



Clappison-Grindstone Heritage Lands MANAGEMENT PLAN

Final Report

Prepared for Cootes to Escarpment EcoPark System

August 2016
(Amended January 2017)



Cootes to Escarpment EcoPark System Partners



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Funding for the preparation of this report was generously provided by the Ontario Trillium Foundation. The Ontario Trillium Foundation is an agency of the Government of Ontario.

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Cover Photograph of Eileen and John Holland Nature Sanctuary taken by Nigel Finney, 2014

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EXECUTIVE SUMMARY

The purpose of this Management Plan for the Clappison-Grindstone Heritage Lands is to develop a set of management directions for the Current EcoPark System Lands owned by Conservation Halton, City of Burlington, City of Hamilton and the Bruce Trail Conservancy. This Management Plan will inform the protection, enhancement and communication of the important natural and cultural features within the Clappison-Grindstone Heritage Lands, one of the six core natural areas within the Cootes to Escarpment EcoPark System. This Management Plan is a compilation of detailed information about the Clappison-Grindstone Heritage Lands and the articulation of the partner agencies' joint vision for the holistic management of their lands. It provides a framework for future planning and implementation actions at the individual site level.

Development of this Management Plan involved community consultation to identify priorities and concerns as well as compilation of information on the recreational, natural and cultural resources of the Heritage Lands (detailed in the Inventory, Opportunities and Issues report prepared for the Clappison-Grindstone Heritage Lands, under separate cover). This Management Plan was also developed using the Niagara Escarpment Parks and Open Space System planning framework to identify classifications and zones (detailed in the Classification and Zoning report prepared for the Clappison-Grindstone Heritage Lands, Appendix 1 of this Management Plan).

This Management Plan contains a summary of the background and context of the Clappison-Grindstone Heritage Lands area followed by a summary of significance. Further detailed information can be found in the Inventory, Opportunities and Issues Report (North-South Environmental et al. 2016). Section 3.0 discusses issues and opportunities. Section 4.0 summarizes the management recommendations for the Heritage Lands, including the classification and zoning of the Heritage Lands, followed by implementation recommendations in Section 5.0 and monitoring recommendations in Section 6.0.

This Management Plan recommends several actions for consideration for future management of the Clappison-Grindstone Heritage Lands. The recommendations are organized in three categories:

- Approach to Management Recommendations;
- Overarching Management Recommendations; and
- Clappison-Grindstone Heritage Lands Management Recommendations.

Implementation of the recommended management actions is organized under high priority management tasks; recommended EcoPark System Guidelines for trails, education and signage, vegetation management, and edge management; and site-specific management tasks. Following the outline for implementation of the recommended management actions, monitoring and evaluation of Management Plan implementation is reviewed.

1.0 Introduction

1.1 Study Background

Between 2007 and 2009, a group of public agencies and organizations consisting of the Royal Botanical Gardens, Hamilton Conservation Authority, Conservation Halton, City of Hamilton, City of Burlington, Halton Region, Bruce Trail Conservancy, Hamilton Naturalists' Club and Hamilton Harbour Remedial Action Plan, undertook to develop a strategy to protect, connect and restore natural lands and open space between the Niagara Escarpment and Cootes Paradise in Hamilton Harbour. The initiative resulted in the "Cootes to Escarpment Park System Conservation and Land Management Strategy Phase II Report" (October 2009). The Phase II report divides the Cootes to Escarpment EcoPark System into six core natural areas referred to as "Heritage Lands" (Figure 1):

1. Borers-Rock Chapel Heritage Lands;
2. Burlington Heights Heritage Lands;
3. Clappison-Grindstone Heritage Lands;
4. Cootes Paradise Heritage Lands;
5. Lower Grindstone Heritage Lands; and
6. Waterdown-Sassafras Woods Heritage Lands.

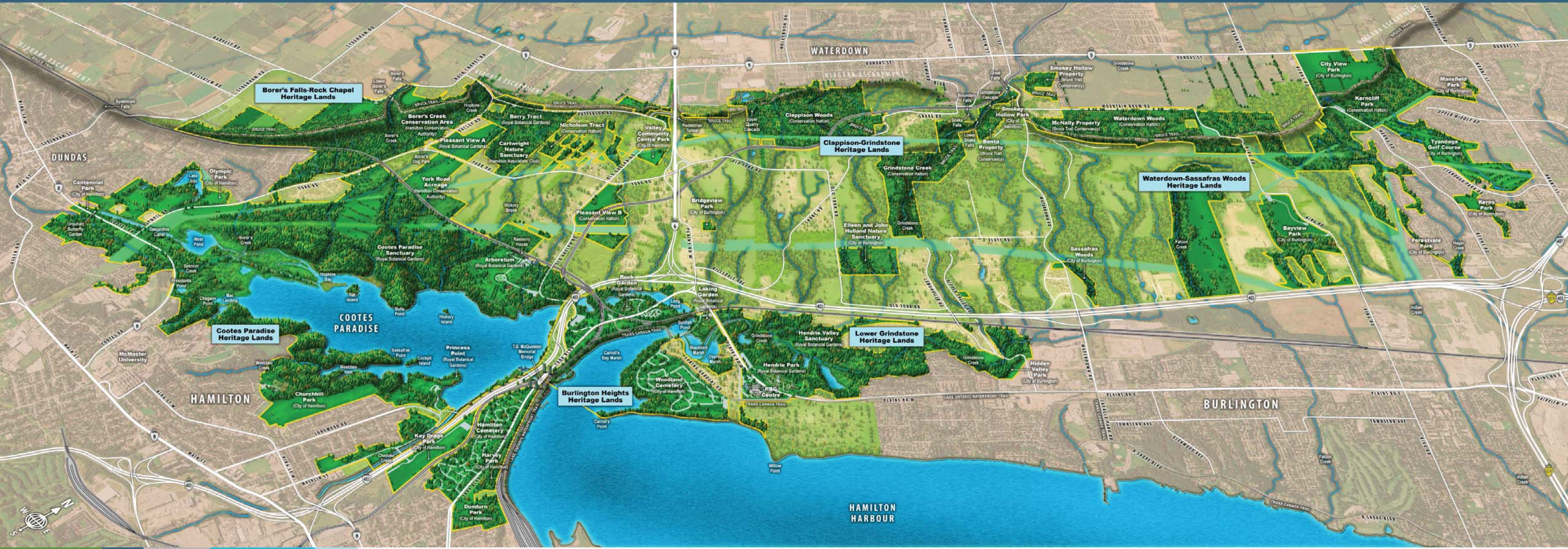
The Cootes to Escarpment EcoPark System faces intense pressures from the surrounding urbanized portions of Hamilton and Burlington, including major transportation arteries such as Highways 403 and 6. The effects of urban growth include stressors such as increased use, additional infrastructure, demand for recreation and educational programs, and unauthorized use and access. These stressors often result in damage to sensitive habitats and will jeopardize the long-term health of natural features and their functions. In response to this, the Phase II report recommended that a Management Plan be prepared for each of the Heritage Lands. Each Management Plan is to:

- contribute to achieving the vision of the Cootes to Escarpment EcoPark System as a "protected, permanent and connected natural lands sanctuary from the Harbour to the Escarpment that promotes ecosystem and human health within Ontario's Greenbelt";
- provide guidance for the protection and conservation of valuable natural and cultural heritage resources located within the Heritage Lands, and direct future development and management efforts; and
- provide guidance to the partner agencies such that they can implement their respective mandates while providing consistency throughout the EcoPark System.

This report is the Management Plan for the Clappison-Grindstone Heritage Lands. The Current EcoPark System Lands in the Clappison-Grindstone Heritage Lands are owned and managed by four partner agencies: Bruce Trail Conservancy, City of Burlington, Conservation Halton, and the City of Hamilton (Figure 2). In addition, one property is owned by the Ontario Heritage Trust, but managed by the Bruce Trail Conservancy.

The Heritage Lands include both publicly- and privately-owned lands. The Management Plan focuses on the publicly-owned lands which are referred to as Current EcoPark System Lands. Privately-owned lands located within the Heritage Lands are referred to as Stewardship Lands and lands outside the Heritage Lands but within the Cootes to Escarpment EcoPark System are referred to as Adjacent Lands (Figure 1).

Cootes to Escarpment EcoPark System Vision Map



Produced by Michael Karpavage of Mapformation.com, July, 2015

- Legend:**
- EcoPark Land Boundaries
 - Stewardship Lands
 - Hydro Corridors
 - Water Bodies
 - Roads
 - Rail Lines
 - Hiking Trails

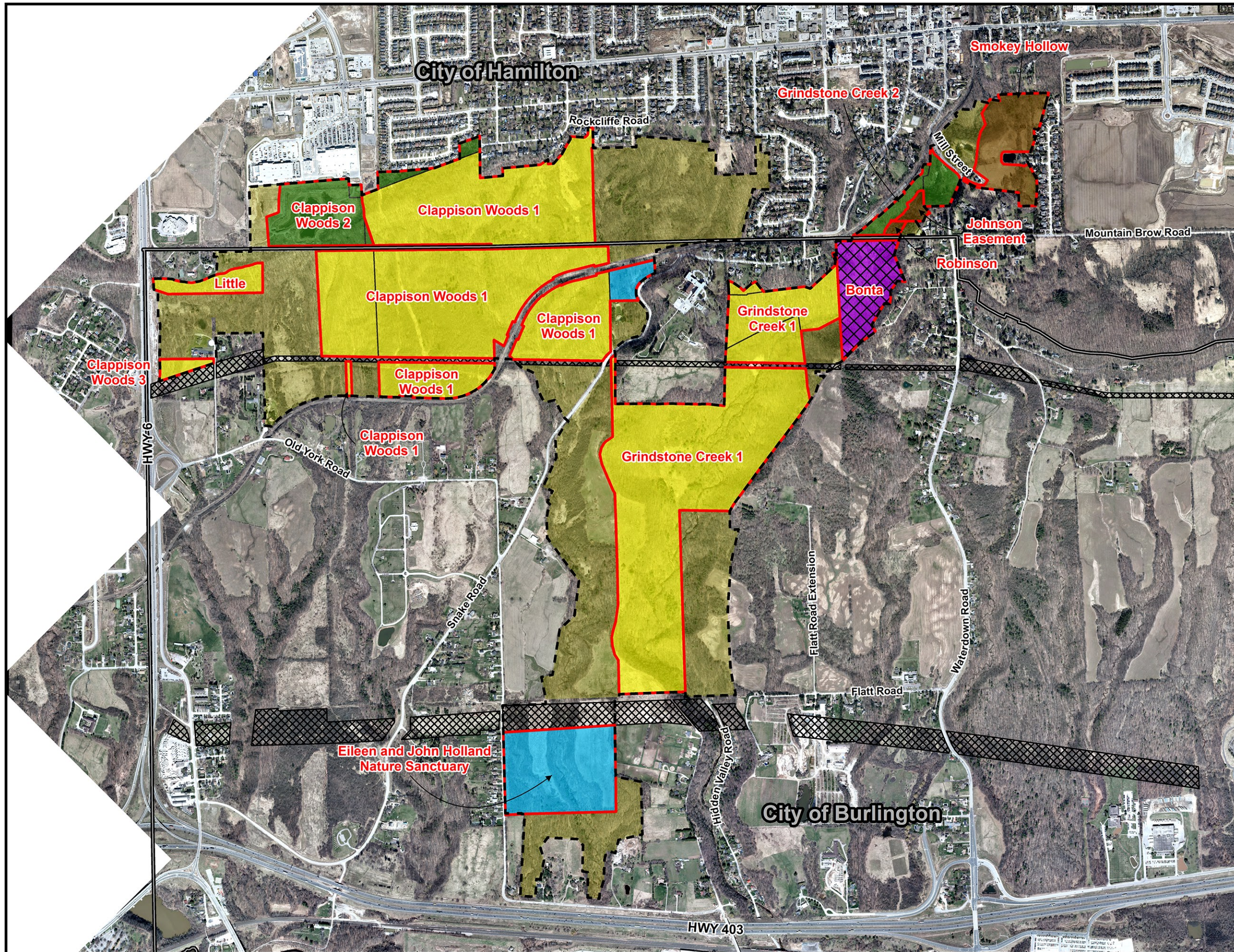


Vision

Our vision for the Cootes to Escarpment EcoPark System is that it will be known internationally as a protected, permanent and connected natural lands sanctuary from the Harbour to the Escarpment that promotes ecosystem and human health within Ontario's Greenbelt.



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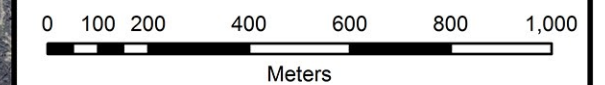
Cootes to Escarpment EcoPark System Clappison - Grindstone Heritage Lands

Figure 2: Partner-owned Lands

Legend

- Partner Land Holdings**
- Bruce Trail Conservancy
 - City of Burlington
 - City of Hamilton
 - Conservation Halton
 - Ontario Heritage Trust
 - Bruce Trail Conservancy Managed Lands
 - Privately Owned Outreach Area
 - Utility Corridors
 - Municipal Boundary
 - Study Area
 - Clappison - Grindstone Heritage Lands

Sources of Information:
 Conservation Halton
 Hamilton Conservation Authority
 City of Burlington
 City of Hamilton
 Bruce Trail Conservancy
 Ministry of Natural Resources and Forestry



1.2 Management Plan Purpose and Process

The purpose of this Management Plan is to enhance protection of important natural and cultural features, and improve sustainable recreation, research and education opportunities through addressing the following elements:

- protection and sustainable use of natural heritage resources;
- protection and sustainable use of cultural heritage resources;
- pressures and issues of concern identified by the four participating landowners, other Cootes to Escarpment EcoPark System partners, stakeholders and the public;
- wildlife corridors, eco-passages and pedestrian linkages;
- infrastructure maintenance, creation and decommissioning;
- recreation, education and research opportunities that are compatible with preserving the natural and cultural heritage of the area; and
- criteria and indicators for evaluation of the implementation and effectiveness of the Management Plan and an ongoing monitoring program to consistently collect supporting information.

The preparation of this Management Plan occurred in several phases. The first phase involved development of a Project Charter to establish the purpose, context and rationale for the project, to provide necessary background information, and to introduce the planning process and team that would be formed to generate the Management Plan. During this phase, a Steering Committee and Stakeholder Advisory Committee for the project were formed, and North-South Environmental Inc. (NSE) was retained to develop the Management Plan.

The second phase of the project culminated in the preparation of the Clappison-Grindstone Heritage Lands Inventory, Opportunities and Issues Report (North-South Environmental et al. 2016) that identifies the significant natural and cultural heritage resources in the Heritage Lands, and discusses the opportunities and issues to be addressed in the Management Plan. The Inventory, Opportunities and Issues Report (North-South Environmental et al. 2016) was subject to review by the Steering Committee, Stakeholder Advisory Committee and the community through public consultation.

During the third phase of the project, land classifications and zones for the Clappison-Grindstone Heritage Lands were established in the Land Classification and Zoning Report (March 2016, Appendix 1), based on the Niagara Escarpment Parks and Open Space System (NEPOSS) Planning Manual (MNR 2012). Not all of the Clappison-Grindstone Heritage Lands are located within the Niagara Escarpment Plan (NEP) area, therefore approval under NEPOSS is not required for these lands, but the intent is to use the NEPOSS planning approach as a planning tool for all the Heritage Lands, as most of the Cootes to Escarpment EcoPark System is within the NEP area and using one guiding framework for all the Heritage Lands will assist with maintaining consistency in the management approach. The application of NEPOSS provides a framework for identifying appropriate uses that coincide with the natural and cultural heritage resources in various park and open space areas of the Clappison-Grindstone Heritage Lands. The identification of classifications and zones was subject to review by the Steering Committee and Stakeholder Advisory Committee.

