# **APPENDIX F**

Natural Heritage Assessment Summary

# **MEMO**

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FROM: Daniel Bourassa, Dillon Consulting Limited

**DATE:** March 23, 2020

SUBJECT: Livingston Avenue Extension EA - Natural Heritage Assessment Summary

**OUR FILE:** 18-7650

Dillon Consulting Limited (Dillon) was retained by the Regional Municipality of Niagara (the Region) to undertake the Environmental Assessment (EA) for the Livingston Avenue Extension under the Municipal Class Environmental Assessment (Class EA) process. The EA document will outline existing conditions of the natural environment, evaluate the potential for environmental impacts associated with the road extension, and recommend mitigation, restoration and enhancement measures to preserve and / or restore natural features.

This memo provides a summary of methods and findings of the 2018 and 2019 field studies undertaken in association with the Livingston Avenue Extension EA Focused Study Area (herein referred to as the "Study Area") within the Town of Grimsby (**Attachment A**; Figure 1).

# **Methodology**

Existing conditions for the Study Area are based on field investigations completed in 2018 and 2019, existing published data, and data made available through various public agencies and web-based mapping programs. Data reviewed to evaluate existing conditions of the Study Area include provincial data sets from the Ministry of Natural Resources and Forestry (MNRF), Fisheries and Oceans Canada (DFO), Municipal and Regional Official Plans, Niagara Peninsula Conservation Authority (NPCA) and the 2015 Terrestrial and Aquatic Ecosystems Existing Conditions report prepared for the Region in support of the previous EA initiated for the Livingston Avenue Extension by Amec Foster Wheeler in 2015.

Fieldwork was conducted on June 8, July 3, August 7 and October 23 in 2018, and August 26 and September 4 in 2019 when weather conditions and timing were deemed suitable based on the survey protocols being implemented. Fieldwork in 2018 consisted of Ecological Land Classification (ELC) of vegetation communities, three botanical surveys (spring, summer and fall), an aquatic assessment, and breeding bird surveys. In 2019, a tree inventory was completed for the Livingston Avenue right-of-way. Incidental wildlife observations made during the aforementioned surveys were also documented.

The main natural heritage features investigated within the Study Area were four woodlands (**Attachment A**; Figure 1; Woodlands A - D). Woodland A is located east of Oakes Road North and north of the rail line operated by Canadian National Railway (CNR). Woodland B is located east of Oakes Road North, north of Main Street West and south of the rail line. Woodland C is located further east of Woodland B, west of Hunter Road and north of Main Street West. Continuing east within the Study Area, Woodland D is located east of Hunter Road and south of the rail line.

Methods used to complete the biophysical inventories within aquatic and terrestrial environments of the Study Area are summarized in the sections below.

# **Aquatic Environment**

### **Aquatic Assessment**

A single permanent watercourse was identified within the Study Area based on a background review (**Attachment A**; Figure 1). An aquatic assessment was completed for the watercourse on August 7, 2018. The assessment included (where applicable) channel form, presence / absence of flow, substrate type,

channel dimension, riparian vegetation and whether the system had the potential to support fish habitat. Fish community sampling was not completed.

#### Terrestrial Environment

#### **Ecological Land Classifications**

Vegetation communities were assessed using ELC as a first step to update previous ELC findings and assess potential natural heritage features within the Study Area. During the field investigations vegetation was characterized using the ELC System for Southern Ontario (Lee et al., 1998; Lee, 2008) in order to classify and map ecological communities to the vegetation type. The ecological community boundaries were determined through the review of aerial photography and then further refined through a visual survey of on-site vegetation. In addition to the vegetation survey, a basic soil assessment was conducted to identify the soil moisture class within the ecosystem. Soil texture and site moisture characteristics were determined through the examination of hand auger soil profiles to further refine the ELC classification.

The ELC protocol recommends that a vegetation community be a minimum of 0.5 ha in size before it is defined. Based on the composition of vegetation communities within the Study Area, patches of vegetation less than 0.5 ha or disturbed / planted vegetation were described, provided they clearly fit within an ELC vegetation type.

#### **Botanical Assessment**

A three-season (spring, summer and fall) botanical assessments was completed in 2018. Surveys consisted of wandering transects and / or area searches to determine the presence, richness and abundance of botanical species within the Study Area. Species nomenclature was documented based on the Ontario Plant List (Newmaster et al., 1998). The resulting list of botanical species also incorporated trees identified within the Study Area as part of a tree inventory conducted in 2019.

#### Tree Inventory

Given the proposed impacts to trees by the proposed Livingston Avenue Extension, a tree inventory was conducted within the Livingston Avenue proposed road allowance, from Emily Street to Hunter Road. The tree inventory was conducted in accordance with policies of the NPCA's Regional Tree and Forest Conservation By-law (No. 30-2008). In accordance with the By-law, trees with a diameter at-breast height (DBH) ≥ 10 cm were inventoried.

Data collected for each tree included the identification of species, DBH, condition, and location. The tree inventory was completed by an International Society of Arboriculture Certified Arborist (OA-2073A).

#### **Breeding Bird Surveys**

Breeding bird surveys were conducted to establish baseline conditions, and to determine whether significant wildlife habitat (SWH) exists within the Study Area. Diurnal breeding bird surveys conducted within the Study Area followed the methods outlined in the Ontario Breeding Bird Atlas Guide for Participants (Cadman et al., 2007), and were completed between late-May and early-July to capture early and late season breeders. Surveys consisted of point counts conducted between dawn and five hours after sunrise to establish quantitative estimates of bird abundance in suitable habitat types within the Study Area. During the surveys, evidence of breeding behaviour was recorded which generally includes, but is not limited to, males singing, nest building, egg incubation, territorial defence, carrying food, and feeding their young.

#### Incidental Wildlife

A general wildlife assessment was completed within the Study Area through incidental observations while on site. Incidental wildlife observations were noted as well as other wildlife evidence such as dens, tracks,

and scat. For each observation, notes, and when possible, photos were taken. These observations helped to determine potential ecological functions, linkages, etc. within the Study Area.

# **Species at Risk & Species of Conservation Concern**

In addition to the field investigations, a search of the Natural Heritage Information Centre (NHIC) database and other available wildlife atlases was conducted to identify possible occurrences of federal and / or provincial Species at Risk (SAR) and / or provincially rare species in proximity to the Study Area. SAR are defined as those listed as Endangered or Threatened under the *Endangered Species Act*, 2007 (ESA). Species of Conservation Concern (SCC) are defined as species listed as Threatened or Endangered under the federal *Species at Risk Act*, 2002 (SARA), but not under the provincial ESA; species that are provincially rare / tracked (i.e., have a Sub-national (provincial) Rank of S1 – Critically Imperiled, S2 – Imperiled or S3 – Vulnerable) and / or are listed as Special Concern under the ESA.

# Identification of Significant Wildlife Habitat

SWH are types of natural heritage features that are identified for protection by provincial policy. They consist of wildlife habitats, including vegetation communities, which are ecologically important in terms of features, functions, representation or amount, and contribute to the quality and diversity of an identifiable geographic area or a Natural Heritage System. SWHs are identified on the basis of ELC communities using applicable criteria specific to a region.

Criteria for determining SWH follow the guidelines outlined in the Natural Heritage Reference Manual (NHRM; MNRF, 2010), the Significant Wildlife Habitat Technical Guide (SWHTG; MNRF, 2015) and the Ecoregion 7E Criteria Schedules (MNRF, 2015), where applicable.

# **Existing Conditions Results**

This section provides a summary of natural environment baseline conditions determined for the Study Area, and includes a summary description of:

- · Fisheries and Aquatic Habitat;
- Terrestrial Resources;
- Species at Risk; and
- Species of Conservation Concern and Significant Wildlife Habitat.

# **Background Review**

Existing conditions data was acquired from several sources as a result of the background review. Numerous sources were consulted to characterize baseline conditions of the Study Area. These are summarized below.

#### **Ministry of Natural Resources and Forestry**

An Information Request was sent to the MNRF Guelph District Office on August 30, 2018. Comments received from the MNRF (September 26, 2018) indicated that there are no significant natural features (Wildlife Concentration Areas, Areas of Natural and Scientific Interest [ANSI], Provisionally Significant Wetlands [PSW]) located within the Study Area (**Attachment B**).

Feedback received from the MNRF Guelph District (September 26, 2018) included a list of 34 species that have the potential to occur within the Town of Grimsby; this list was reduced by completing a review of secondary source information, including NHIC database records of the Study Area. In total, 14 SAR and six SCC were determined to have the potential to occur within 1 km of the Study Area.

# **Niagara Peninsula Conservation Authority**

An information request was sent to the NPCA on August 30, 2018. A response from the NPCA (received on November 5, 2018) was consistent with information provided by the MNRF; there are no significant natural features identified within the Study Area (**Attachment B**). Base mapping provided by the NPCA indicate that there are two regulated watercourses located within the Study Area (NPCA, 2018); however, previous studies completed within the Study Area confirmed the presence of a single permanent watercourse with the potential to provide fish habitat in association with Woodland D (Amec Foster Wheeler, 2015).

NPCA online mapping indicates that the Study Area falls within lands designated as Significant Groundwater Recharge Areas and areas of Highly Vulnerable Aquifer (NPCA, 2018). NPCA outlines planning guidelines for Significant Groundwater Recharge Areas and Highly Vulnerable Aquifer Areas in the *Policies, Procedures and Guidelines for the Administration of Ontario Regulation 155/06 and Land Use Planning Policy Document* (2011). These planning guidelines were considered in the development of alternatives for the Study Area.

Local Municipal and Regional Official Plans were also consulted to characterize baseline conditions along the corridor. This is described below.

### Niagara Region Official Plan, 2014

The Niagara Regional Official Plan (ROP) outlines the Core Natural Heritage System containing environmental features and functions of special importance to the Region's ecosystem. Schedule C of the ROP maps these features. The Core Natural Heritage System consist of the following:

- Core Natural Areas, classified as either Environmental Protection Areas or Environmental Conservation Areas:
- Potential Natural Heritage Corridors connecting the Core Natural Areas;
- The Greenbelt Natural Heritage and Water Resources System; and
- Fish Habitat.

Based on review of Schedule C, as well as the potential for the watercourse associated with Woodland D to provide fish habitat, Woodland D is identified as an Environmental Conservation Area. In addition, Woodland D also meets the ROP criteria for woodland significance.

Development and site alteration within the Core Natural Heritage System is subject to both the Healthy Landscape Policies and the Core Natural Heritage Policies in Chapter 7 within the ROP.

#### **Town of Grimsby Official Plan, 2012**

Section 4.0 of the Town of Grimsby's Official Plan (OP; 2012) outlines policies for Environmental Management and Sustainability, specifically policies to protect Grimsby's ecological health and environmental sustainability. Appendices 1 through 5 of the OP map these features (**Attachment C**). Within the Study Area, Appendix 1 to 4 of the OP identifies the watercourse associated with Woodland D as a stream / fish habitat, in addition to being a Key Hydrologic Feature. No other significant Natural Heritage Features are mapped in Appendices 1 to 4 of the OP within the Study Area.

Appendix 5 of the Town of Grimsby's OP indicates that the majority of the Study Area falls within an area of High Aquifer Vulnerability. Within this area, certain types of uses related to manufacturing, managing or storing hazardous materials would be restricted in order to avoid contamination of surface water which could in turn affect groundwater quality. Section 4.2.7 and Section 10.2.2.4 of the Town of Grimsby's OP identifies these uses. None of these uses apply to the potential transportation infrastructure expansion.

Mapping in Schedules G and K of the Town of Grimsby's OP identify Woodland D as an Environmental Conservation Area and the watercourse associated with Woodland D as an Environmental Protection Area. However, the Livingston Avenue right-of-way associated with Woodland D is excluded from the Environmental Conservation Area and Environmental Protection Area designations in Schedules G and K (Attachment C).

#### 2015 Terrestrial and Aquatic Ecosystems Existing Conditions Report

Although the Study Area associated with the existing conditions report prepared in support of the previous EA initiated for the Livingston Avenue Extension was significantly smaller in size than the current Study Area, the report was reviewed in order to inform the 2018 field program. Note, electrofishing activities completed in 2014 in association with the permanent watercourse resulted in no catch.

# **Field Investigation Results**

# **Aquatic Environment**

#### **Fisheries and Aquatic Habitat**

The Study Area is located within the NPCA designated Lake Ontario South Shore sub-watershed and the Niagara Peninsula Source Protection Area (NPSP; NPCA 2004 and NPCA 2013). The drainage basin of the sub-watershed covers approximately 40% of the Niagara Peninsula Source Protection Area, and has a drainage area of 598 km² (NPCA 2012; NPCA 2013).

The watercourse associated with Woodland D is an unnamed feature. This feature's headwaters are located more than 1 km south of the Study Area and flow north, ultimately discharging into Lake Ontario. Results from the aquatic assessment completed in August 7, 2018 indicated that the watercourse is a

permanent stream, has the potential to provide fish habitat, and appears to have been straightened with typical flat morphology and areas of riffle and run. Clay was the dominant substrate with sections of boulder, gravel and sand substrate with occasional silt also observed.

The bankfull dimensions of the channel were approximately 3.0 m wide and 1.5 m deep. The wetted width and depth were approximately 1.5 m and 0.30 m, respectively. Signs of erosion were evident along both banks as there were steep areas with exposed and erodible soil. In-stream cover was sparse and consisted of boulders, in-stream and overhanging woody debris, and vascular macrophytes. The majority (e.g., 90 - 100%) of the stream was shaded and aquatic macrophytes consisted of cattails (*Typha sp.*) and watercress (*Nasturtium officinale*). The latter species suggests evidence of groundwater input into the watercourse. The adjacent riparian community consisted of forest to the east and west. Photos of the channel are provided in **Attachment D** (Table D-1: Photos 1 - 4).

On the downstream end of the Study Area, the watercourse passes through a box culvert at the railway crossing. On the upstream end, the watercourse passes through a corrugated steel pipe (CSP) culvert, which is used as an agricultural crossing. Further upstream and outside of the Study Area, the watercourse passes through multiple CSPs and the water levels appeared low with dense vegetation growing in the streambed.

#### **Permitting Requirements**

Following the review of background material and the results of the 2018 aquatic assessment, there is evidence to suggest that the unnamed watercourse provides suitable fish habitat. As such, in the absence of mitigation measures, the proposed Livingston Avenue Extension has the potential to cause harm to fish or fish habitat as per Section 35 of the *Fisheries Act* (R.S.C., 1985, c. F-14). As a result, it is anticipated that a *Fisheries Act* review by DFO will be required. To meet this requirement, the submission of a Fisheries Act Request for Review package should be submitted to DFO at 60% design completion. If upon review of the submission package DFO deems the project unlikely to cause a Harmful Alteration, Disruption or Destruction (HADD) of fish habitat, a Letter of Advice may be issued in support of project works. However, should DFO determine that the project is likely to cause a HADD, a Fisheries Act Authorization may be required.

As the drainage feature is mapped by the NPCA, additional consultation and permitting may be required under *Ontario Regulation 155/06* prior to commencing the proposed activities associated with the Livingston Avenue Extension.

#### **Terrestrial Environment**

#### **Ecological Land Classification and Botanical Surveys**

ELC surveys were completed for the Study Area on July 8, 2018. The location, type and boundaries of vegetation communities identified within the Study Area are shown on Figure 2 (**Attachment A**). Each of the vegetation communities surveyed within the Study Area are considered common in Ontario. A total of 14 natural ecological communities were observed within the Study Area during the ELC survey, in addition to 12 cultural communities.

The majority of the Study Area consists of cultural communities identified as Business Sector (CVC\_1), Agricultural (OAG, OAGM1), and residential (CVR). Additional cultural communities within the Study Area include orchards (SAGM2), parkland (Recreational; CGL), institutional areas (Churches, CV; Education, CVS\_1) as well as unmaintained grassy areas (e.g., areas where maintenance is less frequent than manicured lawns).

Natural vegetation communities observed within the Study Area were associated with the four Woodlands (i.e., Woodlands A – D). Woodlands were comprised of predominantly deciduous forest communities (FODM2-2, FODM4-2, FODM5-3, FODM5-5, FODM7-2, FODM7-4, FODM9-4, and WODM5). Areas of

thicket (THDM2-11, THDM2-4, and THDM2-6) and meadow (MEMM3 and MEMM4) are generally associated with lands adjacent to deciduous forest communities. Lastly, a single wetland community (MAMM1-2) was identified in the western portion of the Study Area next to recreational parklands (CGL).

**Table 1** outlines the communities documented during ELC surveys and summarizes the dominant vegetation cover. Photos of vegetation communities are provided in **Attachment D** (Table D-1).

