APPENDIX C:
NATURAL ENVIRONMENT IMPACT ASSESSMENT REPORT
Natural Environmental Impact Assessment Report

Huronia Road Improvements

Prepared for:
C.C Tatham and Associates Ltd.

Prepared by:
Azimuth Environmental Consulting, Inc.

November 2010
AEC 08-007
November 12, 2010

C.C. Tatham & Associates Ltd.
41 King Street, Unit 4
Barrie, ON
L4N 6B5

Attention: Brad Kalus, C.E.T., Branch Manager

Re: Environmental Impact Study Component for a Municipal Class EA for the proposed Huronia Road Improvements (Lockhart Road to Yonge Street), City of Barrie

Dear Mr. Kalus:

Azimuth Environmental Consulting (Azimuth) is pleased to submit our Environmental Impact Study for the abovementioned road reconstruction in the City of Barrie. The purpose of this report is to assess the potential impacts to environmental features associated with the expansion of the roadway and the preferred alternative. The findings of the final Environmental Study Report (ESR) will be incorporated into the Municipal Class EA being prepared by C.C. Tatham & Associates Ltd.

Please do not hesitate to call if you have any questions regarding this report.

Yours truly,

AZIMUTH ENVIRONMENTAL CONSULTING INC.

Lisa Moran, B.Sc.Env. Matt Stuart, B.Sc.Env.
Biologist Aquatic Biologist
# TABLE OF CONTENTS

Letter of transmittal ............................................................... page

**1.0 INTRODUCTION** ............................................................... 1

**2.0 STUDY APPROACH** .......................................................... 1

**3.0 PLANNING CONTEXT** ....................................................... 2

  3.1 Provincial Planning Policy .................................................... 2
  
  3.1.1 Provincial Policy Statement .............................................. 2
  
  3.1.2 Endangered Species Act .................................................. 4
  
  3.1.3 Lake Simcoe Protection Plan (2009) .................................... 5

  3.2 County of Simcoe .............................................................. 5

  3.3 City of Barrie Official Plan .................................................. 5

  3.4 Lake Simcoe Region Conservation Authority ....................... 6
  
  3.4.1 Ontario Regulation 179/06 ............................................... 6
  
  3.4.2 Natural Heritage System ................................................ 6

**4.0 EXISTING CONDITIONS** ................................................... 7

  4.1 On Site Land Use ............................................................. 7

  4.2 Adjacent Lands ............................................................... 8

  4.3 Natural Resources ............................................................ 8
  
  4.3.1 Aquatic Resources ....................................................... 8
  
  4.3.2 Terrestrial Resources ................................................... 11

  4.4 Lover’s Creek Hydrological Environmentally Sensitive Area (ESA) .............................................. 17

**5.0 PREFERRED ROAD DESIGN ALTERNATIVE** ......................... 17

**6.0 IMPACT ASSESSMENT** ..................................................... 18

  6.1 Planning Policy ............................................................... 18

  6.2 Aquatic Resources ............................................................ 18

  6.3 Terrestrial Resources ....................................................... 19
  
  6.3.1 Vegetation ................................................................. 19
  
  6.3.2 Wetland .................................................................... 22
  
  6.3.3 Wildlife .................................................................... 22
  
  6.3.4 Wildlife Movement .................................................... 22

**7.0 CONSTRUCTION MITIGATION** ........................................... 23

  7.1 Timing Restrictions .......................................................... 23

  7.2 Sediment and Erosion Controls .......................................... 23

  7.3 Culvert/Sewer Design .......................................................... 23
7.4 Site Restoration ................................................................................................................. 24
7.5 Operations .............................................................................................................................. 24

8.0 CONCLUSIONS ........................................................................................................................................ 24

9.0 REFERENCES ............................................................................................................................................. 25

List of Tables
Table 1: Natural Heritage Features Identified within LSRCA's Natural Heritage System
Table 2: ELC Characterization of Vegetation Communities Located with the Huronia Road Study Area
Table 3: Plant List of Species Documented to Occur within the Huronia Road Study Area
Table 4: Birds Documented During Dawn Breeding Bird Surveys for 8 Point Count Stations Along Huronia Road
Table 5: Amphibians Documented During Evening Anuran Surveys at 5 Stations Along Huronia Road
Table 6: Areas of Woody Vegetation Lost within Huronia Road Study Area

List of Figures
Figure 1: Study Area
Figure 2: Environmental Features (Entire Study Area)
Figure 2a: Environmental Features (Lockhart Rd. to Loon Ave.)
Figure 2b: Environmental Features (Loon Ave. to Yonge St.)
Figure 3: Huronia Road Proposed Development (Preferred Option, Entire Study Area)
Figure 3a: Huronia Road Proposed Development (Lockhart Rd. to Loon Ave.)
Figure 3b: Huronia Road Proposed Development (Loon Ave. to Yonge St.)

List of Appendices
Appendix A: LSRCA Scope Letter and LSRCA response
Appendix B: LSRCA Regulated Areas and LSRCA Natural Heritage Features
Appendix C: LSRCA Data
1.0 INTRODUCTION

Azimuth Environmental Consulting (Azimuth) was retained to undertake an Environmental Impact Study of the preferred alternative for the expansion of Huronia Road, between Lockhart Road to Yonge Street, within the City of Barrie (Figure 1). Improvements along Huronia Road will involve modifications to the roadway including widening of the roadway, the degree of which is to be determined through the examination of several design alternatives as part of a Class Environmental Assessment (EA). An Environmental Study Report (ESR) was completed by Azimuth in August 2009 which documented the existing environmental features present within and adjacent to the study area. The purpose of this document is to assess the environmental impacts to the environmental features associated with the preferred alternative for the expansion of the roadway. These findings will be integrated into the final ESR being prepared by C.C. Tatham & Associates Ltd.

2.0 STUDY APPROACH

A letter (April 5, 2008) was submitted to the Lake Simcoe Region Conservation Authority (LSRCA) to determine the required scope of work for this project (Appendix A). The LSRCA agreed to the proposed scope of work (via an email from Jackie Burkart (Senior Planner) (Appendix A) and indicated that the proposed scope of work was sufficient with the exception of a few additional details that should be incorporated into the fieldwork and/or report including:

- “An amphibian breeding/ habitat study within 120m of the expected limit of disturbance”;
- “Ensure that wildlife passage is afforded and ecological connectivity is maintained/ enhanced”; and
- “If large swaths of the natural heritage features are to be removed for the upgrades, breeding bird surveys should be conducted”.

This report presents a description of the environmental features and functions within the limits of the Huronia Road expansion study area as well as an impact assessment of the preferred design upon natural environmental resources. Figures 1-3 define the nature of the affected natural environment within and adjacent to the study area and is intended to supplement the full scale Design Drawings prepared by C.C. Tatham & Associates Ltd. This impact assessment will assist the LSRCA in the evaluation of this project in order to acquire environmental approvals in accordance with Ontario Regulation 179/06, and the Federal Fisheries Act.
A combination of field investigation and searches of background information were used to fulfill the objectives of this report. Azimuth undertook the following activities for this study:

- Conducted a background information search and review of existing documents;
- Consulted with the LSRCA and OMNR to collect background information and determine their concerns and permitting requirements for the project (Appendix A);
- Completed field reconnaissance investigations of the study area to identify existing natural environmental features in the study area (2008, 2009 and 2010);
- Classified vegetation communities within the road right-of-way based on air photo interpretation combined with field study, using the general methods of the Ecological Land Classification System (ELC) for southern Ontario (Lee et al. 1998);
- Completed three evening anuran amphibian surveys (2008);
- Completed two dawn breeding bird surveys (2008 and 2010);
- Documented incidental observations of wildlife in the study area (2008, 2009 and 2010);
- Characterized aquatic habitat conditions at watercourse crossing locations, including 2010 fish sampling with the use of a backpack electrofisher (2008, 2009, 2010);
- Overlaid information collected on recent aerial photography of the study area so that the relationship between the proposed road widening and the natural environmental features can be more easily visualized and assessed;
- Assessed the potential impacts of the proposed road widening on sensitive or significant environmental features as described above; and
- Recommended mitigation measures to minimize or avoid potential impacts to natural environmental features, particularly fish habitat.

3.0 PLANNING CONTEXT

3.1 Provincial Planning Policy

3.1.1 Provincial Policy Statement

The Provincial Policy Statement (PPS) (MMAH 2005) outlines policies related to natural heritage features (Section 2.1) and water resources (Section 2.2). The Planning Act requires that planning decisions shall be consistent with the PPS.
According to the PPS development and site alteration shall not be permitted in:

- Significant habitat of endangered or threatened species,
- Significant wetlands (in coastal areas or in Ecoregions 5E, 6E and 7E), and
- Significant coastal wetlands.

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

- Significant woodlands (south and east of the Canadian Shield),
- Significant valley lands (south and east of the Canadian Shield),
- Significant wildlife habitat, and
- Significant Areas of Natural and Scientific Interest (ANSI).

Furthermore, no development and site alteration will be permitted on lands adjacent to the areas defined above unless the ecological function of the adjacent lands has been evaluated and it has been demonstrated there will be no negative impacts on the natural features and ecological functions.

The term development (as defined in the PPS, 2005) is defined as the creation of a new lot, a change in land use or the construction of buildings and structures, requiring approval under the Planning Act, but does not include activities that create or maintain infrastructure authorized under an environmental assessment process, as is the case with the proposed Huronia Road expansion.

Development and site alteration is not permitted in fish habitat except in accordance with federal and provincial requirements.

Portions of the Lover’s Creek Provincially Significant Wetland (PSW) are within the proposed roadway expansion (Figure 1 and Figures 2, 2a, 2b, Appendix B).

There are no ANSI’s on or within 120m of the property. Current provincial databases do not identify Significant Woodlands or Valley Lands on or adjacent to the study area.

