An

Environmental Impact Statement

for the

Huntingwood Trails (Collingwood) Ltd.
Town of Collingwood, County of Simcoe

Prepared for
Mr. Eddy Weisz

Prepared by
Hensel Design Group Inc.

January 2011

Hensel Design Group INC.

Advancing Sustainable Development Solutions

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372 Peel Street, Collingwood, ON L9Y 3W4 P: 705.443.8394 F: 705.443.8494

Hensel Design Group INC.

Advancing Sustainable Development Solutions

January 2011

Mr. Eddy Weisz.
Huntingwood Trails (Collingwood) Ltd.
3625 Dufferin St., Suite 120
Toronto, ON
M3K 1N4

Dear Mr. Weisz:

Re: EIS for Proposed Huntingwood Trails Development, Town of Collingwood

On behalf of the project team, Hensel Design Group Inc. (HDG) is pleased to submit an *Environmental Impact Statement* (EIS) related to your proposed residential development on Highway 26, Town of Collingwood, County of Simcoe. This report will also be forwarded to the applicable review agencies. The scope of this EIS has fully considered the requirements of the Provincial Policy Statement, Town of Collingwood and County of Simcoe Official Plans.

Our review in summary has concluded that the development proposal is feasible from an environmental perspective in so long as the mitigation measures outlined herein are implemented.

We have greatly appreciated being a part of your team. If you should have any questions or concerns regarding this submission, please do not hesitate to contact us.

Sincerely,
HENSEL DESIGN GROUP INC.

Michael J. Hensel, OALA, CSLA
Senior Development Consultant

MJH:sh

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1. Introduction

Hensel Design Group Inc. (HDG) was retained by Mr. Eddy Weisz in April 2010 to prepare an Environmental Impact Study (EIS) related to a proposed residential development on Highway 26 West in the Town of Collingwood, County of Simcoe. HDG is part of a multi disciplinary team which includes D.C. Slade Consulting (planning), C.F. Crozier and Associates (engineering), and HDG (environmental and landscape architecture). Each of these consultants have prepared studies and/or plans to support the planning application. The report prepared by HDG should be read in conjunction with the works of the other project team members.

1.1 Site Location and Characterization

The subject lands are described as a portion of Part 1, Lot 48, Concession 12, Town of Collingwood, County of Simcoe. The subject lands are 48.97ha in size and are located between residential development on both the east and west sides. To the north of the subject lands is Highway 26 West and a residential development. To the south is the Georgian Trail and undeveloped land. (See Figure 1). The subject lands were historically used for agricultural uses and the subject lands remain in use as pasture lands.

The Silver Creek bisects the subject lands and flows south to north outletting approximately a km from the subject lands into Georgian Bay. Vegetation on the subject lands is primarily pasture with small patches of trees on the west side of Silver Creek. Vegetation along Silver Creek ranges from being totally clear up to the edge of the creek to providing tree cover in other areas. The east side of Silver Creek varies from wooded areas to areas of cleared land. The remaining lands abutting the Georgian Trail and adjacent Silver Creek Preserve Development are a mixture of woodland/wetland with successional open areas.

1.2 Study Goals and Objectives

The purpose of this EIS is to provide a detailed description and background review of the physical and ecological characteristics of the natural heritage features from the subject property including the functions, significance and sensitivity. Additionally, this report will address potential impacts to these features and outline how impacts can be minimized or mitigated. In consideration of this information, recommended protection and/or mitigation measures will ensure that the proposed development conforms to the requisite policies as outlined herein.

The policies and technical requirements of the Official Plans for the Town of Collingwood and the County of Simcoe, and Provincial Policy Statement (PPS) have been considered as part of this study.

The goal of this EIS is to provide the following:

a) Ensure that the proposed development can proceed in a manner that will not result in negative impacts to significant ecological features and functions.

NOTTAWASAGA BAY

HWY 26

SILVER CREEK DR

GREY ROAD 21

GREY ROAD 19

SITE LOCATION

GEORGIAN TRAIL (C.N.R. R.O.W.)

HWY 26

TOWN OF THE BLUE MOUNTAINS

MOUNTAIN ROAD

TENTH LINE

SIXTH LINE

COLLINGWOOD

HWY 26

HIGH STREET

POPLAR SIDEROAD

CONCESSION 6

Key Plan (n.t.s.)

Legend

- ROADS
- RAILWAY
- WATERCOURSE
- WATERBODY
- EXISTING BUILDINGS

N

0 150 300 600 900 1200 m

1 : 30,000

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372 Peel St, Collingwood, Ontario, L9Y 3N4
Phone: 705-443-8394 Fax.: 705-443-8494

PROJECT

Huntingwood Trails
Collingwood, ON

TITLE

SITE LOCATION

SEAL

SEAL

ASSOCIATION OF LANDSCAPE ARCHITECTS ONTARIO
MICHAEL J. HENSEL
OALA
MEMBER

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Fig 1

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b) Demonstrate conformity to the Provincial Policy Statement, the County of Simcoe Official Plan, the Town of Collingwood Official Plan, and the Conservation Authorities Act.

The specific objectives that will be completed as part of this EIS include the following:

a) Provide an evaluation of the ecological features and functions of the subject property through detailed background review and field investigations.
b) Identify and map any and all significant features (i.e. any significant habitat for Species at Risk), key ecological attributes, and sensitivities of the subject property.
c) Confirm the appropriate development proposal, buffers and setbacks to adjacent features through an evaluation of the ecological features and functions.
d) Determine the need for buffers for any and all natural features and provide recommendations for the mitigation and protection of natural heritage features and functions.
e) Complete a detailed assessment of potential impacts to natural heritage features;
f) Identify appropriate mitigation that minimizes the potential impact of each component of the development proposal; and
g) Assess long term and cumulative effects of the proposed development along with adjacent land use.

2. Natural Heritage Policy

Provincial and municipal planning policies guided the preparation of natural heritage constraints and opportunities for the proposed development on the subject property. Existing background policy information sources were reviewed to identify any mapped natural heritage features that may occur on or within 5km to the subject property. In addition, a review of background data from various sources pertaining to the subject property and adjacent lands was also completed. These policies and background information sources include:

a) Ontario Provincial Policy Statement (2005);
b) County of Simcoe Official Plan (1999);
c) Town of Collingwood Official Plan (2008);
d) Nottawasaga Valley Conservation Authority - Ontario Regulation 172/06 (2006)
e) Ministry of Natural Resources Natural Heritage Reference Manual (2010) and the Significant Wildlife Habitat Technical Guide (2000);
f) Ontario Natural Heritage Information Centre database (www.nhic.mnr.gov.on.ca);
g) The Ontario Breeding Bird Atlas (www.birdsontario.org);
h) The Species At Risk Public Registry (www.sararegistry.gc.ca);
i) Ontario Endangered Species Act (2007);

j) Ortho-rectified aerial photographs.

2.1 Provincial Policy Statement (PPS)

The Provincial Policy Statement addresses the protection of Natural Heritage Features in relation to development. The PPS was issued under Section 3 of the *Planning Act* and came into effect on March 1, 2005. Section 3 of the Planning Act requires that decisions affecting planning matters "shall be consistent with" policy statements under the Act.

According to the Provincial Policy Statement (2005), **natural heritage features** shall be protected for the long term. Relevant sections state:

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

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

a) *significant wetlands* in the Canadian Shield north of Ecoregions 5E, 6E and 7E;
b) *significant woodlands* south and east of the Canadian Shield;
c) *significant valleylands* south and east of the Canadian Shield;
d) *significant wildlife habitat*; and
e) significant areas of natural and scientific interest

unless it has been demonstrated that there will be no *negative impacts* on the natural features or the *ecological functions*.

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

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

The PPS defines **Significant** as: in regard to the habitat of *endangered species* and *threatened species*, the habitat, as approved by the Ontario Ministry of Natural Resources (OMNR), that is necessary for the maintenance, survival, and/or recovery of naturally occurring or reintroduced populations of *endangered species* or *threatened species*, where those areas of occurrence are occupied or habitually occupied by the species during all or any part(s) of its life cycle (Provincial Policy Statement 2005).

The Natural Heritage Reference Manual (OMNR, 1999) and the Significant Wildlife Habitat Technical Guide (OMNR, 2000) are technical documents that were used to help assess the natural heritage features listed above.

Natural Hazards are addressed in Section 3.1.1 of the PPS as follows:

3.1.1 Development shall generally be directed to areas outside of:

a) *Hazardous lands* adjacent to the shorelines of the *Great Lakes-St. Lawrence River System* and *large inland lakes* which are impacted by *flooding hazards*, *erosion hazards* and/or *dynamic beach hazards*;
b) *Hazardous lands* adjacent to *river, stream and small inland lake systems* which are impacted by *flooding hazards* and/or *erosion hazards*; and
c) *Hazardous sites*.

Hazardous sites are further defined in the PPS as "property or lands that could be unsafe for development and site alteration due to naturally occurring hazards". These may also include unstable soils or unstable bedrock (Karst topography).

2.1.1 Relevance to the Development Proposal

This development proposal shall be consistent with policy statements made under the Act.

2.2 County of Simcoe Official Plan

The Greenland System (Section 3.7 of the County of Simcoe Official Plan) is intended "to ensure that the scale, form and location of development is such that the features and functions of the natural heritage system are sustained for future generations". This Greenland Natural Heritage System is based on a report entitled "**Development of a Natural Heritage System for the County of Simcoe**" (Gartner Lee Limited 1996). Within the context of the County of Simcoe Official Plan the Greenland designation includes wetlands, ANSI's, significant woodlands, significant wildlife habitat, significant valley lands, fish habitat, environmentally sensitive areas, major lake, river and creek systems and Niagara Escarpment Natural Areas. The plan also states that: "locally significant features and functions which support the County Greenland System are to be identified and protected in local municipal official plans in accordance with Section 3.3.10".

All "Greenland" areas are subject to the policies that may be deemed to apply by the Town of Collingwood, the Nottawasaga Valley Conservation Authority and/or other responsible approval authority(s). As well, all permitted land uses within Greenland areas shall require the approval of the Town of Collingwood and the Nottawasaga Valley Conservation Authority.

2.2.1 Relevance to the Development Proposal

Two areas within the subject lands are as included in the County of Simcoe's Greenland system (See Appendix A).

2.3 Town of Collingwood Official Plan

The Town of Collingwood's Official Plan designates those areas which require protection because of their environmental significance (Section 4.1) as Environmental Protection Areas (Schedule A) or Environmental Protection – Natural Heritage Resource Areas (Schedule B). Environmental Protection Areas include lands that are not suited for development because of their natural hazards (i.e. flooding, erosion, steep slopes). The Environmental Protection – Natural Heritage Resource Areas include areas which require protection because of their environmental significance. These areas include significant wetlands, valley lands, woodland, and fish and nursery habitats. There are two categories for these areas:

- *"Category 1 lands are lands where development is prohibited. Category 1 lands are included within the Environmental Protection Areas designation on Schedule A in order to provide a heightened level of protection to Collingwood's most sensitive natural resources. Category 1 lands, by virtue of their significant functions, attributes and linkages, are those considered to make the greatest contribution to the natural heritage system of the Town of Collingwood and include, for example, Provincially significant wetlands, major river valleys, fish habitat located within significant valley-lands and primary woodlands encompassing in excess of 4 hectares (9.9 acres) that are more than 75 years old, and;*
- *The Category 2 classification encompasses locally significant wetlands, younger woodland encompassing an area in excess of 10 hectares (25 acres), and/or fish habitat located outside significant valley-lands. Category 2 lands are where limited forms of development, in accordance with the land use designations on Schedule A, may be possible subject to the findings of an Environmental Impact Statement (EIS)."*

2.3.1 Relevance to the Development Proposal

Parts of the development proposal are located within or abutting lands currently identified on Schedule B of the Town's Official Plan as part of the Environmental Protection Areas or Environmental Protection – Natural Heritage Resource Areas (See Appendix B). Schedule B illustrates that part of the subject lands that contain Category 1 Woodlands. As well, the watercourse on site is categorized as Category 1 & 2 Fish Habitat and Category 1 Valleylands.

2.4 Nottawasaga Valley Conservation Authority

Ontario Regulation 172/06 is the Generic Regulation of the Conservation Authorities Act, which came into effect in May 2006, specific to the regulation of development, interference with wetlands, and alterations to shorelines and watercourses. Under this regulation, hazardous lands, wetlands, shorelines and areas susceptible to flooding, and associated allowances within the Authority are delineated by the "Regulation Limit" shown on maps that are filed by the Authority. HDG acquired NVCA mapping of the Hazard Regulation Limit(s) for the subject lands. The Generic Regulation layer indicates that the areas adjacent to the existing watercourses located within the subject lands are a potential flood and meander hazard.

Regulation 172/06, **'***Development, Interference with Wetlands and Alteration to Shorelines and Watercourses Regulation*', requires that a permit be obtained from the Authority when undertaking any of the following:

- Straightening, changing, diverting or interfering in any way with the existing channel of a river, creek, stream or watercourse or interfering in any way with a wetland;
- Development adjacent or close to the shoreline of inland lakes, in river or stream valleys, hazardous lands, wetlands or lands adjacent to wetlands.

Development as defined by the Conservation Act includes:

- The construction, reconstruction, erection or placing of a building or structure of any kind, or changes to an existing building or structure to alter its size or purpose;
- Site grading;
- The temporary or permanent placing, dumping or removal of any material, originating on the site or elsewhere.

The intent of the permit process is to ensure that activities in these areas will not result in a risk to public safety or property damage and that the natural features are protected through the conservation of land.

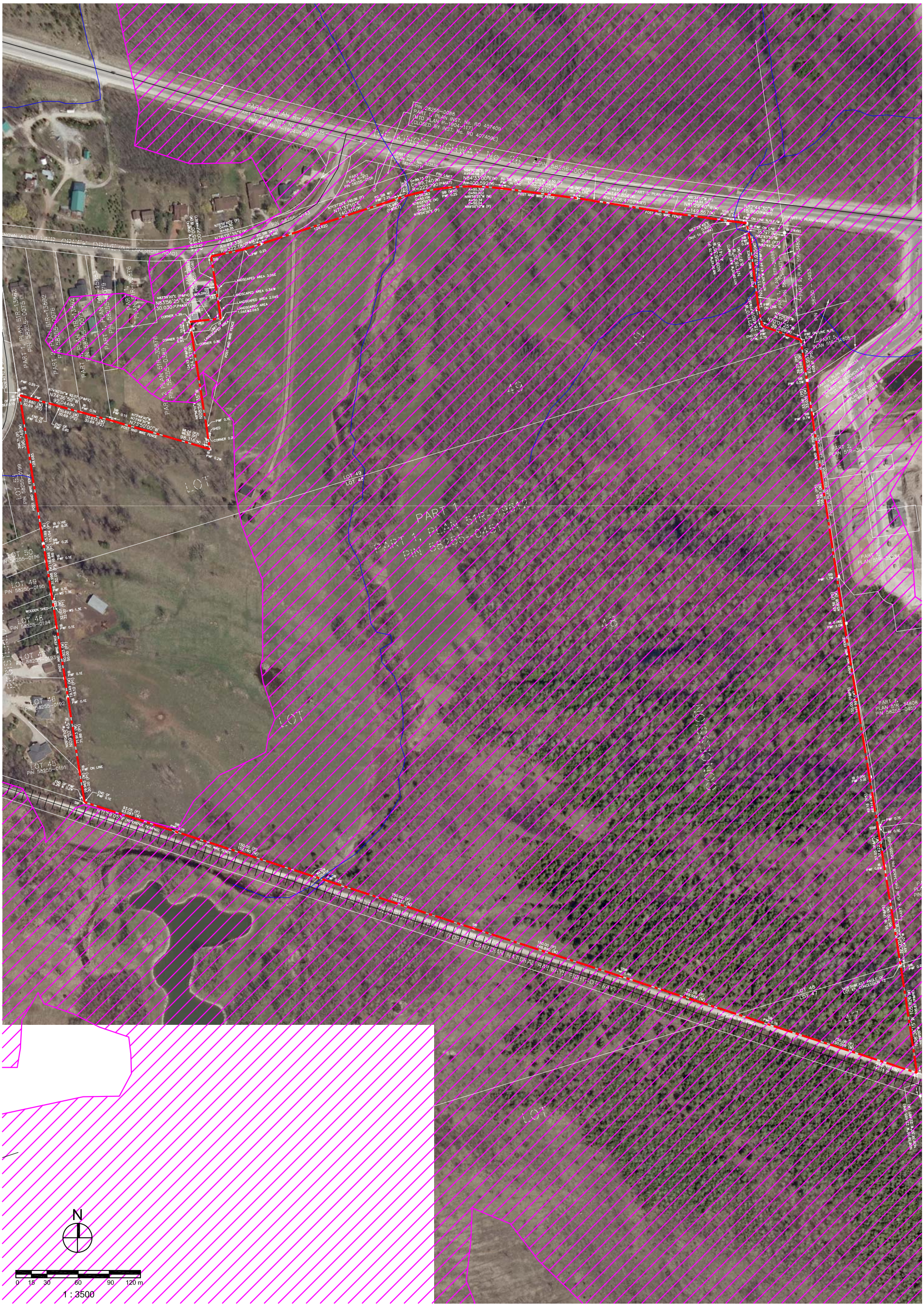
Under Ontario Regulation 172/06 Section 2, development is prohibited in or on the areas within the NVCA jurisdiction that are prone to flooding or meander hazards. The flood hazard line of the Regulation Limit is typically associated with the stable top of bank or regulatory floodplain plus a setback to facilitate access to the top of bank. Similarly, the meander belt line is depicted as the maximum extent of the predicted meander belt of the watercourse plus an allowance of 15m on each side. The Regulation Limit follows the maximum extent of the combined floodplain and meander belt limits. Under this regulation, written permission to develop within prohibited areas or alter a watercourse is required. Acquisition of this permission requires the completion of an Application for Permission to be filed with the Authority. It should therefore be assumed that an authorization would be required for any fill or alterations within the Regulation Limit area. If the extent of the fill or alterations identified in the Development Plan were deemed significant, an Environmental Impact Study may be triggered.

2.4.1 Relevance to the Development Proposal

A portion of the subject lands are within the NVCA Regulation Limits (See Figure 2).

2.5 Endangered Species Act

The Provincial *Endangered Species Act* (2007) protects the endangered species that are listed on the regulations under the act. It specifically prohibits wilful harm to endangered species that are listed in regulations under the Act and the wilful destruction of, or interference with, their habitats. Species thought to be at risk are assessed by The Committee on the Status of Species at Risk in Ontario (COSSARO). COSSARO is an independent body that reviews species based on the best available science, including community knowledge, and Aboriginal Traditional Knowledge. There are several components of species at risk protection that, under the new Act are now legal regulations.



Legend

- PROPERTY BOUNDARY
- NOTTAWASAGA VALLEY CONSERVATION AUTHORITY (NVCA) REGULATION LIMITS

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SEAL

SEAL

PROJECT
Huntingwood Trails
Collingwood, Ontario

TITLE
NOTTAWASAGA VALLEY CONSERVATION AUTHORITY (NVCA) REGULATIONS

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Fig 2

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- the Species at Risk in Ontario (SARO) list,
- General regulations to provide greater flexibility, and
- Habitat Regulations to describe the habitat of a species.

The Natural Heritage Information Centre tracks and maintains data on Ontario's endangered species and was consulted as to the listed species on or within two kilometres of the subject property.

2.5.1 Relevance to the Development Proposal

The search of the Natural Heritage Information Centre (NHIC) revealed the presence of four (4) element occurrences for rare species on or directly adjacent to the subject property, however none of these species were observed on the subject lands during on-site fieldwork (See Section 4.4.4).

2.6 Species at Risk Act (SARA)

The Federal *Species at Risk Act* (2002) is designed to prevent wildlife species from becoming extinct or extirpated; help in the recovery of extirpated, endangered or threatened species; and to ensure that species of special concern do not become endangered or threatened. Within the Act, the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) was established as an independent body of experts responsible for identifying and assessing wildlife species considered to be at risk. Wildlife species that have been designated by COSEWIC may then qualify for legal protection and recovery under SARA.

The Act maintains an on-line registry of species at risk (Schedule 1) which is the official Federal list of wildlife species at risk. Species are classified as being either extirpated, endangered, threatened, or a special concern. Once the species becomes listed, the measures to protect and recover a listed wildlife species are implemented.

The NHIC tracks and maintains data on Canada's endangered species and was consulted as to the listed species on or within two kilometres of the subject property.

2.6.1 Relevance to the Development Proposal

A search of the Species At Risk Public Registry in December 2010 and NHIC in January 2011 found that there are no species of endangered, threatened or special concern found on the subject lands.

3. Study Area

3.1 Field Investigations

3.1.1 Collection and Review of Background Information

Prior to and during the site reconnaissance and inventory of the property's vegetation cover,

background natural environment information was solicited through various means from the Ministry of Natural Resources (MNR), Nottawasaga Valley Conservation Authority (NVCA) and The Town of Collingwood. The Town's Official Plan was also consulted for information on land use and natural environment designations pertaining to the property (The Town of Collingwood 2010).

A coloured orthophoto that provided coverage of the property and adjacent lands was obtained. The orthophoto was used initially as a base to map the boundaries and types of vegetation cover on-site. Types of vegetation cover included natural and cultural terrestrial vegetation communities (e.g., upland deciduous, mixed and coniferous forest, lowland deciduous forest, old field meadow, agricultural pastureland), wetland vegetation communities (e.g., deciduous treed swamp, mixed treed swamp, shrub thicket swamp, rush meadow marsh), and vegetation communities associated with floodplain and edges of Silver Creek. As well, surrounding land uses were noted, including the extent and connectivity.

3.1.2 Agency Contacts

- Graham Findlay, Area Biologist – Ministry of Natural Resources, Midhurst District Office
- Dave Featherstone, Manager, Watershed Monitoring – Nottawasaga Valley Conservation Authority

3.1.3 Site Reconnaissance and Inventory

Site reconnaissance and inventories to document the vegetation communities and floristics on the property were undertaken on June 3, 4, June 23, August 4, 5, and September 8, 17, 18, and 22, 2010. The existing natural and cultural terrestrial and wetland features on-site were ascertained through ground-truthing. The boundaries of the each vegetation community were mapped, qualitatively characterized and documented. Documentation consists of qualitative descriptions of the major dominant species and by application of the Ecological Land Classification (ELC) system characterization of the vegetation communities following the protocol by Lee *et al.* (1998) using updated ELC vegetation types (Lee 2008), where applicable. The typical constituent flora in the canopy, understory, shrub and groundcover stratums for each vegetation community were recorded, where applicable. As well, representative photographs of the on-site vegetation communities and other relevant natural and cultural features and points of interest were compiled to provide a visual context. Brief notes were recorded on other attributes such as topography, drainage patterns, soils, soil moisture and disturbance factors. A list of vascular plant species were recorded for each terrestrial and wetland vegetation community and compiled into a master plant species list for the entire property (See Appendix C).

In addition to delineating and documenting the vegetation communities, the outer boundaries of the on-site wetland features were flagged in 2010. Their boundaries were confirmed by MNR staff (Graham Findlay) on August 5 and September 22, 2010 and subsequently surveyed and plotted onto the site plan. The main wetland feature (confirmed on August 5, 2010) included an existing mapped part of the Silver Creek Wetland Complex PSW, which borders the northern portion of the property. In addition, several internal unevaluated wetland features (associated with ridge and trough formations) were also flagged, confirmed (September 22, 2010) and subsequently surveyed.

3.1.4 Vegetation Communities and Floristics

The classification of the general vegetation communities were characterized according to species composition and physiognomic characteristics. The nomenclature for the flora observed is consistent with and relied on the following authorities:

- Lycopodiaceae to Aspleniaceae Cody, W. J., and D. F. Britton. 1989. **Fern and Fern Allies of Canada.** Publication 1829/E, Agriculture Canada, Research Branch, Ottawa.
- Taxaceae to Orchidaceae – Voss, E. G. 1972. **Michigan Flora. Part 1: Gymnosperms and Monocots.** Cranbrook Institute of Science and University of Michigan Herbarium. Bulletin 55.
- Saururaceae to Cornaceae – Voss, E. G. 1985. **Michigan Flora. Part 2: Dicots.** Cranbrook Institute of Science and University of Michigan Herbarium. Bulletin 59.
- Pyrolaceae to Compositae – Voss, E. G. 1996. **Michigan Flora. Part 3: Dicots.** Cranbrook Institute of Science and University of Michigan Herbarium. Bulletin 61.
- Newmaster, S. G., A. Lehela, P. W. C. Uhlig, S. McMurray, M. J. Oldham, and Ontario Forest Research Institute. 1998. **Ontario Plant List.** FRI Paper No. 123.

The rarity or significance for vegetation communities and vascular plants (floristics) on the property was determined from standard status lists, published literature and the NHIC dataquery web-site (NHIC 2010). Sources for flora included Bakowsky (1997), Argus and Pryer (1990), Environment Canada (2010), COSEWIC (2010), Province of Ontario (2007), NHIC (2010), MNR (2010), Oldham (1999), Argus *et al.* (1982-1987) and Riley (1989). Rare plant species (Species At Risk in Ontario – SARO) included those listed and regulated under the Province of Ontario ***Endangered Species Act***. The determination for plant species rarity consisted of a straightforward comparison of the property's plant species with those listed in these source references.

Detailed in-season fieldwork (amphibian, bird and vegetation surveys and wetland evaluations) for the subject lands was completed throughout the 2010 season.

The scope of work completed to prepare this EIS includes:

1. Natural heritage database searches and field surveys for breeding birds and vegetation communities to identify and map the presence of any significant species and features and assess their ecological function;
2. Mapping of all wetland heritage features including wetlands and complete an evaluation of features warrantying inclusion/complexing within the Silver Creek PSW;
3. Identification and evaluation of potential impacts to the significant natural heritage features/systems found on or adjacent to the subject lands resulting from the development proposal and recommendation of mitigation measures;
4. Communications with the Nottawasaga Valley Conservation Authority to address pertinent policy and any environmental concerns;
5. Synthesis of the information determined to assist with the creation of a development plan that is technically sound and responsible from an environmental perspective.

3.2 Background Reports

As part of the subject land assessment, available relevant reports were reviewed for information relating to natural heritage features and functions of the subject lands. This included the Functional Servicing Report and Stormwater Management Report, Natural Hazards Study and Traffic Impact Study, all prepared by C.F. Crozier and Associates (January 2011) as well as the Planning Report prepared by D.C. Slade Consultants Inc. (January 2011).

3.3 Terrain

3.3.1 Geology and Soils

According to the Soil Survey of Simcoe County (1990), the soil on the subject property includes five series; Wiarton, Parkhill, Tioga, Alliston and Granby. A general description of the soil series is provided in Table 1 below. Bedrock and surficial geology is illustrated on Figures 3 and 4.

Table 1. Soil Series found on the Subject Lands

Soil Series	Wiarton	Parkhill	Tioga	Alliston	Granby
Soil Materials	Pale yellow, calcareous, loam and silt loam till	Pale yellow, calcareous, loam and silt loam till	Grey, calcerous outwash sand	Grey, calcerous outwash sand	Grey, calcerous outwash sand
Drainage	Imperfect	Poor	Good	Imperfect	Poor
Topography	Smooth, gently sloping	Smooth, very gently sloping	Smooth, gently to irregular, steeply sloping	Smooth, very gently sloping	Level
Surface Stoniness	Slightly to very stony	Slightly stony	Stonefree to moderately stony	Stonefree to moderately stony	Stonefree to moderately stony
Surface Reaction	Neutral to Alkaline	Alkaline	Medium acid	Medium acid	Medium acid
Great Soil Group	Grey-Brown Podzolic	Dark Grey Gleisolic	Podzol	Podzol	Podzol

3.3.2 Hydrology and Hydrogeology

The varied existing drainage conditions across the subject lands have been characterized in reports prepared under separate cover by C.F. Crozier and Associates Inc. See Functional Servicing and Stormwater Management Report (Section 8.1) and Natural Hazards Study (Section 3.1), both studies by C.F. Crozier and Associates Inc. (January 2011). A hydrogeological analysis of the subject lands has not yet been undertaken. In the Crozier report, reference is made to a shallow spill flow area that sheets overland from the Silver Creek corridor north-east across the subject lands. It should be noted that this feature depicted on Figure 3-5 in the Crozier report is not a tributary but rather an undefined swale that does not provide in situ fish habitat. At best, the flow characteristics within the swale are intermittent/ephemeral.