TABLE 1: ECOLOGICAL LAND CLASSIFICATION

<b>ELC Community</b>	Hectares (ha)	Soils	Vegetation	Photo (Attachment D)				
Natural Communities								
FODM2-2 Dry-Fresh Oak-Hickory Deciduous Forest	1.30	Loam Sand	Deciduous forest community identified within Woodland C. Canopy is dominated by Northern Red Oak ( <i>Quercus rubra</i> ), White Oak ( <i>Quercus alba</i> ), and Shagbark Hickory ( <i>Carya ovata</i> ). Additional tree species observed within the community include Sugar Maple ( <i>Acer saccharum</i> ), American Basswood ( <i>Tilia americana</i> ), Bitternut Hickory ( <i>Carya cordiformis</i> ), and American Hop-hornbeam ( <i>Ostrya virginiana</i> ). Ground cover was sparse and consisted of Poison Ivy ( <i>Toxicodendron radicans</i> ), Jack-in-the-pulpit ( <i>Arisaema triphyllum</i> ) and Goldenrod species ( <i>Solidago sp.</i> ).	5				
FODM4-2  Dry - Fresh White Ash - Hardwood Deciduous Forest	0.93	Loam Sand	Deciduous forest within Woodland C. Canopy is dominated by White Ash ( <i>Fraxinus americana</i> ) and Poplar ( <i>Populus sp.</i> ) was observed. Evidence of past clearing and replanting activities was documented within this area.	6				
<b>FODM5-3</b> Dry – Fresh Sugar Maple – Oak Deciduous Forest	4.61	Silty Loam	Deciduous forest community identified within Woodland D. Canopy consisted predominantly of Sugar Maple; Northern Red Oak and Shagbark Hickory were considered co-dominant. Additional tree species observed include Eastern White Pine ( <i>Pinus strobus</i> ) and American Basswood. Young Sugar Maple, White Ash, Alternative Leave Dogwood ( <i>Cornus alternifolia</i> ), Choke Cherry ( <i>Prunus virginiana</i> ) and Common Buckthorn ( <i>Rhamnus cathartica</i> ) comprise of the understory. Ground cover is provided by young Sugar Maple, Avens Species ( <i>Geum sp.</i> ), Herb-Robert ( <i>Geranium robertianum</i> ) and Jack-in-the-pulpit. Invasive species including Garlic Mustard ( <i>Alliaria petiolata</i> ) were also prominent. Evidence of Emerald Ash Borer infestation was observed in White Ash identified within the ecosite.	7				
<b>FODM5-5</b> Dry – Fresh Sugar Maple – Hickory Deciduous Forest	1.10	Silty Loam	Deciduous forest community identified within Woodland D. Canopy consisted predominantly of Sugar Maple and Shagbark Hickory. Young Sugar Maple, White Ash, and Common Buckthorn comprise of the understory. Ground cover is provided by young Sugar Maple, Avens Species, Herb-Robert, and Jack-in-the-pulpit. Invasive species including Garlic Mustard were also prominent. Evidence of Emerald Ash Borer infestation was observed in White Ash identified within the ecosite.	8				

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<b>ELC Community</b>	Hectares (ha)	Soils	Vegetation	Photo (Attachment D)
FODM9-4  Fresh – Moist Shagbark Hickory Deciduous Forest	2.35	Silty Loam	Deciduous forest community identified within Woodland D. Canopy consisted predominantly of Shagbark Hickory. White Ash and Common Buckthorn comprise of the understory. Ground cover is provided by Avens Species, Herb-Robert, and Jack-in-the-pulpit. Invasive species including Garlic Mustard were also prominent. Evidence of Emerald Ash Borer infestation was observed in White Ash identified within the ecosite.	9
FODM7-2 Fresh – Moist Green Ash - Hardwood Lowland Deciduous Forest Type	2.47	Sandy Clay Loam	Deciduous forest community identified within Woodland A and Woodland D. Community is dominated by Green Ash ( <i>Fraxinus pennsylvanica</i> ), with Shagbark Hickory, American Basswood, and Black Walnut ( <i>Juglans nigra</i> ) comprising of additional species within the canopy. Young Green Ash, Hawthorn species ( <i>Crataegus sp.</i> ), and Common Buckthorn consist of the dominant species within the understory. Species providing ground cover within the ecosite include Goldenrod ( <i>Solidago sp.</i> ), Poison Ivy, and Avens species.	10
FODM7-4 Fresh – Moist Black Walnut Lowland Deciduous Forest	2.13		Deciduous Forest communitie identified within Woodland D. Community is dominated by Black Walnut with Green Ash as Co-dominant in some areas. Additional tree species comprising the canopy include American Basswood, Shabark Hickory, Red Maple ( <i>Acer rubrum</i> ), and Freeman's Maple ( <i>Acer x freemanii</i> ).	11,12
WODM5 Fresh - Moist Deciduous Woodland	0.82	Clay Loam	Tree species observed within this community were Green Ash and Black Walnut. The understory of the community was dominated by Common Buckthorn.	13
<b>MAMM1-2</b> Graminoid Mineral Meadow Marsh	0.04		This community was present east of the recreational parklands. It occurred in a lowlying area and was dominated by Narrow-leaved Cattail ( <i>Typha angustifolia</i> ) and Common Reed ( <i>Phragmites australis ssp. americanus</i> ).	14
<b>MEMM3</b> Dry – Fresh Mixed Meadow	These communities were dominated by several species of grass and disturbance tolerant forbs such as Wild Carrot ( <i>Daucus carota</i> ), Tufted Vetch ( <i>Vicia cracca</i> ), and Pirdsfoot Trefoil ( <i>Lotus corniculatus</i> ). Naturalized meadow communities were identified		15	
MEMM3/THDM2-4 Complex - Dry - Fresh Mixed Meadow Ecosite / Gray Dogwood	7.81	Clay Loam	This community consisted of a complex of a gray dogwood dominated deciduous thicket with inclusions of mixed meadow. Dominant vegetation was composed of a mixture of tall shrubs and low trees consisting primarily of Gray Dogwood ( <i>Cornus racemosa</i> ), Green Ash, Common Buckthorn, Hawthorn, Apple ( <i>Malus spp.</i> ) and Tatarian honeysuckle ( <i>Loncera tatarica</i> ). Groundcover consisted mainly of disturbance tolerant	16

<b>ELC Community</b>	Hectares (ha)	Soils	Vegetation	Photo (Attachment D)
Deciduous Shrub Thicket			uplands species such as Wild Carrot, Canada Goldenrod (Solidago canadensis), Eastern Late Goldenrod (Solidago altissima), Riverbank Grape (Vitis riparia), Teasel (Dipsacus sylvestris) and several species of grasses (Poaceae spp) and sedges (carex spp.). In addition, in lower topographic areas several species of rushes (Juncaceae spp), Reed Canary Grass (Phalaris arundinacea) and Purple Loosestrife (Lythrum salicaria) were also observed.	
<b>THDM2-11</b> Hawthorn Deciduous Shrub Thicket	0.52		Community located within Woodland D. Composition is dominated by Hawthorn species and Common Buckthorn. Ground cover includes species such as Goldenrod, grass species and Wild Carrot.	
<b>THDM2-4</b> Gray Dogwood Deciduous Shrub Thicket	0.85		Deciduous Thicket associated with Woodland A and Woodland B. Community is dominated by Gray Dogwood; additional species include Hawthorn species and Common Buckthorn.	17
<b>THDM2-6</b> Buckthorn Deciduous Shrub Thicket	1.15		Deciduous Thicket associated with Woodland A and Woodland B. Canopy of community is dominated by Common Buckthorn. Additional species observed within the thicket includes Hawthorn and Dogwood species.	18
<b>Cultural Communities</b>		l		1
<b>MEMM3 (Cultural)</b> Dry – Fresh Mixed Meadow	1.58		Area of mowed lawn located north of the CN Railway, as well as south of Industrial Drive within the northeast quadrant of the Study Area.	
<b>OAG</b> Open Agricultural (Fallow Field)	6.57		This community consisted of a former agricultural field that has been left fallow and is now dominant by weedy species such as Wild Carrot, Goldenrods and Chicory (Cichorium intybus).	19
OAGM1 Annual Row Crop	20.48		Fields containing planted rows of crops (wheat). Agricultural fields were located within the southeast corner and west portions of the Study Area.	20
SAGM2 Orchard	9.97		Manicured orchards containing stone fruit trees within the southeastern corner of the Study Area.	21
OAO Open Aquatic (Pond)	0.09		Man-made pond located within the southeastern portion of the Study Area, and southwest of Woodland D.	

<b>ELC Community</b>	Hectares (ha)	Soils	Vegetation	Photo (Attachment D)
CGL_4 Recreational			Soccer fields and baseball diamonds located along Oakes Road North within the western border of the Study Area.	22
CV Constructed (Chruch)			Church building and associated parking lot (paved asphalt) with frontage along Main Street West.	
CVC_1 Business Sector			Industrial and commercial lands located north within the Study Area with frontage along South Service Road, Oaks Road North and Industrial Drive.	23
CVI_1 Transporation			Municipal roads within the Study Area, including Main Street West, Hunter Road, Industrial Drive, South Service Road, Oakes Road North, as well as Geddes Street and Elmer Street.	24
CVR_1 Low Density Residential			Single-family residential homes of existing subdivisions located centrally within the Study Area along Hunter Street, Geddes Street and Elmer Street. Additional single family homes are located on the northeast corner of the Main Street East and Oakes Road North intersection.	
CVR_4 Rural Property			Residential properties containing homes as well as additional infrastructure such as barns and sheds. All rural properties within the Study Area have frontage along Main Street East.	
CVS_1 Education			A public school (Smith Public School) located on the southeast corner of Oakes Road North and the CN Railway.	
Unmaintained Grassy Area			This area consisted of several grass species and appears to be mowed, though infrequently, based on the grass height and community composition when compared to the adjacent mixed meadows.	



#### **Botanical Assessment**

A total of 133 botanical species were documented within the Study Area during the spring (June 8), summer (August 7) and fall (October 23) surveys in 2018.

Of the 133 species, eight could not be identified to species level. Of the remaining 125 species, 80 are listed as *Secure* or *Apparently Secure* (i.e., SRank of S5 and/or S4) in the province. The remaining 45 species are listed as non-native, status unknown or not suitable targets for conservation activities (i.e., SRank of SE, SU or SNA). None of the 133 species observed are considered SAR and/or SCC.

The Co-efficient of Conservatism (CC) provides additional information on the nature of the vegetation communities within the Study Area. The CC values range from 0 to 10 and represent an estimated probability that a plant is likely to occur in a landscape that is relatively unaltered or is in a pre-settlement condition. For example, a CC of 0 is given to plants such as Manitoba Maple (*Acer negundo*) that demonstrate little fidelity to any remnant natural community (i.e. may be found almost anywhere). Similarly, a CC of 10 is applied to plants like Shrubby Cinquefoil (*Potentilla fructicosa*) that are almost always restricted to a pre-settlement remnant (i.e. high quality natural area). Introduced plants were not part of the pre-settlement flora, so no CC values have been applied to these species.

Of the 133 botanical species identified within the Study Area, none had a CC value greater than seven. The mean CC value for the site is 3.68, indicating an altered landscape. This is typical of an urban environment as compared to naturally occurring environments. A full list of the botanical species observed within the Study Area has been included in **Attachment E** (Table E-1).

#### Tree Inventory

A total of 364 trees, comprising 29 species, were inventoried within the Livingston Avenue right-of-way between August 26 and September 4, 2019 (**Attachment A**; Figure 3). Of the 29 species inventoried, one could not be identified to species level. A total of 329 (or 90%) of the 364 trees were measured to have a DBH ranging between 10 cm and 30 cm. The remaining 35 (or 10 %) of trees were identified as having a DBH between 31 and 70 cm. Tree size (DBH) tallies for each tree species identified during the inventory are summarized below in **Table 2**.

Table 2: Tree Inventory Results by Species and Size

Common Name	Scientific Name	10-20 DBH	21-30 DBH	31-40 DBH	41-50 DBH	51-60 DBH	61-70 DBH	Total
American Basswood	Tilia americana	14	3					17
American Elm	Ulmus americana	1						1
Bitternut Hickory	Carya cordiformis	6	1		1			8
Black Walnut	Juglans nigra	18	6	4				28
Bur Oak	Quercus macrocarpa	10			1		1	12
Cockspur Hawthorn	Crataegus crus-galli	1						1
Crab Apple	Malus sargentii	3						3
Eastern Cottonwood	Populus deltoides ssp. deltoides				1			1

Common Name	Scientific Name	10-20 DBH	21-30 DBH	31-40 DBH	41-50 DBH	51-60 DBH	61-70 DBH	Total
Eastern Hop- hornbeam	Ostrya virginiana	8						8
Eastern White Pine	Pinus strobus	2	1					3
Green Ash	Fraxinus pennsylvanica	119	4	1				124
Large-tooth Aspen	Populus grandidentata	17	4	2		1		24
Little-leaf Linden	Tilia cordata	2	2					4
Manitoba Maple	Acer negundo	1						1
Northern Red Oak	Quercus rubra	5	3	2				10
Norway Maple	Acer platanoides				1			1
Null	Species not determined		1					2
Paper Birch	Betula papyrifera	1						1
Peach-leaved Willow	Salix amygdaloides			1				1
Scotch Pine	Pinus sylvestris	1						1
Shagbark Hickory	Carya ovata	7	5	6	1			19
Silver Maple	Acer saccharinum	1			2			3
Sugar Maple	Acer saccharum	54	7	2	1			64
Sweet Cherry	Prunus avium	1						1
Trembling Aspen	Populus tremuloides		1					1
White Ash	Fraxinus americana	6				1		7
White Oak	Quercus alba						1	1
White Poplar	Populus alba	3	3	2	1			9
Wild Black Cherry	Prunus serotina	5	1	2				8
	TOTAL	287	42	22	9	2	2	364
	% TOTAL	78.85%	11.54%	6.04%	2.47%	0.55%	0.55%	

# **Breeding Bird Surveys**

A total of 10 point-counts were completed throughout the Study Area (**Attachment A**; Figure 2). Breeding bird surveys were not completed within Woodland A given that impacts to the feature were not anticipated based on the proposed alternatives.

A total of 54 bird species were observed during breeding bird surveys. Of the 54 species observed, three are considered SAR and two are considered SCC:

- Eastern Meadowlark (Sturnella magna) Threatened
- Bank Swallow (Riparia riparia) Threatened
- Barn Swallow (Hirundo rustica) Threatened
- Red-headed Woodpecker (Melanerpes erythrocephalus) Special Concern
- Eastern Wood-pewee (Contopus virens) Special Concern

Of the SCC observed within the Study Area, both were observed within Woodland D. None of the SAR were observed in association with Woodlands A - D. The remaining 50 species are considered *Secure* or *Apparently Secure* (SRank of S5 and/or S4) by the province. The complete list of species observed within the Study Area is presented in **Attachment E** (Table E-2).

#### Incidental Wildlife

During the 2018 and 2019 field investigations, the following species were observed concurrent with either ELC, botanical, aquatic, breeding bird and or tree inventory surveys:

- Green frog (Lithobates clamitans);
- White-tailed Deer (Odocoileus virginianus);
- Raccoon (Procyon lotor);
- Eastern Cottontails (Sylvilagus floridanus); and
- Red Squirrel (Sciurus vulgaris).

None of the aforementioned species are considered SAR and/or SCC. All five species are considered *Secure* (SRank of S5) by the province.

#### Species at Risk & Species of Conservation Concern

A habitat assessment was completed for the Study Area to determine which SAR have the potential to be impacted by the proposed Livingston Avenue Extension. This was done by identifying each SAR's habitat requirements and comparing those to the conditions and ELC communities observed within the Study Area, as well as the botanical (including tree inventory) and breeding bird survey results. Of the 14 SAR identified during the background review as having the potential to occur within the Study Area, the assessment determined that habitat requirements for the following six SAR and three SCC have the potential to be present in the Study Area:

- Little Brown Myotis (Endangered);
- Northern Myotis (Endangered);
- Tri-colored Bat (Endangered);
- Barn Swallow (Threatened);
- Eastern Meadowlark (Threatened);
- Bobolink (Threatened);
- Red-headed Woodpecker (Special Concern);
- Eastern Wood-pewee (Special Concern); and
- Monarch (Special Concern).

Results of the assessment are presented in **Attachment E** (Table E-3). None of the aforementioned species have regulated habitat under *Ontario Regulation 242/08*.

In the event the project has the potential to impact Barn Swallow, Eastern Meadowlark and/or Bobolink habitat, the project is eligible for registration under *Ontario Regulation 242/08* of the *Endangered Species Act* (ESA, 2007). So long as the project is registered, and the conditions in the regulation are followed,

the project is exempt from Section 9 (species protection) and Section 10 (habitat protection) under the ESA.

Consultation with the Ministry of the Environment, Conservation and Parks (MECP) is recommended in advance of Detailed Design to determine the need for targeted surveys in support of potential permitting and approvals under the ESA.

#### **Candidate Significant Wildlife Habitat**

In order to identify candidate SWH within the Study Area, ELC communities were compared to those listed in the Significant Wildlife Habitat Criteria Schedules for Ecoregion 7E (MNRF, 2015). Based on the field investigation results, the Study Area provides the following Significant Wildlife Habitat (SWH) as per the Eco-Region 7E Criterion Schedule (MNRF, 2015):

• Significant Wildlife Habitat for Special Concern Species (Eastern Wood-pewee and Red-headed Woodpecker in association with Woodland D).

