

# Minesing Swamp

## Management Plan 2003-2008



Prepared by the Nottawasaga Valley Conservation Authority





# **MINESING SWAMP MANAGEMENT PLAN**

**2003-2008**

**PREPARED BY: NOTTAWASAGA VALLEY CONSERVATION AUTHORITY**

**\$5.00**

**All proceeds from the sale of this document will be used for the ongoing  
management of Minesing Swamp**



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# **FOREWORD**

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The Minesing Swamp Management Plan is designed to be a concise plan that identifies and provides actions for specific management issues while indicating agency and public responsibility for the implementation of those issues. The plan is not designed to be an extensive, resource management document. It is intended to be a working plan that will require annual review to ensure that the actions, which are taken, continue to meet the management needs of the Minesing Swamp users and adjacent landowners.

# ACKNOWLEDGEMENTS

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The revision of the Minesing Swamp Management Plan was accomplished through the collective efforts of the Nottawasaga Valley Conservation Authority staff and concerned individuals; Management Plan Coordinator, Katherine Alderson.

# **EXECUTIVE SUMMARY**

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The Minesing Swamp is a 15, 000 acre (6, 000 hectares), Class 1, Provincially Significant Wetland. It is located approximately 16 kilometers west of Barrie, in Simcoe County, and is shown in geographical context in Figure 1. Several agencies and private individuals own lands within the Minesing Swamp. The Nottawasaga Valley Conservation Authority (NVCA) owns the majority of the land, being over 9000 acres. Other landowners include the Ministry of Natural Resources (MNR), the County of Simcoe, and private individuals. Key waterways that flow through the Swamp are the Nottawasaga River, Mad River, Coates Creek, and Willow Creek. The Minesing Swamp Wetlands act as a major water storage area for the surrounding townships of Springwater, Essa, and Clearview. It is an essential flood control reservoir and groundwater recharge and discharge area. Due to the size of Minesing Swamp, its vast range of plants and animals, and its unique combination of adjacent Boreal and Carolinian forests, this extensive area is of provincial and national significance. The Minesing Swamp has been designated by RAMSAR and ranks internationally with the Florida Everglades and Baltic Marshes.

Wetlands perform an essential role in the healthy functioning of our environment, and are crucial to the health and well being of humans, animals, and plant species alike. They are an important part of our hydrological system, and are essential in the natural process of filtering groundwater that we rely upon. Almost all species are linked to, or rely on, wetlands for food, water, and habitat. Unfortunately, natural wetlands are being destroyed at an alarming rate. Approximately 25 percent of the world's wetlands are in Canada; over 80 percent of the original wetlands of southern Ontario have been lost as a result of urban sprawl and agricultural development. <sup>1</sup>

Water is the essential component to the functioning and survival of Minesing Swamp. When water levels in the Nottawasaga River, Mad River, Coates Creek, and Willow Creek are high, they spill over natural levees in the Swamp, flooding the land. Many plant and animal species depend on the annual flooding in Minesing Swamp for survival and reproduction.

The natural vegetative species found within Minesing Swamp are numerous, and in some cases rare. The wetlands support eleven provincially rare plant species, with one species being nationally rare. The diversity of Minesing Swamp's vegetative communities provides habitat for numerous wildlife species and contains the oldest Great Blue Heron colony in Ontario. Surveys of Minesing Swamp waterways have documented 30 species of fish, including Northern Pike, Bowfin, and Sturgeon.

The first Minesing Swamp Management Plan was developed and released in 1995 in order to guide current and future management activities within the Minesing Swamp wetland complex. The plan stressed the protection of the natural features and functions of Minesing Swamp, and provided recommendations to address specific activities known or suspected to have negative impacts on the function of the wetlands or its component systems. The 2003 Minesing Swamp Management Plan is an update of its predecessor. While some progress has been made, many issues that were stated in 1995 still remain. Through meetings with the NVCA and the Minesing Swamp Advisory Team, additional issues have been identified. These include:

- Future development concerns in adjacent lands of the Minesing Swamp.
- Recognition of an official wetland boundary and implementation of required buffers and recommended setback.
- Preserving Minesing Swamp as a world-class wetland and protecting the species at risk, which rely upon the wetlands and its functions.
- The development of a comprehensive revenue and fundraising initiative.

### ***GOALS***

- To preserve, protect, and restore the ecological functioning of Minesing Swamp.
- To successfully protect the interests of the flora and fauna communities of Minesing Swamp while providing low impact recreational uses and activities.

### ***OBJECTIVES***

1. Protect, enhance, and restore water.
2. Protect, enhance, and restore land.
3. Protect life and property from flooding and erosion.

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<sup>1</sup> Ducks Unlimited Canada. (n.d). Rural Wetlands of Ontario: A guide for landowners [brochure]

4. Provide educational and recreational opportunities for the public.

Through the development of Table 2 - Action Matrix the NVCA and the Minesing Swamp Advisory Team recommended actions from Table 1 - Issue Analysis. These have been broken down into three categories: short-term, long-term, and ongoing initiatives.

### ***SHORT TERM***

During various discussions with the Advisory Team actions have been identified as key short-term priorities to be accomplished within twelve months of approval of the Minesing Swamp Management Plan. They are:

- Undertake a detailed species inventory of flora and fauna within Minesing Swamp.
- Develop maps and signage identifying ecologically sensitive areas.
- Develop a fact sheet of NVCA hunting policies.
- Review current hunting application.
- Develop an annual fundraiser.

### ***LONG TERM***

The accomplishment of certain management actions requiring longer than one year and not exceeding a five year time frame are considered to be long term priorities. These shall include:

- Develop an official wetland boundary
- Hydrology and water quality studies

### ***ONGOING***

Ongoing actions of the past taken by the NVCA, and various partnerships, have proven to be successful. These actions require no predetermined time frame as many initiatives are accomplished through a series of long-term efforts. Ongoing efforts towards the preservation of Minesing Swamp as a provincially significant wetland include:

- Monitoring agricultural and urban impacts
- Forestry management
- Education and awareness

# **1.0 INTRODUCTION**

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## **1.1 CONTEXT**

## **1.2 1995 MANAGEMENT PLAN SUMMARY**

## **1.3 PURPOSE**

## **1.4 PLANNING PROCESS**

## **1.5 PLANNING ADVISORY TEAM**

## **1.6 PARTNERSHIPS**

### **1.6-1 PUBLIC AND ADJACENT LANDOWNERS**

### **1.6-2 SPECIAL INTEREST GROUPS**

## **1.1 CONTEXT**

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Minesing Swamp is located within the Townships of Clearview, Springwater, and Essa identified in Figure 2. It is considered to be southern Ontario's largest and most diverse wetland containing large interconnected areas of all wetland types found in Ontario including swamp, fen, bog, and marsh. It is categorized as an inland, riverine, perennial, emergent, and floodplain wetland.

As a part of the Nottawasaga Valley Watershed, functions and processes that occur within Minesing Swamp inevitably influence surrounding ecosystems within the watershed. Likewise, upstream natural processes and land use practices affect the Minesing Swamp ecosystem. The effects of many of these processes are primarily found downstream because of the nature of the water flow out of the Swamp. The Oro Moraine is the headwater source of Willow Creek, a major waterway through Minesing Swamp. The moraine has a heavy concentration of sandy soils that are carried into the wetlands contributing large amounts of sediment via Willow Creek.

In addition to Willow Creek, there are three other major waterways flowing through Minesing Swamp. These are the Mad River, Coates Creek, and the Nottawasaga River. During the spring, Minesing Swamp serves as a natural flood control reservoir for these and several other river systems. The Edenvale Moraine holds back floodwaters for slow release over a period of several weeks.

Approximately 80% of the original wetlands of Southern Ontario have been lost; of the remaining 20% the majority are located on farmlands.<sup>2</sup> Negative impacts from surrounding land use activities may have impacts on sensitive ecosystems. Fertilizers, pesticides, and herbicides applied to these lands may make their way into the Minesing Swamp wetlands and impact plant and animal communities.

Minesing Swamp is linked with other ecosystems across North America as a major waterfowl staging area for many migratory birds travelling between northern and southern regions. The

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<sup>2</sup> Ducks Unlimited Canada. (n.d). Rural Wetlands of Ontario: A guide for landowners [brochure]

Minesing Swamp wetland complex supports a unique diverse plant community, ranging from Northern Boreal communities to Southern Carolinian communities.

## **1.2 1995 MANAGEMENT PLAN SUMMARY**

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The Minesing Swamp Management Plan was developed and released in 1995 in order to guide current and future management activities within the Minesing Swamp wetland complex. The Management Plan focussed on promoting sensible land use strategies in an effort to maintain a viable wetland ecosystem. The plan stressed the protection of the natural features and functions of Minesing Swamp. It was recognized that many different natural systems exist within the wetlands, and that associated with each of these systems are unique ecological and environmental requirements that must be balanced with human activity demands. Although it was found that human activity demands were not always in conflict with the ecological or environmental requirements for a particular natural system.

The Minesing Swamp Management Plan provided recommendations to address specific activities known or suspected to have negative impacts on the function of the wetlands or its component systems. Guidelines were set forth for managing these negative impacts. As well, the Management Plan identified and encouraged activities that have a beneficial or neutral effect on the natural systems. The plan suggested means for monitoring or evaluating adopted policies, guidelines, and directives.

Many of the actions recommended in the Management Plan have been implemented with success, while other actions have been tabled until funding is available or until it is more feasible for their implementation.

## **1.3 PURPOSE**

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A Conservation Area Management Plan is a document that serves as a detailed policy guide for the planning, preservation, development, and management of a site within a specific time frame.

The following list provides the steps taken in development:

- 1) The identification of the Conservation Authority's objectives for management, future development, and recreational use of the Minesing Swamp Conservation Area.
- 2) A complete evaluation and inventory of the area's components, i.e. biological and aesthetic resources, current uses, facilities, etc.
- 3) The review and assessment of current conservation area user demands. Public participation is encouraged in the planning and decision-making process.
- 4) Recommendations for development policies to provide optimum use of the area's resources, and where appropriate provide a variety of recreational opportunities that are complimentary to ecological growth and protection.

#### **1.4 PLANNING PROCESS**

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Up until 1994, the management of Minesing Swamp was handled jointly by the Nottawasaga Valley Conservation Authority and the Ministry of Natural Resources. Both these agencies identified the need for a comprehensive, realistic Management Plan for the Minesing Swamp. The planning process for the original document began in May 1994. Both the Nottawasaga Valley Conservation Authority and the Ministry of Natural Resources endorsed the final draft in December 1995. This document is to be the first revision of the original Management Plan. Preparation for the development of this plan began in February 2002. The Nottawasaga Valley Conservation Authority committed one contracted and one permanent staff, as well as additional permanent staff as required to assist with the preparation of the 2003 Minesing Swamp Management Plan.

The planning process was conducted in the following format:

- 1) A list of potential stakeholders was developed, and informed of the intent to revise the Minesing Swamp Management Plan.
- 2) An information session was held where interested participants formed the Minesing Swamp Advisory Team, which then identified the list of issues to be addressed by the Management Plan.

- 3) A schedule of meetings was developed by the NVCA in partnership with the Advisory Team to further define and make recommendations on the best course of action pertaining to the list of issues identified in Table 1 – Issue Analysis.
- 4) The Table 2 - Action Matrix was developed from the list of recommended actions identified in Table 1 and distributed to potential stakeholders to assign responsibility for implementing recommended actions.
- 5) The review of all drafts of the Minesing Swamp Management Plan by the Advisory Team.
- 6) The final draft of the Minesing Swamp Management Plan is to be reviewed by the NVCA Full Authority Membership for final approval.
- 7) The Minesing Swamp Management Plan is to be distributed to interested stakeholders, and made available to the public at large.
- 8) Implementation of approved strategies.
- 9) The NVCA is to organize a schedule of meetings in accordance with the five-year revision detailing the Management Plan progress.

## **1.5 ADVISORY TEAM**

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The Minesing Swamp Advisory Team was formed to involve landowners and other interested stakeholders in the decision making process for the Minesing Swamp Management Plan. The team consists of members from private organizations, government agencies, landowners, and other concerned individuals. The following groups were represented on the Advisory Team:

- |   |                                 |
|---|---------------------------------|
| - Friends of Minesing Swamp (F.O.M.S.)      | - Sno Voyager Snowmobile Club   |
| - Barrie Canoe Club                         | - Royal Newfoundland Regiment   |
| - Landowners/residents                      | - Ministry of Natural Resources |
| - Brereton Field Naturalists                | - Hunters and Anglers           |
| - Springwater Township                      | - Essa Township                 |
| - Fort Willow Improvement Group (FWIG)      | - Georgian College              |
| - Minesing Swamp Old Timers Club            | - City of Barrie                |
| - Nottawasaga Valley Conservation Authority | - CFB Borden                    |
| - Huronia Woodlot Owners Association        | - Simcoe County Museum          |
| - Ontario Ministry of Agriculture and Food  |                                 |

## **1.6 PARTNERSHIPS**

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### *1.6.1 PUBLIC AND ADJACENT LANDOWNERS*

Landowners and surrounding residents were contacted by letter and informed of the intent to revise the Minesing Swamp Management Plan. Information packages were sent to those members who did not wish to attend meetings, but still wanted to be informed on the progress of the plan. The biggest role the public has played in this planning process has been in the issue identification process. Many important issues were raised and addressed which may have been overlooked if the public had not been involved. Furthermore, we have increased awareness of the significance and importance of the Minesing Swamp.

### *1.6.2 SPECIAL INTEREST GROUPS*

The participation by representatives of local interest groups and other stakeholder groups has been essential to the planning process. These groups were contacted and advised of the process from the onset of the project. Their participation plays a key role in maintaining momentum, increasing awareness, and providing valuable assistance through donations and hands on efforts towards the implementation of recommended actions. While some groups expressed a preservation-oriented opinion, others indicated a desire to see the level of human use continue or expand providing negative impacts would not occur. This difference in perception indicated a need for a well thought out management strategy concerning the compatibility between the different user groups. Many initiatives will require the combined input and involvement of the various stakeholders outlined in Table 2 – Action Matrix. By involving representatives from each stakeholder group, individuals were able to work together to propose options that would alleviate user conflicts.

## **2.0 BACKGROUND**

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### **2.1 NVCA MANDATE**

### **2.2 ORIGINS**

### **2.3 RECOGNITION**

### **2.4 FLORA**

#### **2.4.1 GLACIAL LAKE SHORELINES**

#### **2.4.2 BOREAL WETLAND COMPLEX**

#### **2.4.3 DECIDUOUS BOTTOMLAND COMPLEX**

### **2.5 FAUNA**

#### **2.5.1 BIRDS**

#### **2.5.2 MAMMALS**

#### **2.5.3 FISH**

#### **2.5.4 OTHER WILDLIFE**

### **2.6 HYDROLOGICAL FEATURES**

### **2.7 SOIL**

### **2.8 HISTORY**

#### **2.8.1 ARCHAEOLOGICAL SITES**

#### **2.8.2 FORT WILLOW AND THE NINE-MILE PORTAGE**

## **2.1 N.V.C.A. MANDATE**

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The Nottawasaga Valley Conservation Authority was established in 1960 under the Conservation Authorities Act. Its jurisdiction is comprised of watersheds of the Nottawasaga River, Pretty River, Black Ash Creek, Silver Creek, and Bateaux Creek, an area totaling 3,391 square kilometres (1,297 square miles).

The objectives of a Conservation Authority are to establish and undertake, in an area over which it has jurisdiction, a program designed to further the conservation, restoration, development and management of natural resources other than gas, oil, coal and minerals (R.S.O. 1980, c. 85, s. 20). As such, the Nottawasaga Valley Conservation Authority has adopted the following objectives:

- To ensure that good watershed management planning practices prevail in our areas through the establishment and enforcement of Fill, Construction, and Alteration to Waterways Regulations, and through the evaluation of, and input into planning and development proposals, to accommodate conservation related concerns while recognizing, and where appropriate, overcoming environmental limitations.
- To alleviate the problems associated with, and the consequences of, erosion and sedimentation, flooding and drainage, pollution and other natural and man-made hazards, and to establish an environmental-societal balance through the implementation of a program of capital projects and technical/financial assistance.
- To improve the quality of the watershed environment and the life of its residents through the implementation of programs including reforestation, fish and wildlife habitat improvement, stream bank protection and water quality monitoring and enhancement.
- To protect, in perpetuity, environmentally significant and unique lands and resources through a program of land acquisition.

- To establish an on-going program of information and education thereby fostering a greater appreciation, knowledge and understanding of our environment and its natural resources and our efforts to manage and preserve it.
- To make available for public enjoyment and recreation, all lands acquired in conjunction with conservation projects, and to develop, manage, and maintain these lands in a manner consistent with the demands made on them by public use, while preserving their environmental quality and natural integrity.