Unit	Description
Amabel	white to bllue-grey, thick-to massive-bedded, dolostone, including crinoidal grainstones and biothermal dolostone (unsibdivided, Wiarton or Wiarton/Colpoy BayMg); Bruce Peninsula: lower part is thin-to medium-bedded, grey to grey-brown, fine-crystalline dolostone(Lions Head Mb); Manitoulin Island:variety of dolostone
Blue Mountain	dark blue-grey to brown to black shale, with thin interbeds of limestone or calcareous siltstone
Clinton-Cataract Group	thin units variously shale-, sandstone-,dolostone- or limestone-dominated; one or more of Whirlpool, Manitoulin, Cabot Head, Grimsby, Thorold, Neahga, Reynales, Irondequoit, Teynales, Rochester, Decew, Dyer Bay, Windfield, St. Edmund, or Fossil Hill Formation
Georgian Bay	interbedded grey-green to dark grey shale and fossiliferous calcareous siltstone to bioclastic limestone
Lindsay	fine- to coarse-grained, fossiliferous, commonly nodular, argillaceous limestone; upper member (Collingwood) is black, organic-rich, fissile, very fine-grained limestone
Queenston	red shale and siltstone, minor green shale and siltstone, and variable calcareous siltstone to sandstone and limestone interbeds

Georgian Bay

26 Hwy
Lakeshore Rd E
Kitzbuhl Cres
Fraser Cres
Timmons St
Brophy's Lane
Longpoint Rd
Long Point Rd
Madeline Dr
Bartlett Blvd
Princeton Shores Blvd
Silver Creek Dr
Cranberry Trail W
Vacation Inn Dr
Trafalgar Rd
Dockside Dr
Johnston Park Ave
Mariners Way
Ramblings Way
Cranberry Trail E
Dawson Dr
Oxbow Cres
Hwy 26
Trott Blvd
Keith Ave
Nettleton Crt
Balsam St
Harbour St W
Black Ash Creek
Water St
Elm St
Second St
Third St
High St
Watts Cres
Stewart Rd
Sixth St
Tenth Line
Lora Bay Drive
Eleventh Line
Mountain Rd
Laurel Blvd
Trails End
Grey Road 19
Osler Bluff Rd
Grey 21 Rd
Grand Cypress Lane
Augusta Cres
Forest Dr
Georgian Crt
Craigleith Rd
Grey 19 Rd
Helen St
Tyrolean Lane
Birchview Trail
Lisa's Lane
Kandahar Lane
Craigmore Cres
Settler's Way
Heritage Dr
Happy Valley Rd
Drake Farm St
Wintergreen Pl
Sierra Lane
Anne Heggtveit Dr
Joso Weider Blvd
Carmichael Cres
Campbell Cres
Kinsey Pl
Mountain Dr
Martins Grove Rd
Claire Glen
Patricia Dr
Scenic Caves Rd
15th Sideroad
2nd Line

Lindsay
Blue Mountain
Georgian Bay
Queenston
Clinton-Cataract Group
Amabel

Legend

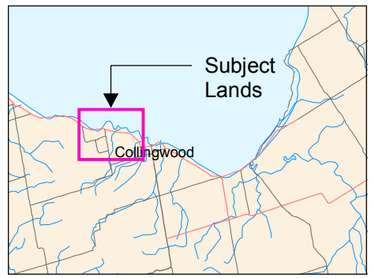
- Property Boundary

Roads
- Highway
- Major Road
- Local Road

Rivers
- Intermittent Stream
- Permanent Stream

Lakes and Wetlands
- Waterbody Segment
- Wetland Area, Permanent

Bedrock Geology
- 19: Amabel
- 17: Clinton-Cataract Group
- 16: Queenston
- 14: Georgian Bay
- 12: Blue Mountain
- 11: Lindsay



Basemapping from Ontario Ministry of Natural Resources

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UTM Zone 17N, NAD 83

Huntingwood

Bedrock Geology

January 2011

Hensel Design Group Inc

Figure 3

Georgian Bay

Lakeshore Rd E
Fraser Cres
26 Hwy
Timmons St
Brophy's Lane
Longpoint Rd
Long Point Rd
Madeline Dr
Bartlett Blvd
Princeton Shores Blvd
Dockside Dr
Johnston Park Ave
Mariners Way
Ramblings Way
Silver Creek Dr
Georgian Crt
Forest Dr
Cranberry Trail W
Vacation Inn Dr
Trafalgar Rd
Cranberry Trail E
Dawson Dr
Oxbow Cres
Hwy 26
Trott Blvd
Nettleton Crt
Balsam St
Keith Ave
Harbour St W
Black Ash Creek
Water St
First St
Elm St
Cedar St
Second St
Hickory St
Walnut St
Third St
Spruce St
Fifth St
Sixth St
Seventh St
Gibbard Cres
Griffin Rd
Tenth St
Balsam St
High St
Lora Bay Drive
Stewart Rd
Tenth Line
Sixth St
Caddo Dr
Eleventh Line
Mountain Rd
Laurel Blvd
Osler Bluff Rd
Grey Road 19
Trails End
Martins Grove Rd
Patricia Dr
Claire Glen
Scenic Caves Rd
Scenic Caves Rd
2nd Line
15th Sideрd
Swiss Meadows Blvd
Mountain Dr
Kinsey Pl
Campbell Cres
Carmichael Cres
Anne Hegglveit Dr
Sierra Lane
Wintergreen Pl
Drake Farm St
Joso Weider Blvd
Heritage Dr
Happy Valley Rd
Craigmore Cres
Settler's Way
Kandahar Lane
Birchview Trail
Lisa's Lane
Tyrolean Lane
Helen St
Grey 19 Rd
Grey 21 Rd
Grand Cypress Lane
Augusta Cres

Legend

- Property Boundary

Rivers
- Intermittent Stream
- Permanent Stream

Lakes and Wetlands
- Waterbody Segment
- Wetland Area, Permanent

Surficial Geology
- 21: Man-made deposits
- 20: Organic deposits
- 19: Modern alluvial deposits

14: Coarse-textured lacustrine deposits
- 14b: Littoral-foreshore deposits

9: Coarse-textured glaciolacustrine deposits
- 9b: Littoral-foreshore deposits
- 9c: Foreshore-basinal deposits

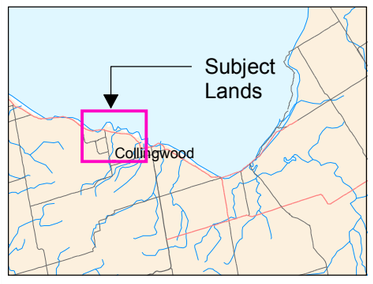
8: Fine-textured glaciolacustrine deposits
- 8a: Massive-well laminated

7: Glaciofluvial deposits
- 7a: Sandy deposits

6: Ice-contact stratified deposits
- 6: Ice-contact stratified deposits

5: Tills
- 5b: Stone-poor, carbonate-derived silty to sandy till
- 5d: Glaciolacustrine-derived silty to clayey till

3: Paleozoic Bedrock
- 3: Paleozoic bedrock



Basemapping from Ontario Ministry of Natural Resources

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UTM Zone 17N, NAD 83

Huntingwood

Surficial Geology Regional Context

January 2011

Hensel Design Group Inc.

Figure 4

3.4 Vegetation

3.4.1 Regional Vegetation Cover

A forest region classification system developed by Rowe (1972), categorizes the vegetation of Canada into eight major forest regions, or vegetation formations. These vegetation formations are based primarily on the presence and distribution of dominant tree species within each and are considered to reflect direct responses to broad climatic regimes. Within each of the major regions, a number of distinct sections were delineated according to local patterns in tree composition resulting from variations in physiographic and geological features. Based on this classification system, the Huntingwood Trails property is situated within the Huron-Ontario Section of the Great Lakes-St. Lawrence Forest Region.

This region essentially covers the same geographical limits as the Lake Simcoe-Rideau Site Region 6E of Ontario as outlined in the classification system by Hills (1959). Each site region is further subdivided according to characteristic physiographic zones, which Hills referred to as Site Districts. The subject lands lie within Site District 6-6, which is described as an area of water-laid clay, silt and sand broken by ridges of loam and sandy loam. The western portion of the Lake Simcoe basin contains the Nottawasaga basin, drained by the Nottawasaga River. Shorecliffs, beaches, dunes and boulder terraces border these low-lying lakeplains. Based on the afore-mentioned technical documents, the subject lands lie within the more refined Ministry of Natural Resources (MNR) Site District 6-6 (Burger 1993).

Characteristic forest cover consists of a relatively rich mixture of hardwood and coniferous tree species, in various combinations and densities. Natural woodlands on well-drained sites are typically dominated by sugar maple (*Acer saccaharum*) and beech (*Fagus grandifolia*). Other woody associates include basswood (*Tilia americana*), white ash (*Fraxinus americana*), red ash (*Fraxinus pennsylvanica*), yellow birch (*Betula alleghaniensis*), red maple (*Acer rubrum*), red oak (*Quercus rubra*), white oak (*Quercus alba*) and bur oak (*Quercus macrocarpa*). Conifers found within the tolerant hardwood types include eastern hemlock (*Tsuga canadensis*), eastern white pine (*Pinus strobus*) and balsam fir (*Abies balsamea*). Large-toothed aspen (*Populus grandidentata*), black cherry (*Prunus serotina*), butternut (*Juglans cinerea*) and ironwood (*Ostrya virginiana*) also occur frequently on upland sites, but are rarely abundant.

Blue-beech (*Carpinus caroliniana*), silver maple (*Acer saccharinum*), slippery elm (*Ulmus rubra*), black ash (*Fraxinus nigra*), green ash (*Fraxinus pennsylvanica var. subintegerrima*), white elm (*Ulmus americana*) and eastern white cedar (*Thuja occidentalis*) are also relatively common, but generally occur on slightly moister, cooler sites, notably in deep river valley systems, swamp sites or wetland margins.

Trembling aspen (*Populus tremuloides*), large-toothed aspen, balsam poplar (*Populus balsamifera*) and cottonwood (*Populus deltoides*) are also widespread, usually occurring within young, successional forests, and usually at the ecotones (interface) between fields and more mature phases of forest growth.

As with many parts of southern and central Ontario, much of the original forest cover has been cleared for cultivation and settlement; consequently, contiguous, extensive forest tracts are relatively uncommon (Rowe 1972). However, in areas having limited agricultural capability or erosion susceptible soils, many abandoned farmlands have been planted with extensive conifer plantations, or are reverting to natural plant cover and in varying stages of successional development (e.g. wet meadow, old fields, thickets, young pioneer (poplar-birch) stands, etc.).

3.4.2 Site Vegetation Communities

Overall, the subject lands are essentially bisected by a reach of Silver Creek, with tableland on the west side of the creek cleared in the past for agricultural uses (crops and pastureland), characterized as open graminoid meadow (MEFM4) and poplar-green ash woodland (WODM5-1). The floodplain of the creek contains willow lowland woods (FODM7-3), reed canary grass meadow marsh (MAMM1-3) and lowland green ash woods (FODM7-2). The eastern portion is covered for the most part by a series of east-west oriented "ridges and troughs". The sandy and sandy-loam ridges are essentially forested with a combination of: upland poplar-birch woods (FODM3-1); upland cedar-hardwood mixed woods (FOMM4-3); upland cedar woods (FOCM2-2); and lowland green ash woods (FODM7-2). The clayey troughs are vegetated with various wetland types such as: red maple-green ash treed swamp (SWDM3-1); poplar-cedar treed swamp (SWMM3-2); green ash treed swamp (SWDM2-2); poplar treed swamp (SWDM4-5); dogwood thicket swamp (SWTM2-1); and rush meadow marsh (MAMM1-13). There are also blocks and openings of goldenrod forb meadow (MEFM1-1) within the upland woods. Most of the wetland features lie within a portion of the Silver Creek Wetland Complex, a provincially significant wetland (PSW).

Figure 5 shows the types and extent of the natural and cultural terrestrial features, as well as the wetland aquatic features on the property. Where applicable, these features are characterized following the terminology of the Ecological Land Classification (ELC) system developed by the MNR, an **Ecological Land Classification for Southern Ontario – First Approximation and Its Application** (Lee *et al.* 1998), with updated revisions to the ELC vegetation types contained in Lee (2008). In addition to the ELC system, additional characterization of the on-site vegetation communities was aided through a review of the **Natural Heritage Resources of Ontario: Vegetation Communities of Southern Ontario** (Bakowsky 1997).

As defined in Lee *et al.* (1998), an Ecosite, "*is a mappable landscape unit defined by a relatively uniform parent material, soil and hydrology, and consequently supports a consistently recurring formation of plant species which develop over time (vegetation chronosequence).*" Within each ecosite landscape unit, there are a variety of vegetation types. A vegetation type, "*is a part of an ecosite, and represents a specific assemblage of species which generally occur in a site with a more uniform parent material, soils and hydrology, and a more specific stage within a chronosequence.*"

Table 2 provides a summary and brief description of the ELC units (vegetation types) delineated and characterized on-site. The following sub-sections provide summary descriptions of the natural and cultural terrestrial features and wetland features, including their ELC characterization, approximate boundaries and inherent species composition in the overstorey, understorey, shrub and groundcover stratums, where applicable. Figure 5 in conjunction with Table 2 and the representative photographs provide a descriptive summary and visual context of the natural, cultural and aquatic features that exist on the property.

Date Plotted: January 26, 2011 File Location: E:\Projects\HDG\Huntingwood\ACAD\DWG\HDG\HDG_HTW_Fig-5.dwg

Legend

- PROPERTY BOUNDARY
- ECOLOGICAL LAND CLASSIFICATION (ELC)
- EXISTING WATERCOURSE

THE CONTRACTOR SHALL CHECK AND VERIFY ALL DIMENSIONS AND REPORT ANY ERRORS OR OMISSIONS TO THE CONSULTANT BEFORE COMMENCING OR PROCEEDING WITH ANY WORK.

DO NOT SCALE THIS DRAWING.

No.	Revision	Date	Init

Hensel Design Group Inc.
Advancing Sustainable Development Solutions
372 Peel St, Collingwood, Ontario, L9Y 3W4
Phone: 705-443-8394 Fax.: 705-443-8494

SEAL

SEAL: ONTARIO ASSOCIATION OF LANDSCAPE ARCHITECTS — MICHAEL J. HENSEL — OALA — MEMBER

PROJECT
Huntingwood Trails
Collingwood, Ontario

TITLE
ECOLOGICAL LAND CLASSIFICATION (ELC)

Scale:	1:3500
Date:	January 2011
CAD File:	HDG_HTW_Fig-5
Drawn by:	CM
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Fig 5

Dry-Fresh Poplar Deciduous Forest Type (FODM3-1)

Some of the sandy and sandy-loam ridges in the east portion of the property are dominated by early successional poplar (trembling aspen) woods, in combination white birch (See Appendix D, Photographs 1, 2 and 3). Other woody associates in the semi-open to closed canopy and understory include white ash, basswood, red oak and scattered sugar maple. The dense shrub stratum contains bush honeysuckle (*Diervilla lonicera*), alternate-leaved dogwood (*Cornus alternifolia*), wild grape (*Vitis riparia*), black raspberry (*Rubus occidentalis*), round-leaf dogwood (*Cornus rugosa*), wild red raspberry (*Rubus idaeus*) and poison ivy (*Rhus radicans*).

Typical groundcover species include eastern bracken fern (*Pteridium aquilinum*), wild lily-of-the-valley (*Maianthemum canadense*), common buttercup (*Ranunculus acris*), wild basil (*Clinopodium vulgare*), field horsetail (*Equisetum arvense*), wild sarsaparilla (*Aralia nudicaulis*), wood betony (*Pedicularis canadensis*), white snakeroot (*Eupatorium rugosum*), spreading dogbane (*Apocynum androsaemifolium*), enchanters nightshade (*Circaea lutetiana*), herb-robert (*Geranium robertianum*), common milkweed (*Asclepias syriaca*) and rough-leaved rice grass (*Oryzopsis asperifolia*).

Fresh-Moist Green Ash-Hardwood Lowland Deciduous Forest Type (FODM7-2)

Two relatively large blocks of lowland green ash-hardwood bush lie in the eastern portion of the property (See Appendix D, Photographs 4 and 5). Other woody associates include white elm, common buckthorn (*Rhamnus cathartica*), alternate-leaved dogwood, Virginia creeper (*Parthenocissus inserta*), hawthorn (*Crataegus spp.*) and white ash. The groundcover in the northern block contains a high percentage of weeds and forbs, as a result of past cattle grazing within this feature. Characteristic species include common dandelion (*Taraxacum officinale*), poison ivy, yellow avens (*Geum aleppicum*), tall goldenrod (*Solidago altisimma*), enchanters nightshade, wild basil, woodland strawberry (*Fragaria vesca*), herb-robert, common buttercup, fringe loosestrife (*Lysimachia ciliata*) and graceful sedge (*Carex gracillima*).

Fresh-Moist Willow Lowland Deciduous Forest Type (FODM7-3)

Bordering the edges of Silver Creek and within its floodplain, is an open lowland wooded stand dominated by crack willow (*Salix fragilis*) and hybrid willow (*Salix x rubens*). Other woody associates include white elm, green ash, white willow (*Salix alba*), Manitoba maple (*Acer negundo*), scattered common juniper (*Juniperus communis*) and wild red raspberry (See Appendix D, Photographs 6 and 7).

The lush groundcover is dominated by ostrich fern (*Matteuccia struthiopteris*), reed canary grass (*Phalaris arundinacea*), Canada bluejoint grass (*Calamagrostis canadensis*), Canada thistle (*Cirsium arvense*), spotted Joe pye-weed (*Eupatorium maculatum*), beggar-ticks (*Bidens frondosus*), spotted jewelweed (*Impatiens capensis*), hog peanut (*Amphicarpa bracteata*), stinging nettle (*Urtica dioica*), meadow sedge (*Carex granularis*), awl-fruited sedge (*Carex stipata*), common buttercup, common burdock (*Arctium minus*), wild carrot (*Daucus carota*), common blue-eyed grass (*Sisyrinchium montanum*) and hound's-tongue (*Cynoglossum officinale*).

Naturalized Deciduous Hedge-row Ecosite (FODM11)

Bordering the south property perimeter on the west side of Silver Creek is a deciduous hedgerow dominated by green ash and white elm (See Appendix D, Photograph 8). The ground cover consists of weeds and grasses.

Dry-Fresh White Cedar Coniferous Forest Type (FOCM2-2)

There are two bands of upland white cedar woods, situated on the east side of Silver Creek, that border onto treed swamp wetland features in adjacent troughs (See Appendix D, Photographs 9 and 10). A dense distribution of eastern white cedar dominates the closed canopy and understorey. There are scattered hardwood and softwood associates such as trembling aspen, white birch and sugar maple. The lack of light penetration is reflected in a barren to sparse groundcover. Common groundflora includes helleborine (*Epipactis helleborine*), common dandelion, eastern bracken fern, spinulose wood-fern (*Dryopteris spinulosa*), bulblet fern (*Cystopteris bulbifera*), poision ivy, common strawberry, yellow avens and white ash seedlings.

Dry-Fresh White Cedar-Hardwood Mixed Forest Type (FOMM4-3)

Dominant trees in the canopy and understory include eastern white cedar, trembling aspen, white birch, balsam poplar, and white elm. Other woody associates include green ash, yellow birch, white ash, common buckthorn, Canada buffaloberry (*Shepherdia canadensis*) and scattered sugar maple, red oak and black cherry (See Appendix D, Photographs 11 and 12).

The groundflora contains weeds, grasses, ferns and woodland wildflowers typical for upland mixed forest, dominated by cedar and hardwoods. Characteristic species include heart-leaved aster (*Symphyotrichum cordifolium*), large-leaved aster (*Eurybia macrophylla*), yellow ladies-slipper (*Cypripedium pubescens* var. *pubescens*), graceful sedge, ground-pine (*Lycopodium dendroideum*), creeping buttercup (*Ranunculus repens*), eastern woodland sedge (*Carex blanda*), wild lily-of-the-valley, Jack-in-the-pulpit (*Arisaema triphyllum*), enchanters nightshade, wild basil, eastern bracken fern, spinulose wood-fern and field horsetail.

Fresh-Moist Poplar Deciduous Woodland Type (WODM5-1)

Stands of this lowland woodland type are found on both sides of Silver Creek, and are dominated with a combination of trembling aspen, balsam poplar, green ash, crack willow and white ash (See Appendix D, Photographs 13 and 14). The open to semi-open canopies, understory and shrub stratums also contain bush honeysuckle, common buckthorn, wild red raspberry, wild grape, poison ivy and Virginia creeper.

Past cattle grazing has resulted in a rather weedy/grass groundcover, dominated by fringed loosestrife, yellow avens, tall goldenrod, Canada goldenrod, herb-robert, enchanters nightshade, woodland strawberry, common dandelion, common buttercup, graceful sedge, orchard grass (*Dactylis glomerata*) and poison ivy.

Goldenrod Forb Meadow Type (MEFM1-1)

This vegetation type or cultural feature is characterized by broad-leaved forbs, along with common meadow grasses, ferns and sedges (See Appendix D, Photographs 15, 16 and 17). The large blocks in the northeast and south central portions of the property are being encroached upon by naturally regenerating trembling aspen, eastern white cedar and common crab-apple (*Malus pumila*).

Table 2. List of Vegetation Communities (ELC Units) on the Huntingwood Trails Property

ELC Code	Vegetation Type	Summary Description
FODM3-1	dry-fresh poplar deciduous forest type	- upland sandy ridges between wetland units dominated by trembling aspen, largetooth aspen and white birch - other woody associates in canopy and understory white ash, basswood, red oak and scattered sugar maple - shrub stratum contains northern bush honeysuckle, alternate-leaved dogwood, wild grape, black raspberry, spreading dogbane, red raspberry and poison ivy - characteristic groundflora includes eastern bracken fern, wild lily-of-the-valley, common buttercup, common milkweed, wild basil, field horsetail and rough-leaved rice grass
FODM7-2	fresh-moist green ash-hardwood lowland deciduous forest type	- blocks of lowland woods dominated by green ash and white elm - other woody species include common buckthorn, alternate-leaved dogwood and Virginia creeper - groundcover consists mainly of weeds and forbs such as enchanters nightshade, herb-robert, woodland strawberry, common dandelion, common buttercup and yellow avens - woodlot shows signs of past grazing activity (cattle), as evidenced by weedy groundcover and lack of woody regeneration
FODM7-3	fresh-moist willow lowland deciduous forest type	- situated in floodplain along both sides of Silver Creek - dominant species include crack willow, hybrid willow, green ash, white elm and Manitoba maple - shrub species include wild red raspberry, red-osier dogwood, alternate-leaved dogwood and willow shrubs - typical groundcover comprised of ostrich fern, reed canary grass, Canada bluejoint grass, elecampane, wild mint, hog peanut, stinging nettle, common buttercup, common burdock and wild carrot

FODM11	naturalized deciduous hedge-row ecosite	- linear hedge-row situated along southern edge of property on west side of Silver Creek - characteristic trees and shrubs include green ash, white elm, red-osier dogwood and trembling aspen
FOCM2-2	dry-fresh white cedar coniferous forest type	- small pockets on upland wooded ridges between wetland units - closed canopy dominated by eastern white cedar, with scattered trembling aspen and white birch - characteristic groundcover included bulblet fern, spinulose wood-fern, common strawberry, common buttercup, helleborine and poison ivy
FOMM4-3	dry-fresh white cedar-hardwood mixed forest type	- relatively large blocks of upland woodland dominated by eastern white cedar, along with trembling aspen, white birch, balsam poplar, white elm and white ash - other woody associates include common buckthorn, black cherry, green ash, yellow birch and dogwoods - typical groundflora includes heart-leaved aster, yellow lady-slipper, poison ivy, yellow avens, eastern bracken fern, wild lily-of-the-valley, helleborine, herb-robert, enchanters nightshade and wild basil
WODM5-1	fresh-moist poplar deciduous woodland type	- open to semi-open canopy contains green ash, trembling aspen, white elm, balsam poplar, crack willow and white ash - groundcover dominated by weeds and common grasses - exhibits affects (abundance of non-native groundcover) from past cattle grazing
MEFM1-1	goldenrod forb meadow type	- blocks of old field habitat dominated by broad-leaved forbs, along with grasses - some encroachment by poplars and cedars from adjacent woodland edges - characteristic groundflora includes showy tick-trefoil, wild carrot, red clover, white clover, tall goldenrod, Canada goldenrod, goat's-beard, New England aster, heal-all, hairy agrimony, timothy, orchard grass, awnless brome grass, wild bergamot, Canada anemone, yellow hawkweed, common buttercup, starry false Solomon's-seal, spreading dogbane, ox-eye daisy, English plantain, eastern bracken fern and common strawberry

MEFM4	open graminoid meadow type	- blocks of grassland, dominated by timothy, meadow fescue, orchard grass, reed canary grass, goldenrods, asters, common buttercup, Canada thistle and field horsetail - exhibits some forms of past agricultural uses, as evidence by sheds other structures
SWDM2-2	green ash mineral deciduous swamp type	- deciduous treed swamp with a closed canopy, dominated by green ash and white elm - other woody associates include scattered specimens of hybrid willow, crack willow, trembling aspen, cottonwood, red-osier dogwood and alternate-leaved dogwood - barren soils and sparse groundcover indicative of standing water present during growing season - groundflora includes fringed loosestrife, yellow rocket, yellow avens, herb-robert, moneywort, Virginia creeper and poison ivy - staked (with MNR) and delineated as part of provincially significant Silver Creek Wetland Complex
SWDM3-1	red maple mineral deciduous swamp type	- narrow troughs of treed swamp lying between narrow upland ridges, with an east to west orientation - closed canopy dominated by red maple and green ash - other woody associates include black ash, yellow birch, trembling aspen, white elm, balsam poplar, alternate-leaved dogwood, red-osier dogwood, bush honeysuckle and scattered eastern white cedar - contains pools of standing stagnant water throughout most of growing season - wet-mucky mineral soils vegetated by marsh fern, sensitive fern, water horsetail, fringed loosestrife, cleavers, clearweed, hop sedge, crested fern, beggar-ticks, blue flag, interior sedge, tall meadowrue, water parsnip, soft-stem bulrush, ostrich fern and fragrant bedstraw - three units staked (with MNR) and delineated as part of provincially significant Silver Creek Wetland Complex

SWDM4-5	poplar mineral deciduous swamp type	- situated along northern edge of property, dominated by trembling aspen, balsam poplar, white birch, red-osier dogwood, green ash, meadowsweet and white elm - contains wet to saturated mineral soils, with pockets of standing water - groundflora contains awl-fruited sedge, interior sedge, sensitive fern, ostrich fern, marsh fern, fragrant bedstraw, fringed loosestrife, water horsetail, deadly nightshade, water horehound, rice cut grass and wild mint - staked (with MNR) and delineated as part of provincially significant Silver Creek Wetland Complex
SWMM3-2	poplar-conifer mineral mixed swamp type	- mesic to wet soils support treed swamp dominated by trembling aspen, large-toothed aspen and eastern white cedar - other woody associates included alternate-leaved dogwood, red-osier dogwood, white elm and green ash - relatively lush groundcover indicates lack of standing water present during growing season - typical groundcover contains fringed loosestrife, wild mint, sensitive fern, blue flag, Jack-in-the-pulpit, mosses, wild grape, narrow-leaved cattail, meadow horsetail, common buttercup, enchanters nightshade, deadly nightshade, water horehound and dwarf raspberry - three units staked (with MNR) with one unit delineated as part of provincially significant Silver Creek Wetland Complex
SWTM2-1	red-osier dogwood mineral deciduous thicket swamp type	- two small pockets dominated by red-osier dogwood, with one unit an inclusion within narrow band of red maple-green ash swamp - other unit is isolated and encompassed within MEFM1-1 - both units staked (with MNR) with one unit delineated as part of provincially significant Silver Creek Wetland Complex

MAMM1-3	reed-canary grass graminoid mineral meadow marsh type	- narrow band of meadow marsh, dominated by reed canary grass and borders both sides of part of Silver Creek - other grasses, sedges and forbs include ostrich fern, Canada bluejoint grass, spotted Joe pye-weed, virgin's-bower, Canada anemone, coltsfoot, elecampane, beggar-ticks, spotted jewelweed, wild mint, meadow sedge, blue flag and wood nettle
MAMM1-13	rush graminoid mineral meadow marsh type	- small pocket dominated by jointed rush, along with fragrant bedstraw, awl-fruited sedge, meadow sedge, riverbank grape, meadowsweet, blue-eyed grass, deadly nightshade, wild mint, reed canary grass and tall goldenrod - staked (with MNR) and delineated as part of provincially significant Silver Creek Wetland Complex

The weedy/grass groundcover contains species such as:

Daucus carota	wild carrot
Trifolium pratense	red clover
Ranunculus acris	common buttercup
Tragopogon dubius	goat's-beard
Prunella vulgaris	heal-all
Verbascum thapsus	common mullein
Agrimony gryposepala	hairy agrimony
Symphyotrichum novae-angliae	New England aster
Solidago canadensis	Canada goldenrod
Solidago altissima	tall goldenrod
Monarda fistulosa	wild bergamot
Trifolium repens	white clover
Sonchus arvensis	sow-thistle
Cirsium arvense	Canada thistle
Cirsium vulgare	bull thistle
Maianthemum stellatum	starry false Solomon's-seal
Asclepias syriaca	common milkweed
Fragaria virginiana	common strawberry
Plantago major	common plantain
Plantago lanceolata	English plantain
Hypericum perforatum	common St. John's-wort
Chrysanthemum leucanthemum	ox-eye daisy
Rhus radicans	poison ivy
Desmodium glutinosum	showy tick-trefoil
Vicia cracca	cow vetch
Dactylis glomerata	orchard grass
Festuca pratensis	meadow fescue
Phleum pratense	timothy
Bromus inermis	awnless brome grass
Phalaris arundinacea	reed canary grass
Poa compress	Canada blue grass
Poa pratensis	Kentucky blue grass
Pteridium aquilinum	eastern bracken fern

Open Graminoid Meadow Type (MEFM4)

This cultural feature is similar in structure to MEFM1-1, but lacks an abundance of broad-leaved forbs, and is dominated by grasses, with an obvious historical agricultural land use, such as cropland or pastureland (See Appendix D, Photographs 18 and 19). Typical grasses in this feature include various combinations of orchard grass, timothy, awnless brome grass, reed canary grass, Kentucky blue grass and meadow fescue. Broad-leaved forbs include goldenrods, asters, wild carrot, common milkweed, common buttercup and thistles. Most of the west half of the property (west of Silver Creek) is comprised of this meadow type.