Based on field investigation results the Study Area also has the potential to provide Candidate SWH, though not necessarily limited to, the following:

- Land bird Migratory Stopover Area Significant Wildlife Habitat;
- Bat Maternity Colonies Significant Wildlife Habitat;
- Raptor Wintering Area Significant Wildlife Habitat;
- Amphibian Breeding Habitat (Woodland) Significant Wildlife Habitat; and
- Special Concern and Rare Wildlife Species.

The aforementioned Candidate SWHs were included in instances where seasonal surveys were not completed in order to infer the habitat was absent (e.g., amphibians, leaf-off/acoustic surveys for bats, etc.).

# **Summary**

A total of 14 cultural communities and 12 natural ecological communities were identified within the Study Area. The cultural communities make up the majority of the Study Area and are generally associated with industry, agricultural lands and residential properties. The natural ecological communities are generally limited to Woodlands A - D with areas of meadows and thickets intermixed within the Study Area. The permanent unnamed watercourse associated with Woodland D was assessed as having the potential to provide fish habitat.

A total of 133 botanical species were observed during the three season botanical assessment. Of the botanical species observed, none are considered SAR and / or SCC. Breeding bird surveys confirmed the presence of 54 species, of which three are considered SAR (Barn Swallow, Bank Swallow and Eastern Meadowlark) and two are considered SCC (Eastern Wood-pewee and Red-headed Woodpecker), respectively.

The background review identified 14 SAR and six SCC as having the potential to occur within the Study Area. Following the completion of the field investigations, a habitat assessment was completed for the 14 SAR and six SCC by comparing the species habitat requirements against the field investigation results. The habitat assessment determined that the Study Area has the potential to provide habitat for six SAR (Little Brown Myotis, Northern Moytis, Tri-colored Bat, Barn Swallow, Bobolink and Eastern Meadowlark) and three SCC (Eastern Wood-pewee, Red-headed Woodpecker and Monarch).

Given the findings of the 2018 and 2019 field investigations, potential permitting and / or approvals in support of the Livingston Avenue Extension include, but are not limited to, the following:

- A Fisheries Act Request for Review should be submitted to DFO.
- A permit under the NPCA's Regional Tree and Forest Conservation By-law (No. 30-2008) to permit the removal of trees within the proposed Livingston Avenue right-of way.
- A Section 28 Permit should be obtained from NPCA.
- Consultation with the MECP in advance of the Detailed Design to determined targeted survey requirements in support of potential permitting and / or approvals under the ESA.
- Project registration under Ontario Regulation 242/08.
  - As of the drafting of this memo, the project is eligible for registration under several sections of the regulation. Projects registered under *Ontario Regulation 242/08* are exempt from Section 9 (species protection) and Section 10 (habitat protection) so long as the conditions in the regulation are followed.
- Consultation with the Town of Grimsby, Niagara Region and NPCA to determine tree compensation requirements and tree compensation locations within NPCA jurisdictional boundaries.

#### Enclosure:

Attachment A - Figures

Attachment B - Agency Correspondence

Attachment C – Planning and Policy Schedules

Attachment D – Site Photos

Attachment E – Species List

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# **ATTACHMENT A:**

Figures





#### **REGIONAL MUNICIPALITY OF NIAGARA** LIVINGSTONE EA

#### FIGURE 2 **ECOLOGICAL LAND CLASSIFICATION AND BREEDING BIRD SURVEY LOCATIONS**

Study Area Watercourse - CNR Rail Line --- Hydro Line Breeding Bird Survey Locations
Ecological Land Classification I, CGL\_4 - Recreational 2, CV - Constructed (Church) 3, CVC I - Business Sector 4, CVI\_I - Transportation 5, CVR\_I - Low Density Residential 6, CVR\_4 - Rural Property 7, CVS I - Education 8, FODM2-2- Dry – Fresh Oak – Hickory Deciduous Forest 9, FODM4-2- Dry - Fresh White Ash - Hardwood Deciduous Forest 10, FODM5-3 - Dry – Fresh Sugar Maple – Oak Deciduous Forest 11, FODM5-5 - Dry – Fresh Sugar Maple – Hickory Deciduous Forest 12, FODM7-2 - Fresh-Moist Green Ash Lowland Forest 13, FODM7-4 - Fresh - Moist Black Walnut Lowland Deciduous Forest 14, FODM9-4 - Fresh - Moist Shagbark Hickory Deciduous Forest 15, MAMM1-2- Cattail Graminoid Mineral Meadow Marsh 16, MEMM3 - Dry - Fresh Mixed Meadow (cultural) 17, MEMM3 - Dry - Fresh Mixed Meadow Ecosite 18, MEMM3 - Dry - Fresh Mixed Meadow Ecosite / THDM2-4- Gray Dogwood Deciduous Shrub Thicket 19, OAG- Open Agriculture (Fallow Field) 20, OAGMI - Annual Row Crops

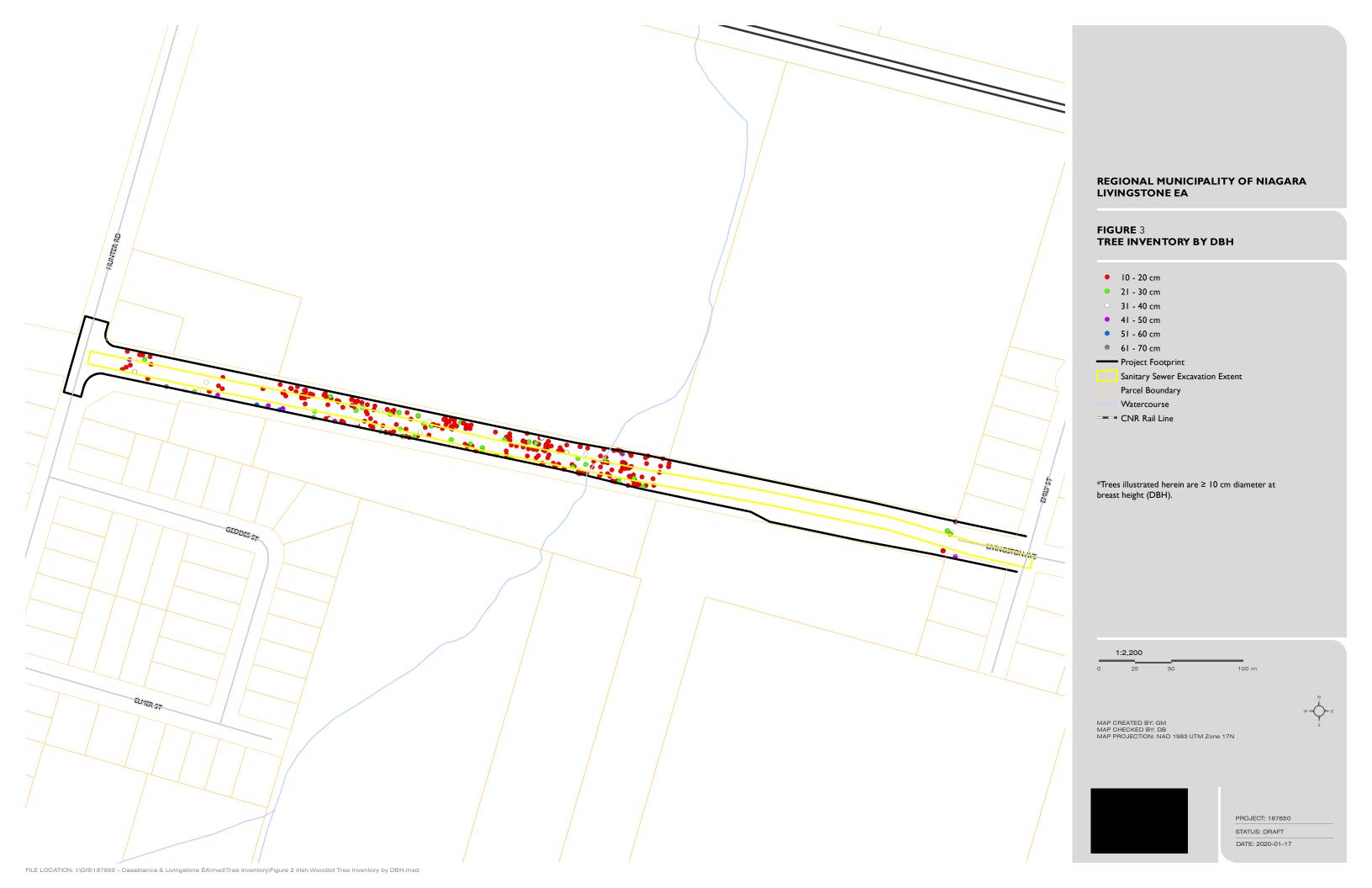
1:8,000

MAP CREATED BY: GM/SFG MAP CHECKED BY: DB MAP PROJECTION: NAD 1983 UTM Zone 17N



PROJECT: 187650

STATUS: DRAFT DATE: 10/25/2018





# **ATTACHMENT B:**

**Agency Correspondence** 



#### Casablanca Widening and Livingston Ave Extension: Grimsby - Request for Information

Bourassa, Daniel <dbourassa@dillon.ca>

Thu, Aug 30, 2018 at 11:22 AM

To: esa guelph@ontario.ca

Cc: "Reimer, Elizabeth (MNRF)" <elizabeth reimer@ontario.ca>, 187650 <187650@dillon.ca>

To whom it may concern,

Dillon Consulting Limited has been retained by the Municipality of Niagara to undertake work in support of a Municipal Class EA for the widening of Casablanca Blvd and the extension of Livingston Ave.

Please find attached a copy of the Guelph District MNRF Information Request Form as well as Figures delineating both the Casablanca Blvd and Livingston Ave Study Areas which are referred to as "Focus Area" in the attached Figures.

Please do not hesitate to contact me should you have any questions.

Regards,



**Daniel Bourassa** Associate Dillon Consulting Limited 1155 North Service Road West Unit 14 Oakville, Ontario, L6M 3E3 T - 905.901.2912 ext. 3417 F - 905.901.2918 M - 289.981.9136

Please consider the environment before printing this email

www.dillon.ca

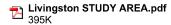
3 attachments



Casablanca STUDY AREA.pdf



Casablanca-Livingston\_Guelph District Info Request.pdf



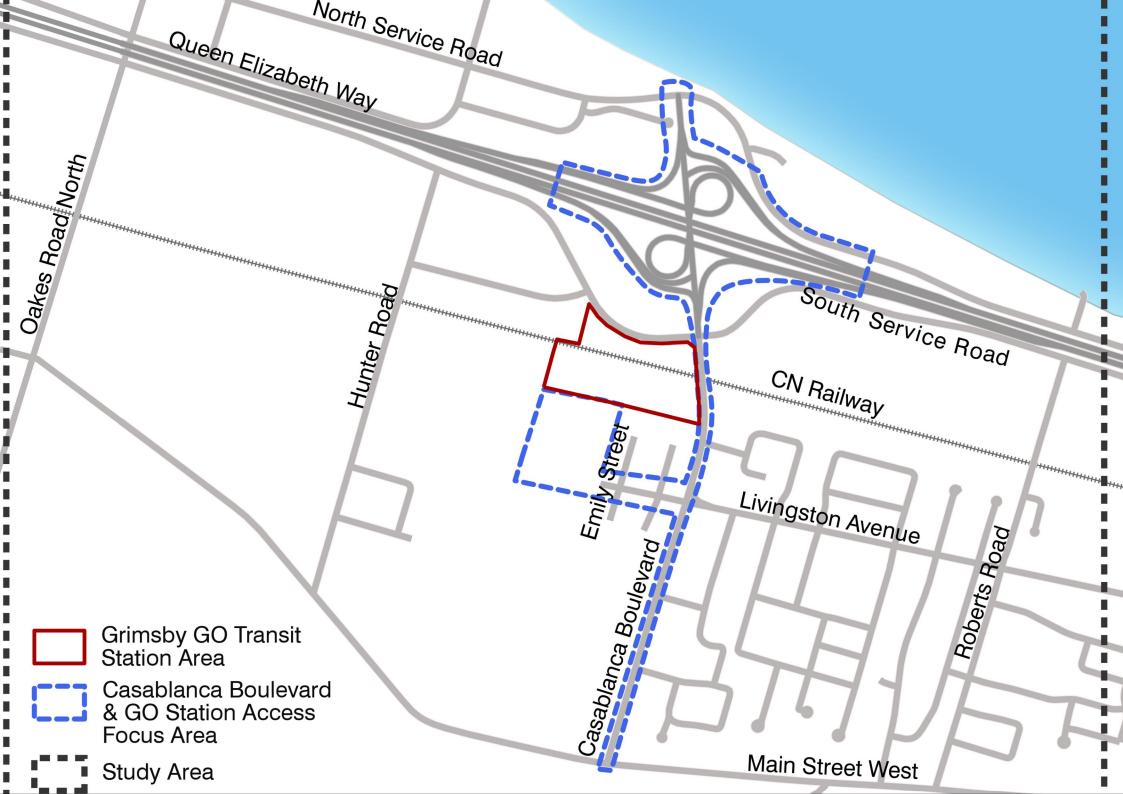
# **Guelph District MNRF Information Request Form**



Consultant Name:	Daniel J. Boura	nniel J. Bourassa							
Company Name:	Dillon Consulti	illon Consulting Limited							
Email Address:	dbourassa@dill	ourassa@dillon.ca							
Phone Number:	905.901.2916 e	xt. 3417							
Proponent Name:	Municipality of	`Niagara							
Project Name:	Municipal Clas	s Environmental A	Assessment for C	asablanca and Liv	vingston Extens	ion			
Property Address:	Casablanca Blv	d and Livingston	Ave						
Township/Municipality:	Gimsby								
Lot & Concession:									
UTM Coordinates:		614094 m E			4784065 m N				
(NAD83)	,	Eastin	g (X)	'	Nort	thing (Y)			
Brief Description of Undertaking:		gs will involve th nship of Grimbsy	•	sablanca Blvd and	d an extension of	of Livingston			
Have you previously cont	acted someone	e at MNRF for in	formation on th	nis site? Yes [	No 🗆				
If yes, when and who?									
Provide a map of ac surrounding landscape landmarks). Use	e (e.g. property	boundaries, roa	ds, waterbodie	s, natural featur	es, towns, and	d other human			
ATTACHMENTS – I have a	ttached a:	Pictu	ure	☐x attach Map	ed separately	see below			
REQUEST - I would like to *Requires an appointment	nt and remittan	ce of fees.	·		above:				
	Wetland evaluation and data record *								
Locally Significant Wetland									
x Fish Dot Information (fish and other aquati area of a watercourse	ner aquatic species found in a particular								
Other									

Please forward the completed form to: <a href="mailto:esa.guelph@ontario.ca">esa.guelph@ontario.ca</a>
Or send by mail:

Guelph District, Ministry of Natural Resources and Forestry





Ministry of Natural Resources And Forestry

Box 5000

LOR 2E0

Ministère des Richesses naturelles et des Forets

Telephone: (905) 562-4147 4890 Victoria Ave. N. Facsimile: (905) 562-1154



September 26, 2018

Vineland Station, Ontario

**Daniel Bourassa Dillon Consulting Limited** 1155 North Service Road West Unit 14 Oakville, ON L6M 3E3 Dbourassa@dillon.ca

RE: Municipal Class EA for Casablanca and Livingston Extension Casablanca Boulevard and Livingston Avenue, Town of Grimsby, ON

Dear Daniel.

The Ministry of Natural Resources and Forestry (MNRF), Guelph District – Vineland Field Office, has reviewed the natural heritage information available for the above-noted property and surrounding area (the "study area"), and offers the following comments:

#### **WETLANDS**

The Ministry notes that there are no provincially significant wetlands (PSWs) or evaluated nonprovincially significant wetlands within the study area.

#### AREAS OF NATURAL AND SCIENTIFIC INTEREST

The Ministry notes that there are no Areas of Natural and Scientific Interest (ANSIs) within the study area.

#### **FISHERIES**

The MNRF does not have any detailed fisheries information for any watercourse in the study area.

#### **SPECIES AT RISK**

There are records in the area for the following species at risk (SAR):

- Barn Swallow (Hirundo rustica) (Threatened)
- Bank Swallow (Riparia riparia) (Threatened)
- Eastern Meadowlark (Sturnella magna) (Threatened)
- Eastern Flowering Dogwood (Cornus florida) (Endangered)
- Canada Warbler (Wilsonia canadensis) (Special Concern)

Threatened and Endangered Species receive both individual species and habitat protection under the Endangered Species Act, 2007 (ESA). SAR habitat prescribed under regulation is listed in Ont. Reg. 242/08 (https://www.ontario.ca/laws/regulation/080242).

Please be advised that because the province has not been surveyed comprehensively for the presence of listed species, the absence of a record <u>does not necessarily indicate</u> the absence of SAR from an area. To determine the presence of SAR for a given study area, the District's recommended approach is as follows:

#### I. Habitat Inventory

The Ministry recommends undertaking a comprehensive botanical inventory of the entire area that may be subject to direct and indirect impacts from the proposed activity. The vegetation communities should be classified as per the "Ecological Land Classification (ELC) for Southern Ontario" system, to either the "Ecosite" or "Vegetation Type" level. For aquatic habitats in the study area, we recommend that you collect data on the physical characteristics of the waterbodies and inventory the riparian zone vegetation, so that these habitats can be classified as per the Aquatic Ecosites described in the ELC manual.