Given these objectives, a major area of interest is the twelve conservation areas in which management, conservation, education, development, and use can be implemented directly by the Nottawasaga Valley Conservation Authority consistent with, and integrating each of its objectives.<sup>3</sup>

## **2.2 ORIGINS**

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Minesing Swamp owes its origin and development to post glacial events, in particular the fluctuation of ancient lake levels. The wetlands today are the product of nearly 30,000 years of glacial action. These processes include glaciation, rebound, flooding by a succession of huge lakes, and subsequent erosion. Minesing Swamp was formed by a 2-km thick glacier, which slowly moved in a southwest direction. The glacier tilted and depressed the earth's crust about 80 metres at Minesing.

When the glacier retreated northward, it left behind a large depression, which extended from Aurora to Orangeville and north to Collingwood. The enormous quantities of melt water originating from the glacier filled the depression, creating Lake Algonquin. As glacial processes continued, this body of water rapidly changed depths, which worked with the shoreline currents, storms, and erosion to produce a high point of land that projected into the water body. This formation was located immediately east of the deep basin where Minesing Swamp would eventually take form. As the glacier continued to retreat Southern Ontario and Minesing Swamp

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<sup>3</sup> NVCA. (1996). *Nottawasaga Valley Watershed Management Plan*. Angus, ON: NVCA

began to dry out. The entire surface waters from a large watershed extending as far west as the Niagara Escarpment and as far south as present Highway 89, drained south towards glacial Lake Nipissing (Lake Erie).

The Minesing basin was no longer completely submerged. Inflowing watercourses formed small marl ponds in three depressed areas. Since the clay-lined lake bottom was nearly impervious, drainage in the Minesing area was very poor. Because of constantly wet surfaces, conditions were ideal for the growth of peat. Nutrient rich rivers fertilized this, and eventually mosses and other plant species flourished. The limited decomposition of these materials that occurs in wet areas provides substrate and nutrients for lush plant growth. Through this process the three marl ponds gradually filled with peat and formed the wetlands that are present today.

### **2.3 RECOGNITION**

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Minesing Swamp has been deemed an “Area of Natural and Scientific Interest” (ANSI) by the Ontario Ministry of Natural Resources and has been designated as an Internationally significant wetland by the worldwide RAMSAR convention. It is regarded in Ontario as a “Class 1, Provincially Significant Wetland” and with this designation; it is protected from disturbances such as development.

Located within Minesing Swamp is the Fort Willow Conservation Area. The Ontario Archaeological and Historic Sites Board recognized the Fort Willow site as provincially significant and designated it the Willow Creek Depot. A plaque commemorating the site was erected in 1961. In January 1999, the Township of Springwater acknowledged Fort Willow, in their official plan stating that the Fort Willow Site be recognized as a Township of Springwater Heritage Site.

The Minesing Swamp, as part of the Nottawasaga Valley Watershed, is considered by experts to be a fine example of a natural flood control reservoir because of its ability to receive, store and slowly release water. Without this ability, damage to existing downstream-populated areas would be a frequent and costly occurrence.

## **2.4 FLORA**

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The natural vegetative species found within Minesing Swamp are numerous and, in some cases, rare. Ram's Head and Yellow Lady's Slipper Orchids, Green Adder's Mouth, One-flowered Pyrola, Valarian, Ginseng, Handsome Sedge, Wild Plum, Prickly Ash, Northern Red Grass, the carnivorous Pitcher Plant, and Prairie White-Fringed Orchid are just a few of the over 400 species found within the wetland. The wetlands support eleven provincially rare plant species, with one species being nationally rare.

Most of the Minesing Swamp's vegetative communities are dominated by deciduous forest. It also contains tracts of cool coniferous swamp, Cattail, Bulrush, and Sedge marshes, as well as, one of the largest open fens in Southern Ontario. The bottomland swamp found along the Nottawasaga River and lower end of Willow Creek is known as one of the most northerly locations of Carolinian species in Ontario.

There are three major vegetation complexes in the Minesing Swamp that result from differences in topography and landforms: Glacial Lake Shoreline, Boreal Wetland, and Deciduous Bottomland.

### ***2.4.1 THE GLACIAL LAKE SHORELINES***

The Glacial Lake Shorelines provide conditions for two major vegetation types. The first is the deciduous forest of the Nippissing Bluff, which is characterized by Sugar Maple and other hardwoods such as Beech and White Birch. The second is the gently sloping Lake Payette Terrace. A dense Cedar/Balsam Fir forest colonizes this hummocky area with scattered pools of water.

For further identification refer to Appendix A- Flora

### ***2.4.2 THE BOREAL WETLAND COMPLEX***

The Boreal Wetland Complex contains three distinct vegetation communities. The peat plain fen with string islands forms an extensive network of sedges and grasses mixed with coniferous and low shrub islands. The peat plain-conifer complex surrounds the fens and has colonized the

string islands, which are dominated by Cedar and Tamarack. This alternating hummock-hollow ground is vegetated by Balsam Fir, Black Spruce, White Pine, and many shrubs. Remnant Tamarack and Cedar islands, dead standing trees and Alder thickets define the peat plain-big marsh.

For further identification refer to Appendix A- Flora

### **2.4.3 THE DECIDUOUS BOTTOMLAND COMPLEX**

The Deciduous Bottomland Complex is made up of three distinct vegetative communities more commonly found in the Carolinian zone. Hackberry and Basswood dominate the River Levee, with scatterings of Butternut, American elm, and Bur Oak. The Bottomlands that experience heavy spring floods are dominated by what was once the largest pure Silver Maple stands in Ontario. Due to altered water flow a large number of these trees are now dead. Where flooding is more moderate, Bur Oak stands are common. Marsh areas can be found in patches throughout the Bottomland Complex. These are dominated by Cattail and Bur-reed.

For further identification refer to Appendix A - Flora

## **2.5 FAUNA**

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### **2.5.1 BIRDS**

More than 221 bird species have been recorded within Minesing Swamp, and 135 of these species are believed to nest within the wetlands each year. The size, undisturbed nature, and habitat diversity of the wetland complex are very important for spring migration, nesting, staging fall migration, and as a year round feeding grounds for birds. Waterfowl frequenting Minesing Swamp include Buffleheads, Scaups, Gadwalls, Black and Ring Neck Ducks, Canada Geese, and Whistling Swans. Sand Hill Cranes can be found in edge areas where the forest meets the farmland as they stop over on their migration to Western Canada.

Minesing Swamp contains one of the oldest Great Blue Heronries in Ontario. With approximately 170 active nests in the spring, this colony is also the fifth largest found in Ontario. Open meadows found throughout the wetland provide hunting grounds for many visiting and resident raptors, including the Rough-Legged Hawk, Red-Shouldered Hawk, Sharp-Shinned

Hawk, and Broad Winged Hawk. The Great Grey and Hawk Owls are seen in the wetland during winter months, and rare owl sightings include the Boreal and Saw-Whet Owls. Songbirds can be heard and seen in the wetland in the spring when species such as the Cerulian, and Blue-winged Warbler arrive to mate and prepare nests.

Many bird species are sensitive to disturbance in both the nesting and later parts of their life cycle. The Minesing Swamp is home to four species of birds that are particularly sensitive to disturbance; the Great Blue Heron, Least Bittern, Green-winged Teal, and Hooded Merganser.

For further identification refer to Appendix B- Fauna

### **2.5.2 MAMMALS**

The Minesing Swamp wetland complex is home to 23 species of mammals including Beaver, Muskrat, Mink, Coyote, Fox, Raccoon, Hare, and Otter. Bear and Moose have also been spotted while the Opossum steadily becomes more common within the wetland. The wetlands supports one of the largest White-tailed Deer yards in the region with a population estimated at 300 to 400 individuals.

For further identification refer to Appendix B- Fauna

### **2.5.3 FISH**

Surveys of Minesing Swamp waterways have documented 30 species of fish, including Northern Pike, Bowfin, and Sturgeon. Rainbow Trout and Salmon pass through the wetlands on their way to upstream spawning grounds. The Minesing Swamp is also one of only two known locations in North America where Walleye spawn on submerged vegetation.

For further identification refer to Appendix B - Fauna

### **2.5.4 OTHER WILDLIFE**

Careful observation can reveal that many other animal species also live in the wetlands. Bats, mice, newts, aquatic insects, butterflies, beetles, worms, frogs, spiders, dragonflies, and turtles all make use of the diverse habitats that Minesing Swamp provides.

For further identification refer to Appendix B -Fauna

## **2.6 HYDROLOGICAL FEATURES**

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Water is the essential component to the functioning and survival of Minesing Swamp. Due to the shape of the Minesing Swamp basin and the existence of landforms that constrict water flow, such as the Edenvale moraine, flooding is a natural occurrence. In the spring, floodwaters often cover almost all of the wetlands 15,000 acres (6,000 hectares) and may reach a depth of three metres in some areas. When water levels in the Nottawasaga River, Mad River, Coates Creek, and Willow Creek are high, they spill over natural levees in the wetland, flooding the land. Water is stored in this large “reservoir” and is slowly released into the Nottawasaga River at the north end of the wetland. This acts to moderate the severity of flooding in downstream communities and augments the base flow over the summer months.

Many plant and animal species depend on the annual flooding in Minesing Swamp for survival and reproduction. Logjams and natural fluctuations in water levels serve to modify flooding conditions, while vegetation filters out sediment from watercourses flowing through the wetland. Minesing Swamp serves as an essential recharge area for groundwater.

For further identification refer to Appendix C - Waterways and Tributaries

## **2.7 SOIL**

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The Minesing Swamp is located in the Nottawasaga Basin of the Simcoe lowlands and includes part of two geomorphological units. The first are post-glacial shorelines of glacial lakes Payette, Nippissing, and Algonquin, which form the southeastern border of the Swamp. The second is an extensive glaciolacustrine plain that forms most of the wetlands basin.

Bedrock in the Minesing Swamp is limestone (belonging to the verulam formation) of middle Ordovician origin with soil cover ranging from between 60 to 90 metres in depth. Eight soil types have been identified within the wetland. Muck occupies most of the area, and glacial lake deposits of marl, varved clay and silt loam overlie till and outwash deposits. Recent deposits of peat and muck occur in several depressions the largest and deepest of which form the boreal forest/fen complexes of the southeastern portion of the wetland. Along the river levees and other

areas where seasonal flooding is severe, organic deposits are shallow or non-existent and silt-clay soils of recent alluvial origin dominate.

## **2.8 HISTORY**

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### **2.8.1 ARCHAEOLOGICAL SITES**

Three hunting and fishing sites dating back to the late archaic period (circa 2000 B.C.) were discovered during the summer of 1974 within the Minesing Swamp boundary. The site on the East Side of the wetland is located on the tableland above Payette shoreline between two springs. From the limited evidence available, one point and a few pieces of chert detritus, it appears that this site dates to the archaic period. The remaining two sites are located at the north end of the wetland along the banks of the Nottawasaga River, and appear to be multi-component fishing camps. Artifacts found at these sites include pottery, pipes, a stone gauge, stone axes and flint fragments, which are representative of Ontario Indian cultures from 2000 B.C. to 1600 A.D. The Archaic and Early Woodland Indians survived by utilizing aquatic resources and likely specialized in fishing and shoreline gathering. The Early Woodland Indians (circa 1000 AD) supplemented living off the water with some hunting, gathering, and limited agricultural activities.

### **2.8.2 FORT WILLOW AND THE NINE-MILE PORTAGE**

The Nine-Mile Portage and the Fort Willow Conservation Area (referred to historically as Willow Creek Depot) both played an important role during the War of 1812 and after. The portage itself extended from Kempenfelt Bay to Willow Landing where a water route to Lake Huron began. After the Americans on Lake Erie defeated the British in 1813, this route became the alternate path for the movement of provisions and men to Fort Michilimackinac on Lake Michigan. This route also became the link supporting the Indian Alliance and the fur trade in the Northwest. The North West Company used the portage until 1821 as part of its fur trade route to the northern forests.

Situated at one end of the Nine-Mile Portage, the Fort Willow Conservation Area was where supplies from the upper storehouses were loaded onto bateaux and transported to the mouth of the Nottawasaga River and beyond. Although the landing and accompanying storehouses were

situated near the south bank of Willow Creek, it is unlikely that the original site can be found due to changes in the course of Willow Creek and the wet mucky soils found in the area.

The Fort Willow Conservation Area originally consisted of eight buildings and a palisade. In the 1960's, partial reconstruction by CFB Borden produced a replica of a storehouse, a partially completed palisade, and marker flags identifying the location and size of the other buildings. Vandalism and time eventually took their toll reducing the site to the remnants of the palisade and the historical plaque, which marked the area's significance.

Today, efforts coordinated by the Fort Willow Improvement Group have seen the site revitalized, becoming an important local historical and educational tool. The palisades have been reconstructed, the building foundations have been outlined and informative kiosks are provided at a variety of places within the Fort enclosure pertaining to the Forts historical use as well as flora and fauna of the area. A large shelter / interpretive kiosk will be completed in the fall of 2002, and will provide detailed information on the local flora and fauna with specific information on the Monarch Butterfly.

For further information see the 2003 Fort Willow Management Plan.

## **3.0 BASIS OF THE PLAN**

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### **3.1 PLAN BOUNDARY AND ACCESS POINTS**

### **3.2 LAND ACQUISITION**

### **3.3 PRINCIPLES**

### **3.4 POLICY CONTEXT**

#### **3.4.1 CONSERVATION AREA ACT: SECTIONS 20 & 21**

##### **3.4.1.1 NVCA WATERSHED MANAGEMENT PLAN**

##### **3.4.1.2 WILLOW CREEK SUB WATERSHED PLAN**

#### **3.4.2 PLANNING ACT: SECTIONS 2 & 3**

##### **3.4.2.1 PROVINCIAL POLICY STATEMENT**

##### **3.4.2.2 MUNICIPAL OFFICIAL PLANS**

##### **3.4.2.3 SPRINGWATER TOWNSHIP SNOW VALLEY SECONDARY PLAN**

#### **3.4.3 SMART GROWTH**

### **3.1 PLAN BOUNDARY AND ACCESS POINTS**

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Figure 2 illustrates the unofficial wetland boundary determined by MNR. This is a general line, and only qualified persons completing detailed wetland evaluations will determine precise ground location.

The Advisory Team agreed upon the planning or study area for this management plan, illustrated in Figure 2, at the start of the planning process of the 1995 Minesing Swamp Management Plan.

Public access to the Minesing Swamp is primarily via watercourses and approved trails. The Nottawasaga River Canoe Route brochure indicates preferred access points where the swamp can be entered by canoe.

Landowners should sign unfenced property in order to designate private lands, and deter people from trespassing. People in Minesing Swamp have a responsibility to determine whether they are on public or private land, and should obtain appropriate permission when necessary. In many places, access is often difficult as a result of wet soils and thick, dense vegetation.

### **3.2 LAND ACQUISITION**

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Figure 3 illustrates current landowners of properties within the swamp boundary. The majority of land within the swamp is owned by the NVCA (more than 9,000 acres). In addition, there are numerous properties throughout Minesing Swamp that are owned by private landowners.

As part of the Eastern Habitat Joint Venture, the Nottawasaga Valley Conservation Authority together with the Nature Conservancy Canada, Ducks Unlimited, Ministry of Natural resources, and Habitat Canada continue to acquire priority lands within the swamp boundary. These lands are determined when funding becomes available through Nature Conservancy Canada.

### **3.3 PRINCIPLES**

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The Minesing Swamp Management Plan has been based on the following principles:

- Public involvement in the development of the Minesing Swamp Management Plan is an integral component to its success.
- The diversity and productivity of ecological communities within the swamp should be protected and restored through measures that:
  - Preserve the genetic diversity of indigenous plants and animals,
  - Protect and restore healthy natural habitats and communities,
  - Maintain natural ecological processes,
- A thorough understanding of the natural environment, including the values, opportunities, limits, and constraints that it provides, should precede and guide land use decisions.
- Cost effective proactive management of natural resources should be emphasized over cost intensive reactive management.
- Minesing Swamp, a provincially significant resource, should be managed on a sustainable basis to provide for the environmental, social, and economic well being of Ontario.
- The ecosystem approach, which considers the interconnections of natural resource management, will be utilized when making management/conservation decisions.
- The communication of information and the sharing of knowledge on Minesing Swamp and its attributes are essential.

### **3.4 POLICY CONTEXT**

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The Minesing Swamp Management Plan conforms to existing provincial policy and laws, and does not create any new legislation.