This Management Plan is the culmination of information and input generated in the preceding phases of the project. The Management Plan summarizes key information from the Inventory, Opportunities and

Issues Report (North-South Environmental et al. 2016), and strives to balance the challenges identified for the Heritage Lands. The land classifications and zones identified in the Land Classification and Zoning Report (March 2016, Appendix 1) provide defined areas through which management goals and policies can be directed and achieved, including directions for permitted uses.

1.3 Project Governance and Project Team

In terms of governance of the Cootes to Escarpment EcoPark System, each agency and organization that is a Party to the *Memorandum of Understanding Regarding the Cootes to Escarpment EcoPark System* appoints one regular member to a Management Committee. The Management Committee provides tactical leadership for implementing the Cootes to Escarpment EcoPark System and related initiatives. It has authority for decisions concerning specific projects and initiatives and provides direction to Cootes to Escarpment EcoPark System staff.

The Management Committee provides leadership and decision-making to, *inter alia*:

- protect natural and cultural heritage features within the Cootes to Escarpment EcoPark System;
- support the growth of the Cootes to Escarpment EcoPark System through land securement initiatives;
- develop a centralized strategic marketing and communication process;
- develop, promote and implement stewardship programs appropriate to all land owners within the region to provide additional protection for Cootes to Escarpment EcoPark System lands;
- build strong relationships with key stakeholders and communities to address common park and open space issues and interests; and
- work together to provide an interconnected system of trails and educational, research and recreational opportunities.

The Clappison-Grindstone Heritage Lands Management Plan project is directed by a Steering Committee consisting of representatives from Conservation Halton, City of Burlington, City of Hamilton, Halton Region and the Bruce Trail Conservancy, as well as the Cootes to Escarpment EcoPark System Coordinator. Input and comment has also been received from a Stakeholder Advisory Committee comprised of thirteen representatives from key stakeholder organizations with a broad geographic interest in the area (Appendix 2). Community meetings were held to gather input from the public.

The Project Team is led by North-South Environmental Inc. (project management and natural heritage expertise), and consists of LURA (public engagement expertise), Schollen & Company Inc. (recreation expertise), Unterman, McPhail & Associates (cultural expertise), and Andlyn Ltd (planning expertise).

2.0 Characterization of the Clappison-Grindstone Heritage Lands

A more detailed characterization of the Clappison-Grindstone Heritage Lands is provided in the Inventory, Opportunities and Issues report provided under separate cover (North-South Environmental et al. 2016).

2.1 General Overview

The Clappison-Grindstone Heritage Lands comprise 337 ha of land located in an area extending generally between Highway 6 and Waterdown Road in the City of Burlington and from Highway 403 north to the southern limit of Waterdown in the City of Hamilton. Of the 337 ha, 202 ha (60%) are currently owned and managed by partner organizations (Figure 2). The majority of the Current EcoPark System Lands are owned by Conservation Halton (151.93 ha), with smaller areas owned by the City of Burlington (17.03 ha), City of Hamilton (14.67 ha), Bruce Trail Conservancy (9.72 ha), and Ontario Heritage Trust (8.36 ha). The Bruce Trail traverses the area through lands owned by the Bruce Trail Conservancy, other partner lands by agreement, etc.

Existing land uses within and adjacent to the Heritage Lands include agriculture, rural residential, industrial and suburban developments. The community of Waterdown extends to the north of the Heritage Lands. The community of Hidden Valley is located in the main Grindstone Creek valley, immediately north of Highway 403. A number of utilities and infrastructure bisect the Clappison-Grindstone Heritage Lands including a railway, two major power lines, Waterdown Road and Snake Road, and a pipeline (Figure 2). Most of the Heritage Lands are located below the escarpment brow except for the lands above the Grindstone Falls (Great Falls), a repurposed limestone quarry (King City/Sheppard Quarry), and adjacent tableland forests along the escarpment rim (Clappison Woods 2, Figure 2) in the City of Hamilton. Though through extraction, the repurposed limestone quarry is currently placed below the brow.

2.2 Planning Policy and Regulatory Framework

The existing planning policy and regulatory framework in the Clappison-Grindstone Heritage Lands is complex due to multiple jurisdictions at the provincial and municipal levels. Relevant policy documents and regulations include:

- Greenbelt Plan, 2006;
- Parkway Belt West Plan, 1978;
- Niagara Escarpment Plan, 2005;
- Region of Halton Official Plan, 2009;
- City of Burlington Official Plan, 2006;
- City of Hamilton Official Plan, Rural March 2012, Urban August 2013;
- Niagara Escarpment Development Control;
- Parkway Belt Land Use Regulation 482/73 (Minister's Zoning Order);
- City of Burlington Zoning Bylaw 2020;
- City of Hamilton Zoning Bylaw (Flamborough Zoning Bylaw 90-145-Z); and
- Conservation Halton Development, Interference with Wetlands and Alterations to Shorelines and Watercourses Regulation (O. Reg. 162/06).

There is a high level of consistency between the Official Plans in terms of policies and permitted uses as applied to the Heritage Lands. Permitted uses on the Heritage Lands are typically limited to non-intensive recreational uses, trail uses and ancillary facilities like parking and access. Generally, these ancillary facilities are intended to be small in scale with the least impact on the environment and landscape. Individual permitted uses may require Environmental Impact Assessments, Environmental Impact Studies or other environmental evaluations depending on the location, conditions and applicable

policy and regulation. Development in proximity to natural heritage features may be subject to greater separation distances to maintain the integrity of features. Well in advance of any development, site alteration or activity on the Heritage Lands, it is important to review applicable policies and regulations in order to determine conformity of any application, and approval requirements or exemptions.

2.3 Recreation

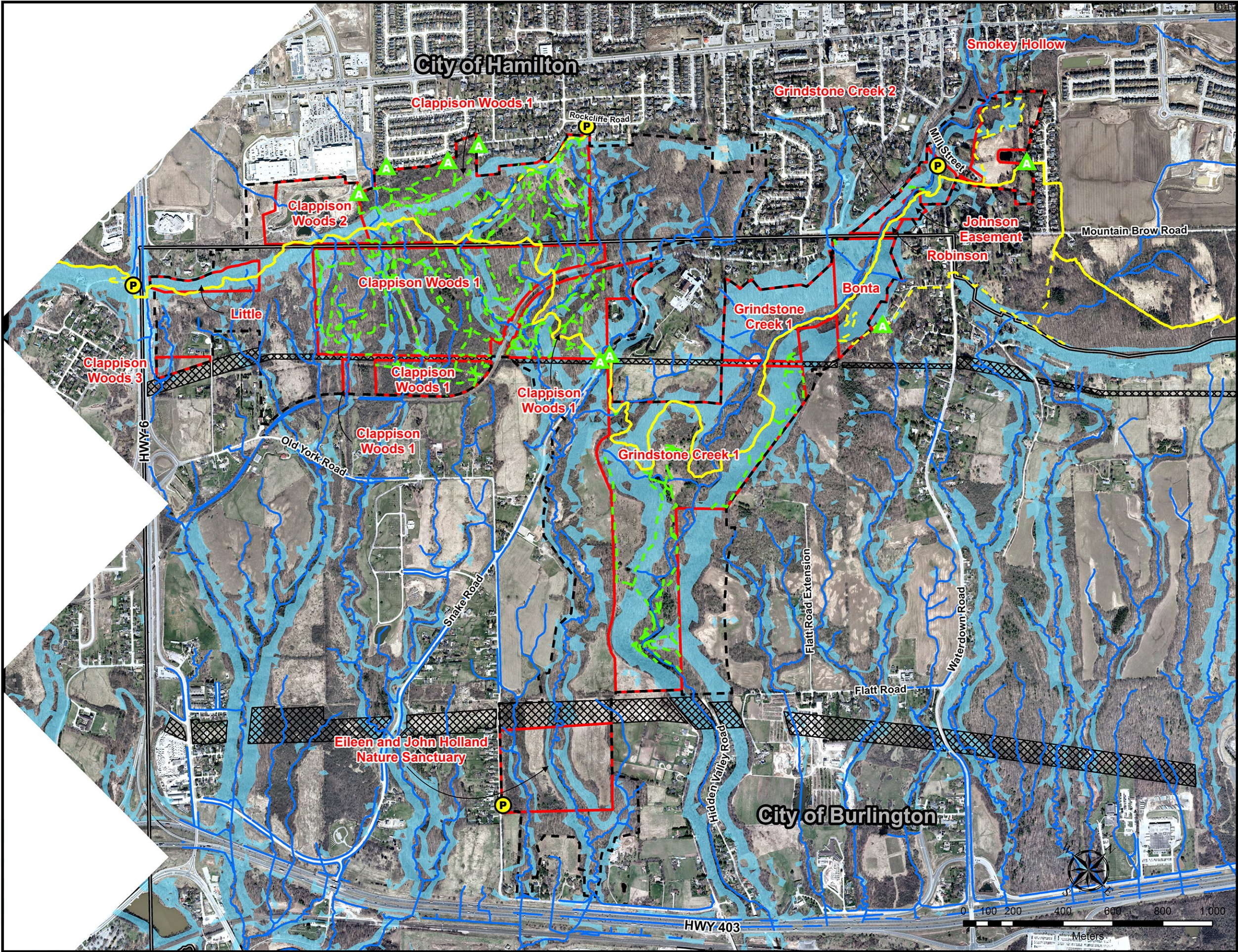
The Clappison-Grindstone Heritage Lands are highly aesthetic and scenic, and are valued by cyclists, hikers, birdwatchers, photographers and the surrounding community, and are thus primarily used for conservation and passive recreation. The area provides spectacular views of Hamilton, west Burlington and Escarpment features to the south and west across the Grindstone Creek valley (Halton Region and North-South Environmental Inc. 2005).

Figure 3 illustrates the existing trail network, parking and access locations in the Current EcoPark System Lands of the Clappison-Grindstone Heritage Lands. The existing trail network consists of the Main Bruce Trail, Bruce Trail Side Trails, and unsanctioned trails. The Main Bruce Trail and Bruce Trail Side Trails traverse the Heritage Lands in a predominantly east-west direction from Hwy 6 to Mountain Brow Road, crossing Clappison Woods and the Grindstone Creek valley. Approximately 6.5 km of the Main Bruce Trail and 2.0 km of Bruce Trail Side Trails are present within the Heritage Lands. The Main Bruce Trail and Bruce Trail Side Trails are monitored and maintained by the Iroquoia Bruce Trail Club. Within the Clappison-Grindstone Heritage Lands, the Main Bruce Trail follows the Optimum Route. A proliferation of unsanctioned trails occurs in the Clappison-Grindstone Heritage Lands (Figure 3). A number of unsanctioned trails extend beyond Current EcoPark System Lands and connect to adjacent private properties and farms.

There are a number of access points to the current trail system (Figure 3). Three access points currently provide parking: (1) at Rockcliffe Road for 5-7 vehicles; (2) at Smokey Hollow for 25 vehicles; and (3) at the Eileen and John Holland Nature Sanctuary for 5 vehicles. Other access points do not formally provide parking. At these locations, parking occurs on roadside edges, which is not desirable. In several locations, portions of the unsanctioned trail system rely on accessing public lands through private lands (e.g., Hidden Valley Road). This access point is not shown on Figure 3 due to trespassing concerns.

Trail use within the Heritage Lands primarily consists of hiking (ranging from casual outings by local residents to more serious hikers on the Bruce Trail), cycling and dog walking. In addition, a few trails are used by motorized vehicles (e.g., ATVs and snowmobiles) and along portions of the utility corridors. These same trails are used by cyclists and other recreationalists. Fishing also occurs from riparian trails on Grindstone Creek, although this is likely seasonal owing to low summer flows, and there are unsanctioned “party spots” scattered throughout the Heritage Lands, all of which are accessed through the existing trail system. Other known uses include geocaching, nature photography, and more.

There are limited resources available for the partner agencies to oversee the use of their lands and enforce the rules that apply to their lands. In this regard, unsanctioned structures and trails have been built and maintained by users and have been largely left unmanaged by agencies. Over time, this has the potential to perpetuate the perception that permissions to develop trails and structures are not needed by park visitors. It is important to note that unsanctioned trail and structure development is prohibited within the Heritage Lands. Moreover, many of the trails extend beyond the Current EcoPark System Lands onto neighbouring private property, which amounts to trespassing.



Cootes to Escarpment EcoPark System

Clappison - Grindstone Heritage Lands

Figure 3: Trails, Parking and Access Locations

Legend

- Main Bruce Trail
- Bruce Trail Side Trail
- Unsanctioned Trails
- Parking and Access Locations
- Access Locations
- Slopes >25%
- Utility Corridors
- Municipal Boundary
- Watercourse
- Study Area
- Clappison - Grindstone Heritage Lands

Sources of Information:
 Conservation Halton
 Hamilton Conservation Authority
 City of Burlington
 City of Hamilton
 Bruce Trail Conservancy
 Ministry of Natural Resources and Forestry

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The increasing use of trails by a variety of users is expected to increase pressure on the natural and existing recreational resources. An increased commitment to management to prevent and/or mitigate recreational impacts will be necessary. In addition, current access to the Heritage Lands is inadequate and parking at unsanctioned access points is undesirable. Issues related to access and parking will be exacerbated by the continued increase in use of the Heritage Lands.

2.4 Natural Heritage

2.4.1 Physiography and Surface Geology

The defining physiographic features of the Clappison-Grindstone Heritage Lands are the Niagara Escarpment and the Grindstone Creek Valley. Clappison Woods is situated along a south-facing escarpment slope. In the western portion, the slopes are topped by intermittent dolostone cliffs. This bedrock is also exposed along the escarpment rim. Erosion from the cliffs has produced prominent talus slopes. Most of the site consists of gradual escarpment shale slopes, known as the Queenston Formation. The slopes are covered in clay-rich Halton Till and are dissected by numerous intermittent streams, resulting in a complex series of uplands, ridges and valleys (Varga 1995). The northern portion of the Grindstone Creek Valley is situated in a major Escarpment re-entrant valley. Grindstone Creek cascades over bedrock ledges and talus blocks as it descends the escarpment, and then forms a fast, actively-eroding stream in a V-shaped valley (Halton Region and North-South Environmental Inc. 2005). Karst is found in the Clappison-Grindstone Heritage Lands. Karst is a landscape underlain by limestone that has been eroded by dissolution, producing ridges, towers, fissures, sinkholes, and other characteristic landforms.

2.4.2 Surface Water

The main branch of Grindstone Creek is the predominant surface water feature in the Clappison-Grindstone Heritage Lands. The main branch of Grindstone Creek flows year round. However, its tributaries are intermittent over much of their length. Groundwater discharge, emanating as springs in the central portion of the watershed, moderates stream temperatures and creates the potential to regenerate coldwater aquatic habitat (Halton Region Conservation Authority 1998). Clappison-Bridgeview Tributaries originate from groundwater discharge emanating as springs in Clappison Woods 1. Two of these tributaries flow through the Eileen and John Holland Nature Sanctuary, through deeply incised valleys. Other surface water features include the stormwater management ponds located in Clappison Woods 2 (i.e., repurposed King City/Sheppard Quarry) (Figure 2).