Green Ash Mineral Deciduous Swamp Type (SWDM2-2)

A large block of this wetland type lies along the northern edge of the property and is contained within a portion of the Silver Creek Wetland Complex, a provincially significant wetland (PSW) (See Appendix D, Photographs 20 and 21). The boundary of this wetland feature was staked and confirmed on August 5, 2010 by MNR staff (See Figure 6). The closed canopy and understory are dominated by relatively even-aged green ash, along with white elm. Other woody associates include crack willow, hybrid willow, trembling aspen, balsam poplar, alternate-leaved dogwood and red-osier dogwood (*Cornus stolonifera*).

Parts of the stand are inundated during the growing season with standing water, so the groundcover is non-existent or sparse. The wet outer edges contain a lush growth of sedges, grasses, ferns and aquatic forbs. Characteristic species include yellow rocket (*Barbarea vulgaris*), awl-fruited sedge (*Carex stipata*), moneywort (*Lysimachia nummularia*), drooping woodland sedge (*Carex arctata*), reed canary grass, marsh fern (*Thelypteris palustris*), fringed loosestrife, tall meadowrue (*Thalictrum pubescens*), sensitive fern (*Onoclea sensibilis*), ostrich fern, Jack-in-the-pulpit, blue flag (*Iris versicolor*), spotted jewelweed and wild mint.

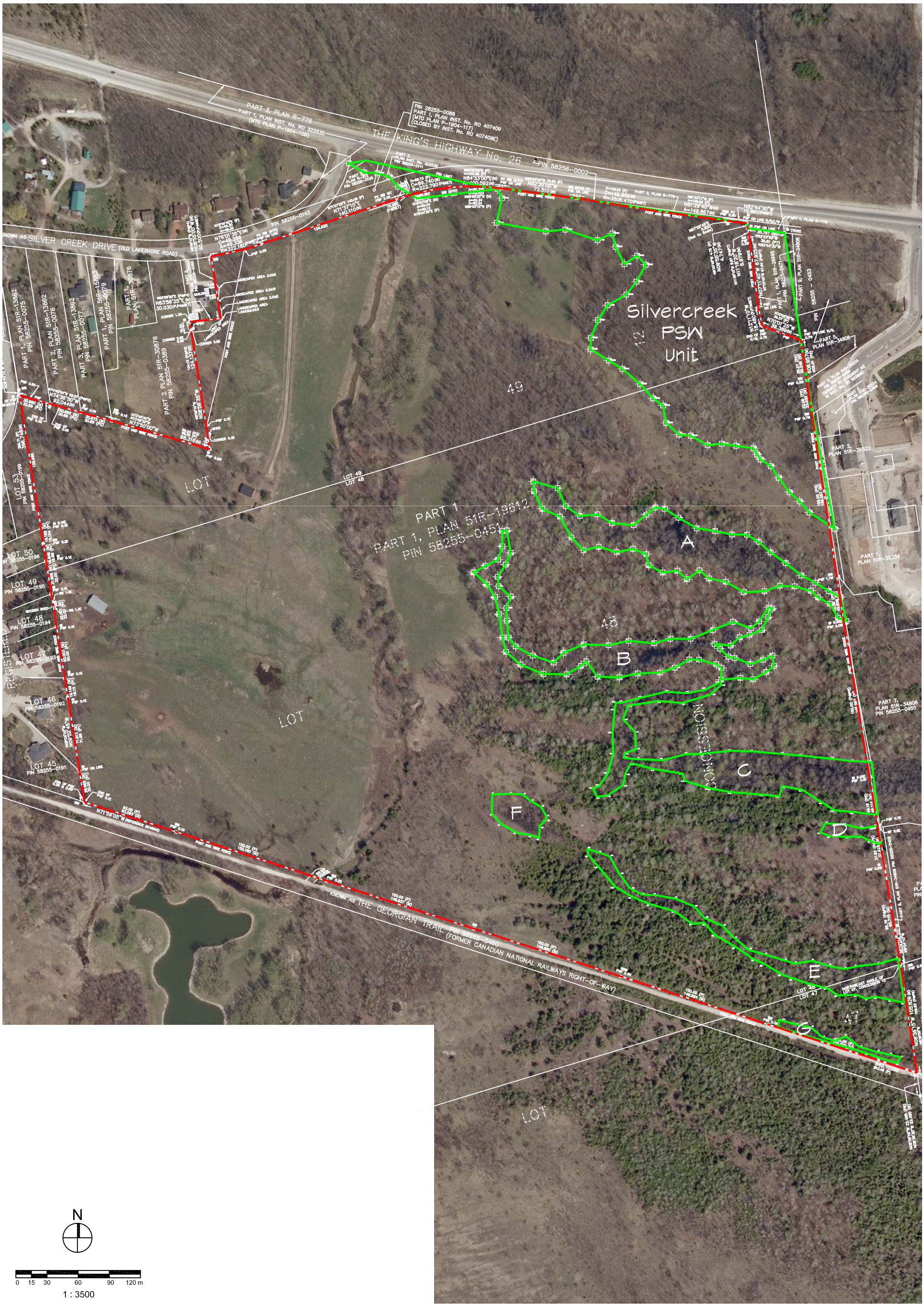
Red Maple Mineral Deciduous Swamp Type (SWDM3-1)

Red maple and green ash dominate this treed swamp wetland feature, with three separate units that lie within the low-lying troughs, between the upland sandy ridges on the east side of Silver Creek. The orientation of these ridge-trough formations is east-west (See Appendix D, Photographs 22, 23, 24 and 25). Other woody associates include black ash (*Fraxinus nigra*), swamp maple (*Acer freemanii*), yellow birch, trembling aspen, white elm, balsam poplar, alternate-leaved dogwood, red-osier dogwood, bush honeysuckle and scattered eastern white cedar. Major portions of each unit were inundated with standing water well into the growing season. Other portions (slightly raised sections) and the outer perimeters contain wet to saturated imperfectly drained muck/clay soils that provide a growing medium for sedges, grasses, ferns and aquatic forbs, typical for this region. The boundaries of these three wetland features were staked and confirmed on September 22, 2010 by MNR staff (See Figure 6).

Typical groundflora includes marsh fern, sensitive fern, ostrich fern, water horsetail (*Equisetum palustre*), fringed loosestrife, crested fern (*Dryopteris cristata*), interior sedge (*Carex interior*), bladder sedge (*Carex intumescens*), awl-fruited sedge, graceful sedge, Virginia creeper, cleavers (*Galium aparine*), clearweed (*Pilea pumila*), beggar-ticks (*Bidens frondosus*), Jack-in-the-pulpit, water parsnip (*Sium sauve*), soft-stem bulrush (*Scirpus validus*), wool-grass, (*Scirpus cyperinus*), dark green bulrush (*Scirpus atrovirens*), spotted jewelweed, tall meadowrue, swamp milkweed (*Asclepias incarnata*), fragrant bedstraw (*Galium triflorum*), reed canary grass, nodding sedge (*Carex gynandra*), water horehound (*Lycopus americanus*) and blue flag.

Poplar Mineral Deciduous Swamp Type (SWDM4-5)

This wetland feature lies in the northwest corner of the property and is part of the Silver Creek Wetland Complex (See Appendix D, Photographs 26 and 27). Its boundary on-site was staked and confirmed by MNR staff on August 5, 2010. Trembling aspen, balsam poplar, black ash, white birch, red-osier dogwood, alternate-leaved dogwood, meadowsweet (*Spiraea alba*), green ash and white elm are the dominant woody vegetation species.



Legend

- PROPERTY BOUNDARY
- WETLAND BOUNDARY

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SEAL

SEAL — ONTARIO ASSOCIATION OF LANDSCAPE ARCHITECTS — MICHAEL J. HENSEL — OALA — MEMBER

PROJECT: Huntingwood Development, Collingwood, Ontario

TITLE: PSW FEATURES

Scale:	1:3500
Date:	October 2010
CAD File:	HDG_HTW_Fig-6
Drawn by:	CM
Checked by:	SH
Job No.:	-

Drawing No.: Fig 6

Date Plotted: January 26, 2011 File Location: E:\Projects\HDG\Huntingwood\ACAD\DWG\HDG\HDG_HTW_Fig-6.dwg

Species observed in the lush groundcover include awl-fruited sedge, interior sedge, marsh fern, sensitive fern, ostrich fern, fragrant bedstraw, fringed loosestrife, spotted jewelweed, spotted Joe pye-weed, deadly nightshade, water horehound, rice cut grass (*Leerzia oryzoides*) and wild mint.

Poplar-Conifer Mineral Mixed Swamp Type (SWMM3-2)

Three units of this treed swamp feature lie in narrow troughs in the southeast corner of the property (See Appendix D, Photographs 28 and 29). These stands are dominated by trembling aspen, large-toothed aspen and eastern white cedar. Alternate-leaved dogwood, red-osier dogwood, white elm and green ash are typical woody associates. Only small portions of these wetland features contained standing water during the early growing season. The wet-saturated soils contain fringed loosestrife, wild mint, sensitive fern, blue flag, Jack-in-the-pulpit, mosses, wild grape, narrow-leaved cattail (*Typha angustifolia*), meadow horsetail (*Equisetum pratense*), awl-fruited sedge, interior sedge, bladder sedge and dwarf strawberry (*Rubus pubescens*). The boundaries of these three wetland features were staked and confirmed on September 22, 2010 by MNR staff (See Figure 6).

Red-osier Dogwood Mineral Deciduous Thicket Swamp Type (SWTM2-1)

Two small pockets of this shrub thicket swamp type lie within the trough formations, with one considered an inclusion (contains standing stagnant water through growing season) within one of the red maple-green ash treed swamp features (SWDM3-1) (See Appendix D, Photograph 30). Red-osier dogwood and alternate-leaved dogwood are the dominant shrubs species, along with scattered willow shrubs (*Salix discolor*). The stagnant standing water within the feature inclusion contains common duckweed (*Lemna minor*), along with swamp milkweed, ostrich fern, sensitive fern, water horehound and bladder sedge. The boundaries of these two wetland features were staked and confirmed on September 22, 2010 by MNR staff (See Figure 6).

Reed-canary Grass Graminoid Mineral Meadow Marsh Type (MAMM1-3)

A narrow band of this meadow marsh feature lies within the floodplain and along the edges of Silver Creek (See Appendix D, Photograph 31). Other grasses and sedges in this feature include ostrich fern, Canada bluejoint grass, spotted Joe pye-weed, virgin's-bower (*Clematis virginiana*), Canada anemone (*Anemone canadensis*), coltsfoot (*Tussilago farfara*), elecampane (*Inula helenium*), beggar-ticks, spotted jewelweed, wild mint, meadow sedge, blue flag and wood nettle (*Laportea canadensis*).

Rush Graminoid Mineral Meadow Marsh Type (MAMM1-13)

This wetland feature lies in the northeast corner of the property and is dominated by rushes and sedges (See Appendix D, Photograph 32). Jointed rush (*Juncus articulatus*) is the dominant rush, with other sedge associates such as awl-fruited sedge, interior sedge and meadow sedge. Other wetland and meadow plants include fragrant bedstraw, blue-eyed grass, deadly nightshade, dark green bulrush, fringed loosestrife, water horsetail, meadow horsetail, riverbank grape, Canada bluejoint grass, nodding sedge and reed canary grass. The boundary of this wetland feature was staked and confirmed on August 5, 2010 by MNR staff (See Figure 6).

3.5 Wildlife Observations

3.5.1 Birds

Bird surveys were conducted on May 4th, 16th, June 18th and 22nd. The May 16th visit was done in the evening to target night calling birds such as; owls, nighthawks, whip-poor-wills and any other potential nocturnal species in the area. The surveys included early dates and evening visits in order to maximize the species included in the surveys. All observations and data collection were completed by an experienced field biologist. Breeding birds were targeted but incidental observations were recorded as well. Morning surveys were performed between a half hour before sunrise and through to approximately 10:00 AM. The single evening survey was conducted a half hour after sunset through to 10:30 PM. A total of 79 species were observed. With the exception of one non-breeding American White Pelican (flying overhead), no Species At Risk from the federal or provincial lists were discovered during the course of these surveys (COSEWIC, COSARRO, NHIC). There were no regionally rare species observed during the surveys. There were 37 species that were found to be Area Sensitive according to the Priorities for Bird Conservation in Southern Ontario (Couturier, 1999). The Area Sensitive Species are listed in Appendix E.

The high percentage of Area Sensitive Species is due the large forested section of the property on the east side of Silver Creek. These forests connect to surrounding forest cover and are part of a much larger contiguous forest in the area. These forests support a good diversity of species and woodlands, in general, include a long list of Area Sensitive Species. Two species of warblers encountered solely on the initial survey in early May were likely migrants – one of these species (Yellow-rumped Warbler) is considered an Area Sensitive Species and should likely not be considered on a breeding list for this property. Turkey Vultures were observed on all occasions as well but were not likely breeding on the property. The recovering agricultural lands on the west side of the property had 8 species that are considered Area Sensitive for Open-lands type habitats. None of these eight species would be unexpected breeders in the area. A Common Snipe was heard during the evening survey. This species is normally considered an area sensitive bird for Marsh Lands. It does however often call over open fields during territorial displays. It could be using the abandoned fields or the fringe of the ephemeral ponds for breeding grounds.

The Forests on the East half of the subject lands are a mix of young trees with a few larger more mature trees interspersed throughout. These younger wooded sections are not likely as attractive to the birds usually associated with bigger tracks of forest lands and more mature trees. The number of species was low and the diversity seemed less than would be expected. The canopy is fragmented in many places were the habitat is still growing in from the previous pasture and agricultural activity on the property. The exception to this is the section of cedars on the south east corner. This area has the most diversity of birds and likely the most active territories. The warblers were abundant here and this section accounts for a good proportion of the other area sensitive forest species. A small creek almost dissects the property in half running from south to north towards the Bay. There is a good mix of riparian and transitional habitat around the banks of this creek. The bird species are a mix of open and forested habitats plus the usual edge preferring species. There were a few invasive species such as Cowbirds and Starlings evident through this section. The fields on the west portion of the property had a good representation of open-land birds and there are two wet areas that were likely attracting the wetland birds. These wet areas likely dry up on a regular basis as the summer progresses.

There was a single Red-tailed Hawk on the edge of the open areas in the June surveys. This bird did not react defensively and did not behave in any other way as to suggest there was a nest nearby. Stick nests were specifically targeted on the initial early survey in May. None were discovered.

The surrounding lands have many forms of disturbance and altered habitats. The range of residential housing areas and golf course to highway corridor and Georgian trail make this property appear to be a haven of more natural habitats. The property has a tradition of being used for cattle pasture and other mixed agriculture. There are a few trails that wind through the forest. Evidence of minor logging is present as well.

Incidental sightings of bird species were also recorded during the June 3 – 4, 2010 inventory of vegetation. These sightings included the single occurrence of a fly-over of a non-breeding American White Pelican (*Pelecanus erythrorhynchos*). Sightings of this bird occur infrequently in the Collingwood area. The White Pelican is considered Threatened Provincially but is not at-risk Nationally.

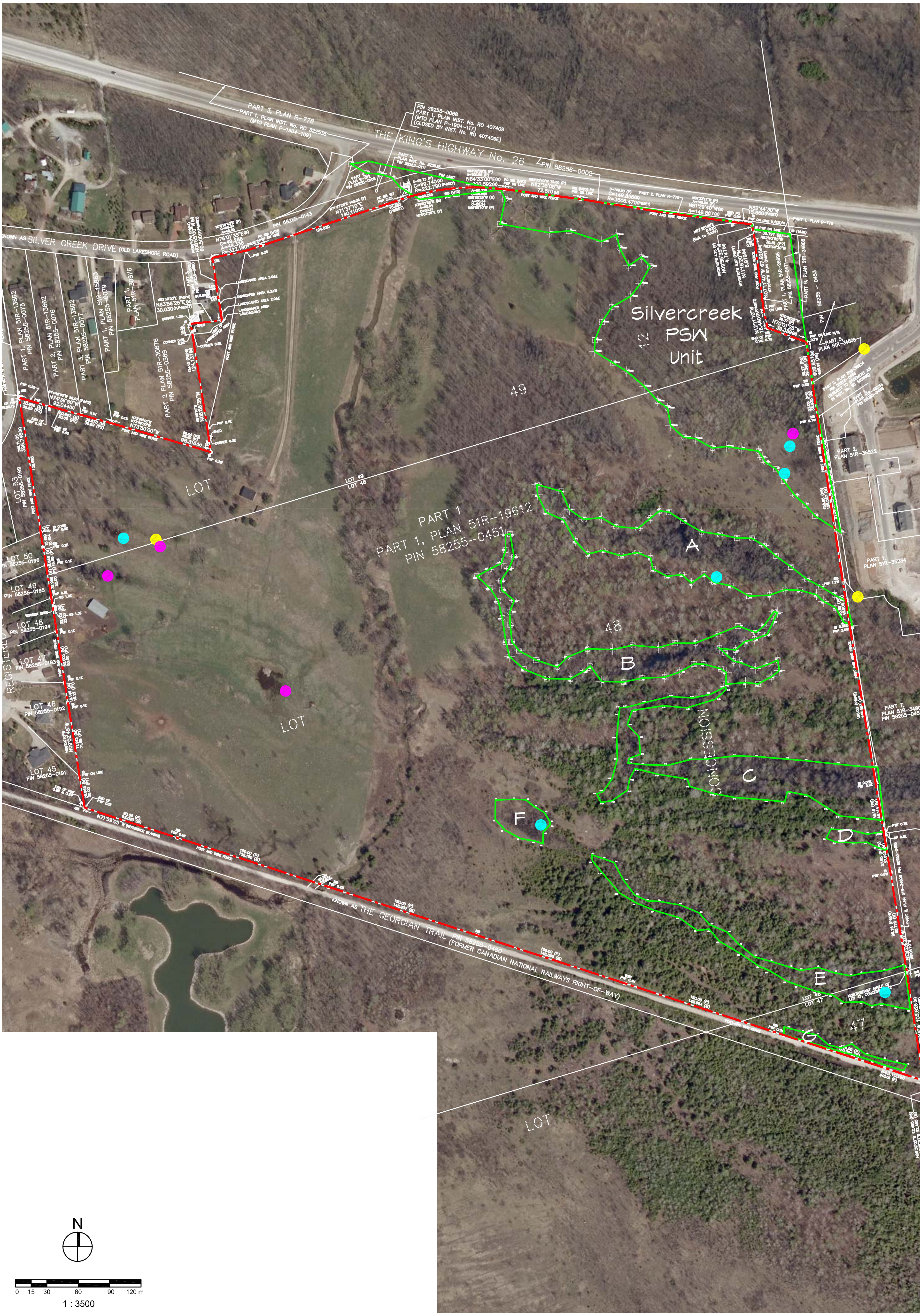
3.5.2 Amphibians

In April 2010, an HDG biologist attended the site to complete an early, middle and late season assessment of breeding amphibian activities on the subject lands. The subject lands are a mix of fallow farmland (on the western portion) and a deciduous swamp and mixed forest (on the east). The subject lands are traversed by Silver Creek, which flows in a northerly direction. The topography of the subject property was characterized by a distinct series of shallow ridges and low, wet troughs on the east side of Silver Creek that, in most cases, extend in an east-west orientation. The majority of breeding amphibian activity was concentrated on the western most and eastern most sections of the property. Standing water was present in the various locations on the subject property during each of the surveys.

Auditory surveys were conducted using the Canadian Wildlife Service (CWS) Marsh Monitoring Survey Protocol which provides an indication of amphibian abundance during the breeding season using the following scale:

Code 0: no calling amphibians heard;
Code 1: individuals can be counted, calls not overlapping;
Code 2: calls overlapping but individuals can still be counted; and,
Code 3: a full chorus, calls continuous and overlapping, individuals not distinguishable.

On April 14th, April 23rd and June 11, 2010 a qualified biologist conducted an amphibian survey on the subject lands. Weather conditions were favorable on all three dates for conducting the surveys. On the date of the first survey, Mr. Clark also walked the site during daylight hours to ensure that the survey could be conducted in a safe and efficient manner. A total of four species of amphibians were heard calling during the three field surveys. The results of the surveys are provided in tables 3, 4 and 5 below and locations are graphically illustrated on Figure 7.



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cyan dot	AMPHIBIAN SURVEY - APRIL 4, 2010
magenta dot	AMPHIBIAN SURVEY - APRIL 23, 2010
yellow dot	AMPHIBIAN SURVEY - JUNE 11, 2010

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SEAL

SEAL: ONTARIO ASSOCIATION OF LANDSCAPE ARCHITECTS — MICHAEL J. HENSEL — OALA — MEMBER

PROJECT: Huntingwood Trails, Collingwood, Ontario

TITLE: BREEDING AMPHIBIANS

Scale:	1:3500
Date:	October 2010
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Drawn by:	CM
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Drawing No. Fig 7

Date Plotted: January 26, 2011 File Location: E:\Projects\HDG\Huntingwood\ACAD\DWG\HDG\HDG_HTW_Fig-7.dwg

Table 3. Amphibian Survey Results

April 14, 2010; 19:39, Air Temperature 11.5°C; Beaufort 0; Cloud Cover 10%; no precipitation

Station #	GPS Coordinates	Common Name	Scientific Name	Code	Number of Individuals
	0557927 4929037	Western Chorus Frog	*Pseudacris triseriata*	1	2
	0557766 4929434	Western Chorus Frog	*Pseudacris triseriata*	1	2
	0557831 4929533	Spring Peeper	*Pseudacris crucifer*	3	-
		Western Chorus Frog	*Pseudacris triseriata*	1	1
	0557836 4929559	Spring Peeper	*Pseudacris crucifer*	3	-
		Wood Frog	*Rana sylvatica*	1	1
	0557598 4929197	Western Chorus Frog	*Pseudacris triseriata*	1	1
	0557199 4929471	Western Chorus Frog	*Pseudacris triseriata*	1	2
		Spring Peeper	*Pseudacris crucifer*	1	1

Table 4. Amphibian Survey Results

April 23, 2010; 21:22, Air Temperature 10°C; Beaufort 0; Cloud Cover 20%; no precipitation

Station #	GPS Coordinates	Common Name	Scientific Name	Code	Number of Individuals
	0557234 4929463	Western Chorus Frog	*Pseudacris triseriata*	1	1
	0557184 492435	Western Chorus Frog	*Pseudacris triseriata*	2	4
	0557354 4929325	Spring Peeper	*Pseudacris crucifer*	1	1
	0557839 4929571	Spring Peeper	*Pseudacris crucifer*	1	2
		Spring Peeper	*Pseudacris crucifer*	1	1

Table 5. Amphibian Survey Results

June 11, 2010; 21:48, Air Temperature 17°C; Beaufort 1; Cloud Cover 75%; no precipitation

Station #	GPS Coordinates	Common Name	Scientific Name	Code	Number of Individuals
	0557230 4929470	Grey Tree Frog	*Hyla versicolor*	1	2
	0557901 4929415	Grey Tree Frog	*Hyla versicolor*	2	4
	0557907 4929652	Grey Tree Frog	*Hyla versicolor*	2	3
		Green Frog	*Rana clamitans*	1	1

3.5.3 Fisheries

Silver Creek is a locally unique feature in that it provides high quality coldwater stream habitat extending from the Niagara Escarpment all the way north to Georgian Bay (East Black Bass Bay). Coldwater habitat in most of our other local Georgian Bay tributaries (e.g. Pretty River), suffers from land use impacts and a lack of groundwater discharge in the northern/downstream portion of the watershed.

Silver Creek is well known as a migratory rainbow trout spawning/nursery habitat, where juvenile rainbow trout typically spend the first two and often 3 years of their lifecycle in the stream before migrating out to Georgian Bay to begin the adult portion of their lifecycle. After 1 to 2 years (males) or 2 to 3 years (females) in the lake, the adult rainbow trout return to Silver Creek on a spawning run, typically between October and May.

Less well known is that Silver Creek also provides spawning/nursery habitat for chinook salmon (1993 study). Juvenile fish spend typically 3 months, but often a full year in the creek before moving out to Georgian Bay to begin the adult phase of their lifecycle. Adults enter Silver Creek in September and October to spawn, and may require rainfall and associated high flow events to enhance access to Silver Creek for these large fish (Pers. Comm. Fred Dobbs, NVCA).

3.5.4 Mammals

Mammals observed on site include the Raccoon (*Procyon lotor*) and the White-Tailed Deer (*Odocoileus virginianus*), Coyote (*Canis latrans*), Red Fox (*Vulpes vulpes*), Eastern Cottontails (*Sylvilagus floridanus*), Red Squirrels (*Tamiasciurus hudsonicus*), Eastern Grey Squirrel (*Sciurus carolinensis*) and Eastern Chipmunk (*Tamias striatus*).

4. Significant Natural Heritage Features

The following is an assessment of significant natural heritage features that must be included in the environmental assessment of proposed developments. Under the Provincial Policy Statement, it is the responsibility of the planning authorities to identify significant natural heritage features, including significant valleylands, wetlands, woodlands, and wildlife habitat. The following sections provide an evaluation of the subject property's existing features in context with the MNR criteria for the identification of significance under the Provincial Policy Statement and the related potential impacts associated with the development proposal. These criteria are then compared to the actual site conditions to determine if the potential for significance exists. These criteria are detailed in the Natural Heritage Reference Manual for Natural Heritage Policies of the Provincial Policy Statement (April 2010).

4.1 *Significant Valleylands*

There are no significant valleylands on the subject lands.

4.2 *Significant Woodlands*

The PPS states that development and site alteration may be permitted in significant woodlands provided that there will be no negative impacts to the identified natural features and functions that lend significance to the woodland. Woodlands as defined by the PPS are:

"treed areas that provide environmental and economic benefits to both the private landowner and the general public, such as erosion prevention, hydrological and nutrient cycling, provision of clean air and the long-term storage of carbon, provision of wildlife habitat,outdoor recreational opportunities, and the sustainable harvest of a wide range of woodland products.
Woodlands include treed areas, woodlots or forested areas and vary in their level of significance at the local, regional and provincial levels."

Significant, with regards to woodlands is defined in the PPS as:
"an area which is ecologically important in terms of features such as species composition, age of trees and stand history; functionally important due to its contribution to the broader landscape because of its location, size or due to the amount of forest cover in the planning area; or economically important due to site quality, species composition, or past management history".

The Natural Heritage Reference Manual outlines the recommended Significant Woodland Evaluation Criteria and Standards using woodland size, ecological function, possession of uncommon characteristics and economic and social values to determine the woodland's significance. Those criteria are explained and weighed against the characteristics of the subject property below.

4.2.1 Woodland Size

- Woodland areas are considered to be generally continuous even if intersected by narrow gaps 20 m or less in width between crown edges.
- Size value is related to the scarcity of woodland in the landscape derived on a municipal basis with consideration of differences in woodland coverage among physical sub-units (e.g., watersheds, biophysical regions).
- Size criteria should also account for differences in landscape-level physiography (e.g., moraines, clay plains) and community vegetation types.