#### **3.4.1 THE CONSERVATION AUTHORITIES ACT<sup>4</sup>**

The Conservation Authority Act provides the legislative framework in which the Nottawasaga Valley Conservation Authority operates. The mandate of the NVCA is stated under section 20 of

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<sup>4</sup> Province of Ontario. (1999). Conservation Authorities Act. Ontario, Queens printer for Ontario

the Act which identifies that; the objects of an authority are to establish and undertake, in the area over which it has jurisdiction, a program designed to further the conservation, restoration, development, and management of natural resources other than gas, oil, coal, and minerals. R.S.O 1980, c.85, s. 20.

Section 21 of the Conservation Authorities Act further identifies the power of conservation authorities. The primary power related to the Minesing Swamp Management Plan and its actions are as follows. For the purposes of accomplishing its objects, an authority has power,

- (a) To study and investigate the watershed and to determine a program whereby the natural resources of the watershed may be conserved, restored, developed, and managed;
- (c) To acquire by purchase, lease or otherwise and to expropriate any land that it may require and, subject to the approval of the Lieutenant Governor in Council, to sell, or lease or otherwise dispose of land so acquired;
- (g) To enter into agreements with owners of private lands to facilitate the due carrying out of any project,
- (j) To control the flow of surface waters in order to prevent floods or pollution or to reduce the adverse effects thereof,
- (m) To use lands owned or controlled by the authority for park or other recreational purposes, and to erect, or permit to be erected buildings, booths, and facilities for such purposes and to make charges for admission thereto and the use thereof;

#### 3.4.1.1 NVCA WATERSHED MANAGEMENT PLAN<sup>5</sup>

The NVCA has completed the Nottawasaga Valley Watershed Management Plan. The goal of this plan is the “*conservation of natural resources within our watershed in a cooperative, integrated manner in which human needs are met in balance with the need to sustain the natural environment*”. The objectives and outcomes of the Watershed Plan have a direct impact on the functioning of Minesing Swamp. The Nottawasaga Valley Management Plan specifically refers to the Minesing Swamp Management Plan.

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<sup>5</sup> NVCA. (1996). Nottawasaga Valley Watershed Plan, Angus, ON: NVCA

### 3.4.1.2 WILLOW CREEK SUB WATERSHED PLAN<sup>6</sup>

In 2001, the NVCA completed the Willow Creek Sub Watershed Plan. It crosses the Townships of Oro-Medonte, Springwater, and the City of Barrie. The purpose of this plan is to “properly assess land use and development impacts on our environment, our investigations must cover the entire area that may potentially be affected by these impacts.” This plan provides the water related data, framework, as well as, recommendations that apply directly to the Willow Creek Sub Watershed specific issues.

The goal of this plan is: *“To conserve Willow Creek’s natural resources in a cooperative, integrated manner in which human needs are met in balance with the need to sustain and where possible restore the health of the natural environment.”*

The objectives include the identification and assessment of aquatic resources, the co-ordination of water resource management, and the enhancement of water conservation practices in regards to aquatic resources. In addition, concerning terrestrial resources, the identification and protection of the natural heritage system, as well as, the identification of opportunities for rehabilitation and restoration of natural heritage features.

The Minesing Swamp is a significant natural heritage feature within the Willow Creek Sub watershed Area

### 3.4.2 THE PLANNING ACT<sup>7</sup>

Section 2 of the planning Act identifies several matters of provincial interest. The primary matters related to the Minesing Swamp include;

- The protection of ecological systems, including natural areas, features and functions;
- The conservation and management of natural resources and the mineral resource base;

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<sup>6</sup> NVCA. (2001). Willow Creek Sub Watershed Plan. Angus, ON: NVCA

<sup>7</sup>Province of Ontario. (Revised 1996). Planning Act. Ontario, Queens printer for Ontario

Section 3 of the Act provides for the legislative framework for the issuance of policy statements related to municipal planning and matters of provincial interests.

#### 3.4.2.1 PROVINCIAL POLICY STATEMENT<sup>8</sup>

The Provincial Policy Statement (PPS) was issued under the authority of Section 3 of the Planning Act in 1996 (Revised 1997). The PPS provides policy direction on matters of provincial interest related to land use planning and development. These policies will be complemented by locally generated policies regarding matters of local interest.

Minesing Swamp is classified as a provincially significant wetland according to section 2.3.1 development and site alteration will not be permitted in provincially significant wetlands.

Natural heritage features and areas within the Minesing Swamp include:

- Significant portions of habitat of endangered and threatened species,
- Fish habitat,
- Significant woodlands, and valley lands,
- Significant wildlife habitat,
- Significant areas of natural and scientific interest,

Policy 2.3.2 of the PPS also states that *development* and *site alteration* may be permitted on lands adjacent to Minesing Swamp if it has been demonstrated that there will be no *negative impacts* on the natural features or on the *ecological functions*.

Policy 2.4.1 of the PPS states that the *quality and quantity* of ground water and surface water and the function of sensitive ground water recharge/ discharge areas, aquifers, and headwaters will be protected and enhanced. The Minesing Swamp contains a high hydrologic value, function and component.

The Minesing Swamp is a cultural heritage and archeological resource. The policies of 2.5 of the PPS related to cultural heritage apply to the Minesing Swamp.

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<sup>8</sup> Province of Ontario. (1997). Provincial Policy Statement. Ontario, Queens printer for Ontario

The Minesing Swamp also has a natural hazard land function in relation to flooding and erosion, according to policy 3.1.1. The Nottawasaga and Madd Rivers and the Willow Creek are the major river and stream systems within the Minesing Swamp.

### 3.4.2.2 MUNICIPAL OFFICIAL PLANS

Figure 2 illustrates the location of the Minesing Swamp within the surrounding townships of Essa, Clearview, and Springwater.

The Township of Springwater has designated the Minesing Swamp as a Natural Heritage (Environmental Protection) in their Official Plan. This designation recognizes the hydrological, biological, and socio-economic benefits derived from the long-term protection of Minesing Swamp lands. Development proposed in close proximity to the Minesing Swamp will require an environmental impact study.<sup>9</sup>

The Township of Clearview's Official Plan was updated in 2001, and recognizes the lands as and "Environmental and Hazard Lands". On these lands no permanent buildings, or placing of or removing of fill are permitted without the written permission of the NVCA.<sup>10</sup>

The Township of Essa Official Plan was updated in 2001 and has designated the lands "Environmental". Development proposed in close proximity to environmental protection lands will require an environmental impact study.<sup>11</sup>

It is important that other Official Plans produced within the watershed have regard for Minesing Swamp. Although they may not be located within, or directly adjacent to the swamp land use activities occurring elsewhere in the watershed, especially upstream, could have an effect.

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<sup>9</sup> Springwater Township(2000) Official Plans. ON: Township of Springwater

<sup>10</sup> Clearview Township ( 2001) Official Plans. ON: Township of Clearview

<sup>11</sup> Essa Township ( ) Official Plans. ON: Township of Essa

### 3.4.2.3 SNOW VALLEY SECONDARY PLAN, TOWNSHIP OF SPRINGWATER<sup>12</sup>

The Snow Valley Secondary Plan was approved by the Ontario Municipal Board, section 8.10.3.2 of the Snow Valley Secondary Plan states that there shall be no development within 120 meters of the Minesing Swamp, or below the elevation of 205 meters, Geodetic Survey of Canada Datum (G.S.C.D.).

### 3.4.3 SMART GROWTH<sup>13</sup>

In January 2001, the Ontario government released the Smart Growth Vision. This vision is based on three principles:

- A strong economy
- Strong communities
- A clean, healthy environment

Smart Growth is to be a co-operation of all levels of government to ensure that decisions on issues are balanced with the “elements vital to Ontario’s quality of life”.

*“Ontario’s Smart growth strategy aims to promote and approach to economic, social, and environmental issues that recognizes the province’s interests in urban regions, commercial trade areas, watersheds, commuter-sheds, ecological systems, natural resources, academic institutions, and health care districts”.*

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<sup>12</sup> Springwater Township (2001) *Snow Valley Secondary Plans*. ON: Township of Springwater

<sup>13</sup> Ministry of Municipal Affairs and Housing. (2001). *A Healthy Environment: Ontario Smart Growth*. Retrieved July 22, 2002 from <http://www.smartgrowth.gov.on.ca/English/healthyenv-e.asp>

## **4.0 PERMITTED USES**

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### **4.1 RECREATIONAL ACTIVITIES**

### **4.2 PUBLIC USE**

### **4.3 ACCESS POINTS**

### **4.4 FORT WILLOW**

### **4.5 HIKING TRAILS**

## **4.1 RECREATIONAL ACTIVITIES**

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Minesing Swamp has been a popular area for various types of activities and recreation for hundreds of years. Traditionally hunting, fishing, trapping, farming, and woodcutting have been practiced within and around the wetland. Active forms of recreation such as canoeing, snowshoeing, snowmobiling, hiking, and cross-country skiing are pursued on a regular basis. There are no established camping or picnicking facilities, and access and usage is limited due to the thick vegetative cover and wet nature that exists within the wetland. Passive uses such as bird watching, nature appreciation, and photography are also pursued.

Minesing Swamp is an ideal place for naturalist recreational opportunities in a southern Ontario setting. Those activities, which result in the destruction and deterioration of wetlands, are discouraged and often prohibited. If respect for the wetland is exercised when using it, the natural beauty and unique features will endure for generations to come.

Access and User Restrictions include:

- Canoeing and canoe camping on designated canoe routes.
- Bird watching, nature appreciation & photography.
- Hiking on designated trails while following the “Hikers Code”.
- Cross country skiing and snowshoeing on trails.
- Bicycles are allowed only on the Trans Canada Trail and not on any other within NVCA lands.
- Snowmobiles are allowed on designated and maintained trails (OFSC).
- Licensed fishing.
- Licensed hunting (written permission to hunt on NVCA land is required).
- Licensed trapping of fur-bearers (subject to MNR/NVCA regulations)

In addition to permitted recreational activities, some users participate in prohibited activities such as using motorized wheeled vehicles (M WV) on NVCA property. Activities such as this are prohibited on NVCA property because of the severe damage it causes to sensitive plant and animal communities within the wetland.

Special activities are undertaken within the wetland for the purposes of rehabilitating damaged areas and preventing damage from occurring (i.e. stream bank stabilization projects, trail creation and maintenance). Special interest groups, such as the Friends of Minesing Swamp, carry out most of these activities; however, some activities require the participation of the public.

## **4.2 PUBLIC USE**

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*The following has been taken from the Minesing Swamp “A Wetland for all Seasons” map that was created by the Friends of Minesing Swamp (FOMS).*

Visitors to Minesing Swamp have a responsibility to determine whether they are on public land and must obtain permission to enter private lands. The best method is not to guess but to stay on designated trails and canoe routes.

The wetland is an isolated wilderness. Use appropriate caution and let at least one responsible person know where you are going and when you will return. Better still is to take advantage of the knowledgeable tour guides who will lead trips into the Minesing Swamp.

Minesing Swamp is designated a wetland of international importance by the RAMSAR Convention on wetlands. It represents one of the largest and most diverse undisturbed wetland tracts in Canada.

**The NVCA prohibits the operation of all motorized wheeled vehicles on NVCA owned lands.**

### **4.3 ACCESS POINTS**

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*The following has been taken from the Minesing Swamp “A Wetland for all Seasons” map that was created by the Friends of Minesing Swamp (FOMS).*

1. *Trans Canada Trail at Minesing Station* – Travel 6km North on Bayfield Street from Highway 400 in Barrie and turn west onto Highway 26. The trailhead is 5km on your right.
2. *Mayers Marsh* – Travel 2km North of Snow Valley Road on the Vespra Valley Road (9<sup>th</sup> Line of Springwater) until you cross the Trans Canada Trail. Travelling east from here on the trail to the viewing platform you can easily view representative plants and wildlife that would be found deep within Minesing Swamp without impacting the sensitive areas within the swamp’s interior.
3. *Willow Creek* – Travel 8km North of County Road 90 on George Johnson Road (County Road 28). The access is on the left.
4. *Fort Willow* – Travel 6km North of County Road 90 on George Johnson Road (County Road 28). Turn left on Portage Trail Road for 2km.
5. *McKinnon Road* – Travel 3km North of County Road 90 on McKinnon Road.
6. *NVCA Administration Centre* – Travel 16km West on County Road 90 from highway 400 in Barrie. Cross the Nottawasaga River and the Administration building is on your left.
7. *Mad River* – Turn East off County Road 10 on the Brentwood Road (Concession 2 Sunnidale). Travel east until you cross the Mad River Bridge. A laneway on your immediate left leads to parking area.
8. *Edenvale Conservation Area* – This CA is located adjacent to Highway 26 at the Nottawasaga River between Minesing Station and Stayner.

## **4.4 FORT WILLOW**

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Through the efforts of the Fort Willow Improvement Group, and volunteers working with the NVCA the Fort Willow Conservation Area has been improved beyond expectations, and now provides an appealing venue for visitors. It has become a popular place to hold meetings, gatherings, and other activities. The functions held at Fort Willow provide an excellent opportunity for learning about the historic aspect of the site through tours and reenactments.

The location of the Fort Willow Conservation Area adjacent to the Trans Canada Trail provides the opportunity for interested groups to tour the Fort as they pass through the area. Information kiosks are provided at a variety of places within the Fort enclosure pertaining to the Forts historical use as well as flora and fauna of the area. A large shelter / interpretive kiosk will be completed in the fall of 2002, and will provide detailed information on the local flora and fauna with specific information on the Monarch Butterfly. Picnic tables and public washrooms at the site allow families to enjoy an afternoon learning about this important piece of Canadian history. For further information refer to the 2003 Fort Willow Management Plan.

## **4.5 HIKING TRAILS**

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There are currently designated trail routes that run through the Minesing Swamp. These trails have been developed so that hikers and naturalists can enjoy the beauty and diversity of the wetland without disturbing environmentally sensitive areas. These trails are:

- Meadow Mouse Trail
- Mayers Marsh Trail
- Ganaraska Trail
- Trans Canada Trail

## **5.0 GOALS AND OBJECTIVES**

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### **5.1 GOALS**

### **5.2 OBJECTIVES**

## **5.1 GOALS**

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The following goals were developed through the collective efforts of the Advisory Team and the NVCA during the planning process.

- To preserve, protect, and restore the ecological functioning of Minesing Swamp.
- To successfully protect the interests of the flora and fauna communities of Minesing Swamp while providing low impact recreational uses and activities.

## **5.2 OBJECTIVES**

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The Minesing Swamp objectives will adhere to the newly formed Management Objectives of the Nottawasaga Valley Conservation Authority and are as follows:

1. Protect, enhance, and restore water.
2. Protect, enhance, and restore land.
3. Protect life and property from flooding and erosion.
4. Provide educational and recreational opportunities for the public.

The goals, objectives, and recommendations of the Minesing Swamp Management Plan will be implemented through land use planning documents, local agency policies, and programs. They will also take into account the inputs of the Minesing Swamp Advisory Team, which consists of local landowners, residents, and other interested parties. The need for revisions to the plan will be determined by the Nottawasaga Valley Conservation Authority through the review of information gathered by the advisory team's members and the general public at large.

## **6.0 ISSUE IDENTIFICATION**

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### **6.1 ISSUE IDENTIFICATION SUMMARY**

### **6.2 TABLE 1 - ISSUE ANALYSIS**

### **6.3 IMPLEMENTATION**

### **6.4 TABLE 2 - ACTION MATRIX**

## **6.1 ISSUE IDENTIFICATION SUMMARY**

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1. Preserving Minesing Swamp (MS) as a World Class Wetland.
2. The management of access to MS, and on going associated problems with motorized wheeled vehicle use (MWV).
3. Hunting Regulations.
4. Trapping Management.
5. Agricultural, Industrial, and Recreational, impacts on MS.
  - The cultivation of land in close proximity to municipal drains and streams
6. The promotion of low impact recreation, and the formation of guidelines for those activities within MS.
7. A strategy to control the spread of exotic species throughout MS.
8. The education of area residents and the general public on the importance and role of the MS.
9. A comprehensive revenue and fundraising initiative.
10. To continually work to improve landowner/user group interactions.
11. The erosion and resulting sediment load affecting Willow Creek.
12. Woodlot and Forestry Management.
13. Logjams in the Mad and Nottawasaga Rivers and Willow Creek.
14. Fisheries Management.
15. Hydrology and Water Resources.
  - Flooding and Flood Control
16. Future Development Concerns.
  - Official Wetland Boundary
17. Endangered and Rare Species in MS.