There is one recent (i.e. within 20 years) element of occurrence record within OMNR’s Natural Heritage Information (NHIC) database to indicate that there are any species of conservation concern have been documented within the study area (NHIC, 2010). This record is for Fogg’s Goosefoot (*Chenopodium foggii*) (Appendix B). This species prefers sandy areas on limestone under oak or pine-oak forests (MNR, 2000). There is no suitable habitat for the Fogg’s Goosefoot nor was it observed within the study area.
To our knowledge the province has not identified significant “Wildlife Habitat” within or adjacent to the study area. A Stratum 2 deeryard has been identified at the northeast corner of Mapleview Drive and Huronia Road (Allen et al., 2005). Stratum 2 deeryards may be utilized by deer when the winters are mild and there is minimal snow cover or for feeding.

3.1.2 Endangered Species Act

The Endangered Species Act (ESA) for Ontario was enacted on June 30, 2008. The Act protects species and the habitats on which the species depends, directly or indirectly, to carry on its life processes such as reproduction, rearing, hibernation, migration or feeding. Section 10 of the ESA prohibits the damaging or destroying of habitat of endangered or threatened species.

Background data indicate that there are three endangered and one special concern species that are known to exist within the City of Barrie and/or the County of Simcoe; Butternut (Juglans cinera) [Endangered], American Ginseng (Panax quinquefolius) [Endangered], Spotted Turtle (Clemmys guttata) [Endangered] and Milksnake (Lampropeltis triangulum) [Special Concern].

According to the Ontario Breeding Bird Atlas Database (OBBAD) 2001-2005 survey (square # 17PK01), the Red-headed Woodpecker (Melanerpes erythrocephalus) [Special Concern] has been confirmed as breeding within the area.

No Butternut observed within the limits of disturbance from the roadside along Huronia Road.

American Ginseng prefers deep leaf litter in rich, moist deciduous woods, especially on rocky, shaded cool slopes in sweet soil (MNR, 2000). There is no suitable habitat within the study area.

Spotted Turtle inhabits unpolluted, shallow bodies of water such as streams, ponds, wet meadows, marshes or swamps with aquatic vegetation, logs or clumps of vegetation for basking; nest is dug near water in fine-textured soil (e.g. sand) or moss (MNR, 2000). There are no known populations of Spotted Turtle within the City of Barrie and there is no optimal habitat within the study area.

Milksnake is designated provincially as Special Concern and inhabits farmlands, meadows, hardwood or aspen stands; pine forest with brushy or woody cover; river bottoms or bog woods; hides under logs, stones, or boards or in outbuildings (MNR, 2000). The ESA currently does not protect species or the habitat of species designated as Special Concern. Milksnake was not observed within the study area however, potential habitat for this snake does exist owing to its diverse array of suitable habitat. This habitat
is well represented within the area and the Huronia Road improvements do not represent a significant loss of potential habitat.

The Red-headed Woodpecker is designated provincially as Special Concern and inhabits a variety of treed and non-treed habitats and is commonly found in open deciduous forests with little understorey (often composed of Beech or Oak), wooded swamps, forest edges, groves of dead and dying trees and fields or pasturelands with scattered large-diameter trees (OMNR, 2000, Smith et al., 2000). It prefers xeric woodlands with trees of large circumference of at least 40cm diameter breast height (dbh) and requires 4 hectares for territory (Smith et al., 2000, OMNR 2000). This species can also be found in urban environments such as parks, golf courses, cemeteries and private woodlands (Cadman et al., 2007). It is most often found nesting in dead trees and branches (Smith et al., 2000 and Cadman et al., 2007). The ESA currently does not protect species or the habitat of species designated as Special Concern. Red-headed Woodpecker was not observed within the area, however, potential habitat exists owing to its diverse array of suitable habitat and ability to live within urban environments. This habitat is well represented within the area and the Huronia Road improvements do not represent a significant loss of potential habitat.

3.1.3 Lake Simcoe Protection Plan (2009)

The Lake Simcoe Protection Act (2008) was developed to protect and restore the ecological health of the Lake Simcoe watershed. The roadway improvements are not considered to be “development” and/or “site alteration” as these terms do not include infrastructure, facilities for transportation or utilities. Therefore, any policy pertaining to development and/or site alteration does not apply. The study area is within the City of Barrie.

3.2 County of Simcoe

The study area is located within the City of Barrie and is not subject to this plan (2008).

3.3 City of Barrie Official Plan

The City of Barrie Official Plan (2009) identifies the lands adjacent to the proposed works along Huronia Road on Schedule A. Residential, General Commercial, General Industrial, Open Space and an Environmental Protection Area constitute the designations within the area. The Environmental Protection Areas appear to be associated with watercourses that cross Huronia Road and the Lover’s Creek Provincially Significant Wetland (PSW). Environmental Protection Areas are intended primarily for preservation and conservation in their natural state. Development is not permitted within a PSW under the Provincial Planning Policy (2005) with the exception of infrastructure.
3.4 Lake Simcoe Region Conservation Authority

3.4.1 Ontario Regulation 179/06
The study area is located within the jurisdiction of the LSRCA. The study area includes lands subject to Ontario Regulation 179/06 – “Regulation of Development Interference with Wetlands and Alterations to Shorelines and Watercourses” by the LSRCA, which is associated with the presence of Lover’s Creek PSW, several watercourses and their associated floodplain (Appendix C). Under Regulation 179/06, the LSRCA requires that approvals be obtained for any proposed development within areas regulated under their jurisdiction.

3.4.2 Natural Heritage System
The Natural Heritage System (NHS) for the Lake Simcoe Watershed, prepared by the LSRCA and Beacon Environmental, was adopted by the LSRCA in July 2007. Within this document a number of features have been identified within LSRCA’s Natural Heritage System (Appendix C) and are described in Table 1.

At this time, LSRCA is encouraging planning authorities to adopt the NHS and incorporate appropriate suggested policies in their Official Plans to protect and enhance the system (LSRCA et al., 2007), however, this has not yet been integrated into the City of Barrie’s planning policies.
Table 1: Natural Heritage Features Identified within LSRCA's Natural Heritage System

<table>
<thead>
<tr>
<th>Level of Feature</th>
<th>Feature Identified</th>
<th>LSRCA Recommendation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Level 1</strong></td>
<td>Lover’s Creek PSW</td>
<td>These features are deemed to be provincially significant by LSRCA and, for a PSW, the province. It is the intent of the authority to retain all such features and no development or site alteration should occur within these areas.</td>
</tr>
<tr>
<td><strong>Level 2</strong></td>
<td>Forested lands surrounding portion of PSW situated to the north of Mapleview Dr. and West of Huronia Rd.</td>
<td>Level 2 features should be retained and there should be no negative impact to overall function. If it is determined that there will be no negative impacts, the loss of all or part of a feature can be contemplated subject to the identification of measures to replace the lost areas or functions.</td>
</tr>
<tr>
<td><strong>Level 3</strong></td>
<td>All watercourses</td>
<td>Development within Level 3 features is generally avoided but there is some flexibility when development is proposed. Although retention is preferred, replacement is acceptable.</td>
</tr>
<tr>
<td><strong>Level 4</strong></td>
<td>Early successional lands situated north of Lockhart Rd. and West of Huronia Rd.</td>
<td>A Level 4 feature is considered to be supporting Level 1, 2 and 3 features. Level 4 features do not represent a constraint to development, although replacement is encouraged.</td>
</tr>
</tbody>
</table>

4.0 EXISTING CONDITIONS

4.1 On Site Land Use

For the purposes of this report the limits of the study area include the footprint of the existing Huronia Road alignment, and adjacent lands within the preferred road widening alternative on both sides of Huronia Road. Vegetation communities will be identified within 120m of the proposed disturbance through air photo interpretation, as we do not have access or landowner permission to these private lands. The proposed road improvement study area includes existing City roadway (i.e. existing Huronia Road), forest and early successional vegetation communities, industrial and commercial lands, portions of the Lover’s Creek PSW, residential homes with maintained lawns and
maintained residential properties. A number of watercourses exist within the study area (Figure 1).

4.2 Adjacent Lands
Adjacent lands, for the purposes of this report, are those lands residing outside of the 120m setback from the preferred design alternative.

The land use on adjacent lands is similar to the on-site land uses. Lands adjacent to the proposed road improvements are composed of forest and early successional vegetation communities, agricultural, industrial and commercial lands, portions of the Lover’s Creek PSW, residential homes and maintained residential properties. A number of watercourses also traverse the adjacent lands.

4.3 Natural Resources

4.3.1 Aquatic Resources
Between Yonge Street and Lockhart Road, Huronia Road is traversed by the main branch of Whiskey Creek, two tributaries of Whiskey Creek, and seven tributaries of Lover’s Creek, as shown on Figure 1, 2, 2a and 2b. These watercourse crossings were field investigated on April 28, 2008 to document existing aquatic habitat conditions under spring conditions and potential for providing fish habitat. A detailed investigation that included fish sampling with the use of a backpack electrofisher was completed on June 17, 2010.

The following paragraphs describe these surface water features from north to south along Huronia Road within the study limits, with reference to crossing numbers 1-10 as identified in Figure 1, 2, 2a and 2b.

4.3.1.1 Crossing 1
This crossing is the main branch of Whiskey Creek. Whiskey Creek is located entirely within the limits of the City of Barrie. The watercourse originates in the Veteran’s Drive area, west of Highway 400, draining a catchment area of approximately 6.35km². The creek flows in a general easterly direction through natural and urbanized reaches ultimately discharging to Kempenfelt Bay, Lake Simcoe, adjacent to Minet’s Point Park. Whiskey Creek flows beneath Huronia Road Avenue via twin corrugated steel pipe (CSP) culvert.