The woodland area within the subject lands is part of a large woodland area which extends south on adjacent lands. The whole woodland area has been subjected to disturbance for agricultural uses, golf course, construction and residential development.

4.2.2 Ecological Function

a) Woodland Interior

- Interior habitat more than 100 m from the edge (as measured from the limits of a continuous woodland as defined above) is important for some species.

- For purposes of this criterion, a maintained public road would create an edge even if the opening was not wider than 20 m and did not create a separate woodland.

b) Proximity to other woodlands or other habitats

- Woodlands that overlap, abut or are close to other significant natural heritage features or areas could be considered more valuable or significant than those that are not.
- Patches close to each other are of greater mutual benefit and value to wildlife.

Within the subject lands is another small block of forest on the adjacent lands to the west. The existing watercourse corridor adjacent to woodlands will be retained in the development proposal and will have a buffer which will preserve a corridor through to the woodlands on the east side of the property and to adjacent lands which also contain woodland in the east, south and north.

c) Linkages

- Linkages are important connections providing for movement between habitats.
- Woodlands that are located between other significant features or areas can be considered to perform an important linkage function as “stepping stones” for movement between habitats.

Linkages to the woodland areas within the subject lands exist in portions of the east, north and south boundaries of the subject lands as the woodlands has been disturbed where other abutting residential, agricultural and golf course uses exist. The corridor containing the watercourse feature and associated buffer will allow for an important north-south linkage to be retained through the proposed development lands.

d) Water Protection

- Source water protection is important.
- Natural hydrological processes should be maintained.

The subject lands are not located within a sensitive or threatened watershed.

e) Woodland Diversity

- Certain woodland species have had major reductions in representation on the landscape and may need special consideration.
- More native diversity is more valuable than less diversity.

The wooded vegetation communities found on the subject lands are typical of what is expected in this area of Ontario.

4.2.3 Uncommon Characteristics

- *Woodlands that are uncommon in terms of composition, cover type, quality, age and age structure should be protected;*
- *Older woodlands (i.e. woodlands greater than 100 years old) are particularly valuable for several reasons including their contributions to genetic, species and ecosystem diversity.*

The woodlands present on the subject lands do not contain any uncommon woodland types, and are not greater than 100 years old.

4.2.4 Economic and Social Values

- *Woodlands that have high economic or social values through particular site characteristics or deliberate management should be protected.*

There are no managed woodlands on the subject lands.

4.3 *Significant Wetlands*

The boundaries of a total of nine (9) wetland features on the Huntingwood Trails property were flagged by an HDG qualified wetland evaluator and surveyed. One of these wetland features fronts onto Highway 26 and has been designated and mapped by the MNR as part of the Provincially Significant Wetland (PSW), known as the Silver Creek Wetland Complex. The edges of this particular on-site wetland feature were flagged and boundary adjustments confirmed by MNR Midhurst District Office staff on August 5, 2010. Subsequently, the boundaries of the remaining eight (8) wetland features internal to the property were flagged and confirmed by MNR on September 22, 2010. Figure 6 shows the location and extent of each of the unevaluated wetland features, which have been labeled A-G for ease of description and reference. The revised boundary of the MNR mapped Silver Creek PSW feature that fronts onto Highway 26 is also included. It is our understanding that the MNR has incorporated the other un-evaluated (internal) wetland features into the Silver Creek PSW that qualified for inclusion within the PSW complex.

Table 6 contains a summary description of the eight unevaluated wetland features (A-G). Data includes: size (in hectares); typical and specialized attributes, if any (e.g, vegetation forms such as treed swamp-h, shrub thicket swamp- ts or ls, sedge marsh-ne or the presence of rare flora or fauna); and typical and specialized ecological functions, if any (e.g., breeding habitat for amphibians, raptor nests, gestation or hibernacula for fauna, fish and fish habitat), as well as relevant comments.

In general, and according to the Ontario Wetland Evaluation System (OWES) – Southern Manual (Ministry of Natural Resources 1993, with updates), *"wetland smaller than 2.0 ha (5 acres) will not be evaluated."* The wetland evaluation protocol also states (page 13) that, *"However, very small wetlands can sometimes provide important habitat for wildlife or be important for other reasons. This is particularly true in wetland complexes. Wetlands smaller than 2 ha can be evaluated and the rationale for including them attached to the data record."* The internal wetlands on the Huntingwood Trails property all lie within 750 m of another unit of the Silver Creek Wetland Complex, and therefore can be considered for inclusion within the complex. However, there are other parameters to consider when determining whether a wetland feature should be included within a wetland complex (e.g., minimum vegetation community size of 0.5 ha, specialized attributes and functions).

Based on the results of the boundary delineation conducted in September 2010 and an analysis of wetland attributes and functions, it is our opinion that three of the internal wetland features (labeled D, F and G) on Figure 6 do not warrant inclusion into the PSW, based primarily on their small size (<< 0.5

ha). By definition, on page 42 of the OWES – Southern Manual, the minimum size of a vegetation community to be recognized in mapping for a wetland evaluation will usually be 0.5 ha. In addition to a minimum vegetation community size, exceptions to this rule can be made in cases where a highly specialized plant community occurs within a much larger wetland. The OWES manual outlines exceptions to the minimum vegetation community size (0.5 ha). Typical examples of such specialized communities, which are sometimes only a fraction of a hectare are: a floating sedge fen (which may contain some fen-loving orchids, or rare species requiring such habitat) at the edge of a small lake; a tiny remnant shrub or moss dominated bog within what is otherwise a treed bog or a swamp; a patch shoreline floating plants (rooted) which provide localized habitat required by species such as green frogs or bull frogs (and which might otherwise not be present or abundant in the wetland).

Other known examples garnered from field experience for including small wetland features or vegetation communities that are less than 0.5 ha in area within a wetland complex include, but are not restricted to: amphibian breeding habitat (ponded water throughout the breeding season); nesting raptors (e.g., red-shouldered hawk); nesting habitat for colonial birds (e.g, heronry): gestation and/or hibernacula habitats for snakes (e.g., eastern hognose, massasauga); and/or combinations thereof.

All three wetland features (D – .063 ha, F – 0.15 ha and G - .072 ha) are very small (<< 0.5 ha) in size, and therefore do not meet the minimum size of 0.5 ha to be recognized as a vegetation community and therefore should not be included in the wetland complex. It is recognized that a contiguous similar sized portion and similar type (treed swamp - approximately .063 ha) of wetland feature D does continue off-site to the east. The addition of this off-site portion would result in this feature covering 0.13 ha, still significantly under-sized (<< 0.5 ha). None of these three wetland features are comprised of or contain any: specialized communities which are only a fraction of a hectare; rare species of flora and fauna; amphibian breeding habitat; nesting raptors; heronries; snake gestational/hibernacula habitats; or combinations of these wetland attributes and functions. In this regard, features D, E and F should be classified as lowland moist forest units and should not be included in the existing PSW complex.

Based on a natural environment perspective, it is our opinion that the exclusion of these three wetland features from the Silver Creek Wetland Complex will not compromise nor negatively impact the attributes and ecological functions of the remaining wetland features (A, B, C, E) or the large PSW unit fronting onto Highway 26. It is also our opinion, from a planning and land use perspective (including the future collector road alignment), that their exclusion will facilitate a “better use” of land when economic and social benefits are also considered, one of the guiding principles of the *Provincial Policy Statement*.

4.4 *Significant Wildlife Habitat*

Significant Wildlife Habitat can be difficult to appropriately determine at the site-specific level, as in many cases the assessment must incorporate information from a wide geographic area and consider other factors such as regional resource patterns and landscape effects.

Table 6. Summary of Huntingwood Trails Property Wetland Features

Wetland	Size (ha)	Attributes and Functions	Comments
A	1.01	- vegetation communities of sufficient size (>0.5 ha) - comprised of treed swamp (S), dominated by green ash, red maple and white elm - wetland vegetation forms include h, ls, gc, m, u - contains standing water 10-30 cm throughout plant growing season, until early August - contains amphibian breeding habitat based on calls heard during April 14 and June 11, 2010, as well as sightings during other field inventories	- wetland feature qualifies for inclusion within Silver Creek Wetland Complex
B	0.75	- vegetation communities of sufficient size (>0.5 ha) - comprised of treed swamp (S), dominated by green ash, red maple and white elm and small inclusion of shrub thicket swamp dominated by dogwoods and willows - wetland vegetation forms include h, ls, gc, m, u; ts, ls, gc, ne, u - contains standing water 10-15 cm throughout plant growing season, until early August - contains amphibian breeding habitat based on sightings during other field inventories	- wetland feature qualifies for inclusion within Silver Creek Wetland Complex
C	0.99	- vegetation communities of sufficient size (>0.5 ha) - comprised of treed swamp (S), dominated by green ash, red maple and white elm and shrub thicket swamp dominated by dogwoods and willows - wetland vegetation forms include h, ls, gc, m, u; ts, ls, gc, ne, u - contains standing water 10-15 cm throughout most of plant growing season, until early August	- wetland feature qualifies for inclusion within Silver Creek Wetland Complex
D	.063	- vegetation community totals only .063 ha on-site (combined with off-site portion for a total of 0.13 ha) - dominated by green ash, poplars and dogwoods - fairly developed groundflora, indicates lack of standing water during plant growing season - does not contain standing water during amphibian	- vegetation community of insufficient size (0.13 ha), significantly less than OWES minimum size of 0.5 ha - does not contain any highly specialized plant communities - does not contain any other specialized attributes or functions such as: amphibian breeding habitat; rare flora and/or fauna; nesting raptors; nesting colonial birds; gestation and/or hibernacula for snakes;

		breeding season (April – June), no calls heard during April and June amphibian surveys	- feature should be classified as a lowland moist forest (e.g., FOD7-2) - does not warrant inclusion within Silver Creek Wetland Complex
E	0.51	- vegetation community on-site of sufficient size (>0.5 ha) , along with an additional smaller contiguous off-site portion (approx. 0.15) to the east - comprised of treed swamp (S), dominated by green ash, red maple, white elm and dogwoods - wetland vegetation forms include h, ts, ls, gc, m, u - contains standing water 10-15 cm throughout most of plant growing season, until early August - amphibians observed and heard calling during other site inventories	- wetland feature qualifies for inclusion within Silver Creek Wetland Complex
F	0.15	- vegetation community totals only 0.15 ha - dominated by poplars, white elm, green ash and dogwoods - well-developed groundflora of grasses, sedges and ferns, indicates lack of standing water during plant growing season - does contain some standing water during early spring (April), but dry from early May onwards, only one western chorus frog heard on April 14, no more calls during April 23 and June 11 amphibian surveys	- vegetation community of insufficient size (0.15 ha), significantly less than OWES minimum size of 0.5 ha - does not contain any highly specialized plant communities - does not contain any other specialized attributes or functions such as: rare flora and/or fauna; nesting raptors; nesting colonial birds; gestation and/or hibernacula for snakes; - feature should be classified as a lowland moist forest (e.g., FOD7-2), with an inclusion of red-osier mineral thicket (CUT1-E) - small size and lack of any specialized attributes and functions precludes inclusion within Silver Creek Wetland Complex
G	.072	- vegetation community totals only .072 ha - dominated by poplars, cedar, elm and dogwoods - well-developed groundcover of ferns and forbs - contains no standing water during amphibian breeding season (April – June)	- vegetation community of insufficient size (.072 ha), significantly less than OWES minimum size of 0.5 ha - does not contain any highly specialized plant communities - does not contain any other specialized attributes or functions such as: amphibian breeding habitat; rare flora and/or fauna; nesting raptors; nesting colonial birds; gestation and/or hibernacula for snakes; - feature should be classified as a lowland moist forest (e.g., FOD7-2), with an inclusion of red-osier mineral thicket swamp (SWT2-5) - small size and lack of any specialized attributes and functions precludes inclusion within Silver Creek Wetland Complex

Silver Creek PSW Unit	4.47	- vegetation communities of sufficient size (>0.5 ha) - comprised mainly of interconnected treed swamps (S), dominated by various combinations of green ash, trembling aspen, hybrid willow, red maple, white elm, dogwoods and shrub willows - also contains a block sedge meadow - wetland vegetation forms include h, ls, gc, m, u; ts, ls, gc, ne, u; gc, ne, be, m - contains pockets of standing water 5-10 cm throughout most of plant growing season, until early September	- wetland feature(s) on-site already mapped and included within Silver Creek Wetland Complex - adjustments undertaken to boundary on August 5, 2010 resulted in some removal of “green ash and willow treed swamp”, more appropriately classified as lowland moist forest (e.g., FOD7-2, FOD7-3) and the addition of a block of sedge meadow (vegetation forms - gc, ne, be, m)

fronting onto Highway 26. It is also our opinion, from a planning and land use perspective (including the future collector road alignment), that their exclusion will facilitate a "better use" of land when economic and social benefits are also considered, one of the guiding principles of the *Provincial Policy Statement*.

4.5 *Significant Wildlife Habitat*

Significant Wildlife Habitat can be difficult to appropriately determine at the site-specific level, as in many cases the assessment must incorporate information from a wide geographic area and consider other factors such as regional resource patterns and landscape effects.

The Significant Wildlife Habitat Technical Guide identifies four principal components of Significant Wildlife Habitat. These are:

- Seasonal concentrations of animals;
- Animal movement corridors;
- Rare vegetation communities or specialized habitats; and
- Habitat of species of conservation concern.

4.5.1 Seasonal Concentrations of Animals

Some species of animals gather together from geographically wide areas at certain times of the year. This could be to hibernate or to bask (e.g. some reptiles), over-winter (e.g., deer yards) or to breed (e.g. Bullfrog breeding and nursery areas). Maintenance of the habitat features that result in these concentrations can be critical in sustaining local or even regional populations of wildlife.

No seasonal concentrations of animals as defined in the Significant Wildlife Habitat Technical Guide (MNR, 2000) were identified on the subject lands during the field investigations.

4.5.2 Animal Movement Corridors

Landscape connectivity (often referred to as "wildlife corridors") has become recognized as an integral part of natural heritage planning and a wide range of benefits have been attributed to the maintenance or re-connection of the undisturbed landscape. In essence, corridors are relatively protected passageways for animals to move between areas of high habitat importance. Conservation of distinct habitat types to protect species is not effective unless the corridors between them are also protected.

The woodland on the subject property, as described in 4.2.2, is part of a large woodlot area which extends off-site to adjacent lands. A corridor containing Silver Creek and associated buffer will allow for linkages to the onsite woodlands and north and south to natural habitat located on adjacent lands.

4.5.3 Rare Vegetation Communities or Specialized Habitats

Vegetation communities that by definition and designation are considered rare or significant include wetland features: SWDM2-2 (green ash mineral deciduous swamp); SWDM4-5 (poplar mineral deciduous swamp); and MAMM1-13 (rush graminoid mineral meadow marsh). All three wetland

features lie within a portion of the Silver Creek Wetland Complex, a provincially significant wetland (PSW).

In addition, there are other internal unevaluated wetland features that have been delineated and flagged and subsequently confirmed by MNR staff. These include: three units of SWDM3-1 (red maple mineral deciduous swamp); three units of SWMM3-2 (poplar-conifer mineral mixed swamp); and one unit of SWTM2-1 (red-osier dogwood mineral deciduous thicket swamp). Another unit of SWTM2-1 lies (as an inclusion) within a unit of SWDM3-1. Digital mapping of these internal unevaluated wetland features have been provided to the MNR (See Figure 8). For the purposes of this report all of these wetland features have been considered Provincially Significant.

A review of the data collected indicated that of the on-site terrestrial features lie within a Life Science or Earth Science Area of Natural and Scientific Interest (ANSI), Environmentally Significant Area (ESA), or any of the other key natural heritage features (e.g., significant habitat of endangered species and threatened species, significant wildlife habitat, significant valleyland) listed in the *Provincial Policy Statement* (Province of Ontario 2005).

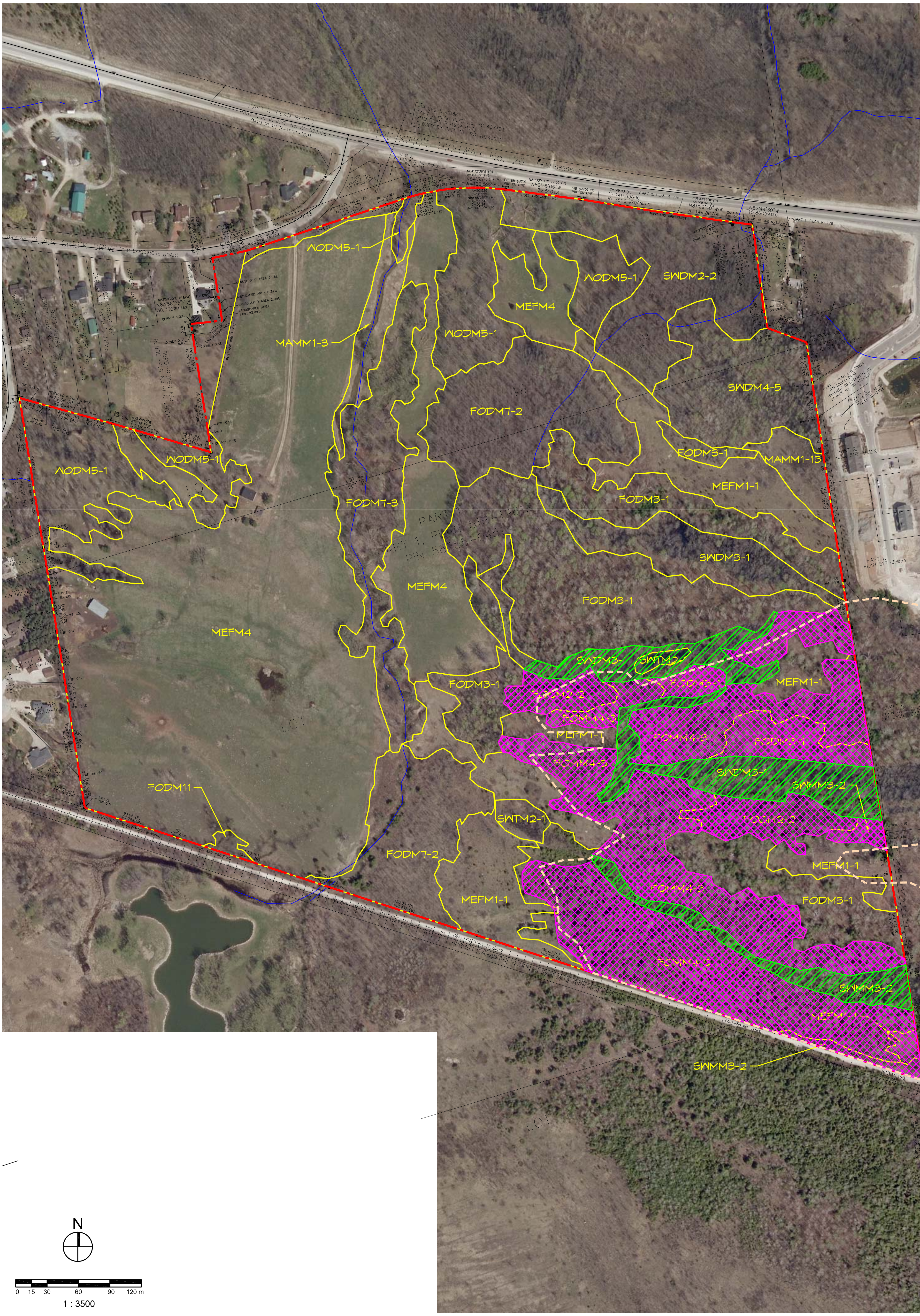
None of the cultural features (e.g., MEFM4, MEFM1-1), lowland forested stands (FODM7-2, FODM7-3), lowland woodland (WODM5-1) are designated significant.

The Town of Collingwood Official Plan Schedule A – Land Use Plan identifies a major portion of the property as lying within lands designated as "Environmental Protection" (The Town of Collingwood 2010). These lands are deemed to warrant protection due to their environmental importance and are also shown in greater detail on Schedule B Environmental Protection – Natural Heritage Resources Areas. Schedule B shows that part of the property in the southeast portion is designated as Category 1: Woodland. It is important to note as stated in the Official Plan that, *"Although the general intent of the Official Plan is to preserve Category 1 Woodlands and to permit development in Category 2 that will have no negative impact, it is recognized that comprehensive on-site investigations may be undertaken of entire woodlands, utilizing refined assessment criteria and study techniques, that may reveal that all or part of a particular site is suitable for reclassification to Category 1 or Category 2 status."* Category 1 Woodlands are by definition described as primary woodlands encompassing in excess of 4 hectares (9.9 acres) that are more than 75 years old.

At present, Figure 8 indicates an overlay of the Category 1: Woodland designation, as a line transposed from Schedule 'B' Environmental Protection – Natural Heritage Resource Areas from the Town of Collingwood Official Plan. As this figure also indicates, the Category 1 Woodland designation area was re-evaluated during 2010 site inventories and mapped to approximately encompass the following ELC units, 2 units of wetland features SWDM3-1; one unit of wetland feature SWMM3-2; two units of upland eastern white cedar woods FOCM2-2; three units of upland eastern white cedar-hardwood woods FOMM4-3; and three units of upland poplar-white birch woods FODM3-1.

A Category 1 Woodland is defined as primary woodlands encompassing in excess of 4 hectares (9.9 acres) that are more than 75 years old. Category 2 Woodland is defined as younger woodland encompassing an area in excess of 10 hectares (25 acres) (Town of Collingwood 2010).

As stated in the Official Plan Section 4.1.3.12.4, *"Although the general intent of the Official Plan is to preserve Category 1 Woodlands and to permit development in Category 2 that will have no negative*



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Legend

- PROPERTY BOUNDARY
- ECOLOGICAL LAND CLASSIFICATION (ELC)
- EXISTING WATERCOURSE
- CATEGORY 1 WOODLANDS AS PER SCHEDULE 'B' - OFFICIAL PLAN - TOWN OF COLLINGWOOD
- REFINED CATEGORY 1 WOODLANDS AREA AND PSW (HDG 2011)
- REFINED CATEGORY 2 WOODLANDS AREA (HDG 2011)

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SEAL

SEAL: ONTARIO ASSOCIATION OF LANDSCAPE ARCHITECTS — MICHAEL J. HENSEL — OALA — MEMBER

PROJECT
Huntingwood Trails
Collingwood, Ontario

TITLE
CATEGORY 1 WOODLANDS

Scale:	1:3500
Date:	January 2011
CAD File:	HDG_HTW_Fig-8
Drawn by:	CM
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Fig 8

impact, it is recognized that comprehensive on-site investigations may be undertaken of entire woodlands, utilizing refined assessment criteria and study techniques, that may reveal that all or part of a particular site is suitable for reclassification to Category 1 or Category 2 status."

"Accordingly, the reclassification of Category 1 Woodland to Category 2 or a Category 2 Woodland to Category 1 status on Schedule B and the re-designation of Category 1 Woodland from the Environmental Protection Areas classification on Schedule A, may only be considered when the results of an EIS reveal, to the satisfaction of the Town of Collingwood and the Nottawasaga Valley Conservation Authority, that such reclassification is justified."

As stated, there are 4 general criteria that need to be addressed through an EIS to justify a woodland reclassification. In this regard, the Official Plan states the following:

"The EIS shall be undertaken by a qualified professional, acceptable to the Town and the NVCA, and shall consider, determine and assess:

- *the size, shape, age, structure, edge to interior ratio and vegetation species composition of the entire woodland,*
- *the health of the trees and past human disturbance/forest management practices,*
- *the wildlife function of the entire woodland (e.g., habitat for forest interior and/or area sensitive bird species; deer wintering habitat), and*
- *the relationship of the woodland to other nearby natural heritage features (e.g., proximity, connectivity, corridor function)."*

"The reclassification of Category 1 Woodland may only occur by amendment to Schedule A of the Official Plan. In circumstances where Category 1 and Category 2 natural heritage resource areas on Schedule B overlap the policies applicable to the Category 1 resource shall apply."

It is our professional opinion and based on field work, analysis to-date, and application of the general reclassification criteria, that portions of the Category 1 Woodland designation on the property as per Official Plan Schedule B, and shown as line on Figure 8, that adjustments (e.g., reduction) to Category 1 Woodland boundary are warranted.
As per the first reclassification criterion:

- size, shape, age, structure, edge to interior ration and vegetation species composition of the entire woodland

A comparison of the present day configuration of the Category 1 Woodland mosaic (e.g., treed swamp, upland poplar-birch, upland cedar, upland cedar hardwood) with a 1938 aerial photograph, appears to indicate that most of the wetland features (treed swamps of SWDM3-1 and SWMM3-2, shrub thicket swamp SWTM2-1) meet the age criteria of 75 years, as well as lying within the revised provincially significant wetland, the Silver Creek Wetland Complex. The majority of the upland cedar woods (FOCM2-2) also meet the age criteria of 75 years.

However, the remainder of the wooded stands that comprise the mosaic do not meet the age requirement of 75 years. It is therefore our contention and position that the majority of the upland poplar-birch woods (FODM3-1) are not present on the 1938 aerial photograph, as well as significant portions of the upland cedar-hardwood woods (FOMM3-2), and therefore do not qualify as Category 1 Woodland. It is recognized that these wooded features are contiguous with the remaining Category 1 Woodland and are also contiguous off-site to the south with the Category 2 Woodland, and therefore

should be reclassified as Category 2 Woodland. Portions of these on-site Category 2 Woodland features will remain intact, as they will within the proposed 15m buffers from the edges of the Category 1 Woodland features. As well, other portions will remain intact, as part of the proposed 50m wide travelway corridors (north-south woodland linkages) that will be retained adjacent to the proposed development blocks.

As per the second reclassification criterion:

- the health of the trees and past human disturbance/forest management practices

This criteria is not really germane to the wooded features that comprise the woodland mosaic (be it Category 1 or Category 2). There is some evidence of previous cutting (albeit minor), and for the most part, the tree specimens that comprise all of the wooded stands are relatively healthy, showing no discernible affects from fungal disease or insect infestation. Some portion of the upland cedar-hardwood stands (FOMM4-3) exhibit signs of minor windthrow, as evidenced by blow-downs.
As per the third reclassification criterion:

- the wildlife function of the entire woodland (e.g., habitat for forest interior and/or area sensitive bird species; deer wintering habitat)

As per Section 3.5.1 of the EIS, the property does support a relatively high percentage of Area Sensitive bird species (37 species), mainly due to the large forested section of the property to the east of Silver Creek. However, the younger wooded stands (e.g., FODM3-1, FOMM4-3) are not likely as attractive to birds that are usually associated with bigger tracts of forest lands and more mature trees. The number of species in these stands was low and the diversity seemed less that would be expected. The canopy in these stands is fragmented in many places where the habitat is still growing in from the previous pasture and agricultural activity on the property. It is recognized that a portion of the cedar-hardwood stand (FOMM4-3) that abuts the poplar-conifer treed swamp (SWMM3-2) in the southeast corner of the subject lands contains the most diversity of birds and likely the most active territories. The warblers were abundant here and this section accounts for a good portion of the other Area Sensitive Forest bird species. It should be noted that portions of cedar-hardwood stand (FOMM4-3) and cedar stand (FOCM2-2) will be retained within the proposed buffers to wetland units SWDM3-1 and SWMM3-2) in the southeast quadrant, and within portions of the proposed 50 m wide travelway corridor.

Information obtained from the MNR, as well as other sources, indicated that no deer wintering habitat has been identified on the property. From a habitat perspective and field experience, the on-site cedar-hardwood stand and cedar stand, as well as the off-site (to the south of the Georgian Trail) Category 2 Woodland (cedar-hardwood) may provide potential deer wintering habitat.
As per the fourth reclassification criterion:

- the relationship of the woodland to other nearby natural heritage features (e.g., proximity, connectivity, corridor function)

At present the major off-site connection with the on-site wooded stands is to the south of the Georgian Trail. To the south of this major recreational corridor, lies a large mosaic of Category 2 Woodland. Existing and proposed development (housing, golf course) to the east of the property precludes that presence of any corridor or connections to other natural features. To the west (on-site) lies Silver Creek and its floodplain (comprised of a narrow band of lowland willow, grassed meadow and fallow agricultural). To the west of the property lies a residential subdivision. To the north, the property is bordered by Highway 26, with widening of this major traffic corridor proposed in the near future.

Therefore, the only present wildlife corridor(s) through and from the property would appear to the south to Category 2 Woodland habitat, as an aquatic corridor along Silver Creek through the property to the north and to the south. In this regard, 50m travelway corridor(s) are proposed through the property, to maintain the woodland and wildlife connections to Silver Creek and its floodplain, as well as the Category 2 Woodland to the south of the Georgian Trail. An opportunity exists to greatly enhance the existing Silver Creek corridor through extensive wildlife oriented plantings, and over the long-term provide replacement of some of the woodland habitats that are proposed for development.
In conclusion, it is confirmed through the analysis presented above, that certain portions of the property (e.g., treed swamp features SWDM3-1, SWMM3-2), upland cedar woods (FOC2-2) and portions of upland cedar-hardwood woods (FOMM4-3) meet the definition of a Category 1 Woodland (see Figure 8).