## 6.2 TABLE 1: ISSUE ANALYSIS

This table provides the Issue Analysis for the Minesing Swamp Conservation Area’s Management Objectives, Recommended Actions, and Measures of Success as detailed during the various Minesing Swamp Advisory Team meetings of 2002.

<b>Issue: 1</b>	<p><b>Preserving Minesing Swamp (MS) as a World Class Wetland.</b>  <b>Present Situation:</b> The MS has been deemed an “Area of Natural and Scientific Interest”(ANSI) by the MNR, and is regarded as a “Class 1, Provincially Significant Wetland”. It has also been designated as an Internationally significant wetland by the worldwide RAMSAR convention. Portions of MS remain undisturbed by man, and provide sanctuary to many rare and endangered local species.</p>
Management Objectives	<p>To preserve, protect, and enhance MS’s</p> <ul style="list-style-type: none"> <li>• Flora and Fauna communities’</li> <li>• Biodiversity</li> <li>• Water resources</li> </ul> <p>Educate the general public on the value of MS.                  Create and expand partnerships.                  Work with local municipalities ensuring MS is considered in their Official Plans.</p>
Recommended Actions	<p>Actively voice concerns and request information on all potential impacts directly affecting MS.                  Circulate the 2003 Minesing Swamp Management Plan to local schools and libraries.                  Undertake a flora and fauna species, and habitat assessment of MS.</p>
Measures of Success	<p>A draft guidebook has been developed for low impact recreational uses. (Not yet released)                  The NVCA in partnership with FOMS sponsor a public awareness campaign to increase awareness of the importance of MS.                  Several film documentaries and articles in magazines, newspapers, and scientific journals nationwide have been produced outlining the diversity of flora and fauna within MS, as well as its value for groundwater recharge and floodwater retention capabilities.                  See NVCA fact sheet on the impacts of non-native species introduced into the swamp.</p>
<b>Issue: 2</b>	<p><b>The management of access to MS, and on going associated problems with motorized wheeled vehicle (MWV) use.</b>  <b>Present Situation:</b> Both the NVCA and MNR feel that the unrestricted use of MWV are detrimental to MS. MWV’s harm this wetland by directly damaging habitats with their large tires and the noise pollution they cause which may prove to be irreversible. Significant vegetative communities and wildlife habitats are being threatened, and river levees are being destabilized.</p>
Management Objectives	<p>Long-term maintenance of existing access gates and the addition of new gates as required.                  Encourage the use of the MS as an environmentally sensitive area with special considerations taken to ensure that only low impact activities are permitted.                  Under the <u>Trespass to Property Act</u> the Conservation Authority prohibits the operation of “all terrain vehicles”, or “off road vehicles “, on Conservation Authority properties such as those in MS, unless a permit has been issued by the Authority for emergency and enforcement purposes only.                  Emergency/ Enforcement Use: NVCA vehicle permits may be acquired in emergency or enforcement situations, decision subject to conditions of specific situations.</p>

<p>Recommended Actions</p>	<p>Under the <u>Public Lands Act</u> the Ministry of Natural Resources could prohibit similar activity on Crown Lands by erecting signage stating, “off road vehicles are not permitted”.</p> <p>Devise additional means of restricting MWV’S. The effectiveness of measures taken to restrict the use of MWV’s must be reevaluated annually.</p> <p>Incorporate an interpretive kiosk outlining permitted activities.</p> <p>Provide maps and signage of MS that will identify the sensitive areas.</p> <p>Work with local municipalities to control access to MS.</p> <p>Encourage private landowners to prohibit MWV’s</p>
<p>Measures of Success</p>	<p>The OPP has been granted permission to lay trespass charges on those in violation of NVCA policy regarding motorized vehicle use.</p> <p>Access gates have been established at seven access points to restrict 4x4-vehicle access and use.</p> <p>Public participation is encouraged to notify the police (OPP) of unauthorized MWV’s at 1-800-310-1122.</p> <p>Efforts have been made through mass media articles to educate the public and increase awareness of wetland significance and the negative effects of motorized vehicles.</p> <p>The use of snowmobiles is permitted on all land owned by the Conservation Authority or the Crown. The snowmobile users are to restrict their activities to designated trails only, these trails will not encroach upon sensitive areas of the Swamp</p>
<p><b>Issue: 3</b></p>	<p><b>Hunting Regulations</b>  <u>Present Situation:</u> Hunting is presently permitted on Conservation Authority and Crown lands. An application to hunt on Conservation Authority land is subject to review by the MNR Conservation Officers.</p>
<p>Management Objectives</p>	<p>Written consent is required to hunt on Conservation Authority lands within MS. The permission form must contain;</p> <ul style="list-style-type: none"> <li>• Name</li> <li>• Address</li> <li>• Phone Number</li> <li>• Hunting License Number</li> </ul> <p>The hunting permit must be carried by the hunter at all times when hunting within MS. Increase education, participation, responsibility, and implementation of wise use hunting practices.</p> <p>Designate no hunting areas on NVCA lands as required to protect sensitive areas, and/or user conflicts.</p> <p>Investigate the need for additional Conservation Officers.</p> <p>Refer to MNR Hunting Regulations Summary.</p>
<p>Recommended Actions</p>	<p>Review of current hunting applications in regards to additional pertinent information that will assist in wildlife management and enforcement endeavors including;</p> <ul style="list-style-type: none"> <li>• Animal/fowl to be hunted</li> <li>• Duration of hunt time</li> <li>• Location of hunt activities</li> </ul> <p>Develop a fact sheet of NVCA hunting regulations for hunters using MS including hunter safety information.</p> <p>Addition signage along trails to warn of hunting areas and seasons.</p> <p>Private landowners are encouraged to require that hunters obtain written permission to hunt on their lands.</p>

Measures of Success	<p>Controlled hunting shall continue, as it is a traditional use within MS.</p> <p>All permanent hunting structures are to be removed. All hunting areas are to temporary, and not attached by nails, screws, bolts, spikes, or any other permanent or intrusive means.</p> <p>All structures must be identified with an outdoors card number. The removal of trees for the establishment of structures is not permitted.</p> <p>Available Hunts include:</p> <ul style="list-style-type: none"> <li>• Deer</li> <li>• Turkey</li> <li>• Waterfowl</li> <li>• Small Upland Game</li> </ul>
<b>Issue: 4</b>	<p><b>Trapping Management</b></p> <p><b>Present Situation:</b> Trapping is limited to approximately 5-6 regular active trappers that currently use the swamp.</p>
Management Objectives	<p>MNR Conservation Officers are responsible for enforcing provincial legislation. The NVCA requires that all animals trapped, excluding the muskrat, be stamped by the MNR as a prerequisite for legal sale.</p>
Recommended Actions	<p>Maintain present trapping program.</p> <p>Record historic information about trapping from traditional local trappers.</p> <p>MNR, NVCA and local trappers should collaborate to manage current trapping programs.</p> <p>For additional information contact Fur Council of Canada or The International Fur Trade Federation</p>
Measures of Success	<p>Available Trapping includes:</p> <p>(None of the species trapped are endangered or in decline)</p> <ul style="list-style-type: none"> <li>• Muskrat</li> <li>• Beaver</li> <li>• Mink</li> <li>• Raccoon</li> <li>• Otter</li> <li>• Fox</li> </ul> <p>Cooperation exists between MNR staff and local trappers Council's, and there are currently no significant outstanding issues regarding trapping within MS.</p>
<b>Issue: 5</b>	<p><b>Agricultural, Industrial, and Recreational, impacts on M.S.</b></p> <ul style="list-style-type: none"> <li>• <b>The cultivation of land in close proximity to municipal drains and streams.</b></li> </ul> <p><b>Present Situation:</b> Through the Environmental Farm Plan, Healthy Waters, and other land stewardship initiatives there is a growing effort to work hand in hand with the upstream and surrounding agriculture communities that would encourage Best Management Practices to improve/protect wildlife habitat, and reduce erosion and poor water quality impacts on MS.</p>
Management Objectives	<p>Ensure that there is no impact of sewage or sludge disposal.</p> <p>Monitor the effects of farm, recreational, commercial and industrial activities and encroachments.</p> <p>Monitoring programs, annual reports, and management plans which identify and provide viable alternative practices proven to combat negative impacts.</p>
Recommended Actions	<p>Known negative adjacent land practices (i.e. nutrient loading, chemical use, etc.) to be formally examined.</p> <p>Investigate, and monitor historic drainage attempts and there effects.</p>

<p>Recommended Actions continued</p>	<p>Monitoring program will be established to consist of:</p> <ul style="list-style-type: none"> <li>• Photographic records of both land and water</li> <li>• Water sampling</li> <li>• Habitat assessment</li> </ul> <p>Promote the wise use of agricultural practices including:</p> <ul style="list-style-type: none"> <li>• Chemical use</li> <li>• Livestock grazing practices</li> <li>• Carrying capacity</li> <li>• The use of tile drain dredges on fields</li> </ul> <p>Proposed Legislation Bill 81, recognizing Best Management Practices. Refer to the NVCA Groundwater Study (not yet released).</p>
<p>Measures of Success</p>	<p>Adjacent agricultural lands in many cases represent a transitional buffer between urban development and the MS. Farmlands also serve important habitat functions for many species. Water monitoring stations exist within the MS boundary. Programs like Healthy Waters assist local farmers through funds that enable the repair and development of riparian zones, and other aspects. The NVCA, OMAFA, and MNR help to ensure and, where feasible, offer assistance towards rural water quality impacts. Refer to Rural Wetlands of Ontario... Ducks Unlimited Canada</p>
<p><b>Issue: 6</b></p>	<p><b>The promotion of low impact recreation, and the formation of guidelines for those activities within MS.</b> <b>Present Situation:</b> The current permitted activities within MS include;</p> <ul style="list-style-type: none"> <li>• Canoeing and canoe camping on designated canoe routes.</li> <li>• Nature appreciation, bird watching and photography</li> <li>• All year hiking on trails.</li> <li>• Cross country skiing and snow shoeing on designated trails</li> <li>• Cycling is restricted to designate trails.</li> <li>• Snowmobiles are restricted to designated and maintained trails. See OFSC guidelines</li> <li>• Licensed Fishing, Hunting and Trapping.</li> </ul>
<p>Management Objectives</p>	<p>Provide the sound management of recreational activities while protecting the habitat requirements for all species. On NVCA and Crown land, recreational use of the boreal forest, fen, and string islands should be limited to existing and historical use – increased human activity within these areas will be discouraged, particularly during the frost free seasons. <b>Ramsar Use Category:</b> <b>Traditional-</b> hunting, fishing, trapping <b>Ramsar Access Guidelines applied to Minesing Swamp:</b> <b>Closed:</b> Fens and waterfowl staging area <b>Restricted:</b> Hunting and Hiking <b>Partially Open Access:</b> Trans Canada Trail <b>Open Access:</b> None Promote and manage the Fort Willow Conservation Area. See the 2003 Fort Willow Management Plan</p>
<p>Recommended Actions</p>	<p>Investigate additional hiking trails within MS. Additional signage on hiking trails, advising of applicable hunting seasons. Take care to ensure that only environmentally approved products enter waterways, and stream bank degradation is kept to a minimum. Landowners are encouraged to post signage identifying private property.</p>

Recommended Actions continued	Prohibit recreational use within 1km of the Great Blue Heronry from April to July. The NVCA encourages a voluntary limiting of boat traffic for environmental reasons. Motorboats are encouraged to stay on the Nottawasaga River, and engine size is to be less than 10 horsepower.
Measures of Success	FOMS produced a detailed interpretive poster map of MS, which includes flora and fauna information, as well as recreational use and special interest areas. The Nottawasaga Valley Canoe Route brochure and Master Plan is an excellent source of information The annual spring tour led by the NVCA staff includes a MS orientation slide show, as well as interpretations during a canoe tour down the Nottawasaga River. Private local outfitter's guide informative canoe tours during the spring, summer and fall seasons. The FWIG has been monumental in the ongoing efforts to enhance and maintain the Fort Willow Conservation Area. See Fort Willow Management Plan 2003.
<b>Issue: 7</b>	<b>A strategy to control the spread of exotic species throughout Minesing Swamp.</b> <b>Present Situation:</b> The following exotic species have been found in MS including: phragmites, garlic mustard, virgins bugloss, glossy buckhorn, and purple loosestrife
Management Objectives	Control the spread of harmful exotic species Educate the public/ community on the effects of exotic species. Educating individuals/ groups on how they can take action to assist in the control or, where possible, the eradication of these exotic species.
Recommended Actions	Inventory exotic species and their locations Help prevent the introduction of exotic species by making sure not to transport any organic materials on your boots, clothes, watercraft, or any other equipment that may be used The public is encouraged to report any uncommon species to an area that are found to the local Conservation Authority or MNR. The public is encouraged to participate in community actions that educate and help to control the spread of invader species.
Measures of Success	Information on exotic species is available from: <ul style="list-style-type: none"> <li>• NVCA</li> <li>• MNR</li> <li>• Canadian Wildlife Federation.</li> <li>• Ducks Unlimited</li> <li>• Ontario Federation of Anglers and Hunters</li> </ul> Ontario Federation of Anglers and Hunters and MNR Invading Species Hotline 1-800-563-7711 The Ontario Federation of Anglers and Hunters initiative Project Purple.
<b>Issue: 8</b>	<b>The education of area residents and the general public on the importance and role of the Minesing Swamp</b> <b>Present Situation:</b> The MS acts like a natural sponge, by accumulating floodwaters in the spring and then releasing them over subsequent weeks. The swamp functions as a natural flood control reservoir, protecting downstream communities, and acts as a kidney by filtering toxins and contaminants that pass through. Many plant and animal species depend on the annual flooding of the swamp for survival and reproduction.
Management Objectives	Increase awareness of MS <ul style="list-style-type: none"> <li>• Unique ecological functions</li> <li>• The need to protect sensitive areas from human activities</li> </ul> Create, and promote partnerships with landowners, user groups, municipalities,

Management Objectives continued	government agencies and other pertinent organizations that will ensure the long-term success of the MS Management Plan.
Recommended Actions	The transfer of information through presentations by NVCA, MNR, local townships, and special interest groups. Landowners and user groups are encouraged to participate on advisory teams, and assist in the management of MS. Landowners are encouraged to provide historic and cultural information relating to MS.
Measures of Success	Viewing platforms, information kiosks, and interpretative signage posted at major access points to inform users of the sensitive plant and animal communities of the swamp and what recreational activities are permitted on NVCA lands. The Friends of Minesing Swamp (FOMS) was established in 1996. <ul style="list-style-type: none"> <li>• Large membership (50-60 members) the group is composed of landowners, user groups, and interested individuals.</li> <li>• Very active. Constantly fundraising and raising awareness on the M.S.</li> </ul> The Tiffin Center for Conservation teaches younger children the value and management of wetlands.
<b>Issue: 9</b>	<b>A comprehensive revenue and fundraising initiative.</b> <b>Present Situation:</b> The management of MS has become increasingly difficult due to continued financial constraint. New sources of revenues will be required to implement the recommendations addressed by the MS Management Plan.
Management Objectives	Any revenue generating initiatives related to MS will be consistent with the goals and objectives of this plan. Continue to work with the Nature Conservancy of Canada and other pertinent agencies/foundations so as to ensure future purchase of MS lands and associated maintenance. Ensure funding and grants acquired through non-government organizations for specific projects continue. Develop an annual fundraiser (i.e. letter drive or sale) that will gain momentum and success each additional year.
Recommended Actions	Local municipalities are encouraged to provide direct and indirect funding. Contact a wide variety of non-government organizations and government agencies to enlist their financial support. Pursue the possibility of the wetland receiving support/funding from adjacent development projects. Explore the potential generation of revenues from sales of seasonal permits for public use, as well as, a day user fee. In addition, implementing a series of group rates that would be geared towards an activities group size. Determine the feasibility of a fundraising initiative through the contracting of a professional fundraiser.
Measures of Success	Most fundraising accomplished by the FOMS through: <ul style="list-style-type: none"> <li>• Annual membership fees</li> <li>• Poster sales</li> <li>• Proposals for funding</li> <li>• Guided excursions into the Swamp</li> <li>• Merchandise sales (hats, clothing, coffee cups, walking sticks, etc)</li> <li>• Adopted-a-road by Minesing Swamp</li> <li>• Conduct raffles</li> </ul> See the NVCA 2001-2003 Business Plan.