Whiskey Creek is a permanently flowing, cold water watercourse that sustains populations of Brook Trout (Salvelinus fontinalis) and Mottled Sculpin (Cottus bairdi). As described in the August 2001 Whiskey Creek Master Drainage Plan (MDP), fish sampling efforts have captured a variety of warm, cool, and cold water species throughout the system. Electrofishing efforts completed by Azimuth in August 2001 captured the following fish species; Brook Trout, Mottled Sculpin, Blacknose Dace
(Rhinichthys atratulus), Creek Chub (Semotilus atromaculatus), Longnose Dace (Rhinichthys cataractae), Golden Shiner (Notemigonus crysoleucas), and Black Crappie (Pomoxis nigromaculatus). Site specifically, an electrofishing station located just upstream of Little Avenue captured both Brook Trout and Mottled Sculpin, both of which require good water quality conditions and are indicative of cold water habitat.

Background information from the LSRCA and the MNR concur with the results presented in the MDP and above. LSRCA and MNR agree that the watercourse maintains a cold water thermal regime, and that any in-water works must be completed within the July 1 – September 30 (three month) cold water fisheries timing window.

4.3.1.2 Crossing 2
This watercourse crossing is an unnamed tributary of Whiskey Creek that conveys seasonal drainage in a westerly direction beneath Huronia Road. The intermittent drainage originates in a Cattail stand on the west side of Huronia Road. The existing culvert inlet is buried, and there is no suitable standing/flowing water that would provide fish habitat. On the downstream (east) side of the culvert there is a small area of standing water, however fish sampling revealed no fish captured, and it is expected that this watercourse crossing strictly provides seasonal drainage, and does not provide direct fish habitat.

4.3.1.3 Crossing 3
This unnamed tributary to Whiskey Creek conveys intermittent drainage and appears to originate within the west ditch of Huronia Road, adjacent to the C.N.R. tracks. Field investigations could not locate where/how the drainage crosses Huronia Road, as no culvert was observed. On the east side of Huronia Road, water appears to seep from the east ditch where it eventually flows into a defined channel easterly within a vegetated corridor through the City’s Huronia Soccer Fields. There is no direct fish habitat present within the right-of-way (ROW) of Huronia Road, as no fish were captured in isolated pools adjacent to the crossing. This watercourse crossing strictly provides seasonal drainage, and does not provide direct fish habitat.

4.3.1.4 Crossing 4
This watercourse crossing conveys an unnamed tributary of Lover’s Creek. A single CSP culvert carries permanent flow from the west side of Huronia Road to the east. The 1m wetted channel displays excellent aquatic habitat characteristic, hosts Brook Trout, and should be considered direct cold water fish habitat. At low water levels the degraded condition of the existing culvert may create a barrier to fish movement. LSRCA and MNR agree that the watercourse maintains a cold water thermal regime, and any in-water works must be completed within the July 1 – September 30 (three month) cold water fisheries timing window.
4.3.1.5 Crossing 5
This unnamed tributary to Lover’s Creek originates in the west ditch of Huronia Road and crosses via a small CSP culvert to the east. On the downstream (east) side, the culvert is buried and water seeps through the bank and flows diffusely approximately 5m to a small defined channel. Flow appears limited but permanent, and there is no direct fish habitat present within the right-of-way (ROW) of Huronia Road. Due to its proximity to the receiving watercourse (Crossing 3), cold water thermal regime, and potential downstream direct fish habitat this drainage area should be considered indirect cold water fish habitat, to which the cold water fisheries timing restriction would potentially apply.

4.3.1.6 Crossing 6
This crossing represents an unnamed cold water tributary to Lover’s Creek. This watercourse sustains permanent flow, and is historically known to provide direct habitat for cold water fish species, including Brook Trout. Azimuth’s June 2010 fish sampling confirmed the presence of Brook Trout in proximity of the Huronia Road crossing. The watercourse traverses Huronia Road via a single CSP from the west side of the road to the east towards the main branch of Lover’s Creek. Fish passage does not appear to be negatively affected by the present condition of the existing culvert. Background information from the LSRCA and the MNR concur with the results presented above and agree that the watercourse maintains a cold water thermal regime.

4.3.1.7 Crossing 7
This unnamed tributary of Lover’s Creek crosses Huronia Road via a single CSP culvert. Water originates in the west ditch of Huronia road, which receives drainage from the north and south ditch of Saunders Road. At the intersection of Saunders’s Road and Huronia Road, water flows in the ditch to a gabion basket headwall located within the west ditch and then crosses Huronia Road east towards Lover’s Creek. The watercourse is classified as permanent cold water, however due to the gabion structure and ditch conveyance upstream, only the downstream (east) side of Huronia Road should be considered direct cold water fish habitat. This drainage area flows year round and is a permanent tributary to Lover’s Creek. Fish sampling revealed no fish captured.

4.3.1.8 Crossing 8
This unnamed watercourse crosses Huronia Road via a concrete box culvert. Water flows through a small vegetated channel corridor on the west side of Huronia Road, enters the ditch, and crosses beneath the road, where it is conveyed within a small wetted channel easterly towards Lover’s Creek. There is no fish passage at this crossing due to a large rock check dam located on the upstream side of the culvert, and a large stone/sediment deposit located at the downstream side. Despite the absence of direct fish habitat at Huronia Road, this watercourse conveys permanent flow, Azimuth’s 2010 fish
sampling captured Brook Trout downstream of the culvert outlet, and therefore it should be considered as cold water direct fish habitat.

4.3.1.9 Crossing 9
This unnamed tributary of Lover’s Creek traverses Huronia Road via a concrete box culvert. Intermittent surface drainage flows down a vegetative channel corridor on the west side of Huronia Road, flows beneath Huronia Road, then enters a small vegetated wetted channel that heads east towards Lover’s Creek. Azimuth’s 2010 fish sampling did not capture any fish both upstream and downstream of the culvert crossing. Therefore, the watercourse should be classified as warm water indirect fish habitat, however due to its connectivity to Lover’s Creek (cold water direct fish habitat) the crossing may require cold water timing restrictions.

4.3.1.10 Crossing 10
Just south of the Lockhart Road – Huronia Road intersection, this unnamed tributary of Lover’s Creek crosses beneath Huronia Road via an existing box culvert. The watercourse provides permanent flowing cold water, and hosts Brook Trout both upstream and downstream of the crossing. Based on the present existing conditions and fish habitat observed, this crossing should be considered direct cold water fish habitat, and therefore subjected to the cold water in-water work timing restrictions.

4.3.1.11 Permanent Ditch Flow
During Azimuth’s site investigations, it was observed that there was permanent cold water base flow flowing within the west ditch of Huronia Road. Ditch flow appears to be originating from a vegetated corridor located to the west of Huronia road, flowing down gradient west to east towards the west ditch of Huronia Road. The flow reaches Huronia Road in between crossing 7 and 8. From 680 Huronia Road, the ditch flows south towards crossing 8, where in discharges into the unnamed tributary of Lover’s Creek. From 357 Saunders Road, the flow heads north, eventually discharging into the unnamed tributary of Lover’s Creek at crossing number 7. Fish sampling within the ditch did not capture any fish, however the permanent flowing cold water base flow contribution to the tributaries of Lover’s Creek may require the protection/maintenance of such contributions in the future.

4.3.2 Terrestrial Resources

4.3.2.1 Vegetation
Vegetation within the area is composed of a variety of forms including open early successional lands, forest and wetland habitat. The majority of the vegetative natural heritage features are situated to the south of Loon Avenue and north of Lockhart Road (Figure 2, 2a and 2b) North of Loon Avenue to Yonge Street is primarily residential
development with lawns and boulevard tree plantings. A vegetation survey was conducted on May 20, May 28 and October 7, 2008 to document the vegetation communities that reside within the proposed limit of disturbance. The Ecological Land Classification for Southern Ontario (ELC) (Lee et al., 1998) was used as a general guide to the classification of the vegetation community types within the study area in addition to lands within 120m of the proposed limit of disturbance (Figure 2, 2a and 2b). Where communities were not accessible, air photo interpretation was utilized to best describe the areas.

Figures 2, 2a, 2b and Table 2 outlines the locations and types of vegetation communities found within the study area.

| Table 2: ELC Characterization of Vegetation Communities Located within the Huronia Road Study Area |
|---|---|
| **UNIT** | **DESCRIPTION** |
| FOREST (FO) | Tree cover >60% |
| CONIFEROUS FOREST (FOC) | Tree cover > 75% coniferous tree species |
| FOC2-2: Dry-Fresh White Cedar | Forest community composed primarily of Eastern White Cedar with Eastern White Pine and Poplar associates. Groundcover include species such as Brown-seed Dandelion, Sow Thistle, Bracken Fern, Coltsfoot, Sensitive Fern and Wild Grape. |
| MIXED FOREST (FOM) | Tree cover > 25% coniferous and deciduous tree species |
| FOM4-2: Dry-Fresh White Cedar-Poplar Mixed Forest Type | Mixed forest community composed of Eastern White Cedar with associates including Trembling Aspen, Paper Birch, Ash, White Pine, Sugar Maple and Red Oak. |
| FOM5-2: Dry-Fresh Poplar Mixed Forest Type | Mixed forest community composed of Trembling Aspen, White Pine, Sugar Maple, Eastern White Cedar, White Spruce and Choke Cherry. Bracken Fern is one component of the groundcover. |
| FOM7-2: Fresh-Moist White Cedar – Hardwood Mixed Forest Type | Eastern White Cedar, Ash and Yellow Birch are found within this community. Red Raspberry, Climbing Nightshade, and Poison Ivy contribute to the understorey and groundcover layers. |
| DECIDUOUS FOREST (FOD) | Tree cover > 75% deciduous tree species |
| FOD3-1a Dry-Fresh Poplar Deciduous Forest Type | A small portion of Whiskey Creek runs through this community. Community largely composed of Balsam Poplar with Trembling Aspen, Manitoba Maple, Eastern White Cedar, White Pine and Paper Birch. Red Raspberry, Alternate-leaf Dogwood and Staghorn Sumac can be found within the understorey layer |
with Red-osier Dogwood and Highbush Cranberry in the riparian areas.
Bracken Fern, Virginia Creeper, Riverbank Grape, Brown-seed Dandelion are all common herbaceous species within this area.

| FOD3-1b: Dry-Fresh Poplar-Deciduous Forest Type | Community dominated by Trembling Aspen with Black Cherry, American Elm, Staghorn Sumac and Eastern White Cedar. Groundcover includes species such as Woodland Strawberry and Brown-seed Dandelion. |
| FOD6-1: Fresh-Moist Sugar Maple – Lowland Ash Deciduous Forest Type | Community largely dominated by Ash with Trembling Aspen, Sugar Maple, Basswood, American Elm, Balsam Poplar, White Spruce and Eastern White Cedar. Bracken Fern is abundant within the groundcover however, from the roadside, it appears that there are pockets of Red-osier Dogwood and Sensitive Fern. |
| FOD7-2: Fresh-Moist Ash Lowland Deciduous Forest Type | Community largely composed of Green Ash and Trembling Aspen with a variety of other tree species such as Balsam Poplar, Red Oak, American Elm, Manitoba Maple and Sugar Maple. Alternate-leaf Dogwood, Staghorn Sumac and Highbush Cranberry, Poison Ivy, Virginia Creeper and Riverbank Grape are components throughout community. Wetland adept species are found in proximity to watercourses that traverse through this community. |

**CULTURAL (CU)**

**CUP3-1: Red Pine Coniferous Plantation Type**

Red Pine plantation.