It is also our position and professional opinion, and supported by the analysis presented above, that portions of the Official Plan Schedule B Category 1 Woodland designation on-site is not warranted, given the age (less than 75 years) of some of the stands (e.g., FODM3-1, large portions of FOMM4-3). These stands would therefore warrant reclassification to Category 2 Woodland, as they remain contiguous with the Category 2 Woodland stands that lie south of the Georgian Trail. It is also our position, that portions of the on-site reclassified Category 2 Woodland features, along with proposed mitigation (e.g., wildlife plantings, enhancement of the Silver Creek Corridor, retention of travelway corridors through the property) can support development. It is recognized that further discussion of this issue with the Town and NVCA is warranted and encouraged, and to justify that the proposed development can be implemented and mitigated in a way that maintains and protects the revised Category 1 Woodland and maintains most of the attributes and ecological functions of the property's natural features (e.g, Category 2 and other PSW units) that will remain intact, with the overall intention of dedicating these undeveloped (retained) portions of the property to the appropriate resource management agency.

HDG conducted a search of the Natural Heritage Information Centre (NHIC) database for Area_ID occurrences of rare vegetation communities, Living Legacy Sites, Areas of Natural and Scientific Interest, and specialized habitats on or abutting the subject property. With the exception of part of the Silver Creek PSW (units SWDM2-2, SWDM4-5 and MAMM1-13) that borders the northern portion of the property, there were no documented records for any on-site or nearby rare vegetation communities, Living Legacy Sites or ANSIs (NHIC 2010).

4.5.4 Species of Conservation Concern

HDG conducted a search of the NHIC database for element occurrence or rare species on or abutting the subject property. There are two 1 km x 1km square blocks (recorded sightings) that overlap the property, element occurrence record squares 17NK52_79 and 17NK52_78. Searches in both squares revealed the presence of four (4) element occurrences for rare species on or directly adjacent to the subject property (Appendix F).

The first species element occurrence EO ID 35636, is a record for long-eared bat (*Myotis septentrionalis*), last recorded at that location on June 11, 1974. This species has an NHIC S-Rank of S3?, with an Ontario general status of "sensitive." This species of bat was not observed on-site during any of the wildlife surveys conducted in 2010.

Record EO 41555 is for a dragonfly species called varieagated meadowhawk (*Sympetrum corruptum*); this element occurrence is based on a single sighting from 1927, with an NHIC S-Rank of S3.

An EO ID record (67567) exists for butternut (*Juglans cinerea*), with an observation date of 1983 and an NHIC S-Rank of S3?. Butternut is designated and regulated as "endangered" under the Province of Ontario ***Endangered Species Act*** (Province of Ontario 2007) and the Federal ***Species At Risk Act*** (Environment Canada 2010). Due diligence vegetation surveys conducted in June, August and September 2010 did not reveal the presence of any butternut trees, saplings or seedlings on-site.

Another plant species, stiff yellow flax (*Linum medium* var. *medium*) EO ID 59926 is not listed on the provincial *Endangered Species Act*, and has been assigned an S3? S-Rank. Habitat requirements for this species include wet woods, coastal meadow marshes, bogs, marshes and damp sands, some of which exist on-site, although no specimens were found during the site vegetation inventories.

Of the 296 species of plants observed during the June, August and September site inventories, 29% are non-native, and none of the species are listed as rare in Appendix C. None of the plant species observed on-site are considered endangered, threatened or a species of special concern and none are considered rare on a regional or local basis in Simcoe County (Riley1989).

It is worth noting that in consideration of the Spotted Turtle (*Glemmys guttata*) occurrence known in proximity of the subject lands, HDG reviewed the potential of habitat for Spotted Turtle on the subject lands. The occurrence of Spotted Turtle is deemed to be of potential significance to development in the area as it is listed as Endangered in the Federal *Species at Risk Act*, and presence of the species or their habitat would be construed as a significant natural heritage feature. During field investigations, no reptile hibernacula were documented on the property. With emphasis placed on vegetation communities as well as preferred habitat environs, including open wetted areas in full sunshine, it was determined that the combination of vegetation and habitat preferences on the subject lands are not conducive to Spotted turtle presence. There is also no migration corridor or direct connectivity between the subject lands and lands where Spotted Turtle have been identified.

5. Proposed Development Concept

The proposed development concept is for a residential community with a mixed use of housing including single family and semi-detached dwellings, as well as townhouse and low rise apartment buildings, with a total of approximately 436 units. The development concept also includes a community centre, a small commercial area, open space and a trail system (See Figure 9). Once fully developed, the subject lands will result in the creation of a fully sustainable, compact, and complete community.

The Post Development Drainage Plan for the subject lands' proposal was carried out by C.F. Crozier & Associates and is described in their Functional Servicing and Stormwater Management Report, dated January 2011. Stormwater conveyance and improvements to surface drainage in the proposed developed lands would be carried out by diverting surface water to the proposed stormwater management facilities which will be designed as naturalized features.

Legend

PROPERTY BOUNDARY

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ONTARIO ASSOCIATION OF LANDSCAPE ARCHITECTS
MICHAEL J. HENSEL
OALA
MEMBER

PROJECT
Huntingwood Trails
Collingwood, Ontario

TITLE
PROPOSED DEVELOPMENT CONCEPT

Scale: 1:3500
Date: October 2010
CAD File: HDG_HTW_Fig-9
Drawn by: CM
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Fig 9

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The proposed SWM facilities will consist of naturalized control facilities with water quantity and quality control capability, consistent with industry standard stormwater management practices. Drainage volumes in and out of the Provincially Significant Wetlands will not change as a result of the development proposal so long as the post development water budget closely matches existing conditions (See Appendix G). Although conceptual design is complete, the detailed surface water management plan which will provide recharge to the Provincially Significant Wetland complex has not yet been finalized. Geotechnical and hydrogeological studies will be completed to address the hydrogeological connection of the proposed development area to the Provincially Significant Wetland Complex.

The proposed stormwater drainage and grading of the proposed development will address several fundamental issues:

1. Manage the internal stormwater by safely conveying peak flows to suitable outlet(s) and provide the necessary water quality/quantity controls.

2. Manage external drainage entering the site by providing safe conveyance through the subject lands and discharge to suitable outlet(s).

3. Ensure that drainage from all public roadways is conveyed to public facilities. Drainage from private lands can be conveyed to either public or private facilities.

4. Ensure that pre-development drainage volumes and water quality that contributes to the maintenance of Silver Creek and existing PSW features are maintained by post development stormwater management strategies.

The Town of Collingwood requires further roadway linkage between Highway 26 and areas south (See Traffic Impact Study, C.F. Crozier and Associates Inc., 2011). It is anticipated that the extension of Silver Glen Blvd. through the subject lands will provide the future arterial roadway the Town requires. To provide this road, there are intrusions into the PSW features where Silver Glen Blvd. enters the subject lands at the north east corner and routes south to the Georgian Trail. With regard to intrusions into the PSW for a public street, the following is an excerpt from the Town of Collingwood Official Plan Section 4.1 Environmental Protection , sub-section 4.1.3.1 Permitted Uses:

> *"The uses permitted within the Environmental Protection Areas shown on Schedule A, may include conservation uses, fish and wildlife management, public/private road, public/private utility, public parks, pedestrian (walking, jogging/bicycling/cross country skiing) trails, accessory parking lots or other similar passive recreational uses. Only those building and structures required for purposes of flood control or as accessory uses to public recreation shall be permitted."*

As noted in previous sections of this report, there are PSW areas noted within the subject lands. The development proposal has incorporated a minimum of 15m buffer setback from all mapped PSW boundaries except for those areas of the proposed Silver Glen Boulevard extension that will route through some PSW areas.

Also, the proposed development concept is almost entirely situated outside of the refined Category 1 Woodland area. Some transitional edges of the refined Category 1 Woodland area however will need to be removed due to conflicts with the proposed road exception footprint or grading requirements (See Figure 10). Areas of Category 2 Woodland will be removed to facilitate development and although the area of Category 2 Woodland will be reduced, wildlife trail corridors and wetland buffers containing woodland will assist in maintaining the natural heritage function that this feature provides.

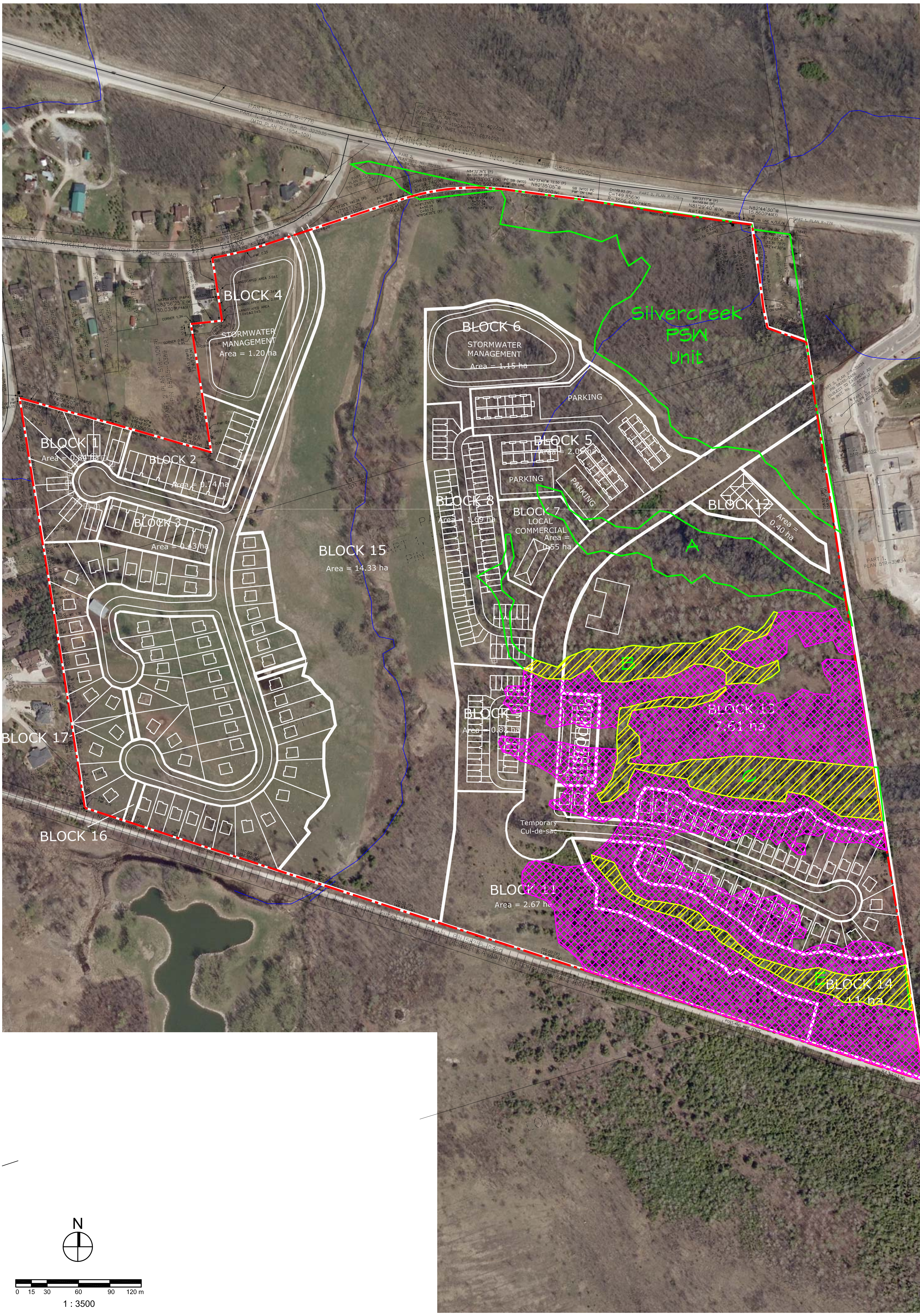
A significant component of the proposed development concept is the preparation of a Natural Heritage Management Plan and a Site Restoration Master Plan. These plans for the subject lands will provide short term and long term management of the post development natural heritage features located within the subject lands. The plans will provide direction on specific restoration requirements for identified key areas/edge of the site designed to benefit flora and fauna and increase habitat diversity. The proponent intends to also participate in local programs (See Appendix H) that can also benefit the natural heritage features found on site and the quality of life for future residents of this community.

6. Impacts Assessment

Potential impacts to the existing natural heritage systems located on the subject and adjacent lands resulting from the proposed development concept were compiled through research of literature and relevant authorities, as well as through on-site analysis.

The current plan for the proposed development is based on efforts to avoid impacts to the natural heritage features and functions of the subject and adjacent lands, achieve an economically feasible development, and accommodate engineering requirements.

A summary of anticipated impacts from development and proposed mitigation is outlined in Table 7.



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Legend

- PROPERTY BOUNDARY
- WETLAND BOUNDARY
- EXISTING WATERCOURSE
- REFINED CATEGORY 1 WOODLANDS AREA AND PSW (HDG 2011)
- REFINED CATEGORY 2 WOODLANDS AREA (HDG 2011)

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SEAL: ONTARIO ASSOCIATION OF LANDSCAPE ARCHITECTS — MICHAEL J. HENSEL — OALA — MEMBER

PROJECT
Huntingwood Trails
Collingwood, Ontario

TITLE
CONSTRAINTS TO DEVELOPMENT

Scale:	1:3500
Date:	January 2011
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Checked by:	SH
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Drawing No.
Fig 10

Table 7. Summary of Potential Impacts to Natural Heritage Features

Category	Function of Feature	Potential Impact	Recommended Mitigations
Hydro-geology	Ground Water Recharge and Discharge	Interception of the groundwater during servicing may facilitate change of the area through pipe bedding granulars, combined with reduction of contributing surface water drainage to the PSWs will impact the features and functions of the wetland(s) if not mitigated. Also, changes in the periodicity of water levels could also alter the patterns of nutrient availability by altering current fluxes in the biogeochemistry and regulation of redox processes. The impacts are dependent on the findings of the geotechnical report together with final design of the SWM system for the proposed development.	That maintenance of the water budget that supports each wetland(s) within the PSW complex be achieved by isolation of the constructed system from the natural wetland system such that no loss of contributing water volume occurs from reduction in stormwater/surface water volumes to the wetland(s). That post-development periodicity of water levels is replicated as best possible through thoughtful SWM design. That servicing corridors/piped systems are fitted with seepage collars.
Hydrology	Surface Water Drainage and Recharge	Changes in the surface water drainage from the Provincially Significant Wetlands are not expected. If there are changes in the surface water regime, the alteration of surface water flow to the PSW could result in drowning, drying out, or changes to soil moisture levels with variable effects in different areas. The stormwater would be treated to conform to MOE standards, thus impacts to the aquatic environment are not expected.	Care will be taken during final SWM design to ensure that pre and post development water budgets that support wetland(s) closely match. Contributions of treated or clean post development stormwater will be directed to wetland(s) where any reduction in surface flow to wetland(s) occurs.
Vegetation	Rare or Sensitive Species or Communities	The potential impacts resulting from human activity (trampling), vegetation removal, urban runoff, and alterations to the hydrology may affect the nutrient loading and vegetation composition within the wetland and their requisite species. Residential and community centre are proposed to be located directly adjacent to these features.	As well a minimum setback to these features (15m) is proposed however the actual setback will provide a buffer to the PSW from between 15m and greater than 50m from built structures. Careful grading drainage design in proximity of these features along with the identified buffer will safeguard any loss of PSW feature or function along with the vegetation noted from this area. A public/resident education program must be developed which raises awareness about the ecological significance of this area and promotes responsible stewardship by abutting landowners.
	Woodland	There will be a removal of small portions of the refined Category 1 Woodland within the proposed development footprint. The woodland areas within the PSW troughs will be retained. The associated Category 2 Woodland will be partially removed by development.	A vegetation masterplan will be prepared for the project which will analyze trees to be removed within the development footprint, a replanting plan to address newly created edges due to clearing and an associated management strategy to create a sustainable woodland community will be maintained that will endure and demonstrate greater species diversity and provide a broader range of habitat types for wildlife and functional linkages to off site environs.
	Wetland	Areas of PSW will be removed as a result of construction of the main municipal collector road (Silver Glen Boulevard) through the site. Potential impacts to the PSW complex include significant changes to the groundwater and surface water regimes due to development and related utility servicing. Community trails have been discussed as a potential feature within the development. Trials within and adjacent to the PSW(s) may create significant impacts without careful placement, effective design to control pedestrian and pet traffic and development of and education program for users.	With regard to the intrusion into the PSW where the municipal collector road is proposed, the “cut-offs” of these wetland pieces will not compromise the overall integrity of the wetland complex. The creation of the naturalized SWM facility features proposed with the development plan combined with restoration/naturalization efforts will assist in maintaining the overall feature and functions of the existing wetland complex. With regard to the PPS and direct impacts the PSW for a public street, the following is an excerpt from the Town of Collingwood Official Plan, 4.1 Environmental Protection , sub-section 4.1.3.1 Permitted Uses: *“The uses permitted within the Environmental Protection Areas shown on Schedule A, may include conservation uses, fish and wildlife management, public/private road,*

Category	Function of Feature	Potential Impact	Recommended Mitigations
			public/private utility, public parks, pedestrian (walking, jogging/bicycling/cross country skiing) trails, accessory parking lots or other similar passive recreational uses. Only those building and structures required for purposes of flood control or as accessory uses to public recreation shall be permitted." Analysis of the surface water regime has determined that with careful design of SWM features and attention to maintenance of the existing dynamic, impacts to the PSW(s) can be avoided. Individual water balance calculations for each PSW trough (areas) will be completed and post development stormwater volumes contributing to each area will be designed to closely match predevelopment hydrologic conditions. Any proposed pedestrian trails within the development will require on-site review and location by qualified biologists and concerned agencies before being considered further. A minimum buffer setback of 15m has been proposed from all PSW(s). This buffer varies in width throughout the site in relation to the proposed development plan. The SWM system will be designed to be hydrogeologically and hydrologically isolated from the natural systems including the PSW(s).
Aquatic	Fish habitat	Silver Creek is a significant watercourse oriented south to north through the site and discharging directly to Georgian Bay. This significant fishery may be impacted by the proposed development.	A Natural Hazards Study, C.F. Crozier and Associates Inc. (January 2011) has identified the natural hazards associated with Silver Creek from the perspective of potential flooding and erosion. Additionally, a meander belt assessment of Silver Creek across the subject lands was conducted to determine the erosion hazard limits associated with the unconfirmed system. The resulting setback/buffer from Silver Creek proper varies from approximately 30m to 90m which will provide a level of protection from the proposed adjacent uses.
Wildlife	Bird, Mammal, Herptefaunal habitat	Removal of some of the Category 2 forest cover outside of the PSW may reduce its function as habitat for area sensitive bird species; species with a low tolerance level for urban disturbance would be replaced by species more tolerant of urban settings. It should be noted that trees and vegetation between proposed development and the PSW(s) plus associated buffers/setbacks will be retained. Species tolerant of urban settings would likely occur in higher numbers than elsewhere in non-developed areas; this would lead to some nuisance problems, as well as an increased rate of predation on native birds, mammals and amphibians from an urban area's symptomatic increase in raccoons, skunks, possums, domestic dogs and cats, and feral cats. Community trails have been discussed as a potential feature within the development. Trials with and adjacent to the PSW(s) may create significant impacts without careful placement, effective design to control pedestrian and pet traffic and development of and education program for users. The most productive amphibian breeding habitat found on site will be retained within the PSW, and the majority of the woodland required for the completion of their life-cycle will remain intact. The increased vehicular traffic will likely result in an increase in wildlife road mortalities.	Develop and promote a public and resident awareness program stressing the importance of preserving the retained habitat on site and educating all who frequent the site about the species that reside there. Within the portion of the lands to be retained in a natural state as a part of this development proposal, provide enhancements which benefit sensitive species and/or species of conservation concern (add hibernacular, plantings, etc.)
Landscape Connectivity	Corridor	Existing linkages to both on and off site habitats will be lost due to implementation of the proposed development.	Travel corridors and linkage functions through the subject lands will be reduced by the proposed development however the primary corridor, Silver Creek will be retained and enhances due to ceasing of agricultural operations (cattle grazing)

Category	Function of Feature	Potential Impact	Recommended Mitigations
			within proximity of the wetted channel. Identified setbacks of 30m – 90m each side and total corridor width of approximately 80m – 125m that will receive stream bank and corridor plantings to restore needed vegetated cover will bolster the linkage function Silver Creek already provides. Although a travel corridor between Silver Creek and the woodlands located east of the proposed Silver Glen Boulevard extension can not be achieved, a primarily contiguous travel corridor linking the wooded lands south of the Georgian Trail through the development blocks (east side of Silver Glen Boulevard) north to Highway 26 and beyond to the wooded lands north of Highway 26 exists within the proposed development concept.

7. Additional Recommendations

Anticipated impacts and proposed mitigation is outlined above in Table 7 and this section presents additional recommendations that should also be considered as part of the detailed design for implementation prior to, during and post-construction to help reduce or eliminate impacts to the identified natural heritage features and functions within or adjacent to the subject lands. As well, these additional recommendations provide guidance to the final detailed design of the development plan as the project proceeds through the site plan process:

1. Development of a Natural Heritage Management Plan.

2. Preparation of a Site Restoration Master Plan.

3. Prior to the commencement of construction, temporary barrier fencing should be installed to protect natural heritage features warranting protection from construction impacts. The barrier fence functions to avoid inadvertent intrusion from operation of machinery or other activities. The fencing should be installed under the supervision of a biologist or landscape architect, and maintained to remain in place until final grading and landscaping has been completed.

4. Barrier fencing should be placed at the property line or at the drip-line of trees where trees identified for retention and/or protection are identified. Avoid inadvertent root compaction. In the event that roots or branches of trees to be protected are inadvertently damaged during construction, they should be clean cut as soon as possible. Exposed roots should then be covered with topsoil and mulched under the guidance of a biologist, arborist or landscape architect.

5. Sediment fencing should be erected on the down slope of all excavated material to prevent sediment transport, until full vegetation cover has been achieved on all disturbed areas. The fences should subsequently be monitored on a scheduled basis during construction, and checked both before and after all precipitation events to ensure stability.

6. Stormwater management for internal stormwater draining on the property should be designed to achieve an enhanced level of treatment as per the Ministry of the Environment (MOE) Stormwater Management Planning and Design Manual (March 2003).

7. Soft engineering and bioengineering techniques are recommended in favour of hard engineering and hardened structures (i.e. rip rap, concrete) to control surface erosion wherever possible.

8. Erosion and sediment controls must be established in advance of any construction related activities on the property that may affect onsite and adjacent lands;

9. A construction work plan should designate specific locations for stockpiling of soils and other materials, and a spill prevention program should be developed to ensure that vehicle refueling occurs off-site.

10. Areas that are to be cleared for development but are planned to later undergo landscape plantings should implement plans that includes native seed/planting materials wherever appropriate.

11. A naturalized landscaping regime using organic maintenance methods and locally sourced indigenous plants suited to the site's soils is strongly recommended for any necessary revegetation on all new lots, homes and the area within and surrounding the stormwater management facilities, wetland buffer interfaces and the Silver Creek corridor.

12. Future residents must be encouraged to use organic landscaping methods to reduce urban residential-based nutrient contributions to the Provincially Significant Wetland. This would assist with minimizing impacts to the plant community and reduce the chance of non-native or invasive species establishing within the PSW, forested areas within the retained buffers and the Silver Creek corridor.

13. Before construction begins, a botanist or ecologist must be retained to locate and transplant any and all specimens of plants that are considered rare in Grey County if any are encountered, in order to maintain their genetic viability and contribution potential.

14. If pedestrian trails are ultimately proposed as a part of the site plan design, the trail-related disturbances to the PSW:
    - The locations of the planned paths could be jointly located by Biologists and concerned agencies; the location of sensitive species should be identified on site so that the path of the trails can be appropriately located to reduce the impact upon them.
    - Trails considered on the east side of the subject lands should utilize a range of construction methods to locate along the wetland/upland interface rather than directly in and through PSW areas.
    - Minimal tree removal should be employed to clear a path for a trail; the trail should remain free of paint and free of the use of salt or sand during the winter.
    - Interpretive signage planned for the trail should include reminders about proper wetland and creek corridor visitor stewardship (pets on leashes, no littering, remain on trail, leave plants alone, etc).

15. On-site infiltration and volume reducing strategies must be maximized through design where feasible. Permeable pavement surfaces should be employed where appropriate to ensure a minimal amount of urban residential runoff into the PSW(s).

16. Vegetation clearing should occur outside of the breeding bird season (April 15 to July 30) to prevent nest destruction.

8. Conclusion

Based on the information known from the site and the corresponding proposed development plan prepared by DC Slade Consultants., we conclude that the proposed development is feasible from a natural heritage perspective, in so long as the recommendations and mitigations identified herein are implemented. If designed and constructed as planned, the proposed development will not impact the ecological features or functions of the natural heritage features located on and adjacent to the subject lands.