#### II. Potential SAR within the Study Area

A list of SAR that have the potential to occur in the area can be produced by cross-referencing the ecosites described during the habitat inventory with the habitat descriptions of SAR known to occur within the planning area. The list of SAR known to occur in the **Town of Grimsby** is attached for your reference. The species-specific COSEWIC status reports (<a href="https://www.canada.ca/en/environment-climate-change/services/committee-status-endangered-wildlife.html">https://www.canada.ca/en/environment-climate-change/services/committee-status-endangered-wildlife.html</a>) are a good source of information on habitat needs and will be helpful in determining the suitability of the study areas ecosites for a given species.

Please note that the Species at Risk in Ontario (SARO) List is a living document that is periodically amended as a result of species assessment and re-assessments conducted by the Committee on the Status of Species at Risk in Ontario (COSSARO). The SARO List can be accessed on the following webpage: <a href="https://www.ontario.ca/environment-and-energy/species-risk-ontario-list">https://www.ontario.ca/environment-and-energy/species-risk-ontario-list</a>.

COSSARO also maintains a list of species to be assessed in the future. It is recommended that you take COSSARO's list of anticipated assessments into consideration, especially when the proposed start date of an activity is more than 6 months away, or the project will be undertaken over a period greater than 6 months. This list can be viewed at: https://www.ontario.ca/page/how-comment-protecting-species-risk.

#### III. SAR Surveys

The Ministry recommends that each potential SAR identified under Step II is surveyed for, regardless of whether or not the species has been previously recorded in the area. The survey report should describe how each SAR was surveyed for, and provide a rationale for why certain species were not afforded a survey (e.g., habitat within the study area is not suitable for a specific SAR). Please note that some targeted surveys may require provincial authorizations (e.g., ESA permit or Wildlife Scientific Collector's Permit).

#### **ADDITIONAL INFORMATION**

Natural heritage features (e.g. wetlands, ANSIs) can be viewed for a given study area through the MNRF's "Make a Map" web application: <a href="https://www.ontario.ca/page/make-natural-heritage-area-map">https://www.ontario.ca/page/make-natural-heritage-area-map</a>. Digital data layers can be obtained through the Land Information Ontario (LIO) geowarehouse <a href="https://www.ontario.ca/page/land-information-ontario">https://www.ontario.ca/page/land-information-ontario</a>.

Additionally, the MNRF recommends contacting the municipality and the conservation authority to determine if they have any additional information or records of interest for the study area.

Please be advised that it is your responsibility to comply with all other relevant provincial or federal legislation, municipal by-laws, other MNRF approvals or required approvals from other agencies. If your investigations reveal the presence of Threatened or Endangered species, please contact the MNRF at <a href="mailto:esa.guelph@ontario.ca">esa.guelph@ontario.ca</a> for further direction.

I trust that the above information is of assistance.

Sincerely,

A/Management Biologist

Grimsby					Date Generated: June 6, 2018
Amphibian	SARO	Protection	Habitat Information	Timing Windows	Survey Protocol
Jefferson Salamander Ambystoma jeffersonianum	END	Species Protection and Habitat Regulation	Inhabits deciduous and mixed deciduous forests with suitable breeding areas which generally consist of ephemeral (temporary) bodies of water that are fed by spring runoff, groundwater, or springs.	Active: March – October Hibernates: October – March Breeding: Late March - Mid April	Contact MNRF Guelph District Management Biologist to obtain a copy of the protocol
Unisexual Ambystoma - Jefferson- dominated Ambystoma laterale - jeffersonianum	END	Species Protection and General Habitat Protection	Inhabits deciduous and mixed deciduous forests with suitable breeding areas which generally consist of ephemeral (temporary) bodies of water that are fed by spring runoff, groundwater, or springs.	Active: March – October Hibernates: October – March Breeding: Late March - Mid April	Contact MNRF Guelph District Management Biologist to obtain a copy of the protocol
Bird	SARO	Drotostion	11-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1		
	JANU	Protection	Habitat Information	Timing Windows	Survey Protocol
Bank Swallow Riparia riparia	THR	Species Protection and General Habitat Protection	It nests in a wide variety of naturally and anthropogenically created vertical banks, which often erode and change over time including aggregate pits and the shores of large lakes and rivers.	Timing Windows  Migrate South before Winter	Follow Breeding Bird Survey Protocol. Colony and Roost information should be recorded and submitted using Bird Studies Canada's Ontario Bank Swallow Project data forms (2010).
Bank Swallow		Species Protection and General	It nests in a wide variety of naturally and anthropogenically created vertical banks, which often erode and change over time including aggregate pits and the shores of	· ·	Follow Breeding Bird Survey Protocol. Colony and Roost information should be recorded and submitted using Bird Studies Canada's Ontario Bank Swallow

floating material in a marsh or on the ground very close to water

Chlidonias niger

Bobolink  Dolichonyx oryzivorus	THR	Species Protection and General Habitat Protection	Generally prefers open grasslands and hay fields. In migration and in winter uses freshwater marshes and grasslands	Migrate South for the Winter	Contact MNR Guelph District Management Biologist to obtain a copy of the protocol
Chimney Swift  Chaetura pelagica	THR	Species Protection and General Habitat Protection	Historically found in deciduous and coniferous, usually wet forest types, all with a well developed, dense shrub layer; now most are found in urban areas in large uncapped chimneys	Nesting - Late April to Mid- May Migrate South in September or Early October	Chimney Swift Monitoring Protocol. Bird Studies Canada, March 2009
Common Nighthawk  Chordeiles minor	SC	N/A	Generally prefer open, vegetation- free habitats, including dunes, beaches, recently harvested forests, burnt-over areas, logged areas, rocky outcrops, rocky barrens, grasslands, pastures, peat bogs, marshes, lakeshores, and river banks. This species also inhabits mixed and coniferous forests. Can also be found in urban areas (nest on flat roof- tops).	Migrate South for the Winter	Contact MNR Guelph District  Management Biologist to obtain a copy of the protocol
Eastern Meadowlark  Sturnella magna	THR	Species Protection and General Habitat Protection	Generally prefers grassy pastures, meadows and hay fields. Nests are always on the ground and usually hidden in or under grass clumps.	Migrate South for the Winter	Contact MNR Guelph District Management Biologist to obtain a copy of the protocol
Eastern Whip-poor-will  Caprimlugus vociferus	THR	Species Protection and General Habitat Protection	Generally prefer semi-open deciduous forests or patchy forests with clearings; areas with little ground cover are also preferred; In winter they occupy primarily mixed woods near open areas.	Nesting: May - July	Contact MNRF Guelph District Management Biologist to obtain a copy of the protocol
Eastern Wood-Pewee  Contopus virens	SC	N/A	Associated with deciduous and mixed forests. Within mature and intermediate age stands it prefers areas with little understory vegetation as well as forest clearings and edges.	Migrate South for the Winter	Follow Breeding Bird Survey Protocol

Louisiana Waterthrush  Seiurus motacilla	THR	Species Protection and General Habitat Protection	Generally inhabits mature forests along steeply sloped ravines adjacent to running water. It prefers clear, cold streams and densely wooded swamps	Migrate South for the Winter	Follow Breeding Bird Survey Protocol or Marsh Monitoring Protocol
Northern Bobwhite  Colinus virginianus	END	Species Protection and General Habitat Protection	Generally inhabits a variety of edge and grassland type - habitats including non-intensively farmed agricultural lands.	Active Year Round	Follow Breeding Bird Survey Protocol
Red-Headed Woodpecker  Melanerpes erythrocephalus	SC	N/A	Generally prefer open oak and beech forests, grasslands, forest edges, orchards, pastures, riparian forests, roadsides, urban parks, golf courses, cemeteries, as well as along beaver ponds and brooks	Active from May to September	Follow Breeding Bird Survey Protocol
Short-eared Owl  Asio flammeus	SC	N/A	Generally prefers a wide variety of open habitats, including grasslands, peat bogs, marshes, sand-sage concentrations, old pastures and agricultural fields	Active Year Round	Contact MNRF Guelph District Management Biologist to obtain a copy of the protocol
Wood Thrush  Hylocichla mustelina	SC	N/A	Nests mainly in second-growth and mature deciduous and mixed forests, with saplings and well-developed understory layers. Prefers large forest mosaics, but may also nest in small forest fragments.	Migrate South for the Winter Arrive in Ontario in mid to late spring	Follow Breeding Bird Survey Protocol
Insect	SARO	Protection	Habitat Information	Timing Windows	Survey Protocol
Monarch Butterfly  Danaus plexippus	SC	N/A	Exist primarily wherever milkweed and wildflowers exist; abandoned farmland, along roadsides, and other open spaces	Usually migrate south in late September and October	Watch for adults along roadsides and in open fields. ②aterpillars feed on milkweeds: Common milkweed grows in open disturbed habitats (fields, roadsides, etc) and swamp milkweed grows in wet habitats (along streams, lakes, marshes)  Adults can be spotted from a distance; caterpillars must be looked for carefully on the host plant.

Rusty-patched Bumble Bee  Bombus affinis	END	Species Protection and General Habitat Protection	Generally inhabits a range of diverse habitats including mixed farmland, sand dunes, marshes, urban and wooded areas. It usually nests underground in abandoned rodent burrows	Active from early Spring to late Fall	Contact MNRF Guelph District Management Biologist to obtain a copy of the protocol
West Virginia White  Pieris virginiensis	SC	N/A	Generally prefer moist, deciduous woodlands. The larvae feed only on the leaves of the two-leaved toothwort (Cardamine diphylla), which is a small, spring-blooming plant of the forest floor.	Adult butterfly emerges from pupa in late March; flies only in April and May	Watch for adults within moist, deciduous woodlands Caterpillars feed on the two-leaved toothwort: Toothwort grows in damp, open, rich hardwood woodlands and blooms from April to June. Adults can be spotted from a distance; caterpillars must be searched for carefully by checking host plant
Mammal	SARO	Protection	Habitat Information	Timing Windows	Survey Protocol
Eastern Small-footed Myotis  Myotis leibii	END	Species Protection and General Habitat Protection	Overwintering habitat: Caves and mines that remain above 0 degrees Celsius  Maternal Roosts: primarily under loose rocks on exposed rock outcrops, crevices and cliffs, and occasionally in buildings, under bridges and highway overpasses and under tree bark.	Hibernates in caves and mines during winter	Contact MNRF Guelph District Management Biologist to obtain a copy of the protocol
<b>Gray Fox</b> Urocyon cinereoargenteus	THR	Species Protection and General Habitat Protection	Generally prefers deciduous forests, marshes, swampy areas, and urban areas	Active Year Round	Opportunistically or by examining tracks in winter and summer
Little Brown Myotis  Myotis lucifugus	END	Species Protection and General Habitat Protection	Overwintering habitat: Caves and mines that remain above 0 degrees Celsius  Maternal Roosts: Often associated with buildings (attics, barns etc.).  Occasionally found in trees (25-44 cm dbh).	Hibernates during winter	Contact MNRF Guelph District Management Biologist to obtain a copy of the protocol

Northern Myotis  Myotis septentrionalis	END	Species Protection and General Habitat Protection	Overwintering habitat: Caves and mines that remain above 0 degrees Celsius  Maternal Roosts: Often asssociated with cavities of large diameter trees (25-44 cm dbh). Occasionally found in structures (attics, barns etc.)	Hibernates during winter	Contact MNRF Guelph District Management Biologist to obtain a copy of the protocol
<b>Tri-colored Bat</b> Perimyotis subflavus	END	Species Protection and General Habitat Protection	Overwintering habitat: Caves and mines that remain above 0 degrees Celsius  Maternal Roosts: Can be in trees or dead clusters of leaves or arboreal lichens on trees. May also use barns or similar structures.	Hibernates during winter	Contact MNRF Guelph District Management Biologist to obtain a copy of the protocol
Plant	SARO	Protection	Habitat Information	Timing Windows	Survey Protocol
American Chestnut  Castanea dentata	END	Species Protection and General Habitat Protection	Found in deciduous forest communities; this tree prefers arid forests with acid and sandy soils.	Flowers occur in Late Spring and Early Summer	Walk slowly and systematically in grid fashion, pausing to scan for plants every 5 meters Use a plant field guide to distinguish from similar species Perform detailed floristic inventory Look for distinictive fruits on the ground
Butternut  Juglans cinerea	END	Species Protection and General Habitat Protection	Generally grows in rich, moist, and well-drained soils often found along streams. It may also be found on well-drained gravel sites, especially those made up of limestone. It is also found, though seldomly, on dry, rocky and sterile soils. In Ontario, the Butternut generally grows alone or in small groups in deciduous forests as well as in hedgerows	Flowers from April to June. Fruits reach maturity during the month of September or October	Walk slowly and systematically in grid fashion through suitable habitat pausing every 30 meters for a detailed scan of trees within sight. Areas with dense foliage or many saplings will require a more intensive survey to detect sapling butternut. Use Butternut Health Assessment Protocol if planning on removing trees.
Cherry Birch  Betula lenta	END	Species Protection and General Habitat Protection	Generally grows in moist, well-drained soils, But it is also found on coarse-textured or rocky shallow soils.	Flowering occurs in the spring, Defore the leaves appear	Walk slowly and systematically in grid fashion, pausing to scan for plants every 5 meters  Use a plant field guide to distinguish from similar species

Cucumber Tree  Magnolia acuminata	END	Species Protection and General Habitat Protection	Generally grows in rich, well-drained soils in deciduous forest habitats	Flowering occurs in late May Fruits appear in Late Summer	Walk slowly and systematically in grid fashion, pausing to scan for plants?  every 5 meters  Use a plant field guide to distinguish from similar species
Eastern Flowering Dogwood  Cornus florida	END	Species Protection and Habitat Regulation	Generally grows in deciduous and mixed forests, in the drier areas of its habitat, although it is occasionally found in slightly moist environments;  Also grows around edges and hedgerows	Flowering occurs in mid-May, just as the leaves begin to develop. Fruit turns red at the end of summer.	Walk slowly and systematically in grid fashion, pausing to scan for plants every 5 meters Use a plant field guide to distinguish from similar species Easiest to detect during Spring when in flower Also look for distinctive bark
Red Mulberry  Morus rubra	END	Species Protection and General Habitat Protection	Generally grows in moist forest habitats. In Ontario, these include slopes and ravines of the Niagara Escarpment, and sand spits and bottom lands; Can grow in open areas such as hydro corridors	Flowering occurs when leaves emerge in late spring. Fruit emerges in Mid-July.	Walk slowly and systematically in grid fashion, pausing to scan for plants every 5 meters  Use a plant field guide to distinguish from the similar White Mulberry  Distinguishing Red Mulberry and the hybrid Red and White Mulberry will require the collection of leaves for generic testing, which requires a 17(2)(b) permit
Shumard Oak  Quercus shumardii	SC	N/A	Generally grows in deciduous forests,  where the soils are poorly drained clay and clay loam. Requires full sunlight.	Acorns germinate easily in the spring	Walk slowly and systematically in grid fashion, pausing to scan for plants every 5 meters  Use a plant field guide to distinguish from similar species
Reptile	SARO	Protection	Habitat Information	Timing Windows	Survey Protocol

Blanding's Turtle  Emydoidea blandingii	THR	Species Protection and General Habitat Protection	Generally occur in freshwater lakes, permanent or temporary pools, slow-flowing streams, marshes and swamps. They prefer shallow water that is rich in nutrients, organic soil and dense vegetation. Adults are generally found in open or partially vegetated sites, and juveniles prefer areas that contain thick aquatic vegetation including sphagnum, water lilies and algae. They dig their nest in a variety of loose substrates, including sand, organic soil, gravel and cobblestone. Overwintering occurs in permanent pools that average about one metre in depth, or in slow-flowing streams.	Eggs are laid in June, with hatchlings emerging in late September and early October.	Contact MNR Guelph District  Management Biologist to obtain a copy of the protocol
Eastern Ribbonsnake  Thamnophis sauritus	SC	N/A	Generally occur along the edges of shallow ponds, streams, marshes, swamps, or bogs bordered by dense vegetation that provides cover.  Abundant exposure to sunlight is also required, and adjacent upland areas may be used for nesting.	Hibernate: October - April Mating: Early Spring Hatching: Early Fall (September)	Contact MNRF Guelph District Management Biologist to obtain a copy of the protocol
Snapping Turtle  Chelydra serpentina	SC	N/A	Generally inhabit shallow waters where they can hide under the soft mud and leaf litter. Nesting sites usually occur on gravely or sandy areas along streams. Snapping Turtles often take advantage of manmade structures for nest sites, including roads (especially gravel shoulders), dams and aggregate pits.	Nesting: Late May and June Hibernate: October - April	Scan offshore rocks and logs for basking turtles (10am-2pm) Snorkel in desired aquatic habitat Nesting Season: Search known or preferred nesting habitat areas for females
		ONTARIO MINISTRY	of NATURAL RESOURCES and FOREST	RY   GUELPH DISTRICT OFFIC	E

ONTARIO MINISTRY of NATURAL RESOURCES and FORESTRY | GUELPH DISTRICT OFFICE 1 Stone Road West, Guelph, Ontario, N1G 4Y2 esa.guelph@ontario.ca



#### Request for Natural Heritage Information - Casablanca Blvd and Livingston Ave

1 message

Bourassa, Daniel <dbourassa@dillon.ca> To: smastroianni@npca.ca Cc: 187650 <187650@dillon.ca> Thu, Aug 30, 2018 at 12:01 PM

Hi Sarah,

Dillon Consulting Limited (Dillon) has been retained by the Municipality of Niagara to undertake work in support of a Municipal Class EA for the widening of Casablanca Blvd and the extension of Livingston Ave, in the Town of Grimsby.

