site investigation.

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## 6.1 FISH HABITAT

Fish habitat as defined by the Fisheries Act, c. F-14 (Government of Canada, 1985) includes the spawning grounds and nursery, rearing, food supply and migration areas on which fish depend directly or indirectly in order to carry out their life processes. The Act also includes a broader definition of fish as shellfish, crustaceans, and marine mammals at all stages of their life cycles.

The Study Area is located in the Huttonville Creek subwatershed of the Credit River. The Main Branch of the Huttonville Creek to the confluence of the West and East Branches north of Bovaird Drive has been described as a “warmwater community dominated by Cyprinids” (Stonybrook Consulting Inc. et al., 2011). The East Huttonville Creek has been classified as “small warmwater” fish habitat dominated by Blacknose Dace (*Rhinichthys atratulus*) and Creek Chub (*Semotilus atromaculatus*) (OMNR and CVC, 2002); however, due to more recent data collected as part of the Huttonville and Fletcher’s Creek Subwatershed Study (AMEC, 2011), the CVC and MNRF have advised that the Huttonville and Fletcher’s Creeks, as well as contributing habitats, should be considered as coolwater/warmwater (Stonybrook Consulting Inc. et al., 2011).

The West, East and Main Branches of the Huttonville Creek traversing the Study Area are regulated as ‘occupied habitat’ for Redside Dace (refer to **Appendix B**). As such, these watercourses, their meander belts, and 30 m on either side of the meander belts are protected under the Endangered Species Act (Ontario, 2007). Independent meander belt studies were completed for portions of the Huttonville Creek on either side of Mississauga Road as part of the Mississauga Road EA (West Huttonville Creek - AECOM, 2010) and the Huttonville Fletcher’s Creek Subwatershed Study (East and Main Huttonville Creek - Mount Pleasant Landowners Group, 2011; Savanta Inc., 2011). Water’s Edge completed a Fluvial Geomorphological and Meander Beltwidth Assessment for the subject study (Water’s Edge, 2019). The resulting preliminary and final meander belts, plus the 30 m protection zone to the preliminary meander belt are depicted on **Figure 2** of this report.

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## 6.2 HABITAT OF ENDANGERED OR THREATENED SPECIES

The PPS (OMMAH, 2014) defines the habitat of Endangered or Threatened species as the habitat, as approved by the Ministry of Natural Resources and Forestry (MNRF), that is necessary for the maintenance, survival and/or the recovery of a naturally occurring or reintroduced population of Endangered or Threatened species, and where those areas of occurrences are occupied or habitually occupied by the species during all or any part(s) of their life cycle. As of April 1, 2019, the administration of the ESA has been transferred to the Ministry of the Environment Conservation and Parks (MECP). The OMNRF was previously mandated to ensure accurate database information for the identification, listing and conduct of ongoing assessments for significant Endangered or Threatened species and their related habitats; it is assumed these responsibilities now fall with the MECP.

As part of a desktop review, a search of the OMNRF Natural Heritage Areas Mapping, including data maintained by the Natural Heritage Information Centre (NHIC) (OMNRF, 2014 and 2020) was conducted to determine the existence and approximate location of recorded occurrences of Species at Risk in the Study Area. Seven one square kilometer (1 km<sup>2</sup>) quadrats (17NJ92\_35, 17NJ93\_34-36, 17NJ94\_35-36, and 17NJ95\_36) surrounding the Study Area were checked to ensure potential SAR were accounted for during field surveys. The search revealed eight species of conservation concern. Of these eight records, two are listed as Threatened (Bobolink (*Dolichonyx oryzivorus*) and Eastern Meadowlark (*Sturnella magna*)) and one is listed as Endangered (Redside Dace (*Clinostomus elongatus*)) on the Species at Risk in Ontario (SARO) and Committee on the Status of Endangered Wildlife in Canada (COSEWIC) lists. The remaining species do not appear on the SARO or COSEWIC lists but have been identified as species of conservation concern in Ontario with subnational ranks (SRank) of S2 (Imperiled)

and S3 (Vulnerable), respectively, based on records maintained by the NHIC. These species of conservation concern are addressed in greater detail in Section 6.7.4 of this report.

In addition to a search of the NHIC database, the Ontario Breeding Bird Atlas (OBBA) (Bird Studies Canada et al., 2006), Ontario Reptile and Amphibian Atlas (Ontario Nature, 2011), satellite imagery, and available background studies were consulted to determine if there were Endangered or Threatened species known to be present within the vicinity of the Study Area. Based on this review there is also potential for Butternut (*Juglans cinerea*), Bank Swallow (*Riparia riparia*), Barn Swallow (*Hirundo rustica*), Chimney Swift (*Chaetura pelagica*), and Whip-poor-will (*Caprimulgus vociferus*) within the general area. The significant woodland within the western portion of the Study Area, and treed areas along the stream corridors, have potential to provide roosting habitat for endangered bat species including, Eastern Small-footed Myotis (*Myotis leibii*), Northern Myotis (*Myotis septentrionalis*), Little Brown Myotis (*Myotis lucifugus*), and Tri-colored Bat (*Permyotis subfavus*).

The Distribution of Fish Species at Risk maps for the CVC provide information regarding aquatic SAR and the level of protection afforded to, or proposed, for watercourses within the watershed under the Species at Risk Act. A review of these maps indicated that the West Huttonville Creek, its tributary and the Huttonville Creek may support Redside Dace and is under consideration for listing of protected habitat of Endangered and Threatened Species at Risk (Fisheries and Oceans Canada, 2014). Other studies indicate that the West, East and Main Branches of the Huttonville Creek traversing the Study Area are regulated Redside Dace habitat. As such, these watercourses, their meander belts, and 30 m on either side of the meander belts are protected under the Endangered Species Act (Ontario, 2007).

An assessment of the habitat potential for the above-mentioned Endangered or Threatened species within 120 m of the Study Area is provided in **Table 6-1**. Special consideration was given to these species and their habitat during site investigations.

**Table 6-1 Endangered and Threatened Species Habitat Potential Assessment**

Species Name	SARO <sup>1</sup>	COSEWIC <sup>1</sup>	Habitat Description <sup>2</sup>	Habitat Potential	Field Observations
Bank Swallow	THR	THR	The Bank Swallow traditionally nested in exposed banks along waterways. It continues to nest in these areas but also makes use of sand and gravel pits and stockpiles of soils and other materials.	Low	Species not observed. The shallow banks of the Huttonville Creek and tributaries within the Study Area did not provide ideal habitat for this species.
Barn Swallow	THR	THR	Barn Swallows often live in close association with humans, building their cup-shaped mud nests almost exclusively on human-made structures such as open barns, under bridges and in culverts. This species forages over a wide area.	High	Barn Swallows were observed on several occasions during the 2014 and 2017 site investigations. This species was also noted in background studies within the general area (Dougan & Associates, 2012; AMEC, 2012). Cup nests were found within the concrete box culvert on Mississauga Road.

Bobolink	THR	THR	This species builds its nests on the ground in dense grasses, such as those found in hay fields, tallgrass prairies and open meadows.	Low to Moderate	Species was not observed during 2014 surveys. Agricultural fields within the Study Area did not provide suitable habitat. This species was observed in hayfields in the general area during 2011 and 2012 (AMEC, 2012). Bobolinks prefer fields containing a high percentage of graminoids.
Butternut	END	END	The species is found in deciduous forests in areas with rich, moist, well-drained soils and is often found along streams. Due to its low tolerance for shade, this species is typically found in sunny openings or along forest edges.	Low - Moderate	Species not observed. Suitable habitat for this species occurs within remnant woodland patches and within valley and stream corridors within the general area.
Chimney Swift	THR	THR	This species feeds in flocks around water bodies due to the presence of a large number of insects. Nesting occurs in large, hollow trees or in the chimneys of houses in urban and rural areas.	Low	Species was not observed during 2014 surveys. A pair was observed in 2012 (AMEC) within the Heritage Heights survey area. Suitable nesting structures were not identified within the Study Area.
Eastern Meadowlark	THR	THR	This species prefers native grasslands, pastures and savannahs though will use a variety of other grassland habitats such as hayfields, weedy meadows, etc.	Low - Moderate	Species was not observed. Agricultural fields and meadows within the Study Area did not provide suitable habitat. This species prefers fields containing a high percentage of graminoids.
Redside Dace	END	END	In Ontario, this species is found predominately in streams flowing into western Lake Ontario. They prefer pools and slow-moving parts of streams and headwaters, especially with a gravel bottom.	Moderate to High	The West, East and Main Branches of the Huttonville Creek within the Study Area are regulated as 'occupied habitat' for this species.
Whip-poor-will	THR	THR	The species breeds in patchy forests with clearings, and generally avoids exposed, open areas, or closed-canopy forests.	Low	Species was not observed. Suitable habitat was not present within the Study Area.



Eastern Small-footed Myotis	END	-	This species roosts in a variety of habitats including rock outcrops, in buildings, under bridges, in caves, and in hollow trees. During the winter they hibernate, most often in caves and abandoned mines.	Moderate	This species was not observed. Suitable man-made structures were not identified in the Study Area. Potential maternity roost habitat is limited to the significant woodland in the western portion of the Study Area, though occasional roost trees may also be present along the stream corridors where mature trees are present. Detailed surveys were not completed.
Little Brown Myotis	END	END	During the summer, this species roosts in trees, abandoned buildings, attics, and barns close to water. This species overwinters in large groups in warm, moist caves or abandoned mines.	Moderate	This species was not observed. Suitable man-made structures were not identified in the Study Area. Potential maternity roost habitat is limited to the significant woodland in the western portion of the Study Area, though occasional roost trees may also be present along the stream corridors where mature trees are present. Detailed surveys were not completed.
Northern Myotis	END	END	This mainly solitary species is most commonly associated with the boreal forest where they roost in tree cavities or under loose bark. Over-wintering occurs in caves or abandoned mines that remain above freezing.	Moderate	This species was not observed. Suitable man-made structures were not identified in the Study Area. Potential maternity roost habitat is limited to the significant woodland in the western portion of the Study Area, though occasional roost trees may also be present along the stream corridors where mature trees are present. Detailed surveys were not completed.
Tri-colored Bat	END	END	Tri-colored Bats are found in a variety of mature forested habitats. Maternal colonies are usually in large trees and occasionally in man-made structures such as barns.	Moderate	This species was not observed. Suitable man-made structures were not identified in the Study Area. Potential maternity roost habitat is limited to the significant woodland in the western portion of the Study Area, though occasional roost trees may also be present along the stream corridors where mature trees are present. Detailed surveys were not completed.

<sup>1</sup> Source: Species at Risk Public Registry (SARA, 2012) COSEWIC Status and <sup>3</sup> Source: Species at Risk in Ontario List (SARO; Ontario, 2018). EXP – Extirpated, END – Endangered, THR – Threatened, SC – Special concern, ‘-’ - Not listed.

<sup>2</sup>Source: COSEWIC reports and/or Species at Risk in Ontario (SARO) List. SARO and COSEWIC designations: END = Endangered; THR = Threatened; SC = Special Concern.



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## 6.2.1 REDSIDE DACE CRITICAL INFORMATION

### SPAWNING

Spawning typically takes place in the spring on gravel bars in headwater streams when water temperatures rise to between 16 °C and 18 °C (typically early May to early June). Redside Dace often use nests of Creek Chub and/or Common Shiner (*Luxilus cornutus*) and will synchronize their spawn with these species, if present. Sharing nests with these species will increase egg survivorship, as Redside Dace do not exhibit nest guarding behaviour. The eggs of Redside Dace are non-adhesive (Scott and Crossman, 1973), possibly making them more susceptible to being washed away from nests by high water velocities (e.g., spring floods).

### HABITAT

Redside Dace inhabit different sections of the stream depending on age and season. During spawning they are typically found in faster flowing “riffles” or gravel bars (deposits of gravel in the stream), whereas post spawning and immature individuals spend most of their time in headwater streams, brooks, or pools.

In Ontario the Redside Dace is typically found in slow moving sections of connected streams. They prefer streams less than 10 m in width (i.e., 2nd, 3rd and 4th order size streams) with abundant cover and a mixture of pool and riffle habitat (Holm and Crossman, 1986; Parker et al., 1988). The stream sections they most prefer are those following through open meadow or scrub habitat with abundant overhanging bank vegetation (McKee and Parker, 1982).

Redside Dace require abundant in-stream cover, usually overhanging bank vegetation that provides protection from predators and habitat for their prey. When feeding, Redside Dace are known to jump out of the water to catch flying insects such as gnats and midges that hover above the surface or rest on overhanging vegetation (Holm et. al., 2009). During summer months and drought conditions Redside Dace will often use groundwater fed pools as temperature refuges, and during winter months they have been observed traveling downstream to overwinter in larger waterbodies. Redside Dace require streams that are clear or colourless as they are visual predators and are sensitive to turbidity. However, they can be found in some streams of moderate turbidity if all other habitat and water quality requirements are met (Holm and Crossman, 1986). Redside Dace are a coolwater species (COSEWIC, 2007) occupying habitats with temperatures between 14 °C and 23 °C with a minimum oxygen concentration of 7mg/L, and a preferred mean temperature of 20 °C; the upper lethal limit for the Redside Dace is 32.6°C (McKee and Parker, 1982).

Redside Dace habitat as defined by Section 29.1 of the Endangered Species Act is any stream or watercourse within the cities of Hamilton and Toronto, the counties of Bruce, Grey, Huron, Simcoe and Wellington, the regional municipalities of Durham, Halton, Peel and York, the Townships of St. Joseph, Jocelyn and Hilton, and the Village of Hilton Beach that is being currently used by Redside Dace or has been used by Redside Dace in the last 20 years and still possess suitable conditions for Redside Dace at any point in their life cycle, encompassing both the meander belt and any vegetated land within 30m (Ontario, 2007). Any stream, permanent or intermittent feature that augments or maintains the baseflow, coarse sediment supply or surface water quality of any Redside Dace occupied (or formerly occupied) stream is also considered Redside Dace habitat.

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## 6.2.2 SAR BAT SPECIES

The significant woodland (FOD5-2, FOD9) may provide suitable habitat for SAR bat species. The relative abundance of preferred tree species (i.e., Maples and Oaks) and the general condition of trees within the woodland suggest this woodland has the potential to provide significant bat roosting habitat. Targeted surveys for bat maternity roost habitat and SAR bats were not completed as part of this work program. Existing setbacks for the woodland will provide protection for potential bat roosting habitat; however, should small numbers of trees need to be removed elsewhere in the Study Area, removals should occur during the bats’ inactive period (October 1 to March 31<sup>st</sup>).

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## 6.3 SIGNIFICANT AREAS OF NATURAL AND SCIENTIFIC INTEREST

Significant Areas of Natural and Scientific Interest (ANSI) are defined as areas of land and water containing natural landscapes or features that have been identified as having life science or earth science values related to protection, scientific study or education.

The Natural Heritage Information Centre (NHIC) database (OMNRF, 2014) and Schedules D and E of the City of Brampton Official Plan (2015) were searched for the presence of ANSIs on or within 120 m of the Study Area. ANSIs were not listed on or within 120 m of the Study Area.

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## 6.4 BIOPHYSICAL INVENTORIES/OBSERVATIONS

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### 6.4.1 BIRD POPULATIONS

#### 6.4.1.1 SURVEY METHODOLOGY

Breeding bird survey protocols were designed and completed based on recommendations outlined within the Forest Bird Monitoring Protocol (FBMP) and Ontario Breeding Bird Atlas (OBBA). The FBMP recommends completing standardized point counts to survey an area for breeding birds. These point counts are required to be at least 250 m apart and at least 100 m from the edge of a habitat type. Six (6) point counts were completed on the Site, separated from each other by a distance of no less than 250 m (**Figure 2**). An active survey was also carried out during each breeding bird survey. This involved looking and listening for birds while moving between the different habitat types within the Study Area.

Breeding bird surveys were conducted on June 24 and July 4, 2014. In accordance with the FBMP at least six (6) days separated the site visits and the surveys were completed within 5 hours of sunrise. The two (2) breeding bird surveys were completed between May 24 and July 10, 2014, the window recommended by the OBBA. Site visit details were provided in **Table 5-1**.

#### 6.4.1.2 SURVEY RESULTS

A cumulative total of 30 species were observed on or within 120 m of the Site over the two survey periods during the 2014 field investigation. Two (2) provincially listed species at risk, Barn Swallow (*Hirundo rustica*) and Eastern Wood-pewee (*Contopus virens*), were observed within the Study Area. Barn Swallow is listed as Threatened on the SARO List, while Eastern Wood-pewee is listed as Special Concern. Barn Swallows were observed on both survey dates and were often seen in groups of three (3) to five (5) birds, flying over the Study Area. Breeding was not confirmed, and suitable nesting structures were not identified within the Study Area. Eastern Wood-pewee was observed during both surveys at point count #2 within the woodland at the western boundary of the Study Area. Additional details about this species are provided in Section 6.7.4.

During the June 2017 field investigation approximately seventeen (17) cup nests were observed within the concrete box culvert located under Mississauga Road. Barn Swallows were seen flying in and out of the culvert during the site investigation which would indicate that at least some of these nests were active.

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### 6.4.2 VEGETATION COMMUNITIES

#### 6.4.2.1 ECOLOGICAL LAND CLASSIFICATION AND OTHER LAND USE

Descriptions of vegetation and land use within the Study Area are based on ELC mapping from background studies and observations obtained during the November 12, 2014 and June 29, 2017 site visits. At the time of the site

investigations, limited access was given to the west side of Mississauga Road; therefore, descriptions of the vegetation communities are based on the AMEC report (2012) and roadside observations. During the 2017 site visit field observations focused on the lands east of Mississauga Road surrounding the East Huttonville Creek. The majority of the lands within the Study Area consisted of active agricultural lands, those undergoing active development, or those under current anthropogenic use. Cultural Meadow (CUM)/Mixed Meadow (MEM), Graminoid Meadow (MEFM), Meadow Marsh (MAM), Forb Meadow Marsh (MEFM), Cultural Thicket (CUT), Cultural Woodland (CUW), Deciduous Forest (FOD) and Deciduous Swamp (SWD) have been documented on or within 120 m of the Study Area. Natural areas were restricted to the riparian corridors of the West and Main Branches of the Huttonville Creek, and within the vicinity of the confluence of the West and East Branches on the east side of Mississauga Road. ELC vegetation communities and other land use are depicted on **Figure 3** of this report.

On the west side of Mississauga Road, the riparian corridor was identified as a Fresh-Moist Willow Lowland Deciduous Forest (FOD7-3) (AMEC, 2012). Willows, Manitoba Maple (*Acer negundo*), Red-osier Dogwood (*Cornus sericea*), Common Buckthorn (*Rhamnus cathartica*), and Staghorn Sumac (*Rhus typhina*) were the most abundant species in this area. The woodland at the western limit of the Study Area was composed of several different vegetation communities, including Fresh-Moist Oak-Maple-Hickory Deciduous Forest (FOD9), Oak / Maple Mineral Deciduous Swamp (SWD1/SWD3), and Dry-Fresh Sugar Maple-Beech Deciduous Forest (FOD5-2) (AMEC, 2012).

The following text provides a more detailed description of vegetation communities surveyed during 2017 on the east side of Mississauga Road.