2.4.3 Vegetation Communities

Approximately 83% (168 ha) of the Clappison-Grindstone Heritage Lands are characterized by natural vegetation communities, including deciduous forest, mixed forest, open cliff, treed cliff, treed talus, meadow marsh, shallow marsh, floating-leaved shallow aquatic and open water (Table 1 and Figure 4). These are the most ecologically sensitive areas and they provide important habitat for many of the plant and animal species within the Clappison-Grindstone Heritage Lands. The remaining 17% (34 ha) of the Heritage Lands consist of anthropogenic and cultural vegetation communities, including cultural meadow, cultural thicket, cultural savannah, cultural woodland, and cultural plantation (Table 1 and Figure 4). These areas have had a high degree of change as a result of human use and activity. Land classified as anthropogenic consist of mowed lands, parking lots, roads, etc.

Table 1. Vegetation Communities of Current EcoPark System Lands in the Clappison-Grindstone Heritage Lands

Vegetation Community	% Current EcoPark System Lands	Area (ha) Current EcoPark System Lands
Natural Vegetation Communities		
Forest	76.7%	154.9
Cliff	0.5%	1.0
Talus	3.1%	6.3
Wetland	1.1%	2.2
Aquatic	0.8%	1.6
Cultural Vegetation Communities		
Meadow	10.4%	21.0
Thicket	3.3%	6.7
Savannah	2.3%	4.7
Woodland	0.3%	0.6
Plantation	0.2%	0.4
Other		
Anthropogenic	0.9%	1.8
Unclassified	0.4%	0.8

Forested communities dominate the Grindstone Creek valley and Niagara Escarpment within the Heritage Lands. The drier shale ridges and south-facing valley slopes in Clappison Woods support deciduous forests dominated by White Oak (*Quercus alba*), Red Oak (*Q. rubra*) and Sugar Maple (*Acer saccharum*). The Grindstone Creek valley consists of a core strip of wooded floodplain bordered by wooded ravines. The floodplain generally consists of mesic to wet-mesic deciduous forests. The ravine slopes are characterized by very steep slopes with a mesic to dry-mesic moisture regime with deciduous and mixed forests. The Grindstone Creek valley is covered in older forests of Red Oak, White Oak, Sugar Maple and Eastern Hemlock (*Tsuga canadensis*) with trees in excess of 100 years old. By some definitions, these forests would qualify as old growth.

There are three provincially significant vegetation communities within the Clappison-Grindstone Heritage Lands (Figure 4).

- Fresh-Moist Sugar Maple Carbonate Treed Talus Type – S3
- Bulblet Fern – Herb Robert Carbonate Open Cliff Type – S3
- Sugar Maple – Ironwood – White Ash Treed Carbonate Cliff Type – S3


In addition, oak woodland communities are present and are one of the most significant ecosystems in the Heritage Lands. Due to the small size of these areas (i.e., <0.5 ha), these form inclusions not shown in the vegetation community mapping (Figure 4). Many of the rare and uncommon species present within the Heritage Lands are located within these open oak woodland communities.

Cootes to Escarpment EcoPark System

Clappison - Grindstone Heritage Lands

Figure 4: Vegetation Communities

Legend

 Ecological Land Classification

- ANT - Anthropogenic
- CLO1-2 - Bulblet Fern-Herb Robert Carbonate Open Cliff Type
- CLT1-1 - White Cedar Treed Carbonate Cliff Type
- CUM - Cultural Meadow
- CUM1 - Mineral Cultural Meadow Ecosite
- CUM1-1 - Dry-Moist Old Field Meadow Type
- CUP3-2 - White Pine Coniferous Plantation Type
- CUP3-3 - Scots Pine Coniferous Plantation Type
- CUS1-1 - Hawthorn Cultural Savannah Type
- CUT1-4 - Gray Dogwood Cultural Thicket Type
- CUT2 - Bedrock Cultural Thicket Ecosite
- CUW1 - Mineral Cultural Woodland Ecosite
- FOD - Deciduous Forest
- FOD1-1 - Dry-Fresh Red Oak Deciduous Forest Type
- FOD1-2 - Dry-Fresh White Oak Deciduous Forest Type
- FOD4-2 - Dry-Fresh White Ash Deciduous Forest Type
- FOD5-1 - Dry-Fresh Sugar Maple Deciduous Forest Type
- FOD5-3 - Dry-Fresh Sugar Maple-Oak Deciduous Forest Type
- FOD5-4 - Dry-Fresh Sugar Maple-Ironwood Deciduous Forest Type
- FOD5-8 - Dry-Fresh Sugar Maple-White Ash Deciduous Forest Type
- FOD6-1 - Fresh-Moist Sugar Maple-Lowland Ash Deciduous Forest Type
- FOD6-5 - Fresh-Moist Sugar Maple-Hardwood Deciduous Forest Type
- FOD7-4 - Fresh-Moist Black Walnut Lowland Deciduous Forest Type
- FOM2-2 - Dry-Fresh White Pine-Sugar Maple Mixed Forest Type
- FOM3-2 - Dry-Fresh Sugar Maple-Hemlock Mixed Forest Type
- FOM4 - Dry-Fresh White Cedar Mixed Forest Ecosite
- FOM6-1 - Fresh-Moist Sugar Maple-Hemlock Forest Type
- MAM2 - Mineral Meadow Marsh Ecosite
- MAM2-2 - Reed-canyary Grass Mineral Meadow Marsh Type
- MAM2-5 - Narrow-leaved Sedge Mineral Meadow Marsh Type
- MAM2-9 - Jewelweed Mineral Meadow Marsh Type
- MAS2-3 - Narrow-leaved Sedge Mineral Shallow Marsh Type
- OAO - Open Aquatic
- SAF1-3 - Duckweed Floating-leaved Shallow Aquatic Type
- TAT1-4 - Fresh-Moist Sugar Maple Carbonate Treed Talus Type

 Utility Corridors

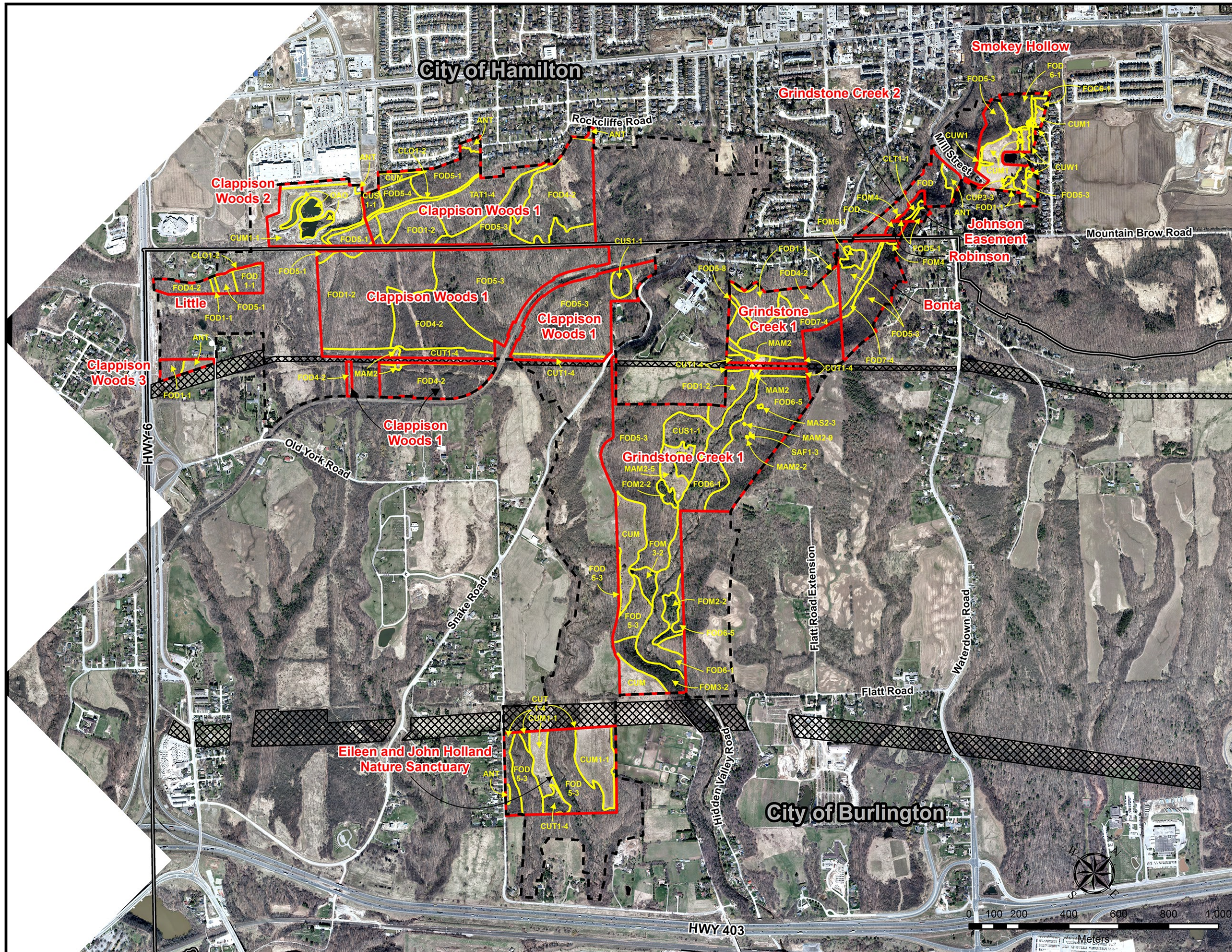
 Municipal Boundary

 Study Area

 Clappison - Grindstone Heritage Lands

Sources of Information:
 Conservation Halton
 Hamilton Conservation Authority
 City of Burlington
 City of Hamilton
 Bruce Trail Conservancy
 Ministry of Natural Resources and Forestry

All boundaries on this map should be considered approximate. No responsibility or liability is assumed by the C2E EcoPark System partners or their employees, officers and agents for any errors, omissions or inaccuracies, whether due to their negligence or otherwise. Some data on this map is used under license from the Ministry of Natural Resources. © Queen's Printer for Ontario, 2016. © Teranet Enterprises Inc. and its suppliers. All rights reserved. NOT A PLAN OF SURVEY



2.4.4 Flora

A total of 896 floral species have been documented in the Clappison-Grindstone Heritage Lands. Of these 896 species, 602 (67%) are native species. The Native Floristic Quality Index (FQI) of the Clappison-Grindstone Heritage Lands is 128.53, an extremely high value. The FQI is a measure of both habitat conservatism and species richness and thus an indicator of vegetation quality. In southern Ontario, most natural areas within urban or urbanizing landscapes have FQI values of around 70-80. The southerly exposure of the Heritage Lands results in a relatively warm, dry microclimate that supports many Carolinian and southern plants, including rare and uncommon species, endangered species and threatened species, including species at risk. A total of 141 significant floral species have been identified within the study area, including five nationally and provincially endangered species, 17 provincially rare species (S1-S3 provincially ranked), 87 regionally rare species (based on Halton Region, *sensu* Dwyer 2006), and 99 regionally rare species in the City of Hamilton (Schwetz 2014).

Invasive species have been identified as one of the greatest threats to the integrity of the ecosystems of the Clappison-Grindstone Heritage Lands. Major invasive plant species found within the Clappison-Grindstone Heritage Lands include: Garlic Mustard (*Alliaria petiolata*), Dog-strangling Vine (*Cynanchum rossicum*), Common Buckthorn (*Rhamnus cathartica*), non-native honeysuckles (e.g., *Lonicera tatarica*), Multiflora Rose (*Rosa multiflora*) and Manitoba Maple (*Acer negundo*).

2.4.5 Fauna

The Clappison-Grindstone Heritage Lands provide important habitat for many wildlife species including:

- 49 species of butterfly or moth;
- 38 species of dragonfly or damselfly;
- 52 species of fish (main reaches of Grindstone Creek);
- 17 species of amphibian or reptile;
- 100 species of bird (85 considered to possibly breed within the Current EcoPark System Lands); and
- 18 species of mammals.

A total of 13 significant faunal species have been identified within the Current EcoPark System Lands: 2 butterfly, 2 dragonfly, 1 amphibian, 2 reptile, and 6 bird species.

2.4.6 Natural Heritage Corridors

Clappison Woods is part of the provincial-scale Niagara Escarpment corridor. The Heritage Lands fall within a nine km stretch of the Niagara Escarpment that extends from the Rock Chapel Escarpment to Spencer Gorge. This stretch of the escarpment has several breaks including a substantial one where Highway 6 extends from Aldershot on the north shore of Hamilton Harbour to Clappison Corners. Clappison Woods is also connected via valley corridors (e.g., Grindstone Creek valley) to Hamilton Harbour and thus links Lake Ontario with the Niagara Escarpment (Varga 1995).

In terms of inter-Heritage Land connections, the adjacent escarpment natural areas (e.g., Clappison Woods and Waterdown Woods) converge at the upper end of the Grindstone Creek valley, immediately south of Waterdown. The Grindstone Creek system provides a natural corridor for species moving between natural areas through the highly urbanized City of Burlington, from Lake Ontario to the Niagara Escarpment. Thus, inter-Heritage Land connections are achieved between the Clappison-Grindstone and Lower Grindstone Heritage Lands. To the west, connections (albeit significantly interrupted by Hwy

6) are made to the Borers-Rock Chapel Heritage Lands. There is a strong connection for deer and other wildlife movements from Grindstone Creek to Sassafras Woods across Waterdown Road. Within the Clappison-Grindstone Heritage Lands, Current EcoPark System Lands and natural area units are relatively well-connected through Clappison Woods, and the Grindstone Creek Valley system.

2.4.7 Natural Heritage Summary

The following table summarizes the natural heritage features and designations of the Clappison-Grindstone Heritage Lands (Table 2). It is also important to note that much of the Heritage Lands are designated as Natural Heritage System by Halton Region and/or the City of Hamilton.

2.5 Cultural Heritage

Overall, the Clappison-Grindstone Heritage Lands are represented through remnant agricultural land usage as identified in historical settlement mapping, with Waterdown representing the principal centre of settlement. Within the Current EcoPark System Lands, cultural heritage resources relate to milling and quarrying activities. The cultural heritage inventory identified three principal sites:

1. The availability of a good source of flowing water enabled early milling to be established at Smokey Hollow on Grindstone Creek (Grindstone Creek 1 on Figure 2);
2. Former quarrying extraction at the King City/Sheppard Quarry is identified in Clappison Woods 2 below Highway 5 (Figure 2); and
3. The Little Property on the east side of Highway 6 below Clappison Corners contains a dry stonewall ruin which is likely a former residential or agricultural structure (Figure 2 and Photograph 1).



Photograph 1. Dry stonewall ruin located along Bruce Trail in Little Property (taken by Leah Lefler).

Table 2. Natural Heritage Summary of the Clappison-Grindstone Heritage Lands.