I have attached Figures delineating both the Casablanca Blvd and Livingston Ave Study Areas which are referred to as "Focus Area" in the attached Figures.

In support of the undertakings, Dillon kindly requests the following information from the Niagara Peninsula Conservation Authority (NPCA) in relation to both Study Areas:

- Aquatic fish habitat mapping & fish dot data/community data for watercourses;
- Ecological Land Classification (ELC);
- Natural Heritage Features (PSWs, ANSIs, etc.);
- · Significant Wildlife Habitat; and
- Flora and fauna records.

Where possible, if the above information can be provided in GIS format with accompanying supporting documents that would be greatly appreciated.

Please do not hesitate to contact me should you have any questions.

#### Regards,



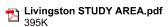
Daniel Bourassa
Associate
Dillon Consulting Limited
1155 North Service Road West Unit 14
Oakville, Ontario, L6M 3E3
T - 905.901.2912 ext. 3417
F - 905.901.2918
M - 289,981,9136

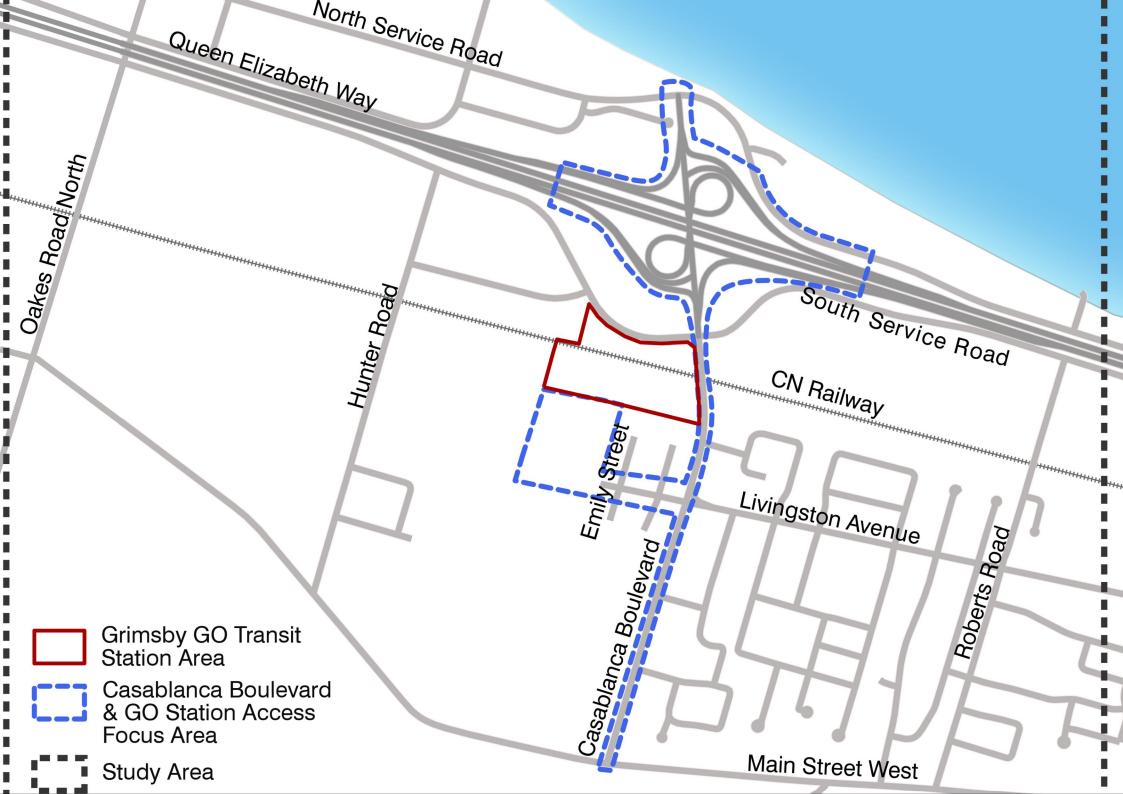
www.dillon.ca

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2 attachments











#### FW: Request for Natural Heritage Information - Casablanca Blvd and Livingston Ave

1 message

David Deluce <ddeluce@npca.ca>

Mon, Nov 5, 2018 at 8:56 AM

To: "DBourassa@dillon.ca" <DBourassa@dillon.ca>

Cc: Darren MacKenzie <DMacKenzie@npca.ca>, Joshua Diamond <jdiamond@npca.ca>, Ryan Kitchen@npca.ca>, Brian Lee <blee@npca.ca>, Sarah Mastroianni@npca.ca>

Hi Daniel,

Sarah forwarded your inquiry to me for response; I apologize for the delay in responding. Unfortunately, I don't believe we have a lot of information available in this particular area related to what you are seeking. I've attached a map showing our screening area, which indicates there are only a handful of watercourses that the NPCA regulates within the study areas. There are no known PSWs within either study area. For additional natural heritage information e.g. ANSIs, Significant Wildlife Habitat, etc., you should contact Jennifer Whittard the Region of Niagara

Please note that we are presently conducting a flood plain mapping exercise on one of the watercourses in the Livingston study area, the results of which may help inform your work.

Here is a link to our Natural Area Inventory data: https://npca.ca/natural-areas-inventory. This information was collected between 2006 and 2009.

I hope this is helpful. If you have any further questions, please let me know.

Regards,

David Deluce, MCIP, RPP

Manager, Plan Review & Regulations

Niagara Peninsula Conservation Authority (NPCA)

250 Thorold Road West, 3rd Floor, Welland, ON, L3C 3W2

905-788-3135, ext. 224

ddeluce@npca.ca

www.npca.ca

From: Bourassa, Daniel [mailto:dbourassa@dillon.ca]

Sent: Thursday, August 30, 2018 12:02 PM
To: Sarah Mastroianni <smastroianni@npca.ca>

Cc: 187650 < 187650@dillon.ca>

Subject: Request for Natural Heritage Information - Casablanca Blvd and Livingston Ave

Hi Sarah,

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I have attached Figures delineating both the Casablanca Blvd and Livingston Ave Study Areas which are referred to as "Focus Area" in the attached Figures.

In support of the undertakings, Dillon kindly requests the following information from the Niagara Peninsula Conservation Authority (NPCA) in relation to both Study Areas:

- Aquatic fish habitat mapping & fish dot data/community data for watercourses;
- · Ecological Land Classification (ELC);
- Natural Heritage Features (PSWs, ANSIs, etc.);
- Significant Wildlife Habitat; and
- · Flora and fauna records.

Where possible, if the above information can be provided in GIS format with accompanying supporting documents that would be greatly appreciated.

Please do not hesitate to contact me should you have any questions.

#### Regards,



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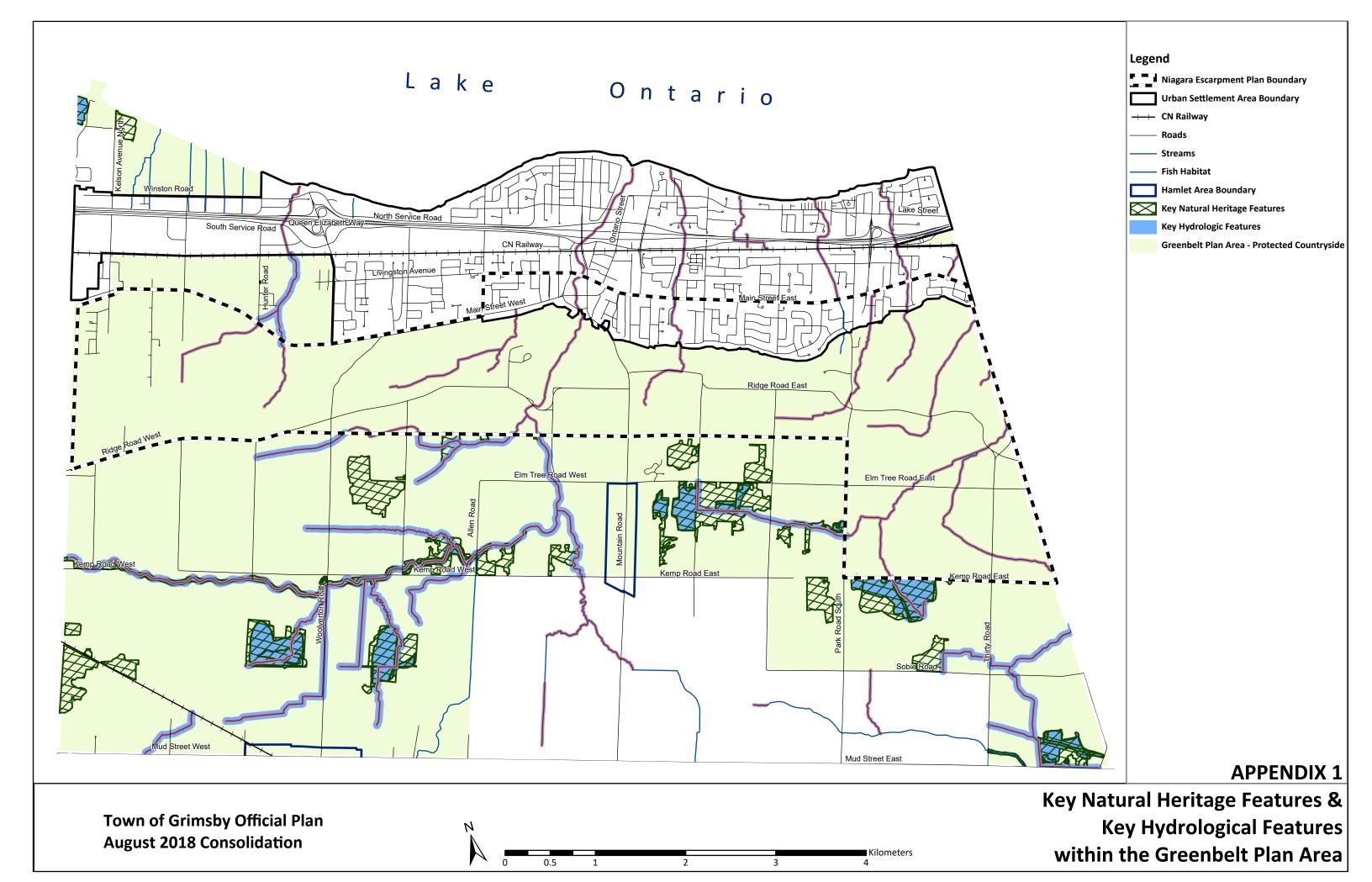


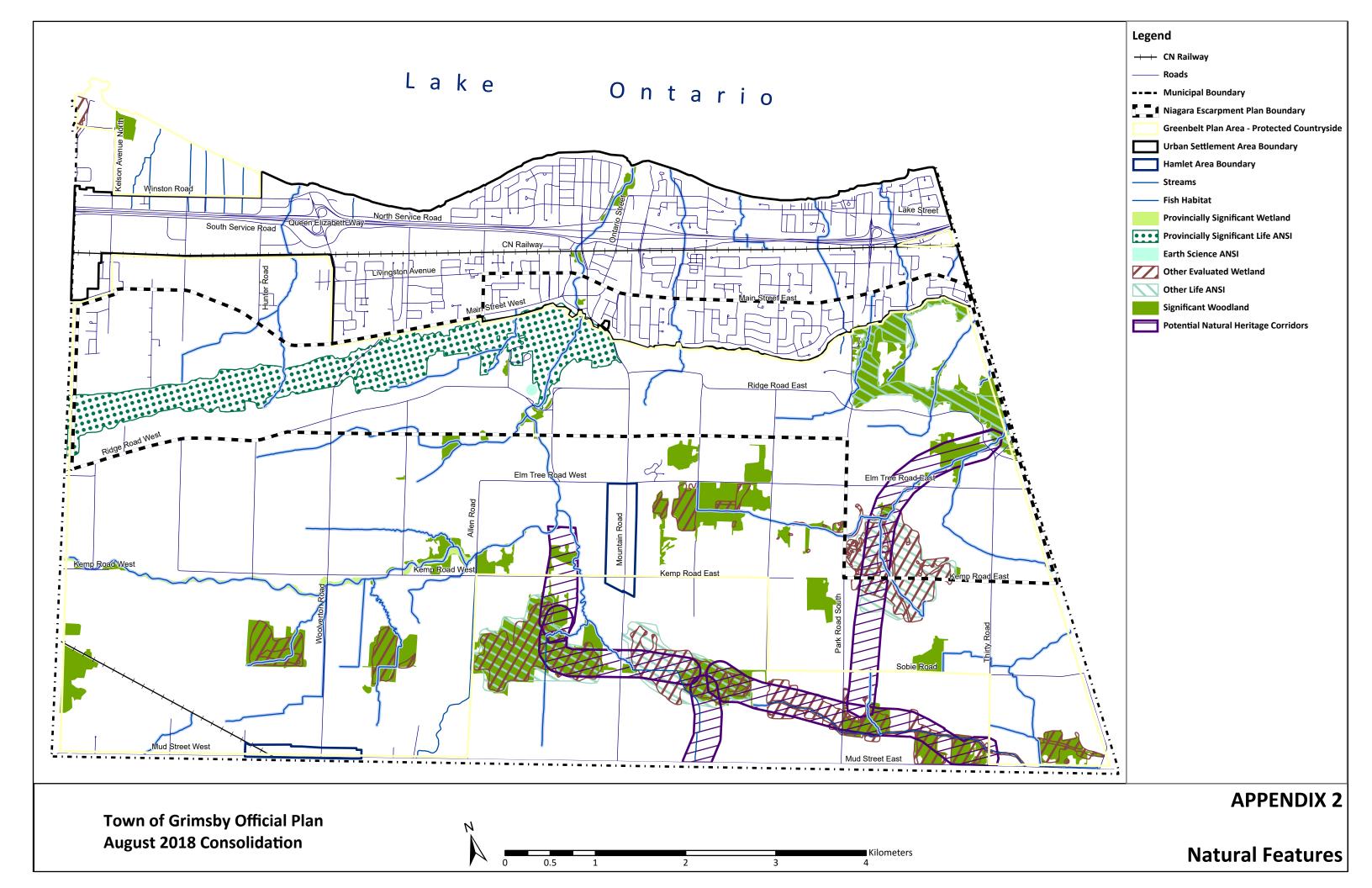


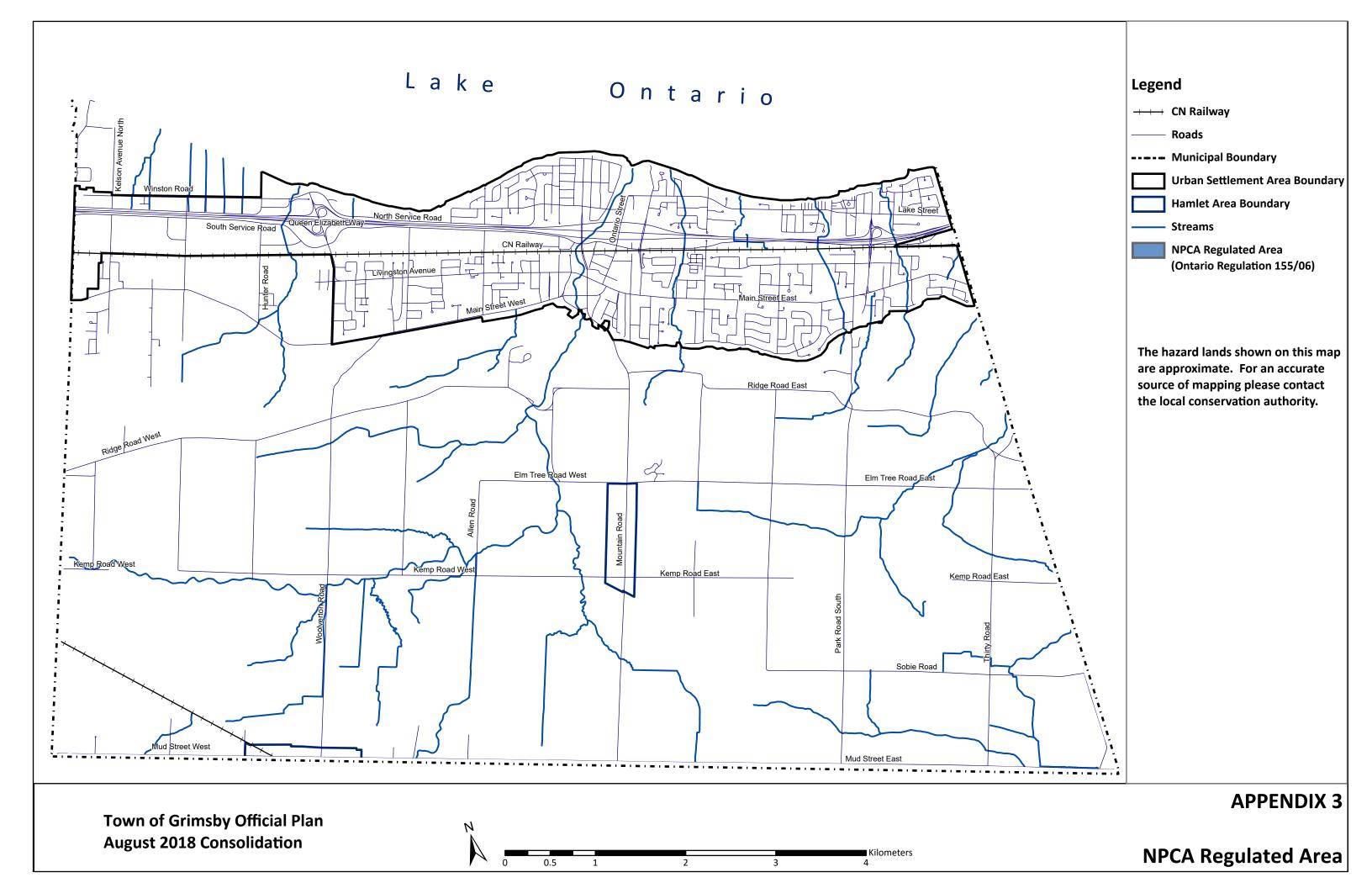
## ATTACHMENT C: Planning and Policy Schedules