#### **CUW1: CULTURAL WOODLAND**

The Main Branch of Huttonville Creek immediately east of Mississauga Road is flanked by a cultural woodland unit (CUW). Mid-mature to mature Willow and Cottonwood were the most common tree species within the woodland canopy; while the patchy subcanopy was comprised of White Pine (*Pinus strobus*), Eastern White Cedar (*Thuja occidentalis*), Silver Maple (*Acer saccharinum*), and Green Ash (*Fraxinus pennsylvanica*). Red-osier Dogwood (*Cornus sericea*), Amur Maple (*Acer ginnala*), Honeysuckle (*Lonicera* sp.), and Serviceberry (*Amelanchier* sp.), were common shrubs along the banks, with occasional observations of Common Elderberry (*Sambucus canadensis*), Eastern Ninebark (*Physocarpus opulifolius*), and Highbush Cranberry (*Viburnum opulus* ssp. *trilobum*). Ground cover on the banks was dense and was comprised largely of Grass-leaved Goldenrod (*Euthamia graminifolia*) and Reed Canary Grass (*Phalaris arundinacea*), with occasional Spotted Jewelweed (*Impatiens capensis*), and Tall Nettle (*Urtica dioica*).

#### **MAM2-10: MIXED FORB MINERAL MEADOW MARSH**

This vegetation type was found between the cultural woodland by the bridge on the east side of Mississauga Road. This community was dominated by Willows and Common Buckthorn (*Rhamnus cathartica*) with occasional occurrences of Manitoba Maple (*Acer negundo*) and English Hawthorn (*Crataegus monogyna*). Highbush Cranberry, Red Raspberry (*Rubus idaeus*), and Bittersweet Nightshade (*Solanum dulcamara*) were common shrub species. Tall Nettle, Wild cucumber (*Echinocystis lobata*), Canada Anemone (*Anemonastrum canadense*) and Purple-stemmed Aster (*Symphotrichum puniceum*), were common ground cover species, with occasional observations of Elecampane (*Inula helenium*), Garlic Mustard (*Alliaria petiolate*), Smooth Brome (*Bromus inermis*), Timothy (*Phleum pratense*), Reed-canary Grass, and Soft Rush (*Juncus effuses*).

#### **MAM2-2: REED-CANARY GRASS MINERAL MEADOW MARSH**

This unit was found surrounding East Huttonville Creek. The dominant species found were Reed-canary Grass and Smooth Brome with occasional occurrences of Quackgrass (*Elymus repens*), Canada Thistle (*Cirsium arvensis*), Common Burdock (*Arctium minus*), and Cow Vetch (*Vicia cracca*).

#### **MEFM1-1: GOLDENROD FORB MEADOW**

This vegetation type was found surrounding the mixed forb mineral meadow marsh community. This community was dominated by Canada Goldenrod (*Solidago canadensis*) and had an abundance of Philadelphia Fleabane (*Erigeron philadelphicus*), Wild Carrot, Purple-stemmed Aster, and Cow Vetch. Occasional occurrences of

Common Milkweed (*Asclepias syriaca*), St. John's-wort (*Hypericum canadense*), Timothy, Common Burdock and Fringed Brome (*Bromus ciliates*) were also noted.

### **MEGM3: DRY-FRESH GRAMINOID MEADOW**

This community was east of the riparian channel of Huttonville Creek and consisted of an abundance of Smooth Brome, Reed-canary Grass, Orchard Grass (*Dactylis glomerate*), Quackgrass (*Elymus repens*), Cow Vetch, Canada Thistle, and Canada Goldenrod, with pockets of Common Milkweed, Goldenrod, Canada Thistle and Virginia Creeper (*Parthenocissus quinquefolia*).

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## **6.4.3 AQUATIC HABITAT MAPPING**

Aquatic habitat mapping was completed during a site visit on June 29, 2017 in order to investigate a number of alternative alignments for Lagerfeld Road, several of which require crossings of Huttonville Creek, West Huttonville Creek and East Huttonville Creek. West Huttonville Creek is a permanent and defined watercourse that originates as agricultural surficial drainage southwest of Mayfield Road and Mississauga Road. It flows southeast primarily through agricultural land and woodland patches for approximately 4.5 km before reaching the Study Area. East Huttonville Creek is a permanent watercourse originating as agricultural surficial drainage southeast of Mayfield Road and Mississauga Road. It flows southeast primarily through residential lands for 4.7 km before reaching the Study Area. The two creeks join to form a confluence within the Study Area, which marks the origin of the Main Branch of Huttonville Creek and flows for 260 m before crossing Bovaird Drive West. An unnamed tributary originates on the west side of Mississauga Road, and according to existing mapping, flows into the Main Branch of Huttonville Creek approximately 176 m north of Bovaird Drive. This tributary was not investigated along with the other watercourses noted above as permission to enter was not granted. The water temperature was 18°C and the air temperature was 17°C on the day of the site investigation. Conditions were cloudy with significant rain in the past 24 hours.

### **6.4.3.1 WEST HUTTONVILLE CREEK**

At the time of the survey, West Huttonville Creek had an aquatic habitat that consisted of flats (65%), pools, (30%) and riffles (5%). Flat sections had a substrate that consisted of cobble (50%), gravel (25%), sand (20%) and boulder (5%). Pool sections had a substrate that consisted of gravel (50%), sand (30%) and silt (20%). Riffle sections had a substrate that consisted of cobble (50%), gravel (30%) and boulder (20%). Scour pools were noted to be deep and pools had more silt in the upstream reach versus the downstream reach. A transect was completed at the proposed crossing in pool habitat, with a wetted width of 3.6 m, a wetted depth of 0.5 m, a bankfull width of 4.1 m and a bankfull depth of 0.8 m. The left upstream bank was 1.2 m in height and the right upstream bank was 1.1 m in height. The banks were natural, the slopes were vertical and there was some erosion with undercut banks. Instream cover consisted of rocks / boulders (50%), overhanging vegetation (25%), instream vegetation (10%), woody / organic debris (10%) and undercut banks (5%). Canopy cover was 80% of the surface area. Downstream of the proposed crossing there was a debris jam. Flow was low, the gradient was low, and the water clarity was turbid.

### **6.4.3.2 EAST HUTTONVILLE CREEK**

East Huttonville Creek had an aquatic habitat that consisted of runs (60%) and flats (40%). Run sections had a substrate that consisted of gravel (40%), silt (16%), cobble (16%), clay (14%) and sand (14%). Flat sections had a substrate that was identical to the run sections. A transect was completed at the proposed crossing in run habitat, with a wetted width of 0.8 m, a wetted depth of 0.3 m, a bankfull width of 0.9 m and a bankfull depth of 0.4 m. The left and right upstream banks were 1.1 m in height. The banks were natural, vertical, and had some erosion with undercut banks. Instream cover consisted of undercut banks (40%), overhanging vegetation (40%), and rocks / boulders (20%). Canopy cover was 100% of surface area. Flow was moderate, with a moderate gradient, and the water clarity was turbid.

### **6.4.3.3 MAIN BRANCH OF HUTTONVILLE CREEK**

In the area surveyed, Huttonville Creek had an aquatic habitat that consisted of flats (40%), pools (35%), runs (20%) and riffles (5%). Flat sections had a substrate that consisted of clay (85%), cobble (10%), and boulder (5%). Pool sections had a substrate that consisted of cobble (50%), gravel (30%), boulder (10%), and sand (10%). Run sections

were identical to the flat sections. Riffle sections had a substrate that consisted of boulder (50%), cobble (30%), and gravel (20%). A transect was completed at the proposed crossing in riffle habitat, with a wetted width of 3.1 m, a wetted depth of 0.1 m, a bankfull width of 5.4 m and a bankfull depth of 0.6 m. The left and right upstream banks were 1.4 m high. The banks were natural, vertical, and had some erosion with undercut banks. Instream cover consisted of overhanging vegetation (70%), rocks / boulders (20%), undercut banks (5%), and woody debris (5%). Canopy cover was 75% of the surface area. Flow was moderate, with a moderate gradient, and the water clarity was clear. Watercress was present within this reach, indicative of groundwater seepage in the area (**Figure 2**).

#### 6.4.3.4 UNNAMED TRIBUTARY

The unnamed tributary, identified as a ‘drain’ on **Figure 3**, was not reviewed in the field as WSP did not have permission to enter the lands west of Mississauga Road. This feature was mapped in the Draft Heritage Heights Sub-watershed Study as a drain (Figure T1 ELC; Savanata, 2012) and described in the Northwest Brampton Subwatershed Study (AMEC, 2011) as a channel with low functionality (i.e., no defined channel and vegetated or cultivated through the watercourse) and was further characterized as ‘complex contributing habitat’ using the Draft Headwater Drainage Classification System published by CVC and TRCA (2007). The watercourse appears to originate west of Mississauga Road and flows through the significant woodland / PSW at the western limit of the Study Area before draining into the Main Branch of the Huttonville Creek. The key function of this feature is expected to be flow conveyance along with the transport of nutrient allotment to downstream habitats. The Agricultural Information Atlas (AgMaps; Government of Ontario, 2020) was reviewed on January 10, 2021 to determine whether the feature has been classified as a municipal or private drain. Since it was not mapped as a municipal drain, it is therefore assumed to be private.

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## 6.5 SIGNIFICANT WETLANDS

Wetlands are defined in the PPS (2014) as lands that are seasonally or permanently covered by shallow water, as well as lands where the water table is close to or at the surface. There are four major wetland types; which are classified as swamps, marshes, bogs, and fens. A significant wetland is defined as an area identified as provincially significant by the Ministry of Natural Resources and Forestry using evaluation procedures established by the province, as amended from time to time (OMMAH, 2014). Accordingly, it is the responsibility of the MNRF to both identify and classify wetlands as significant in Ontario.

Satellite photographs and available mapping resources for the Study Area and surrounding area were reviewed for the presence of wetlands. A review of the Natural Areas Mapping (OMNRF, 2020) confirmed that portions of the Huttonville Creek and Area Provincially Significant Wetland (PSW) Complex occur within the Study Area. Two small wetland units surround West Huttonville Creek and another unit is associated with the SWD1/SWD3 community within the woodland at the western limit of the Study Area (**Figure 2**). Area estimates for these wetland polygons are shown on **Figure 2**.

Unmapped wetland units were documented during the 2017 vegetation survey and were described as Mixed Forb Mineral Meadow Marsh (MAM2-10) and Reed-canary Grass Mineral Meadow Marsh Type (MAM2-2) (**Figure 3**). Descriptions are provided in Section 6.4.2.

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## 6.6 SIGNIFICANT COASTAL WETLANDS

The Study Area is not located within 120 m of the Great Lakes and as a result an assessment of Significant Coastal Wetlands is not applicable.

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## 6.7 SIGNIFICANT WILDLIFE HABITAT

Wildlife habitat is defined as areas where plants, animals, and other organisms live and find adequate amounts of food, water, shelter, and space needed to sustain their populations. Specific wildlife habitats of concern may include



areas where species concentrate at a vulnerable point in their annual life cycle; and areas which are important to migratory or non-migratory species (OMMAH, 2014).

Wildlife habitat is referred to as significant if it is ecologically important in terms of features, functions, representation or amount, and contributing to the quality and diversity of an identifiable geographic area or Natural Heritage System (OMMAH, 2014).

Guidelines and criteria for the identification of significant wildlife are detailed in the Significant Wildlife Habitat: Technical Guide (OMNR, 2000), and the Significant Wildlife Habitat Criterion Schedule for Ecoregion 6E (MNR, 2015). Significant Wildlife Habitat (SWH) is described under four main categories:

- Seasonal concentrations of animals,
- Rare vegetation communities or specialized habitats for wildlife,
- Animal movement corridors, and
- Habitats of species of conservation concern.

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### 6.7.1 SEASONAL CONCENTRATIONS OF ANIMALS

Areas of seasonal concentrations of animals are defined as “areas where animals occur in relatively high densities at specific periods in their life cycle and/or particular seasons.” At these times, species are vulnerable to ecological interferences or weather impacts. Areas of seasonal concentration are typically small in comparison to the larger habitat areas used by species at other times of the year. Examples include migrant stopover areas for birds, winter deer yards, bird breeding colonies, amphibian concentration areas, and hibernacula for snakes or bats. The identification of habitats associated with seasonal concentrations of species is typically based on known occurrences (OMNR, 2000).

Background studies and field observations were used to identify and evaluate the potential for wildlife concentration areas in the Study Area. Resources and protocols outlined in the Significant Wildlife Habitat Technical Guide (OMNR, 2000) and the Significant Wildlife Habitat Criterion Schedule for Ecoregion 6E (MNR, 2017) were considered when evaluating the potential for species concentration area occurrence.

The Study Area is generally comprised of poor-quality habitat and is surrounded by development and there was no evidence to suggest that animals congregated within the area; a conclusion that is consistent with previous studies in the area (Stoneybrook Consulting Inc., 2011; AMEC, 2012; Dougan & Associates, 2012). Although targeted surveys for bat maternity roost habitat and SAR bats were not completed as part of the EA work program, it is thought that the significant woodland (FOD5-2, FOD9) at the western limit of the Study Area has potential to provide bat maternity roosting habitat due to the relative abundance of preferred roost tree species within these communities (i.e., Maples and Oaks). As such, this woodland is considered candidate Significant Wildlife Habitat.

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### 6.7.2 RARE VEGETATION COMMUNITIES/SPECIALIZED HABITATS FOR WILDLIFE

Rare or specialized habitats include rare vegetation communities or concentrations of rare plant species. These specialized areas may also support rare animal species. Rare vegetation communities that are considered SWH located within Ecoregion 6E include Cliffs and Talus Slopes, Sand Barrens, Alvars, Old Growth Forests, Savannahs, and Tallgrass Prairies. Additionally, other rare vegetation communities can be identified as SWH within Ecoregion 6E if they contain a vegetation type that is Provincially Rare, as listed in Appendix M of the SWH Technical Guide (OMNR, 2000).

The rare vegetation communities listed above were not identified within 120 m of the Study Area. Additionally, none of the ELC vegetation types identified within 120 m of the Study Area are considered Provincially Rare.

Specialized Habitats for Wildlife within Ecoregion 6E include Waterfowl Nesting Areas, Bald Eagle and Osprey Nesting, Foraging, and Perching Habitat, Woodland Raptor Nesting Habitat, Turtle Nesting Areas, Seeps and

Springs, and Amphibian Breeding Habitat (Woodlands and Wetlands). A Red-tailed Hawk stick nest was observed in the woodland within the western portion of the Study Area (AMEC, 2012). The nest was identified as candidate Significant Wildlife Habitat. A Red-tailed Hawk was observed within the vicinity of point count #2 during the 2014 breeding bird surveys. In addition, the woodland may also serve as an important mast-producing area due to the high number of American Beech trees within the woodland. This type of habitat is not considered significant within this part of the province but may be locally significant due to the limited availability of woodland habitat within the general area. None of the other specialized habitats have been identified within 120 m of the Study Area.

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### 6.7.3 ANIMAL MOVEMENT CORRIDORS

The Natural Heritage Reference Manual (OMNR, 2010) describes animal movement corridors as habitats that link two or more wildlife habitats that are critical to the maintenance of a population, species, or group of species, or habitats with a key ecological function to enable wildlife to move, with minimum mortality between areas of significant wildlife habitat or core natural areas. The Significant Wildlife Habitat: Technical Guide (OMNR, 2000) further describes animal movement corridors as elongated, naturally vegetated parts of the landscapes used by animals to move from one habitat to another. Examples may include riparian zones and shorelines, wetland buffers, stream and river valleys, woodlands, and anthropogenic features such as hydro and pipeline corridors, abandoned road and rail allowances, fencerows, and windbreaks.

The partially wooded riparian areas surrounding the West and Main Branches of the Huttonville Creek may facilitate animal movement throughout the landscape as they are vegetated corridors that link other natural areas throughout the City of Brampton. However, Animal Movement Corridors are typically only identified as Significant when a Confirmed or Candidate related Significant Wildlife Habitat has been identified by a local planning authority or the MNRF. Nevertheless, with increased urbanization of this area over time, these valley corridors are expected to play an increasingly important function within the landscape as critical movement corridors and crossing design should include consideration for passage by terrestrial and aquatic wildlife within the structure.

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### 6.7.4 HABITATS OF SPECIES OF CONSERVATION CONCERN

Species of Conservation Concern generally include the groups listed below:

- Species defined as Special Concern in Ontario;
- Species that are listed as rare or historical in Ontario based on records kept by the NHIC;
- Species whose populations are known to be experiencing significant declines in Ontario; and
- Species that have a high percentage of their global population in Ontario and are rare or uncommon in the subject area.

A search for Species of Conservation Concern presence and associated habitat was conducted using the NHIC database (OMNRF, 2014 and 2020). Seven one square kilometer (1 km<sup>2</sup>) quadrats (17NJ92\_35, 17NJ93\_34-36, 17NJ94\_35-36, and 17NJ95\_36) surrounding the Study Area were checked to ensure potential SAR were accounted for during field surveys. A total of eight species occurrences were recorded for the area searched, including two Threatened species and one Endangered species. The other five species are not on the SARO or COSEWIC lists but are still tracked by the NHIC (refer to **Table 6-2**). These species were not observed during the site visits and were not identified within the background studies.

**Table 6-2 NHIC Search Results - Species of Conservation Concern**

Common Name	Scientific Name	G-Rank <sup>1</sup>	S-Rank <sup>1</sup>	COSEWIC <sup>2</sup>	SARO <sup>2</sup>
Amber-winged Spreadwing	<i>Lestes eurinus</i>	G4	S3	-	-
Honey-Locust	<i>Gleditsia triacanthos</i>	G5	S2	-	-
Lilypad Clubtail	<i>Arigomphus furcifer</i>	G5	S3	-	-
Northern Hawthorn	<i>Crataegus dissona</i>	G4G5	S3	-	-
Twisted Sedge	<i>Carex torta</i>	G5	SX	-	-

<sup>1</sup> Source: Nature Conservancy Ranking (NHIC; OMNRF, 2014). 1 - Critically Imperiled, 2 - Imperiled, 3 - Vulnerable, 4 - Apparently Secure, 5 - Secure, G - Global Level, S - Sub-national Rank, ? - Rank Uncertain, X - Presumed Extirpated, NA - Conservation Status Rank is Not Applicable at this level.

<sup>2</sup> Source: Species at Risk Public Registry (SARA, 2012) COSEWIC Status and <sup>3</sup> Source: Species at Risk in Ontario List (SARO; Ontario, 2018). EXP - Extirpated, END - Endangered, THR - Threatened, SC - Special concern, '-' - Not listed

Aerial photographs, available habitat types within the general area, the Ontario Breeding Bird Atlas (OBBA) (Bird Studies Canada et al., 2006), the Ontario Reptile and Amphibian Atlas (Ontario Nature, 2011), and background studies were reviewed to determine the potential for species of conservation concern, including SARO-listed Special Concern species within the Study Area. Based on this review there is potential for Common Nighthawk (*Chordeiles minor*), Eastern Wood-Pewee, Hooded Warbler (*Wilsonia citrina*), Red-headed Woodpecker (*Melanerpes erythrocephalus*), Wood Thrush (*Hylocichla mustelina*), Snapping Turtle (*Chelydra serpentina*), and Monarch (*Danaus plexippus*) in or within 120 m of the Study Area. An assessment of habitat potential within the Study Area for the above-mentioned species of conservation concern is provided in **Table 6-3**, below.