Features	Designation	Description
Environmentally Sensitive/Significant Area (ESA)	<ul style="list-style-type: none"> • Halton Region Environmentally Sensitive Area • City of Hamilton Environmentally Significant Area 	<ul style="list-style-type: none"> • Halton Region ESA: Clappison Escarpment Woods and Extension (NAI-1 and NAI-1A) • Halton Region ESA: Grindstone Creek Valley (NAI-3) • City of Hamilton ESA: Clappison Escarpment Woods (FLAM-48) • City of Hamilton ESA: Grindstone Creek Escarpment Valley (FLAM-50)
Area of Natural and Scientific Interest (ANSI)	<p>As designated and mapped by MNRF:</p> <ul style="list-style-type: none"> • Provincially Significant Life Science ANSI • Provincially Significant Earth Science ANSI • Regionally Significant Life Science ANSI • Regionally Significant Earth Science ANSI 	<ul style="list-style-type: none"> • Grindstone Creek Valley Provincial Life Science ANSI • Grindstone Creek Provincial Earth Science ANSI • Clappison Escarpment Woods Regional Life Science ANSI • King City Quarry Provincial Earth Science Candidate ANSI
Significant Woodland	<ul style="list-style-type: none"> • Significant Woodlands as identified in the City of Hamilton’s Urban Official Plan (effective 2013) • Significant Woodlands as identified by criteria in Halton Region’s Official Plan (effective 2014) 	<ul style="list-style-type: none"> • Deciduous and mixed forests along Grindstone Creek system • Deciduous forests of Clappison Woods
Significant Valleyland	<ul style="list-style-type: none"> • Based on guidance in Natural Heritage Reference Manual (MNR 2010) 	<ul style="list-style-type: none"> • Valleylands associated with the Grindstone Creek system
Species at Risk	<ul style="list-style-type: none"> • Habitat for Endangered Species and Threatened Species • Provincially designated in Ontario’s Endangered Species Act • Records considered historical (i.e., more than 20 years old) have not been included in the analysis 	<ul style="list-style-type: none"> • 5 endangered floral species • 3 threatened bird species • 1 endangered amphibian species • 1 endangered butterfly species

Features	Designation	Description
Significant Wildlife Habitat	<ul style="list-style-type: none"> • Significant Wildlife Habitat Technical Guide (MNR 2000) • Significant Wildlife Habitat Ecoregion Criteria Schedules (MNR2015) <p><i>For example:</i></p> <ul style="list-style-type: none"> • Provincially significant vegetation types; ELC vegetation types ranked as S1, S2, S3 or S3S4 by NHIC • Habitat for globally, nationally and provincially significant species; includes species designated as Endangered or Threatened by COSEWIC, Special Concern by COSEWIC or COSSARO, or identified as S1, S2, S3, or S3S4 by NHIC • Seeps and Springs • Amphibian woodland breeding ponds • Woodland raptor nesting habitat • Woodland area-sensitive bird breeding habitat • Migratory stopover area • Site potentially linked to an animal movement corridor • etc. 	<p>Examples of Significant Wildlife Habitat within the study area include:</p> <ul style="list-style-type: none"> • Clappison-Grindstone Heritage Lands are an important breeding area for 91 species of birds, including 22 area-sensitive species • The area supports 6 species of special concern (1 butterfly, 2 reptile and three bird species), rarely found elsewhere in Ontario and Canada • The area supports several areas of woodland breeding habitat for amphibians • The area supports seeps and springs, a form of specialized habitat for wildlife
Surface Water and Fisheries Resources	<ul style="list-style-type: none"> • Permanent streams (including ponds) • Cold-water fish habitat 	<ul style="list-style-type: none"> • Study area includes catchment area that supports watercourses. • Grindstone Creek is a permanent cold-water stream that provides important fish habitat.

Features	Designation	Description
Flora	<ul style="list-style-type: none"> • COSEWIC and COSSARO • NHIC • Dwyer 2006 • Schwetz 2014 	<ul style="list-style-type: none"> • 896 flora species; 602 native flora species • 22 Carolinian Indicators; 30 Prairie-Savannah Indicators • 128.53 FQI; 5.24 Mean C • 5 END species • 17 S1-S3 species • 87 regionally rare species in Halton Region • 99 regionally rare species in the City of Hamilton
Butterflies and Moths	<ul style="list-style-type: none"> • COSEWIC and COSSARO • NHIC • Dwyer 2006 	<ul style="list-style-type: none"> • 49 species; 48 native species • 1 END species; 1 SC species • 1 S2 species • 4 regionally rare species
Dragonflies and Damselflies	<ul style="list-style-type: none"> • COSEWIC and COSSARO • NHIC • Dwyer 2006 • Schwetz 2014 	<ul style="list-style-type: none"> • 38 native species • 2 S1-S3 species • 10 regionally rare species
Fish	<ul style="list-style-type: none"> • COSEWIC and COSSARO • NHIC • Dwyer 2006 	<ul style="list-style-type: none"> • 52 species; 42 native species • 27 regionally rare species
Amphibians and Reptiles	<ul style="list-style-type: none"> • COSEWIC and COSSARO • NHIC • Dwyer 2006 • Schwetz 2014 	<ul style="list-style-type: none"> • 17 species; 16 native species • 1 END species; 2 SC species • 3 S1-S3 species • 3 regionally uncommon species

Features	Designation	Description
Birds	<ul style="list-style-type: none"> • COSEWIC and COSSARO • NHIC • Dwyer 2006 • Schwetz 2014 • SWHTG (MNR 2000) • SWH Ecoregion Criteria Schedules (MNRF 2015) 	<ul style="list-style-type: none"> • 100 species (91 breeding); 96 native species • 3 THR* species; 3 SC species • 1 S3B species • 9 regionally rare species in Halton Region, excluding migrants • 12 regionally rare species in the City of Hamilton, excluding migrants • 22 area-sensitive species, excluding migrants
Mammals	<ul style="list-style-type: none"> • COSEWIC and COSSARO • NHIC • Dwyer 2006 	<ul style="list-style-type: none"> • 18 species • 0 regionally/provincially rare species • bat surveys not completed to date

*THR bird species are known to breed in the Stewardship Lands, and not Current EcoPark System Lands.

3.0 Management Issues

This section summarizes the management issues identified for the Clappison-Grindstone Heritage Lands. Many of the current types and intensities of use are most likely degrading the natural features and functions of the Heritage Lands. Impacts have been noted within the existing extent of use, and considerably greater use of the Heritage Lands is anticipated in the future, with the expectation of increased stresses to natural features. Many of the issues are inter-related and in many cases cannot be addressed in isolation. For example, over-use of trails from hiking and/or cycling can result in erosion issues, which can lead to ecological management issues such as soil degradation, impacts to ground flora, susceptibility to invasion by non-native plant species, degraded water quality, etc.

3.1 Overarching Issues and Opportunities

Several management issues are not constrained just to the Clappison-Grindstone Heritage Lands and span the entire Cootes to Escarpment EcoPark System. These issues are generally related to the recognition and identification of the EcoPark System, both in terms of boundary identification and the public perception or knowledge of the EcoPark System. The numbers listed in paragraph headings provide a cross-reference to the management recommendations listed in Sections 4.2 and 4.3.

[Consistent Delineation of Cootes to Escarpment EcoPark System \(3\)](#)

The Cootes to Escarpment EcoPark System is a relatively recent initiative. Some signage has been posted along roadways to identify the boundaries of the system and more signage is planned for installation in the future; however, at present the signage is scattered and it is very difficult to determine when a user is in the EcoPark System or leaving it. The lack of signage and poor general public knowledge of where and what the EcoPark System is hinders opportunities to engage the public in stewardship, educate EcoPark System users about the importance of managing use, and garner support for management. It is important to note that awareness is continuing to increase through Cootes to Escarpment EcoPark System stewardship programming and community events.

[Delineation of Current EcoPark System Lands Boundaries to Reduce Trespass/Encroachment Issues \(4\)](#)

Except for limited signage at some access points, there is no way of knowing when one is within Current EcoPark System Lands (Figure 2). The natural areas (woodlands, open lands, etc.) that compose the majority of the Heritage Lands extend well beyond individual property boundaries, and the Current EcoPark System Lands are generally owned by multiple agencies. This makes it impossible to enforce policies regarding use and encroachment in areas around the periphery of Current EcoPark System Lands. This creates issues for both adjacent landowners (e.g., trespassing and privacy issues) and Current EcoPark System Lands (e.g., encroachment of manicured areas and structures from adjoining lands).

[Lack of Uniform Set of Rules for EcoPark System \(5\)](#)

Each partner agency has their own set of policies and rules, and thus there is a lack of a uniform set of rules governing the use and management of the EcoPark System. For example, the Bruce Trail Conservancy allows only pedestrian traffic on the Bruce Trail; however, bicycle use is permitted by other partner agencies on their lands. Not only is this confusing to EcoPark System users, but users are generally not aware of the relevant rules and regulations of use. Different rules and permitted uses may continue to apply to different properties, depending on who owns the land and the sensitivity of the

property. However, communication of partner agency rules and policies needs to be improved. Also, to the extent that it is possible, the partner agencies for each of the Current EcoPark System Lands should attempt to resolve any differences in their use policies to minimize conflicting direction to EcoPark System users.

Accommodating Stresses from Future Development (6)

A major management issue is the anticipated increase in use that will result from future development adjacent to the Heritage Lands and the associated population growth. Future development on lands adjacent to the Heritage Lands has the potential to degrade the natural, recreational and cultural resources unless mitigation in the way of increased management initiatives is implemented. These developments will be desirable communities to live in partly because of the proximity of the aesthetic beauty and recreational opportunities provided by the Heritage Lands. It is thus fitting that the population-induced negative impacts on nearby Heritage Lands resulting from development and the increased cost of management needs should be mitigated by the development proponents, where appropriate. However, some development approvals adjacent to the Heritage Lands have already progressed beyond the point at which additional funds to put toward mitigation/management could be requested.

At present, there are no policies that would directly facilitate the implementation of relevant management recommendations in the Management Plan through development approvals. However, where geographic-specific park or public land Management Plans exist, the Greenbelt Plan 2005 indicates that municipalities, agencies, and other levels of government must consider them when making decisions on land use or infrastructure proposals. As the Cootes to Escarpment EcoPark System represents such a park, it would be incumbent on planning authorities to consider increased use pressures and likely environmental impacts in their assessment of development applications.

Several planning policies require proponents of development applications to consider impacts on adjacent natural features and areas resulting from their development proposals, and to mitigate them accordingly. It is especially important that the impacts associated with future developments adjacent to the Heritage Lands be clearly identified and assessed in Environmental Impact Assessments (or similar studies) in the context of the role the Heritage Lands play in the overall Cootes to Escarpment EcoPark System. In other words, the value and significance of the natural features captured in the Heritage Lands is greater because they are part of the EcoPark System, and because they have an ecological function that goes beyond the feature itself. In determining impact mitigation for future development, this higher value should be considered when determining the limits of the developable area, buffer widths, management needs such as design and provision of trails within the Heritage Lands. The management issues and recommendations identified for the Clappison-Grindstone Heritage Lands provide information on current impacts that could be exacerbated by future adjacent development. Management recommendations may assist in the determination of appropriate mitigation that could be implemented through the development process.

Owing to the multi-agency agreement to implement the EcoPark System and the public resources that have already been spent on the acquisition and management of the Heritage Lands, potential population-induced negative impacts from development should be mitigated through conditions of the approval process wherever possible. More generally, the partner agencies that are directly involved in the development approval process (in the case of the Clappison-Grindstone Heritage Lands these are the City of Hamilton, City of Burlington, Halton Region and Conservation Halton), should continue to

consider and incorporate the significance of the Heritage Lands in their reviews and the subsequent conditions they impose on development applications. This is viewed as part of their commitment to implementing the Vision of the Cootes to Escarpment EcoPark System. Partner agencies that are not directly involved in the development approval process should be encouraged to comment as landowners on development applications that may impact their lands. Where a public or private development proposal may exacerbate existing management issues and/or create new ones, adjacent landowners should make such concerns known so they may be addressed accordingly through the development approval process.

Funding (8)

There are differences in approach to management by the partner agencies. These differences should not be at the expense of the asset that the designation of the Cootes to Escarpment EcoPark System brings. Individual partners manage lands in a variety of models, from pay to use to free to use. Future operating and capital costs associated with the Cootes to Escarpment EcoPark System will be high and no clear and uniform model for allocating these and financing them is yet proposed. Funding estimates are not included within this Management Plan; however, funding as a broad management issue is included as the Cootes to Escarpment EcoPark System creates both challenges and opportunities in this regard.

3.2 Access and Infrastructure

Parking and access is limited at the Clappison-Grindstone Heritage Lands (Figure 3). Some parking and access points are sanctioned and some are not. A few small parking areas are available (e.g., Rockcliffe Road, Bruce Trail parking lot west of Highway 6). EcoPark System users also park behind the RONA and Walmart located to the north of Clappison Woods 2, on the roadside on Snake and Waterdown Roads, in the cul-de-sac at the end of Renwood Place east of Smokey Hollow, and at the end of Hidden Valley Road to access the south end of Grindstone Creek 1. Utility corridors are also frequently used to access the Heritage Lands, although these access points are not sanctioned.

Lack of Adequate/Appropriate Parking and Access (12)

There is a lack of adequate and appropriate parking to provide access to some areas of the Heritage Lands. Informal parking areas, which essentially consist of shoulder pull-offs along Snake Road, are located along a curve and are undesirable owing to the 60 km/h speed limit coupled with poor sightlines. Parking is prohibited by the City of Burlington at this location. This represents an issue associated with a trail/road crossing. The parking area off Mill Street South at Smokey Hollow is frequently over capacity as this is the only access point to the Bruce Trail with parking along Grindstone Creek (Figure 3). Additional parking is provided off of Rockcliffe Road and at the Eileen and John Holland Nature Sanctuary.

It is important to note that none of the parking areas in the Heritage Lands provide any accessibility for people with special needs, and because of the steep terrain, wheelchair access is rarely possible. The parking area off Mill Street South at Smokey Hollow does not provide accessibility to the overlook at the waterfall; however, accessibility may be feasible to implement in this location.

Relative Isolation of some Current EcoPark System Lands (13)

Some of the Current EcoPark System Lands are isolated and not directly connected to other Current EcoPark System Lands. For example, Clappison Woods 3 and the Eileen and John Holland Nature

Sanctuary are not connected to other Current EcoPark System Lands (Figure 2). Additional opportunities for land securement and protection of the Stewardship Lands could be sought to provide connections for wildlife and/or recreation. Relative isolation of some Current EcoPark System Lands limits opportunities for trail connections and potentially raises management issues, such as trespassing. It is important to note that some sections of public lands may not be appropriate for or have agency interest in connecting them via a trail network.

Trespassing (14)

Trespassing on privately-owned lands within the Heritage Lands is an issue. Many “No Trespassing” signs have been posted by adjacent landowners as a result, and conflicts between landowners and EcoPark System users have occurred. The issue of trespassing ties into the lack of access as well as the need to identify and mark boundaries of the Current EcoPark System Lands, and the need to educate EcoPark System users about the importance of paying attention to signage and posted management messages.

Flood Damage Centres are areas adjacent to creeks that are prone to flooding, potentially threatening safety and damaging property. Flood Damage Centres are identified to enable Conservation Authorities the ability to provide alerts and warnings to assist emergency response agencies with directing their efforts to the appropriate locations during flooding events. A Flood Damage Centre is located at the south end of Grindstone Creek 1, within the Hidden Valley community, where several unsanctioned trails and a small unauthorized parking area has been developed. A formalized parking area and creek crossing in the 100 year floodplain would not be supported by Conservation Authority policies due to the associated risk. Furthermore, building a crossing structure outside of the 100 year floodplain would be cost prohibitive at this location.

3.3 Recreation

The existing trail system through the Heritage Lands is extensive, and consists of sanctioned and unsanctioned trails (Figure 3). The Bruce Trail Conservancy manages the Main Bruce Trail and Bruce Trail Side Trails, and others are maintained by cyclists and other members of the local community. Some trails are no longer being used and are naturally regenerating. Trail uses include hiking, on- and off-leash dog use, cycling and motorized vehicle use. Associated trail issues include the use of the CN Rail line as a trail or trail connection, and unsanctioned trail improvements such as the construction of boardwalks or erosion control measures, cycling structures (e.g., jumps and ramps) and trail modifications (e.g., berms and banked corners).