**CULTURAL WOODLAND (CUW)**

35% < Tree cover < 60%

**CUW1: Mineral Cultural Woodland Ecosite**

Community composed of a scattering of young Trembling Aspen, Black Cherry and Willow with a variety of field species found within CUM1-1.

**CULTURAL THICKET (CUT)**

Tree cover <25%, shrub cover >25%

**CUT1: Mineral Cultural Thicket Ecosite**

Old field successional community composed of species similar to those found within the Cultural Meadow Community with a higher component of shrubs and young saplings.

**CULTURAL MEADOW (CUM)**

Vegetation community characterized by having <25% tree cover and <25% shrub cover.

**CUM1-1: Dry-Moist Old Field Meadow Type**

Old field successional composed of a variety of grasses, Wild Carrot, Evening Primrose, Mullein, Milkweed, Brown-seed Dandelion, Red Raspberry, Staghorn Sumac and a variety of Goldenrods and Asters. Along the intermittent channel is a larger concentration of tree and shrub species including Maple, American Elm, Trembling Aspen, Eastern White Cedar, White Pine, Ash, Common Apple and Buckthorn.

**SWAMP (SW)**

Tree or shrub cover >25% dominated by hydrophytic shrub and tree
None of the vegetation communities are considered to be provincially rare (NHIC, 2010). None of the species observed are considered to be provincially endangered, threatened or of special concern. Table 3 lists the vegetation species documented within the study area. None of the vegetative species observed are of conservation concern.

There is one recent (i.e. within 20 years) element of occurrence records on file with the Ontario Ministry of Natural Resources’ (OMNR) Natural Heritage Information Centre (NHIC) to indicate that the property potentially contains habitat of threatened, or endangered species, Fogg’s Goosefoot (*Chenopodium foggii*) (NHIC, 2010). Fogg’s

<table>
<thead>
<tr>
<th>Community Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>THICKET SWAMP (SWT)</strong></td>
<td>Tree cover &lt;25%, hydrophytic shrubs &gt;25%</td>
</tr>
<tr>
<td>SWT2-2: Willow Mineral Thicket Swamp Type</td>
<td>Community largely dominated by willow (shrub form) with other wetland species.</td>
</tr>
<tr>
<td><strong>CONIFEROUS SWAMP (SWC)</strong></td>
<td>Conifer tree species &gt;75% of canopy</td>
</tr>
<tr>
<td>SWC1-1: White Cedar – Coniferous Swamp Type</td>
<td>Community largely dominated by Eastern White Cedar.</td>
</tr>
<tr>
<td><strong>MIXED SWAMP (SWM)</strong></td>
<td>Tree species &gt;25% coniferous and deciduous</td>
</tr>
<tr>
<td>SWM1-1 White Cedar – Hardwood Mineral Mixed Swamp Type</td>
<td>Community composed of tree species including Balsam Poplar, Eastern White Cedar and American Elm. Groundcover composed of species such as Sensitive Fern, Spotted Joe-pye Weed and Swamp Aster.</td>
</tr>
<tr>
<td><strong>DECIDUOUS SWAMP (SWD)</strong></td>
<td>Tree cover &gt;25%, deciduous tree species &gt;75% of canopy cover.</td>
</tr>
<tr>
<td>SWD2-2: Green Ash Mineral Deciduous Swamp Type</td>
<td>Community dominated by Green Ash with Balsam Poplar, Trembling Aspen and Eastern White Cedar. Tree and shrub form will are found within the sub-canopy and within the understory. Red-osier Dogwood and Cattails are also components of this community.</td>
</tr>
<tr>
<td>SWD4: Mineral Deciduous Swamp Ecosite</td>
<td>Community dominated by Trembling Aspen with American Elm, Eastern White Cedar and Willow. Reed Canary Grass, Common Reed and Cattail are found in the herbaceous layer.</td>
</tr>
<tr>
<td><strong>MARSH (MA)</strong></td>
<td>Tree and shrub cover &lt;25% and hydrophytic emergent macrophyte cover &gt;25%</td>
</tr>
<tr>
<td><strong>SHALLOW MARSH (MAS)</strong></td>
<td>Standing or flowing water for much or all of the growing season with water up to 2m deep.</td>
</tr>
<tr>
<td>MAS2-1: Cattail Mineral Shallow Marsh Type</td>
<td>Community dominated by cattails.</td>
</tr>
</tbody>
</table>
Goosefoot can be found in sandy areas on limestone under oak or pine-oak forests, rocky woods, cliff bases, rocky slopes and outcrops, sparsely wooded areas (OMNR 2000, Flora of North America 2007, USDA Forest Service 2005). This species was not documented within the study area nor is suitable habitat present.

Silv-Econ prepared a Tree Inventory and Preservation Plan in 2005 for the Municipal Class Environmental Assessment for the widening of Huronia Road. This report documents the trees potentially impacted from the proposed road works and recommends trees that should be removed, preserved and strategies to avoid damage to trees that may be retained. None of the trees documented within this report are of provincial conservation concern. One watershed rare tree, Black Walnut (LSEMS, 2003) was documented on a residential property north of Little Avenue (Figure 2b).

4.3.2.2 Wetland
Portions of the Lover’s Creek PSW are situated within the study limits and are located to the east of Huronia Road between Lockhart Road and Mapleview Drive and along each side of Huronia Road between Mapleview Drive and Loon Crescent (Figure 1 and Figure 2, 2a and 2b). This PSW is composed of four individual wetlands and is composed primarily of swamp habitat with 75% of the wetland composed of organic soils (Black et al., 1985). Within the 1985 wetland evaluation, the PSW was documented to provide a number of functions and provide habitat for wildlife including:

- Herpetiles including Bullfrog, Snapping Turtle;
- Furbearers including the Muskrat, Raccoon, Beaver, Mink and Coyote;
- Waterfowl including the regionally significant Black Duck, feeding area for the Great Blue Heron and waterfowl staging areas;
- Deer as a core winter area; and
- Vegetation including the locally significant Slender Wedge Grass (Sphenopholis intermedia).

4.3.2.3 Wildlife
Species of birds and small mammals that utilize forested habitat within the study area would be restricted to those edge species that are more tolerant of an urban or disturbed environment. Small mammals such as Gray and Red Squirrel, Raccoon, Striped Skunk, European Hare, and Eastern Cottontail would use habitat in proximity to the existing roadbed for food resources.

More urban species of birds including Robin, American Crow, Mourning Dove, Blue Jay, European Starling, sparrows, House Finch and other disturbance-tolerant species would be expected to utilize the forest fringe in proximity to the existing road allowance and treed vegetation associated with landscaped properties.
Dawn breeding bird surveys were conducted on June 3 and 21, 2008 and June 17, 2010 at eight point count stations within the study limits (Figure 2, 2a, 2b). A total of 25 bird species were recorded (Table 4). None of the birds observed are of conservation concern.

A Stratum 2 deeryard has been identified at the northeast corner of Mapleview Drive and Huronia Road (Allen et al., 2005).

According to the Ontario Breeding Bird Atlas Database (OBBAD) 2001-2005 survey (square # 17PK01), there is one provincially rare bird identified within the area, Red-headed Woodpecker. The Red-headed Woodpecker has been confirmed as breeding within the area (OBBA, 2010). This bird is ranked as an S4 species (former S3 ranking) according to OMNR’s NHIC database (NHIC 2010). The term S4 indicates that this woodpecker is apparently secure, uncommon but not rare; some cause for long-term concern due to declines or other factors. The Red-headed Woodpecker is designated provincially as Special Concern and is discussed in Section 3.1.2 above. The Red-headed Woodpecker was not observed during field investigations.

There are no regionally rare birds confirmed as breeding within the area according to the Ontario Breeding Bird Atlas.

Three colonial species, Bank Swallow (Riparia riparia), Great Blue Heron and Green Heron have been confirmed to be breeding within the area according to the Ontario Breeding Bird Atlas.

Bank Swallow prefers riverbanks, cliffs and open fields close to water (OMNR, 2000). It can also be found in artificial sites such as sand and gravel pits, along roadsides and in stockpiles of soil or other material where it will excavate its own nest burrows in exposed soils (Cadman et al., 2007). Furthermore, telephone and hydro lines are often used for diurnal roosting. These roosts may be a considerable distance from nesting area therefore; it may be possible that breeding was confirmed in some areas where no breeding was actually occurring (Cadman et al., 2007). Potential habitat for Bank Swallow exists within stockpiled soil that is associated with the garden supply company located just east of Saunders Road. Disturbance of these stock piles would be associated with routine operations of this business and would therefore likely not represent suitable habitat. Bank Swallow was not documented within the study area.