**Table 6-3 Special Concern Species Habitat Potential Assessment**

<b>Species</b>	<b>SARO<sup>1</sup></b>	<b>COSEWIC<sup>2</sup></b>	<b>Habitat Assessment<sup>1</sup></b>	<b>Habitat Potential</b>	<b>Field Observations</b>
Common Nighthawk	SC	THR	The species nests in areas with little to no ground vegetation, such as logged or burned-over areas, forest clearing, rock barrens, etc.	Low	Species was not observed. Suitable habitat was not identified in or within 120 m of the Study Area.
Eastern Wood-pewee	SC	SC	The species prefers deciduous and mixed wood forests. They are often observed sallying to capture flying insects from an exposed perch high in the canopy.	High	Species was observed within the woodland at the western site boundary. The species was also observed within the western portion of the Study Area during 2009 (AMEC, 2012).
Hooded Warbler	SC	THR	The species prefers interiors of large upland tracts of mature deciduous and mixed forest with patches of dense understory shrubs.	Low	Species was not observed. Suitable habitat was not identified in or within 120 m of the Study Area. The woodland within the western portion of the Study Area does not provide interior habitat.
Monarch	SC	SC	The species is commonly found in abandoned fields, along roadsides and in other habitats where Milkweed, Goldenrod, Asters and Purple Loosestrife exist.	High	Monarch caterpillars were found within the MEFM1-1 during the June 2017 site visit. Occasional host plants were observed within the Study Area.
Red-headed Woodpecker	SC	THR	The species lives in open woodlands and woodland edges, especially in oak savannah and riparian forest, where dead trees are used for nesting and perching.	Low to Moderate	Species was not observed. Suitable habitat may exist within wooded riparian corridors and the woodland within the western portion of the Study Area.
Snapping Turtle	SC	SC	The species has been found in almost every freshwater habitat type, but prefers shallow, slow-moving water with a soft mud substrate and abundant vegetation.	Low	Species was not observed. The species was observed in the general area in 2006 and 2012 (AMEC, 2012); however, suitable habitat is not present within the Study Area.

Wood Thrush	SC	THR	This species is strongly associated with woodlands containing tall trees, usually deciduous forests but occasionally mixed wood forests as well. The presence of a thick understorey is usually a prerequisite for site occupancy.	Moderate	Species was not observed. Suitable habitat may exist within the woodland within the western portion of the Study Area.
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<sup>1</sup> Source: Species at Risk Public Registry (SARA, 2012) COSEWIC Status and <sup>3</sup> Source: Species at Risk in Ontario List (SARO: Ontario, 2018). EXP – Extirpated, END – Endangered, THR – Threatened, SC – Special concern, ‘-’ - Not listed.

<sup>2</sup>Source: COSEWIC reports and/or Species at Risk in Ontario (SARO) List. SARO and COSEWIC designations: END = Endangered; THR = Threatened; SC = Special Concern.

## 6.8 SIGNIFICANT WOODLANDS

Significant woodlands are defined as treed areas that provide environmental and economic benefits such as erosion prevention, water retention, and provision of habitat, recreation and the sustainable harvest of woodland products (OMMAH, 2014). Woodlands include treed areas, woodlots or forested areas and vary in their level of significance. The identification and assessment of significant woodlands is the responsibility of the local planning bodies; in this case the City of Brampton and Regional Region of Peel and should be identified using criteria established by the MNRF. Woodland significance is typically determined by evaluating key criteria which relate to woodland size, ecological function, uncommon woodland species, and economic and social value.

The majority of the Study Area is composed of agricultural, cultural and anthropogenic vegetation communities or lands uses and there is little woodland cover. The woodland within the western portion of the Study Area has been identified as a Core Feature within the Region of Peel Greenlands System (2018). Development and site alteration within Core Features are generally prohibited unless it has been demonstrated that there will be no negative impact on the features and its functions. In the Heritage Heights Subwatershed Study (AMEC, 2012) several different vegetation communities, including Fresh-Moist Oak-Maple-Hickory Deciduous Forest (FOD9), Oak / Maple Mineral Deciduous Swamp (SWD1/SWD3), and Dry-Fresh Sugar Maple-Beech Deciduous Forest (FOD5-2) were used to describe this woodland. The woodland was identified as a candidate significant woodland by AMEC (2012), and portions of this woodland have been identified as part of the Huttonville Creek and Area PSW Complex. In addition, as the woodland provides habitat for Eastern Wood-pewee, a Special Concern species on the SARO List, candidate significant wildlife habitat, and potential habitat for SAR bats, the woodland is thought to meet the criteria for significance.

Other wooded areas associated with riparian corridors within the Study Area have not been identified as candidate significant woodlands and are not identified as Core Features within the Greenlands System. Nevertheless, their association with riparian corridors and in some instances a PSW, ensures that they will be protected as part of the Natural Heritage System, and/or part of the regulated habitat protected for Redside Dace.

## 6.9 SIGNIFICANT VALLEYLANDS

The PPS (OMMAH, 2014) refers to significant valleylands as “a natural area that occurs in a valley or other landform depression that has water flowing through or standing for some period of the year”. The local planning authority is responsible for identifying and evaluating significant valleylands.

A review of available background studies and Official Plan schedules was completed to determine if significant valleylands have been identified within the Study Area. The riparian areas surrounding the West, East and Main Branches of the Huttonville Creek have been identified as Valleylands / Watercourse Corridors on Schedule D of the City of Brampton Official Plan (2015) and are considered part of the City of Brampton’s Natural Heritage System. The Heritage Heights Subwatershed Study identifies the West Huttonville Creek valley between the CN rail line and Mississauga Road as a candidate significant valleyland (AMEC, 2012).

Development and site alteration are generally not permitted in valleylands and watercourse corridors unless it has been demonstrated that there will be no negative impact on the features and its functions. In general, no new development will be permitted within the identified 100-year erosion limit and/or meander belt width hazard (City of Brampton, 2015). Due to the presence of Redside Dace habitat within these watercourses, the meander belt and a 30 m setback on either side of the meander belt is protected under the Endangered Species Act (Ontario, 2007).

## 6.10 SIGNIFICANT FEATURE SUMMARY

A summary of the significant Natural Heritage Features identified on or adjacent to the Study Area are provided in **Table 6-4** below. This summary is based on four site visits and a review of available documentation pertaining to the Study Area and adjacent lands.

**Table 6-4 Significant Feature Summary**

Feature	Present	Comment
Fish Habitat	Yes	The West, East and Main Branches of the Huttonville Creek have been identified as coolwater/warmwater fish habitat. They are also regulated as Redside Dace habitat.
Habitat of Endangered or Threatened Species	Yes	The West, East and Main Branches of the Huttonville Creek are identified as regulated Redside Dace habitat. Barn Swallows were noted on several occasions flying over the Study Area and were found nesting in a box culvert on Mississauga Road. The woodland at the western limit of the Study Area is thought to have moderate potential to provide roosting habitat for endangered bat species.
Significant ANSI	No	There are no ANSIs in or within 120 m of the Study Area.
Significant Wetlands	Yes	Portions of the Huttonville Creek and Area PSW Complex were identified within the Study Area. One unit is located on the west side of Mississauga Road surrounding the West Huttonville Creek, and the other is within the Oak/Maple Mineral Deciduous Swamp (SWD1/SWD3) at the western limit of the Study Area.
Significant Coastal Wetlands	No	Not applicable.
Significant Wildlife Habitat	Yes	The woodland at the western limit of the Study Area has been identified as candidate Woodland Raptor Nesting Habitat, candidate bat maternity colony habitat, and Habitat for Species of Conservation Concern, including Eastern Wood-Pewee, Red-headed Woodpecker, and Wood Thrush. Monarch may also find suitable habitat within cultural meadows, mixed meadows, and roadsides in the Study Area.
Significant Woodland	Yes	The woodland at the western limit of the Site has been identified as a Core Feature of the Region of Peel Greenlands System (2018).
Significant Valleyland	Yes	Lands surrounding the West, East and Main Branches of the Huttonville Creek are regulated by the CVC and have been identified within the City of Brampton Official Plan (2015) as valleyland and watercourse corridors. These valleylands form part of the protected habitat for Redside Dace.

# 7 ALTERNATIVE DESIGN CONCEPTS

The focus of the Class EA was to identify a preferred alternative for the east-west extension of Lagerfeld Drive, from the Mount Pleasant Go Station to west of Mississauga Road. A series of initial design concepts for the Lagerfeld Drive extension were developed at a preliminary level of detail to properly assess the potential impacts and benefits associated with each alternative. Five alternative design concepts were generated with sub-options for the crossing abutments to be located beyond or within the 30-metre protected habitat buffer zone for Redside Dace associated with the East, West and Main Branches of the Huttonville Creek. These alternative design concepts are described in Table 7-1, below.

**Table 7-1 Alternative Design Concepts**

Alternative Design Concepts	Description
<b>Alternative 1A</b>	Continuation of Lagerfeld Drive to lands west of Mississauga Road. Alignment passed through Mississauga Road at 419m offset from Bovaird Drive centreline. (Crossing abutments beyond 30 m Redside Dace regulated habitat)
<b>Alternative 1B</b>	Continuation of Lagerfeld Drive to lands west of Mississauga Road. Alignment passed through Mississauga Road at 419m offset from Bovaird Drive centreline. (Crossing abutments within 30 m Redside Dace regulated habitat)
<b>Alternative 2</b>	Continuation of Lagerfeld Drive to lands west of Mississauga Road. Alignment passed through Mississauga Road at approximately 240m offset from Bovaird Drive centreline.
<b>Alternative 3A</b>	Continuation of Lagerfeld Drive to lands west of Mississauga Road. Alignment passed through Mississauga Road at the proposed Huttonville Creek bridge location, at an 70° angle, approximately 473m offset from Bovaird Drive centreline. (Crossing abutments <u>beyond</u> 30 m Redside Dace regulated habitat)
<b>Alternative 3B</b>	Continuation of Lagerfeld Drive to lands west of Mississauga Road. Alignment past through Mississauga Road at the proposed Huttonville Creek bridge location, at an 70° angle, approximately 473m offset from Bovaird Drive centreline. (Crossing abutments <u>within</u> 30 m Redside Dace regulated habitat)
<b>Alternative 4A</b>	Continuation of Lagerfeld Drive to lands west of Mississauga Road. Alignment does not intersect with Mississauga Road but utilize proposed slip road north of Huttonville Creek crossing, just south of CN Rail. (Crossing abutments <u>beyond</u> 30 m Redside Dace regulated habitat)
<b>Alternative 4B</b>	Continuation of Lagerfeld Drive to lands west of Mississauga Road. Alignment does not intersect with Mississauga Road but utilize proposed slip road north of Huttonville Creek crossing, just south of CN Rail. (Crossing abutments <u>within</u> 30 m Redside Dace regulated habitat)
<b>Alternative 5</b>	Not connecting Mississauga Road with Mount Pleasant GO Station. East-west connection will start at Mississauga Road, extending to the west, at 419m offset from Bovaird Drive centreline.

Except for Alternative 5, all of the alternatives that were evaluated had some level of disturbance to Redside Dace habitat. Alternative 5, which does not involve a crossing of the Huttonville Creek or direct impacts to the significant woodland and PSW in the western limit of the Study Area, would result in the fewest impacts to natural heritage features and SAR habitat within the Study Area. This alternative would be considered the preferred alternative from an ecological perspective.

Design Alternative 2, which only included a single crossing of Huttonville Creek, would be considered the next best option as it minimizes impacts to regulated habitat for Redside Dace and avoids impacts to unmapped wetlands within the Study Area.

The remaining alternatives include two crossings of Huttonville Creek and would result in impacts to regulated habitat for Redside Dace. Options that span the meander belt and 30 m buffers to the meander belt would be preferred; however, they are not considered feasible from a design perspective.

These design alternatives were evaluated against criteria specific to the various components of the EA study, including: Transportation, Engineering Considerations and Constructability, Cultural Environment (Archaeological and Built Heritage), Social/Economic Environment, Natural Environment, and Capital Cost/Implementation. Refer to ESR, specifically Table 5-3 in Section 5.2 for a detailed evaluation of the alternatives associated with each component of the EA study noted above. Based on the results of the evaluation of alternatives, Alternative 1B has been carried forward as the preferred alternative.

## 8 PREFERRED DESIGN

Alternative 1B is a continuation of the existing Mount Pleasant GO Station access road (Lagerfeld Drive) to lands west of Mississauga Road. The extension will consist of a 4-lane urban cross section with auxiliary turning lanes at Mississauga Road. On-street bike lanes are proposed on both sides. The alignment passes through Mississauga Road approximately 419 m north of the centreline of Bovaird Drive (**Figure 4**) and involves crossings over East and West Huttonville Creek.

Preliminary design of the East Crossing over East Branch of Huttonville Creek includes a proposed crossing on a slight skew consisting of a single-span 38 m precast 1.0 m girder bridge with abutment centrelines outside of the meander belt, but within the 30 m buffer to the meander belt (**Figure 4A**). It is estimated that the bridge will impact approximately 142 m<sup>2</sup> of the Redside Dace regulated habitat area, while the road and retaining walls will impact 1,373 m<sup>2</sup> and 522 m<sup>2</sup> of the regulated habitat, respectively. The general arrangement indicates the bridge will provide a minimum clearance of approximately 4 m near the western abutment, and approximately 5.34 m clearance over the channel.

Preliminary design of the West Crossing is proposed at West Branch of Huttonville Creek just east of Mississauga Road and consists of a two-span precast 1.0 m box girder bridge with a total length of 47 m. The western abutment is located within the meander belt and is partially within the area to be disturbed as part of the Mississauga Road Improvements works. The central piers are proposed just outside the eastern limit of the meander belt, while the eastern abutment is located beyond the 30 m buffer to the meander belt (**Figure 4A**). Impacts to regulated habitat for Redside Dace associated with the intersection of Lagerfeld Drive and Mississauga Road within the 30 m buffer to the meander belt are expected to be addressed through the Mississauga Road Improvements EA. Permanent impacts to the regulated habitat for Redside Dace for this crossing are associated with the west abutment and central piers which will impact approximately 49.5 m<sup>2</sup> of the meander belt and 5.7 m<sup>2</sup> of the 30 m buffer to the meander belt, respectively. The general arrangement indicates that the bridge will provide approximately 3.79 m clearance near the central piers.

Detailed design of the crossings should include design considerations for passage by both aquatic and terrestrial wildlife within the structure. The preliminary designs provide openings greater than 3 m in width and height, which will be suitable for larger mammals, including deer and coyote (CVC, 2017).

# 9 NATURAL ENVIRONMENT EFFECTS

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## 9.1 SIGNIFICANT NATURAL FEATURES, IMPACTS & MITIGATION

This section of the report identifies the potential impacts of the preferred alignment on identified natural heritage features and provides recommendations to avoid and/or mitigate these impacts. Additional assessments will be required at the detailed design stage to better understand the direct and indirect impacts associated with the construction works on the natural features identified within this report. During detailed design, recommendations for mitigation measures should be completed with agency liaison to ensure appropriate permits and approvals are in place.

Direct impacts to natural features will be confined within and immediately adjacent to the footprint of the preferred alignment (**Figure 4 and 4a**). Potential direct and indirect impacts on identified ecological constraints, including natural heritage features, vegetation, wildlife, SAR, significant wildlife habitat, and fish habitat are discussed in **Table 9-1**. Recommendations for potential measures to mitigate impacts have also been provided. Further impact assessment and development of a comprehensive mitigation plan will need to be completed at the detailed design stage of the project. Recommendations to mitigate common construction-related impacts are outlined in **Table 9-2**.



**Table 9-1 Assessment of Anticipated Impacts and Potential Mitigation Measures for Identified Ecological Constraints within the Study Area**

NO.	NATURAL HERITAGE FEATURES	AREAS TO BE IMPACTED	ANTICIPATED IMPACT	POTENTIAL MITIGATION MEASURES
<b>Natural Heritage Features and Vegetation</b>				
1	Impact to general vegetation	All	<ul style="list-style-type: none"> <li>– Impacts to the general vegetation within the Study Area will be restricted to the proposed Lagerfeld Drive right-of-way.</li> <li>– The majority of the impacts will be to agricultural lands and cultural meadows with limited ecological value, though minor removals are anticipated in cultural woodland and wetland vegetation communities associated with the riparian corridors of the East and West branches of Huttonville Creek.</li> <li>– Potential indirect impacts to vegetation include damage to vegetation outside the work zone, sedimentation, spills of contaminants / fuels, root pruning, damage to limbs, and soil compaction.</li> </ul>	<ul style="list-style-type: none"> <li>– Minimize vegetation clearing where possible.</li> <li>– Install silt fencing or other temporary fencing prior to site grading to delineate the work zone and prevent direct damage to adjacent retained vegetation (i.e., mechanical damage, root damage, soil compaction). This fencing will remain until construction is complete.</li> <li>– Stabilize and re-vegetate exposed surfaces as soon as possible upon completion of works.</li> <li>– Tree and vegetation protection are recommended for trees and vegetation to be retained. Tree protection should be outlined in a Tree Protection Plan (TPP). Vegetation protection measures should be detailed on contract drawings and implemented to ensure encroachment is limited to the construction footprint.</li> <li>– A mitigation /compensation strategy to address removal of trees should be developed through consultation with regulatory agencies during the detailed design phase.</li> </ul>
2	Significant Woodlands	Significant Woodland at western limit of the Study Area (see <b>Figures 2 to 4</b> )	<ul style="list-style-type: none"> <li>– Direct impacts to the significant woodland are not anticipated.</li> <li>– A minimum setback of approximately 33 m is currently proposed between Lagerfeld Drive and the significant woodland.</li> <li>– Indirect impacts to the woodland may include damage to vegetation outside the work zone, sedimentation, spills of contaminants / fuel, root pruning, and soil compaction.</li> <li>– Change in land use from agricultural to right-of-way may result in increased anthropogenic disturbance, degradation to the woodland over time, and increased development pressure.</li> </ul>	<ul style="list-style-type: none"> <li>– Maintain a minimum 30 m buffer between the proposed works and the dripline of the significant woodland.</li> <li>– Clearly delineate vegetation clearing zones and vegetation retention zones (i.e., using silt fencing or other temporary fencing) on both the construction drawings and in the field with the Contractor prior to clearing and grading.</li> <li>– Equipment, materials and other construction activities will not be permitted in vegetation retention zones. Ensure that a spills management plan is in effect for the construction area.</li> <li>– Avoid all unnecessary traffic, dumping and storage of materials over tree root zones adjacent to the proposed works.</li> <li>– Enhance the buffer to the significant woodland to the extent possible, by planting native trees and shrubs.</li> </ul>
3	Provincially Significant Wetlands and Unmapped Wetlands	Huttonville Creek and Area PSW ( <b>Figure 4/4A</b> ) Unmapped wetlands east of Mississauga Road (MAM2-2, MAM2-10)	<ul style="list-style-type: none"> <li>– Direct impacts to the SWD1/SWD3 communities within the Significant Woodland are not anticipated as the proposed development is approximately 33 m from the northern extent of this wetland unit. The ESC Plan will address potential construction-related impacts to the PSW.</li> <li>– Direct impacts to the PSW associated with the West Huttonville Creek, immediately west of Mississauga Road may occur as a result of the Mississauga Road Widening and Improvement Project; however, a setback of approximately 9.8 m exists between this unit and the limit of grading associated with construction of Lagerfeld Drive (<b>Figure 4A</b>).</li> <li>– The unmapped MAM2-2 vegetation unit is associated with the riparian corridor of the East Branch of Huttonville Creek. Direct impacts to this wetland unit and its ecological functions will largely be avoided as abutments have been located outside the meander belt; however, reduced sun exposure under the bridge may result in changes to approximately 530.1 sq.m. of this community over time.</li> <li>– The unmapped MAM2-10 vegetation unit is associated with the West Branch of Huttonville Creek in the vicinity of the proposed West Crossing. The central piers will result in a permanent loss of approximately 5.7 m<sup>2</sup> of this wetland unit. Reduced sun exposure to the portion under the bridge may result in changes to the community over time (approximately 505.0 sq. m.).</li> <li>– Temporary disturbance associated with construction (grading, movement of heavy machinery, etc.) may occur.</li> <li>– Direct impacts are expected to include temporary construction related effects (construction dewatering, erosion and sedimentation, noise, dust, etc.)</li> <li>– Indirect impacts to wetlands may include changes to water quality and quantity in response to changes in grade, fuel spills, removal of vegetation, increases in impervious surfaces, erosion and sedimentation effects, and short-term water takings to support construction activities. These impacts if prolonged could result in changes in species assemblages and community composition.</li> </ul>	<ul style="list-style-type: none"> <li>– Maintain a minimum 30 m buffer between proposed works and the edge or dripline of the PSW at the western limit of the study area.</li> <li>– Minimum buffers of 15 m should be provided to other wetlands, where possible.</li> <li>– Minimize vegetation clearing within wetland buffer areas to the extent possible. Clearly delineate vegetation clearing zones and vegetation retention zones (i.e., using silt fencing or other temporary fencing) on both the construction drawings and in the field with the Contractor prior to clearing and grading.</li> <li>– Minimize changes to drainage patterns to reduce/eliminate potential for changes to the existing wetland moisture regime and site hydrology.</li> <li>– A mitigation and/or compensation strategy to address anticipated temporary and permanent impacts to unevaluated wetlands should be developed through consultation with regulatory agencies during the detailed design phase. It is expected that areas temporarily disturbed during construction will be restored and/or enhanced, whereas, areas that may be permanently impacted, either directly or indirectly by the bridge construction, may be addressed by enhancing wetlands elsewhere in the study area or offset through feature replacement. Opportunities for habitat enhancement, restoration, and/or offsetting may be explored and implemented as part of the Overall Benefit Permit.</li> <li>– Stormwater management plans must ensure that surface water and/or ground water inputs to the PSW are balanced between pre- and post-construction and that appropriate water quality controls are in place.</li> <li>– Ensure that a spills management plan is in effect for the construction area.</li> <li>– Implement an Erosion and Sedimentation Control (ESC) plan to minimize the risk of potential impacts from sedimentation on the water quality and quantity within wetlands and surface water features.</li> </ul>