Duplication and Density of Trails (16)

Some portions of the Current EcoPark System Lands currently support a high density of trails (Figure 3). The trail network could be simplified to avoid duplication and impact to the natural environment. Trail closure, in conjunction with trail rationalization and formalization, is one of the highest priorities for management.

Signage (17)

There is very little signage or interpretation of the EcoPark System within the Clappison-Grindstone Heritage Lands. A large, informative sign has been posted in the parking lot of the Eileen and John Holland Nature Sanctuary, which provides some examples of species that occur within the area. There is an interpretive marker rock and plaque dedicated to Bill Black and Doug Fearman for blazing the

Rockcliffe trail network at the access point from Rockcliffe Road. The Hamilton Historical Board has placed an interpretive sign at the parking area of Smokey Hollow describing some of the historic industries along Grindstone Creek. However, interpretive signs placed at Smokey Hollow have been vandalized in the past. There are many more opportunities for interpretation and education within the Heritage Lands (see section 4.3.4). This would also provide an opportunity for an increased presence and profile for the EcoPark System through a consistency and approach in branding.

Overuse and Erosion of Trails (18)

Some portions of the trail system show signs of overuse, including exposure of tree roots, impacts to ground flora, soil compaction and widening of the trails. Trail overuse has resulted in soil erosion in some locations. Some erosion, compaction, and water ponding is considered acceptable on trails within natural areas and as long as it is sustainable (i.e., not expanding) and not impacting significant species, habitats or hydrological functions, it is considered to be part of the trail experience. Unacceptable erosion on trails was noted, and can be attributed to overuse, improper trail construction, poor trail alignment and/or drainage issues. In a few locations, water ponding has led to trail widening or braiding to avoid wet patches on trails (Figure 5). Within the Johnson Easement, there is a portion of trail that is crossed by an ephemeral stream which has led to erosion (Figure 5).

Unsanctioned Structures and Trail Improvements (19)

Unsanctioned structures and trail improvements have been constructed within the Heritage Lands. Examples include bridges, berms, and ramps. In one particular case in Clappison Woods 1 rotted out bridge structures pose potential hazards (Figure 5). These structures and trail improvements pose a management concern.

CN Safety Issue (21)

The existing trail network crosses and, in places, dead-ends along the CN Rail line (Figure 3). EcoPark System users are currently crossing the train tracks, and/or walking along the train tracks to access another trail. This warrants further consideration and discussions with CN.

Trails (22)

A large portion of the existing trail network in Clappison Woods was previously developed by the former landowner, Mr. Black, and is currently being used extensively by the local community. More recently, unsanctioned trails have been developed throughout the Heritage Lands without consultation or authorization. Most of the existing trails are respectful of natural terrain, drainage features and trees. In many cases logs have been placed over the trail to prevent impacts to tree roots or enhance a trail to include a technical feature for cycling. The trail network includes single-track trails, which are as narrow as 0.5 m wide. The relative intensity of the use has resulted in rutting and down-cutting of soils in many areas, and soil compaction and loss of understory vegetation in others. Where trails traverse steep sections of slope, erosion is often prevalent (Figure 5).

User Conflicts (23)

Potential conflicts between different trail user groups can impact the safety of park users, and can also decrease the enjoyment of park users. User groups include hikers, cyclists, and on- and off-leash dog walkers. Off-leash dog use is not permitted within Current EcoPark System Lands. Although the Bruce Trail Conservancy does not permit cycling, bike use continues to occur along the main Bruce Trail, and conflicts between cyclists and hikers arise on occasion.

Off-leash Dogs (24)

Off-leash dog use can have the following impacts on natural areas: erosion, soil compaction, water quality impacts, and effects on wildlife. Off-leash dog walkers should be encouraged to use the off-leash dog park at Bayview Park, located in the Waterdown-Sassafras Woods Heritage Lands. From a natural heritage perspective, it is preferred that off-leash dog usage occurs outside sensitive and/or significant natural areas. Several municipalities require that an Environmental Impact Assessment (or similar study) be developed when off-leash dog parks are proposed adjacent to natural areas in order to assess and mitigate impacts.

Ice Skating and Hockey on Stormwater Management Ponds (25)

Local residents use the stormwater management ponds in Clappison Woods 2 as a skating rink when the ponds are frozen, as indicated by the sunken hockey nets in the pond. Per City of Hamilton stormwater management guidelines, ice skating and hockey are prohibited on ice that forms on stormwater management ponds.

Non-permitted Uses (26)

Some of the non-permitted uses identified above are relatively benign and do not have a significant negative impact on the natural environment. However, other non-permitted activities have localized impacts and can degrade the quality of natural areas by removing or trampling vegetation, contributing to soil compaction and erosion, damaging or vandalizing trees, and the introduction and spread of invasive species. Some non-permitted uses may also constitute a fire hazard (e.g., fire pits).

Safety Concerns Associated with Non-permitted Uses (27)

There are safety concerns associated with some of the non-permitted uses noted within the Heritage Lands, such as after-hours partying, rope swings, bow hunting and slack-lining. Increased signage and education regarding permitted uses, along with enforcement to the extent possible, will assist with developing awareness of impacts and concerns associated with non-permitted uses and will contribute to their management.

3.4 Encroachments

Impacts associated with adjacent land uses are creating management issues for Current EcoPark System Lands (e.g., encroachment from residences abutting Clappison Woods 1) (Figure 5).

Personal Trails (28)

Personal trails are occasionally created that lead from private residences into the adjacent EcoPark System trail network. In some cases gates are installed into rear lot fencing to facilitate access. This speaks to the frequency of use that these trails experience. When combined, the cumulative effect of these personal trails can have an impact on the quality of the natural area and can also impact wildlife through the increased level of disturbance.

Structures and “Yard Extension” (28)

Structures such as retaining walls, picnic tables and small sheds, and household objects such as lounge chairs and composters were noted within the Current EcoPark System Lands, adjacent to residential properties. Also, yards are occasionally extended by mowing and the placement of flowerbeds within the natural area boundary. This has an impact on edge vegetation and reduces the overall size of the natural area.

Dumping (28)

Yard waste, such as grass clippings and trimmed branches, is often thrown inside the edge of natural areas from adjacent residences. Yard waste dumping can be a vector for the spread of non-native invasive species. It also smothers existing vegetation, reduces establishment of understory forest succession, and degrades the aesthetic and floristic quality of an area. Garbage and other refuse are also found within the Heritage Lands which impact the quality of the natural area. Several old stoves are present within Grindstone Creek 1 (Figure 5).

Vegetation Removal (28)

Removal of vegetation occasionally occurs along the edges of natural areas. For example, tree cutting of both dead and living trees occurs, as well as clearing of brush, and tree topping to maintain views. These unsanctioned activities reduce the quality of natural areas by reducing or degrading the structure of edge vegetation, and removing snags which have high wildlife value.

Cats/Domestic Pets (28)

Free-roaming domestic pets, in particular cats, have a significant impact on native wildlife populations. Cats are very proficient predators and are responsible for killing millions of birds, small mammals, reptiles and amphibians each year (Marks and Duncan 2009).

3.5 Hydrologic Impacts

Drainage and Erosion (29)

High run-off and peak flows associated with adjacent development and an increase in impervious surfaces (e.g., buildings and asphalt restrict the ability of precipitation to infiltrate in the ground) can accelerate erosion rates and decrease groundwater infiltration. Any steps taken to limit run-off would be beneficial to the Grindstone Creek watershed and Hamilton Harbour. Drainage and resulting erosion can encroach into natural areas from adjacent land uses. Impacts associated with heavy erosion of watercourses include:

- loss of instream substrates that support aquatic benthic invertebrates, which provide productivity for downstream fish communities;
- bank slumping and loss of riparian vegetation;
- impairment of myriad riparian functions (e.g., wildlife habitat, filtration of surface water runoff, shading of watercourse, input of allochthonous inputs, etc.); and
- sediment loading to Hamilton Harbour, which impacts the ability for the harbour to be delisted as an Area of Concern.

Swimming pool drainage from private residences has led to severe erosion and the formation of gullies in several locations within the study area (Figure 5). Impacts of drainage and erosion can also significantly damage vegetation. In vast areas within the Current EcoPark System Lands, bank erosion has exposed tree roots and has resulted in increased levels of deadfall. Some fallen trees have blocked the creek, which may impact the hydrology and fluvial geomorphology of the watercourse. Habitat for herbaceous plants is also impacted. Many of the tributaries in this area that do not have significant impaired hydrology also have almost vertical banks. These are natural due to the elevation changes from the escarpment to Hamilton Harbour. In some areas where creek banks had naturally sloped gently toward the creek and increases in erosion have occurred, soil has been washed away until the

banks have become almost vertical (through a process called down-cutting). This impacts the ability of riparian vegetation to establish with subsequent impacts for further erosion and bank stability. Also, sediment accumulation in areas of slower moving water has resulted in some destruction of habitat for aquatic vegetation. Reduction of light penetration from increased turbidity also impacts the aquatic life living in the creek system. Trails located in the vicinity of undercut banks should be re-routed.

Stormwater Management (29)

Stormwater management ponds often discharge into watercourses within natural areas. When designed and maintained appropriately, these facilities can have a relatively small impact on natural areas. However, if designed and maintained poorly, these facilities can have a very large and negative impact. There is also the potential for chloride (de-icing salt) to discharge into the creek following the snowmelt in the spring, as stormwater management ponds do not remove salt from the water as the salt is present in a dissolved state. The stormwater management pond located in Clappison Woods 2 (Figure 5) is a concern for water quality and water quantity, and there is a management opportunity to develop a maintenance program that limits impacts. Based on future planned commercial development in Clappison Corners, additional down-cutting and associated slumping of creek banks, loss of riparian vegetation and widening of the watercourse is anticipated downstream of the stormwater management ponds located in Clappison Woods 2. Stormwater has also caused erosion on the banks of the main branch of Grindstone Creek and within the small escarpment subwatersheds referred to as the Clappison-Bridgeview Tributaries and Sassafras Tributary.

Water quantity impacts have been noted downstream of the stormwater management facility located in Clappison Woods 2 (Figure 5). Erosion and down-cutting has been noted in the downstream watercourse. This has an impact on the hydrological function of the watercourse. As more of the surrounding area becomes developed, increased impacts to hydrological functions are anticipated, as an increase in impervious cover results in decreased infiltration and increased runoff. This puts an even greater strain on existing stormwater management infrastructure, and increases impacts related to water quantity and quality.

Polluting Spills (30)

Due to the presence of roadways, pipelines and railway lines within the Heritage Lands, there is a potential for polluting spills to occur and encroach within the Current EcoPark System Lands. Polluting spills can have serious and long-term consequences for natural areas. Depending on the substance and quantity spilled, site remediation may be required.

3.6 Ecosystem Management and Restoration

Management issues related to ecosystem management and restoration are aimed at protecting ecosystem features and functions and restoring natural resources. The principal objective of ecosystem management is the restoration of natural ecosystems, preservation of significant species, as well as efficient maintenance and ethical use of natural resources.

Forest Health Decline (31)

Oak Decline, Beech Bark Disease, Emerald Ash Borer, Gypsy Moth, Chestnut Blight, Dogwood Anthracnose, Butternut Canker, and other diseases are currently impacting the health of trees and forests in the study area. Asian Long-horned Beetle has not yet been noted in the area, but is a potential threat. Non-native earthworms also appear to be contributing to the decline of forest health.

Earthworms are keystone detritivores that can act as “ecosystem engineers” and have the potential to change fundamental soil properties, with cascading effects on ecosystem functioning and biodiversity. Tree blowdowns associated with tree death and/or slope erosion can create gaps in the forest canopy. If small in scale, gaps in the forest canopy can provide habitat heterogeneity within an ecosystem and may not be an issue, or if large in scale they can cause other impacts such as loss of habitat, spread of invasive species, etc. Forest pests, such as Emerald Ash Borer, are causing significant death and dieback of ash trees, creating hazard tree and safety issues. Gaining access to and managing hazard trees creates a secondary management issue.

Loss of Open Woodland Habitat (31)

Open oak woodland with grassland understory historically occurred within the Heritage Lands, in part as a result of several centuries of indigenous people periodically burning to maintain hunting areas, tree seed and fruit production (e.g., Goodban et al. 1997). Over time, open oak woodland habitat has been lost or diminished largely due to the loss of disturbances (e.g., fire) that maintain a more open forest character. Some forest canopies have become more closed, reducing the amount of light that is able to penetrate to the forest floor. This has had an impact on the flora in the area, resulting in a reduction of prairie, savannah and open woodland-dependent species. Some habitat for these species remains within the Heritage Lands in utility corridors that are maintained as open habitat based on the needs of the utility infrastructure as well as on south and south-west facing dry oak slopes.

Management of Species at Risk and Rare Species Habitat (33)

The conservation and recovery of species at risk in the Clappison-Grindstone Heritage Lands is largely associated with conserving and restoring open oak woodland habitat. The majority of species at risk and rare species in the Heritage Lands require open oak woodlands to persist. Management of conditions surrounding known locations of species at risk (e.g., maintaining open woodland characteristics) may be necessary, as the natural disturbance regime many species at risk rely upon has been removed (i.e., open oak woodlands historically maintained their open character due to disturbance caused by fire and management of understory vegetation). In addition, recreational uses that have become established may not be compatible with the conservation and recovery of species at risk and rare species in some locations.

Management of Fish Communities (34)

Fish communities within the lower Grindstone Creek system could be managed as a coldwater fishery. The waterfall located at Smokey Hollow in Grindstone Creek 2 is a natural barrier to upstream fish movement, including migratory salmonids (refer to the Grindstone Creek Watershed Study, HRCA 1998).

Invasive Species (35)

The following invasive plant species have been noted within the Heritage Lands: Garlic Mustard, Dog-strangling Vine, English Ivy, Periwinkle, Himalayan Balsam, Japanese Knotweed, Common Reed, Purple Loosestrife, White Mulberry, Common Buckthorn, non-native honeysuckles, Multiflora Rose, Japanese Barberry, Norway Maple, Manitoba Maple, and Black Locust. These species displace the native flora, reducing biological diversity, and in some cases degrade the basic conditions needed to sustain native ecosystems. Dog-strangling Vine is particularly prevalent within hydro-corridors, the Little Property and parts of Clappison Woods 1 (Figure 5). Invasive insect species noted within the Heritage Lands include Gypsy Moth and Emerald Ash Borer. Invasive species tend to spread aggressively and out-compete native species. Non-native earthworms likely occur throughout the area and are probably causing fundamental changes to soil characteristics and are impacting the native flora and vegetation.

Noxious Plants (36)

Poison ivy and other noxious plants may pose health and safety issues for EcoPark System users who venture off-trail. Poison ivy is found throughout the Current EcoPark System Lands in various concentrations. Giant Hogweed has not been noted within the Current EcoPark System Lands, but has the potential to colonize floodplain valleys.

Wildlife Crossing (37)

Wildlife crossing has been identified as an issue of concern within the Heritage Lands. There is a large population of White-tailed Deer within the Grindstone Creek Valley system. Crossing of urban and rural roads by White-tailed Deer poses issues for wildlife and for the safety of the public. Furthermore, road mortality is a large contributor to declines in amphibian and reptile populations. Due to the fragmented nature of the natural areas that compose the Clappison-Grindstone Heritage Lands, wildlife is forced to cross roads, hydro-corridors and railways.