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Appendix A

Simcoe County Official Plan

- **Schedule 5.4 Natural Heritage System**
- **Schedule 5.2.2 Evaluated Wetlands**

BORDEN SAND PLAIN

BSP1 Middle Nottawasaga River
BSP2 Boyne River
BSP3 Pine River Valley
BSP4 Allandale Bluffs / Bear Creek
BSP5 Mad River Valley

CARDEN PLAIN

CP1 Atherley Narrows
CP2 Lake St.John / Mud Lake
CP3 Lake Dalrymple
CP4 Brechin / McPhee Bay
CP5 Talbot River

ELMVALE CLAY PLAIN

ECP1 Minesing Swamp
ECP2 Upper Marl Creek
ECP3 Tiny Marsh / Balm Beach
ECP4 Thunder Beach

INNISFIL TILL PLAIN

ITP1 Pottageville Swamp / Fraser Creek
ITP2 Holand Marsh
ITP3 Innisfil Creek / Cookstown Hollow
ITP4 Little Cedar Point / Degrassi Pt.
ITP5 Lover's Creek Valley
ITP6 Big Bay Point

NIAGARA ESCARPMENT

NE1 Noisy River
NE2 Devil's Glen

ORO MORAINE

OM1 Willow Creek Valley
OM2 Copeland Forest
OM3 Bass Lake
OM4 Hawkestone Creek Valley
OM5 Bluffs Creek Valley
OM6 North River Headwaters
OM7 Moonstone Hill
OM8 Northwest Lake Simcoe

OAK RIDGES MORAINE

ORM1 Upper Bailey Creek
ORM2 Beeton Creek Forest
ORM3 Bailey Creek Swamp
ORM4 Upper Nottawasaga River

ROCKLANDS

R1 Matchedash Bay
R2 Middle North River
R3 Matchedash Lake / Severn Corridor
R4 Matchedash River
R5 Black River / Head River

TINY TAY PENINSULA

TTP1 Orr lake
TTP2 Sturgeon River Valley
TTP3 Hogg Creek Valley
TTP4 Wye River Valley
TTP5 Copeland Creek
TTP6 Awenda
TTP7 Giants Tomb

WASAGA LOWLANDS

WL1 Collingwood Shores
WL2 Stayner Swamp / McIntyre Creek
WL3 Lower Nottawasaga
WL4 East Nottawasga Bay
WL5 Pretty River
WL6 Batteaux Creek

1:250,000

0 5 10
Kilometers

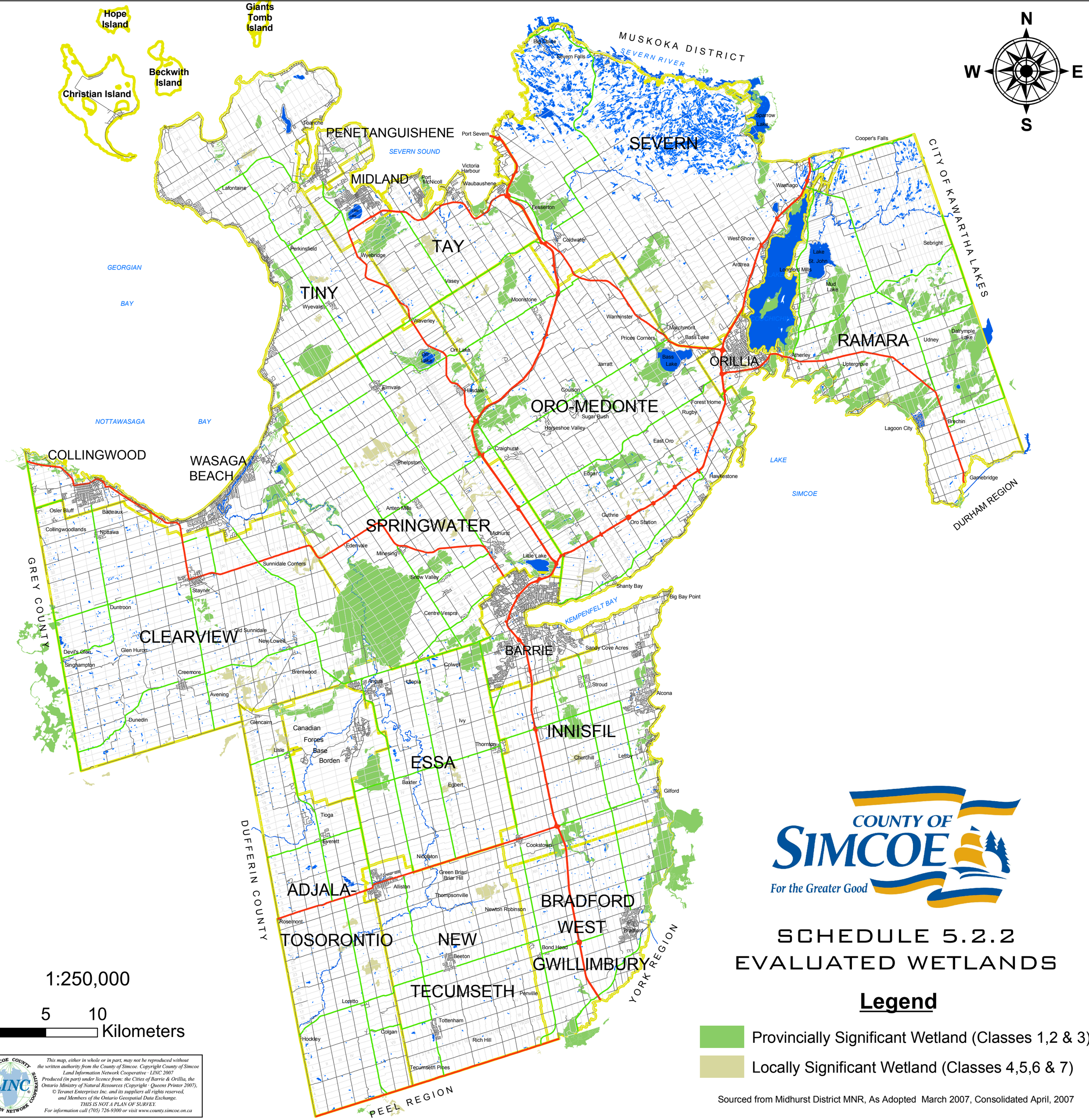
Approved by MMAH April 1, 1999 & OMB Nov 2, 1999
Consolidated April, 2007

COUNTY OF SIMCOE
For the Greater Good

SCHEDULE 5.4
NATURAL HERITAGE SYSTEM

Legend

- Linkages
- Natural Heritage Unit
- Major Rivers
- Municipal Boundaries



1:250,000

0 5 10 Kilometers

COUNTY OF SIMCOE
For the Greater Good

SCHEDULE 5.2.2
EVALUATED WETLANDS

Legend

- Provincially Significant Wetland (Classes 1,2 & 3)
- Locally Significant Wetland (Classes 4,5,6 & 7)

Sourced from Midhurst District MNR, As Adopted March 2007, Consolidated April, 2007

Appendix B

Town of Collingwood Official Plan

- **Schedule A – Environmental Protection Areas**
- **Schedule B – Environmental Protection – Natural Heritage Resource Areas**

OFFICIAL PLAN of the TOWN OF COLLINGWOOD

SCHEDULE 'A'
LAND USE PLAN

LEGEND

- RURAL
- ENVIRONMENTAL PROTECTION *
- PRETTY RIVER FLOOD FRINGE
- RECREATION
- RESIDENTIAL
- RR1 RURAL RESIDENTIAL (RR1,RR2,RR3,RR4,RR5, RR6)
- INDUSTRIAL
- INACTIVE PRIVATE LANDFILL SITES
- WELLHEAD PROTECTION AREA
- THE SHIPYARDS - SPECIAL POLICY AREA
  (Area Subject to Official Plan Amendment No. 2 - See Schedule "4" of OPA No. 2)

COMMERCIAL

- DC -DOWNTOWN CORE
- RCD REGIONAL COMMERCIAL DISTRICT
- ARC -ARTERIAL ROAD COMMERCIAL
- RSC -RESORT SHOPPING CENTRE
- HC -HIGHWAY COMMERCIAL
- GC -GENERAL COMMERCIAL
- -INDUSTRIAL PARK
- -BUSINESS PARK
- -INDUSTRIAL FRINGE
- BOUNDARY OF SECONDARY PLAN AREA
- WASTE DISPOSAL ASSESSMENT AREAS (BOUNDARY CLASSIFICATION

UNDER APPEAL - 4 HIGH ST

* NOTES: (1) THE ENVIRONMENTAL PROTECTION AREAS DESIGNATION ENCOMPASSES:
~ THOSE LANDS SITUATED BELOW DEFINED FLOOD AND FILL LINES PREPARED BY THE NOTTAWASAGA VALLEY CONSERVATION AUTHORITY, WHERE AVAILABLE.
~ CATEGORY 1 - NATURAL HERITAGE RESOURCE AREAS AS IDENTIFIED ON SCHEDULE B TO THIS OFFICIAL PLAN
~ AREAS DERIVED USING A 'TOP OF BANK' APPROACH ALONG CERTAIN WATER COURSES WHERE FLOOD AND/OR FILL LINES ARE NOT AVAILABLE
(2) ENVIRONMENTAL PROTECTION AREAS ALONG THE NOTTAWASAGA BAY SHORELINE ARE SHOWN CONCEPTUALLY.
(3) THE PRECISE LOCATION OF THE ENVIRONMENTAL PROTECTION AREAS DESIGNATION SHALL, IN ALL CASES, BE DETERMINED AS DEVELOPMENT PROCEEDS IN CONSULTATION WITH THE COUNTY OF SIMCOE (NOTTAWASAGA VALLEY CONSERVATION AUTHORITY) AND THE TOWN OF COLLINGWOOD.

Updated January 7, 2009

Office Consolidation May 1, 2007

0 500 750 1000m

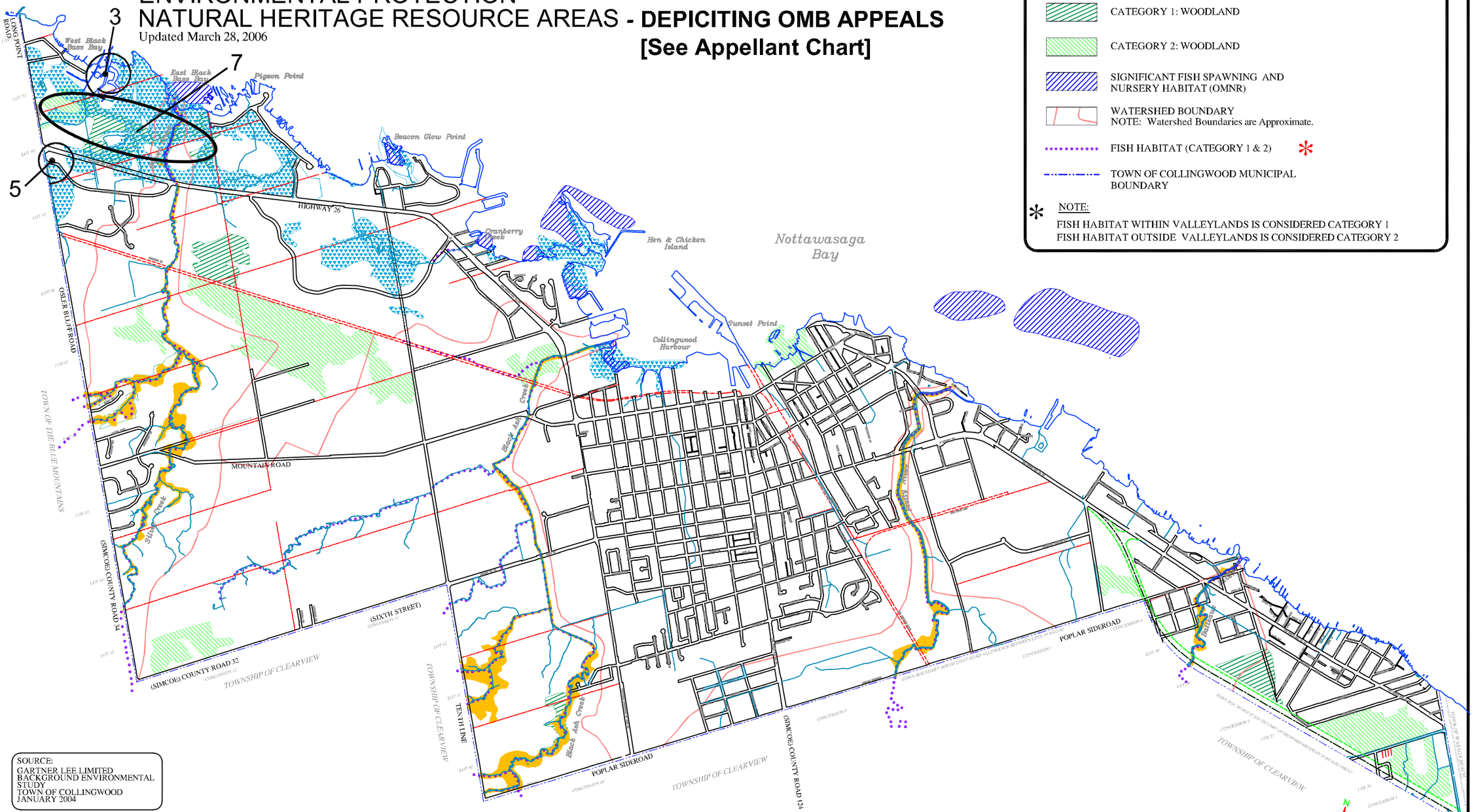
OFFICIAL PLAN of the TOWN OF COLLINGWOOD

SCHEDULE 'B'

ENVIRONMENTAL PROTECTION - NATURAL HERITAGE RESOURCE AREAS - **DEPICITING OMB APPEALS**

Updated March 28, 2006

[See Appellant Chart]



LEGEND

- CATEGORY 1: PROVINCIALLY SIGNIFICANT WETLAND- SILVER CREEK WETLAND COMPLEX
- CATEGORY 1: VALLEYLANDS
- CATEGORY 1: WOODLAND
- CATEGORY 2: WOODLAND
- SIGNIFICANT FISH SPAWNING AND NURSERY HABITAT (OMNR)
- WATERSHED BOUNDARY
  NOTE: Watershed Boundaries are Approximate.
- FISH HABITAT (CATEGORY 1 & 2) *
- TOWN OF COLLINGWOOD MUNICIPAL BOUNDARY

* NOTE:
FISH HABITAT WITHIN VALLEYLANDS IS CONSIDERED CATEGORY 1
FISH HABITAT OUTSIDE VALLEYLANDS IS CONSIDERED CATEGORY 2

SOURCE:
GARTNER LEE LIMITED
BACKGROUND ENVIRONMENTAL STUDY
TOWN OF COLLINGWOOD
JANUARY 2004

Updated September 25, 2007

Office Consolidation May 1, 2007

0 500 750 1000m

Appendix C

Plant Species Observed on the Subject Lands

Hensel Design Group INC.

Appendix C - Huntingwood Trails Property - Master List of Plant Species

Family/Species	Common Name	Status	ELC Code														
			FODM3-1	FODM7-2	FODM7-3	FODM11	FOCM2-2	FOMM4-3	WODM5-1	MEFM1-1	MEFM4	SWDM2-2	SWDM3-1	SWDM4-5	SWMM3-2	SWTM2-1	MAMM1-3	MAMM1-13
PTERIDOPHYTA	***FERNS AND ALLIES***																	
DRYOPTERIDACEAE	**WOOD FERN FAMILY**																	
Athyrium filix-femina (L.)Roth	Northeastern Lady Fern		x		x	x		x	x			x	x	x	x	x	x	x
Cystopteris bulbifera (L.) Bern.	Bulblet Fern						x	x							x			
Cystopteris tenuis (Michx.)Desv.	Mackay's Fragile Fern							x										
Dryopteris carthusiana (Vill.) H.P.Fuchs	Spinulose Wood Fern		x	x	x		x	x	x	x		x						
Dryopteris cristata (L.) Gray	Crested Wood Fern												x	x	x			
Dryopteris intermedia (Willd.)	Glandular Wood Fern		x															
Dryopteris marginalis (L.) Gray	Marginal Wood Fern			x								x						
Matteuccia struthiopteris (L.) Todaro	American Ostrich Fern				x	x			x			x			x		x	
Onoclea sensibilis L.	Sensitive Fern		x	x	x	x		x	x	x	x	x	x	x	x	x	x	x
DENNSTAEDTIACEAE	**BRACKEN FAMILY**																	
Pteridium aquilinum (L.) Kuhn	Eastern Bracken Fern		x	x	x	x	x	x	x	x	x						x	x
EQUISETACEAE	**HORSETAIL FAMILY**																	
Equisetum arvense L.	Field Horsetail		x	x	x	x	x	x	x	x	x		x			x	x	x
Equisetum fluviatile L.	Water Horsetail												x	x				
Equisetum hyemale L.	Scouring-rush		x			x					x							
Equisetum pratense L.	Meadow Horsetail											x	x	x	x	x		x
LYCOPODIACEAE	**CLUBMOSS FAMILY**																	
Lycopodium dendroideum Michx.	Round-branched Ground-pine							x										
THELYPTERIDACEAE	**BEECH FERN FAMILY**																	
Thelypteris palustris (Salisb.) Schott	Marsh Fern				x							x	x	x	x	x	x	x
GYMNOSPERMAE	***CONIFERS***																	
CUPRESSACEAE	**CYPRESS FAMILY**																	
Juniperus communis L.	Common Juniper		x		x						x							
Thuja occidentalis L.	White Cedar		x	x	x		x	x	x	x	x	x		x	x			x
Picea glauca (Moench) Voss	White Spruce								x									
LILIOPSIDA	***MONOCOTS***																	
ALISMATACEAE	**WATER-PLANTAIN FAMILY**																	
Alisma plantago-aquatica L.	Water-plantain				x								x			x	x	
ARACEAE	**ARUM FAMILY**																	
Arisaema triphyllum (L.) Schott	Jack-in-the-pulpit			x		x	x	x	x			x	x	x	x	x		
CYPERACEAE	**SEDGE FAMILY**																	
Carex sp.	Sedge		x			x	x	x	x	x	x	x	x	x	x	x	x	x
Carex arctata Boott	Drooping Wood Sedge											x	x	x	x	x		
Carex aurea Nutt.	Golden Fruited Sedge									x								
Carex bebbii (Bailey) Fern.	Bebb's Sedge			x	x	x			x	x	x	x	x	x	x	x	x	x
Carex blanda Dew.	Woodland Sedge		x					x										
Carex brunnescens (Pers.) Poir.	Brownish Sedge				x					x								
Carex communis Bailey	Fibrous Rooted Sedge		x															
Carex comosa Boott	Bristly Sedge												x	x	x			
Carex deweyana Schw.	Dewey's Sedge		x		x					x					x		x	x
Carex gracillima Schw.	Graceful Sedge		x	x			x	x	x									
Carex granularis Muhl. ex Willd	Sedge									x	x	x		x			x	x
Carex gynandra Schw.	Sedge				x							x	x		x			

Carex hystericina Muhl. ex Willd.	Porcupine Sedge												x					
Carex interior Bailey	Inland Sedge											x	x	x	x	x		
Carex intumescens Rudge	Bladder Sedge											x	x	x	x	x		
Carex lupulina Muhl. ex Willd.	Hop Sedge								x									
Carex radiata	Radiating Sedge		x	x														
Carex rosea Schk. ex Willd.	Rose-like Sedge					x	x	x	x									
Carex stipata Muhl. ex Willd.	Awl-Fruited Sedge				x	x			x	x	x	x	x	x	x	x	x	x
Carex vulpinoidea Michx.	Fox Tail Sedge				x					x		x			x			
Eleocharis erythropoda Steud.	Spike-rush				x													x
Scirpus atrovirens Willd.	Black Bulrush				x	x			x	x		x	x	x	x		x	x
Scirpus cyperinus (L.) Kunth	Wool-grass				x							x	x			x		
Scirpus validus Vahl.	Softstem Bulrush											x	x		x			
IRIDACEAE	**IRIS FAMILY**																	
Iris versicolor L.	Wild Blue Flag				x							x	x	x	x	x	x	x
Sisyrinchium montanum Greene	Little Blue-eyed Grass		x		x					x	x							x
JUNCACEAE	**RUSH FAMILY**																	
Juncus articulatus L.	Rush									x		x		x				x
Juncus bufonius L.	Toad Rush		x		x			x		x	x							
Juncus effusus L.	Rush																x	x
Juncus tenuis Willd.	Path Rush		x	x	x	x		x	x	x	x							
LEMNACEAE	**DUCKWEED FAMILY**																	
Lemna minor L.	Common Duckweed												x			x		
LILIACEAE	**LILY FAMILY**																	
Asparagus officinalis L.	Garden Asparagus	+								x								
Erythronium americanum Ker	Yellow Trout Lily		x	x			x	x	x									
Maianthemum canadense Desf.	Canada MayFlower		x	x	x		x	x	x			x	x		x			
Maianthemum racemosum (L.) Link	False Solomon's-seal		x			x		x	x	x		x		x	x			
Maianthemum stellatum (L.) Link	Starry False Solomon's-seal		x	x	x					x								
Smilax herbacea L.	Carrion-flower							x	x									
Trillium erectum L.	Purple Trillium							x										
Trillium grandiflorum (Michx.) Salisb.	White Trillium		x					x	x									
ORCHIDACEAE	**ORCHID FAMILY**																	
Cypripedium calceolus L.	Yellow Lady-slipper		x				x	x		x								
Epipactis helleborine (L.) Crantz	Helleborine	+	x	x			x	x	x						x			
POACEAE	**GRASS FAMILY**																	
Agropyron repens (L.)	Quack Grass	+			x					x	x							
Agrostis gigantea Roth.	Redtop	+			x					x	x	x					x	x
Agrostis stolonifera L.	Creeping Bent Grass				x	x						x	x			x		
Bromus inermis Leyss.	Smooth Brome Grass	+								x	x							
Bromus tectorum L.	Downy Chess	+								x								
Calamagrostis canadensis (Michx.) Beauv.	Canada Blue-joint				x							x	x	x			x	x
Cinna latifolia (Goepp.) Griseb.	Nodding Wood Grass								x									
Dactylis glomerata L.	Orchard Grass	+	x		x					x	x							
Danthonia spicata (L.) R. & S.	Poverty Oat Grass		x							x								
Digitaria sanguinalis (L.) Scop.	Large Crabgrass	+								x	x							
Festuca pratensis Huds.	Meadow Fescue	+			x					x	x							
Glyceria striata (Lam.) A.S. Hitchc.	Fowl Manna Grass				x	x							x	x	x	x	x	x
Leersia oryzoides (L.) Sw.	Cut Grass													x			x	x
Oryzopsis asperifolia Michx.	Rough-leaved Mountain-rice		x					x										
Panicum capillare L.	Witch Grass		x							x	x							
Phalaris arundinacea L.	Reed Canary Grass			x	x	x		x	x	x	x	x	x	x	x		x	x

Phleum pratense L.	Timothy	+								x	x						x	
Poa compressa L.	Canada Blue Grass		x							x	x							
Poa palustris L.	Fowl Meadow Grass								x			x			x			
Poa pratensis L.	Kentucky Blue Grass	+								x	x							
Schizachne purpurascens (Torr.) Sw.	False Melic Grass		x					x										
Setaria viridis (L.) Beauv.	Green Foxtail	+									x							
TYPHACEAE	**CATTAIL FAMILY**																	
Typha angustifolia L.	Narrow-leaved Cattail				x	x						x	x	x	x	x		x
MAGNOLIOPSIDA	***DICOTS***																	
ACERACEAE	**MAPLE FAMILY**																	
Acer negundo L.	Manitoba Maple			x	x			x	x	x								
Acer nigrum Michx.	Black Maple											x						
Acer rubrum L.	Red Maple		x	x	x	x	x	x	x	x		x	x	x	x	x	x	x
Acer saccharum Marsh.	Sugar Maple		x				x	x										
Acer freemani	Hybrid Maple												x		x	x		
AMARANTHACEAE	**AMARANTH FAMILY**																	
Amaranthus powellii S. Wats.	Green Pigweed	+									x							
ANACARDIACEAE	**CASHEW FAMILY**																	
Rhus radicans L.	Poison-ivy			x	x				x	x			x		x			
Rhus typhina L.	Staghorn Sumac		x				x	x	x	x								
APIACEAE	**CARROT FAMILY**																	
Cicuta bulbifera L.	Bulbous Water-hemlock											x				x		
Daucus carota L.	Wild Carrot, Queen Anne's Lace	+			x				x	x	x							
Sanicula gregaria Bickn.	Black Snakeroot														x			
Sium suave Walt.	Water-parsnip											x	x	x				
APOCYNACEAE	**DOGBANE FAMILY**																	
Apocynum androsaemifolium L.	Spreading Dogbane		x		x			x	x	x	x							
ARALIACEAE	**GINSENG FAMILY**																	
Aralia nudicaulis L.	Wild Sarsaparilla		x				x	x	x									
ARISTOLOCHIACEAE	**BIRTHWORT FAMILY**																	
Asarum canadense L.	Wild Ginger			x				x										
ASCLEPIADACEAE	**MILKWEED FAMILY**																	
Asclepias incarnata L.	Swamp Milkweed											x	x		x	x		
Asclepias syriaca L.	Common Milkweed		x		x					x	x							
ASTERACEAE	**ASTER FAMILY**																	
Achillea millefolium L.	Yarrow	+								x	x							
Ambrosia artemisiifolia L.	Common Ragweed									x	x							
Anaphalis margaritacea (L.) Benth.	Pearly Everlasting							x										
Arctium minus (Hill) Bernh.	Common Burdock	+	x	x	x		x	x	x	x	x						x	
Aster cordifolius L.	Heart-leaved Aster		x	x						x								
Aster lanceolatus Willd.	Tall White Aster		x															
Aster lateriflorus (L.) Britt.	One-sided Aster									x								
Aster macrophyllus L.	Large-leaved Aster		x				x	x	x									
Aster novae-angliae L.	New England Aster				x	x				x	x							
Aster puniceus L.	Red-stemmed Aster									x		x	x	x	x		x	x
Bidens frondosa L.	Devil's Beggarticks				x				x			x	x	x	x			x
Centaurea maculosa Lam.	Spotted Knapweed	+								x								
Chrysanthemum leucanthemum L.	Ox-eye Daisy	+								x	x							
Cichorium intybus L.	Chickory	+								x	x							
Cirsium arvense (L.) Scop.	Canada Thistle	+		x	x	x				x	x						x	
Cirsium vulgare (Savi) Tenore	Bull Thistle	+			x					x	x							

Conyza canadensis (L.) Cronq.	Horse-Weed		x	x	x	x	x	x	x	x								
Erigeron annuus (L.) Pers.	Daisy Fleabane		x				x	x		x	x							
Erigeron philadelphicus L.	Philadelphia Fleabane				x													
Erigeron strigosus L.	Daisy Fleabane			x														
Eupatorium maculatum L.	Spotted Joe-Pye Weed				x							x		x	x	x	x	
Eupatorium perfoliatum L.	Boneset				x									x			x	
Eupatorium rugosum Houtt.	White Snakeroot							x	x									
Euthamia graminifolia (L.) Nutt.	Narrow-leaf Goldenrod														x			x
Hieracium aurantiacum L.	Orange Hawkweed	+								x								
Inula helenium L.	Elecampane	+							x	x				x			x	x
Matricaria matricarioides (Less.) Porter	Pineapple Weed	+									x							
Prenanthes altissima L.	Tall White Lettuce		x					x										
Rudbeckia hirta L.	Black-eyed Susan									x								
Senecio pauperculus Michx.	Balsam Ragwort									x								x
Solidago altissima L.	Tall Goldenrod		x		x	x		x	x	x	x	x					x	x
Solidago canadensis L.	Canada Goldenrod		x	x	x	x	x	x	x	x	x	x					x	x
Solidago ohioensis Riddell	Ohio Goldenrod													x				
Solidago rugosa Ait.	Rough Goldenrod								x	x								
Sonchus arvensis L.	Field Sow-thistle	+	x		x	x			x	x	x							
Taraxacum officinale Weber	Dandelion	+	x	x	x	x	x	x	x	x	x							x
Tragopogon pratensis L.	Meadow Goat's-beard	+								x								
Tussilago farfara L.	Coltsfoot	+			x				x			x					x	x
BALSAMINACEAE	**TOUCH-ME-NOT-FAMILY**																	
Impatiens capensis Meerb.	Spotted Jewelweed			x	x				x			x		x	x			x
BERBERIDACEAE	**BARBERRY FAMILY**																	
Berberis vulgaris L.	Common Barberry	+						x										
BETULACEAE	**BIRCH FAMILY**																	
Betula alleghaniensis Britt.	Yellow Birch							x				x	x	x				
Betula papyrifera Marsh.	Paper Birch		x	x	x		x	x	x	x				x	x			x
Corylus cornuta Marsh.	Beaked Hazelnut		x															
Ostrya virginiana (Mill.) K. Koch	Hop Hornbeam		x															
BORAGINACEAE	**BORAGE FAMILY**																	
Cynoglossum officinale L.	Hound's-tongue	+			x				x									
Lithospermum arvense	Corn Gromwell	+						x		x								
Myosotis scorpioides L.	True Forget-me-not	+		x	x	x						x	x	x	x		x	x
BRASSICACEAE	**MUSTARD FAMILY**																	
Barbarea vulgaris R. Br.	Yellow Rocket	+		x	x	x			x			x	x	x	x	x	x	x
Cardamine diphylla (Michx.) Alph. Wood	Toothwort		x															
Erysimum cheiranthoides L.	Wormseed Mustard	+							x	x	x							
Hesperis matronalis L.	Dame's-rocket	+			x					x								
Lepidium densiflorum Schrad.	Common Pepper-grass	+									x							
Sisymbrium altissimum L.	Tumble Mustard	+			x													
Thlaspi arvense L.	Penny Cress	+									x							
CAPRIFOLIACEAE	**HONEYSUCKLE FAMILY**																	
Diervilla lonicera Mill.	Bush-honeysuckle		x				x	x					x	x	x			
Lonicera tatarica L.	Tartarian Honeysuckle	+	x			x		x	x	x								
Sambucus canadensis L.	Common Elder		x	x			x	x	x			x			x	x		
Sambucus racemosa L.	Red-berried Elder				x							x	x	x	x			
Viburnum acerifolium L.	Maple-leaved Viburnum		x		x	x			x	x		x	x	x	x			x
Viburnum opulus L.	Guelder Rose	+						x	x	x								