NO.	NATURAL HERITAGE FEATURES	AREAS TO BE IMPACTED	ANTICIPATED IMPACT	POTENTIAL MITIGATION MEASURES
			<ul style="list-style-type: none"> <li>Other indirect or long-term effects include potential impacts associated with increased input of road salts into the PSW and potential alteration to drainage patterns (groundwater and/or surface water flows).</li> </ul>	<ul style="list-style-type: none"> <li>The use of alternative de-icing products / application methods should be considered to reduce the input of road salts into the wetlands and watercourses.</li> </ul>
4	Significant Valleylands		<ul style="list-style-type: none"> <li>Crossings are proposed over East and West Huttonville Creeks. <ul style="list-style-type: none"> <li>The East Crossing has been designed to span the meander belt of East Huttonville Creek but impacts to vegetation within the valleyland and 30 m buffer to the meander belt are anticipated.</li> <li>The west abutment of the West Crossing will impact approximately 49.5 m<sup>2</sup> of the area within the meander belt of West Huttonville Creek and the central piers will result in permanent impacts to approximately 5.7 m<sup>2</sup> of vegetation the 30 m buffer to the meander belt.</li> </ul> </li> <li>Huttonville Creek runs parallel to Mississauga Road and will not be impacted by the proposed works.</li> <li>Direct impacts to the valleylands are associated with impacts to the natural features and functions associated with each valley feature. Mitigation measures and compensation proposed for other features / species throughout this table, will provide benefit to the valley features of which they are a part.</li> <li>In addition to the functions provided by other natural heritage features associated with valleylands (i.e., watercourses and woodlands), valleylands act as critical linkages between habitats and natural areas within the urban landscape.</li> </ul>	<ul style="list-style-type: none"> <li>Measures to mitigate impacts to related natural heritage features (woodlands, wildlife habitat, habitat for species at risk, fish habitat, etc.), will provide additional protection to the valley corridors and their functions.</li> <li>Crossing designs should consider requirements for wildlife movement through the landscape, particularly as valley corridors will become critical movement corridors with increased urbanization of the area over time. More specifically, crossing structures should be designed to facilitate movement by terrestrial and aquatic wildlife within the structure, as per the guidance provided in the CVC's Fish and Wildlife Passage Guidelines (2017). Specifically, crossings should be designed to facilitate passage by large mammals, such as deer and coyote.</li> <li>Implementation of a spill's management plan, and erosion and sedimentation control plan should be completed to address construction-related impacts at each site.</li> </ul>
<b>Wildlife</b>				
5	Direct Impacts to Wildlife	All	<ul style="list-style-type: none"> <li>Impacts to wildlife are directly associated with impacts to vegetation, which encompasses their habitat. Vegetation removal within the ROW will result in loss of habitat.</li> <li>Noise, dust and vibrations associated with construction activities have the potential to cause short-term disturbance to wildlife and may cause certain wildlife to abandon or avoid the area.</li> <li>Long-term impacts to wildlife may include habitat fragmentation, interruption of movement patterns, and increased road mortality.</li> </ul>	<ul style="list-style-type: none"> <li>Exclusion fencing (i.e., temporary siltation fencing) is recommended to prevent species from entering the construction area. Once work is completed, fencing should be removed.</li> <li>Wildlife incidentally encountered during construction shall not knowingly be harmed and shall be allowed to move away from the construction area on its own. Photos for identification should be taken of animals observed onsite, if possible. In the event that wildlife encountered during construction does not move from the construction zone, MNRF shall be contacted.</li> <li>Though not anticipated, if a Threatened or Endangered species is discovered during site preparation or construction, activities will stop or be modified to avoid negative impacts to Species at Risk until further direction is provided by the MECP.</li> </ul>
6	Migratory Birds	All	<ul style="list-style-type: none"> <li>Migratory birds are protected under the Migratory Birds Convention Act (MBCA; Government of Canada, 1994).</li> <li>Vegetation removal and minor tree removal will be required for road and bridge construction.</li> <li>Removal of vegetation has the potential to impact breeding birds, nests, eggs and young if clearing occurs during the nesting period.</li> <li>Noise, dust and vibration associated with construction activities have the potential to cause short-term disturbance and may cause birds to temporarily abandon or avoid the area.</li> </ul>	<ul style="list-style-type: none"> <li>No work is permitted to proceed that would result in the destruction of active nests (nests with eggs or young birds), or the wounding or killing of bird species protected under the MBCA and / or Regulations under that Act.</li> <li>To comply with the MBCA, avoid vegetation clearing (including grubbing) during the bird nesting season (approximately April 1 to August 31).</li> <li>Should removal of vegetation during this period prove necessary, a qualified avian biologist must be retained to complete a search of the areas for nests.</li> </ul>
<b>Species at Risk</b>				
7	Barn Swallow	Box culvert at Mississauga Road (crossing of West Huttonville Creek)	<ul style="list-style-type: none"> <li>As a Threatened species, Barn Swallow individuals and their nesting habitat are protected under the Endangered Species Act (ESA).</li> <li>Barn Swallows were observed on both survey dates and were often seen in groups of three to five birds, flying over the Study Area.</li> <li>Approximately seventeen (17) cup nests were observed within the concrete box culvert located under Mississauga Road.</li> <li>As the box culvert will be replaced as part of Peel Region's Mississauga Road Widening and Improvement Project, it is expected that anticipated impacts to Barn Swallow and/or their habitat would be addressed as part of that project.</li> </ul>	<ul style="list-style-type: none"> <li>To protect all breeding birds, including Barn Swallow, avoid vegetation clearing (including grubbing) during the bird nesting season (approximately April 1 to August 31).</li> <li>It is recommended that a qualified avian biologist survey for nesting evidence on structures, including culverts, prior to demolition to ensure compliance with the ESA and MBCA.</li> <li>Should active Barn Swallow nests be identified, provisions in Ontario Regulation 242/08 of the ESA allow for nest removal and building demolition provided specific conditions are followed. Species-specific mitigation such as nest site replacement (e.g., a barn swallow kiosk) may be required for alterations to existing structures (e.g., demolition), if nesting occurs on the structure.</li> </ul>
8	Eastern Wood-pewee	Significant Woodland	<ul style="list-style-type: none"> <li>The Eastern Wood Pewee is listed as Special Concern and does not receive habitat protection under the ESA, 2007.</li> </ul>	<ul style="list-style-type: none"> <li>Special Concern species do not receive habitat protection under the Endangered Species Act; however, opportunities to retain habitat should be considered where possible.</li> </ul>

NO.	NATURAL HERITAGE FEATURES	AREAS TO BE IMPACTED	ANTICIPATED IMPACT	POTENTIAL MITIGATION MEASURES
			<ul style="list-style-type: none"> <li>Eastern Wood-pewees were observed on two separate occasions within the vicinity of the Significant Woodland during the 2014 site investigation.</li> <li>A minimum setback of 33 m is currently proposed between Lagerfeld Drive and the significant woodland. Direct impacts to this species and its habitat are not expected.</li> </ul>	<ul style="list-style-type: none"> <li>Mitigation provided under Item 6 for Migratory Birds will provide protection for this species as well.</li> </ul>
9	Endangered Bats (Eastern Small-footed Myotis, Little Brown Bat, Northern Myotis, and Tri-colored Bat)	Significant Woodland/ CUW trees	<ul style="list-style-type: none"> <li>As an Endangered species, Eastern Small-footed Myotis, Little Brown Bat, Northern Myotis, and Tri-colored Bat and their habitat are protected under the Endangered Species Act (ESA).</li> <li>The significant woodland at the western limit of the Study Area has been identified as candidate habitat for bat species. A minimum setback of approximately 33 m is proposed between Lagerfeld Drive and the Significant Woodland in the western portion of the Study Area.</li> <li>Additional trees that may provide limited roosting habitat may also be impacted by minor removals within the CUW along Mississauga Road.</li> </ul>	<ul style="list-style-type: none"> <li>Removal of mature trees (over 25 cm in diameter at breast height) should be avoided where possible. For trees to be retained, tree protection fencing should be installed as close to the dripline as possible.</li> <li>At the detailed design stage, MECP should be consulted to determine if additional surveys are required to further assess potential impacts to roosting habitat for these species. Additional work may include a survey for suitable cavity trees within 6 m of the proposed works (specifically vegetation removal). Mitigation and/or compensation for impacts to bat habitat (if any) will need to be established through consultation with MECP.</li> <li>In general, tree and vegetation removal must be scheduled when bats are absent or not nursing young (October 1 to March 31), to reduce the potential for impacts to bat populations. Timing of works is to be confirmed with the MECP.</li> </ul>
10	Monarch Butterfly	Meadow communities (CUM, MEM, MEGM3, MEFM1-1)	<ul style="list-style-type: none"> <li>Monarch is listed as Special Concern and does not receive habitat protection under the ESA, 2007.</li> <li>Habitat for Monarch occurs throughout meadows and roadsides in the Study Area, though impacts to critical habitat are not anticipated.</li> <li>Impacts to habitat will occur where vegetation removal occurs within the construction footprint; however, these impacts are expected to be minor.</li> </ul>	<ul style="list-style-type: none"> <li>Special Concern species do not receive habitat protection under the Endangered Species Act; however, opportunities to retain or restore Monarch habitat should be considered where possible.</li> <li>Considerations should be given to include Milkweed species in seed mixes used to stabilize and restore disturbed areas, where possible.</li> </ul>
11	Red-headed Woodpecker	Significant Woodland	<ul style="list-style-type: none"> <li>The Red-headed Woodpecker is listed as Special Concern and does not receive habitat protection under the ESA, 2007.</li> <li>The significant woodland at the western limit of the Study Area has been identified as potential habitat for this species.</li> <li>A minimum setback of 33 m is currently proposed between Lagerfeld Drive and the significant woodland. Direct impacts to this species and its habitat are not expected.</li> </ul>	<ul style="list-style-type: none"> <li>Special Concern species do not receive habitat protection under the Endangered Species Act; however, opportunities to retain habitat should be considered where possible.</li> <li>Mitigation provided under Item 6 for Migratory Birds will provide protection for this species as well.</li> </ul>
12	Redside Dace	West, East and Main branches of Huttonville Creek	<ul style="list-style-type: none"> <li>As an Endangered species listed under the ESA, Redside Dace receives species and habitat protection under the ESA. Habitat regulated by the ESA includes the watercourse, meander belt and 30 m buffer to the meander belt.</li> <li>Huttonville Creek, East Huttonville Creek and West Huttonville Creek within the Study Area are regulated as 'occupied habitat' for Redside Dace</li> <li>Two crossings are proposed, one on each of the West and East Huttonville Creeks (<b>Figures 4 and 4A</b>). The East Crossing has been designed so that abutments avoid the meander belt, but unavoidable permanent impacts are anticipated to vegetation within the 30 m vegetation buffer to the meander belt. The West Crossing includes permanent footprints in the meander belt (49.5 m<sup>2</sup>) and 30 m buffer to the meander belt (5.7 m<sup>2</sup>) associated with the west abutment and central piers, respectively.</li> <li>Additional temporary impacts associated with vegetation removal and grading may occur within regulated habitat.</li> <li>In and near water works may also require Fisheries Act Authorization (FAA) to address impacts to the species and its habitat within the Study Area.</li> </ul>	<ul style="list-style-type: none"> <li>Subject to provincial policies including <i>Guidance for development activities in Redside Dace protected habitat</i> (MNR, 2016), an Overall Benefit Permit per the Endangered Species Act will be required at the detailed design phase of the project. As specified by MECP, the Overall Benefit Permit is expected to be above and beyond the normal requirements (<b>Appendix B</b>). Details of the Permit will be subject to additional discussions with MECP.</li> <li>Work shall occur during the appropriate in-water construction timing window; July 1 to September 15 of any given year (i.e., no in-water works from September 16 to June 30).</li> <li>All staging and access areas should be located outside the Regulated Redside Dace habitat (meander belt + 30 m buffer on either side of the creek).</li> <li>All site isolation measures including erosion and sediment control, stockpiling methods and spill prevention (as detailed below) should be installed between the work areas and the limits of Regulated Redside Dace Habitat.</li> <li>Any temporarily stockpiled soil, debris or other excess materials, and any construction-related materials, will be properly contained (e.g., within silt fencing) outside of the regulated Redside Dace occupied habitat. All construction materials, excess materials and debris should be removed and appropriately disposed of following construction.</li> <li>Exposed soil within 30 m of the West and East branches should be stabilized within 15 days after completion of construction activities. Native plants of suitable height shall be planted in exposed areas.</li> </ul>

NO.	NATURAL HERITAGE FEATURES	AREAS TO BE IMPACTED	ANTICIPATED IMPACT	POTENTIAL MITIGATION MEASURES
13	Wood Thrush	Significant Woodland	<ul style="list-style-type: none"> <li>The Wood Thrush is listed as Special Concern and does not receive habitat protection under the ESA, 2007.</li> <li>The significant woodland at the western limit of the Study Area has potential to provide habitat for this species.</li> <li>A minimum setback of 33 m is currently proposed between Lagerfeld Drive and the significant woodland. Direct impacts to this species and its habitat are not expected.</li> </ul>	<ul style="list-style-type: none"> <li>Special Concern species do not receive habitat protection under the Endangered Species Act; however, opportunities to retain habitat should be considered where possible.</li> <li>Mitigation provided under Item 6 for Migratory Birds will provide protection for this species as well.</li> </ul>
<b>Significant Wildlife Habitat</b>				
14	Candidate Woodland Raptor Nesting Area	Significant Woodland	<ul style="list-style-type: none"> <li>Candidate habitat for woodland raptors may occur in the Significant Woodland at the western limit of the Study Area.</li> <li>Impacts to this habitat are not anticipated as a result of the proposed works. A minimum setback of approximately 33 m is proposed between Lagerfeld Drive and the Significant Woodland in the western portion of the Study Area.</li> </ul>	<ul style="list-style-type: none"> <li>Mitigation proposed in Item 2 Significant Woodlands will provide protection for this feature.</li> <li>Should a nest site be identified during construction, the MNRF should be notified immediately to determine if additional mitigation or compensation measures are required to avoid, minimize or mitigate impacts to nesting woodland raptors.</li> </ul>
15	Candidate Bat Maternity Colonies	Significant Woodland	<ul style="list-style-type: none"> <li>The significant woodland at the western limit of the Study Area has been identified as candidate maternity roosting habitat for bat species.</li> <li>Impacts to Bat Maternity Colonies are not anticipated as a result of the proposed works. A minimum setback of approximately 33 m is proposed between Lagerfeld Drive and the Significant Woodland in the western portion of the Study Area.</li> </ul>	<ul style="list-style-type: none"> <li>Mitigation proposed in Item 2 Significant Woodlands will provide protection for this feature.</li> <li>Mitigation proposed in Item 9 Endangered Bat Species will provide protection for roosting bats if they are present in the general area. In particular: <ul style="list-style-type: none"> <li>Tree removal must be scheduled when bats are absent or not nursing young (October 1 to March 31), to reduce the potential for impacts to bat populations. Timing of works is to be confirmed with the MECP.</li> </ul> </li> </ul>
<b>Fish and Fish Habitat</b>				
16	East, West, and Main Branches of Huttonville Creek	Watercourses, meander belts and buffer areas	<ul style="list-style-type: none"> <li>Two bridges will be constructed over West and East Huttonville Creeks as part of the Lagerfeld Drive extension. There are no crossings proposed for the Main Branch of Huttonville Creek, and direct impacts are not anticipated.</li> <li>These watercourses, meander belts and 30 m buffers are regulated habitat for Redside Dace. Impacts to the meander belt of the West Branch and 30 m buffer to the meander belts of the East and West Branches are anticipated and as such, an Overall Benefit Permit under the ESA will be required for these works.</li> <li>Indirect impacts from construction may include erosion and sedimentation impacts, construction dewatering, fuel spills, and shading of riparian vegetation under bridges, which over time may result in reduced vegetative riparian cover, and/or changes in the composition of these vegetation communities.</li> </ul>	<ul style="list-style-type: none"> <li>Any construction works within 30 m of a watercourse will require a self-assessment to be completed using the DFO Projects Near Water guide to ensure compliance with the Fisheries Act.</li> <li>General measures for construction design, Erosion and Sedimentation Control measures, Spill Management Control Plans are to be implemented to further minimize impacts associated with construction. These measures must be in accordance with <i>Guidance for development activities in Redside Dace protected habitat</i> (MNRF, 2016).</li> <li>All standard operating procedures for machinery near / in-water will be implemented (e.g., maintenance in good working order free of leaks, cleaning and re-fueling in designated contained areas at least 30 m from the water, regular inspection).</li> <li>All construction-related activities will be controlled to prevent entry of any petroleum products, debris or other potential contaminants / deleterious substances, in addition to sediment as outlined above, to the watercourses.</li> <li>The construction access, work areas and associated requirements for removal of riparian vegetation should be minimized to the extent required for the construction activities, and these areas will be delineated in the field using properly installed protective silt fencing. All temporarily disturbed areas will be re-stabilized following construction using appropriate means.</li> </ul>