The Great Blue Heron has been confirmed as breeding within the area (OBBA, 2008). This species is a colonial bird that primarily nests in large colonies (99% of nests in Ontario occur in colonies) (Cadman et al., 2007)) with up to several hundred pairs (Butler, 1992). Great Blue Herons build large conspicuous bulky stick nest in trees, close to or over water (Cadman et al., 2007). These birds inhabit wetlands, shores of ponds or lakes, marshes, standing trees in open water, swamps including woodlots that are isolated.
in order to discourage predation by snakes and mammals (OMNR, 2000 and Butler, 1992). It is intolerant of human disturbance and has been known to choose colony sites that are situated away from roads and human structures. Furthermore, colonies have been known to abandon an area in response to housing, industrial development, highway construction, logging, vehicle traffic and repeated human intrusions (Quinn et al., 1999). There were no Great Blue Heron, nests or colonies observed within the study area along Huronia Road.

The Green Heron has been confirmed as breeding within the area (OBBA, 2010). This species most often nests solitary but sometimes will nest in colonies. The Green Heron inhabits wetlands with heavy cover, woodland pools, streams or rivers, brushy drainage ditches, streamside thickets and conifer plantations (OMNR, 2000) and prefers thick vegetation throughout its range (Davis et al., 1994). The nests are bulky and are built of sticks. There were no Green Herons or stick nests observed within the study area along Huronia Road.

Evening anuran amphibian surveys were conducted on April 19, May 24, and June 27, 2008 at 5 different locations within the study area (Figure 2, 2a, 2b). Spring Peeper, American Toad, Gray Treefrog and Green Frog were observed within the study area (Table 5). Survey stations 2, 3, 4 and 5 represent areas that are being utilized for amphibian breeding. There were no calls heard at Station 1. None of the amphibian species observed are of conservation concern.

### 4.4 Lover’s Creek Hydrological Environmentally Sensitive Area (ESA)

The southern portion of the study area (i.e. south of Big Bay Point Road) falls within the Lover’s Creek Environmentally Significant Area (ESA) designation. This ESA contributes to baseflow and cold water habitat of Lover’s Creek and the portion within the study limits has been identified as a discharge area.

### 5.0 PREFERRED ROAD DESIGN ALTERNATIVE

The preferred road design alternative is listed below.

- Widen to three (3) lanes - South from Yonge Street to south of Webb Street/north of Herrell Ave.
- Widen to five (5) lanes - South of Webb Street/north of Herrell Ave south to Mapleview Drive.
- Widen to three (3) lanes (with the provision for an ultimate of five (5) lanes as area development occurs) - Mapleview Drive south to Lockhart Road.

Any widening will be mitigated with the use of standard mitigation practices outlined in advance of any works taking place.
6.0 IMPACT ASSESSMENT

6.1 Planning Policy

Portions of the Lover’s Creek Provincially Significant Wetland exist within the study area. Current provincial databases do not identify Significant Woodlands or Valleylands on or adjacent to the study area. The proposed road improvements along Huronia Road will not adversely impact the form or function of the Lover’s Creek PSW as vegetation removal is limited to the edge habitat adjacent to Huronia Road and is only removing very little vegetation within the PSW.

The study area includes lands that are regulated by LSRCA according to Regulation 179/06. A permit from LSRCA will be required prior to any road works.

6.2 Aquatic Resources

The implementation of the proposed Huronia Road improvements (widening) will result in sections of fish habitat within the existing ROW being ultimately enclosed/altered due to the lengthening of existing culverts and increased footprint of the new road design. Proposed construction activities involving the ten (10) watercourse culvert crossings and roadside ditches currently hosting both direct and indirect fish habitat (as previously described) proposed for enclosure due to the lengthening/replacement will require both provincial and federal review in order to protect the existing form and function of fish habitat found within the site limits.

The Federal Fisheries Act applies to all projects that occur in or near water that could harmfully alter, disrupt or destroy direct or indirect fish habitat (HADD). The proposed improvements have the potential to harmfully alter fish habitat as a result of the requirement for culvert extensions and ditch enclosures due to the road widening.

The following is a list of criteria/recommendations to be considered in the final design of the Huronia Road improvements as it relates to the areas of fish habitat found within in the study area:

- The previously described ten (10) watercourse crossings and sections of the roadside ditches in the study area are located within areas that are regulated under the jurisdiction of the LSRCA (Section 179/06 of the Conservation Authorities Act). In general, any proposed works on these watercourses/ditches must not adversely impact the existing flow regimes of these systems. Prior to undertaking works on these watercourses/ditches, permits are required from LSRCA;
- LSRCA has an agreement with DFO that allows the LSRCA to review proposed works potentially affecting fish habitat in accordance with the Federal Fisheries Act, therefore LSRCA will be the primary contact for any final proposals to alter the watercourse crossings/ditches;
• DFO’s general guidelines for the replacement of culverts/ditches is that they be "like or better" than the existing, and that culverts that have the potential to negatively affect fish habitat upstream or downstream, be redesigned to improve such conditions where possible;

• Based on the continuing advancements in science related to watercourse/ditch enclosures and implications to aquatic habitat, DFO’s position is generally not favorable towards new enclosures of potential fish habitat. Please note that Section 35(1) of the *Fisheries Act* stipulates that "No person shall carry on any work or undertaking that results in the harmful alteration, disruption or destruction (HADD) of fish habitat. Furthermore, a HADD of fish habitat is prohibited unless authorized by the DFO pursuant to subsection 35(2) of the *Fisheries Act.*” In such cases, no such authorizations are issued unless acceptable measures to compensate for the habitat loss are developed and implemented by the proponent. In the event that the watercourses/ditches are not maintained in their current state within the road improvement area, then an authorization will be required for such works. LSRCA is the primary agency contact for works within areas of fish habitat and LSRCA regulated lands; and,

• Because new enclosures are proposed due to culvert lengthening, the proponent will potentially be required to apply for a Federal Authorization for Works or Undertakings Affecting Fish Habitat, through the LSRCA. As part of the application, the proponent will potentially be required to develop a fish habitat compensation plan that replaces ("no net loss") the habitat lost by the enclosure of the watercourses/ditches. This plan must be prepared by a qualified fisheries biologist. There is no requirement for DFO to accept a compensation plan to address a proposed HADD of fish habitat. In addition, please be advised that the application for a Federal Authorization will trigger a Canadian Environmental Assessment Act (CEAA) review process. The CEAA process has legislated timelines that must be followed prior to the approval of the authorization (NVCA, 2009).

6.3 Terrestrial Resources

6.3.1 Vegetation
The widening of Huronia Road will result in the permanent removal of all tree, shrub and herbaceous vegetation within the areas identified on the Plan and Profile drawings where the limit of grading occurs beyond the existing tree line, as shown on Figure 3, 3a and 3b.

The approximate amount of vegetation that will be lost due to the road expansion is summarized in Table 6 below.
### Table 6: Areas of Woody Vegetation Lost within Huronia Road Study Area

<table>
<thead>
<tr>
<th>ELC Community (Figure 2 and 3)</th>
<th>Approximate Area of Woody Vegetation Lost (m²)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CUM1-1: Dry-Moist Old Field Meadow Type</td>
<td>Possibly Few Scattered Shrubs/Trees (2, 9800m² of CUM)</td>
</tr>
<tr>
<td>CUP3-1: Red Pine Coniferous Plantation Type</td>
<td>3</td>
</tr>
<tr>
<td>CUT1: Mineral Cultural Thicket Ecosite</td>
<td>Possibly Few Scattered Shrubs/Trees (2, 800m² of CUM)</td>
</tr>
<tr>
<td>CUW1: Mineral Cultural Woodland Ecosite</td>
<td>Possibly Few Scattered Shrubs/Trees (2, 800m² of CUM)</td>
</tr>
<tr>
<td>FOC 2-2: Dry-Fresh White Cedar Coniferous Forest Type</td>
<td>1160</td>
</tr>
<tr>
<td>FOD3-1a: Dry-Fresh Poplar Deciduous Forest Type</td>
<td>710</td>
</tr>
<tr>
<td>FOD3-1b: Dry-Fresh Poplar Deciduous Forest Type</td>
<td>650</td>
</tr>
<tr>
<td>FOD6-1: Fresh-Moist Sugar Maple Lowland Ash Deciduous Forest Type</td>
<td>None</td>
</tr>
<tr>
<td>FOD7-2: Fresh-Moist Ash Lowland Deciduous Forest Type</td>
<td>5100</td>
</tr>
<tr>
<td>FOM4-2: Dry-Fresh White Cedar-Poplar Mixed Forest Type</td>
<td>680</td>
</tr>
<tr>
<td>FOM5-2: Dry-Fresh Poplar Mixed Forest Type</td>
<td>3400</td>
</tr>
<tr>
<td>FOM7-2: Fresh-Moist White Cedar-Hardwood Mixed Forest Type</td>
<td>22</td>
</tr>
<tr>
<td>MAS2-1: Cattail Mineral Shallow Marsh Type</td>
<td>Possibly a few scattered trees/shrubs (930m² of MAS)</td>
</tr>
<tr>
<td>SWT2-2: Willow Mineral Thicket Swamp Type</td>
<td>None</td>
</tr>
<tr>
<td>SWC1-1: White Cedar Mineral Coniferous</td>
<td>None</td>
</tr>
</tbody>
</table>
As shown in Table 6, the proposed roadway expansion will result in the loss of approximately 12,930 m² (1.29 ha) of woody vegetation. The tree clearing is limited to the edges of the treed and cultural communities. This does not represent a significant loss to the system.

As indicated in Section 4.3.2, one watershed rare species, Black Walnut, was observed on the east side of Huronia Road North of Little Avenue (Figure 2, 2b). Based on the proposed road expansion, the Black Walnut will not have to be removed or pruned as a result of the proposed road works (Silv-Econ Ltd., 2005) (Figure 3b).