CARYOPHYLLACEAE	**PINK FAMILY**																	
Cerastium arvense	Field Chickweed									x	x							
Saponaria officinalis L.	Bouncing-bet	+								x								
Silene vulgaris (Moench) Garcke	Bladder Campion	+	x	x			x	x	x	x	x							
Stellaria graminea L.	Grass-leaved Stitchwort	+			x				x	x	x							
CELASTRACEAE	**STAFF-TREE FAMILY**																	
Celastrus scandens L.	Climbing Bittersweet							x				x						
CHENOPODIACEAE	**SPINACH FAMILY**																	
Chenopodium album L.	Lamb's-quarters	+								x	x							
CONVOLVULACEAE	**MORNING GLORY FAMILY**																	
Convolvulus arvensis L.	Field Bindweed	+			x					x	x							
CORNACEAE	**DOGWOOD FAMILY**																	
Cornus alternifolia L.f.	Alternate-leaved Dogwood		x	x	x	x	x	x	x	x		x	x	x	x	x	x	x
Cornus canadensis L.	Bunchberry		x					x										
Cornus rugosa Lam.	Round-leaved Dogwood		x					x										
Cornus stolonifera Michx.	Red-osier Dogwood		x	x	x	x		x	x			x	x	x	x	x	x	x
CUCURBITACEAE	**GOURD FAMILY**																	
Echinocystis lobata (Michx.) T. & G.	Wild Cucumber				x				x			x			x		x	
DIPSACACEAE	**TEASEL FAMILY**																	
Dipsacus fullonum L.	Teasel	+								x	x							
ELAEAGNACEAE	**OLEASTER FAMILY**																	
Shepherdia canadensis (L.) Nutt.	Soapberry, Buffaloberry		x					x		x								
FAGACECAE	**BEECH FAMILY**																	
Fagus grandifolia Ehrh.	American Beech		x					x										
Quercus rubra L.	Red Oak		x			x		x										
FABACEAE	**PEA FAMILY**																	
Amphicarpaea bracteata (L.) Fern.	Hog-peanut			x	x	x			x			x	x	x			x	x
Desmodium canadense (L.) DC.	Showy Tick-trefoil		x					x	x	x								
Lathyrus palustris L.	Marsh Pea																x	
Medicago lupulina L.	Black Medic	+									x							
Melilotus alba Medic.	White Sweet-clover	+	x		x				x	x								
Trifolium campestre Schreb.	Low Hop Clover	+							x	x	x							
Trifolium pratense L.	Red Clover	+		x					x	x	x							
Trifolium procumbens L.	Low Hop-Clover	+			x													
Trifolium repens L.	White Clover	+							x	x	x							
Vicia cracca L.	Bird Vetch	+		x	x	x			x	x	x	x					x	x
GERANIACEAE	**GERANIUM FAMILY**																	
Geranium robertianum L.	Herb Robert	+		x		x	x	x	x						x			
GROSSULARIACEAE	**GOOSEBERRY FAMILY**																	
Ribes americanum Mill.	Wild Black Currant								x									
Ribes cynosbati L.	Prickly Gooseberry		x			x		x										
Ribes rubrum L.	Red Currant	+					x					x		x				
HYDROPHYLLACEAE	**WATERLEAF FAMILY**																	
Hydrophyllum virginianum L.	Virginia Waterleaf							x										
HYPERICACEAE	**ST. JOHN'S-WORT FAMILY**																	
Hypericum perforatum L.	Common St. John's-wort	+	x	x	x	x	x	x	x	x	x							x
Triadenum fraseri (Spach) Gl.	Marsh St. John's-wort												x	x		x		
LAMIACEAE	**MINT FAMILY**																	
Galeopsis tetrahit L.	Hemp-nettle	+										x		x				
Leonurus cardiaca L.	Motherwort	+	x							x								
Lycopus americanus Muhl.	American Water-horehound				x							x	x		x	x	x	

Mentha arvensis L.	Field or Common Mint				x				x	x		x	x	x	x		x	x
Monarda fistulosa L.	Wild Bergamot		x							x								
Nepeta cataria L.	Catnip	+		x							x							
Prunella vulgaris L.	Heal-all	+		x	x			x	x	x	x							
Satureja vulgaris (L.) Fritsch	Wild Basil		x		x	x	x	x	x	x	x							
LYTHRACEAE	**LOOSESTRIFE FAMILY**																	
Lythrum salicaria L.	Purple Loosestrife	+			x							x	x	x			x	x
MALVACEAE	**MALLOW FAMILY**																	
Malva neglecta Wallr.	Common Mallow	+		x		x	x	x	x						x			
OLEACEAE	**OLIVE FAMILY**																	
Fraxinus americana L.	White Ash		x	x				x	x	x								
Fraxinus nigra Marsh.	Black Ash											x	x	x	x	x		
Fraxinus pennsylvanica Marsh.	Green Ash		x	x	x	x		x	x	x			x	x	x	x	x	x
ONAGRACEAE	**EVENING-PRIMROSE FAMILY**																	
Circaea lutetiana L.	Enchanter's Nightshade		x	x	x	x	x	x	x			x	x		x			
Epilobium hirsutum L.	Hairy Willowherb	+			x							x		x			x	
Epilobium parviflorum Schreb.	Small-flowered Willowherb	+															x	x
Oenothera biennis L.	Hairy Yellow Evening-primrose									x								
OXALIDACEAE	**WOOD-SORREL FAMILY**																	
Oxalis stricta L.	Common Yellow Wood-sorrel	+	x	x	x	x	x	x	x						x			
PHRYMACEAE	**LOPSEED FAMILY**																	
Phryma leptostachya L.	Lopseed							x										
PLANTAGINACEAE	**PLANTAIN FAMILY**																	
Plantago lanceolata L.	English Plantain	+						x	x	x	x							
Plantago major L.	Broad-leaved Plantain	+								x	x							
POLYGONACEAE	**BUCKWHEAT FAMILY**																	
Polygonum hydropiper L.	Marshpepper Smartweed				x							x		x	x			
Polygonum hydropiperoides Michx.	Mild Waterpepper												x					
Polygonum persicaria L.	Lady's Thumb	+							x									
Polygonum scandens L.	Climbing False Buckwheat		x															
Rumex acetosella L.	Sheep Sorrel	+								x	x							
Rumex crispus L.	Curly Dock	+							x	x	x							
Rumex obtusifolius L.	Bitter Dock	+			x	x												
Rumex orbiculatus Gray	Great Water Dock												x	x				
Rumex verticillatus L.	Water Dock															x		
PRIMULACEAE	**PRIMROSE FAMILY**																	
Lysimachia ciliata L.	Fringed Loosestrife		x	x	x	x			x			x	x	x	x		x	x
Lysimachia nummularia L.	Moneywort	+				x	x	x								x		
Trientalis borealis Raf.	Star-flower						x	x	x						x			
PYROLACEAE	**WINTERGREEN FAMILY**																	
Pyrola elliptica Nutt.	Shinleaf		x					x										
RANUNCULACEAE	**BUTTERCUP FAMILY**																	
Actaea pachypoda Ell.	White Baneberry		x					x										
Actaea rubra (Ait.) Willd.	Red Baneberry			x			x	x	x									
Anemone canadensis L.	Canada Anemone		x	x		x				x	x							
Anemone virginiana L.	Thimbleweed		x		x				x									
Caltha palustris L.	Marsh-marigold												x	x				
Clematis virginiana L.	Virgin's-bower		x							x			x		x		x	
Ranunculus acris L.	Tall Buttercup	+	x	x	x	x		x	x						x		x	x
Ranunculus fasicularis Muhl. ex Big.	Early Buttercup									x	x							
Ranunculus hispidus Michx.	Swamp Buttercup												x					

Ranunculus repens L.	Creeping Buttercup	+	x	x	x	x	x	x		x		x		x	x	x	x	x
Thalictrum dioicum L.	Early Meadow Rue		x		x	x	x	x	x	x		x	x	x	x	x	x	x
Thalictrum pubescens Pursh	Tall Meadow Rue		x	x	x	x	x	x	x	x		x	x	x	x	x	x	x
RHAMNACEAE	**BUCKTHORN FAMILY**																	
Rhamnus cathartica L.	Common Buckthorn	+	x	x	x	x	x	x	x						x			
ROSACEAE	**ROSE FAMILY**																	
Agrimonia gryposepala Wallr.	Agrimony				x					x								
Crataegus sp.	Hawthorn sp.				x	x			x									
Fragaria vesca L.	Woodland Strawberry														x			
Fragaria virginiana Dcne.	Common Strawberry					x				x	x							
Geum aleppicum Jacq.	Yellow Avens		x	x		x	x	x										
Geum canadense Jacq.	White Avens			x	x			x										
Malus pumila Miller	Apple								x	x								
Potentilla recta L.	Rough-fruited Cinquefoil	+								x								
Prunus serotina Ehrh.	Black Cherry		x					x										
Prunus virginiana L.	Choke Cherry		x				x	x	x	x								
Rosa multiflora Thumb.	Multiflora Rose	+	x						x	x								
Rubus allegheniensis Porter	Common Blackberry								x			x		x				
Rubus flagellaris L.	Northern Dewberry													x				
Rubus idaeus L.	Wild Red Raspberry		x	x	x	x		x	x	x								
Rubus occidentalis L.	Black Raspberry		x		x													
Rubus pubescens Raf.	Dwarf Raspberry		x										x		x	x		
Sorbus americana Marsh.	American Mountain-ash							x										
Spiraea alba DuRoi	Meadowsweet				x				x	x		x		x	x	x	x	x
RUBIACEAE	**MADDER FAMILY**																	
Galium aparine L.	Cleavers				x							x	x	x	x			
Galium palustre L.	Marsh Bedstraw												x	x	x	x		x
Galium triflorum Michx.	Sweet-scented Bedstraw			x	x	x			x			x		x			x	x
Mitchella repens L.	Partridge berry							x										
SALICACEAE	**WILLOW FAMILY**																	
Populus balsamifera L.	Balsam Poplar		x		x	x		x	x	x		x	x	x	x			
Populus deltoides Marsh	Cottonwood													x	x			
Populus grandidentata Michx.	Large-toothed Aspen		x					x	x	x					x	x		x
Populus tremuloides Michx.	Trembling Aspen		x	x	x	x	x	x	x	x		x	x	x	x		x	x
Salix alba L.	White Willow	+			x				x			x		x		x	x	x
Salix discolor Muhl.	Pussy Willow					x							x	x	x	x		
Salix eriocephala Michx.	Heart-leaved Willow														x			
Salix fragilis L.	Crack Willow	+			x							x					x	
Salix sp.	Willow				x								x					
Salix x rubens Schrank.	Hybrid Crack Willow	+			x							x					x	
SAXIFRAGACEAE	**SAXIFRAGE FAMILY**																	
Tiarella cordifolia L.	Foam Flower												x		x	x		
SCROPHULARIACEAE	**FIGWORT FAMILY**																	
Chelone glabra L.	Turtlehead							x					x	x	x			
Linaria vulgaris Mill.	Butter-and-eggs	+								x	x							
Pedicularis canadensis L.	Wood-betony							x										
Verbascum thapsus L.	Common Mullein	+								x	x							
Veronica officinalis L.	Common Speedwell	+					x	x										
Veronica serpyllifolia L.	Thyme-leaved Speedwell	+	x	x														
SOLANACEAE	**NIGHTSHADE FAMILY**																	
Solanum dulcamara L.	Bittersweet Nightshade	+	x	x	x	x	x	x	x	x	x	x	x	x	x	x		x

TILIACEAE	**LINDEN FAMILY**																	
Tilia americana L.	Basswood		x		x	x		x							x			
ULMACEAE	**ELM FAMILY**																	
Ulmus americana L.	American Elm		x	x	x	x	x	x	x	x		x	x	x	x	x	x	x
Ulmus pumila L.	Siberian Elm	+									x							
URTICACEAE	**NETTLE FAMILY**																	
Laportea canadensis (L.) Wedd.	Wood Nettle				x							x						
Pilea pumila (L.) Gray	Clearweed				x													
Urtica dioica L. subsp. gracilis (Ait.)	American Stinging Nettle				x				x	x							x	
VERBENACEAE	**VERVAIN FAMILY**																	
Verbena hastata L.	Blue Vervain				x												x	x
VIOLACEAE	**VIOLET FAMILY**																	
Viola canadensis L.	Canada Violet									x								
Viola cucullata Ait.	Marsh Violet				x							x	x	x	x		x	x
Viola pubescens Ait.	Downy Yellow Violet		x					x										
Viola sororia Willd.	Common Blue Violet				x				x	x								
VITACEAE	**GRAPE FAMILY**																	
Parthenocissus inserta (A. Kerner) Fritsch	Virginia Creeper		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Vitis riparia Michx.	Riverbank Grape		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x

+ - Non-native species

Appendix D

Photographs of ELC Vegetation Units

Photograph 25. View inside moist-wet portion of red maple-green ash treed swamp (SWDM3-1), with groundcover of marsh fern, sensitive fern, interior sedge, crested fern, meadowrue, ostrich fern, bedstraw and fringed loosestrife

Photograph 26. View of stand of poplar deciduous swamp (SWDM4-5), part of Silver Creek Wetland Complex, dominated by trembling aspen, balsam poplar, white birch, green ash, white elm, dogwoods and meadowsweet

Photograph 27. Poplar treed swamp (SWDM4-5) dominated by trembling aspen, balsam poplar, white birch, green ash, black ash, dogwoods and white elm, with groundflora of grasses, sedges and ferns

Photograph 28. Narrow low-lying trough of poplar-conifer mixed swamp (SWMM3-2), dominated by trembling aspen, large-tooth aspen and eastern white cedar, with groundflora of fringed loosestrife, sensitive fern, blue flag, Jack-in-the-pulpit, water horehound, mosses, wild mint and dwarf raspberry

Photograph 1. View of upland poplar deciduous woods (FODM3-1) on ridge, dominated by trembling aspen, largetooth aspen and white birch, with woody associates of white ash, basswood, red oak and scattered sugar maple

Photograph 2. View inside a portion of upland poplar deciduous woods (FODM3-1), showing early successional growth of trembling aspen and white birch, with weedy/grass groundcover

Photograph 3. Inside view of upland early successional poplar woods (FODM3-1), showing sand and sandy loam soils that support eastern bracken fern, common buttercup, wild basil, field horsetail and poison ivy

Photograph 4. General view inside portion of lowland green ash-white elm woods (FODM7-2), with dogwood and buckthorn shrub stratum, and weedy groundcover, extensively grazed in past by cattle

Photograph 5. View of eastern edge of lowland green ash-white woods that borders east side of Silver Creek, groundcover dominated by enchanters nightshade, herb-robert, common buttercup, dandelion and yellow avens

Photograph 6. Copse of lowland willow woods (FODM7-3) that borders both sides of Silver Creek and extends into floodplain, contains crack willow, hybrid willow, green ash, white elm and Manitoba maple, with grass/fern groundcover

Photograph 7. View upgradient along edge of Silver Creek, that is bordered by copse of lowland willow woods (FODM7-2), with ostrich fern, reed canary grass, Canada anemone, coltsfoot, nettle and common burdock in groundcover

Photograph 8. View of naturalized deciduous hedge-row (FODM11), situated along southern property fenceline, dominated by green ash, white elm, trembling aspen, red-osier dogwood with grass/herbaceous forb groundflora

Photograph 9. View insides portion of upland white cedar coniferous woods (FOCM2-2), dominated by eastern white cedar, with scattered associates such as trembling aspen and white birch, groundcover of herb-robert, spinulose wood-fern, poison ivy, common strawberry, bulblet fern and helleborine

Photograph 10. Typical composition and distribution of eastern white cedar within upland conifer woods (FOCM2-2), along with scattered poplars, white birch and white ash, with moss and weedy groundflora

Photograph 11. Upland white cedar-hardwood mixed woods (FOMM4-3), dominated by eastern white cedar, along with associates of trembling aspen, white birch, balsam poplar, white elm and white ash

Photograph 12. Western edge of large block of upland white cedar-hardwood mixed woods (FOMM4-3), showing natural regeneration of eastern white cedar, green ash and trembling aspen

Photograph 13. View inside portion of lowland poplar-green ash woodland (WODM5-1), with associates of white elm, balsam poplar, willows and white ash, with a lust groundcover of grasses, weeds and native forbs, affected in past by extensive cattle grazing

Photograph 14. Copse of lowland poplar-green ash woodland (WODM5-1), grazed in past by cattle as evidenced by lack of understory and shrub stratums, with a groundcover of grasses, weeds and herbaceous forbs

Photograph 15. Westward view of a portion of goldenrod forb meadow (MEFM1-1), dominated by tall goldenrod, Canada goldenrod, wild carrot, red clover, New England aster, hairy agrimony, timothy, orchard grass, meadow fescue, common buttercup, spreading dogbane and eastern bracken fern

Photograph 16. View of block of goldenrod forb meadow (MEFM1-1) at southern end of property, with groundcover comprised of grasses, forbs and weeds, with encroachment of eastern white cedar, buckthorn and dogwoods

Photograph 17. View of an opening (MEFM1-1) within upland ridge of poplar-birch woods (FODM3-1), sandy soils support eastern bracken fern, poison ivy, showy tick-trefoil, common buttercup, wild carrot and common strawberry

Photograph 18. View of large block of open graminoid meadow (MEFM4), on west side of Silver Creek, remnant agricultural pastureland, with groundcover dominated by timothy, blue grass, meadow fescue and orchard grass, along with Canada thistle, field horsetail, common buttercup, goldenrods and asters

Photograph 19. View of large block of open graminoid meadow (MEFM4), on east side of Silver Creek, dominated by timothy, orchard grass, meadow fescue, common buttercup, wild carrot, goldenrods, asters, thistles and field horsetail

Photograph 20. Inside view of green ash deciduous swamp (SWDM2-2), part of Silver Creek Wetland Complex, dominated by green ash and white elm, along with willows, trembling aspen, dogwoods, and groundcover of Virginia creeper, sedges, grasses and ferns

Photograph 21. Down-gradient view of intermittent drainage swale (non-fish bearing), with portion of green ash-white elm deciduous swamp stand (SWDM2-2), part of Silver Creek Wetland Complex

Photograph 22. Inside view of red maple-green ash deciduous swamp (SWDM3-1), lies within lowland trough between shallow upland ridges, contains standing water during most of growing season, with drier sections dominated by sensitive fern, marsh fern, sedges, water parsnip, ostrich fern and bedstraws

Photograph 23. View inside another unit of red maple-green ash deciduous swamp (SWDM3-1), situated in low-lying east-west trough, showing standing stagnant water, with wet-saturated muck edge soils vegetated with ferns, sedges and aquatic forbs

Photograph 24. View of standing stagnant water within low-lying trough of red maple-green ash treed swamp (SWDM3-1), with associates of black ash, yellow birch, balsam poplar, white elm, dogwoods and scattered eastern white cedar

Photograph 29. View inside portion of poplar-conifer mixed swamp (SWMM3-2), comprised of trembling aspen, large-toothed aspen and eastern white cedar, with shrub stratum of dogwoods and white elm and a groundcover of sedges, ferns and aquatic forbs

Photograph 30. View of a small pocket of red-oiser dogwood deciduous thicket swamp (SWTM2-1), along with alternate-leaved dogwood, riverbank grape and willows and standing stagnant water, an inclusion with trough of red maple-green ash treed swamp (SWDM3-1)

Photograph 31. Narrow bands of reed-canary grass graminoid meadow marsh (MAMM1-3), along edges of Silver Creek, also contains ostrich fern, Canada anemone, coltsfoot, Canada bluejoint grass, spotted Joe pye-weed and vetch

Photograph 32. View of a pocket of rush graminoid meadow marsh (MAMM1-13), dominated by jointed rush, along with awl-fruited sedge, meadow sedge, riverbank grape, green ash seedlings, reed-canary grass and bedstraws

Appendix E

Breeding Birds Observed on the Subject Lands

Species List for Huntingwood Property

		Observation session					Area Sensitive Species		
		04-May	16-May	04-Jun	18-Jun	22-Jun			
COMMON NAME	SCIENTIFIC NAME	morning	evening	morning	morning	morning	Forest	Marsh	Open
							28	1	8
PELICAN, AMERICAN WHITE	*Pelecanus erythrorhynchos*			*X					
HERON, GREAT BLUE	*Ardea herodias*	*2			*1				
EGRET, GREAT	*Casmerodius albus*	*5			*1				
GOOSE, CANADA	*Branta canadensis*	2	1	X					
DUCK, WOOD	*Aix sponsa*	3			2	2	a		
MALLARD	*Anas platyrhynchos*			X					
VULTURE, TURKEY	*Cathartes aura*	*1			*1		a		
HAWK, RED-TAILED	*Buteo jamaicensis*				*1	*1			
GROUSE, RUFFED	*Bonasa umbellus*	1	1						
TURKEY, WILD	*Meleagris gallopavo*	2			1				
KILLDEER	*Charadrius vociferus*	1	1		1	1			
SNIPE, COMMON	*Gallinago gallinago*		1					a	
WOODCOCK, AMERICAN	*Scolopax minor*	1	1	X		1	a		
GULL, RING-BILLED	*Larus delawarensis*	*4		*X	*2	*1			
TERN, CASPIAN	*Sterna caspia*			*X					
DOVE, MOURNING	*Zenaida macroura*	6		X	5	3			
OWL, EASTERN SCREECH	*Otus asio*		1						
HUMMINGBIRD, RUBY-THROATED	*Archilochus colubris*	1			1	2	a		
KINGFISHER, BELTED	*Ceryle alcyon*	1							
SAPSUCKER, YELLOW-BELLIED	*Sphyrapicus varius*	2			1	1	a		
WOODPECKER, DOWNY	*Picoides pubescens*	4			2	1			
WOODPECKER, HAIRY	*Picoides villosus*	1			1	1			
FLICKER, NORTHERN	*Colaptes auratus*	2		X	1	1			
WOODPECKER, PILEATED	*Dryocopus pileatus*	1			1	1	a		
PEEWEE, EASTERN WOOD	*Contopus virens*	4	1	X	2	2			
FLYCATCHER, ALDER	*Empidonax alnorum*	1			1		a		
FLYCATCHER, LEAST	*Empidonax minimus*	2			2		a		
PHOEBE, EASTERN	*Sayornis phoebe*	1			1	2	a		
FLYCATCHER, GREAT CRESTED	*Myiarchus crinitus*	2			2	1			
KINGBIRD, EASTERN	*Tyrannus tyrannus*	5			3	4			a
SWALLOW, TREE	*Tachycineta bicolor*	6			3	2			
SWALLOW, BARN	*Hirundo rustica*	8			4	3			a
JAY, BLUE	*Cyanocitta cristata*	3		X	3	3			
CROW, AMERICAN	*Corvus brachyrhynchos*	2		X	2	2			
RAVEN, COMMON	*Corvus corax*	1				1			
CHICKADEE, BLACK-CAPPED	*Parus atricapillus*	4		X	6	4	a		
NUTHATCH, RED-BREASTED	*Sitta canadensis*	1					a		
NUTHATCH, WHITE-BREASTED	*Sitta carolinensis*	1			3	1			
CREEPER, BROWN	*Certhia americana*	1				1	a		
WREN, HOUSE	*Troglodytes aedon*	3	1	X	3	2			
WREN, WINTER	*Troglodytes troglodytes*	1	1				a		
VEERY	*Catharus fuscescens*	3			2	1	a		
THRUSH, WOOD	*Hylocichla mustelina*	2	1		2	2	a		
ROBIN, AMERICAN	*Turdus migratorius*	6	2	X	6	5			
CATBIRD, GRAY	*Dumetella carolinensis*	2	1	X	2	1	a		
THRASHER, BROWN	*Toxostoma rufum*	2	1		3	1			a
WAXWING, CEDAR	*Bombycilla cedrorum*				7	8			
STARLING	*Sturnus vulgaris*	4			4	2			
VIREO, WARBLING	*Vireo gilvus*	1			2	2			
VIREO, RED-EYED	*Vireo olivaceus*	4		X	3	4			
WARBLER, NASHVILLE	*Vermivora ruficapilla*	1			1	1	a		
WARBLER, NORTHERN PARULA	*Parula americana*	** 1							
WARBLER, YELLOW	*Dendroica petechia*	2			2	2			
WARBLER, CHESTNUT-SIDED	*Dendroica pensylvanica*	1			2	1	a		
WARBLER, MAGNOLIA	*Dendroica magnolia*	1			1	1	a		
WARBLER, BLACK-THROATED BLUE	*Dendroica caerulescens*					1	a		
WARBLER, YELLOW-RUMPED	*Dendroica coronata*	** 1					a		
WARBLER, BLACK-THROATED GREEN	*Dendroica virens*				1		a		
WARBLER, BLACK-AND-WHITE	*Mniotilta varia*	2			2	2	a		
REDSTART, AMERICAN	*Setophaga ruticilla*	3			5	3	a		
OVENBIRD	*Seiurus aurocapillus*	2	1		2	2	a		
YELLOWTHROAT, COMMON	*Geothlypis trichas*	3		X	3	2			
TANAGER, SCARLET	*Piranga olivacea*	2			2	2	a		
CARDINAL, NORTHERN	*Cardinalis cardinalis*	2		X	2	2			
GROSBEAK, ROSE-BREASTED	*Pheucticus ludovicianus*	3			3	3			
BUNTING, INDIGO	*Passerina cyanea*	2			3	2			
SPARROW, CHIPPING	*Spizella passerina*	3			4	2			
SPARROW, FIELD	*Spizella puscilla*	1				1			a
SPARROW, VESPER	*Pooecetes gramineus*	1			1	1			a
SPARROW, SAVANNAH	*Passerculus sandwichensis*	2			3	3			a
SPARROW, SONG	*Melospiza melodia*	5		X	5	4			
SPARROW, WHITE-THROATED	*Zonotrichia albicollis*	1			1	1	a		
BLACKBIRD, RED-WINGED	*Agelaius phoeniceus*	2		X	6	3			
MEADOWLARK, EASTERN	*Sturnella magna*	2				1			a
GRACKLE, COMMON	*Quiscalus quiscula*	6		X	2	3			
COWBIRD, BROWN-HEADED	*Molothrus ater*	3			3	1			
ORIOLE, BALTIMORE	*Icterus galbula*	2		X	2	1			
FINCH, PURPLE	*Carpodacus purpureus*	1			1	1	a		
GOLDFINCH, AMERICAN	*Carduelis tristis*	3			5	3			a

* indicates a non-breeder
** indicates a migrator
X indicates observed only

Number of Species:	79
Federal SAR (COSEWIC):	0
Provicial SAR (COSARRO):	0
NHIC S-rank species:	0
Regionally rare species:	0
Area Sensitive Species:	37

Appendix F

Natural Heritage Information Centre Records for Subject Lands

Hensel Design Group INC.