4.0 Heritage Lands Management Recommendations

This section of the Management Plan addresses the management issues and opportunities identified in section 3.0. The recommendations have been developed predicated on the expectation that use is going to increase as a result of increased human population from several approved development applications adjacent to or in close proximity to the Heritage Lands, and the possibility of additional approvals in the future. The Clappison-Grindstone Heritage Lands are at a critical juncture – if management is not implemented, current and anticipated increases in impacts will likely result in substantial degradation of the natural, recreational and cultural values of the area. Thus implementing management of these lands is extremely important and timely. Although the management plan focuses on Current EcoPark System Lands within the Clappison-Grindstone Heritage Lands, there are also pressures being placed on Stewardship Lands within the Heritage Lands, and Adjacent Lands. In some instances, management issues on the adjacent lands affect the Current EcoPark System Lands, and will influence the scope of management initiatives. Thus, communication, education and stewardship with adjacent landowners will be a key consideration in future management. Where appropriate, consideration of these adjacent pressures is provided.

The recommendations of this Management Plan are arranged into 39 “Management Themes”. These themes are based on the issues identified in section 3. Each management theme is numbered solely to allow easy reference to it; the numbers do not reflect any priority for implementation.

4.1 Approach to Management Recommendations






















The NEP requires that Management Plans be prepared for each park and open space in the NEPOSS. The NEP Management Plans lay out the goals and objectives, and guide the protection and management of natural heritage features and cultural heritage features, and activities in NEP park and open space areas. This poses a unique situation for the Clappison-Grindstone Heritage Lands, which are comprised of several parcels, some, but not all of which are classified as separate parks in the NEP, i.e., several NEP parks with different classifications occur within the Clappison-Grindstone Heritage Lands. In the context of the Cootes to Escarpment EcoPark System, a single Management Plan is being prepared for each of

Cootes to Escarpment EcoPark System Clappison - Grindstone Heritage Lands

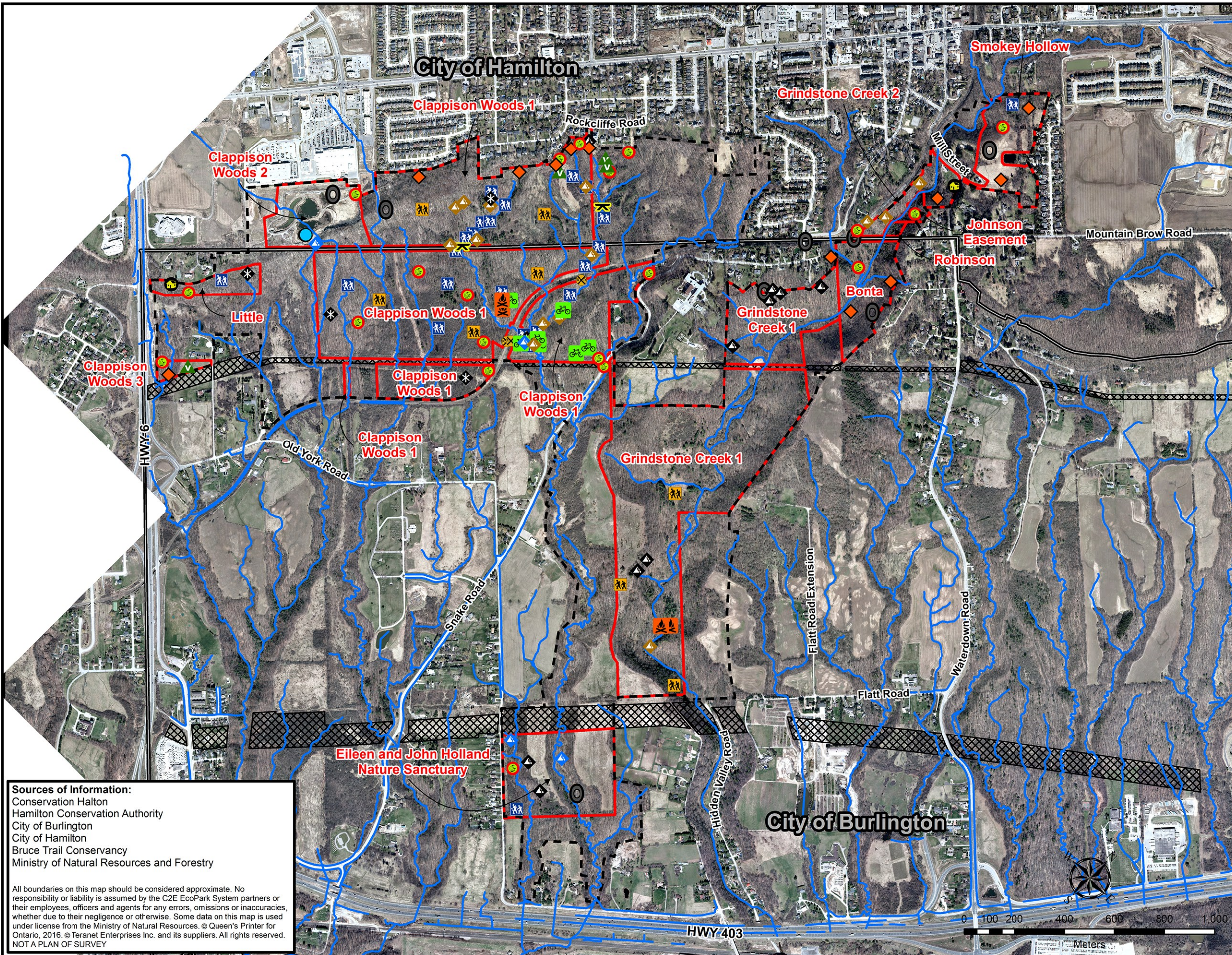
Figure 5: Examples of Management Issues

Legend

Management Issues

-  Unsanctioned Trail
-  Cultural Interpretation Issue
-  Stormwater Impacts
-  Unsanctioned Trail Management
-  Unsanctioned Creek Crossing
-  Encroachment
-  Garbage/Dumping
-  Gully Erosion
-  High Density of Trails
-  Invasive Species
-  Mountain Bike Structures
-  Picnic Area/Fire Pit
-  Trail/Rail Crossing
-  Stream Erosion
-  Trail Erosion
-  Vegetation Clearing
-  Utility Corridors
-  Municipal Boundary
-  Watercourse
-  Study Area
-  Clappison - Grindstone Heritage Lands

Note:
Not all management issues have been mapped.



Sources of Information:
 Conservation Halton
 Hamilton Conservation Authority
 City of Burlington
 City of Hamilton
 Bruce Trail Conservancy
 Ministry of Natural Resources and Forestry

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the six Heritage Lands per requirements specified in the Cootes to Escarpment Park System Phase II Land Management Strategy (October 2009). A single overall Management Plan is desirable in order to manage the lands in a holistic and integrated manner, among multiple partners. To reconcile these two different frameworks, the Clappison-Grindstone Heritage Lands will not be classified as a single park or open space area, but will adopt the classifications for each park as identified in the NEP. For park and open space areas not included in the NEP, classifications have been recommended. As a result, the Heritage Lands will contain multiple classifications, including Nature Reserve, Natural Environment and Escarpment Access.

The intent of this Management Plan is to provide overall high-level guidance for the future management of the Heritage Lands. Detailed site-specific master plans may be prepared at a later date by individual landowners or agencies to further refine recommendations and, depending on whether their lands are within the NEP area, these may need to be submitted for approval through the NEPOSS process.

4.1.1 Classification and Zoning of the Heritage Lands

To assist in the development of future detailed Master Plans, the Classifications and Zones from the NEPOSS planning manual were applied to the Clappison-Grindstone Heritage Lands. These provide a basis for identifying permitted uses and long-term management. The full rationale and description of the Classification and Zoning exercise is provided in Appendix 1. Note that Classifications are applied to entire parks, as defined in the NEPOSS manual, and Zones are areas that guide development and management within each park.

A summary of the Classifications and Zones is provided below.

1: Classification of the Heritage Lands per NEPOSS

The NEPOSS Planning Manual (MNR 2012) provides six Classifications that characterize park and open space areas within the NEP area. The Clappison-Grindstone Heritage Lands contain multiple Classifications, including Nature Reserve, Natural Environment and Escarpment Access. The description and management direction provided in the NEPOSS Planning Manual (MNR 2012) of each of these Classifications is as follows:

- **Nature Reserve:** Nature Reserves represent the most ecologically significant and distinctive natural areas and landforms found along the Niagara Escarpment. These areas serve to protect selected life science and earth science Areas of Natural and Scientific Interest (ANSI). Management practices and uses in a Nature Reserve will ensure that the features and values for which it was established remain protected in perpetuity.
- **Natural Environment:** Natural Environment lands are characterized by the variety and combination of outstanding natural heritage features, cultural heritage features and outstanding landscapes. Natural Environment lands provide opportunities for the protection of important natural heritage features and cultural heritage features.
- **Escarpment Access:** Escarpment Access park or open space areas will complement the large and, in some cases, more developed parks or open space areas, by providing opportunities for public access to the Niagara Escarpment at appropriate points of interest along it. Generally, these areas are small (4 ha – 25 ha). Escarpment Access park or open space areas are intended to provide opportunities for public access to the Escarpment.

Within the Clappison-Grindstone Heritage Lands, four park and open space areas and associated Classifications have been identified in the NEP:

1. Clappison Woods – Natural Environment;
2. Grindstone Creek – Nature Reserve;
3. Little Property – Nature Reserve; and
4. Smokey Hollow – Escarpment Access

No changes to these Classifications are proposed at this time. Recommended Classifications for the Current EcoPark System Lands within the Clappison-Grindstone Heritage Lands are provided in Table 3 and illustrated on Figure 6.

2: Zoning of the Heritage Lands per NEPOSS

The use of zoning is outlined in the NEP as “essential to the orderly planning, development and effective management of a park or open space area”. NEP zoning is intended to work within each of the park Classifications to guide uses based on the significance of resources, the need for protection, and the potential for recreation or other activities. The NEPOSS Planning Manual (MNR 2012) provides six zones and each one serves a specific purpose and provides direction on planning and management. The description and management direction provided in the NEPOSS Planning Manual (MNR 2012) of each of these zones is as follows:

- **Nature Reserve:** Nature Reserve Zones include significant natural heritage features or areas that require careful management to ensure the long-term protection of their natural features. This type of zone should ensure ecological diversity and provide long-term protection for significant natural heritage features such as: habitat of endangered, threatened and rare species or species of special concern; wildlife and fish habitat; hydrological systems (e.g., streams, wetlands, ponds); woodlands; ANSIs; and escarpment features (e.g., brow, slope, face, toe, and related landforms). Nature Reserve Zones are predominantly natural and should contain naturally functioning ecosystems. Such zones should protect natural heritage features in the long term.
- **Natural:** Natural Zones include aesthetic landscapes in which a minimum of development is permitted to support low- to moderate-intensity recreational activities. This type of zone includes natural landscapes and high-quality natural settings. The Natural Zone can function as a buffer between Development Zones and Historical or Nature Reserve Zones.
- **Access:** Access Zones serve as staging areas (e.g., trailheads, parking lots) where minimal facilities support the use of Nature Reserve Zones and relatively undeveloped Natural and Historical Zones. Access Zones are intended to support the use of and access to adjacent zones.
- **Historical:** Historical Zones include significant archaeological or cultural heritage resources or areas that require management that will ensure the long-term protection of the significant heritage features. Management planning for archaeological or cultural heritage features may range from documenting and maintaining their present condition to stabilization, restoring and/or reconstructing the site.
- **Development:** Development Zones provide the main access to the park or open space, and facilities and services to support the recreational activities available. This type of zone may allow for the

development of visitor and park facilities. A Development Zone is usually oriented to the provision of recreational opportunities that are suited to the natural character of the particular park or open space and are conducted in an environmentally sustainable manner. This zone should have minimal negative impact on natural heritage features and cultural heritage features, the natural landscape or watershed.

- **Resource Management:** Resource Management Zones include certain public lands that are managed primarily to provide resource-related benefits such as forest products, fish and wildlife, or flood control. Previously disturbed sites (e.g., abandoned quarries, old fields) where active measures are being taken to re-establish natural vegetation should also be considered for this type of zoning. This type of zone may include land that has traditionally been managed under long-term resource agreements (e.g., forest management agreements or agricultural leases). Resource Management Zones are sustainably managed for many diverse values, such as wildlife, fisheries, forestry and outdoor recreation. Such zones may be places for experimenting with alternative resource management practices and developing a better understanding of ecosystem structure and function in a scientifically sound manner. This zone should demonstrate exemplary conservation and stewardship.

In this Management Plan, the Resource Management Zone has been applied to lands with the sole intent of providing for future restoration activities, and not to provide for active resource extraction or harvesting. It is recommended where restoration would be a principal management activity in the future owing to the current characteristics of the area. Zoning recommendations are based on the inventory and analysis completed for the Inventory, Opportunities and Issues Report (North-South Environmental et al. 2016). Recommended Zoning for the Current EcoPark System Lands within the Clappison-Grindstone Heritage Lands is provided in Table 3 and illustrated on Figure 6.

Table 3. Classification and Zoning of the Clappison-Grindstone Heritage Lands.
(*indicates an existing Classification provided in the Niagara Escarpment Plan)

Parcel	Classification	Zoning
Clappison Woods		
Clappison Woods 1	Natural Environment*	Access
		Natural
		Nature Reserve
Clappison Woods 2	Natural Environment*	Resource Management
		Development
		Natural
Clappison Woods 3	Natural Environment*	Natural
		Resource Management
Grindstone Creek		
Grindstone Creek 1	Nature Reserve*	Nature Reserve
		Resource Management
Grindstone Creek 2 (part)	Nature Reserve*	Nature Reserve
Bonta	Nature Reserve*	Nature Reserve
Johnson Easement	Nature Reserve*	Nature Reserve
Little Property		
Little Property	Nature Reserve*	Nature Reserve
Smokey Hollow (BTC property, east of Waterdown Road)		
Smokey Hollow	Natural Environment*	Natural
		Access
		Resource Management
Smokey Hollow (NEPOSS park, west of Waterdown Road)		
Grindstone Creek 2 (in part)	Escarpment Access*	Nature Reserve
		Historical (overlay)
		Access
Eileen and John Holland Nature Sanctuary		
Eileen and John Holland Nature Sanctuary	Natural Environment	Resource Management
		Access
		Natural
		Nature Reserve



Cootes to Escarpment EcoPark System

Figure 6: Classification and Zoning of Clappison-Grindstone Heritage Lands

Legend

Classifications

- Nature Reserve
- Natural Environment
- Escarpment Access

Existing Classification

- Niagara Escarpment Plan

Zones

- Nature Reserve
- Natural
- Development
- Access
- Resource Management
- Historical
- Municipal Boundary

Sources of Information:

- Conservation Halton
- Hamilton Conservation Authority
- City of Burlington
- City of Hamilton
- Bruce Trail Conservancy

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4.1.2 Preferred Use Approach

The majority of impacts to natural areas are invariably the result of the extent and intensity of its use by humans. Thus the determination and regulation of appropriate permitted uses is a paramount concern for future management. The Clappison-Grindstone Heritage Lands are located within an urban landscape and are currently subject to a number of urban pressures, mostly related to existing uses. These uses are well-established and are expected to continue, as there is an obvious high desire and historical expectation from the public, especially local residents, to access the Heritage Lands. In general, many, if not most of the existing uses are appropriate (albeit the intensity and location are problematic in places and need management). These existing uses do not always align perfectly with the permitted uses recommended for the NEPOSS classification and zoning. To reconcile this, flexibility in the application of some “permitted uses” is recommended. We are referring to this as a “preferred use” approach. It is not feasible or realistic to prohibit many of these uses and it is important that the Classification and Zoning be able to accommodate them, with management, such that their impacts do not threaten the health or integrity of the natural or cultural heritage features and impacts to the natural environment are minimized.