<b>Issue: 10</b>	<b>To continually work to improve landowner/user group interactions.</b> <b>Present Situation:</b> Many landowners have expressed concerns with unauthorized users on their lands contributing to vandalism, garbage accumulation, and damage to roads and crops.
Management Objectives	Improve landowner/user group relations by controlling undesirable uses and conflicts through access and development control on both private and public lands. Address concerns landowners have expressed towards unauthorized users on their lands
Recommended Actions	Encourage landowners, user groups, government agencies, and development corporations to work together and promote compatible development along the swamp boundary. The components of this new relationship should include a land use registry, signage, maps, brochures, land management leases, landowner self- policing, and a user Education Program.
Measures of Success	Information is available through the NVCA for landowners and user groups to be made aware of their privileges and responsibilities within MS. Local Landowners have and continue to provide historic and cultural information relating to MS and past settlements. The Fort Willow Improvement Group has been monumental in the ongoing efforts to enhance and maintain the Fort Willow Conservation Area. See the 2003 Fort Willow Management Plan
<b>Issue: 11</b>	<b>The erosion and resulting sediment load affecting Willow Creek.</b> <b>Present Situation:</b> There has been and continues to be a large amount of sediment accumulating along Willow Creek. The removal of sediment is accomplished through an engineered trap system that is regular and on going.
Management Objectives	Manage sediment loading in a manner consistent with the protection of natural resources and the sustainability of MS natural functions. Conduct a detailed analysis on the suspected sources of nutrient/sediment loading. The largest, suspected sources for the nutrient/ sediment loading are believed to be the Innisfil Creek sub-watershed and Swaley Drain/ Muskrat Creek. Maintain and expand partnerships that provide options for Best Management Practices, and funding for stream bank stabilization initiatives
Recommended Actions	Develop trails around the Swamp in order to direct people out of the sensitive areas Additional sediment traps are required along Willow Creek. Bill 81, The Best Management Practices are encouraged for surrounding farms. Establish a long-term flood-monitoring program that will report on changes in flooding as a result of human activity. Additional stream bank stabilization initiatives (i.e. natural stream channel development)
Measures of Success	A canoe access dock is under construction, which will help to direct traffic to one entry area and reduce erosion along the banks of the river. Excavation of current sediment traps on Willow Creek prevent high sediment load from “filling in” MS. The current sediment traps are maintained and excavated regularly, recycled and used for winter maintenance on local roadways. Access gates reduce access of MWV’s, which in turn reduces the resultant erosion and damage. Water monitoring stations around the swamp, and fish monitoring within the swamp keep track of water quality and quantity impacts. The NVCA works in partnership with, mainly the Nature Conservancy Canada, to acquire an average of 300 additional acres of MS per year.

<p><b>Issue: 12</b></p>	<p><b>Woodlot and Forestry Management</b>  <b>Present Situation:</b> MS has a long history of both commercial and private woodcutting. Woodcutting on private lands is generally limited to the removal of cedar posts, minimal hardwood and softwood logs, and fuel wood during winter months for personal use. In recent years, no commercial timber sales have occurred on NVCA or Crown lands within MS.</p>
<p>Management Objectives</p>	<p>The County of Simcoe tree cutting by-law number 4744 outlines the specifics that are applicable to tree removal within MS, and repeals By-law number 4338. The <u>Trees Act</u> delegates’ authority regarding tree cutting on private land to local municipalities. The NVCA and MNR acknowledge that site-specific manipulations may be required to maintain or enhance unique features. The MNR recommends, “on public and private woodlots that are identified as Conservation Lands (provincially significant wetlands and ANSI), or supporting vulnerable, threatened, or endangered species, the silviculture advice provided by staff, and the forest management undertaken by staff, should incorporate the best silviculture practices and identify natural heritage values.</p>
<p>Recommended Actions</p>	<p>Encourage wise use management in adjacent, private, and public woodlots. Conduct a forest inventory. Develop a comprehensive long-term forest management plan, which complements the goals and objectives of this plan. Improvement cuts should be encouraged and preferred in short-term. <u>Forestry Act</u>, R.S.O. 1990, c.F.26</p>
<p>Measures of Success</p>	<p>Stewardship information is available to the public at both the MNR and NVCA offices. Conservation incentives including;</p> <ul style="list-style-type: none"> <li>• The Conservation Land-Tax Program</li> <li>• The Managed Forest Tax Incentive Program</li> </ul> <p>Successful agreements between landowners, the MNR and NVCA have been implemented in the past. In the late 1970’s and early 1980’s, cedar was cleared in a number of small areas on Crown and NVCA lands to improve habitat for wildlife. These activities did not result in the regeneration of desired species and have since been discontinued. The NVCA, in an effort to control and reduce the occurrence of logjams along Willow Creek has permitted local residents, under written authorization, to remove dead standing timber for fuel wood within one tree length of Willow Creek. Landowners may receive information, advice and help from the N.V.C.A.</p>
<p><b>Issue: 13</b></p>	<p><b>Logjams in the Mad and Nottawasaga Rivers and Willow Creek</b>  <b>Present Situation:</b> Log Jams are primarily the result of erosion that causes trees to collapse into the rivers. Log Jams can also be a result of natural river processes. There are presently several managed logjams existing along MS waterways.</p>
<p>Management Objectives</p>	<p>Ecological impacts are determined through the Department of Fisheries and Oceans prior to the authorization to remove any significant logjams. Nottawasaga River;</p> <ul style="list-style-type: none"> <li>• Maintain the major log jam</li> <li>• Monitor levees for breeches, or changes in the river course.</li> <li>• Develop a contingency plan if breach occurs.</li> <li>• The long-term monitoring of existing log jams.</li> <li>• Identify if critical logjam exists; impacts on landowners and/or sensitive areas of MS.</li> </ul>

Recommended Actions	Encourage assistance from local academic communities in efforts to determine impacts prior to the removal of any significant logjams. Continually enlist the support of local municipalities for periodic logjam removal assistance.
Measures of Success	Waterways are monitored for critical logjams. (A contingency plan is still in development). Efforts have been made by many volunteers and the NVCA to clear the Mad River of logjams in order to establish a canoe route. Springwater Township continues to fund logjam removal efforts on the Willow Creek as part of an annual maintenance program. The NVCA, in an effort to control and reduce the occurrence of logjams along Willow Creek has permitted local residents, under written authorization, to remove dead standing timber for fuel wood within one tree length of Willow Creek.
<b>Issue: 14</b>	<b>Fisheries Management</b> <b>Present Situation:</b> Currently, external threats to the MS fish populations have the greatest potential to be long-term and damaging. Municipal runoff into rivers, streams, and creeks that flow through the swamp are the biggest threats. With a variety of aquatic habitats and more than thirty species living in and visiting the swamp for breeding and migratory purposes, the waterways of the MS play an important role in local fish populations and habitats.
Management Objectives	Continue to effectively manage the existing policies and procedures enforced by Fisheries and Oceans Canada Assess and control the threats to fish populations and water quality and quantity. Maintain water monitoring programs detailing: <ul style="list-style-type: none"> <li>• Sediment</li> <li>• Temperature</li> <li>• Electro-fishing</li> </ul> (Species identification, distribution, and population counts.) Investigate increased nutrient/sediment loading and the resultant effects (i.e. suspended green algae) on MS aquatic ecosystems; implement strategies to reverse, where feasible, the negative affects. Continue levels of compliance regarding illegal netting For further details see section 35 (1) of <u>Federal Fisheries Act</u> and Section 28 of <u>Conservation Act</u> .
Recommended Actions	Conduct detailed research on the suspected sources of the nutrient/sediment loading The use of existing NVCA documents, such as, The Willow Creek Sub-watershed Plan, Innisfil Creek Plan (still in development), and any additional research documents regarding rivers, streams, and creeks that run into MS. Continue to access critical pollutant waterways and their impact on MS sensitive ecosystem. Safeguarding Fish Habitat in Canada’s inland provinces Fisheries and Oceans Canada Continually purchase lands throughout MS, and the use of land acquisition programs. Both of these avenues will continue to provide protection for lands directly surrounding the swamp. Refer to Ontario Recreational Fishing Regulations Summary
Measures of Success	The NVCA continues to work in partnership with Fisheries and Oceans Canada The MS provides the ideal habitat for a variety of fish species like the Northern Pike, Walleye, and Lake Sturgeon. These are the primary species that inhabit the swamp. The MS is one of the two known locations in North America where Walleye spawn on submerged vegetation. Other thriving species that have been observed using the pockets and embankments of

Measures of Success continued	the swamp, most likely as a nursery, are Bowfin, Sunfish, Channel Catfish, Brown Bull Head, and Red Horse Sucker. In addition, the Chinook Salmon and Rainbow Trout also use the swamp during their migratory season.
<b>Issue: 15</b>	<p><b>Hydrology and Water Resources</b></p> <ul style="list-style-type: none"> <li>• <b>Flooding and Flood Control</b></li> </ul> <p><b>Present Situation:</b> The goal of the Nottawasaga Valley Watershed Management Plan is the conservation of natural resources within our watershed in a cooperative, integrated manner in which human needs are met in balance with the need to sustain the natural environment</p>
Management Objectives	<p>Access and manage flood regime of MS.            Maintain water monitoring programs detailing:</p> <ul style="list-style-type: none"> <li>• Sediment</li> <li>• Temperature</li> <li>• Electro-fishing</li> </ul> <p>Investigate increased nutrient/sediment loading and the resultant effects on MS aquatic ecosystems.            See Nottawasaga Valley Watershed Plan.</p>
Recommended Actions	<p>Monitor for changes due to human activities.            Annual report of the MS Management Plan to include section on current flood status.            Initiate additional site specific monitoring programs as identified.            Liaise with MOEE regarding the issuing of water taking permits.            Ensure secondary Plans developed by municipalities address impacts to groundwater and surface water related to MS.            Refer to NVCA Groundwater Study (Not yet released).</p>
Measures of Success	<p>The NVCA Watershed Plan, which provides comprehensive discussion and recommended actions on how to approach flooding within the watershed.            The NVCA works in partnership with, mainly the Nature Conservancy Canada, to acquire an average of 300 additional acres of MS per year.            Water monitoring stations around the swamp, and fish monitoring within the swamp keep track of water quality and quantity impacts.</p>
<b>Issue: 16</b>	<p><b>Future Development Concerns</b></p> <ul style="list-style-type: none"> <li>• <b>Official Wetland Boundary</b></li> </ul> <p><b>Present Situation:</b> There is increasing urbanization from the surrounding Townships, and the development associated with this has the potential for long term irreversible effects on the health of the local community and Minesing Swamp complex. In an effort to provide the kind of long term ecological functioning which is essential to overall health and well being of a community the buffer/setback has been recommended to encompass a 500 meter boundary</p>
Management Objectives	<p>Enforce the “no loss of provincially significant wetlands” under the Provincial Wetland, which specifies that no wetland is lost regardless of the initiative.            Work with adjacent Townships through Official and Secondary Plans to implement adequate protection of MS ecosystems.            Monitor the effects of adjacent land development on;</p> <ul style="list-style-type: none"> <li>• Species populations and habitat requirements</li> <li>• Stream and River quality</li> <li>• Groundwater quality and quantity</li> </ul> <p>Attain a qualified provincial wetland evaluation that will meet MNR specifications            Increase awareness and incentives for wise use of the areas potential as a long term resource            Investigate with the intent to connect with other Green Corridors</p>

<p>Recommended Actions</p>	<p>500m buffer/setback protective zone to include;</p> <ul style="list-style-type: none"> <li>• 120m buffer of no development</li> <li>• 380m adjacent lands setback- requiring EIS</li> </ul> <p>Evaluate areas beyond the 500m protective zone which contribute to local groundwater supplies that in turn effect the MS wetland complex          Undertake species inventory and habitat assessment identifying areas of significance.          Provide site specific monitoring of areas identified as significant or those suspect of contributing negative impacts.          Scientific studies that monitor rivers and streams flowing into and out of the MS          Recommended actions resulting from NVCA Groundwater Study (not yet released)          Proposed Bill 81Best Management Practices.</p>
<p>Measures of Success</p>	<p>Secondary plans of Springwater Township regarding Snow Valley buffer of 120m          The NVCA works in Partnership with, mainly Nature Conservancy Canada, to acquire an average of 300 additional acres of MS per year.          Recognition as an area of international, provincial and local significance</p>
<p><b>Issue: 17</b></p>	<p><b>Rare and Endangered Species in MS</b>  <u><b>Present Situation:</b></u> There are presently several known rare, threatened or endangered species for which MS provides sanctuary</p>
<p>Management Objectives</p>	<p>Assist MNR with the Species at Risk initiative.          Joint venture between the NVCA and MNR to identify and map rare communities          Monitoring and assessment of significant areas such as the fens and silver maple swamp.          See <u>Endangered Species Act</u>, R.S.O. 1990,c. E-15</p>
<p>Recommended Actions</p>	<p>Contact educational institutions to investigate the genetic link of Prairie White Fringe Orchids and the newly documented Pink Hybrid.          Investigate the status of Phragmites as a native or exotic species, and rate of growth.          Evaluate disturbance history of area.          Investigate pertinent survey's that may offer assistance.          Refer to 4 year Hydrology study completed by Andrea Bradford of Queens University</p>
<p>Measures of Success</p>	<p>Pamphlets and fact sheets providing information on rare species available from MNR          Partnerships with government agencies, private organizations, special interest groups or individuals that increase awareness, and provide valuable assistance with the preservation and enhancement of MS.          Volunteer monitoring of the Monarch Butterfly by the FWIG.</p>

## **6.3 IMPLEMENTATION**

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The goals and objectives of the Minesing Swamp Management Plan will be met through a variety of methods and techniques. The Advisory Committee has worked to develop a comprehensive Table 2 - Action Matrix, which addresses the issues discussed throughout the plan. The Action Matrix presents a condensed list of the issues identified in the previous section as well as designating various levels of responsibility to various stakeholders.

The **Lead** stakeholder(s) is the one who is responsible for implementation and co-ordination. **Direct** involvement means that input would be required, and **Advisory** means that a particular stakeholder could provide input.

The Matrix also indicates whether the action is classified as a **short term**, or **long-term** project, with the understanding that certain actions will be **ongoing** falling into both categories. Ongoing actions may potentially extend beyond the time frame of this management plan. A section is provided to indicate which actions are high, medium, or low priorities. Finally, a funding status is given to each action as being within current budget, or requiring additional funding. Sources of funding will vary, but may include Friends of Minesing Swamp initiatives, government grants, and assistance from various local organizations.

Inevitably, constraints exist that will often hinder the implementation and success of certain options. Most significant are the constraints of funding and human resources. The Provincial and Federal governments have reduced funding to local Ministries, Conservation Authorities, and Municipalities, which directly impedes the ability to effectively manage resources such as Minesing Swamp. Nevertheless, the conservation and management of the Minesing Swamp is a top priority with the NVCA, FOMS, FWIG, local residents, and interested groups. As a result, these key stakeholders will use all resources available to ensure that Minesing Swamp continues to remain a dynamic, yet unique, and diverse ecosystem.

In addition to the Action Matrix, recommended actions can be implemented through a variety of other ways. These may be initiated through:

- Ontario land use planning system by providing input into municipal planning documents (e.g. Official Plans, Comprehensive Zoning By-Laws)
- Preparation of sub-watershed plans.
- Local agency policy, programs and procedures.
- The NVCA's and MNR's land stewardship initiatives.
- The establishment of partnerships, including agreements with various government Ministries and local Municipalities.
- Appropriate land acquisition with Nature Conservancy Canada.
- Stakeholder interest and actions.

It is important to note that all stakeholders have an important role in the implementation of this plan. With cooperation from all stakeholders, the resources of Minesing Swamp can be managed effectively and consistently.

### ***SHORT TERM ACTIONS***

During various discussions with the Advisory Team actions have been identified as key short-term priorities to be accomplished within twelve months of approval of the Minesing Swamp Management Plan. They are to:

- Undertake a detailed species inventory of flora and fauna within Minesing Swamp,
- Develop maps and signage identifying ecologically sensitive areas,
- Develop a fact sheet of NVCA hunting policies,
- Review current hunting application,
- Develop an annual fundraiser,

### ***LONG TERM ACTIONS***

For effective management of Minesing Swamp actions shall be implemented that encompass up to a five-year time frame. These shall include:

- Develop an official wetland boundary,
- Hydrology and water quality studies,

***ONGOING ACTIONS***

Ongoing actions of the past taken by the NVCA, and various partnerships, have proven to be successful. These actions require no predetermined time frame as many initiatives are accomplished through a series of long-term actions. Efforts towards the preservation of Minesing Swamp as a provincially significant wetland include:

- Monitoring agricultural and urban impacts,
- Forestry management,
- Educational awareness of the Minesing Swamp.

**6.4 TABLE 2 – ACTION MATRIX**

The Action Matrix was developed through meetings with the Minesing Swamp Advisory Team and is intended to be an integral component to the success of the plan.