Ontario

Natural Heritage Information Centre

Biodiversity Explorer

Species
Element Occurrence Search (4 records found)

Sort Order Phylogenetic Ascending help

				Rank		At Risk Status			
Taxon	**Family**	**Scientific Name**	**Common Name**	**Global (G-rank)**	**Ontario (S-rank)**	**Committee on the Status of Endangered Wildlife in Canada (COSEWIC)**	**Species At Risk in Ontario (SARO)**	**# of EOs**	**EO Summary Report**
Mammals	Vespertilionidae	*Myotis septentrionalis*	Northern Long-eared Bat	G4	S3?			1	
Dragonflies and Damselfl	Libellulidae	*Sympetrum corruptum*	Variegated Meadowhawk	G5	S3			1	
Dicotyledons	Juglandaceae	*Juglans cinerea*	Butternut	G4	S3?	END	END	1	
Dicotyledons	Linaceae	*Linum medium var. me*	Stiff Yellow Flax	G5T3T4	S3?			1	

Page 1 of 1

Export by Spatial Boundary | Export by Element | Export All EOs

Search Criteria

Website content last updated from NHIC database on null
Generated on 2011-01-17
Natural Heritage Information Centre. 2011. Element Summary Report for Ontario Ministry of Natural Resources, Peterborough, Ontario. Available http://www.biodiversityexplorer.mnr.gov.on.ca/nhicWEB/nhicIndex.jsp

Ontario

Natural Heritage Information Centre

Biodiversity Explorer

Species Element Occurrence Report

help

Scientific name:	Myotis septentrionalis		
Common name:	Northern Long-eared Bat		
Family:	Vespertilionidae		
Global (G-rank):	G4	Committee on the Status of Endangered Wildlife in Canada (COSEWIC):	
Ontario (S-rank):	S3?	Species At Risk in Ontario (SARO):	
Canada General Status:	Sensitive	Ontario General Status:	Sensitive

1 Element Occurrence Retrieved

EO ID	UTM Zone	Easting(nearest km)	Northing(nearest km)	EO Rank	Last Observed Date
35636	17	*565000*	4924000	H	1974-06-11

Export EOs

Search Criteria

Website content last updated from NHIC database on null
Generated on 2011-01-17
Natural Heritage Information Centre. 2011. Element Summary Report for Ontario Ministry of Natural Resources, Peterborough, Ontario. Available http://www.biodiversityexplorer.mnr.gov.on.ca/nhicWEB/nhicIndex.jsp

Ontario

Natural Heritage Information Centre

Biodiversity Explorer

Species Element Occurrence Report

help

Scientific name:	Sympetrum corruptum		
Common name:	Variegated Meadowhawk		
Family:	Libellulidae		
Global (G-rank):	G5	**Committee on the Status of Endangered Wildlife in Canada (COSEWIC)**:	
Ontario (S-rank):	S3	**Species At Risk in Ontario (SARO)**:	
Canada General Status:		**Ontario General Status**:	

1 Element Occurrence Retrieved

EO ID	UTM Zone	Easting(nearest km)	Northing(nearest km)	EO Rank	Last Observed Date
41555	17	*547000*	4932000	H	1927-09-11

Export EOs

Search Criteria

Website content last updated from NHIC database on null
Generated on 2011-01-17
Natural Heritage Information Centre. 2011. Element Summary Report for Ontario Ministry of Natural Resources, Peterborough, Ontario. Available http://www.biodiversityexplorer.mnr.gov.on.ca/nhicWEB/nhicIndex.jsp

Ontario

Natural Heritage Information Centre

Biodiversity Explorer

Species Element Occurrence Report

help

Scientific name:	Juglans cinerea		
Common name:	Butternut		
Family:	Juglandaceae		
Global (G-rank):	G4	Committee on the Status of Endangered Wildlife in Canada (COSEWIC):	END
Ontario (S-rank):	S3?	Species At Risk in Ontario (SARO):	END
Canada General Status:		Ontario General Status:	

1 Element Occurrence Retrieved

EO ID	UTM Zone	Easting(nearest km)	Northing(nearest km)	EO Rank	Last Observed Date
67567	17	*555000*	4920000	H	1983

Export EOs

Search Criteria

Website content last updated from NHIC database on null
Generated on 2011-01-17
Natural Heritage Information Centre. 2011. Element Summary Report for Ontario Ministry of Natural Resources, Peterborough, Ontario. Available http://www.biodiversityexplorer.mnr.gov.on.ca/nhicWEB/nhicIndex.jsp

Ontario

Natural Heritage Information Centre

Biodiversity Explorer

Species Element Occurrence Report

help

Scientific name:	Linum medium var. medium		
Common name:	Stiff Yellow Flax		
Family:	Linaceae		
Global (G-rank):	G5T3T4	**Committee on the Status of Endangered Wildlife in Canada (COSEWIC)**:	
Ontario (S-rank):	S3?	**Species At Risk in Ontario (SARO)**:	
Canada General Status:		**Ontario General Status**:	

1 Element Occurrence Retrieved

EO ID	UTM Zone	Easting(nearest km)	Northing(nearest km)	EO Rank	Last Observed Date
59926	17	*560000*	4927000	E	n/a

Export EOs

Search Criteria

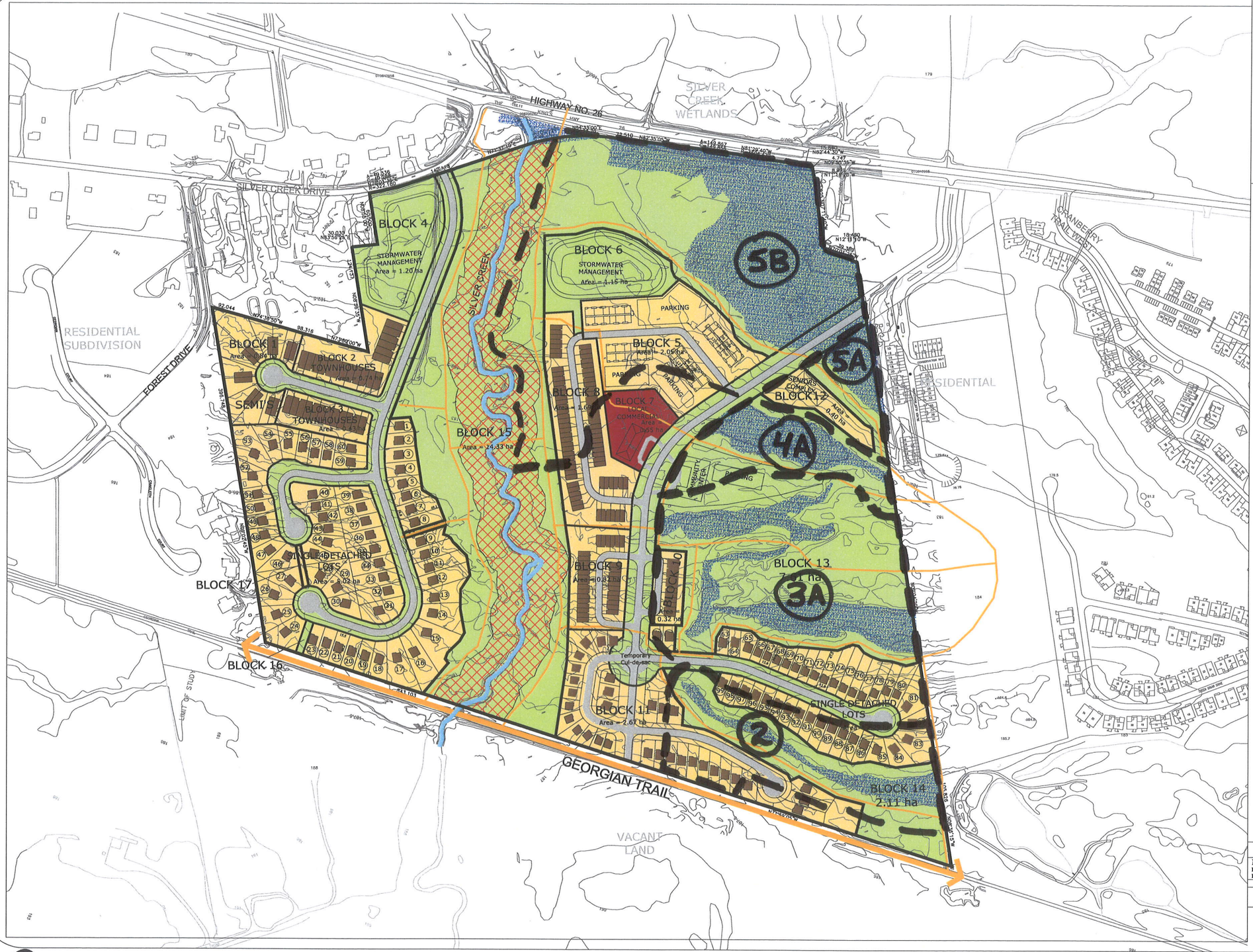
Website content last updated from NHIC database on null
Generated on 2011-01-17
Natural Heritage Information Centre. 2011. Element Summary Report for Ontario Ministry of Natural Resources, Peterborough, Ontario. Available http://www.biodiversityexplorer.mnr.gov.on.ca/nhicWEB/nhicIndex.jsp

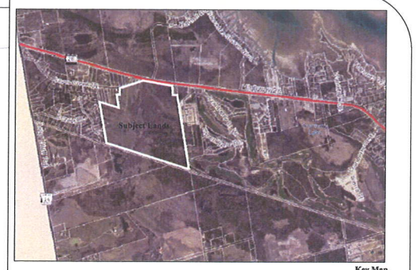
Appendix G

Appendix A, Hydrologic Parameters/PSW Area Water Budgets

Hensel Design Group INC.

PRE-DEVELOPMENT





Key Map

CONCEPT PLAN

LAND USE	UNITS	AREA
RESIDENTIAL SINGLE DETACHED LOTS	1 to 99	7.36 ha
BLOCK 1 - RESIDENTIAL SEMI'S (12 SEMI-DETACHED UNITS)	12	0.84 ha
BLOCK 2 - RESIDENTIAL TOWNHOUSES (18 TOWNHOUSE UNITS)	18	0.74 ha
BLOCK 3 - RESIDENTIAL TOWNHOUSES (12 TOWNHOUSE UNITS)	12	0.43 ha
BLOCK 4 - STORMWATER MANAGMENT (DEDICATED TO MUNICIPALITY)		1.20 ha
BLOCK 5 - RESIDENTIAL HIGH DENSITY (5 - 36 UNIT WALK UP APARTMENT BUILDINGS	144	2.05 ha
BLOCK 6 - STORMWATER MANAGMENT (TO BE DEDICATED TO MUNICIPALITY)		1.15 ha
BLOCK 7 - LOCAL COMMERCIAL		0.55 ha
BLOCK 8 - RESIDENTIAL TOWNHOUSES (75 TOWNHOUSE UNITS)	75	1.69 ha
BLOCK 9 - RESIDENTIAL TOWNHOUSES (33 TOWNHOUSE UNITS)	32	0.82 ha
BLOCK 10 - RESIDENTIAL TOWNHOUSES (12 TOWNHOUSE UNITS)	12	0.32 ha
BLOCK 11 - RESIDENTIAL SINGLE DETACHED (32 FREEHOLD SINGLE DETACHED LOTS)	32	2.67 ha
BLOCK 12 - SENIORS COMPLEX		0.40 ha
BLOCK 13 - COMMUNITY CENTER + OPEN SPACE + ENVIRONMENTAL PROTECTION (DEDICATED TO TOWN)		7.61 ha
BLOCK 14 - OPEN SPACE + ENVIRONMENTAL PROTECTION (DEDICATED TO TOWN)		2.11 ha
BLOCK 15 - OPEN SPACE + ENVIRONMENTAL PROTECTION (DEDICATED TO TOWN)		14.33 ha
BLOCK 16+17 - WALKWAY (DEDICATED TO TOWN)		0.07 ha
ROADS		4.63 ha
TOTAL	436	48.97 ha

PROTECTED WETLANDS

30 METER SETBACK FROM SILVER CREEK

PUBLIC TRAIL

SCALE 1:2000

METRIC
DISTANCES SHOWN ON THIS PLAN ARE IN METRES AND CAN BE CONVERTED TO FEET BY DIVIDING BY 0.3048

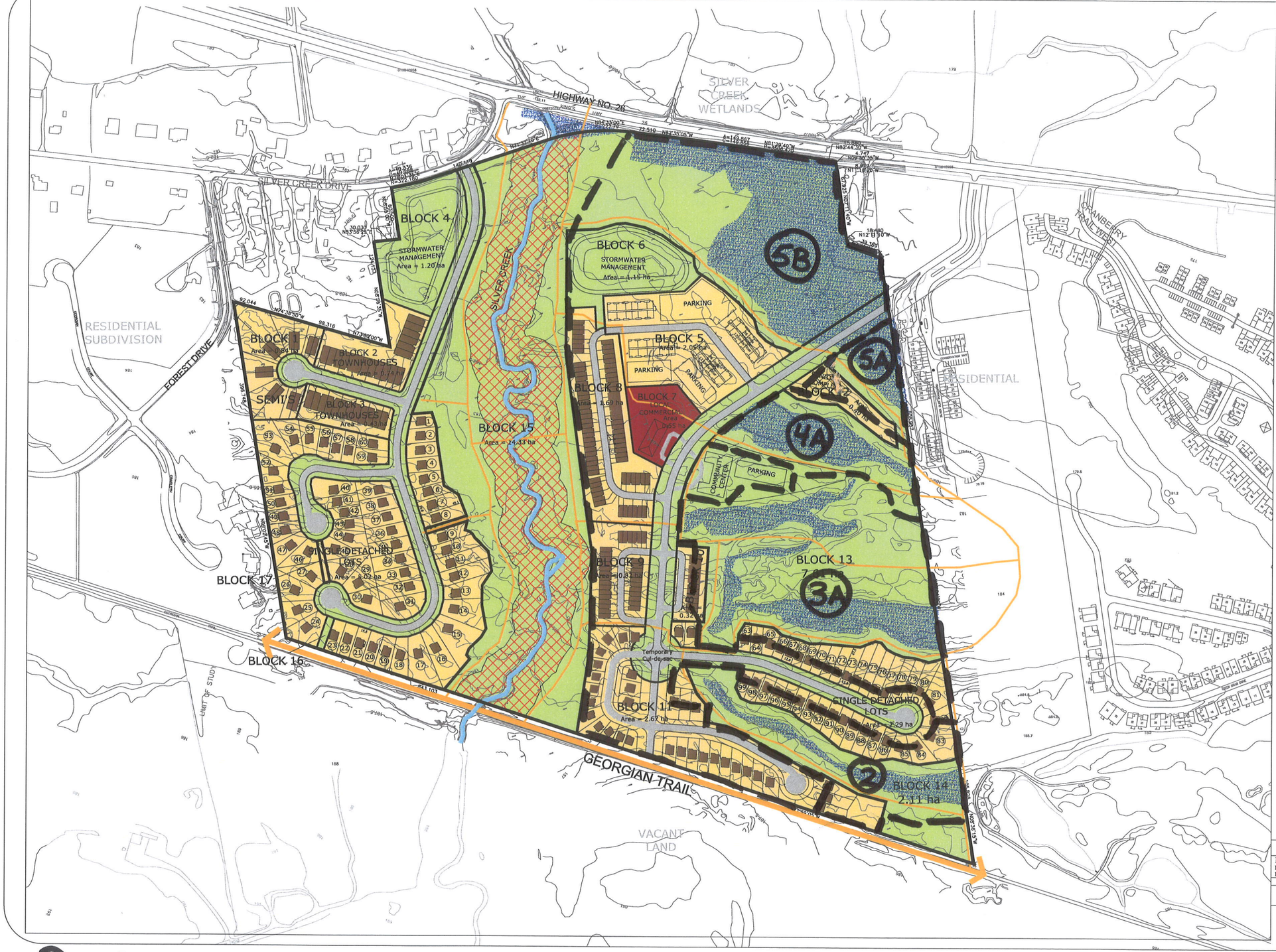
PROJECT: 704-10	DRAWN: AP	DATE: JAN 19/2010

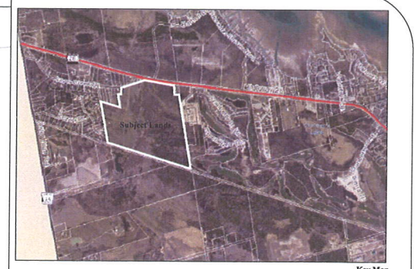
DWG: 704-10-Concept Plan

D.C. Slade Consultants INC.
Planning & Development
243 Hurontario Street, Collingwood, ON Phone: 705.4441830

(1) CROZIER WETLAND ID

POST-DEVELOPMENT





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PROTECTED WETLANDS

30 METER SETBACK FROM SILVER CREEK

PUBLIC TRAIL

SCALE 1:2000

METRIC
DISTANCES SHOWN ON THIS PLAN ARE IN METRES AND CAN BE CONVERTED TO FEET BY DIVIDING BY 0.3048

PROJECT: 704-10	DRAWN: AP	DATE: JAN 19/2010

DWG: 704-10-Concept Plan

D.C. Slade Consultants INC.
Planning & Development
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① - CROZIER WETLAND ID

CROZIER & ASSOCIATES
Consulting Engineers

Project:	Huntingwood
Project No.:	281-2769
Design by:	JK /JMP
Date:	January 2011

Summary of Runoff Contributions for Individual Wetlands
Pre to Post Development Conditions

Wetland Area	Pre Runoff Contribution (Coefficient x Area)	Post Runoff Contribution (Coefficient x Area)	Increase/Decrease For Pre-Post Development	Percent Change (%)
2	1.32	1.43	Increase	8.1%
3A	3.00	2.96	Decrease	-1.4%
4A	1.00	1.04	Increase	4.0%
5A	0.47	0.49	Increase	4.8%
5B	3.44	---	---	---
Total Percent Change for Wetlands (Excluding 5B)				**2.2%**

Notes: 1) Individual contributions to wetlands to be refined at detailed design stage following detailed site grading exercise
2) Runoff Contribution to Wetland 5B controlled by East SWM Facility with Post to Pre control

CROZIER & ASSOCIATES
Consulting Engineers

Project:	Huntingwood Trail	**D.A.**	**WETLAND 2**
Project No.:	281-2769	**Pre Area**	**3.42 ha**
Design by:	KW/JMP	**Post Area**	**3.00 ha**
Date:	January 2011		

WETLAND 2: Pre to Post Runoff Determination

PRE-DEVELOPMENT

SOILS		LANDUSE									
Soil Texture	*Percent Soil Area (%)*	*Percent Wetland (%)*	*Area Wetland (ha)*	*Runoff Coefficient Wetland ('C')*	*Percent Wooded (%)*	*Area Wooded (ha)*	*Runofff Coefficient Wooded ('C')*	*Percent Meadow (%)*	*Area Meadow (ha)*	*Runoff Coefficient Meadow ('C')*	**Runoff Coefficient x Area**
Sand Loam	30	25	0.26	0.95	75	0.77	0.08	0	0.00	0.10	0.31
Loam/Silt Loam	70	25	0.60	0.95	75	1.80	0.25	0	0.00	0.28	1.02
Clay Loam/Clay	0	0	0.00	0.95	0	0.00	0.35	0	0.00	0.40	0.00
											1.32

POST-DEVELOPMENT

SOILS		LANDUSE									
Soil Texture	*Percent Soil Area (%)*	*Percent Wetland (%)*	*Area Wetland (ha)*	*Runoff Coefficient Wetland ('C')*	*Percent Wooded (%)*	*Area Wooded (ha)*	*Runofff Coefficient Wooded ('C')*	*Percent Meadow (%)*	*Area Meadow (ha)*	*Runoff Coefficient Meadow ('C')*	**Runoff Coefficient x Area**
Sand Loam			0.26	0.95		0.36	0.08		0.00	0.10	0.27
Loam/Silt Loam			0.60	0.95		0.85	0.25		0.00	0.28	0.78
Clay Loam/Clay			0.00	0.95		0.00	0.35		0.00	0.40	0.00
		Area Residential Detached (ha)	*Runoff Coefficient Residential Detached ('C')*	*Area Residential Townhome (ha)*	*Runoff Coefficient Residential Townhome ('C')*	*Area Seniors Complex (ha)*	*Runoff Coefficient Seniors Complex ('C')*				
		0.93	0.40	0.00	0.60	0.00	0.45				0.37
											1.43

% Change for Pre-Post= (Post-Pre)/Pre*100%

= 8.1%

Notes: Wetland 'C' value modified to reflect wetland storage

CROZIER & ASSOCIATES
Consulting Engineers

Project:	Huntingwood Trail	**D.A.**	**WETLAND 3A**
Project No.:	281-2769	**Pre Area**	**7.50 ha**
Design by:	KW/JMP	**Post Area**	**5.30 ha**
Date:	January 2011		

WETLAND 3A: Pre to Post Runoff Determination

PRE-DEVELOPMENT

SOILS		LANDUSE									
Soil Texture	*Percent Soil Area (%)*	*Percent Wetland (%)*	*Area Wetland (ha)*	*Runoff Coefficient Wetland ('C')*	*Percent Wooded (%)*	*Area Wooded (ha)*	*Runofff Coefficient Wooded ('C')*	*Percent Meadow (%)*	*Area Meadow (ha)*	*Runoff Coefficient Meadow ('C')*	**Runoff Coefficient x Area**
Sand Loam	50	30	1.13	0.95	70	2.63	0.08	0	0.00	0.10	1.28
Loam/Silt Loam	50	30	1.13	0.95	70	2.63	0.25	0	0.00	0.28	1.73
Clay Loam/Clay	0	0	0.00	0.95	0	0.00	0.35	0	0.00	0.40	0.00
											3.00

POST-DEVELOPMENT

SOILS		LANDUSE									
Soil Texture	*Percent Soil Area (%)*	*Percent Wetland (%)*	*Area Wetland (ha)*	*Runoff Coefficient Wetland ('C')*	*Percent Wooded (%)*	*Area Wooded (ha)*	*Runofff Coefficient Wooded ('C')*	*Percent Meadow (%)*	*Area Meadow (ha)*	*Runoff Coefficient Meadow ('C')*	**Runoff Coefficient x Area**
Sand Loam			0.56	0.95		0.55	0.08		0.00	0.10	0.58
Loam/Silt Loam			1.69	0.95		1.65	0.25		0.00	0.28	2.02
Clay Loam/Clay			0.00	0.95		0.00	0.35		0.00	0.40	0.00

Area Residential Detached (ha)	*Runoff Coefficient Residential Detached ('C')*	*Area Residential Townhome (ha)*	*Runoff Coefficient Residential Townhome ('C')*	*Area Seniors Complex (ha)*	*Runoff Coefficient Seniors Complex ('C')*	
0.71	0.40	0.14	0.60	0.00	0.45	0.37
						2.96

% Change for Pre-Post= (Post-Pre)/Pre*100%

= -1.4%

Note wetland 'C' value modified to reflect wetland storage

CROZIER & ASSOCIATES
Consulting Engineers

Project:	Huntingwood Trail	**D.A.**	**WETLAND 4A**
Project No.:	281-2769	**Pre Area**	**2.20 ha**
Design by:	KW/JMP	**Post Area**	**1.93 ha**
Date:	January 2011		

WETLAND 4A: Pre to Post Runoff Determination

PRE-DEVELOPMENT

SOILS		LANDUSE									
Soil Texture	*Percent Soil Area (%)*	*Percent Wetland (%)*	*Area Wetland (ha)*	*Runoff Coefficient Wetland ('C')*	*Percent Wooded (%)*	*Area Wooded (ha)*	*Runofff Coefficient Wooded ('C')*	*Percent Meadow (%)*	*Area Meadow (ha)*	*Runoff Coefficient Meadow ('C')*	**Runoff Coefficient x Area**
Sand Loam	75	40	0.66	0.95	60	0.99	0.08	0	0.00	0.10	0.71
Loam/Silt Loam	25	40	0.22	0.95	60	0.33	0.25	0	0.00	0.28	0.29
Clay Loam/Clay	0	0	0.00	0.95	0	0.00	0.35	0	0.00	0.40	0.00
											1.00

POST-DEVELOPMENT

SOILS		LANDUSE									
Soil Texture	*Percent Soil Area (%)*	*Percent Wetland (%)*	*Area Wetland (ha)*	*Runoff Coefficient Wetland ('C')*	*Percent Wooded (%)*	*Area Wooded (ha)*	*Runofff Coefficient Wooded ('C')*	*Percent Meadow (%)*	*Area Meadow (ha)*	*Runoff Coefficient Meadow ('C')*	**Runoff Coefficient x Area**
Sand Loam			0.44	0.95		0.48	0.08		0.00	0.10	0.46
Loam/Silt Loam			0.44	0.95		0.48	0.25		0.00	0.28	0.54
Clay Loam/Clay			0.00	0.95		0.00	0.35		0.00	0.40	0.00

Area Residential Detached (ha)	*Runoff Coefficient Residential Detached ('C')*	*Area Residential Townhome (ha)*	*Runoff Coefficient Residential Townhome ('C')*	*Area Seniors Complex (ha)*	*Runoff Coefficient Seniors Complex ('C')*	
0.00	0.40	0.00	0.60	0.10	0.45	0.05
						1.04

% Change for Pre-Post= (Post-Pre)/Pre*100%
= 4.0%

Note wetland 'C' value modified to reflect wetland storage

CROZIER & ASSOCIATES
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Project:	Huntingwood Trail	**D.A.**	**WETLAND 5A**
Project No.:	281-2769	**Pre Area**	**1.31 ha**
Design by:	KW/JMP	**Post Area**	**0.86 ha**
Date:	January 2011		

WETLAND 5A: Pre to Post Runoff Determination

PRE-DEVELOPMENT

SOILS		LANDUSE									
Soil Texture	*Percent Soil Area (%)*	*Percent Wetland (%)*	*Area Wetland (ha)*	*Runoff Coefficient Wetland ('C')*	*Percent Wooded (%)*	*Area Wooded (ha)*	*Runofff Coefficient Wooded ('C')*	*Percent Meadow (%)*	*Area Meadow (ha)*	*Runoff Coefficient Meadow ('C')*	**Runoff Coefficient x Area**
Sand Loam	100	30	0.39	0.95	0	0.00	0.08	70	0.92	0.10	0.47
Loam/Silt Loam	0	0	0.00	0.95	0	0.00	0.25	0	0.00	0.28	0.00
Clay Loam/Clay	0	0	0.00	0.95	0	0.00	0.35	0	0.00	0.40	0.00
											0.47

POST-DEVELOPMENT

SOILS		LANDUSE									
Soil Texture	*Percent Soil Area (%)*	*Percent Wetland (%)*	*Area Wetland (ha)*	*Runoff Coefficient Wetland ('C')*	*Percent Wooded (%)*	*Area Wooded (ha)*	*Runofff Coefficient Wooded ('C')*	*Percent Meadow (%)*	*Area Meadow (ha)*	*Runoff Coefficient Meadow ('C')*	**Runoff Coefficient x Area**
Sand Loam			0.39	0.95		0.00	0.08		0.27	0.10	0.40
Loam/Silt Loam			0.00	0.95		0.00	0.25		0.00	0.28	0.00
Clay Loam/Clay			0.00	0.95		0.00	0.35		0.00	0.40	0.00

Area Residential Detached (ha)	*Runoff Coefficient Residential Detached ('C')*	*Area Residential Townhome (ha)*	*Runoff Coefficient Residential Townhome ('C')*	*Area Seniors Complex (ha)*	*Runoff Coefficient Seniors Complex ('C')*	
0.00	0.40	0.00	0.60	0.20	0.45	0.09
						0.49

% Change for Pre-Post= (Post-Pre)/Pre*100%
= 4.8%

Note wetland 'C' value modified to reflect wetland storage

CROZIER & ASSOCIATES
Consulting Engineers

Project:	Huntingwood Trail	**D.A.**	**WETLAND 5B**
Project No.:	281-2769	**Pre Area**	**11.18 ha**
Design by:	KW/JMP	**Post Area**	**18.10 ha**
Date:	January 2011		

WETLAND 5B: Pre to Post Runoff Determination

PRE-DEVELOPMENT

SOILS		LANDUSE									**Runoff Coefficient x Area**
Soil Texture	*Percent Soil Area (%)*	*Percent Wetland (%)*	*Area Wetland (ha)*	*Runoff Coefficient Wetland ('C')*	*Percent Wooded (%)*	*Area Wooded (ha)*	*Runofff Coefficient Wooded ('C')*	*Percent Meadow (%)*	*Area Meadow (ha)*	*Runoff Coefficient Meadow ('C')*	
Sand Loam	100	25	2.80	0.95	25	2.80	0.08	50	5.59	0.10	3.44
Loam/Silt Loam	0	0	0.00	0.95	0	0.00	0.25	0	0.00	0.28	0.00
Clay Loam/Clay	0	0	0.00	0.95	0	0.00	0.35	0	0.00	0.40	0.00
											3.44

1) Wetland 'C' value modified to reflect wetland storage

POST-DEVELOPMENT

SOILS		LANDUSE									**Runoff Coefficient x Area**
Soil Texture	*Percent Soil Area (%)*	*Percent Wetland (%)*	*Area Wetland (ha)*	*Runoff Coefficient Wetland ('C')*	*Percent Wooded (%)*	*Area Wooded (ha)*	*Runofff Coefficient Wooded ('C')*	*Percent Meadow (%)*	*Area Meadow (ha)*	*Runoff Coefficient Meadow ('C')*	
Sand Loam			2.80	0.95		1.10	0.08		1.10	0.10	2.86
Loam/Silt Loam			0.00	0.95		0.00	0.25		0.00	0.28	0.00
Clay Loam/Clay			0.00	0.95		0.00	0.35		0.00	0.40	0.00

Post-Development Peak Flows From 13.1ha Urban Catchement Reduced to Pre-Development Level Via Proposed East Stormwater Management Pond

Note: RC for Wetlands is 0.95 to reflect most rainfall stored in closed depressions

Appendix H

Nottawasaga Valley Conservation Authority Watershed Improvement Program

Hensel Design Group INC.

N-WIP Program

Nottawasaga Watershed Improvement Program (N-WIP)

What is NWIP?

The goal of N-WIP is to improve the health of Georgian Bay by undertaking water quality improvement projects on local tributary streams in the towns of The Blue Mountains, Collingwood, and Wasaga Beach, and the townships of Clearview, Springwater and Essa.
(For a map of the area, click here).

N-WIP is a pilot project of the Lake Huron-Georgian Bay Watershed - Canadian Framework for Community Action. For a program overview, please visit www.lakehuroncommunityaction.ca.


Community tree plant along Lamont Creek in Wasaga Beach

The following types of water quality improvement projects may be undertaken by the N-WIP committee:

- Buffer strip development/land retirement
- Livestock exclusion fencing/water crossing/alternate water source
- Erosion control/habitat improvement (e.g. fish habitat friendly retaining walls)
- In-channel habitat improvement
- Riparian reforestation
- Clean water diversion
- Restoration of natural channel features in municipal drains
- Implementation of municipal drain management environmental BMPs

Locally, N-WIP is coordinated by the NVCA and includes the following local partners:


NWIP committee looks at potential tree planting site on Silver Creek in the Town of the Blue Mountains

Blue Mountain Watershed Trust
Collingwood Collegiate Institute
Elmvale District High School
Environment Canada
Georgian Triangle Anglers Association
Jean Vanier High School
North Simcoe Land Stewardship Network
Nottawasaga Steelheaders
Ontario Ministry of Natural Resources
Simcoe County Christian Farmers Association
Simcoe County Federation of Agriculture
South Simcoe Streams Network
Stayner Collegiate Institute
Town of Collingwood
Town of the Blue Mountains
Town of Wasaga Beach
Township of Clearview
Township of Essa
Township of Springwater
Township of Tiny
Wasaga Beach Fish and Game Club
Wasaga Beach Provincial Park
Wasaga Beach River Resources Committee
Wild Canada

Corporate sponsors of N-WIP include:

BURNSIDE CANADIAN MIST

For more information on the N-WIP Committee and projects, please contact Fred Dobbs, Manager of Stewardship Services, at (705) 424-1479, ext. 237 or fdobbs@nvca.on.ca.