It is understood that limiting access and severely restricting recreational use within the Nature Reserve Classification and Zone would be preferred to protect the ecological and earth science values of the area; however, given the urban context, it is unrealistic to expect that some level of recreation will not continue within these areas, despite the Nature Reserve Classification or Zone. The general intent of this Management Plan where these conflicts occur is to 1) prevent growth of existing uses that are not consistent with NEP policies; 2) tolerate existing uses where they are inconsistent with NEP policies, but will not result in unacceptable impact; 3) manage existing uses to reduce and preferably avoid impacts, but only where the uses are considered sustainable; and 4) eliminate uses that result in unacceptable impacts to natural heritage features and cannot be managed to minimize impacts.

Conservation Halton has used a “preferred use” approach in the management of their lands (e.g., Hilton Falls Conservation Area). This approach provides the opportunity to educate the public about what the preferred use of an area is. For example, within the Nature Reserve zone, the preferred use is low-impact hiking; within the Natural Zone, the preferred use may be hiking, cycling, or mixed-use. Using the preferred use approach, existing uses are tolerated but not encouraged though development and/or enhancement of those activities. The preferred use approach provides flexibility and is a realistic approach for managing recreational use and impacts to natural areas in urban settings where there is an established pattern of use. A strict interpretation of the Nature Reserve Classification and Zone, which would prohibit cycling activity, would only be implementable with a substantial and unrealistic enforcement effort. The preferred use approach provides the opportunity to educate the public, while recognizing the continuation, but not expansion, of an existing use. Thus, in the case of Grindstone Creek, which is classified as Nature Reserve, cycling would not be encouraged, but some limited management may be recommended to reduce or eliminate any impacts from cycling as an existing use (e.g., ensuring appropriate trail construction and maintenance is in place).

4.2 Overarching Management Recommendations

There are a number of recommendations that need to be addressed throughout the EcoPark System and are not specific to the Clappison-Grindstone Heritage Lands. These recommendations are organized according to the management issues identified in section 3.1, and are provided below:

3: Consistent Delineation of Cootes to Escarpment EcoPark System

- Establish the Cootes to Escarpment EcoPark System and Heritage Lands as a recognizable designation. Signage, promotional material, advertising and educational materials should include the Cootes to Escarpment EcoPark System and Heritage Lands. This will assist with raising the EcoPark System profile, contribute to name-recognition and promote the EcoPark System as a collaborative initiative among the partner agencies.
- The placement of signage can be challenging, especially because there are so many access points into the Cootes to Escarpment EcoPark System. The future placement of signage should take into consideration: visibility, locations of other signage, density of adjacent brush and proximity to intersections.
- Consistently post signage to indicate when users are entering and exiting the Cootes to Escarpment EcoPark System to increase awareness.

4: Delineation of Current EcoPark System Boundaries to Reduce Trespass/Encroachment Issues

- Develop and implement a consistent system to locate and mark boundaries of Current EcoPark System Lands within the Cootes to Escarpment EcoPark System. This could include fencing or where that is not feasible or ecologically appropriate, permanent boundary markers. Increasing awareness of property boundaries will reduce trespass and encroachment issues. It will also provide a basis for enforcement of the policies and permitted uses of each of the partner agencies on their properties. Note that there may also be need to mark boundaries of partner agency properties within the Current EcoPark System Lands, especially where permitted uses change in response to ownership. This could be more subtle marking along trails where they cross property boundaries.

5: Lack of Uniform Set of Rules for EcoPark System

- Clearly communicate permitted uses to EcoPark System users through improved signage and outreach initiatives.
- The partner agencies that own land within the EcoPark System should identify and, to the extent that is possible, reconcile inconsistencies in permitted uses and management policies (e.g., cycling on the Bruce Trail, which is not permitted by the Bruce Trail Conservancy, but is by other partner agencies). Preferably, this would be done for the entire EcoPark System, however, if that is not possible, then at least doing it within each of the Heritage Lands would be helpful to deliver a concise and consistent message to the public.

6: Accommodating Stresses from Future Development

- Impacts on nearby Heritage Lands resulting from development and the increased cost of management needs should be mitigated by the development proponent, where appropriate.
- Planning authorities should consider developing policies that would encourage the implementation of relevant management recommendations made in this Management Plan through development approvals, where appropriate.
- Partner agencies directly involved in the development approval process (in the case of the Clappison-Grindstone Heritage Lands these are the City of Hamilton, City of Burlington, Halton Region and Conservation Halton) should consider and incorporate the significance of the Heritage Lands in their reviews and in the subsequent development of conditions they impose on development approvals, where appropriate.

- Partner agencies should include consideration of increased use pressures and environmental impacts on Heritage Lands in their assessment of development applications on adjacent and nearby land, where appropriate.
- Impacts associated with future developments adjacent to the Heritage Lands should be clearly identified and assessed in Environmental Impact Assessments/Studies in the context of the role the Heritage Lands play in the overall Cootes to Escarpment EcoPark System. Limits of developable areas, buffer widths, and management needs such as design and provision of trails within the Heritage Lands should consider the higher ecological value of the Cootes to Escarpment EcoPark System when determining impact mitigation for future development, where appropriate.
- Encourage other agencies and landowners that are not directly involved in the development approval process to comment on development applications that may impact their lands.
- For reference, the Inventory, Opportunities and Issues Report outlines the current approach to planning and natural heritage protection (North-South Environment et al. 2016).

7: EcoPark System-wide Guidelines

There are a number of issues that are generally common to all of the Heritage Lands. It would be most efficient to address these issues through several EcoPark System-wide Guidelines, which address all the common issues and also identify the issues that are limited to one or more Heritage Lands. This approach has the additional advantage of providing consistency among Heritage Lands, thus contributing to the resolution of consistency and identity issues noted above.

- Using the guidance provided in this Management Plan, it is recommended that the Steering Committee identify themes or groups of issues that are best addressed through EcoPark System-wide Guidelines and initiate the development of those guidelines. As a starting point, it is recommended that the EcoPark System-wide issues can be grouped into the following themes/guidelines:
 - Trail Guideline;
 - Education and Signage Guideline;
 - Vegetation Management Guideline; and
 - Edge Management Guideline.
- Identify participating partners for each EcoPark System Guideline.

The issues to be addressed in these Guidelines, as identified through the Clappison-Grindstone Heritage Lands Management Plan study, are provided in section 3.0 and recommendations for implementation are provided in section 5.0. Suggestions for which management issues and opportunities could be addressed by each Guideline are provided in Appendix 3.

Each partner agency may already have some form of guidelines (e.g., guidelines for trail construction and/or trail closure), although not specific to the Cootes to Escarpment EcoPark System. Partner agencies are encouraged to use their existing guidelines as a starting point for developing Guidelines that are specific to the Cootes to Escarpment EcoPark System. The Guidelines are intended to engage the partner agencies in the preparation of a series of short reference documents that can be used to guide future management in a consistent and holistic manner across the EcoPark System. For example, the Trail Guideline could include guidelines that are agreed upon by the partner agencies for trail construction, including specifications for trail width, trail surfacing and proper trail alignment, as well as guidelines for trail closure, including specifications for when trails should be closed, how they should be

closed, appropriate signage, etc. Additional detail on the EcoPark System Guidelines is provided in section 5.2.

The Management Plans prepared for individual Heritage Lands are intended to provide high-level guidance for the management of each individual Heritage Lands. The EcoPark System Guidelines are intended to provide specific guidance for trails, education and signage, vegetation management, edge management, etc. agreed upon by the partner agencies to enable consistent and holistic management across the entire EcoPark System.

The Management Plans, once completed for all six Heritage Lands, will provide the basis for the recommended EcoPark System Guidelines, as well as other future system-wide Plans that will provide direction for actual implementation. Both the EcoPark System Guidelines and other future EcoPark System-wide Plans are proposed future initiatives that are not currently planned and will need to be considered by the Cootes to Escarpment EcoPark System Management Committee. Future proposed initiatives include the preparation of EcoPark System-wide Guidelines, EcoPark System-wide Plans including a Recreation Plan (to address trails, trail connections, access points, etc.) and a Wildlife Crossing Plan (to address wildlife crossings, ecopassages, etc.). The preparation of EcoPark System-wide Plans would be followed by implementation (including detailed design and construction), and monitoring.

8: Funding

- Partner agencies should determine how each of the areas that compose the Current EcoPark System Lands are to be accessed by users and on what terms (e.g., pay for use, payment not required).
- Identify sources of funding for the management of Current EcoPark System Lands.
- Identify efficiencies for managing the Current EcoPark System Lands collaboratively, and in a holistic manner. Communication among partner agencies on planned management activities may highlight opportunities for reducing costs and improving the efficiency of implementation.

4.3 Clappison Grindstone Heritage Lands Management Plan Recommendations

4.3.1 Vision

The Vision for the Cootes to Escarpment EcoPark System is that “it will be known internationally as a protected, permanent and connected natural lands sanctuary from the Harbour to the Escarpment that promotes ecosystem and human health within Ontario’s Greenbelt” (Phase II Report, October 2009). The primary focus of the Vision is to establish a sustainable natural system that will contribute to ecosystem integrity and enhance the quality of life for the public through appreciation of the natural environment. Inherent in providing opportunities for appreciation is realizing the recreational opportunities in the EcoPark System, and ensuring that recreation will be promoted and supported where consistent with the protection of natural heritage features and functions.

9: Develop Vision

It is recommended that the Steering Committee for the Clappison Grindstone Heritage Lands develop a Vision for the Heritage Lands. We suggest the following as a starting point for the Vision:

“The overall vision to guide the long term use and management of the Clappison-Grindstone Heritage Lands is to protect, restore and appropriately manage significant natural, recreational and cultural heritage resources. Inherent in this vision is recognition of:

- the integral role the Clappison-Grindstone Heritage Lands play in preserving biodiversity and the ecological integrity of the Cootes to Escarpment EcoPark System;
- the value of the Clappison-Grindstone Heritage Lands for passive outdoor recreation;
- the value of teaching wise stewardship through active involvement in protection and management activities; and
- the responsibility of the partner agencies and community, through management and stewardship, to preserve biodiversity and ecological functions for the well-being and enjoyment of present and future generations.”

This Vision articulates the long-term intent for the protection and use of the Clappison-Grindstone Heritage Lands. Given the evolving context of the surrounding landscape and anticipated development and urbanization, it is inevitable that active management will be required to mitigate impacts from increased use and to provide and maintain the appropriate infrastructure for public access. The Heritage Lands Management Plan provides a framework for implementing long term management.

4.3.2 Recommended Management Directions

10: Permitted Uses per NEPOSS Classification

This section of the Management Plan provides general directions on permitted uses for each park Classification based on the NEPOSS Planning Manual, with consideration for the preferred use approach described in section 4.1.2. Specific management recommendations are provided in sections 4.3.2 through 4.3.7 to address the management issues identified in section 3.0. Landowners have the ability to further refine recommended Classifications and permitted uses, as appropriate, at a later date should they opt to develop individual Management Plans for their parks.

Nature Reserve Classification:

Five Nature Reserve NEPOSS parks occur within the Clappison-Grindstone Heritage Lands (Figure 6 and Table 3). Recommended permitted uses include the following:

- limited access to nature trails: Access should be limited and not widely promoted due to the sensitivity of the features in them and the potential for impacts;
- the “nature trails” referred to in the NEPOSS manual are understood to refer to low-impact hiking trails, which is the preferred use for trails in Nature Reserve class parks;
- expansion of cycling and higher impact recreational activities are not recommended or encouraged in Nature Reserve class parks. Following the “preferred use” approach, the existing level of cycling use would use be tolerated, but it is recommended that:
 - no management be undertaken to expand or encourage cycling in Nature Reserves (e.g., new trails, etc.);
 - management be undertaken that will reduce or eliminate any impacts resulting from the existing level of use; and
 - where the existing use is resulting in unacceptable impacts (e.g., owing to inappropriate trail alignment, proximity to species at risk or other significant or sensitive feature), it be discontinued (see special protection areas, section 4.3.4);

- activities such as ecological restoration and those that can further scientific understanding and education should be encouraged, including scientific research, natural history interpretation, nature trails and the Bruce Trail;
- other existing low-impact activities, for example fishing, that are currently allowed by the existing policies of the partner agencies, should continue to be allowed, subject to other management recommendations of this management plan aimed at reducing/eliminating impacts; and
- signage and interpretive facilities should be kept to a minimum and should be restricted to those required to support the preferred use, education and/or minimize impacts.

Recreational activities currently occur in Nature Reserve class parks. Specific management recommendations aimed at minimizing impacts from existing uses are provided in section 4.3.4 that are consistent with the “preferred use” approach.

Natural Environment Classification:

There are five Natural Environment class parks in the Clappison-Grindstone Heritage Lands (Figure 6 and Table 3). The intent of Natural Environment class parks (e.g., Clappison Woods) is to protect existing natural heritage features and allow for moderate intensity recreational activities. Recommended permitted uses include the following:

- day use activities in areas accessible by sanctioned trails;
- recreation activities of moderate intensity such as hiking, trail running, cycling, on-leash dog-walking, and nature appreciation (botanizing, bird-watching, etc.); and
- other existing low-impact activities, for example fishing, that are currently allowed by the existing policies of the partner agencies, should continue to be allowed, subject to other management recommendations of this management plan aimed at reducing/eliminating impacts.

Specific management recommendations aimed at minimizing impacts from recreation and other uses are provided in section 4.3.4.

Escarpment Access Classification:

There is one Escarpment Access class park, Smokey Hollow (west of Waterdown Road, part of Grindstone Creek 2 on Figure 2), in the Clappison-Grindstone Heritage Lands (Figure 6 and Table 3). Recommended intent and permitted uses include the following:

- provide public access to the Niagara Escarpment;
- Smokey Hollow abuts a Nature Reserve class park (i.e., Grindstone Creek). Partner agencies should consider compatible uses within Smokey Hollow with consideration for the adjacent Nature Reserve park;
- day use activities including hiking, trail running, cycling, picnicking (and associated activities such as frisbee, etc. in the open manicured areas of the park);
- infrastructure (stairways, safety barriers, etc.) required to allow safe viewing of the waterfall, such as presently exists;
- modest facilities (e.g., signs, picnic tables, trash receptacles) and parking areas;
- other existing low-impact activities, for example fishing, that are currently allowed by the existing policies of the partner agencies, should be continue to be allowed, subject to other management recommendations of this management plan aimed at reducing/eliminating impacts.

Specific management recommendations aimed at minimizing impacts from recreation and other uses are provided in section 4.3.4.

11: Permitted Uses per NEPOSS Zone

This section of the Management Plan provides general permitted uses for each park zone based on the NEPOSS Planning Manual with consideration for the preferred use concept described above. Specific management recommendations that respond to issues identified in section 3.0 are provided in sections 4.3.3 through 4.3.7. Landowners have the ability to further refine recommended zones and permitted uses, as appropriate, at a later date should they opt to develop individual Management Plans for their parks.