Once trees within the limit of clearing are removed, the new edge of vegetation should be examined for any trees that may potentially pose a safety hazard pre or post construction. A hazard tree would be any tree that is structurally unsound or susceptible to windthrow with the potential to cause damage to life or property. Partially fallen, damaged, unstable and old/decrepit trees would all be considered hazard trees and should be removed. If a hazard tree is found but does not pose any risk of damage or injury, it should be retained.

None of the vegetation communities or vegetation documented within the study area is of federal or provincial conservation concern. No Butternut individuals were observed within the study limits. There is one recent (i.e. within 20 years) element of occurrence records on file with the Ontario Ministry of Natural Resources’ (OMNR) Natural Heritage Information Centre (NHIC) to indicate that the property potentially contains habitat of threatened, or endangered species, Fogg’s Goosefoot (*Chenopodium foggii*) (NHIC, 2010). This species was not identified during field investigations nor is suitable habitat present within the study area.
6.3.2 Wetland
The footprint of the preferred option will result in the loss of 2,135 m² (0.21ha) of wetland habitat. This includes wetland identified outside of the Lover’s Creek PSW within the study area. Wetland loss is limited to the edges of these communities in proximity to Huronia Road. This does not represent a significant loss to the system.

6.3.3 Wildlife
The project will result in the loss of approximately 12,930 m² (1.29ha) of tree cover (Figure 3, Table 6). There should be negligible impacts to any urban tolerant avian species that may be utilizing the area as their primary habitat. Birds currently utilizing the natural heritage features within the area should continue to make use of the area post-development as there will be minimal loss of habitat.

There will be no significant impacts to wildlife habitat as a result of the proposed road reconstruction. Existing wildlife use of the habitat to be removed is confined to edge species of birds and small mammals and species adapted to a high degree of anthropogenic disturbance.

Anuran amphibian breeding habitat was documented at 4 of the 5 anuran survey stations (Figure 2, 2a, 2b and Table 5). There will be potential minimal loss of amphibian breeding habitat at Station 2, 3, 4, 5 (Figure 2, 2a, 2b). The potential loss of this habitat is minimal as the majority of the features (i.e. wetland, watercourse or wetted areas) will remain post-development. Furthermore, the majority of the calls heard from the 5 survey stations were not heard immediately adjacent to Huronia Road further reducing potential impacts. This loss of amphibian breeding habitat does not represent a significant loss to the system and amphibians should continue to breed within the area post-development.

In addition there will be some loss of forest habitat which could provide summering habitat for the abovementioned species. This loss is negligible relative to the forest cover remaining in the immediate area.

Deer yards have been identified at the northeast corner of Mapleside Drive and Huronia Road. The road urbanization is not expected to directly impact the deer yard wintering area.

6.3.4 Wildlife Movement
Given the high traffic volumes along Huronia Road, it is expected that wildlife movement is currently significantly restricted. Road improvements will not alter the current wildlife movement function. However, at the water crossings where “open bottom” culverts are utilized, potential wildlife movement (i.e. amphibians) will be enhanced.
7.0 CONSTRUCTION MITIGATION

7.1 Timing Restrictions
Work involving the watercourses and ditches should not be conducted at times when flows are elevated due to local rain events, storms or seasonal floods. Any works involving the watercourses/ditches should be completed ‘in the dry’, during low water levels, or by means of temporary diversions. Based on the thermal classification of both Whiskey Creek and Lover’s Creek and their associated tributaries, it is anticipated that in-water works will not be permitted between September 30th and June 30th of any given year for the culvert works. Ultimately, the LSRCA/MNR will confirm appropriate timing windows for this project during agency review.

Construction activities involving the removal of vegetation should be restricted from occurring between April to the end of July to avoid impacting nesting birds.

7.2 Sediment and Erosion Controls
Diligent application of erosion and sediment control measures will be of the utmost importance for this project recognizing the existing fish habitat located in the “receiving” watercourses (Whiskey Creek and Lover’s Creek). All construction activities occurring in or around the watercourses/ditches must be completed using best management practices to minimize the extent of accidental or unavoidable impacts to fish habitat, and alleviate the risk of sediment entering the Whiskey Creek and Lover’s Creek. All sediment controls are to be maintained until vegetation has been re-established to sufficiently stabilize any disturbed soils.

7.3 Culvert/Sewer Design
It is recommended that any proposed new culverts and/or replacement culverts for the watercourse crossings are to be installed with a minimum 20% embedment below the existing channel invert or design bottom of the watercourse, and if possible, should provide a similar bottom width as the existing structure. New culverts and replacement culverts must provide for fish passage. Historically, LSRCA has recommended that “open bottom” culverts be utilized, where applicable, where cold water fish habitat thermal regimes and ground water inputs are present.

Cold water base flow is present within the previously described ditch locations hosting indirect fish habitat along a section of Huronia Road, indicating that ground water contributions potentially occur to some degree at this location. The LSRCA requires that this contribution be maintained in order to protect the existing water quality, therefore any proposed ditch enclosure (if approved) should be perforated to maintain and capture ground water seepage at these locations.
7.4 Site Restoration
All areas disturbed during construction should be restored immediately following the completion of the works. Site restoration should include immediate site stability methods (erosion control blankets, silt fencing), of all excavated and erodible soils to minimize the potential for erosion, combined with a planting plan that utilizes native material deemed acceptable to LSRCA.

7.5 Operations
All maintenance activities required during construction must be conducted away from the flowing roadside ditch and watercourse features to protect them from any accidental spillage of deleterious substances that may harm the aquatic environment, both locally and downstream.

8.0 CONCLUSIONS
Given the current conditions of both the indirect and direct cold water fish habitat found within the site limits, overall the proposed road improvements potentially pose a localized threat to the existing form and function of aquatic habitat found within Whiskey Creek, its tributaries, and the tributaries of Lover’s Creek. Temporary impacts associated with construction practices are fully mitigable through the effective use of sediment and erosion controls that will maintain the quantity and quality of flows within the watercourses at all times. The enclosure/culvert lengthening of the existing fish habitat will potentially result in a HADD, however an appropriate compensation plan may be developed in consultation with LSRCA and DFO. Design alternatives submitted include the creation of approximately 149m open channel (Figure 3a) that would maintain the cold water base flow of the contributing ditches between crossing 7 and 8. The relocation of this ditch flow into a natural channel on the east side of Huronia Road will have a positive impact in ensuring that the open channel flow is maintained, with the potential to create approximately 149m of direct fish habitat. Implementing design alternatives such as this can result in a greater overall “gain”, providing increased habitat/water quality than the existing aquatic habitat, thus providing an overall improvement to the watershed. During the detail design/approval stages, it is strongly recommended that this, and other design alternatives that have the potential to increase habitat form and function, are implemented and put forth to agencies such as the LSRCA and DFO in order to achieve successful approvals and ensure that negative impacts on existing habitat are fully compensated for.

The limited width of the road allowance and the size of the urban roadway required to convey existing and future traffic volumes does not provide the opportunity to reduce vegetation loss. Ultimately, this roadway will be transformed to a multi-lane urban road to provide improved access to Barrie’s developing south end.
This project will result in the loss of approximately 12,930m² (1.29ha) of woody vegetation in addition to the loss of early cultural meadow/thicket/woodland, manicured lawn and associated boulevard tree plantings adjacent to Huronia Road. Vegetation communities within the study limits are common within the area.

None of the wildlife (mammals, birds, amphibians) observed are of federal, provincial or local conservation concern. The edge habitat adjacent to Huronia Road does not provide any unique function to the natural environs and will continue to function as it did prior to the proposed road improvements.

9.0 REFERENCES


Quinn, Timothy and Ruth Milner. 1999. Great Blue Heron (Ardea herodias)


Silv-Econ Ltd. 2005. Huronia Road – Tree Inventory and Preservation Plan for the Municipal Class EA (from Young Street to Lockhart Road)


USDA Forest Service 2005. Chenopodium foggii
<table>
<thead>
<tr>
<th>FAMILY</th>
<th>SCIENTIFIC NAME</th>
<th>COMMON NAME</th>
<th>GRANK</th>
<th>SRANK</th>
<th>COSEWIC</th>
<th>MNR</th>
<th>TRACK</th>
<th>Watershed Rare</th>
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<tbody>
<tr>
<td>ACERACEAE</td>
<td>Acer negundo</td>
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<td>Wild Carrot</td>
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<td>GNR</td>
<td>SNA</td>
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1 Nomenclature based on Ontario Ministry of Natural Resources (OMNR), Natural Heritage Information Centre (NHIC) database - http://nhic.mnr.gov.on.ca/MNR/nhic/species.cfm
2 Conservation Rankings: From Ontario Ministry of Natural Resources, Natural Heritage Information Centre (http://nhic.mnr.gov.on.ca/nhic_cfm)
3 Watershed Rare - Identifies species that are considered to be rare in the Lake Simcoe Watershed according to Lake Simcoe Environment Management Strategy 2003. State of the Lake Simcoe Watershed.
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<td>Black-capped Chickadee</td>
<td>S</td>
<td>S</td>
<td>S</td>
<td>S</td>
<td>S</td>
<td>S</td>
<td>S</td>
<td>S</td>
</tr>
<tr>
<td>STURNIDAE</td>
<td>Strenne sulphuris</td>
<td>European Starling</td>
<td>S</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>TROGLODYTIDAE</td>
<td>Troglodytes aedon</td>
<td>House Wren</td>
<td>S</td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>TURIDAE</td>
<td>Turdus migratorius</td>
<td>American Robin</td>
<td>S</td>
<td>S</td>
<td>X</td>
<td>S</td>
<td>S</td>
<td>S</td>
<td>S</td>
<td>S</td>
</tr>
<tr>
<td>TYRANNIDAE</td>
<td>Tyrannus tyrannus</td>
<td>Alder Flycatcher</td>
<td>S</td>
<td></td>
<td></td>
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<tr>
<td>VIREONIDAE</td>
<td>Phvs gilvus</td>
<td>Warbling Vireo</td>
<td>S</td>
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</table>