**Table 9-2 General Construction-Related Impacts and Mitigation Measures**

Source or Activity	Anticipated Impact	Recommended Mitigation Measures
Grading, retaining walls, vegetation clearing, soil stockpiling	<ul style="list-style-type: none"> <li>Increased erosion and sedimentation effects due to removal of vegetation, soil compaction, grade changes, etc. Sediment-laden run-off has the potential to enter adjacent natural heritage features causing potential water quality impairment and vegetation dieback.</li> <li>Discharges from temporary dewatering have the potential to cause streambed and/or bank erosion and downstream sedimentation if not managed properly.</li> </ul>	<ul style="list-style-type: none"> <li>Implement DFO 'Measures to Avoid Harm to Fish and Fish Habitat', including:               <ul style="list-style-type: none"> <li>“Develop and implement an Erosion and Sedimentation Control Plan for the site that minimizes risk of sedimentation during all phases of the project. Erosion and sediment control measures should be maintained until all disturbed ground has been permanently stabilized, suspended sediment has resettled to the bed of the waterbody or settling basin and runoff water is clear.</li> <li>Clearing of riparian vegetation should be kept to a minimum: use existing trails, roads or cut lines wherever possible to avoid disturbance to riparian vegetation and prevent soil compaction. When practical, prune or top the vegetation instead of grubbing / uprooting.</li> <li>Minimize the removal of natural woody debris, rocks, sand or other materials from the banks, the shoreline or the bed of a waterbody below the ordinary high-water mark. If material is removed from the waterbody, set it aside and return it to the original location once construction activities are completed.</li> <li>Immediately stabilize shoreline or banks disturbed by any activity associated with the project to prevent erosion and/or sedimentation, preferably through re-vegetation with native species suitable for the site.</li> <li>Restore bed and banks of the waterbody to their original contour and gradient; if the original gradient cannot be restored due to instability, a stable gradient that does not obstruct fish passage should be restore.</li> <li>If replacement rock or reinforcement / armouring is required to stabilize eroding or exposed areas, then ensure that appropriately sized, clean rock is used; and that rock is installed at a similar slope to maintain a uniform bank and natural stream alignment.</li> <li>Schedule work to avoid wet, windy and rainy periods that may increase erosion and sedimentation.</li> <li>Remove all construction materials from the site upon project completion.</li> <li>Minimize duration of in-water work.</li> <li>Conduct in-stream work during periods of low flow, to further reduce the risk to fish and their habitat or to allow work in water to be isolated from flows.”</li> </ul> </li> <li>Eliminate potential from erosion and sedimentation by restricting access of works to limit of grading. Achieved through clearly demarcating the limit of works through use of ESC structures such as silt fencing.</li> <li>Dissipate any dewatering discharge as to minimize risk of erosion.</li> </ul>
Paving / Increased Imperviousness	<ul style="list-style-type: none"> <li>Interruption or change to surface water and ground water flows due to increase of impervious surfaces; also, potential degradation of water quality associated with road run-off.</li> </ul>	<ul style="list-style-type: none"> <li>Measures should be implemented to address anticipated increases to runoff volumes. Incorporate LID techniques into the road right-of-way where feasible in order to meet quantity, quality and runoff volume control targets. Example techniques include bioretention units, perforated pipes, precast tree planters, permeable pavement / porous asphalt, vegetated landscape strips / bioswales to promote infiltration.</li> <li>Maintain water balance in significant wetlands through control of surface water and groundwater inputs.</li> <li>Stormwater quality controls should be implemented to treat water before it is discharged to adjacent watercourses and wetlands (e.g., oil / grit separators and end-of-pipe facilities). There should be no direct drain discharge through the bridge decking to the watercourse.</li> </ul>



Source or Activity	Anticipated Impact	Recommended Mitigation Measures
Operation of Heavy Machinery	<ul style="list-style-type: none"> <li>• Damage to vegetation surrounding the construction site and access route.</li> <li>• Surface water and groundwater contamination due to fuel and/or chemical spills may result in lethal or sub-lethal effects on aquatic life, changes in the composition of aquatic communities and wetland plant communities.</li> <li>• Damage to watercourse banks and habitat below the high-water mark on those watercourses that require in or near water works.</li> </ul>	<ul style="list-style-type: none"> <li>• Tree and vegetation protection is recommended for all trees and vegetation to be retained. Tree protection should be outlined in a Tree Protection Plan (TPP). Vegetation protection measures should be detailed on contract drawings and implemented to ensure encroachment is limited to the construction footprint.</li> <li>• The following activities are prohibited beyond the tree protection fencing: storage or stockpiling of materials including fill, top soil, construction equipment and debris; disposal of liquids; and operation of heavy machinery.</li> <li>• Ensure a designated area for equipment maintenance and fuelling that is at least 30 m from the watercourse.</li> <li>• Maintain equipment in good working condition and ensure that equipment and vehicles are free of leaks.</li> <li>• Storage of fuel should not be permitted on-site.</li> <li>• Maintain an emergency spill kit on site in case of emergency.</li> <li>• Machinery entering the channel for in-water works should show up on site clean and free of fine materials that can be entrained with flows and released to the receiving watercourses downstream</li> <li>• Machinery will not be allowed to ford the watercourses unless specified in the drawings or approved by agency staff upon review.</li> <li>• Machinery stored within the floodplain for extended periods of time should be located above the high-water mark of the channel.</li> <li>• All banks and areas below the high-water mark will be re-stabilized and re-vegetated once construction works are complete.</li> </ul>
Soil compaction associated with use of heavy machinery, or changes to grade	<ul style="list-style-type: none"> <li>• Increased erosion, sedimentation and turbidity of adjacent watercourses and wetlands due to increased surface runoff and changes to natural drainage, including reduced infiltration.</li> </ul>	<ul style="list-style-type: none"> <li>• Implement an erosion and sedimentation control plan.</li> <li>• Install siltation fencing.</li> <li>• De-compact soils within affected areas prior to application of topsoil (if necessary) and restoration.</li> </ul>
Dewatering	<ul style="list-style-type: none"> <li>• Reduction in water quantity / quality in wetlands and watercourses, within the pumping radius of influence.</li> <li>• Increased sedimentation and turbidity in nearby surface water features.</li> <li>• Potential release of chemicals (e.g., petroleum hydrocarbons, chlorinated solvents, etc.) into the environment if dewatering activities within/near contaminated sites are not managed properly.</li> </ul>	<ul style="list-style-type: none"> <li>• Monitor water levels in areas of open trench and dewater as required by following standard construction dewatering methods (e.g., discharge water through a suitable filtration device a minimum of 30 m from watercourses and wetlands).</li> <li>• Ensure appropriate approvals are in place prior to dewatering activities, and do not exceed permitted withdrawal rates of water sources, unless otherwise approved by Provincial authorities.</li> <li>• Direct water to an approved area, at a rate that promotes infiltration of the ground surface (if applicable). Protect the ground at the discharge locations to prevent scouring and/or erosion. Discharge water through an appropriate sediment filtering medium, to minimize potential sedimentation and turbidity.</li> <li>• Monitor the water discharge site to ensure that erosion, saturation of the discharge site, or flow off of the approved release area is minimized.</li> <li>• Construction at or near the ground water level in areas where chemical contaminants have been noted, or have the potential to occur, should include treatment of dewatering discharge to ensure that chemicals are not released into the environment. Mitigation measures recommended within the geotechnical reports should be incorporated into final design plans.</li> </ul>
Construction material / debris	<ul style="list-style-type: none"> <li>• Construction materials or vegetative debris stockpiled near a natural heritage feature have potential to enter the feature if not properly contained.</li> <li>• Debris entering a water body has the potential to: destroy or disturb fish habitat; disrupt flow patterns increasing risk for flooding or erosion and sedimentation; and impair water quality. The degree of impact on the water body is dependent on the type and amount of material entering the watercourse.</li> <li>• Debris entering wetlands or woodlands has the potential to smother and/or damage vegetation, or impact water quality.</li> </ul>	<ul style="list-style-type: none"> <li>• Stabilize construction debris (e.g., tarps) away from natural heritage features.</li> <li>• Dispose of refuse and other material appropriately off-site.</li> <li>• Locate storage and staging areas away from natural heritage features (e.g., 30 m).</li> </ul>

Source or Activity	Anticipated Impact	Recommended Mitigation Measures
Invasive Species Introduction and Contamination	<ul style="list-style-type: none"> <li>Invasive species can spread to new areas by contaminated mud, gravel, soil and plant materials on vehicles and machinery.</li> <li>Invasive species out-compete native species, degrade ecological integrity of natural systems, and decrease native biodiversity.</li> </ul>	<ul style="list-style-type: none"> <li>Ensure that a Clean Equipment Protocol is developed and implemented during construction. The Clean Equipment Protocol for Industry developed by the Peterborough Stewardship Council and Ontario Invasive Species Council (Halloran, Anderson and Tassie, 2016) recommends the following: <ul style="list-style-type: none"> <li>Identification of invasive plants at the site;</li> <li>Schedule works so that areas without invasive plants (or with the fewest) are completed first to reduce the risk of unintentional introductions;</li> <li>Inspect vehicles and machinery before and after entering sites or conducting work along roadways; and,</li> <li>Clean vehicle / equipment in an area that will not lead to contamination or spread of seeds.</li> </ul> </li> </ul>
Road Salts / Dust	<ul style="list-style-type: none"> <li>Salt damage to roadside vegetation, wetlands and watercourses may occur.</li> <li>Road dust may have negative impacts on roadside vegetation by reducing photosynthesis and increasing leaf temperature.</li> </ul>	<ul style="list-style-type: none"> <li>There are no stormwater management or LID measures available to remove salt out of stormwater.</li> <li>Opportunities to use alternate application methods or de-icing compounds should be investigated particularly for areas adjacent to the Natural Heritage System.</li> <li>Stormwater management facilities should be installed to capture excessive nutrients, sediments and other contaminants.</li> </ul>
General Wildlife Disturbance/Effects	<ul style="list-style-type: none"> <li>Noise, dust and vibrations associated with construction activities have the potential to cause short-term disturbance to wildlife and may cause certain wildlife to abandon or avoid the area.</li> <li>Increased rates of road mortality are possible due to increased crossing distances, potential use of medians or other types of barriers, etc.</li> <li>Significant long-term impacts are not expected as the infrastructure is proposed in areas that are already developed and the proposed works do not involve a change in land use.</li> </ul>	<ul style="list-style-type: none"> <li>To avoid disturbance to local wildlife and comply with the MBCA, avoid tree and vegetation clearing (including grubbing) during the bird nesting season (approximately April 1 to August 31).</li> <li>Exclusion fencing is recommended to prevent species from entering the construction area. Once work is completed, fencing should be removed to facilitate passage by wildlife.</li> <li>In the event an animal is found within the construction area, it should remain undisturbed and be allowed to leave on its own. Photos for identification should be taken of animals observed onsite, if possible. If Threatened or Endangered species are discovered during site preparation or construction activities will stop, or be modified to avoid negative impacts to Species at Risk until further direction is provided by the MECP and should be contacted promptly upon the discovery of a Threatened or Endangered species within the construction area.</li> <li>Permanent fencing should be considered to limit movement of wildlife from natural areas into roadways.</li> </ul>

# 10 CONCLUSIONS

The following conclusions are provided based on the study findings presented in this report:

- The West, East and Main Branches of the Huttonville Creek within the Study Area are regulated as ‘occupied habitat’ for Redside Dace. The requirements for habitat avoidance and protection for this species pose the greatest constraints to development within the Study Area. Crossings are proposed over the West and East Huttonville Creeks. Bridges were designed to minimize impacts to the extent possible; however, direct impacts to regulated habitat at both crossings is anticipated and will require an Overall Benefit Permit under the Endangered Species Act, 2007 (**Appendix B**). The West Crossing is expected to impact vegetation within the meander belt and 30 m buffer to the meander belt; whereas the East Crossing avoids impacts to the meander belt, but is expected to result in vegetation impacts in the 30 m buffer to the meander belt for construction of the abutments and road.
- Barn Swallow, a Threatened species on the SARO List, was observed on several occasions within the Study Area. Cup nests were observed within the concrete box culvert at the Mississauga Road crossing of the West Huttonville Creek during the 2017 site visit. Based on observations of Barn Swallows flying in and out of the culvert, some of these nests are thought to be active. Other suitable nesting structures for Barn Swallow were not observed within the Study Area. Potential impacts to habitat for this species will be addressed through Peel Region’s Mississauga Road Widening and Improvements Project.
- Portions of the Huttonville Creek and Area PSW Complex occur along the West Huttonville Creek corridor (west of Mississauga Road) and in the woodland at the western limit of the Study Area (**Figure 2**). Direct impacts to these features are not anticipated as a result of the proposed works. Mitigation measures have been provided to address potential indirect impacts.
- Unmapped wetlands (MAM2-2 and MAM2-10) within the corridors of the East and West Branches of the Huttonville Creek overlap with the proposed crossings. The designs of the proposed bridges minimize impacts to features within the valley corridors; however, indirect and/or long-term impacts to the community composition may occur as a result of shading. A mitigation and/or compensation strategy to address anticipated temporary and permanent impacts to unevaluated wetlands should be developed through consultation with regulatory agencies during the detailed design phase. It is expected that areas temporarily disturbed during construction will be restored and/or enhanced, whereas, areas that may be permanently impacted, either directly or indirectly by the bridge construction, may be addressed by enhancing wetlands elsewhere in the study area or offset through feature replacement. Opportunities for habitat enhancement, restoration, and/or offsetting may be explored and implemented as part of the Overall Benefit Permit.
- The woodland at the western limit of the Study Area has been identified as a Core Feature within the Regional Greenlands System (Region of Peel, 2018) and is considered to be a Significant Woodland. Direct impacts to this feature are not anticipated; the preferred alternative provides a setback of approximately 33 m between the ROW and the woodland.
- The Significant Woodland has been identified as candidate significant wildlife habitat for Woodland Raptor Nesting Habitat, Bat Maternity Colonies, and Habitat for Species of Conservation Concern, including Eastern Wood-Pewee, Red-headed Woodpecker, and Wood Thrush. Eastern Wood-pewee were observed on two separate occasions within the vicinity of the woodland during the 2014 site investigation. Habitat for Monarch, a Species of Conservation Concern, also occurs throughout meadows and roadsides in the Study Area. Direct Impacts to habitat within the Significant Woodland are not anticipated. Minor impacts to habitat for Monarch will occur as a result of vegetation removal within the ROW.
- Within the Study Area, the valley corridors on the east side of Mississauga Road have been identified as part of the City of Brampton’s Natural Heritage System (NHS) (2015), whereas those on the west side have been identified as candidate NHS lands. The valleyland associated with the West Huttonville Creek, between the CN rail line and Mississauga Road has also been identified as a candidate significant valleyland (AMEC, 2012). Direct impacts to valleylands are associated with impacts to the natural features and functions associated with



each valley feature. Measures to mitigate impacts to related natural heritage features (woodlands, wildlife habitat, habitat for species at risk, fish habitat, etc.), will provide additional protection to the valley corridors and their ecological functions. Design considerations that plan for passage by terrestrial and aquatic wildlife are required to ensure that the role of these valleylands as movement corridors is maintained with increasing urbanization. Specifically, crossings are to be designed to facilitate passage by large mammals, including deer and coyote.

In order to proceed with the extension of a road west of Mississauga Road permits from the CVC and MECP will be required due to the regulated nature of the West, East and Main Branches of the Huttonville Creek. Specifically, an Overall Benefit Permit under Section 17(c) of the Endangered Species Act (2007) will be required to complete work within the protected habitat of Redside Dace. Continued consultation with the MECP is required to negotiate the terms of this development.

# 11 CLOSURE

This report has been prepared by WSP Canada Inc. The assessment represents the conditions at the subject property only at the time of the assessment and is based on the information referenced and contained in the report. The conclusions presented herein respecting current conditions represent the best judgment of the assessors based on current environmental standards. WSP Canada Inc. attests that to the best of our knowledge, the information presented in this report is accurate. The use of this report for other projects without written permission of the Client and WSP Canada Inc. is solely at the user's own risk. This report must be reviewed and approved by the relevant regulating agencies prior to being relied on for planning and/or construction purposes.

Thank you for the opportunity to complete this report. We trust that this information is satisfactory for your current requirements. Please contact us if we can be of further assistance.

# 12 LITERATURE CITED

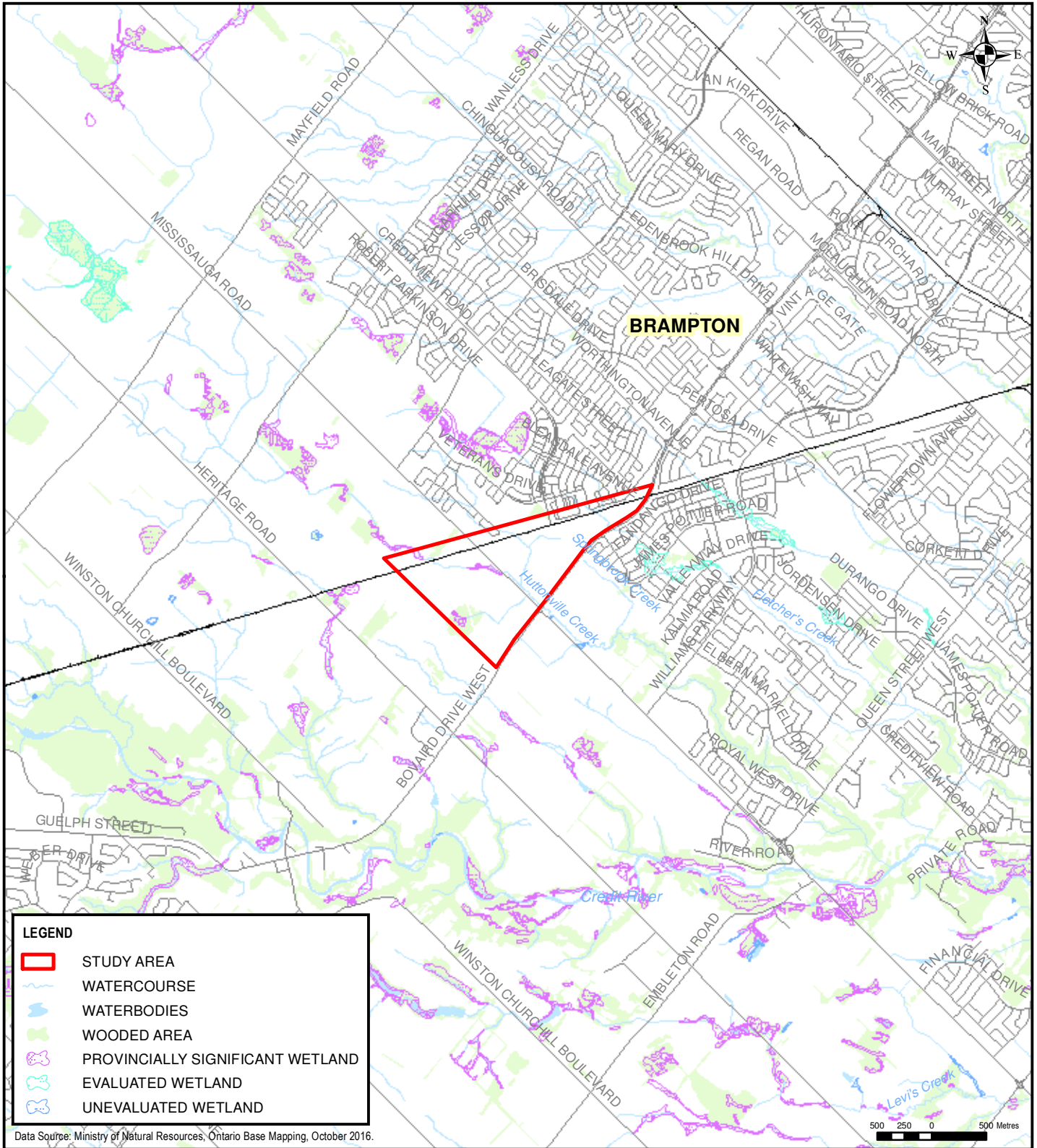
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# FIGURES






126 DON HILLOCK DRIVE, UNIT 2  
 AURORA, ONTARIO CANADA L4G 0G9  
 TEL.: 905-750-3080 | FAX: 905-727-0463 | WWW.WSP.COM

PROJECT:	<b>NATURAL HERITAGE ASSESSMENT          LAGERFELD DRIVE          MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT</b>	SCALE: 1:50,000	
TITLE:	<b>SITE LOCATION</b>	DRAWN BY: TP	CHECKED BY: -
CLIENT:	<b>CITY OF BRAMPTON</b>	PROJECT NO: 141-15409-00	DATE: MARCH 2020
		FIGURE NO: 1	REV.: -





126 DON HILLOCK DRIVE, UNIT 2  
 AURORA, ONTARIO CANADA L4G 0G9  
 TEL.: 905-750-3080 | FAX: 905-727-0463 | WWW.WSP.COM

- LEGEND**
- STUDY AREA
  - 120 m BUFFER
  - FINAL MEANDER BELT (WATER'S EDGE, 2015)
  - PRELIMINARY MEANDER BELT (WATER'S EDGE, 2015)
  - 30 m SETBACK FROM MEANDER BELT
  - BREEDING BIRD SURVEY LOCATION
  - RAILWAY
  - ~ WATERCOURSE
  - PROVINCIAL SIGNIFICANT WETLAND
  - EVALUATED WETLAND
  - UNEVALUATED WETLAND
  - WATERBODIES
  - WOODED AREAS
  - ▶ DIRECT FISH HABITAT
  - AQUATIC HABITAT TRANSECT - ASSESSED REACHES
  - ▶ SURFACE WATER FLOW DIRECTION

Data Source: Ministry of Natural Resources, Ontario Base Mapping, October 2016.