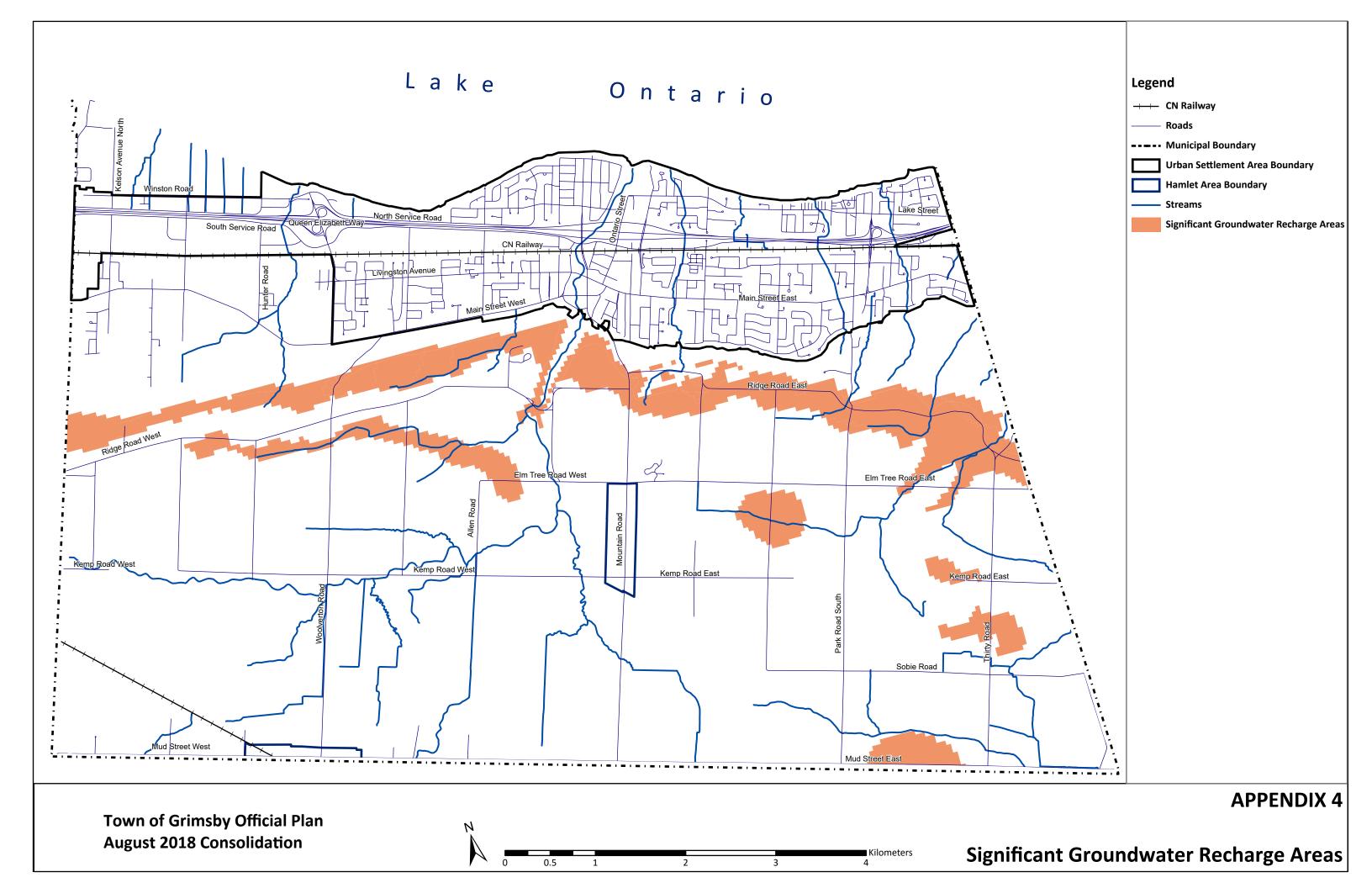
DILLON CONSULTING LIMITED

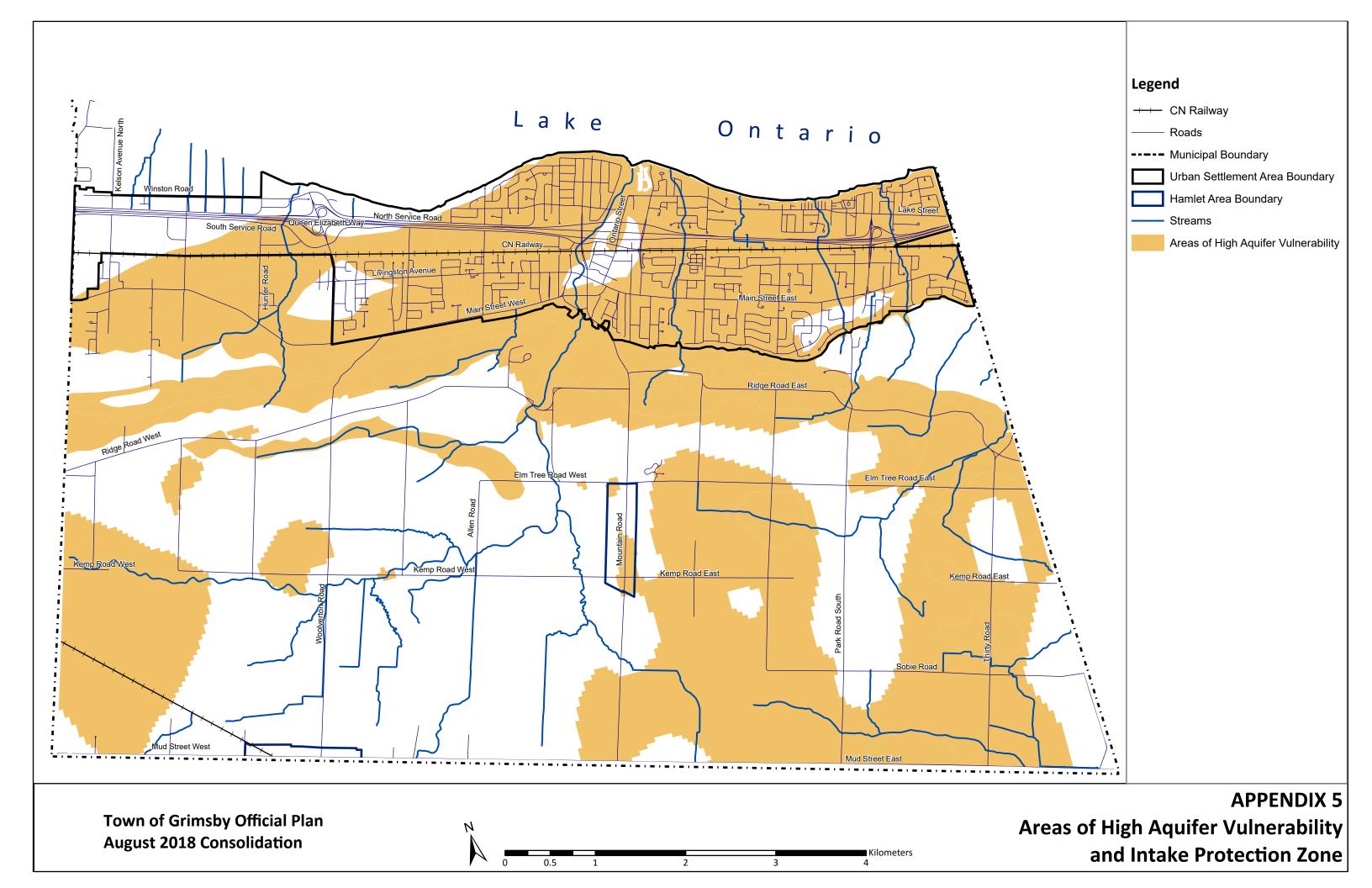
www.dillon.ca

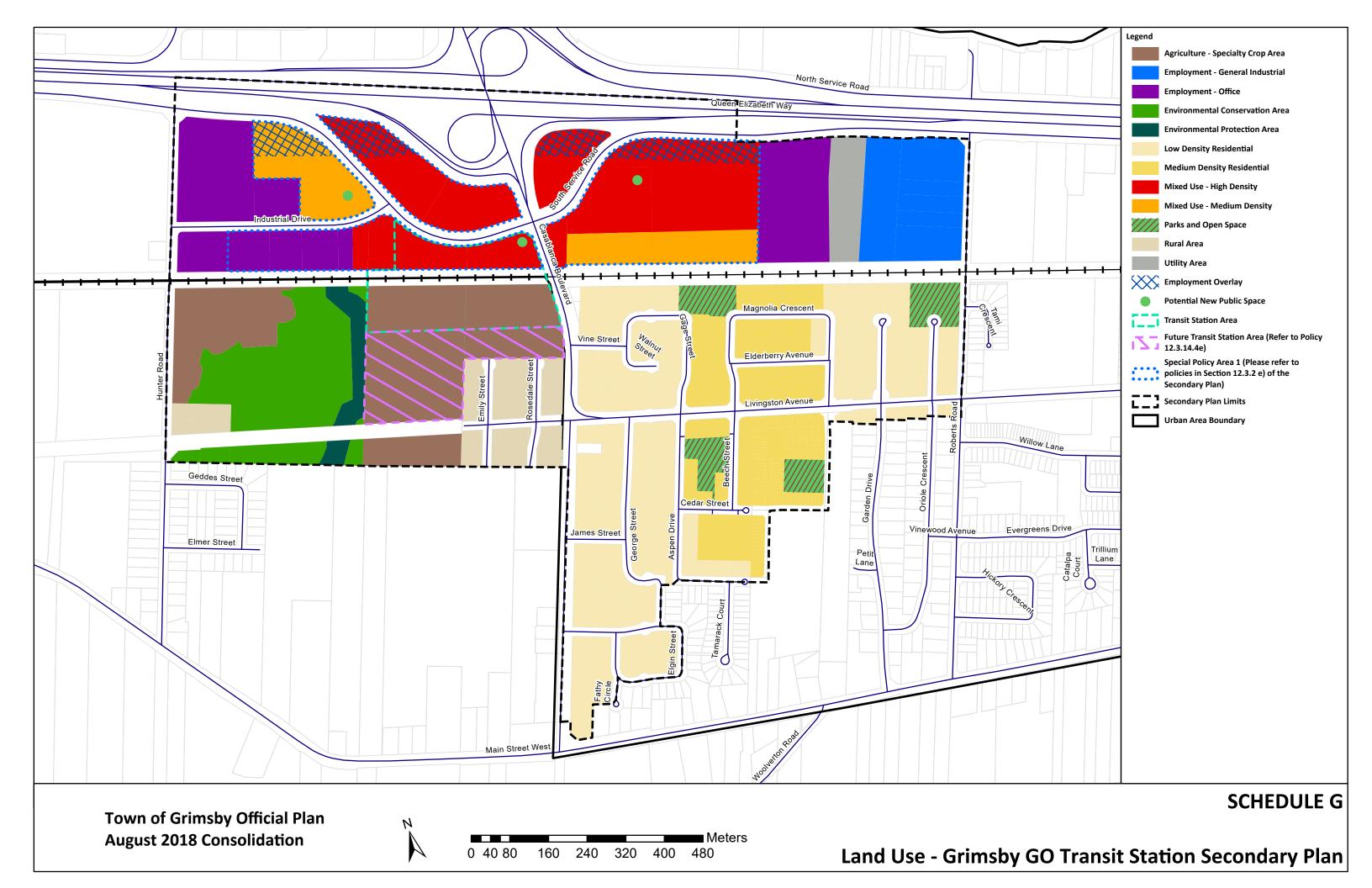


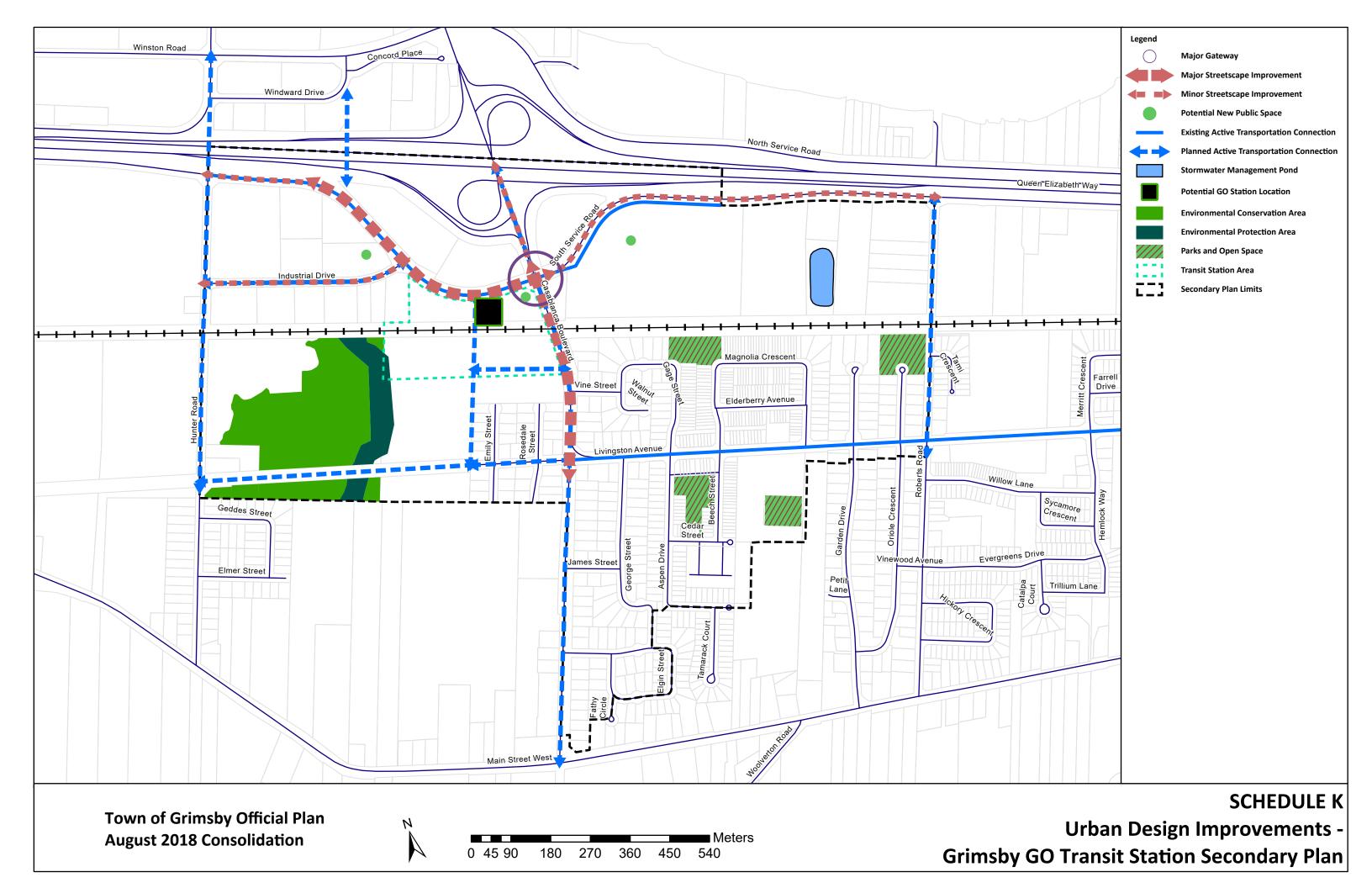














### ATTACHMENT D: Site Photos

**DILLON CONSULTING LIMITED** 



#### **Table D-1: Site Photos**

#### Photo 1

August 7, 2018

In-stream cover (bolders and overhanging woody vegetation) for watercourse in Woodland D.