1 Nomenclature based on Ontario Ministry of Natural Resources (OMNR), Natural Heritage Information Centre (NHIC) database - http://nhic.mnr.gov.on.ca/MNR/nhic/species.cfm
2 Conservation Rankings: From Ontario Ministry of Natural Resources, Natural Heritage Information Centre (http://nhic.mnr.gov.on.ca/nhic_cfm)
4 June 21, 2008 Observer L. Monk, Temperature 17°C; Cloud cover 25%, Wind: B0, Precipitation: Nil, Search Time 7:15 to 7:30.
5 June 17, 2010 Observer L. Monk, Temperature 13°C; Cloud cover 75%, Wind: B3, Precipitation: Nil, Search Time 6:27 to 7:45.
6 Breeding Bird Evidence Codes: X - Species observed; H - Species observed in its breeding season in suitable nesting habitat (Possible Breeding); S - Singing male (Possible Breeding); A - Agitated behaviour or anxiety calls of adults

Table 4: Birds Documented During Dawn Breeding Bird Surveys for 8 Point Count Stations Along Huronia Road

<table>
<thead>
<tr>
<th>Point County Station # (See Figure 2 for location)</th>
<th>Conservation Rankings</th>
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<tr>
<td>GRANK</td>
<td>SRANK</td>
</tr>
<tr>
<td>--------</td>
<td>-------</td>
</tr>
<tr>
<td>S5</td>
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Table 5: Amphibians Documented During Evening Anuran Surveys at 5 Stations Along Huronia Road  
AEC 08-007 Huronia  
Observers: B. Clayton, L. Moran

<table>
<thead>
<tr>
<th>Date</th>
<th>Sampling Station(s)</th>
<th>Start Time</th>
<th>Woodfrog</th>
<th>Spring Peeper</th>
<th>Chorus Frog</th>
<th>Leopard Frog</th>
<th>American Toad</th>
<th>Green Frog</th>
<th>Gray Treefrog</th>
<th>Pickerel frog</th>
<th>Nothing Heard</th>
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<tr>
<td>April 19th-08</td>
<td>Stn.1</td>
<td>21:35</td>
<td></td>
<td></td>
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<td></td>
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<td>X</td>
</tr>
<tr>
<td></td>
<td>Stn.2</td>
<td>21:42</td>
<td></td>
<td>1(2)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Stn.3</td>
<td>21:50</td>
<td></td>
<td>2</td>
<td>1(1)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Stn.4</td>
<td>22:00</td>
<td></td>
<td>2(10)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Stn.5</td>
<td>22:10</td>
<td></td>
<td>3(3)</td>
<td></td>
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<td></td>
<td></td>
<td></td>
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<tr>
<td>May 24th-08</td>
<td>Stn.1</td>
<td>23:32</td>
<td></td>
<td></td>
<td></td>
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<td>Stn.2</td>
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<td>1(2)</td>
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<tr>
<td></td>
<td>Stn.3</td>
<td>23:44</td>
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<td>1(1)</td>
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</table>

*see Figure 2

<table>
<thead>
<tr>
<th>Date</th>
<th>Temp. oC</th>
<th>Wind (Beaufort)</th>
<th>Cloud Cover</th>
<th>Precipitation</th>
<th>Moon</th>
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<tbody>
<tr>
<td>April 19th-08</td>
<td>18°C</td>
<td>NW, 2</td>
<td>40%</td>
<td>Nil</td>
<td>Full, Partly Covered</td>
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<tr>
<td>May 24th-08</td>
<td>10°C</td>
<td>NE, 2</td>
<td>&lt;5%</td>
<td>Nil</td>
<td>Nil</td>
</tr>
<tr>
<td>June 27th-08</td>
<td>14°C</td>
<td>Nil</td>
<td>15%</td>
<td>N/A</td>
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</table>

*Call Code Levels  
0 = none heard  
1 = males could be individually counted  
2 = calls overlap but numbers could be estimated  
3 = overlapping calls, not possible to estimate numbers involved in chorus
APPENDICES

Appendix A: Agency Correspondence
Appendix B: Provincial Background Information
Appendix C: Lake Simcoe Region Conservation Authority
  Background Information
APPENDIX A

Agency Correspondence
April 5, 2008
AEC 08-007 and 08-009

Tammy Chung, Environmental Planner
Lake Simcoe Region Conservation Authority
120 Bayview Parkway
Box 282, Newmarket ON
L3Y 4X1

Re: Proposed Scope of Work
Municipal Class Environmental Assessment for Huronia Road and Impact Assessment for to Obtain Approvals for widening of Mapleview Drive.
City of Barrie

Dear Ms. Chung:

Azimuth Environmental Consulting has been retained to undertake the environmental components necessary associated with two Municipal Class Environmental Assessments (Class EA) for road improvements (expansion) within the City of Barrie:

1. Huronia Road from Yonge Street and Lockhart Road which extends a distance of approximately 4.7km - Prepare Environmental Study Report (ESR), (See appended Figure 1); and
2. Mapleview Drive East from Welham Road to Country Lane – Impact Assessment to acquire permits and approvals for construction of the detailed design. (See appended Figure 1).

As we are in the early stages of our work we would like to establish a scope for the environmental assessment work related to these Class EA’s. For each project, we have outlined below a brief description of the known environmental features and the proposed aquatic and terrestrial fieldwork.

1. Huronia Road Class EA

The key issues to be addressed from a biological perspective include the occurrence of numerous watercourse crossings within the Whiskey Creek and Lover’s Creek watersheds and the adjacent Lovers Creek provincially significant wetland. Both
watercourses are recognized as sustaining coldwater habitat and direct habitat for fish (including Brook Trout). Additionally, wetland habitat (Lover’s Creek Provincially Significant Wetland (PSW)) is present in the central portion of the study area. These key features will form the primary focus to ensure that the biological features and functions of each are recognized during the evaluation of suitable design alternatives within the EA process.

The environmental assessment will include obtaining and reviewing all background studies and information related to natural sciences, combined with field reconnaissance investigations (as described below) that focus on determining the natural heritage features within the study area in addition to the specific features of each watercourse crossing and characteristics of the PSW within the study limits.

**Environmental Study Report**

**Terrestrial Component**

The City of Barrie has completed the tree inventory for the EA, therefore Azimuth’s terrestrial expertise will focus on wildlife and natural vegetation (i.e. no boulevard plantings). Since we are in the early stages of the process a detailed one-season vegetation survey (summer 2008) will be undertaken to identify the natural vegetation communities within the largest potential footprint of the proposed roadway expansion according to the Ecological Land Classification. The vegetation classification will extend approximately 120m beyond the expected limit of disturbance. Wildlife habitat will be assessed at this time. The proposed design alternatives will be evaluated and the environmental implications of each will be incorporated into the decision-making process. Within the ESR we will include:

- List of vegetative species observed within the study area including their federal, provincial or watershed significance (according to the State of the Lake Simcoe Watershed Report);
- List of incidental wildlife observations, including an assessment of their status;
- All of the identified natural heritage features including the identified vegetation communities will be overlain onto ortho-photography;
- Assess the potential direct, indirect and cumulative impacts of the proposed design concepts on any sensitive or significant environmental features as described above;
- Evaluate the extent to which the alternatives can be accommodated in proximity to the natural heritage features without negative impacts;
- Recommend appropriate avoidance, mitigation and/or restoration strategies to address any identified potential environmental impacts;
- Establish boundaries and vegetative buffers to protect the natural heritage features;
- Quantify any residual impacts of the proposed design alternatives for consideration; and
- All relevant policies of the City, Conservation Authority and Province will be outlined and considered.

**Aquatic Component**

We propose to undertake the following activities in order to fulfil the requirements of the ESR:

- Acquire and document any available background information identifying current thermal conditions, fish community, benthos, and overall aquatic health;
- Document aquatic habitat features at all watercourse crossings in the study limits including channel depth, width, flow, substrate, bank stability, in-water structures, characterize riparian vegetation, identify critical habitats (if any), aquatic plants, water chemistry, barriers to fish movement, sensitive habitat areas, and channel meander patterns;
- Document potential opportunities and constraint factors for existing water quality conditions on all watercourses within the study limits;
- Collect photographic documentation of all watercourse crossings to demonstrate existing conditions, general land use and surrounding features; and,
- Document the fish community present in all watercourse crossings based on background information combined with fish sampling (by electrofishing where deemed required) to establish base line conditions.

**2. Mapleview Drive**

The reconstruction of Mapleview Drive is being undertaken as a recommendation of the Mapleview Drive East Improvements from Bayview Drive to Yonge Street Municipal Class Environmental Assessment (EA) (2003). This project will involve the widening of Mapleview Drive East from Welham Road to Country Lane, from the current 2 lanes to a 5 and 6 lane cross section (with the addition of a turning lane at the Huronia Rd. intersection). This design will require a grade separation at the ACDC railway west of Huronia Road, and modification to existing culvert crossings to accommodate the road widening. Azimuth is providing environmental consulting services to secure environmental approvals from the LSRCA, Ministry of Natural Resources (MNR) and Fisheries and Oceans Canada (DFO) for all project components involving regulated areas (i.e. watercourses, fisheries and aquatic resources) within the study limits.

Approvals for development will include a permit to work within the floodplain of a watercourse in accordance Ontario Regulation 176/06, and either a Letter of Advice (LOA) or an authorization from DFO for project components that affect fish habitat, in accordance with the Federal *Fisheries Act*. As a result, we are proposing to undertake more detailed studies to identify the features and functions of the area and to determine
specifically the potential impacts of the proposed road widening. Potential mitigation and/or compensation measures will also be assessed.

The key issues to be addressed from a biological perspective include the occurrence of a watercourse crossing and the adjacent Lovers Creek provincially significant wetland. The watercourse (Lover’s Creek) is recognized as sustaining coldwater habitat and direct habitat for fish (including Brook Trout).

The environmental assessment will include reviewing and obtaining any additional background information related to natural sciences, combined with field reconnaissance investigations that focus on determining the features of the watercourse crossing and characteristics of the PSW within the study limits.