CLIENT:  
**CITY OF BRAMPTON**

PROJECT:  
**NATURAL HERITAGE ASSESSMENT  
 LAGERFELD DRIVE  
 MUNICIPAL CLASS  
 ENVIRONMENTAL ASSESSMENT**

PROJECT NO:  
 141-15409-00 104

DATE:  
 APRIL 2020

DESIGNED BY:  
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DRAWN BY:  
 TP

CHECKED BY:  
 EF

FIGURE NO:  
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SCALE:  
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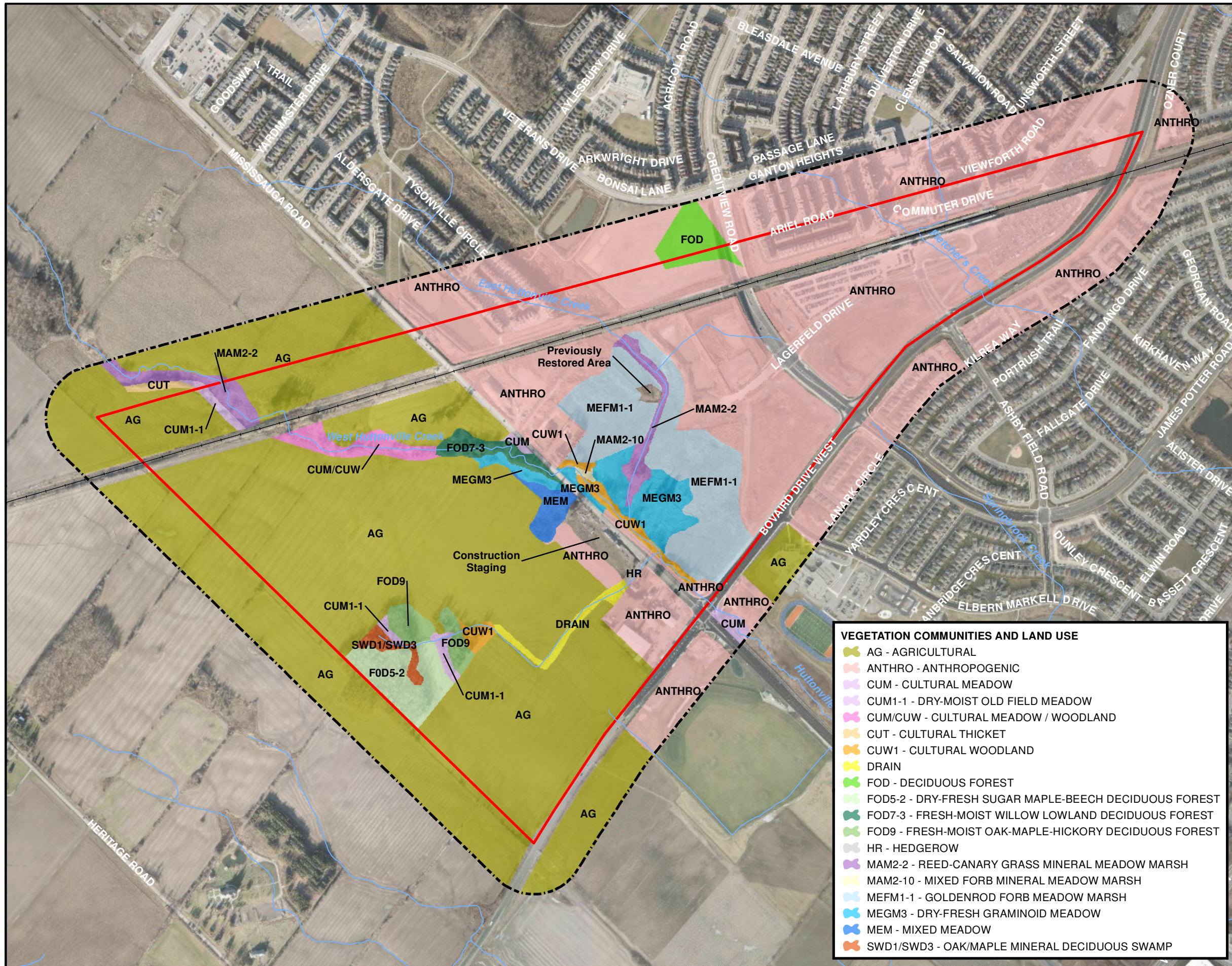
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DISCIPLINE:  
**ENVIRONMENT**

ISSUE:  
 -

REV.:  
 -





126 DON HILLOCK DRIVE, UNIT 2  
 AURORA, ONTARIO CANADA L4G 0G9  
 TEL.: 905-750-3080 | FAX: 905-727-0463 | WWW.WSP.COM

- LEGEND**
- STUDY AREA
  - 120 m BUFFER
  - RAILWAY
  - WATERCOURSE

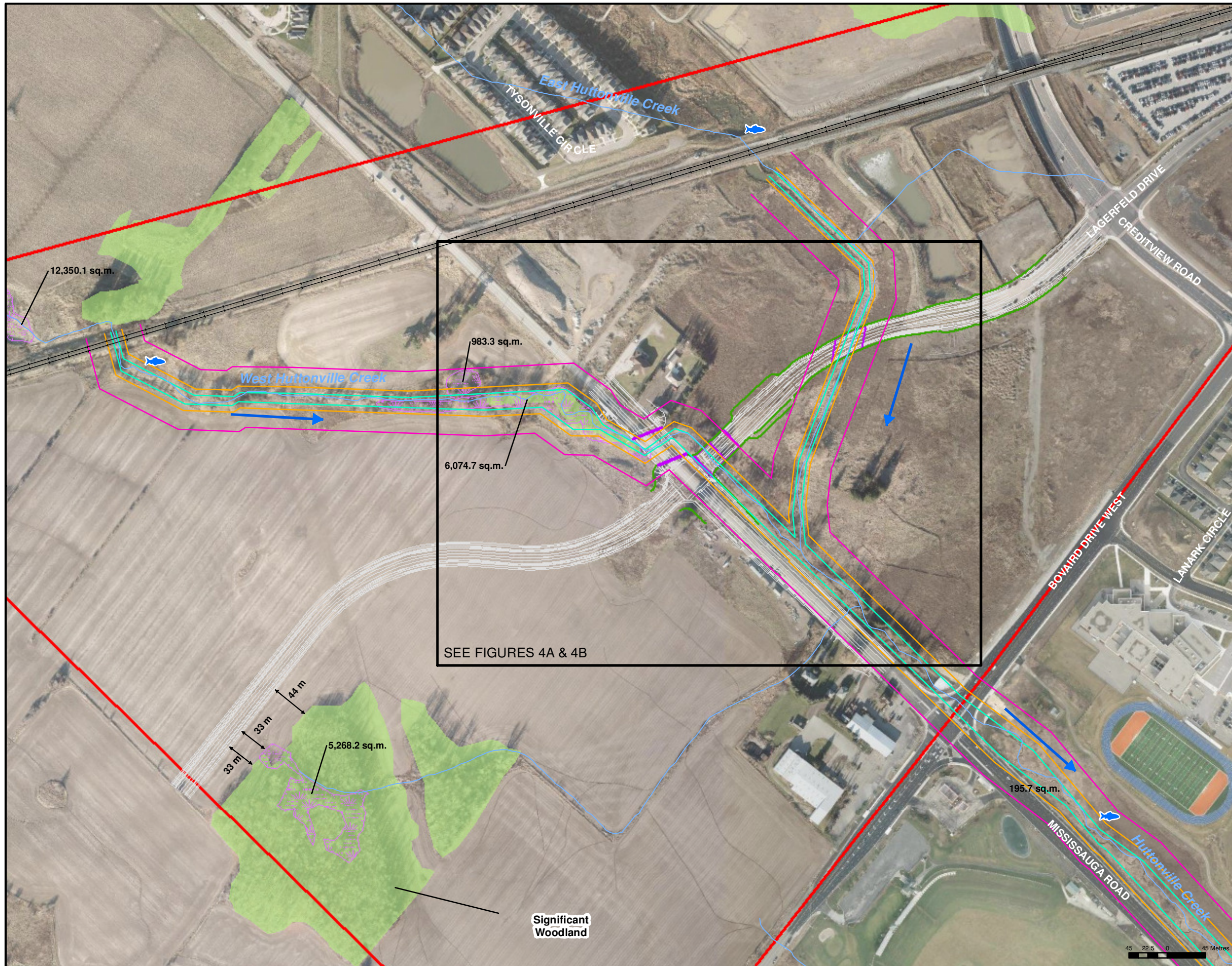


Data Source: Ministry of Natural Resources, Ontario Base Mapping, October 2016.

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PROJECT:		NATURAL HERITAGE ASSESSMENT LAGERFELD DRIVE MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT	
PROJECT NO:	141-15409-00 104	DATE:	MARCH 2021
DESIGNED BY:	-		
DRAWN BY:	TP		
CHECKED BY:	EF		
FIGURE NO:	3	SCALE:	1:9,000
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DISCIPLINE:		ENVIRONMENT	
ISSUE:		REV.:	-

- VEGETATION COMMUNITIES AND LAND USE**
- AG - AGRICULTURAL
  - ANTHRO - ANTHROPOGENIC
  - CUM - CULTURAL MEADOW
  - CUM1-1 - DRY-MOIST OLD FIELD MEADOW
  - CUM/CUW - CULTURAL MEADOW / WOODLAND
  - CUT - CULTURAL THICKET
  - CUW1 - CULTURAL WOODLAND
  - DRAIN
  - FOD - DECIDUOUS FOREST
  - FOD5-2 - DRY-FRESH SUGAR MAPLE-BEECH DECIDUOUS FOREST
  - FOD7-3 - FRESH-MOIST WILLOW LOWLAND DECIDUOUS FOREST
  - FOD9 - FRESH-MOIST OAK-MAPLE-HICKORY DECIDUOUS FOREST
  - HR - HEDGEROW
  - MAM2-2 - REED-CANARY GRASS MINERAL MEADOW MARSH
  - MAM2-10 - MIXED FORB MINERAL MEADOW MARSH
  - MEFM1-1 - GOLDENROD FORB MEADOW MARSH
  - MEGM3 - DRY-FRESH GRAMINOID MEADOW
  - MEM - MIXED MEADOW
  - SWD1/SWD3 - OAK/MAPLE MINERAL DECIDUOUS SWAMP





126 DON HILLOCK DRIVE, UNIT 2  
 AURORA, ONTARIO CANADA L4G 0G9  
 TEL.: 905-750-3080 | FAX: 905-727-0463 | WWW.WSP.COM

- LEGEND**
- STUDY AREA
  - PROPOSED ALIGNMENT
  - PROPOSED GRADING LIMIT
  - PROPOSED BRIDGE
  - FINAL MEANDER BELT (WATER'S EDGE, 2015)
  - PRELIMINARY MEANDER BELT (WATER'S EDGE, 2015)
  - 30 m SETBACK FROM MEANDER BELT
  - RAILWAY
  - ~ WATERCOURSE
  - PROVINCIALLY SIGNIFICANT WETLAND
  - WOODED AREAS
  - DIRECT FISH HABITAT
  - SURFACE WATER FLOW DIRECTION



Data Source: Ministry of Natural Resources, Ontario Base Mapping, October 2016.

CLIENT:  
**CITY OF BRAMPTON**

PROJECT:  
**NATURAL HERITAGE ASSESSMENT  
 LAGERFELD DRIVE  
 MUNICIPAL CLASS  
 ENVIRONMENTAL ASSESSMENT**

PROJECT NO:  
 141-15409-00 104

DATE:  
 JANUARY 2021

DESIGNED BY:  
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DRAWN BY:  
 TP

CHECKED BY:  
 EF

FIGURE NO:  
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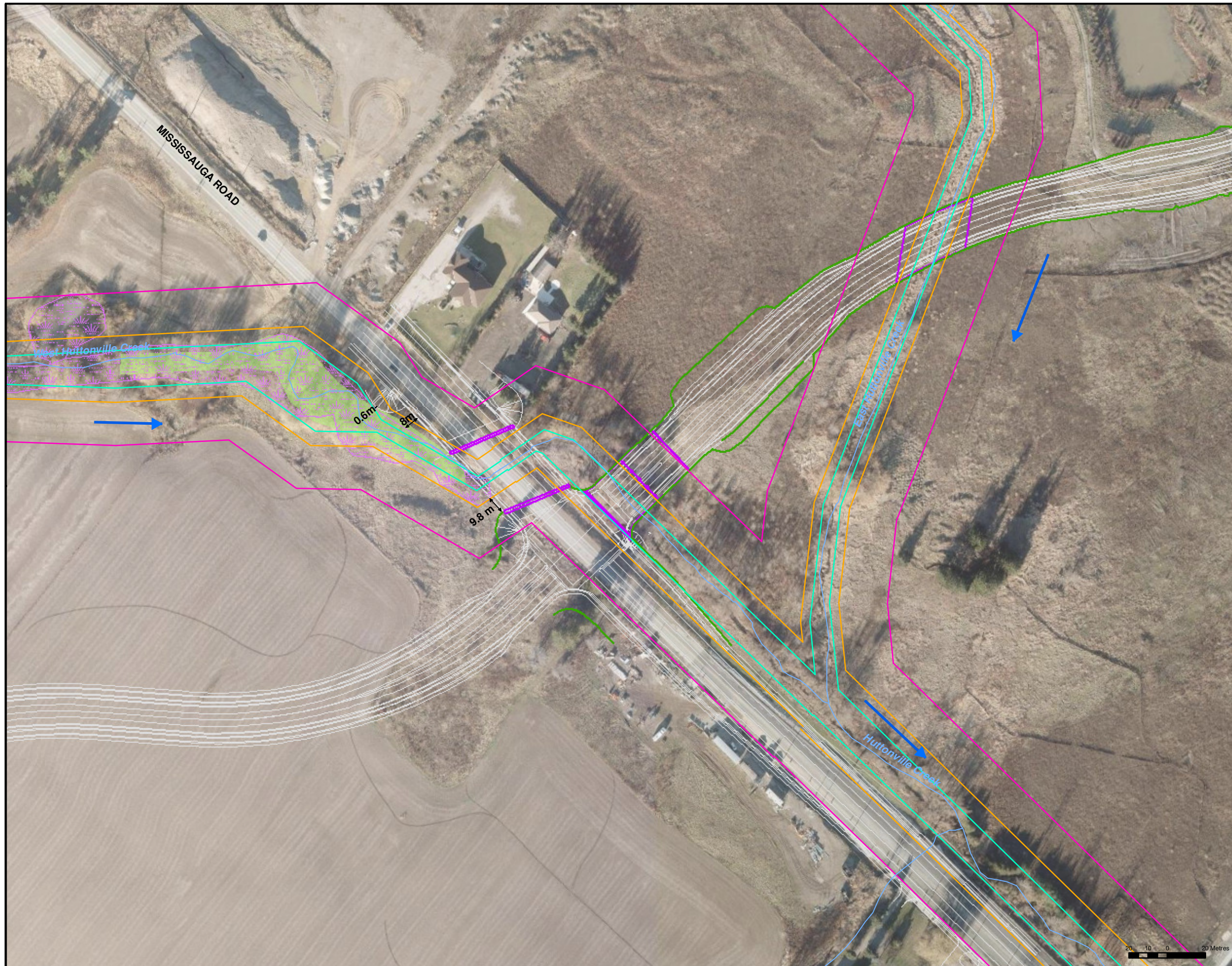
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DISCIPLINE:  
**ENVIRONMENT**

ISSUE:  
 -

REV.:  
 -





126 DON HILLOCK DRIVE, UNIT 2  
 AURORA, ONTARIO CANADA L4G 0G9  
 TEL.: 905-750-3080 | FAX: 905-727-0463 | WWW.WSP.COM

LEGEND	
	PROPOSED ALIGNMENT
	PROPOSED GRADING LIMIT
	PROPOSED BRIDGE
	FINAL MEANDER BELT (WATER'S EDGE, 2015)
	PRELIMINARY MEANDER BELT (WATER'S EDGE, 2015)
	30 m SETBACK FROM MEANDER BELT
	WATERCOURSE
	PROVINCIALY SIGNIFICANT WETLAND
	WOODED AREAS
	SURFACE WATER FLOW DIRECTION



Data Source: Ministry of Natural Resources, Ontario Base Mapping, October 2016.

CLIENT:  
**CITY OF BRAMPTON**

PROJECT:  
**NATURAL HERITAGE ASSESSMENT  
 LAGERFELD DRIVE  
 MUNICIPAL CLASS  
 ENVIRONMENTAL ASSESSMENT**

PROJECT NO: 141-15409-00 104	DATE: APRIL 2020
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DESIGNED BY:  
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DRAWN BY:  
TP

CHECKED BY:  
EF

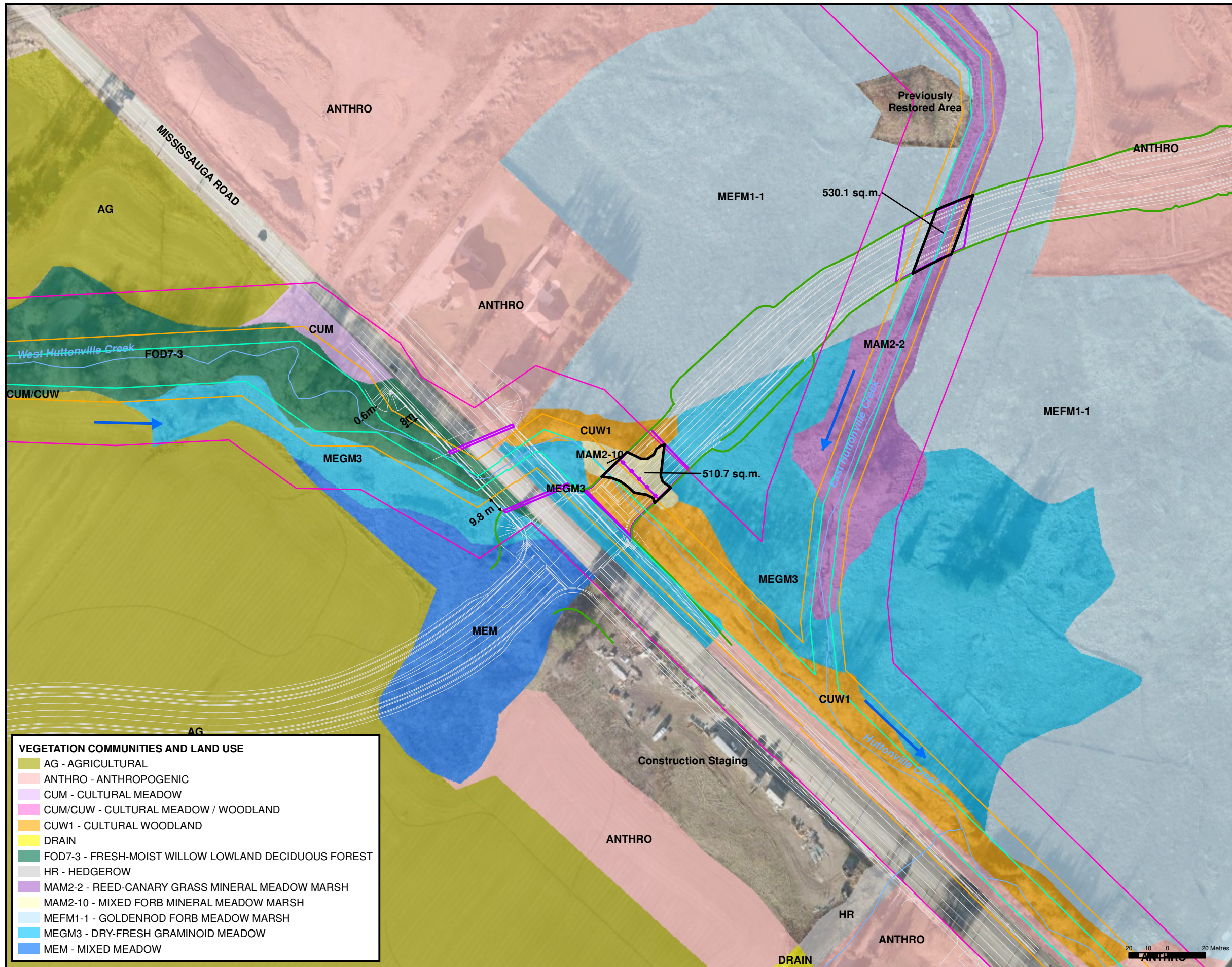
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TITLE:  
**PROPOSED ALIGNMENT**

DISCIPLINE:  
**ENVIRONMENT**

ISSUE:	REV.:
-	-





126 DON HILLOCK DRIVE, UNIT 2  
 AURORA, ONTARIO CANADA L4G 0G9  
 TEL.: 905-750-3080 | FAX: 905-727-0463 | WWW.WSP.COM

**LEGEND**

- PROPOSED ALIGNMENT
- PROPOSED GRADING LIMIT
- PROPOSED BRIDGE
- FINAL MEANDER BELT (WATER'S EDGE, 2015)
- PRELIMINARY MEANDER BELT (WATER'S EDGE, 2015)
- 30 m SETBACK FROM MEANDER BELT
- WATERCOURSE
- SURFACE WATER FLOW DIRECTION
- WETLAND IMPACTS:  
 DIRECT IMPACTS: 5.7 sq. m.  
 INDIRECT IMPACTS: 1035.1 sq. m.