**LEGEND**

<b>Stakeholder Role</b>	<b>Priority</b>	<b>Time Frame</b>	<b>Fundraising Requirements</b>
Lead=L	High=H	Short Term=ST	Within current budget=✓
Direct=D	Medium=M	Long Term=LT	Requiring Funding= \$
Advisory=A	Low=L	Ongoing= B	

MINESING SWAMP ACTION MATRIX  RESPONSIBILITIES FOR THE IMPLEMENTATION OF ACTIONS  RECOMMENDED ACTIONS	STAKEHOLDERS												STATUS			
	NVCA	MNR	MOEE	OMAF	SIMCOE COUNTY	SPRINGWATER TWP	CLEARVIEW TWP	ESSA TWP	OPP	LANDOWNER/RESIDENT	DEVELOPMENT INDUSTRY	FOMS	INTERESTED GROUPS	TIME FRAME	PRIORITY LEVEL	FUNDING REQUIREMENTS
1. PRESERVE, PROTECT & ENHANCE MS AS A WORLD CLASS WETLAND	L	D	A	A	D	D	D	D	D	A	A	D	A	B	H	\$
2. UNDERTAKE A SPECIES INVENTORY OF FLORA AND FAUNA WITHIN MS	L	D	A	A	A	A	A	A	/	A	/	D	D	S	H	\$
3. INCREASE AWARENESS OF USER IMPACTS AFFECTING MS	L	D	A	A	A	A	A	A	A	D	D	D	D	B	H	\$
4. RESTRICT USE OF ALL MOTORIZED WHEELED VEHICLES ON NVCA LANDS	L	D	A	A	D	D	D	D	D	D	D	D	D	B	H	\$
5. DEVELOP MAPS AND SIGNAGE IDENTIFYING ECOLOGICALLY SENSITIVE AREAS	L	D	A	A	D	D	D	D	A	D	D	D	D	S	H	\$
6. OVERSEE SNOWMOBILE TRAILS	L	A	A	A	D	D	D	D	A	D	D	A	D	B	H	/
7. MANAGE AND ENFORCE HUNTING & TRAPPING ACTIVITIES	L	D	A	A	A	A	A	A	D	D	A	A	D	B	H	\$
8. REVIEW CURRENT HUNTING APPLICATION	L	D	A	A	A	A	A	A	A	A	A	A	D	S	H	/
9. DEVELOP FACT SHEET OF NVCA HUNTING POLICIES	L	D	A	A	A	A	A	A	A	A	A	A	D	S	H	\$
10. ADDITIONAL SIGNAGE TO WARN OF HUNTING AREAS AND SEASONS	L	D	A	A	A	A	A	A	A	A	A	A	A	B	H	\$

MINESING SWAMP ACTION MATRIX  RESPONSIBILITIES FOR THE IMPLEMENTATION OF ACTIONS  RECOMMENDED ACTIONS	KEY STAKEHOLDERS												STATUS			
	NVCA	MNR	MOEB	OMAF	SIMCOE COUNTY	SPRINGWATER TWP	CLEARVIEW TWP	ESSA TWP	Opp	LANDOWNER/RESIDENT	DEVELOPMENT INDUSTRY	FOMS	INTERESTED GROUPS	TIME FRAME	PRIORITY LEVEL	FUNDING REQUIREMENTS
	11. ENCOURAGE A SELF POLICING PHILOSOPHY WITHIN MS	L	D	D	D	D	D	D	D	D	D	D	D	D	L	H
12. DEVELOP A COMPREHENSIVE LONG-TERM FORESTRY MANAGEMENT PLAN AND CONDUCT A DETAILED INVENTORY	L	D	A	A	D	A	A	A	/	D	A	A	A	B	H	\$
13. MAINTAIN/DEVELOP MONITORING PROGRAMS AND ANNUAL REPORTS AND ESTABLISH A LONG TERM FLOOD MONITORING PROGRAM	L	D	D	D	A	A	A	A	A	A	A	A	A	B	H	\$
14. ASSIST MNR SPECIES AT RISK INITIATIVE	D	L	A	A	A	A	A	A	/	A	A	A	A	B	H	\$
15. INVENTORY AND CONTROL INVASIVE SPECIES WITHIN MS	L	D	A	A	A	A	A	A	/	D	D	D	D	B	H	\$
16. INCREASE AWARENESS AND EDUCATE PUBLIC ON THE ROLE OF MS	L	D	D	D	D	D	D	D	D	D	D	D	D	B	H	\$
17. IDENTIFY SENSITIVE AREAS WITHIN MS REQUIRING ADDITIONAL PROTECTION	L	D	A	A	A	A	A	A	/	A	A	A	A	B	H	\$
18. INTERPRATIVE KIOSKS OUTLINING PERMITTED ACTIVITIES	L	A	A	A	A	A	A	A	/	A	A	D	D	B	H	\$
19. INVESTIGATE ADDITIONAL HIKING TRAILS	L									D		D	D	S	M	/
20. MAINTAIN ESTABLISHED SEDIMENT TRAPS AND INVESTIGATE ADDITIONAL SEDIMENT TRAP REQUIREMENTS	L	/	/	/	/	D	/	/	/	D	/	/	/	B	H	\$
21. ADDITIONAL STREAM BANK STABILIZATION INITIATIVES	L	/	/	/	/	/	/	/	/	D	/	/	/	B	H	\$
22. ENSURE NO IMPACT OF SEWAGE/ SLUDGE DISPOSAL	D	/	L	D	A	A	A	A	/	A	A	/	/	B	H	\$

MINESING SWAMP ACTION MATRIX  RESPONSIBILITIES FOR THE IMPLEMENTATION OF ACTIONS  RECOMMENDED ACTIONS	KEY STAKEHOLDERS												STATUS			
	NVCA	MNR	MOEE	OMAF	SIMCOE COUNTY	SPRINGWATER TWP	CLEARVIEW TWP	ESSA TWP	Opp	LANDOWNER/RESIDENT	DEVELOPMENT INDUSTRY	FOMS	INTERESTED GROUPS	TIME FRAME	PRIORITY LEVEL	FUNDING REQUIREMENTS
	23. PROMOTE BEST MANAGEMENT PRACTICES INITIATIVES	L	A	A	D	A	A	A	A	/	D	/	/	/	B	H
24. FORMALY EXAMINE THE IMPACTS OF ADJACENT LAND USES SURROUNDING MS	L	D	D	D	D	D	D	D	/	D	D	/	/		H	\$
25. IMPROVE LANDOWNER/ USER GROUP RELATIONS	L	/	/	/	/	/	/	/	/	D	D	D	D	B	H	\$
26. CREATE AND EXPAND PARTNERSHIPS	L	/	/	/	/	/	/	/	/	/	/	D	D	B	H	\$
27. ESTABLISH ADEQUATE BUFFER/SETBACK SURROUNDING MS	L	D	A	A	D	D	D	D	D					B	H	\$
28. DEFINE OFFICIAL MS BOUNDARY	L	D	/	/	A	A	A	A	/	/	/	/	/	B	H	\$
29. ENSURE MUNICIPAL PLANNING FOLLOWS RECOMMENDED BUFFERS/SETBACKS IN THEIR OFFICIAL PLANS, SECONDARY PLANS, AND BI –LAWS	L	/	/	/	D	D	D	D	/	/	/	/	/	B	H	/
30. DEVELOP ANNUAL FUNDRAISER (EG. LETTER DRIVE)	L	/	/	/	/	/	/	/	/	/	/	L	D	S	H	/
31. FIND NEW & CREATIVE SOURCES OF FUNDING	L	/	/	/	/	/	/	/	/	/	/	L	D	B	H	/

# **7.0 MONITORING**

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## **7.1 EVALUATION**

## **7.2 MONITORING PROGRAMS**

## **7.3 PLAN AND REVIEW UPDATE**

## **7.1 EVALUATION**

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In order to evaluate the success of the Management Plan, the implementation of actions must be monitored and reviewed annually. The previous Minesing Swamp Advisory Team developed the following monitoring actions during the issue identification and action process. Three main types of monitoring programs are necessary in order to evaluate the actions outlined in Section 6.0 and implement a successful monitoring program; Programs to monitor users and their impacts, Programs to monitor water quality and quantity, Programs to monitor significant flora and fauna communities.

## **7.2 MONITORING PROGRAMS**

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### ***PROGRAM TO MONITOR USERS AND THEIR IMPACTS***

- Monitor the use of the wetland by motorized wheeled vehicles.
- Quantify overall use and damage by users through a monitoring program.
- Encourage those activities, which have minimal negative impact on the wetland.
- Use Land Stewardship Program to assist in monitoring use and subsequent impacts.

### ***PROGRAM TO MONITOR WATER QUALITY AND QUANTITY***

- Establish a water-monitoring program to assess water quality and quantity changes over time within Minesing Swamp, and relating these changes, where possible, to the cause of changes.
- Establish a long-term flood-monitoring program to assess human land use changes on the “normal flood regime”.
- Monitor logjam locations and extent within the wetland rivers to identify concerns including erosion, access restrictions, flooding etc.

### ***PROGRAM TO MONITOR SIGNIFICANT FLORA AND FAUNA COMMUNITIES***

- Continue to inventory great blue heronry on a regular basis.
- Quantify damage to sensitive areas and take steps to prohibit use in these areas.

- Establish a long-term flora and fauna monitoring program with key indicator species and habitats to assess the well being of Minesing Swamp and to identify the specific areas of concern.
- Determine and monitor extent of non-native species such as Purple Loosestrife.

#### ***OTHER NECESSARY MONITORING EFFORTS***

- Encourage approval agencies to follow up and monitor developments along the Nottawasaga River to reduce impacts
- An agricultural monitoring program should be established which would involve the accumulation of air and land photos, water sampling and habitat assessment
- Encourage a wide variety of partners to participate in monitoring programs
- Continue to monitor areas of erosion
- Continue to identify and monitor stream blockages (i.e. logjams, beaver dams)
- Integrate efforts with the Nottawasaga Watershed Ecosystem Health Monitoring Program currently being developed by NVCA, MOEE, MNR, OMAF, Health Unit, and local municipalities, etc.

### **7.3 PLAN AND REVIEW UPDATE**

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The Minesing Swamp Management Plan has been developed for a five-year planning period. An annual report will be produced by the NVCA to indicate the actions implemented from the previous twelve months. The report will also show the effects of these actions on the wetland ecosystem. In addition, this report will include the status of flooding in Minesing Swamp, erosion in the wetland, and issues such as current use and rehabilitation practices. It will also include the progress made on short term priority actions outlined in Section 6.3.

By 2008, a major review of the plan should be conducted to ensure the goals; objectives and implemented actions are still meeting the needs of the wetland and its users. Until this time, the Minesing Swamp Advisory Team will meet annually to discuss the status of the wetlands management programs and make recommendations as required. Stakeholders and other groups

will be required to update the Minesing Swamp Advisory Team on the status of the particular action(s) they were required to help implement.

# **APPENDICES**

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## **APPENDIX A – FLORA**

- **GLACIAL LAKE SHORELINES**
- **BOREAL WETLAND COMPLEX**
- **DECIDUOUS BOTTOMLAND COMPLEX**
- **WILDFLOWER SPECIES**
- **GRASS SPECIES**
- **SHRUB SPECIES**
- **TREE SPECIES**

## **APPENDIX B – FAUNA**

- **BIRDS SPECIES**
- **BIRD SPECIES LIST**
- **MAMMAL SPECIES**
- **REPTILE AND AMPHIBIAN SPECIES**
- **FISH SPECIES**

## **APPENDIX C – WATERWAYS AND TRIBUTARIES**

- **MAJOR TRIBUTARIES**
- **MINOR TRIBUTARIES**
- **MUNICIPAL DRAINS**

## **APPENDIX A – FLORA**

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### ***GLACIAL LAKE SHORELINES***

#### Nipissing Bluff

- Deciduous growth
- Trees: Sugar Maple
  - Beech
  - Hemlock
  - White Birch
  - Yellow Birch
  - Eastern White Cedar
  
- Rare Species: Ginseng
  - Waterleaf

#### Payette Terrace

- Cold streams, hummocks, scattered pools
- Forest: Cedar-Balsam Fir
- Herb Layer: Manna Grass
  - Wild Lily of the Valley
  - Ground Raspberry
  - Corn Lily
  - Sensitive Fern
  - Sedges
  
- Rare Species: Ram's Head Lady Slipper

### ***BOREAL WETLAND COMPLEX***

#### Peat Plain-Fern with String Islands

- In centre of peat plain
- Succession of open water to forest
- 
- Northern fen species: Sedges – Twig-rush dominates
  - Cotton-grass
  - Beak Rush
  - Bulrush
  - Arrow-grass
  - Bog Buck-Bean
  - Small Bladderwort
  - Small Cranberry
  
- Sweet Gale Thickets: Bog Rosemary
  - Dogwood
  - Buckthorn
  - Cedar
  - Tamarack

- Rare Species: Arethusa (Orchid)  
Purple-fringed Orchid (hybrid)  
Calopogon  
Prairie White-fringed Orchid
- Major white-tailed deer yard

Peat Plain-Conifer Complex

- Surround fens on west, south, and east
- Hummocks: moss and sphagnum
- 
- Trees: Large stands of Tamarack with Cedar understory  
Balsam Fir  
Black Spruce  
White Pine
- Shrubs: Dogwood  
Speckled Alder  
Sweet Gale  
Leatherleaf  
Swamp-fly Honeysuckle
- Herbs: Manna Grass  
Sedge  
Wild Sarsaparilla  
Ground Raspberry  
Sensitive Fern  
Marsh Fern  
Bunchberry  
Three-leaved False Solomon's Seal

Peat Plain-Big Marsh

- Wet meadow and thicket complex
- Trees: Tamarack-Cedar Islands  
Dead Standing Trees
- Thickets: Sweet Gale-Alder  
Willow
- Meadows: Wet Blue-joint dominates  
Joe Pye-weed  
Meadow-rue  
Royal Fern  
Swamp Milkweed  
Sedges

- Part of major staging area for non-diving waterfowl
- Low or moderate flooding in early spring

Bottomland

- Heavy spring flooding
- Alluvium deposits rich in nutrients
- Trees: Upperstory of Maple Tree
- Light flood areas: Red Ash
  - Dead Elm
  - Willow
  - Balsam Poplar
  - Cedar
  - Basswood
  - Hackberry
  - Black Ash
  - Butternut
  - Sugar Maple
  - Black Maple
  - Silver Maple
- Shrubs: Speckled Alder
  - Buttonbush
  - Deadly Night Shade
- Herbs: Sensitive Fern
  - Manna Grass
  - Touch-me-not
- Disturbed drainage – Marsh: Canary Reedgrass
  - Manna Grass
- Northern edge: Stands of Bur Oak
- 
- Wildlife: Dabbling Ducks
  - Blackbirds
  - Downy Woodpecker
  - Hairy Woodpecker
  - Pileated Woodpecker
  - Gnatcatcher
  - Warblers
  - Muskrat
  - Beaver

Marsh

- Muskrat Marsh: Vegetation: Cattail
  - Bur-reed

- Wildlife: Major staging area for non-diving waterfowl
  - Great Blue Heron
  - Spotted Turtle
  - Blandings Turtle
  - Grey Tree Frog
  - Beaver
  - Muskrat
  - Mink

### ***DECIDUOUS BOTTOMLAND COMPLEX***

#### **River Levee**

- Mounds of alluvium (fine organic silt and clay carried by water)
- Prevent immediate back flow of water into river channel
- Forest: Hackberry and Basswood dominate
  - Butternut
  - American Elm
  - Silver Maple
  - Bur Oak
  - Red Ash
- Hanging Plants: Wild Grape
  - Virginia Creeper
  - Poison Ivy
  - Virgin's Bower
  - Moonseed
- Herbs: Stinging Nettle
  - Ostrich Fern
  - Meadow-rue
  - Joe Pye-weed
- Isolated Pocket: Black Maple
  - Red Ash
  - Basswood
- Along Levees: Carolina Forest Species
  - Black Maple
  - Canada Moonseed
  - St. John's Wart
  - Blue Beech
  - Michigan Lily
  - Sedges
  - Prickly Ash
  - Bee Balm
  - Black Snakeroot

- Bird Species: Cerulean Warbler  
Blue-gray Gnatcatcher  
Yellow Throated Vireo  
Sharp-shinned Hawk  
Yellow-rumped Warbler  
Magnolia Warbler
  
- Dead Elm Swamp: Northeast Section  
Cattail  
Grasses  
Sedges  
Bur-reed  
Dead Elm Stands
  
- Marsh Along Coates Creek: Dead and unhealthy trees  
Dense shrub thickets: Speckled Alder  
Dogwood  
Buttonbush  
Floating Plants  
Emergent Plants