**Impact Assessment**

**Terrestrial Component**
The Class EA included a general reconnaissance survey of the vegetation within the area including a detailed inventory of the trees. Terrestrial fieldwork for this report will include a one-season vegetation survey (summer 2008) to supplement the data gathered for the EA and to classify the communities according to the Ecological Land Classification. The vegetation classification will extend approximately 120m beyond the expected limit of disturbance. Wildlife habitat will be assessed at this time. As the site is disturbed, one dawn breeding bird survey will be conducted along Mapleview Drive when conditions are appropriate. Three evening breeding anuran amphibian surveys will be conducted to identify concentrations of breeding amphibians. The proposed design alternatives will be evaluated and the environmental implications of each will be incorporated into the decision-making process. Impact assessment we will include:

- List of vegetative species observed within the study area including their federal, provincial or watershed significance (according to the State of the Lake Simcoe Watershed Report);
- Complete list of birds and amphibians (including the details of the surveys);
- List of incidental wildlife observations, including an assessment of their status;
- All of the identified natural heritage features including the identified vegetation communities will be overlain onto ortho-photography;
- Assess the potential direct, indirect and cumulative impacts of the proposed design concepts on any sensitive or significant environmental features as described above;
- Recommend and develop appropriate avoidance, mitigation and/or restoration strategies to address any identified potential environmental impacts;
- Quantify any residual impacts of the proposed design alternatives for consideration; and
- All relevant policies of the City, Conservation Authority and Province will be outlined and considered.
Aquatic Component
We propose to undertake the following activities in order to fulfil the requirements of the ESR:

- Document aquatic habitat features including channel depth, width, flow, substrate, bank stability, in-water structures, characterize riparian vegetation, identify critical habitats (if any), aquatic plants, water chemistry, barriers to fish movement, sensitive habitat areas, and channel meander patterns;
- Document potential opportunities and constraint factors for existing water quality conditions on all watercourses within the study limits;
- Collect photographic documentation of all watercourse crossings to demonstrate existing conditions, general land use and surrounding features; and,
- Document the fish community present in all watercourse crossings based on background information combined with fish sampling (by electrofishing where deemed required) to establish base line conditions.
  - Review the detailed design and provide input with respect to proposed alterations to waterways, including culvert extensions/replacements, new culverts, channel realignments, including natural channel design requirements, and site restoration/naturalization of disturbed areas;
  - Provide environmental recommendations for the stabilization and re-vegetation of disturbed areas within the study limits; and
  - Prepare recommendations for mitigating potential impacts to aquatic resources as they relate to structure installation methods, construction staging, monitoring, erosion and sediment controls, habitat enhancement options and alternatives for protecting aquatic habitat conditions.

Hydrological Component
The study area is within the Lover’s Creek Recharge Discharge ESA. Within the report we will include any potential impacts to the ESA in terms of groundwater quality and quantity. Potential impacts, from a hydrological perspective, to the natural heritage features within the study area will also be assessed.

Please provide comments on the proposed scope of work. We would like to arrange a time to meet with you to discuss this matter further.

We would also like to take this opportunity to request any available background information the Conservation Authority may have regarding the study areas (i.e. rare
species documentation, fisheries etc.). Please forward any available information that is available for the property and adjacent lands.

If you have questions or comments please do not hesitate to contact us.

Thank you,

AZIMUTH ENVIRONMENTAL CONSULTING INC.

Lisa Moran, B.Sc.Env.
Biologist

c.c. Tom Hogenbirk, Lake Simcoe Region Conservation Authority
Hi Lisa,

My apologies for the delay in responding:
I assume that the road improvements (expansions) would mean "road widenings". The proposed aquatics assessment work is sufficient. I would recommend that, if electrofishing of the watercourses is contemplated through the EA, you contact Jeff Andersen prior to undertaking that work. The watercourses in this area are well documented as supporting coldwater fishery resources. With respect to the terrestrial component we would recommend that you do an amphibian breeding/habitat study within 120m of the expected limit of disturbance. The EA should ensure that wildlife passage is afforded/ecological connectivity is maintained/enhanced with any road upgrades. If large swathes of the natural heritage features are to be removed for the upgrades, then breeding bird surveys should also be conducted. Currently we believe that it would just be edge removal along within the existing right of ways along the roads.

I hope this helps.
Please call me if you have any questions 905-895-1281.

Jackie Burkart
Senior Planner
Lake Simcoe Region Conservation Authority
120 Bayview Parkway, Box 282
Newmarket, ON  L3Y 4X1
Telephone: 905-895-1281
Fax: 905-853-5881
j.burkart@lsrca.on.ca

>>> "Lisa Moran" <lisa@azimuthenvironmental.com> 4/25/2008 10:03 AM >>>
Hi Charles,

I'm writing in regards to the Huronia Road EA.

I sent a letter to Tammy Chung (letter dated April 5, 2008) that outlined a proposed scope of work for this project. I emailed Mr. Chung on Monday (April 21) to inquire on the status of this letter. To date, I have not received a response to either the letter or email.
The field season is now in full swing and we really need to confirm the fieldwork for the EA. I would hate to conduct the project as per my letter only to find out later that more/less work is required. I would really appreciate it if you could look into this matter for me and let me know the required scope of work or a date when I should hear back from you.

Please call if you wish to discuss this further.

Thank you,

Lisa

Lisa Moran B.Sc. (env)
Biologist
Azimuth Environmental Consulting, Inc.
229 Mapleview Dr. East, Unit 1
Barrie, ON L4N 0W5
tel: 705-721-8451
fax: 705-721-8926
May 7, 2010

Ministry of Natural Resources
Midhurst District
2284 Nursery Road
Midhurst, Ontario
L0L 1X0

Attention: Suzanne Robinson, Species at Risk Biologist

RE: Request for Species At Risk Information
Municipal Class Environmental Assessment for Huronia Road Improvements – From Yonge Street South to Lockhart Road, City of Barrie

Dear Ms. Robinson:

Azimuth Environmental Consulting (Azimuth) has been retained to prepare the Natural Environmental Existing Conditions Report for the Municipal Class Environmental Assessment for Huronia Road Improvements from Yonge Street south to Lockhart Road which extends a distance of approximately 4.7km within the City of Barrie.

The study area is predominantly comprised of residential land use with natural areas located at the south end of the study area, including the Lover’s Creek Provincially Significant Wetland, and several watercourse crossings that function as fish habitat. The natural environmental features in the study area will be further evaluated in the spring and summer of 2010, in order to assess the implications of the road widening alternatives on the features and functions of environmental resources.

The purpose of this letter is to request the list of Species at Risk we should have regard for during our environmental investigations and any other background environmental information (i.e. fisheries information) available from your Ministry that would be relevant for consideration in the preparation of the Natural Environmental Existing Conditions Report for the Class Environmental Assessment for the proposed widening of Huronia Road Improvements from Yonge Street south to Lockhart Road in the City of Barrie.
Thank you, in advance, to your attention to our request for the list of Species at Risk we should have regard for during our environmental investigations. If you require further information or have any questions please do not hesitate to contact us.

Yours truly,
AZIMUTH ENVIRONMENTAL CONSULTING INC.

Bonnie Clayton, B.Sc.
Senior Biologist

BAC:

c.c. Brad Kalus, C.C. Tatham & Associates Ltd.
Hi Lisa regarding your request for information concerning the proposed Huronia Road Improvements in the City of Barrie ...

- Regarding digital information on natural heritage values in our NRVIS system attached for your reference is a document detailing how digital information e.g. wetland boundary layers may be obtained through the Land Information Ontario system.
- About the wetland boundary, in the attached jpeg map part of the Lover’s Creek wetland boundary is presented. At the north end of the wetland along the Huronia Road right of way the wetland boundary may not be accurate as review of the wetlands on the adjacent properties has been incomplete in recent years. Field assessment would be appropriate in order to clarify the wetland in relation to Huronia Road and the potential improvements.
- The attached jpeg summaries catch results for fish sampling data points along Lover’s Creek and its tributaries. Lover’s Creek is a cold water fish habitat with a resident population of brook trout. Timing restrictions for work proposed in the water would be no work in the water between October 1 through June 30 of the following year.
- Regarding Species at Risk – Querying the Natural Heritage Information Centre for element occurrence records should be your first search for SAR data. Presently we are not aware of observations of SARs not recorded in the NHIC. Having said that, as recently communicated to you it is difficult to prescribe what species should be targeted for inventory effort or what sampling should be done in order to confirm the presence of SAR. With no background data the necessary inventories relies on your knowledge of habitat requirements of the species on the SARO list and what you find in the field during your initial inventories for your project.

We trust this is helpful. Do call with any questions.

Regards,

Graham Findlay
Management Biologist
Midhurst District
705-725-7530
705-725-7584 FAX
graham.findlay@ontario.ca

*****ATTENTION *********************
The information in this e-mail and in any attachments is confidential and intended solely for the attention and use of the named addressee(s). This information may be subject to legal, professional or other privilege or may otherwise be protected by work product immunity or other legal rules. It must not be disclosed to any person without our authority. If you are not the intended recipient, or a person responsible for delivering it to the intended recipient, you are not authorised to and must not disclose, copy, distribute, or retain this message or any part of it. *********************
APPENDIX B

Provincial Background Information
Species Element Occurrence Report

**Scientific name:** Chenopodium foggii  
**Common name:** Fogg's Goosefoot  
**Family:** Chenopodiaceae  
**Global (G-rank):** G2G  
**Ontario (S-rank):** S2  
**Committee on the Status of Endangered Wildlife in Canada (COSEWIC):** Species At Risk in Ontario (SARO):  
**Ontario General Status:**

1 Element Occurrence Retrieved

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[Export EOs]

Search Criteria

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Website content last updated from NHIC database on null
Generated on 2010-06-30
APPENDIX C

LSRCA Background Information
Appendix C: LSRCA’s Natural Heritage System (LSRCA et al., 2007).