Data Source: Ministry of Natural Resources, Ontario Base Mapping, October 2016.

CLIENT:  
**CITY OF BRAMPTON**

PROJECT:  
**NATURAL HERITAGE ASSESSMENT  
 LAGERFELD DRIVE  
 MUNICIPAL CLASS  
 ENVIRONMENTAL ASSESSMENT**

PROJECT NO:  
 141-15409-00 104

DATE:  
 MARCH 2021

DESIGNED BY:  
 -

DRAWN BY:  
 TP

CHECKED BY:  
 EF

FIGURE NO:  
 4B

SCALE:  
 1:2,000

TITLE:  
**VEGETATION COMMUNITY IMPACTS**

DISCIPLINE:  
**ENVIRONMENT**

ISSUE:  
 -

REV.:  
 -

**VEGETATION COMMUNITIES AND LAND USE**

- AG - AGRICULTURAL
- ANTHRO - ANTHROPOGENIC
- CUM - CULTURAL MEADOW
- CUM/CUW - CULTURAL MEADOW / WOODLAND
- CUW1 - CULTURAL WOODLAND
- DRAIN
- FOD7-3 - FRESH-MOIST WILLOW LOWLAND DECIDUOUS FOREST
- HR - HEDGEROW
- MAM2-2 - REED-CANARY GRASS MINERAL MEADOW MARSH
- MAM2-10 - MIXED FORB MINERAL MEADOW MARSH
- MEFM1-1 - GOLDENROD FORB MEADOW MARSH
- MEGM3 - DRY-FRESH GRAMINOID MEADOW
- MEM - MIXED MEADOW



# APPENDIX

## A SPECIES LISTS



## Appendix A: Species Lists

**Table 1: Bird Observations**

SCIENTIFIC NAME	COMMON NAME	GRANK <sup>1</sup>	SRANK <sup>1</sup>	COSEWIC <sup>2</sup>	SARO <sup>3</sup>
<i>Agelaius phoeniceus</i>	Red-winged Blackbird	G5	S4	-	-
<i>Bombycilla cedrorum</i>	Cedar Waxwing	G5	S5B	-	-
<i>Buteo jamaicensis</i>	Red-tailed Hawk	G5	S5	-	-
<i>Carduelis tristis</i>	American Goldfinch	G5	S5B	-	-
<i>Cathartes aura</i>	Turkey Vulture	G5	S5B	-	-
<i>Charadrius vociferus</i>	Killdeer	G5	S5B, S5N	-	-
<i>Colaptes auratus</i>	Northern Flicker	G5	S4B	-	-
<i>Columba livia</i>	Rock Pigeon	G5	SNA	-	-
<i>Contopus virens</i>	Eastern Wood-Pewee	G5	S4B	SC	SC
<i>Corvus brachyrhynchos</i>	American Crow	G5	S5B	-	-
<i>Cyanocitta cristata</i>	Blue Jay	G5	S5	-	-
<i>Dumetella carolinensis</i>	Gray Catbird	G5	S4B	-	-
<i>Eremophila alpestris</i>	Horned Lark	G5	S5B	-	-
<i>Hirundo rustica</i>	Barn Swallow	G5	S4B	THR	THR
<i>Meleagris gallopavo</i>	Wild Turkey	G5	S5	-	-
<i>Melospiza melodia</i>	Song Sparrow	G5	S5B	-	-
<i>Molothrus ater</i>	Brown-headed Cowbird	G5	S4B	-	-
<i>Passer domesticus</i>	House Sparrow	G5	SNA	-	-
<i>Passerculus sandwichensis</i>	Savannah Sparrow	G5	S4B	-	-
<i>Passerina cyanea</i>	Indigo Bunting	G5	S4B	-	-
<i>Picoides pubescens</i>	Downy Woodpecker	G5	S5	-	-
<i>Poocetes gramineus</i>	Vesper Sparrow	G5	S4B	-	-
<i>Quiscalus quiscula</i>	Common Grackle	G5	S5B	-	-
<i>Setophaga petechia</i>	Yellow Warbler	G5	S5B	-	-
<i>Spizella passerina</i>	Chipping Sparrow	G5	S5B	-	-
<i>Tachycineta bicolor</i>	Tree Swallow	G5	S5B	-	-
<i>Turdus migratorius</i>	American Robin	G5	S5B	-	-
<i>Vireo gilvus</i>	Warbling Vireo	G5	S5B	-	-
<i>Vireo olivaceus</i>	Red-eyed Vireo	G5	S5B	-	-
<i>Zenaida macroura</i>	Mourning Dove	G5	S5	-	-

<sup>1</sup> Nature Conservancy conservation concern rankings (NHIC, 2010): G - Global Level, S - Sub-national Rank (Ontario), B - Breeding, N - Non-breeding, 1 - Critically Imperiled, 2 - Imperiled, 3 - Vulnerable, 4 - Apparently Secure, 5 - Secure.

Protection status: <sup>2</sup>COSEWIC - Committee on the Status of Endangered Wildlife in Canada; <sup>3</sup>SARO - Species at Risk in Ontario; END - Endangered, THR - Threatened, SC - Special concern, "-" - Not listed. <sup>4</sup>Ontario Breeding Bird Atlas breeding evidence (Bird Studies Canada, 2006): CONF - Confirmed, PROB - Probable, POSS - Possible

**Table 2: Incidental Wildlife**

SCIENTIFIC NAME	COMMON NAME	GRANK <sup>1</sup>	SRANK <sup>1</sup>	COSEWIC <sup>2</sup>	SARO <sup>3</sup>
<i>Danaus plexippus</i>	Monarch	G5	S2N,S4B	END	SC



**Table 2: Plant Observations**

FAMILY	SCIENTIFIC NAME	COMMON NAME	CC	CW	GRANK <sup>1</sup>	SRANK <sup>1</sup>	COSEWIC <sup>2</sup>	SARO <sup>3</sup>
Aceraceae	<i>Acer negundo</i>	Manitoba Maple	0	-2	G5	S5	-	-
Adoxaceae	<i>Viburnum opulus ssp. trilobum</i>	Highbush Cranberry	5	-3	GNR	S5	-	-
Anacardiaceae	<i>Rhus typhina</i>	Staghorn Sumac	1	5	G5	S5	-	-
Apiaceae	<i>Daucus carota</i>	Wild Carrot	0	5	G?	SE5	-	-
Asclepiadaceae	<i>Asclepias syriaca</i>	Common Milkweed	0	5	G5	S5	-	-
Asteraceae	<i>Cirsium hastata</i>	Bull Thistle	0	3	GNR	SNA	-	-
Asteraceae	<i>Arctium minus ssp. minus</i>	Common Burdock	0	5	G?	SE5	-	-
Asteraceae	<i>Aster novae-angliae</i>	New England Aster	2	-3	G5	S5	-	-
Asteraceae	<i>Chrysanthemum leucanthemum</i>	Ox-eye Daisy	0	5	G?	SE5	-	-
Asteraceae	<i>Cirsium arvense</i>	Canada Thistle	0	3	G?	SE5	-	-
Asteraceae	<i>Inula helenium</i>	Elecampane	0	3	GNR	SNA	-	-
Asteraceae	<i>Solidago sp.</i>	Goldenrod Species	-	-	-	-	-	-
Asteraceae	<i>Symphyotrichum puniceum</i>	Purple-stemmed Aster	6	-5	G5	S5	-	-
Asteraceae	<i>Taraxacum officinale</i>	Common Dandelion	3	-2	G5	SNA	-	-
Asteraceae	<i>Tussilago farfara</i>	Coltsfoot	0	3	G?	SE5	-	-
Balsaminaceae	<i>Impatiens sp.</i>	Jewelweed Species						
Betulaceae	<i>Betula papyrifera</i>	Paper Birch	2	3	G5	S5	-	-
Brassicaceae	<i>Alliaria petiolata</i>	Garlic Mustard	0	0	GNR	SNA	-	-
Cornaceae	<i>Cornus stolonifera</i>	Red-osier Dogwood	2	-3	G5	S5	-	-
Cucurbitaceae	<i>Sicyos angulatus</i>	One-seeded Bur Cucumber	5	-2	G5	S5	-	-
Cupressaceae	<i>Thuja occidentalis</i>	Eastern White Cedar	4	-3	G5	S5	-	-
Dipsacaceae	<i>Dipsacus fullonum ssp. sylvestris</i>	Common Teasel	0	5	G?	SE5	-	-
Elaeagnaceae	<i>Elaeagnus angustifolia</i>	Russian Olive	0	4	G?	SE3	-	-
Fabaceae	<i>Robinia pseudo-acacia</i>	Black Locust	0	4	G5	SE5	-	-
Fabaceae	<i>Thermopsis rhombifolia</i>	Prairie Golden Bean	0	3	G5	S5	-	-
Fabaceae	<i>Trifolium pratense</i>	Red Clover	0	3	GNR	SNA	-	-
Fabaceae	<i>Vicia cracca</i>	Cow Vetch	0	5	G?	SE5	-	-
Fagaceae	<i>Quercus macrocarpa</i>	Bur Oak	5	3	G5	S5	-	-
Juncaceae	<i>Juncus effuses</i>	Soft Rush	4	-5	G5	S5	-	-
Oleaceae	<i>Fraxinus pennsylvanica</i>	Green Ash	3	-3	G5	S5	-	-
Pinaceae	<i>Picea glauca</i>	White Spruce	6	3	G5	S5	-	-
Pinaceae	<i>Pinus strobus</i>	Eastern White Pine	4	3	G5	S5	-	-
Poaceae	<i>Bromus inermis</i>	Smooth Brome	5	-3	G5	SNA	-	-
Poaceae	<i>Phalaris arundinacea</i>	Reed Canary Grass	0	-4	G5	S5	-	-

FAMILY	SCIENTIFIC NAME	COMMON NAME	CC	CW	GRANK <sup>1</sup>	SRANK <sup>1</sup>	COSEWIC <sup>2</sup>	SARO <sup>3</sup>
Poaceae	<i>Phleum pratense</i>	Timothy	0	3	G?	SE5	-	-
Poaceae	<i>Phragmites australis</i>	Common Reed	0	-4	G5	S5	-	-
Polygonaceae	<i>Rumex crispus</i>	Curly Dock	0	0	GNR	SNA	-	-
Rhamnaceae	<i>Rhamnus cathartica</i>	Common Buckthorn	0	3	G?	SE5	-	-
Rosaceae	<i>Amelanchier sp.</i>	Serviceberry species						
Rosaceae	<i>Crataegus mollis</i>	Downy Hawthorn	4	0	G5	S4S5	-	-
Rosaceae	<i>Crataegus monogyna</i>	English Hawthorn	0	3	G5	S5	-	-
Rosaceae	<i>Malus sp.</i>	Malus species						
Rosaceae	<i>Rubus idaeus</i>	Red Raspberry	2	3	G5	S5	-	-
Salicaceae	<i>Populus deltoides ssp. deltoides</i>	Eastern Cottonwood	4	-1	G5	S5	-	-
Salicaceae	<i>Salix sp.</i>	Willow species	-	-	-	-	-	-
Sapindaceae	<i>Acer saccharinum</i>	Silver Maple	5	-3	G5	S5	-	-
Solanaceae	<i>Solanum dulcamara</i>	Bittersweet Nightshade	0	0	GNR	SNA	-	-
Typhaceae	<i>Typha latifolia</i>	Broad-leaved Cattail	3	-5	G5	SE5	-	-
Ulmaceae	<i>Ulmus americana</i>	American Elm	3	-2	G5?	S5	-	-
Verbenaceae	<i>Verbena hastata</i>	Blue Vervain	4	-3	G5	S5	-	-
Vitaceae	<i>Parthenocissus quinquefolia</i>	Virginia Creeper	6	3	G5	S4?	-	-

<sup>1</sup> CC - Coefficient of Conservatism: From 0 – 10, “10” being most conservative, or only found only in relatively undisturbed habitats. <sup>2</sup> CW - Coefficient of Wetness: From -5 – 5, “-5” being obligate wetland species, “5” being obligate upland species. <sup>3</sup> Nature Conservancy conservation concern rankings (NHIC, 2010): G - Global Level, S - Sub-national Rank (Ontario), E – Exotic, 1 - Critically Imperiled, 2 - Imperiled, 3 - Vulnerable, 4 - Apparently Secure, 5 - Secure.

# APPENDIX

**B**

AGENCY

CORRESPONDENCE

## Fitzpatrick, Erin

---

**From:** Bakhit, Behnaz  
**Sent:** January 11, 2021 12:13 PM  
**To:** Fitzpatrick, Erin  
**Cc:** Roberts, Andrew  
**Subject:** FW: City of Brampton - East to West Connector (Lagerfeld Drive) Municipal Class Environmental Assessment

Hi Erin, Please see below.  
Behnaz

---

**From:** Goolsarran, Mario <[Mario.Goolsarran@brampton.ca](mailto:Mario.Goolsarran@brampton.ca)>  
**Sent:** Tuesday, September 10, 2019 8:46 AM  
**To:** Nalliah, Daniel <[Daniel.Nalliah@wsp.com](mailto:Daniel.Nalliah@wsp.com)>; Roberts, Andrew <[Andrew.Roberts@wsp.com](mailto:Andrew.Roberts@wsp.com)>  
**Subject:** FW: City of Brampton - East to West Connector (Lagerfeld Drive) Municipal Class Environmental Assessment

Good Morning Daniel and Andrew,  
Please see email communication below between the City and MECP as it relates to an agreement in principle to remove the project phasing. The email itself should form part of the ESR Appendix and the language can be used exactly as part of the Approvals and Permit Section of the ESR.

Regards,

---

**Mario Goolsarran, P. Eng., PMP**

Senior Project Engineer, Infrastructure Planning  
Public Works & Engineering, City of Brampton  
1975 Williams Parkway, Brampton, ON, L6S 6E5  
Tel: 905-874-5164  
Email: [Mario.Goolsarran@brampton.ca](mailto:Mario.Goolsarran@brampton.ca)



---

**From:** McAllister, Aurora (MECP) <[Aurora.McAllister@ontario.ca](mailto:Aurora.McAllister@ontario.ca)>  
**Sent:** 2019/08/28 2:25 PM  
**To:** Goolsarran, Mario <[Mario.Goolsarran@brampton.ca](mailto:Mario.Goolsarran@brampton.ca)>  
**Cc:** Parajuli, Bishnu <[Bishnu.Parajuli@brampton.ca](mailto:Bishnu.Parajuli@brampton.ca)>  
**Subject:** RE: City of Brampton - East to West Connector (Lagerfeld Drive) Municipal Class Environmental Assessment

Hi Mario,

I can confirm the statements below. The Ministry will be expecting that the overall benefit requirements for Redside Dace associated with this project will be more than what is normally approved as the Ministry is accepting a scenario that is would not normally supported (i.e. more than one stream crossing within 1km on an occupied reach of stream).

Regards,

Aurora

Aurora McAllister | Management Biologist | Permissions and Compliance | Species at Risk Branch | Ontario Ministry of Environment, Conservation and Parks |  
50 Bloomington Road, Aurora, Ontario, L4G 0L8 | Email: [aurora.mcallister@ontario.ca](mailto:aurora.mcallister@ontario.ca)

---

**From:** Goolsarran, Mario <[Mario.Goolsarran@brampton.ca](mailto:Mario.Goolsarran@brampton.ca)>

**Sent:** August 12, 2019 9:59 AM

**To:** McAllister, Aurora (MECP) <[Aurora.McAllister@ontario.ca](mailto:Aurora.McAllister@ontario.ca)>

**Cc:** Parajuli, Bishnu <[Bishnu.Parajuli@brampton.ca](mailto:Bishnu.Parajuli@brampton.ca)>

**Subject:** City of Brampton - East to West Connector (Lagerfeld Drive) Municipal Class Environmental Assessment

**Importance:** High

Hi Aurora,

Following our July 19, 2019 meeting at your Aurora office, it was agreed that the City would provide you a draft commitment to be included in the Environmental Study Report (ESR) as it relates to future permitting requirements associated with the construction of East-West Connector Road (Lagerfeld Drive) EA.

The City proposes to include the following under the Permits and Approvals Section of the ESR.

“In December of 2017, a preliminary preferred alignment for the road was recommended and presented to commenting agencies. Ministry of Natural Resources and Forestry (MNRF) supported the alignment in principal but suggested a phased approach. MNRF email dated December 11, 2017 is reproduced below.

*MNRF can support defining the Right-of-Way east of Mississauga Road to allow adjacent landowners the ability to develop their draft plans or site plans. MNRF can support road alignment west of Mississauga Road. East of Mississauga Road is subjected to further negotiations and conditions below due to existing negotiated agreements, approvals, provincial policies and legislation.”*

*MNRF Suggested approach for the Right-of Way east of Mississauga Road:*

- 1. Secure location and width of ROW east of Mississauga Road in the EA*
- 2. Region of Peel to continue their detailed design of for the Mississauga Road 4 lane project;*
- 3. Region of Peel to apply for an ESA permit for item 2*
- 4. City of Brampton to monitor traffic patterns and volumes post ultimate construction of Bovaird Drive (6 lanes) and Mississauga Road (6 lanes), in the immediate vicinity of the East to West Connector. If ultimate build out of Regional roads cannot address traffic demands, reassess need for linkage to Mount Pleasant Station. Engage MNRF and DFO in consultation.*

MNRF suggested phased approach for development of the road link west of Mississauga Road first, is in contradiction with the City’s current development plans and build out which is progressing from east to west in the western part of the City. There are a number of development projects in progress east of Mississauga Road that need access from the proposed East-West Connector sooner than the construction of Mississauga Road and Bovaird Drive. Therefore, the road link east of Mississauga Road takes priority over the west portion.