***WILDFLOWER SPECIES***

*An asterisk (\*) indicates species that are rare in Ontario but can be found in Minesing Swamp.*

Virgin's Bower	Jack-in-the-pulpit
Goldthread	Skunk Cabbage
Sharp-lobed Hepatica	Wild Leek
Kidneyleaf Buttercup	Yellow Clintonia
Common Buttercup	Michigan Lily
Yellow-water Buttercup	Wood Lily
Hooked Buttercup	Wild Lily-of-the-valley
Swamp Buttercup	Indian Cucumber Root
Tall Meadow-rue	Star-flowered Solomon's Seal
May-apple (mandrake)	Three-leaved Solomon's Seal
Canada Moonseed	Carrion Flower
Bloodroot	Rosybell (Rose Twisted Stalk)
Pitcher-plant	Nodding Trillium
Round-leaved Sundew	Large-flowered Bellwort
Miterwort	Arethusa (Dragon's Mouth)
Grass-of-parnassus	Pink Lady's Slipper
Foamflower (False Miterwort)	Ram's Head Lady's Slipper *
Agrimony	Showy Lady's Slipper
Shadbush (Serviceberry)	Striped Coalroot
Wood Strawberry (Alien)	Yellow Lady's Slipper
Common Strawberry	Helleborine (Alien)
Rough Avens	Dwarf Rattlesnake-plantain

Water Avens (Purple Avens)  
Rough Cinquefoil  
Marsh Cinquefoil  
Swamp Rose  
Narrowleaf Meadowsweet  
Hog-peanut  
Vetchling  
Cow Vetch (Tufted Vetch)  
Common Wood-sorrel  
Fringed Polygala (Gaywings)  
Pale Touch-me-not (Jewel Weed)  
Great St. Johnswort  
Dog Violet  
Marsh Blue Violet  
Large-leaved Violet  
Northern Bog Violet  
Northern White Violet  
Common Blue Violet  
Downy Yellow Violet  
Kidney-leaved Violet  
Great-spurred Violet  
Northern Blue Violet  
Swamp Loosestrife (Water-willow)  
Smaller Enchanter's Nightshade  
Enchanter's Nightshade  
Wild Sarsaparilla

Leafy White Orchid  
Prairie White-fringed Orchid \*  
One-leaf Rein Orchid  
Round-leaved Orchid  
Small Purple-fringed Orchid \*  
Northern Green Orchid  
Heartleaf Twayblade  
White Adder's-mouth  
Showy Orchid  
Rose Pogonia (Snake-mouth)  
Hooded Ladies'-tresses  
False Nettle (Bog-hemp)  
Stinging nettle  
Clearweed  
Wild Giner  
Water Dock  
Mouse-eared Chickweed (Alien)  
Long-leaved Chickweed  
Red Baneberry  
Canada Anemone  
Marsh-marigold (Cowslip)  
Narrow-leaved Willow Herb  
Downy Willow Herb  
Water purslane  
Common Evening Primrose

***GRASS SPECIES***

*An asterisk (\*) indicates species that are rare in Ontario but can be found in Minesing Swamp.*

American Manna Grass  
English Water Grass  
Fowl Manna Grass  
Bottlebrush Grass  
Rice Cut Grass  
Wood Millet  
Reed Canary Grass  
Common Reed (Phragmites)  
Fowl Blue Grass  
June Grass (Kentucky Blue Grass)  
Slender Wedge Grass  
Nodding Fescue  
Wheat Grass  
Rough Hair Grass (Tickle grass)  
Short Awn Foxtail  
Fringed Brome Grass  
Canada Blue Joint  
Northern Red Grass  
Dropping Woodreed  
Danthonia (Poverty Oat Grass)  
Virginian Wild-rye  
Frank's Love Grass  
Moss-like Love Grass \*

***SHRUB SPECIES***

White Willow  
Peach-leaved Willow  
Bebb's Willow (Beaked Willow)  
Sage-leaved Willow  
Wild Red Raspberry  
Dwarf Raspberry  
Prickly Ash (Toothache Tree)  
Poison Ivy

Pussy Willow  
Crack Willow (Brittle Willow)  
Slender Willow  
Bog Willow  
Sweet Gale  
Wild Black Currant  
Prickly Gooseberry  
Wild Gooseberry  
Northern Wild Black Currant  
Bristly Black  
Wild Red Currant  
Chokeberry  
Downy Hawthorn  
Hawthorn  
Wild Plum  
Canada Plum  
Bristly Catbrier  
Highbush Cranberry

Staghorn Sumac  
Winterberry (Black Alder)  
Alder-leaved Buckthorn  
Riverbank Grape (Frost Grape)  
Virginia Creeper  
Alternate-leaved Dogwood  
Bunchberry  
Silky Dogwood  
Red Osier Dogwood  
Bog rosemary  
Leatherleaf (Cassandra)  
Snowberry  
Wintergreen (Checkerberry)  
American Cranberry  
Buttonbush  
Buffalo Berry (Soapberry)  
Elderberry (American Elder)

***TREE SPECIES***

Balsam Poplar  
Trembling Aspen  
Butternut  
Black Walnut  
Speckled Alder  
Yellow Birch  
White Birch  
Blue-beech  
Hop-hornbeam  
Bur Oak  
Hackberry  
White Elm

Slippery elm  
Rock Elm  
Black Maple  
Red Maple  
Silver Maple  
Sugar Maple  
Mountain Maple  
Basswood  
Black Ash  
Red Ash  
Nannyberry

**APPENDIX B – FAUNA**

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**BIRDS**

- Over 200 species of birds have been recorded
- 135 species nest within the swamp (approximately)
- 66 pass during spring or fall migration (approximately)
- Fifth largest Great Blue Heron – over 170 active nests
- A number of northern and southern species rarely found in this part of Ontario

**(PARTIAL LIST)**

**LEGEND**

m = Common migrant	bc = uncommon breeder – coniferous
M = rare migrant	bd = uncommon breeder – deciduous
Bc = Common Breeder – coniferous	W = Common winter resident
Bd = Common Breeder – deciduous	w = Rare winter resident

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W	Rough-legged Hawk	m	Common Loon
Bc	Marsh hawk	m	Horned Grebe
m	Osprey	Bd	Pied-billed Grebe
M	American Kestrel	Bd	Great Blue Heron
bd bc	Ruffed Grouse	bc Bd	Green Heron
m	Sandhill	m	Cattle Egret
bd	Virginia Rail	m	Black-crowned Night
bd	Sora	Bd	Least Bittern
bd	Common Gallinule	Bd	American Bittern
bd	American Coot	M	Whistling Swan
bd	Killdeer	M	Canada Goose
bd	American Woodcock	m	Brant
Bd Bc	Common Snipe	m	Snow Goose
bd	Upland Sandpiper	Bd	Mallard
Bd	Spotted Sandpiper	bd	Black Duck
M	Solitary Sandpiper	m	Gadwall
M	Greater Yellowlegs	M	Pintail
m	Lesser Yellowlegs	Bd M	Green-winged Teal
M	Herring Gull	Bd	Blue-winged Teal
M	Ring-billed Gull	M	American Wigeon
m	Bonaparte's Gull	m	Northern Shoveler
m	Common Tern	Bd	Wood Duck
m	Caspian Tern	m	Redhead
Bd	Black Tern	M	Ring-necked Duck
db	Rock Dove	m	Greater Scaup
Bc Bd	Mourning Dove	M	Lesser Scaup
Bd	Yellow-billed Cuckoo	M	Common Goldeneye
bc	Black -billed Cuckoo	M	Bufflehead

bd	Screech Owl	Bd	Hooded Merganser
Bd	Great-Horned Owl	m	Common Merganser
w	Snowy Owl	M	Turkey Vulture
w	Hawk Owl	m w	Goshawk
w bd	Barred Owl	Bc	Sharp-shinned Hawk
W	Great Gray Owl	m	Cooper's Hawk
bc	Short-eared Owl	bd W	Red-tailed Hawk
m	Boreal Owl	m	Red-shouldered Hawk
m	Saw-whet Owl	bc	Broad-winged Hawk
m	Eastern Bluebird	bd	Whip-poor-will
bd	Blue-gray Gnatcatcher	M	Common Nighthawk
Bc	Golden-crowned Kinglet	M	Chimney Swift
bc	Ruby-crowned Kinglet	Bd	Ruby-throated Hummingbird
m	water Pipet	Bd Bc	Common Flicker
Bc	Cedar Waxwing	Bd Bc	Pileated Woodpecker
m	Northern Shrike	bd	Red-bellied Woodpecker
bd	Loggerhead Shrike	M	Yellow-bellied Woodpecker
Bd	Starling	Bc Bd	Hairy Woodpecker
w	Red Crossbill	Bc Bd	Downy Woodpecker
Bd	Belted Kingfisher	w bc	Black-backed Three-toed Woodpecker
Bd	Yellow-throated Vireo		Northern Three-toed Woodpecker
m	Solitary Vireo	w	
Bd	Red-eyed Vireo	Bd	Eastern Kingbird
m	Philadelphia Vireo	Bd	Great Crested Flycatcher
Bd	Warbling Vireo	bd	Eastern Pheobe
Bc	Black and White Warbler	m	Yellow-bellied Flycatcher
m	Prothonotary Warbler	Bc	Alder Flycatcher
bd Bc	Golden-winged Warbler	Bd	Least Flycatcher
m	Blue-winged Warbler	Bd	Eastern Wood Pewee
M	Tennessee Warbler	m	Olive-sided Flycatcher
m	Orange-crowned Warbler	bd	Horned Lark
Bc	Nashville Warbler	Bd	Tree Swallow
m	Northern Parula Warbler	Bd	Bank Swallow
Bd Bc	Yellow Warbler	bd	Rough-winged Swallow
Bc	Magnolia Warbler	Bd	Barn Swallow
M	Cape May Warbler	m	Cliff Swallow
M	Black-throated Blue Warbler	m	Purple Martin
bc	Yellow-rumped Warbler	w	Gray Jay
Bc	Black-throated Green Warbler	Bc	Blue Jay
Bd	Cerulean Warbler	m	Common Crow
Bc	Blackburnian Warbler	W Bc	Black-capped Chickadee
Bd	Chestnut-sided Warbler	m	Boreal Chickadee
M	Bay-breasted Warbler	W Bd	White-breasted Nuthatch

m	Blackpoll Warbler	W	Bc	Red-breasted Nuthatch
m	Pine Warbler		Bd	Brown Creeper
m	Prairie Warbler		bc	House Wren
M	Palm Warbler		Bc	Winter Wren
Bd Bc	Ovenbird		Bd	Long-billed Marsh Wren
bd Bc	Northern Waterthrush		bd	Short-billed Marsh Wren
bd	Mourning Warbler	bc	bd	Gray Catbird
Bd bc	Common Yellowthroat		bd	Brown Thrasher
m	Wilson's Warbler	Bc	Bd	American Robin
bc	Canada Warbler	Bc	Bd	Wood Thrush
Bc Bd	American Redstart		M	Hermit Thrush
bd	House Sparrow		m	Swainson's Thrush
bd	Bobolink		M	Grey-cheeked Thrush
bd	Eastern Meadowlark	Bd	Bc	Veery
bd	Western Meadowlark		Bd	Northern Oriole
Bd	Red-winged Blackbird		M	Rusty Blackbird
bd	Rufous-sided Towhee	Bc	Bd	Common Grackle
bd	Savannah Sparrow	Bc	Bd	Brown-headed Cowbird
bd	Grasshopper Sparrow	bd	M	Scarlet tanager
bd	Vesper Sparrow	w	bc	Cardinal
w M	Dark-eyed Junco		Bd	Rose-breasted Grosbeak
w	Tree Sparrow		Bd	Indigo Bunting
bc	Chipping Sparrow		m	Dickcissel
bd	Field Sparrow		W	Evening Grosbeak
M	White-crowned Sparrow	W	Bd	Purple Finch
Bc	White-throated Sparrow		w	Pine Grosbeak
m	Fox Sparrow		W	Common Redpoll
m	Lincoln's Sparrow		W	Pine Siskin
Bc Bd	Swamp Sparrow	w	Bd	American Goldfinch
Bc Bd	Song Sparrow		w	Snow Bunting
m	Lapland Longspur			

**MAMMAL SPECIES**

- 23 species within the swamp
- One of the largest White-tailed deer yards in area (200 – 400)
- Has large populations of deer, beaver, raccoon, mink, muskrat, and wild turkey

**(PARTIAL LIST)**

Beaver	Red Fox
Raccoon	Grey Squirrel
Mink	Snowshoe Hare
Muskrat	Coyote
Porcupine	White-tailed Deer
Bat	Mice
River Otter	Opossum (marsupial)

***FISH SPECIES***

- 30 species of fish
- Spawning grounds for Walleye
- Migration Route for: Rainbow Trout  
Coho Salmon  
Chinook Salmon
- Scientific Interest: Bowfin  
Two species of Redhorse Sucker
- Habitat for many game species

***(PARTIAL LIST)***

Walleye	Bowfin
Rainbow Trout	Redhorse Sucker
Coho Salmon	Crayfish
Chinook Salmon	Longnose Sucker
Pink Salmon	White Sucker
Brown Trout (stocked)	Common Carpe
Pumpkin Seed Sunfish	Channel Catfish
Creek Chub	Brown Bullhead
Common Skinner	Rock Bass
Brook Stickleback	Black Crappie
Central Mud Minnow	Small Mouth Bass
Northern Redbelly Dace	Large Mouth Bass
Black Nose Dace	Pike
Mottled Sculpin	

***REPTILES AND AMPHIBIANS SPECIES***

***(PARTIAL LIST)***

Northern Leopard Frog	Wood Turtle
Green Frog	Blanding's Turtle
Grey Tree Frog	Spotted Turtle
Midland Painted Turtle	Eastern Garter Snake
American Toad	Bullfrog
Pickle Frog	Mink Frog
Spiny Peeper	Wood Frog
North Chorus Frog	

## **APPENDIX C – WATERWAYS AND TRIBUTARIES**

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### ***MAJOR TRIBUTARIES***

- Nottawasaga River
- Mad River
- Willow Creek

### ***MINOR TRIBUTARIES***

- Coates Creek/Mad River Tributary
- Swaley Creek (Muskrat Creek)
- Willow (Mink/Black Creek/Keast Creek)

### ***MUNICIPAL DRAINS***

- 2<sup>nd</sup> Line (Clearview Township)
- 14<sup>th</sup> Line (Springwater Township)
- Arnum Drain
- Joseph Caldwell Drain
- SC Campbell Drain
- Macke's Drain
- East Sunnidale Drainage
- Van Voorst Municipal
- Duval Ditch

# **GLOSSARY**

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This glossary is a summary of common terms used throughout the Minesing Swamp Management Plan. These definitions are in the context of this Management Plan. Many of these definitions were obtained from the glossary of the Nottawasaga Valley Watershed Plan.

**Aquifer** – An underground formation of permeable rock or loose material, which can produce useful quantities of water when tapped by a well.

**Area of Natural and Scientific Interest (ANSI)** – Areas of land and water containing natural landscapes or features that have values related to protection, natural heritage appreciation, scientific study or education. Depending on the features of particular areas, they may be referred to as life science or earth science sites. These areas vary in their level of significance and their vulnerability to environmental impacts.

**Biodiversity** – The diversity of life on earth, consisting of genetic diversity, species diversity, and ecosystem diversity

**Conservation** – The protection, improvement, and wise use of natural resources according to principles that will assure their highest economic or social benefits for humans and their environment, now and in the future.

**Corridor** – The naturally vegetated or potentially re-vegetated areas that link or border natural areas and provide ecological functions such as habitat, passage, hydrological flow, connection, or buffering from adjacent impacts. They can also occur across or along uplands, lowlands, or slopes.

**Ecosystem** – An ecosystem consists of the air, land, water, and living organisms, including humans, and their interactions among them. It includes the community of living things and the complex of physical and chemical factors forming the environment.

**Environmental Impact Study** – A study prepared in accordance with established procedures to identify and assess the impacts of development on a particular significant natural heritage feature.

**Erosion** – The removal of weathered materials from their source area.

**FWIG** – Fort Willow Improvement Group

**FOMS** – Friends of Minesing Swamp

**FOC** – Fisheries and Oceans Canada

**GIS** – Geographic Information System

**GPS** – Global Positioning System

**Goal** – The aim or vision of stakeholders towards an ideal state of Minesing Swamp.

**Groundwater** – Water found in the region below the surface of the ground.

**Habitat** – The place or type site where an animal or plant naturally or normally lives.

**Land Stewardship** – Actions and attitudes taken by landowners and residents, which demonstrate awareness of environmental issues and concerns.