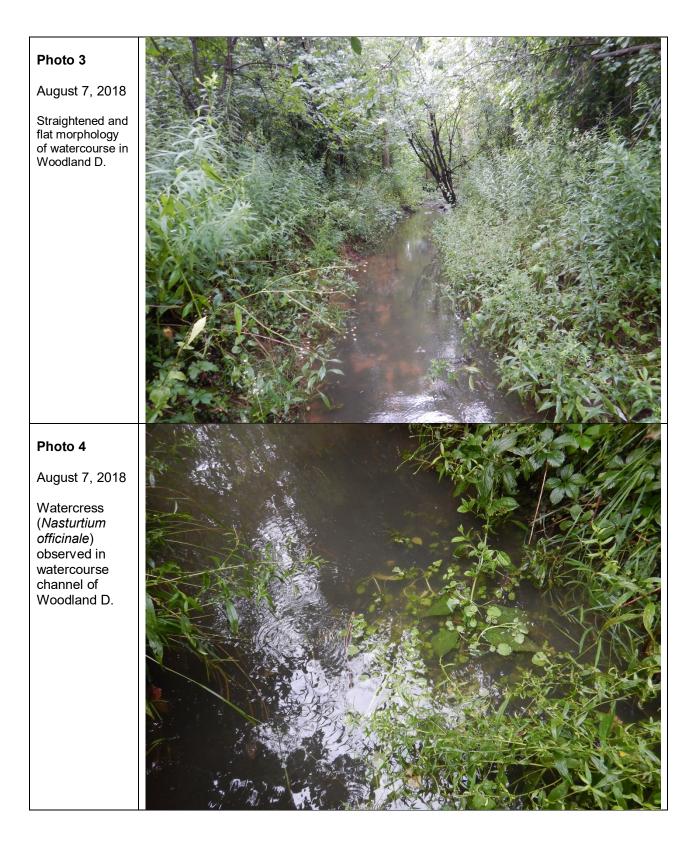


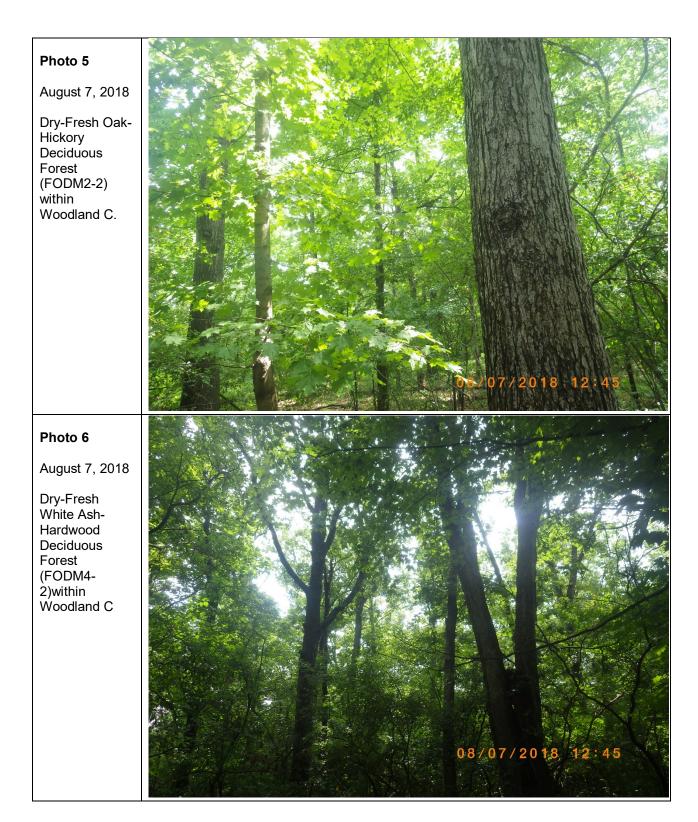
#### Photo 2

August 7, 2018

Riparian cover of watercourse consisting of deciduous trees and understory vegetation of Woodland D







August 7, 2018

Dry – Fresh Sugar Maple – Oak Deciduous Forest (FODM5-3) within Woodland D



#### Photo 8

August 7, 2018

Dry – Fresh Sugar Maple – Hickory Deciduous Forest (FODM5-5) within Woodland D.



August 7, 2018

Fresh – Moist Shagbark Hickory Deciduous Forest (FODM9-4) within Woodland D



#### Photo 10

August 7, 2018

Fresh – Moist Green Ash -Hardwood Lowland Deciduous Forest Type (FODM7-2). Community is present within Woodlands A and D.





August 7, 2018

Fresh – Moist Black Walnut Lowland Deciduous Forest (FODM7-4) within Woodland D

#### Photo12

August 7, 2018

Fresh – Moist Black Walnut Lowland Deciduous Forest (FODM7-4) within Woodland D.



# Photo13 August 7, 2018 Fresh - Moist Deciduous Woodland (WODM5)



Photo 14

August 7 2018

Graminoid

Graminoid Mineral Meadow Marsh (MAMM1-2).



**Photo 15**August 7 2018

Dry – Fresh Mixed Meadow (MEMM3).



Photo 16

August 7 2018

Complex - Dry -Fresh Mixed Meadow Ecosite/Gray Dogwood (MEMM3/THD M2-4).



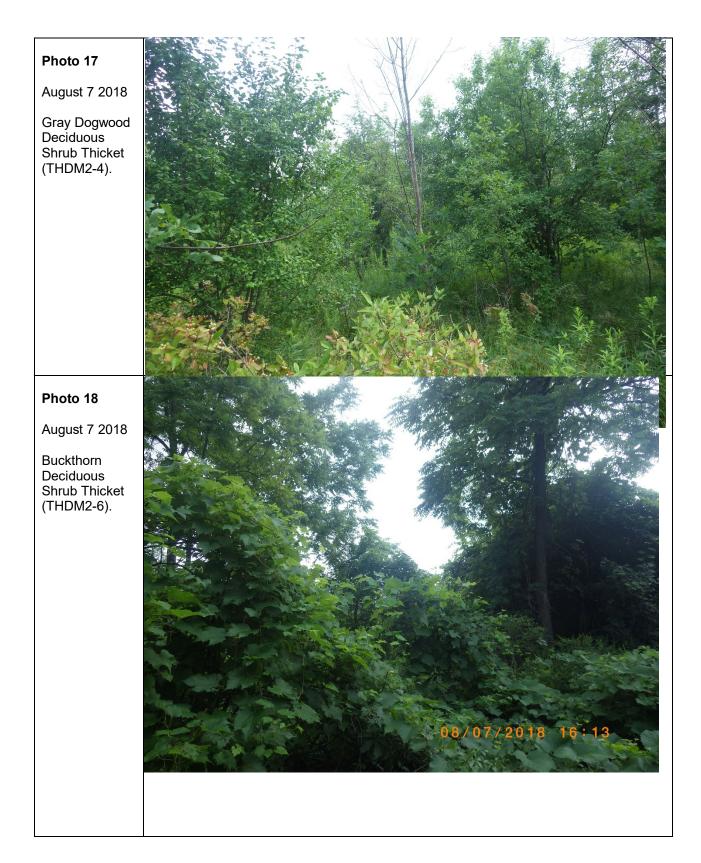


Photo 19

August 7 2018

Open Agricultural (Fallow Field; OAG).



#### Photo 20

August 7 2018

Annual Row Crop (Wheat; OAGM1).



Photo 21
August 7 2018
Orchard
(SAGM2).



Photo 22
August 7 2018
Recreational sports fields (CGL\_4).



August 7 2018

Business Sector land use (Industrial and Commercial businesses; CVC\_1).



#### Photo 24

August 7 2018

Transportation roads (Industrial Drive; CVI\_1) adja

cent to business sector (CVC\_1) areas.





## ATTACHMENT E: Species Lists

**DILLON CONSULTING LIMITED** 



**Table E-1: Plant List** 

Scientific Name	Common Name	SARA1	ESA <sup>2</sup>	SRank 3	CC4	Observed in 2018 <sup>5</sup>	Observed in 2019 <sup>6</sup>
Acer negundo	Manitoba Maple			S5	0	•	•
Acer saccharinum	Silver Maple			S5	5	•	•
Acer saccharum	Sugar Maple			S5	4	•	•
Carya cordiformis	Bitternut Hickory			S5	6	•	•
Carya ovata	Shagbark Hickory			S5	6	•	•
Fraxinus americana	White Ash			S4	4	•	•
Fraxinus pennsylvanica	Green Ash			S4	3	•	•
Juglans nigra	Black Walnut			S4	5	•	•
Ostrya virginiana	Eastern Hop-hornbeam			S5	4	•	•
Pinus strobus	Eastern White Pine			S5	4	•	•
Pinus sylvestris	Scotch Pine			SNA		•	•
Populus alba	White Poplar			SNA		•	•
Populus deltoides ssp. deltoides	Eastern Cottonwood			S5	4	•	•
Populus grandidentata	Large-tooth Aspen			S5	5	•	•
Populus tremuloides	Trembling Aspen			S5	2	•	•
Prunus serotina	Wild Black Cherry			S5	3	•	•
Quercus macrocarpa	Bur Oak			S5	5	•	•
Quercus rubra	Northern Red Oak			S5	6	•	•
Tilia americana	American Basswood			S5	4	•	•
Tilia cordata	Little-leaf Linden			SNA		•	•
Ulmus americana	American Elm			S5	3	•	•
Acer rubrum	Red Maple			S5	4	•	
Acer x freemanii	Freeman's Maple			SNA		•	
Achillea millefolium	Common Yarrow			SE		•	
Agrimonia eupatoria	European Agrimony			SNA		•	
Agrostis stolonifera	Creeping Bentgrass			SNA	0	•	
Alliaria petiolata	Garlic Mustard			SNA		•	
Anemone canadensis	Canada Anemone			S5	3	•	

Scientific Name	Common Name	SARA1	ESA <sup>2</sup>	SRank 3	CC4	Observed in 2018 <sup>5</sup>	Observed in 2019 <sup>6</sup>
Arctium minus	Common Burdock			SNA		•	
Arisaema triphyllum	Jack-in-the-pulpit			S5	5	•	
Asclepias syriaca	Common Milkweed			S5	0	•	
Asparagus officinalis	Garden Asparagus			SNA		•	
Asteraceae sp.	Aster Species					•	
Bidens frondosa	Devil's Beggarticks			S5	3	•	
Caltha palustris	Yellow Marsh Marigold			S5	5	•	
Campanula americana	Tall Bellflower			S4	8	•	
Carduus nutans ssp. nutans	Nodding Thistle			SNA		•	
Carex Sp.	Sedge Species					•	
Cirsium arvense	Canada Thistle			SNA		•	
Cirsium vulgare	Bull Thistle			SNA		•	
Cornus alternifolia	Alternate-leaved Dogwood			S5	6	•	
Cornus racemosa	Gray Dogwood			S5	2	•	
Cornus sericea ssp sericea	Red-osier Dogwood			S5	2	•	
Crataegus mollis	Downy Hawthorn			S5	4	•	
Daucus carota	Wild Carrot			SNA		•	
Dipsacus fullonum	Fuller's Teasel			SE5		•	
Elaeagnus angustifolia	Russian Olive			SNA		•	
Elymus repens	Creeping Wildrye			SNA		•	
Epilobium ciliatum ssp. ciliatum	Hairy Willowherb or Sticky Willowherb			S5	3	•	
Erigeron hyssopifolius	Daisy Fleabane			S5	10	•	
Euonymus alatus	Winged Euonymus			SNA		•	
Euonymus obovata	Running Strawberry Bush			S5	6	•	
Euthamia graminifolia	Grass-leaved Goldenrod			S5	2	•	
Fagus grandifolia	American Beech			S4	6	•	
Fallopia sp.	Knotweed species					•	
Fragaria virginiana	Wild Strawberry			S5	2	•	
Galium mollugo	Smooth Bedstraw			SNA		•	

Scientific Name	Common Name	SARA1	ESA <sup>2</sup>	SRank	CC4	Observed in 2018 <sup>5</sup>	Observed in 2019 <sup>6</sup>
Geranium maculatum	Spotted Geranium			S5	6	•	
Geranium robertianum	Herb-Robert			S5		•	
Geum aleppicum	Yellow Avens			S5	2	•	
Geum sp.	Avens Speceis					•	
Glechoma hederacea	Ground Ivy			SNA		•	
Heracleum maximum	Cow-parsnip			S5	3	•	
Hibiscus sp.	Rose-mallow species (non-native)			SNA		•	
Impatiens capensis	Spotted Jewelweed			S5	4	•	
Iris pseudacorus	Yellow Iris			SNA		•	
Juncaceae sp.	Rush Species					•	
Juncus effusus	Soft Rush			S5	4	•	
Juncus tenuis	Path Rush			S5	0	•	
Juniperus virginiana	Eastern Red Cedar			S5	4	•	
Leucanthemum vulgare	Oxeye Daisy			SNA		•	
Lilium michiganense	Michigan Lily			S5	7	•	
Linaria vulgaris	Butter-and-eggs			SNA		•	
Lonicera tatarica	Tartarian Honeysuckle			SNA		•	
Lotus corniculatus	Garden Bird's-foot Trefoil			SNA		•	
Lythrum salicaria	Purple Loosestrife			SNA		•	
Malus pumila	Common Apple			SNA		•	
Melilotus albus	White Sweet-clover			SNA		•	
Oenothera biennis	Common Evening Primrose			S5	0	•	
Parthenocissus quinquefolia	Virginia Creeper			S4?	6	•	
Phalaris arundinacea	Reed Canary Grass			S5	0	•	
Phleum pratense	Common Timothy			SNA		•	
Phragmites australis ssp. americanus	Common Reed			S4?		•	
Picea glauca	White Spruce			S5	6	•	
Pilea pumila	Canada Clearweed			S5	5	•	

Scientific Name	Common Name	SARA1	ESA <sup>2</sup>	SRank 3	CC4	Observed in 2018 <sup>5</sup>	Observed in 2019 <sup>6</sup>
Plantago major	Common Plantain			S5		•	
Poaceae sp.	Grass Species					•	
Prunella vulgaris ssp. lanceolata	Self-heal			S5	5	•	
Prunus padus	European Bird Cherry			SNA		•	
Prunus virginiana	Choke Cherry			S5	2	•	
Ranunculus acris	Tall Buttercup			SNA		•	
Rhamnus cathartica	Common Buckthorn			SNA		•	
Rhus hirta	Staghorn Sumac			S5	1	•	
Ribes cynosbati	Prickly Gooseberry			S5	4	•	
Rosa multiflora	Multiflora Rose			SNA		•	
Rubus allegheniensis	Alleghany Blackberry or Common Blackberry			S5	2	•	
Rubus idaeus ssp. idaeus	Common Red Raspberry			SNA		•	
Rubus occidentalis	Black Raspberry			S5	2	•	
Rubus odoratus	Purple-flowering Raspberry			S5	3	•	
Rumex crispus	Curly Dock			SNA		•	
Salix alba	White Willow			SNA		•	
Sambucus racemosa ssp. Pubens	Red-berried Elderberry			S5	5	•	
Sanguinaria canadensis	Bloodroot			S5	5	•	
Schedonorus sp.	Fescue species					•	
Scirpus atrovirens	Dark-green Bulrush			S5	3	•	
Setaria viridis	Green Foxtail			SNA		•	
Silene vulgaris	Maiden's Tears			SNA		•	
Solanum dulcamara	Climbing Nightshade or Bittersweet Nightshade			SNA		•	
Solidago altissima ssp. altissima	Eastern Late Goldenrod			S5	1	•	
Solidago canadensis var. canadensis	Canada Goldenrod			S5	1	•	
Solidago nemoralis ssp. nemoralis	Gray-stemmed Goldenrod			S5	2	•	
Solidago sp.	Goldenrod Species					•	

Scientific Name	Common Name	SARA1	ESA <sup>2</sup>	SRank 3	CC <sup>4</sup>	Observed in 2018 <sup>5</sup>	Observed in 2019 <sup>6</sup>
Symphyotrichum ericoides var. ericoides	White Heath Aster			S5	4	•	
Symphyotrichum lanceolatum ssp. lanceolatum	Panicled Aster			<b>S</b> 5	3	•	
Symphyotrichum lateriflorum	Starved Aster			<b>S</b> 5	3	•	
Symphyotrichum novae-angliae	New England Aster			<b>S</b> 5	2	•	
Symphyotrichum pilosum var. pilosum	Old Field Aster			S5	4	•	
Symphyotrichum puniceum var. puniceum	Swamp Aster			S5	6	•	
Syringa vulgaris	Common Lilac			SNA		•	
Trillium grandiflorum	White Trillium			S5	5	•	
Typha angustifolia	Narrow-leaved Cattail			SNA	3	•	
Verbena hastata	Blue Vervain			S5	4	•	
Viburnum lentago	Nannyberry			S5	4	•	
Vicia cracca	Tufted Vetch			SNA		•	
Vitis riparia	Riverbank Grape			S5	0	•	
Zanthoxylum americanum	Northern Prickley Ash			S5	3	•	
Acer platanoides	Norway Maple			SNA			•
Betula papyrifera	Paper Birch			S5	2		•
Crataegus crus-galli	Cockspur Hawthorn			S5	4		•
Malus coronaria	Sweet Crabapple			S4	5		•
Prunus avium	Sweet Cherry			SNA			•
Quercus alba	White Oak			S5	6		•
Salix amygdaloides	Peach-leaved Willow			S5	6		•
				0-			