With the administration of the endangered species being transferred to the Ministry of the Environment, Conservation and Parks (MECP) in early 2019, the City met with MECP on July 19, 2019 to further discuss the initial MNRF suggested approach and to determine appropriate mitigation measures, recognizing that there cannot be complete avoidance of potential impacts to Redside Dace habitat.

During the alternative assessment, reasonable alternatives were considered. Based on the preliminary preferred design, some impacts to Redside Dace habitat are unavoidable. Subject to provincial policies including Guidance for development activities in Redside Dace protected habitat (MNRF, 2016), an Overall Benefit Permit per the Endangered Species Act will be required at the detailed design phase of the project.

Based on discussions between MECP and the City at the July 19, 2019 meeting, the following was determined:

- During the detailed design phase of the project, the City will apply for an Overall Benefit Permit that is expected to be above and beyond the normal requirements. Details of the Permit will be subject to additional discussions with MECP.
- The requirement for this Overall Benefit permit supersedes the previous MNRF suggested phased approach (item#4 above). MECP agrees in principle for the City to proceed with the project implementation as per the preliminary preferred design and based on its current development and transportation needs.
- Other standard permitting requirements still apply.

Please confirm your agreement on the above wording.

Thank you,

---

**Mario Goolsarran, P. Eng., PMP**

Senior Project Engineer, Infrastructure Planning  
Public Works & Engineering, City of Brampton  
1975 Williams Parkway, Brampton, ON, L6S 6E5  
Tel: 905-874-5164  
Email: [Mario.Goolsarran@brampton.ca](mailto:Mario.Goolsarran@brampton.ca)



## Fitzpatrick, Erin

---

**From:** Hatami, Hamid <hamid.hatami@brampton.ca>  
**Sent:** June 18, 2014 7:34 AM  
**To:** Delibasic, Mehemed  
**Subject:** FW: Reminder: Brampton Transportation Master Plan Update \_ MNR Comments  
**Attachments:** Roads Map - MNR Feedback.pdf; RSD\_Peel\_April12\_2013.pdf; REDSIDE DACE\_OVERALL.pdf; 1613074 Brampton DC 2041 Road Imprv Structures June 10.pdf

Mehemed:

FYI

HH

---

**From:** Roias, Marta  
**Sent:** 2014/06/17 2:23 PM  
**To:** Sears, Brett  
**Cc:** Peter Hillier (HillierP@mmm.ca); Mick Oliveira (MOliveira@mrc.ca); Bobb, Compton; Duyvestyn, Chris; Hale, Brad; Hatami, Hamid; Spencer, John; Won, Michael; Zbogor, Henrik  
**Subject:** FW: Reminder: Brampton Transportation Master Plan Update \_ MNR Comments

Brett,

By copy I am forwarding [MNR comments and feedback below with attachments \( Roads Map-MNR Feedback.pdf and RSD Peel April12 2013.pdf\)](#) - to the TMPU project team/City staff for information.

(For our quick reference also attached is [REDSIDE DACE OVERALL.pdf](#) and [1613074 Brampton DC 2041 Road Imprv Structures June 10.pdf](#) acknowledging Endangered Species – specifically Redside Dace stream crossing locations - through the TMPU 's DC process)

Looking forward...

Marta

Marta Roias MCIP, RPP  
Transportation Project Manager

Long Range Transportation Planning  
Planning & Infrastructure Services  
City of Brampton  
2 Wellington Street West Brampton ON L6Y 4R2  
Phone: 905.874.2088 Fax: 905.874.2099

FOLLOW US ON 



---

**From:** Heaton, Mark (MNR) [<mailto:mark.heaton@ontario.ca>]

**Sent:** 2014/06/17 1:12 PM

**To:** Sears, Brett

**Cc:** Roias, Marta; Burkart, Jackie (MNR); Won, Michael; Hatami, Hamid; ESA Aurora (MNR); Funnell, Emily (MNR)

**Subject:** RE: Reminder: Brampton Transportation Master Plan Update

Hello Brett,

MNR has completed a review of the information provided in the project website.

The attached map indicates where proposed roads are in conflict with endangered species habitat that is regulated under Ontario's Endangered Species Act 2007. Four new stream crossings are highlighted.

Through this process, it would be helpful for the City to acknowledge endangered species habitat and avoid planning new roads in these environmentally sensitive areas. Alternative locations should be recommended. The attached map depicting Redside Dace streams is provided to inform this process.

Thank you

Mark Heaton  
OMNR Aurora

---

**From:** Brett Sears [<mailto:SearsB@mmm.ca>]

**Sent:** June 17, 2014 11:38 AM

**To:** Aaron; AB; Alexandre Payette; Alexis; Anita Ramadhin; Brian Lakeman; Brian van Stokkum; Carol Ogilvie; Chris Hewitt; Chris Yao; Claudio Angelucci; Compton Bobb; Cooper; Daniel Visentin; David Laing; Debra Renfro; Deon; Divyesh Mistry; Emily; Eric Chan; Francis; Gavin Bailey; Geoff Campbell; George Mejury; Gisele Williams; Jack; Jackie Titus; Jacqueline; James Bradbury; Janet Kuzniar; Janet Kuzniar 2; Jatinder; Jenn Morrison; Jessica Vanstokkum; Jim Mccoll; Joe Pimentel; Joel Rasiah; John Spencer; Jose Ferreras; Juanita Bueschleb; Judy O'Shea; Julian; Kamwal Murtaza; Kazim Alikhan; Kevin Montgomery; Khaled Sasa; Kimberley Annette; Kimberley Ferno; Krystah; Krystal-Faith Anderson; Lauren Tollstam; Laurie Mayotte; Lisa Bland; Liz Pereira; loui; Malik Majeed; Marja Mol; Matthew; Melissa Thomas; Melissa Thomas 2; Meva Sellars; Michael Freeman; michael halls; MP McBride; Nancy Brown; Natalie Antoine; ND; Nick; Oommen Joseph; Parry; Paul Postiglione; Peter VanSickle; Poornachandran Ramasamy; Ravikiran; Rian Simmonds; Roberta Canning; Robi van Belkom; Robin Conklin; Romona Mohabir; Ross; Ryan Booth; S Madgal; Sachith Jayasundara; Shanice; Shaun Sammut; Stewart Fraser; Sudha; Tyson Hill; Vindy K; Virpal Kataure; Abdul Shaikh; Alana De Gasperis; Albert Aazouz; Alderville First Nation; Alexandra Barrett; Beaudin, Alexandre (EDU); Alexandre Payette; Alison Headland; Andrew Pearce; Angela & Bruno Battiston; Angela & Bruno Battiston; Anna Bohus; Anthony Hutchinson; Art Welter; Arvin Prasad; Beth Bjarnason; Bill Coldicott; Bind Sathivelu; Bob Nieuwenhuysen; Branko Vidovic; Brian Denney; Brian MacDonnell; Carl Brawley; Carole Spraggett; Woodland Carolyn; Chris Bejnar; Chris Milis; Christine Pritchard; Liu, Chunmei (ENE); City Clerk; Craig White; Crystal Greer; Curve Lake First Nation; Cutris Grant; Dan Murray; Dan Tovey; Darlene Presley; Dave Dundas; Sit, David (MAH); David Walmsley; Dean Burnett; Don Francey; Donna Kerr; Enbridge; Farooq Qureshey; Fred Martinez; Fredd Priagula; Gino Delacruz; Grant Uyeyama; Helen Warner; Egeh, Hodan (MAH); Hoeun Heng; Burkart, Jackie (MNR); Jacqueline Candaris; Jakub Killis; Jean-Pierre Hoyeck; Jenna Canning; Jim Arnott; John Kinkead; John La Chapelle; John Linhardt; John Willets; Jon Brohman; Jose Montouto; Josh Campbell; Karen Landry; Karry Sandy-McKenzie; Karyn Bennett; Kathryn Dewar; Kathryn Lockyer; Keri-Ann Templeton; Kevin O'Brien; Kristina Jackson; Laura Giuntal; Laverne Soodeen; Leo O'Brien; Linda Bateson; List Myslicki; Lorraine Symmes; Madhur Shrestha; Christie, Mark (MAH); Mark Crawford; Heaton, Mark (MNR); Mark Resnick; Martin Ivancic; Maureen Van Ravens; Melissa Dokis; Michael Fleischer; Mississauga of the New Credit First Nation; Mississauga of Scugog Island; Moose Deer Point First Nation; Nancy Taylor; Nick Coleman; Nick DeBoer; Paddy Sreeram; Paulo Da Silva; Peel Aboriginal Network; Perry Vagnini; Quentin Handchard; Ranjana Mitra; Ray Bacquie; Ray Davies; Richard Beck; Rick Schatz; Rob Dobos; Robert Evangelista; Roman Dorfman; Ron Glenn; Rosa Bonifacio; Rosemary Humphries; Rosemary Keenan; Zirger, Rosi (MTCS); rowcenter; Ruth Bender; Sabbir Siayed; Sabrina L Sgotto; Sandy Little; Selma Hubjer; Sheldon Leiba; Signe Leisk; Stephanie Cox; Stephanie Crocker; Steve Burke; Steve Ganesh; Suzanne Barrett; Suzanne Jones; Tammy Grey; Tara Buonpensiero; Tom McKay; Tom Slomke; Walter Kloostra; Yuri Michael Pelech; Zahir Najak

**Cc:** [marta.roias@brampton.ca](mailto:marta.roias@brampton.ca)

**Subject:** Reminder: Brampton Transportation Master Plan Update

Dear Colleague,

Thank you to all who have submitted comments on the Brampton Transportation Master Plan Update through the project website - <http://www.brampton.ca/tmp2014>

If you have not yet done so, please act now, as the online interactive engagement tool will close on June 24, 2014, to conclude the second round of public consultation that began on April 23, 2014 at the Public Information Centre. The input received over the past two months will help to inform the finalization of a preferred future transportation network for the city.

Although the interactive tool will close after June 24<sup>th</sup>, please feel free to submit comments at any time via e-mail to [tmp@brampton.ca](mailto:tmp@brampton.ca).

Regards,

**Brett Sears, M.Pl., MCIP, RPP**

Senior Project Planner

Transportation Planning

MMM Group Limited

100 Commerce Valley Drive West

Thornhill, Ontario, Canada L3T 0A1

t: 905.882.4211 x6573 | f: 905.882.7277 | c: 647.567.0960

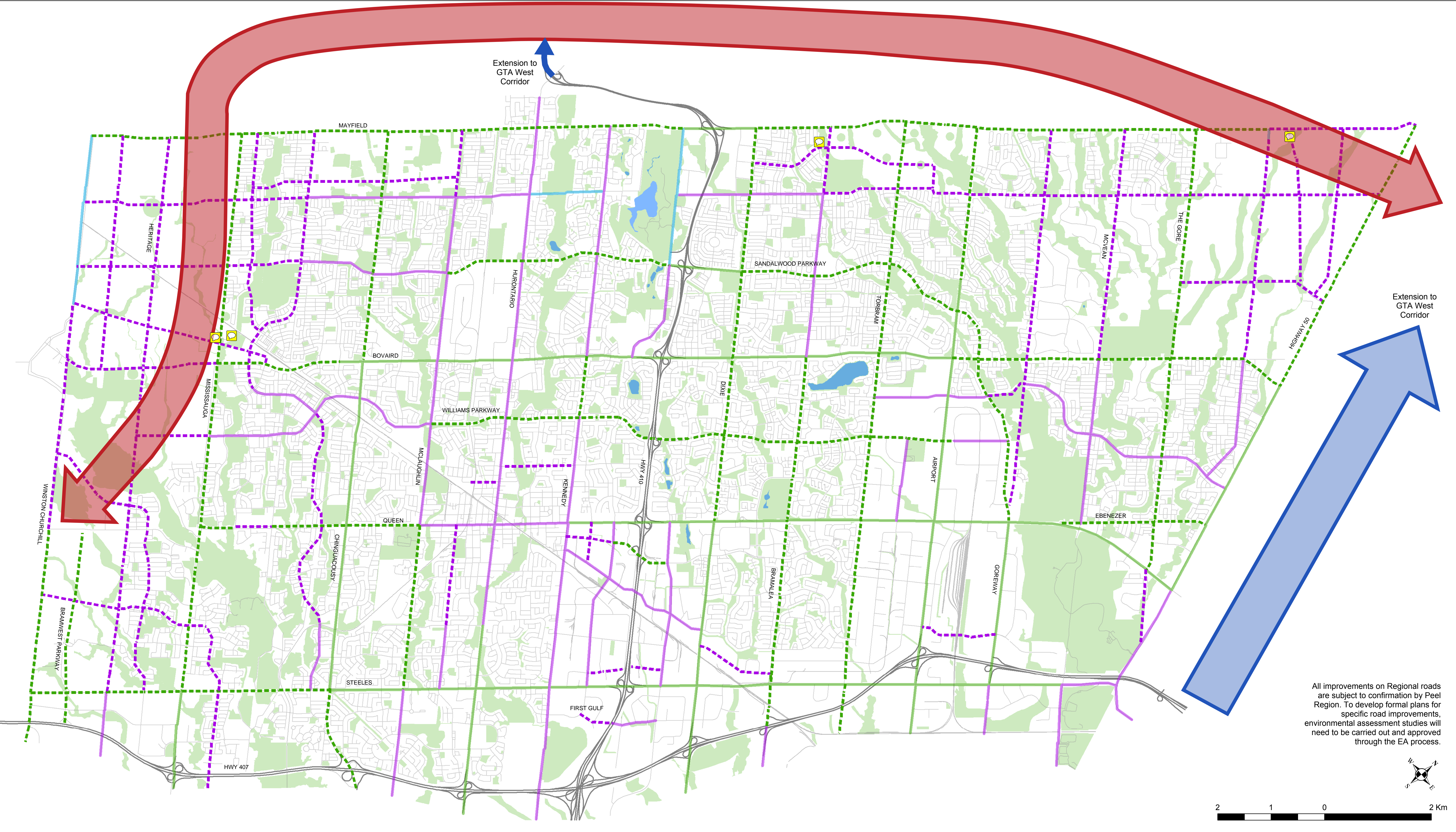
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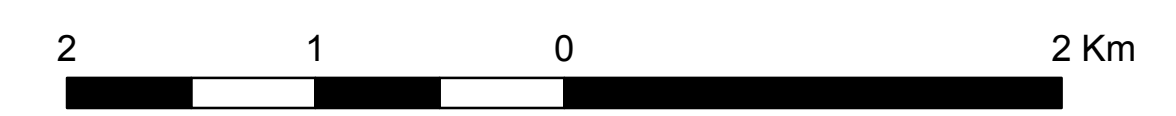
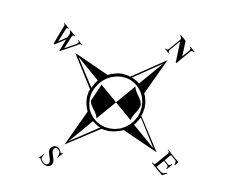
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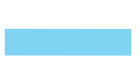


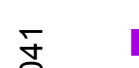
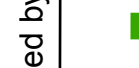
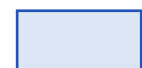


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All improvements on Regional roads are subject to confirmation by Peel Region. To develop formal plans for specific road improvements, environmental assessment studies will need to be carried out and approved through the EA process.



Legend	
	Two Lanes
	Four Lanes
	Six Lanes
	Planned by 2041 Four Lanes
	Six Lanes
	Highway 427 and Extension
	Provincial Highway
	Conceptual GTA West Corridor

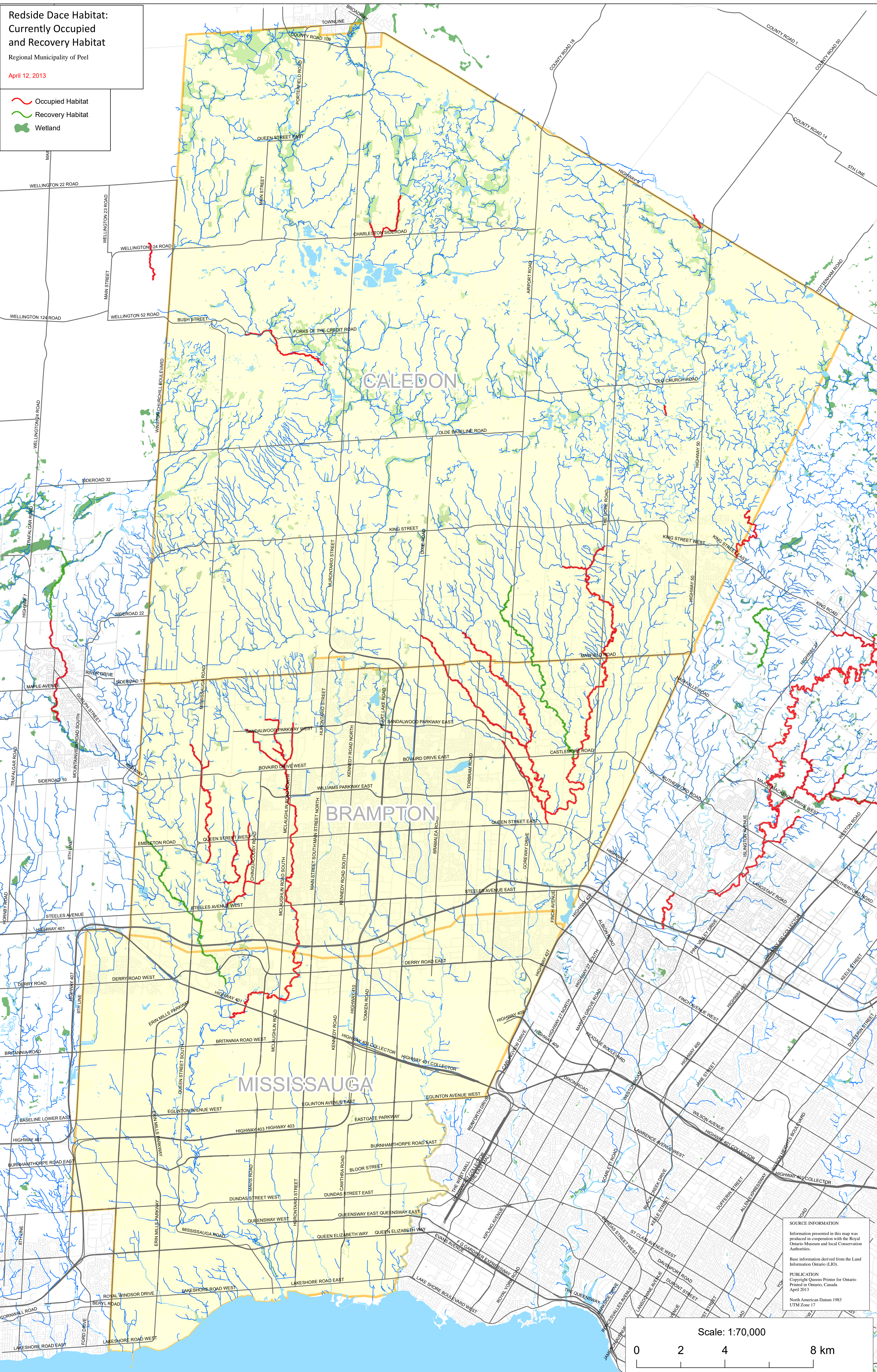


**Redside Dace Habitat:  
Currently Occupied  
and Recovery Habitat**

Regional Municipality of Peel

April 12, 2013

- Occupied Habitat
- Recovery Habitat
- Wetland



**SOURCE INFORMATION**  
 Information presented in this map was produced in cooperation with the Royal Ontario Museum and local Conservation Authorities.  
 Base information derived from the Land Information Ontario (LIO).  
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