**Low-impact** – A trail or recreational development that is created with minimal disturbance/impact to the local flora and fauna

**MOEE** – Ministry of Environment and Energy

**MNR** – Ministry of Natural Resources

**MWV** – Motorized Wheeled Vehicles

**Natural Heritage** – Natural heritage is a concept used across North America as framework and context for initiatives to conserve and steward natural areas, species, and ecosystems at risk. Natural heritage includes geological features and landforms; associated terrestrial and aquatic ecosystems; their plant species, populations and communities; and all native animal species, their habitats and sustaining environment.

**NVCA** – Nottawasaga Valley Conservation Authority

**Objective** – A quantifiable target to be achieved.

**OMAF** – Ontario Ministry of Agricultural and Food

**Partnerships** – a working relationship between the NVCA, government agencies, special interest groups, and landowners in order to improve efficiency, communication, preservation, and conservation and also to share decisions and expenditures related to management.

**Preservation** – Ensuring that significant natural resources remain in their natural state and are not threatened by any changes in land use.

**Remediation** – The rehabilitation of a site to an alternative ecosystem appropriate to the existing land uses or character of an area, but not attempting to restore historic ingenuous ecosystem to an area.

**Significant** – Natural features and functions that are ecologically important to the natural environment in terms of amount, content, representation, or effect, thereby contributing to the quality and integrity of an identifiable ecological region or natural heritage system.

**Silviculture** - Research in this area is focused on 1. developing methods to regeneration, improve stands, and sustain yields, 2. study seeding establishment, site classification and succession, and 3. investigating and evaluating alternative harvesting methods and silviculture alternatives to clear cutting.

**Stakeholder** – An individual who has a vested interest in Minesing Swamp.

**Swamp** – Wooded wetlands that are flooded either seasonally or for long periods.

**Tributaries** – A stream that flows into a larger stream or body of water.

**Watershed** – The land drained by a river and its tributaries.

**Wetland** – Lands that are seasonally or permanently covered by shallow surface water, as well as lands where the water table is close to or at the surface. The presence of abundant water causes the formation of hydric soils and favours the dominance of either hydrophytic or water tolerant plants. The four major types of wetlands are swamps, marshes, bogs, and fens.

**Wise Use** - The use of resources in such a manner as to provide their sustainable use.

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**MINESING SWAMP  
REGIONAL CONTEXT**

**FIGURE 1**

LEGEND  
 WETLAND BOUNDARY  
 NVCA BOUNDARY



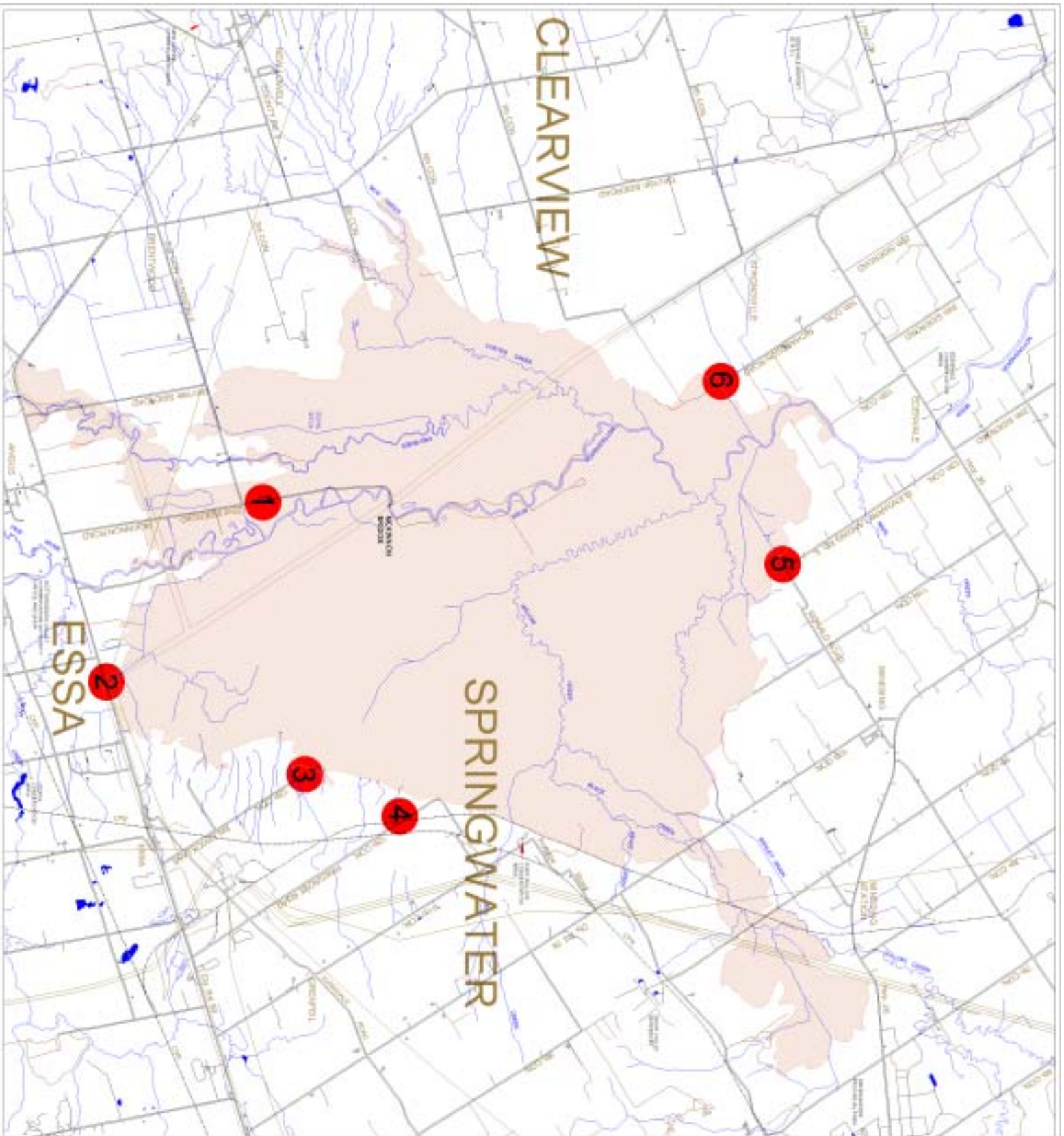
NOTE: The wetland boundary is a general line based on preliminary field or aerial evaluation. Aerial ground location is subject to a certified wetland evaluation.



DATE	BY	DATE	BY
2014-03-14	W.S.	2014-03-14	W.S.
2014-03-14	W.S.	2014-03-14	W.S.
2014-03-14	W.S.	2014-03-14	W.S.

**MINESING SWAMP**

**FIGURE 2**



- LEGEND**
- ROAD
  - ACCESSWAY
  - TOWNSHIP BOUNDARY
  - TRAIL
  - RAILROAD
  - TRANSMISSION LINES
  - HOUSE / BUILDING
  - WETLAND BOUNDARY
  - VEHICULAR ACCESS BARRIER



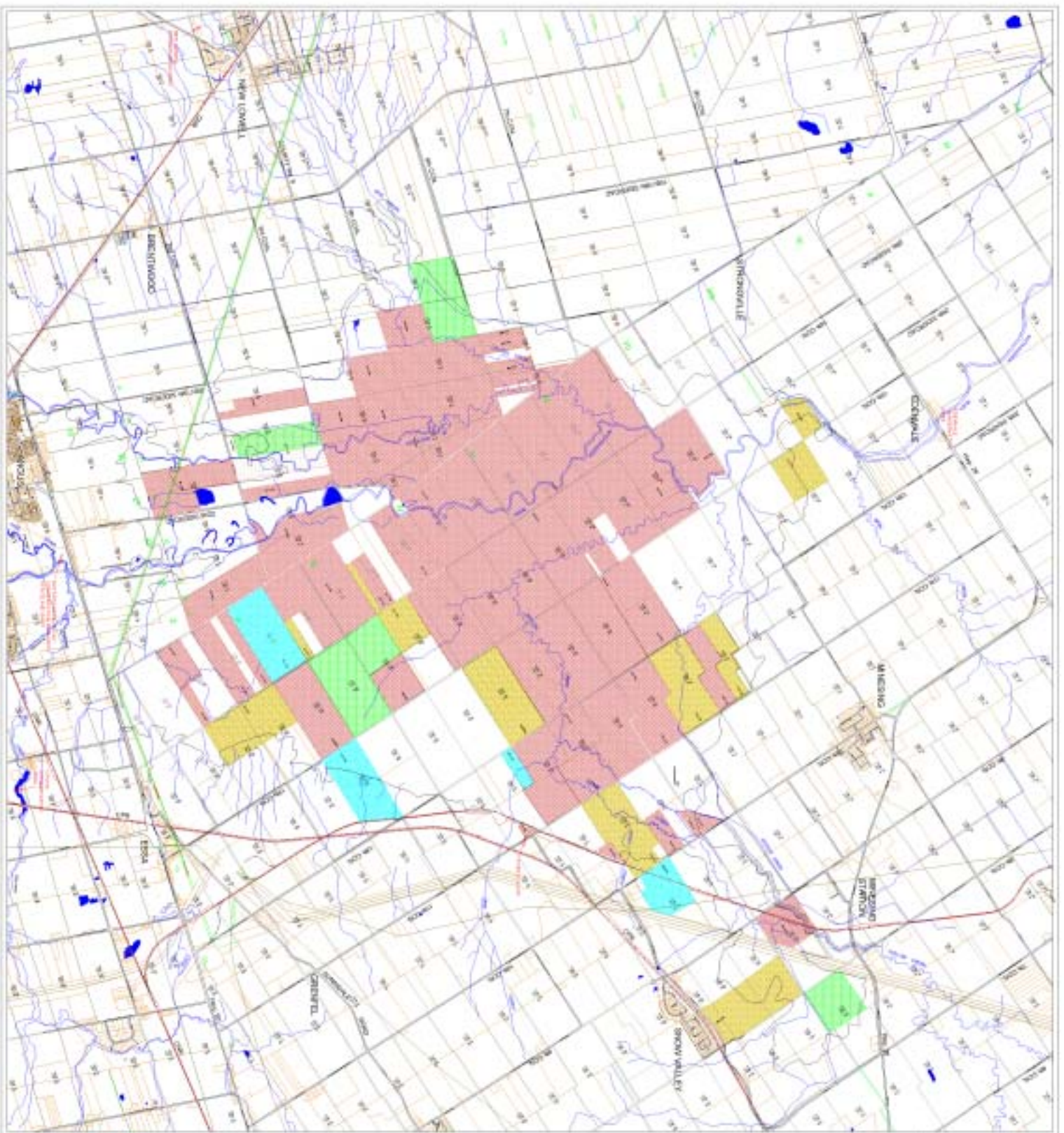
NOTE: The wetland boundary is a general line based on preliminary M.N.N. wetland evaluation. Official ground location is subject to a detailed letter of permission.



DATE	1/8	PROJECT	M.N.N.
REVISION	1/1	SCALE	1:1000
BY	1/1	FILE	1/1

## MINESING SWAMP LANDS

FIGURE 3



- LEGEND**
- ROAD
  - ACCESSWAY
  - TRAIL
  - RAILROAD
  - TRANSMISSION LINES
  - WETLAND BOUNDARY
  - STUDY AREA / PLANNING AREA
  - PURCHASED BY THE NATURE CONSERVANCY OF CANADA AND THE NOTTAWASAGA VALLEY CONSERVATION AUTHORITY
  - MINISTRY OF NATURAL RESOURCES
  - COUNTY OF SIMCOE
  - LANDS ACQUIRED BY THE NATURE CONSERVANCY OF CANADA AND THE N.V.C.A. SINCE 1985

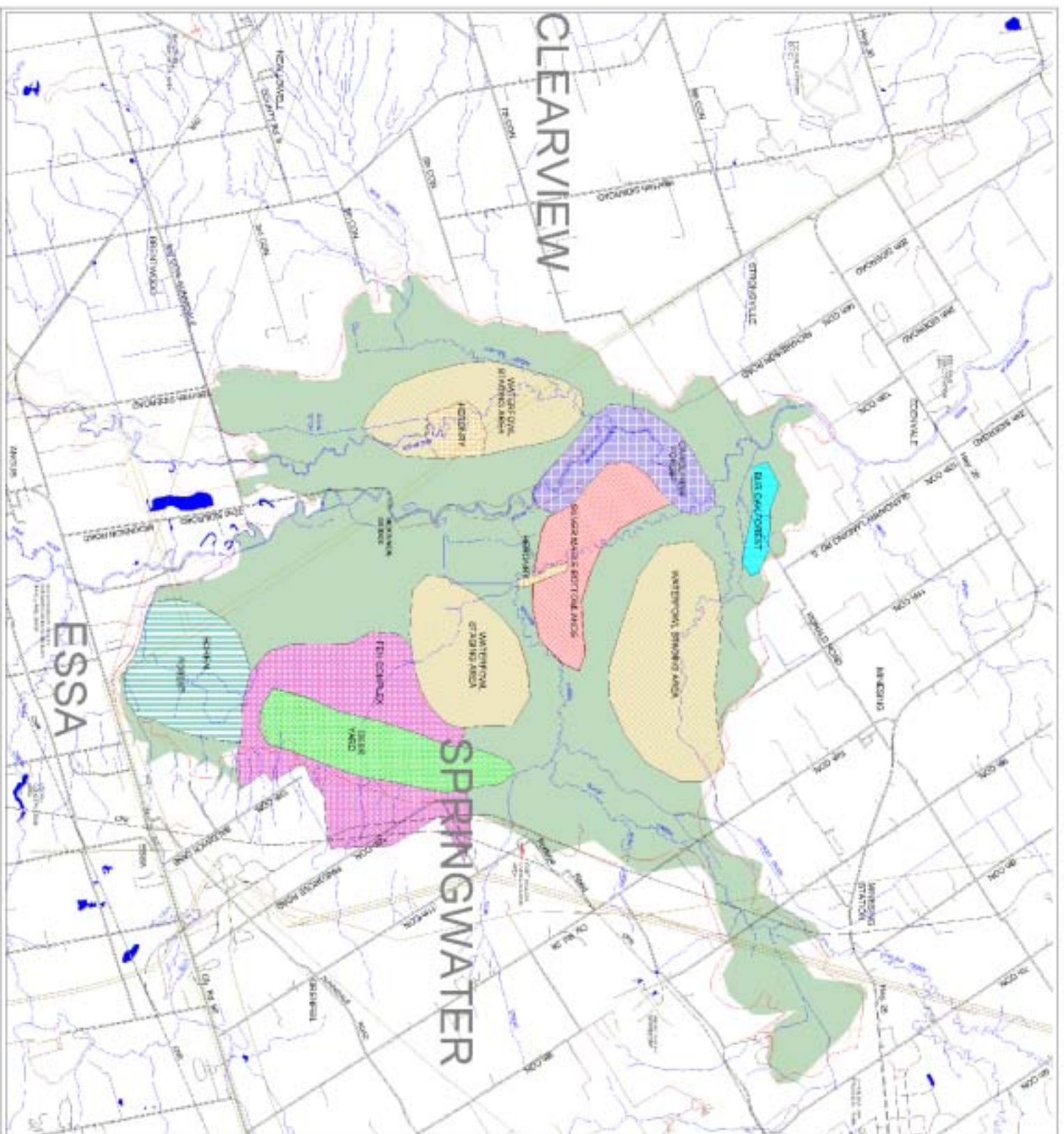
NOTE: The red/dark boundary is a general line based on preliminary field work evaluation. Actual ground location is subject to a detailed aerial evaluation.



DATE	1.8	1.8	1.8
SCALE	1:1	1:1	1:1
PROJECT	1:1	1:1	1:1

**MINESING SWAMP  
SIGNIFICANT AREAS**

**FIGURE 4**



- Legend**
- ROAD
  - ACCESSORY
  - PROPERTY BOUNDARY
  - TRAIL
  - RAILROAD
  - TRANSMISSION LINE
  - WETLAND BOUNDARY
  - WETLAND FOREST
  - WETLAND MEADOW
  - WETLAND OPEN AREA
  - WETLAND SHRUBLAND
  - WETLAND WETLAND
  - WETLAND FOREST
  - WETLAND MEADOW
  - WETLAND OPEN AREA
  - WETLAND SHRUBLAND
  - WETLAND WETLAND

NOTE: The water boundary is a general line based on aerial photography and field evidence. Actual ground conditions should be checked before any work.



Scale	1:50,000
North Arrow	True North
Map Date	2010
Map Title	Minesing Swamp Significant Areas
Map Author	Northwest Valley Conservation Authority
Map Contact	1-800-387-2222