<sup>&</sup>lt;sup>1</sup>Federal Species at Risk Act (sara), <sup>2</sup>Provincial Endangered Species Act, 2007 (esa), <sup>3</sup>Provincial Conservation Ranking where SNA= Not Applicable, SE= Non-native Species, S1= Extremely Rare, S2= Very Rare, S3= rare, S4= Apparently Secure and S5= Secure, <sup>4</sup>=Coefficient of Conservatism, <sup>5</sup>=Observed during 2018 three-season botanical assessments, <sup>6</sup>=Observed during 2019 tree inventory



Table E-2: Bird Species identified in the Study Area in 2018

Scientific Name	Common Name	SARA1	ESA <sup>2</sup>	SRank³
Accipiter cooperii	Cooper's Hawk			S4
Agelaius phoeniceus	Red-winged Blackbird			S4
Anas platyrhynchos	Mallard			S5
Bombycilla cedrorum	Cedar Waxwing			S5B
Buteo platypterus	Broad-winged Hawk			S5B
Cardinalis cardinalis	Northern Cardinal			S5
Carduelis tristis	American Goldfinch			S5B
Carpodacus mexicanus	House Finch			SNA
Carpodacus purpureus	Purple Finch			S4B
Charadrius vociferus	Killdeer			S5B,S5N
Contopus virens	Eastern Wood-pewee	SC	SC	S4B
Corvus brachyrhynchos	American Crow			S5B
Cyanocitta cristata	Blue Jay			S5
Dumetella carolinensis	Gray Catbird			S4B
Empidonax alnorum	Alder Flycatcher			S5B
Empidonax flaviventris	Yellow-bellied Flycatcher			S5B
Empidonax minimus	Least Flycatcher			S4B
Empidonax traillii	Willow Flycatcher			S5B
Geothlypis trichas	Common Yellowthroat			S5B
Hirundo rustica	Barn Swallow	THR	THR	S4B
Icterus galbula	Baltimore Oriole			S4B
Larus argentatus	Herring Gull			S5B,S5N
Larus delawarensis	Ring-billed Gull			S5B,S4N
Melanerpes erythrocephalus	Red-headed Woodpecker	THR	SC	S4B
Melospiza melodia	Song Sparrow			S5B
Mniotilta varia	Black-and-white Warbler			S5B
Molothrus ater	Brown-headed Cowbird			S4B
Myiarchus crinitus	Great Crested Flycatcher			S4B
Passer domesticus	House Sparrow			SNA

Scientific Name	Common Name	SARA1	ESA <sup>2</sup>	SRank³
Passerculus sandwichensis	Savannah Sparrow			S4B
Passerina cyanea	Indigo Bunting			S4B
Pheucticus Iudovicianus	Rose-breasted Grosbeak			S4B
Picoides pubescens	Downy Woodpecker			S5
Picoides villosus	Hairy Woodpecker			S5
Poecile atricapillus	Black-capped Chickadee			S5
Quiscalus quiscula	Common Grackle			S5B
Riparia riparia	Bank Swallow	THR	THR	S4B
Sayornis phoebe	Eastern Phoebe			S5B
Setophaga magnolia	Magnolia Warbler			S5B
Setophaga pensylvanica	Chestnut-sided Warbler			S5B
Setophaga petechia	Yellow Warbler			S5B
Setophaga ruticilla	American Redstart			S5B
Setophaga striata	Blackpoll Warbler			S4B
Spizella pusilla	Field Sparrow			S4B
Sturnella magna	Eastern Meadowlark	THR	THR	S4B
Sturnus vulgaris	European Starling			SNA
Tachycineta bicolor	Tree Swallow			S4B
Thryothorus ludovicianus	Carolina Wren			S4
Toxostoma rufum	Brown Thrasher			S4B
Troglodytes aedon	House Wren			S5B
Turdus migratorius	American Robin			S5B
Vireo gilvus	Warbling Vireo			S5B
Vireo olivaceus	Red-eyed Vireo			S5B
Zenaida macroura	Mourning Dove			S5

Tederal Species At Risk Act (Sara), Provincial Endangered Species Act, 2007 (ESA), Provincial Conservation Ranking Where SNA= Not Applicable, SE= Non-Native Species, S1= Extremely Rare, S2= Very Rare, S3= Rare, S4= Apparently Secure And S5= Secure, B = Within Breeding Range Of Species, S= Subnational Ranking, N = National Ranking



Table E-3: Species at Risk (SAR) with the potential to occur within the Study Area for the Livingston Avenue Extension

Scientific Name	Common Name	SARA Status	ESA Status	SRank <sup>3</sup>	Information Source <sup>4</sup>	Regulate d Habitat	Habitat Requirements <sup>2,5, 6</sup>	Potential Habitat in the Study Area	Rationale for Potential to Occur
Insects									
Danaus plexippus	Monarch	SC	SC	S2N,S4B	OBA	No	Caterpillars feed on milkweed plants and are confined to meadows and open areas where milkweed grows. Adult butterflies can be found in more diverse habitats where they feed on nectar from a variety of wildflowers. Monarchs spend the winter in Oyamel Fir forests found in central Mexico.	Yes	Open Agriculture areas (OAG) may provide suitable breeding and foraging habitat for this species.
Birds									
Cardellina canadensis	Canada Warbler	THR	SC	S4B	MNRF CONSULTATI ON	No	Breeds in a range of deciduous and coniferous, usually wet forest types, all with a well- developed, dense shrub layer.  Dense shrub and understory vegetation help conceal Canada Warbler nests that are usually located on or near the ground on mossy logs or roots, along stream banks or on hummocks.	No	Suitable habitat requirements were not been observed in the Study Area.
Chaetura pelagica	Chimney Swift	THR	THR	S4B,S4N	ОВВА	No	Commonly found in urban areas near buildings; nests in hollow trees, crevices of rock cliffs, chimneys; highly gregarious; fees over open water.	No	Suitable habitat requirements were not been observed in the Study Area.
Hirundo rustica	Barn Swallow	THR	THR	S4B	OBBA, MNRF CONSULTATI ON	No	Farmlands or rural areas; cliffs, caves, rock niches; buildings or other man-made structures for nesting; open country near body of water.	Yes	Commercial buildings (CVC_1) and residential homes (CVR_1) within Study Area may provide suitable nesting habitat for this species. Open Agriculture (OAG) areas, and Annual Row Crop (OAGM1) within the Study Area may provide suitable foraging habitat for this species.
Melanerpes erythrocephalus	Red-headed Woodpecker	THR	sc	S4B	OBBA, MNRF CONSULTATI ON	No	Prefers open woodland and woodland edges, and is often found in parks, golf courses and cemeteries. These areas typically have many dead trees, which the bird uses for nesting and perching.	Yes	Woodlands A, B, C and D may provide suitable nesting and foraging habitat for this species. This species was observed during 2018 field investigations.

Common Name	SARA Status	ESA Status	SRank <sup>3</sup>	Information Source <sup>4</sup>	Regulate d Habitat	Habitat Requirements <sup>2,5,6</sup>	Potential Habitat in the Study Area	Rationale for Potential to Occur
Bank Swallow	THR	THR	S4B	OBBA, MNRF CONSULTATI ON	No	Sand, clay or gravel river banks or steep riverbank cliffs; lakeshore bluffs of easily crumbled sand or gravel; gravel pits, road-cuts, grassland or cultivated fields that are close to water; nesting sites are limiting factor for species presence	No	Suitable habitat requirements were not been observed in the Study Area.
Bobolink	THR	THR	S4B	OBBA, MNRF CONSULTATI ON	No	Large, open expansive grasslands with dense ground cover; hayfields, meadows or fallow fields; marshes; requires tracts of grassland >50 ha.	Yes	Open Agriculture areas (OAG) may provide suitable nesting and foraging habitat for this species.
Eastern Meadowlark	THR	THR	S4B	NHIC, OBBA, MNRF CONSULTATI ON	No	Open, grassy meadows, farmland, pastures, hayfields or grasslands with elevated singing perches; cultivated land and weedy areas with trees; old orchards with adjacent, open grassy areas >10 ha in size.	Yes	Open Agriculture areas (OAG) may provide suitable nesting and foraging habitat for this species.
Eastern Wood- pewee	sc	SC	S4B	OBBA	No	Open, deciduous, mixed or coniferous forest; predominated by oak with little understory; forest clearing, edges; farm woodlots, parks.	Yes	Woodlands A, B, C and D may provide suitable nesting an foraging habitat for this species. This species was observed during 2018 field investigations.
Wood Thrush	END	SC	S4B	OBBA	No	Carolinian and Great Lakes-St. Lawrence forest zones; undisturbed moist mature deciduous or mixed forest with deciduous sapling growth; near pond or swamp; hardwood forest edges; must have some trees higher than 12m.	No	Suitable habitat requirements were not been observed in the Study Area.
	Bank Swallow  Bobolink  Eastern Meadowlark  Eastern Wood- pewee	Bank Swallow THR  Bobolink THR  Eastern Meadowlark THR  Eastern Woodpewee SC	Bank Swallow THR THR  Bobolink THR THR  Eastern Meadowlark THR THR  Eastern Woodpewee SC SC	Bank Swallow THR THR S4B  Bobolink THR THR S4B  Eastern Meadowlark THR THR S4B  Eastern Woodpewee SC SC S4B	Bank Swallow  THR  THR  S4B  OBBA, MNRF CONSULTATI ON  ON  CONSULTATI ON  THR  THR  S4B  OBBA, MNRF CONSULTATI ON  THR  THR  S4B  OBBA, MNRF CONSULTATI ON  Fastern Meadowlark  THR  THR  S4B  NHIC, OBBA, MNRF CONSULTATI ON  Eastern Wood- pewee  SC  SC  S4B  OBBA	Bank Swallow  THR  THR  S4B  OBBA, MNRF CONSULTATI ON  Bobolink  THR  THR  S4B  OBBA, MNRF CONSULTATI ON  No  No  Eastern Meadowlark  THR  THR  S4B  NHIC, OBBA, MNRF CONSULTATI ON  No  Satus 2  SRank³  Information Source⁴  Regulate d Habitat	Bank Swallow	Common Name         SARA Status 1         Status 2         Status 3         Information Source³         Regulate d Habitat         Habitat Requirements².5.6         Habitat in the Study Area           Bank Swallow         THR         THR         SAB         OBBA, MNRF CONSULTATI ON         No         Sand, clay or gravel river banks or steep riverbank cliffs; lakeshore bluffs of easily crumbled sand or gravel; gravel just reach so the state reads to water; nesting sites are limiting factor for species presence.         No           Bobolink         THR         THR         S4B         OBBA, MNRF CONSULTATI ON         No         Large, open expansive grasslands with dense ground cover; hayfields, meadows or fallow fields; marshes, requires tracts of grassland with elevated singing perches; cultivated land and wedy areas with reces; old orchards with adjacent, open grasslands with elevated singing perches; cultivated land and wedy areas with reces; old orchards with adjacent, open grassy areas >10 ha in size.         Yes           Eastern Woodpewee         SC         SC         S4B         OBBA         No         Open, deciduous, mixed or coniferous forest; predominated by oak with little understory; forest clearing, edges; farm woodlots, parks.         Yes           Wood Thrush         END         SC         S4B         OBBA         No         Carolinian and Great Lakes-St. Lawrence forest zones; undisturbed moist mature deciduous or mixed forest with part of or swamp; hardwood         No

Scientific Name	Common Name	SARA Status	ESA Status	SRank <sup>3</sup>	Information Source <sup>4</sup>	Regulate d Habitat	Habitat Requirements <sup>2,5, 6</sup>	Potential Habitat in the Study Area	Rationale for Potential to Occur
Urocyon cinereoargenteus	Gray Fox	THR	THR	S1	MWH	No	Hardwood forests with a mix of fields and woods; swamps; wooded, brushy or rocky habitats; woodland farmland edge; old fields with thickets; dens in hollow log or tree; individual has numerous winter dens throughout its range which is > 40 ha.	No	Study Area is out of species range. Suitable habitat requirements were not been observed in the Study Area.
Microtus pinetorum	Woodland Vole	SC	SC	S3?	MWH	No	Mature deciduous forest in the Carolinian forest zone, with loose sandy soil and deep humus; grasslands, meadows and orchards with groundcover of duff or grass.	No	Suitable habitat requirements were not been observed in the Study Area.
Myotis leibii	Eastern Small- footed Myotis		END	S2S3	MWH	No	Roosts in caves, mine shafts, crevices or buildings that are in or near woodland; hibernates in cold dry caves or mines; maternity colonies in caves or buildings; hunts in forests.	No	Suitable habitat requirements were not been observed in the Study Area.
Myotis lucifugus	Little Brown Myotis	END	END	S4	MWH	No	Uses caves, quarries, tunnels, hollow trees or buildings for roosting; winters in humid caves; maternity sites in dark warm areas such as attics and barns; feeds primarily in wetlands, forest edges.	Yes	Woodlands A, B, C and D may provide suitable maternal roost and foraging habitat for this species.
Myotis septentrionalis	Northern Myotis	END	END	S3	MWH	No	Hibernates during winter in mines or caves; during summer males roost alone and females form maternity colonies of up to 60 adults; roosts in houses, manmade structures but prefers hollow trees or under loose bark; hunts within forests, below canopy.	Yes	Woodlands A, B, C and D may provide suitable maternal roost and foraging habitat for this species.
Pipistrellus subflavus	Tri-colored Bat	END	END	S3?	MWH	No	Can be found in a variety of forested habitats. They form day roosts and maternity colonies in older forest and occasionally in barns or other structures, and overwinter in caves. They forage over water and along streams in the forest.	Yes	Woodlands A, B, C and D may provide suitable maternal roost and foraging habitat for this species

Scientific Name	Common Name	SARA Status	ESA Status	SRank <sup>3</sup>	Information Source <sup>4</sup>	Regulate d Habitat	Habitat Requirements <sup>2,5, 6</sup>	Potential Habitat in the Study Area	Rationale for Potential to Occur
Plants									
Betula lenta	Cherry Birch	END	END	S1	NHIC	No	Found on moist, well-drained clay loam soil over limestone bedrock with White Oak, Red Oak, Eastern Hemlock, Sugar Maple and other deciduous trees. The single population of Cherry Birch in Canada is isolated at two sites on the Niagara peninsula in southern Ontario.	No	This species was not detected during botanical assessment and/or the tree inventory. In addition suitable habitat requirements were not observed in the Study Area.
Magnolia acuminata	Cucumber Tree	END	END	S2	NHIC	No	Generally grows in rich, well-drained soils in deciduous forest habitats	No	This species was not detected during botanical assessment and/or the tree inventory. In addition suitable habitat requirements were not observed in the Study Area.
Cornus florida	Eastern Flowering Dogwood	END	END	S2?	NHIC, MNRF CONSULTATI ON	Yes	Eastern Flowering Dogwood grows under taller trees in midage to mature deciduous or mixed forests. It most commonly grows on floodplains, slopes, bluffs and in ravines, and is also sometimes found along roadsides and fencerows. It can only be found in southern Ontario in the Carolinian Zone (the small area of Ontario southwest of Toronto to Sarnia down to the shores of Lake Erie).	No	This species was not detected during botanical assessment and/or the tree inventory. In addition suitable habitat requirements were not observed in the Study Area.
Morus rubra	Red Mulberry	END	END	S2	NHIC	No	Generally grows in moist forest habitats. In Ontario, these include slopes and ravines of the Niagara Escarpment, and sand spits and bottom lands; Can grow in open areas such as hydro corridors.	No	This species was not detected during botanical assessment and/or the tree inventory. In addition suitable habitat requirements were not observed in the Study Area.

<sup>1 –</sup> Status identified by the Committee on the Status of Endangered Wildlife in Canada under the federal SARA, 2002; 2 – SAR in Ontario List under the provincial ESA, 2007; 3 – Ontario SRank; S5 = secure; S4= apparently secure; S3 = vulnerable; S2 = imperilled; SX = Extirpated; SH = Possibly Extirpated; SNA = non-native or exotic species to Ontario; 4 – NHIC = MNRF Natural Heritage Information Centre; MNRF Consult. = MNRF Consultation, OBBA = Ontario Breeding Bird Atlas, MWH = Digital Distribution Maps of the Mammals of the Western Hemisphere, version 3.0, OBA = Ontario Butterfly Atlas; CBC = Christmas Bird Count; 5 – MNRF Significant Wildlife Technical Guide - Appendix G (2000), 6 – Ministry of Natural Resources and Forestry Guelph District Office (2018).

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