Nature Reserve Zone:

There are eight Nature Reserve Zones identified in the Clappison-Grindstone Heritage Lands (Figure 6 and Table 3). Recommended intent and permitted uses include the following:

- protect, preserve and restore identified natural heritage features;
- hiking, trail running, on-leash dog walking and passive activities such as nature appreciation, bird watching, etc.;
- visitor uses should be very restricted within the Nature Reserve Zone;
- development should be restricted to maintenance of limited and strategically placed nature trails, interpretive and directional signs;
- any temporary equipment or minor structure required for research or monitoring (e.g., data loggers, quadrats, blinds, recording equipment, etc.);
- cycling and higher impact recreational activities are not recommended or encouraged in the Nature Reserve Zone. However, where they are existing uses, they will be tolerated and management is recommended where it reduces impacts, but does not expand the use;
- activities associated with habitat restoration, conservation and research; and
- signage should be provided that indicates when a park user is entering a Nature Reserve, and what the appropriate behaviour is (e.g., staying on trails, no unsanctioned management, etc.).
- a “special protection” sub-zone should be used within Nature Reserve Zones, where there are significant and/or sensitive features and recreational activities, including existing ones (e.g., cycling and hiking), should not be permitted:
 - this sub-zone may be desired in locations such as rare species habitat, talus slopes, wetlands, etc. where access should not be provided;
 - the benefits of applying a “special protection” sub-zone include protecting sensitive and/or significant natural heritage features by directing recreational activities away from these areas; and
 - the “special protection” sub-zone could be established in future property-specific Management Plans.

Natural Zone:

There are five Natural Zones identified in the Clappison-Grindstone Heritage Lands (Figure 6 and Table 3). Recommended intent and permitted uses include the following:

- the Natural Zone is to function as a buffer between Development Zones and Historical or Nature Reserve Zones;
- visitor uses should be limited to low- to moderate-intensity recreational activities;
- hiking, trail running, cycling, on-leash dog walking, nature appreciation, bird watching etc.;

- a major difference in use between Natural and Nature Reserve zones is that cycling will be accommodated (on properly designed and located trails) in the former, but only tolerated and not expanded or encouraged in the latter;
- a minimal level of development (e.g., trails, necessary signs, etc.) should be permitted to support low-intensity recreational activities in ecologically appropriate locations; and
- activities associated with habitat restoration, education, research and conservation-based activities.

Access Zone:

There are four Access Zones identified in the Clappison-Grindstone Heritage Lands (Figure 6 and Table 3). Recommended intent and permitted uses include the following:

- the intent of the Access Zone is to support the use and access of adjacent zones;
- the Access Zone identified at Smokey Hollow overlaps with the Historic Zones and consideration for both zones must be given when making management decisions;
- all uses permitted with adjacent zones;
- development should be limited to facilities that support access to Nature Reserve, Natural and Historical Zones, such as parking lots, access roads, signs and trailheads;
- low-impact development techniques, such as permeable pavement, bioretention, and bioswales, should be evaluated and implemented wherever feasible to minimize impacts to water quality and quantity resulting from an increase in permeable surfaces (e.g., access roads and parking lots); and
- consider ecological restoration opportunities in Access Zones where manicured turf is not required.

Historical Zone:

There is one Historical Zone identified in the Clappison-Grindstone Heritage Lands (Figure 6 and Table 3). Recommended intent and permitted uses include the following:

- the intent of the Historical Zone is to protect significant archaeological and cultural heritage features and areas;
- the Historic Zone identified at Smokey Hollow overlaps with the Access Zone. Consideration for both zones must be given when making management decisions, however, in general the permitted uses outlined for the access zone are permitted;
- management activities should aim to protect and interpret archaeological and cultural heritage features, and could include interpretive, educational, research and management facilities, trails, signs, and historical restorations or reconstructions; and
- within the Historical Zone, cultural heritage resources should be conserved using appropriate techniques and practices that are consistent with Provincial and Federal standards.

Development Zone:

There is one Development Zone identified in the Clappison-Grindstone Heritage Lands (Figure 6 and Table 3). Recommended intent and permitted uses include the following:

- the intent of the Development Zone is to provide the main access to the park or open space, and facilities and services to support the recreational facilities available;
- this type of zone allows the development of visitor and park facilities, subject to other recommendations of this management plan;
- development includes parking lots and gates, picnic areas, commercial service facilities, and orientation, interpretive, education, research and maintenance facilities;
- development of facilities must be designed and undertaken in an environmentally sustainable manner that will minimize their environmental and visual impact;

- uses permitted in adjacent zones;
- low-impact development techniques, such as permeable pavement, bioretention, and bioswales, should be evaluated and implemented wherever feasible to minimize impacts to water quality and quantity resulting from an increase in permeable surfaces (e.g., if a large pavilion is installed in Sheppard Quarry, consideration could be given to including a rainwater harvesting tank to reduce runoff to the stormwater management facility); and
- the Development Zone should have minimal negative impact on natural heritage features and cultural heritage features, the natural landscape and watersheds.

Resource Management Zone:

There are five Resource Management Zones identified in the Clappison-Grindstone Heritage Lands (Figure 6 and Table 3). As noted previously, in this management plan the Resource Management zone is applied where ecological restoration is recommended as the primary management need, and is not intended to facilitate resource extraction or harvesting. Recommended intent and permitted uses include the following:

- the intent of the Resource Management Zone for the purpose of this plan is to identify lands where ecological restoration should be a principal management activity owing to the current characteristics of the area and potential for enhancing ecological integrity and biodiversity;
- uses permitted will be the same as those recommended for Natural Zones, excepting that in the future, should the restoration result in an area that would qualify as a Nature Zone, the more restrictive uses of that zone would apply;
- ecological restoration within Resource Management Zones must aim to compliment adjacent natural heritage resources and to the extent possible must use native species of local genetic provenance;
- Resource Management Zones may be used to demonstrate ecologically sustainable resource management practices; and
- establishing permanent research plots for monitoring purposes is also encouraged.

4.3.3 Access and Infrastructure Recommendations

This section of the Management Plan provides management recommendations for access and infrastructure-related issues identified in section 3.2.

12: Lack of Adequate Parking and Access

- Encourage partners to secure lands that would enable creation of additional Access Zones and promote trail connections (e.g., lands between Eileen and John Holland Nature Sanctuary and Grindstone Creek 1, west of Lemonville Road). For example, there is a utility corridor along the north property line of the Eileen and John Holland Nature Sanctuary that connects these properties providing a potential trail link. The constraint is that it crosses a deep valley that would require a large bridge.
- Complete recommended trail connections throughout the Heritage Lands and beyond through a comprehensive Recreation Plan.
- Evaluate existing parking areas to determine how well they provide access, including: are they located in an appropriate park zone, are they adequately sized, and whether there are any safety concerns.
- Contact Riotrin Properties, the owners of RONA and Walmart, and see if there are opportunities to formalize the rear of their parking area as an access point to the Clappison- Grindstone Heritage

Lands, and potentially form partnerships with the commercial enterprises to support community conservation initiatives.

- Assess the feasibility of improving accessibility for people with special needs from the parking area off Mill Street South at Smokey Hollow to the overlook at the waterfall. Consider current AODA standards and implement where possible.
- Clearly identify existing sanctioned parking areas, where they occur in appropriate zones, as part of the EcoPark System and promote their use.
- Provide interpretive and way-finding signage at designated parking areas to orient and educate EcoPark System users.
- Ensure appropriate levels of security are provided at parking and access locations including addressing adequate visibility, safe access and traffic calming, and Crime Prevention through Environmental Design (CPTED) principles.
- As parking lots undergo maintenance or are constructed, low impact development techniques should be evaluated for each development to reduce environmental impact.
- Look for opportunities for additional parking and access and investigate for feasibility. Consider investigating the feasibility of using utility corridors and/or unopened road allowances as additional access points.
- Investigate the need and/or desire for the development of a visitor centre and/or park facilities within the development zone in Clappison Woods 2 (Figure 6).

13: Relative Isolation of some Current EcoPark System Lands

- Continue to purchase lands within the Clappison-Grindstone Heritage Lands as they become available through the Land Securement Strategy, with a priority placed on connecting Current EcoPark System Lands.
- Continue to work with landowners to conserve and manage Stewardship Lands through outreach and education.

14: Trespassing

- Close the unsanctioned access point at the south end of Grindstone Creek 1, that originates from Hidden Valley Road, to address trespass and safety concerns (Figure 5).
- Improve access to other areas of the Heritage Lands by formalizing access points and providing safe parking options.
- Identify and mark boundaries of the Clappison-Grindstone Heritage Lands along the entire perimeter in a consistent manner to reduce trespass concerns on neighbouring private properties (see section 4.2 on consistent designation of EcoPark System boundaries).

4.3.4 Recreation Recommendations

This section of the Management Plan provides management recommendations for recreation-related issues identified in section 3.3.

15: General Trail Recommendations

- Develop EcoPark System-wide Trail Guideline (Management Theme 7 and section 5.2) that would address the trail-related issues that are common to all or most Heritage Lands. Issues and opportunities that should be addressed, based on the research for this current Management Plan, are provided in the following sections and section 5.2. The Hamilton Burlington Trails Council could

support the development of the Trail Guideline by providing comments and review (see sections 3.3 and 5.2).

- Complete recommended trail connections throughout the EcoPark System. Refer to City of Burlington and City of Hamilton Trail Plans as a reference. These Plans include trail standards, future trail connections, etc.
- Develop guidelines for trail construction including actual construction protocols, choice of trail surface, storage and within-park movement of materials, etc. Since this is an issue common to all Heritage Lands, it should be addressed in the recommended EcoPark System-wide Trail Guideline. An important future proposed initiative is an EcoPark System Recreation Plan to address trails, parking, facilities, etc. (see Management Theme 7).
 - consider optimal trail user operating guidelines (trail type/recommended widths for different uses) and AODA requirements;
 - assess possibility of reducing the width of trails through more sensitive areas, where appropriate, etc.
- Include plant salvage and compensation for impacted vegetation communities resulting from the construction of trails (on-site if possible) as part of the Trail Guideline.
- Develop trail closure protocols including methods of trail closure, restoration of ground flora, signage, etc.
- Develop monitoring protocols that include:
 - general monitoring for trail condition;
 - discussion among experts from each of the partner agencies to determine acceptable targets for minor trail impacts (e.g., instances of widening to avoid wet areas, minor erosion, instances of exposed roots on trails), noting that there are no standard thresholds and these will be based on professional judgement and consider higher standards for Nature Reserve zones and trail sections in proximity (e.g., 10 m) to species at risk;
 - identification of new unsanctioned trails that need to be closed; and
 - monitoring the success of closures.
- Upon dedication of lands to public agencies, evaluate the opportunity to locate access and creek crossing facilities for recreational trails outside the 100 year floodplain.
- Opportunities for angling should be considered with appropriate consultation and approval from Conservation Halton.

16: Duplication and Density of Trails

- Rationalize the trails in the Heritage Lands to eliminate duplicity and density of trails.
- Retain or locate trails where they create the least disturbance to habitat and wildlife. Give consideration to wildlife-related timing restrictions for constructions (e.g., migratory birds, breeding areas, etc.).
- Ensure alignment of trails have a minimal, or no impact to vegetation and wildlife habitat, and avoid impact to the habitat of species at risk and other significant and/or rare species and ecological communities.
- Develop trail closure guidelines to ensure that trails are closed appropriately.
- Consider closing trails:
 - that duplicate another trail that is in a better location or is in better condition;
 - that are unsanctioned and originate from a private residence;

- that are located in proximity to significant and/or sensitive natural features such as species at risk or the best examples of native vegetation communities (see recommendations in section 4.3.6);
- that are located in physical inappropriate areas such as low wet areas, streambanks, seepages or steep slopes;
- on a seasonal basis where the reason for closure is not present year-round, or where seasonal restrictions associated with sensitive species may be present.
- If permanently closing trails, consider strategies to make the area less inviting so as not to continue attracting users (e.g., temporary barrier fences, re-vegetation, breaking up soil to encourage natural regeneration in these areas).
- Provide sanctioned trails to designated fishing areas where appropriate.

17: Signage

- Interpretive and way-finding signage should be developed for all designated parking areas and integrated into a broader Education and Signage Guideline for the Clappison-Grindstone Heritage Lands.
- Consider developing an Education and Signage Guideline for the EcoPark System (Management Theme 7 and section 5.2) to improve signage and trail markings (refer to section 4.2 for recommendations related to signage to address overarching management recommendations). The Education and Signage Guideline could include:
 - acknowledgement of existing ownership, logos, etc.;
 - location of signs (parking areas, trail access areas, changes in property ownership, boundaries of Nature Reserve Zones, etc.);
 - increasing visibility of existing signage;
 - improving messaging;
 - way-finding signs;
 - interpretive signs;
 - property boundary signs;
 - “rules of use” signs;
 - trail closure signs; and
 - trail blazes.
- Ensure that high quality, durable materials are used for signage.
- Ensure that signage can be easily seen and understood by EcoPark System users of all abilities.

18: Overuse and Erosion of Trails

- Construct a boardwalk on the portion of the trail over which the ephemeral stream crosses in the Johnson Easement (Figure 5).
- Construct bridges, boardwalks, and/or ‘natural’ stairways using logs, etc. to address existing erosion and wet trail issues and prevent similar conditions from occurring in the future. Note that some judgement is required as seasonally and/or localized wet areas that are not creating unacceptable impacts are fine and are part of the trail experience. Also, structures should only be used where the trail cannot be re-aligned to prevent the issue or where the re-alignment of a trail would be more impactful on the natural environment than the construction of a structure.
- Investigate alternative trail surfaces (e.g., natural surface, gravel, woodchips, etc.) that are commensurate with site-specific trail use and with consideration for the zone they occur in, the

preferred use (as to not encourage non-preferred uses), intensity of use, slope, localized potential for erosion and flooding, etc.

- Continue to monitor for trail erosion and implement appropriate trail construction and remediation measures on steeper slopes where warranted. Close trails where management needs are too onerous.

19: Unsanctioned Structures and Trail Improvements

- Assess unsanctioned structures and trail “improvements” for compatibility with zoning management directions, ecological suitability, safety and effectiveness. Develop a strategy for decommissioning unsanctioned structures and trail “improvements” as well as for retrofitting and maintaining structures and “improvements” that can remain. This could be done as part of the future proposed EcoPark System Trail Guideline and/or Recreation Plan. However, portions of this can be completed prior to an approved Guideline or Plan to ensure that trail closure is not delayed at the expense of natural heritage protection.
- Identify and engage individuals and/or groups currently undertaking unsanctioned stewardship initiatives to formalize a good working relationship by providing guidance, support and recognition of their efforts. Consider in-person and online public engagement formats to educate, promote and encourage stewardship.
- Consider monitoring as a tool to manage for unsanctioned structures and trail improvements.
- Consider placing signage to discourage this behaviour.

20: Interpretation and Education

- Identify interpretive themes that could be conveyed via self-guided trails and signage and which highlight the significance and value of the Clappison-Grindstone Heritage Lands. These could include:
 - landscape context - importance in connecting the Cootes to Escarpment EcoPark System and why that is important;
 - value as natural heritage – representation of the ecosystems that the first settlers in the area found;
 - contribution to biodiversity – illustrate the large number of species of flora and fauna that the Heritage Lands support;
 - ecosystem services – mitigating the urban heat effect, filtering of air pollutants, carbon storage, psychological respite, flood control, habitat for pollinators, etc.; and
 - value as cultural heritage – quarrying, lime kilns, mills, historic farming etc.
- Establish viewing areas with interpretive opportunities for people to view the natural and cultural resources of the area as part of the EcoPark System Education and Signage Guideline.
- Develop an education package directed to the private landowners who directly abut the Heritage Lands that, for example, 1) identifies the significance and sensitivity of the area; 2) identifies their special role as immediate neighbours, 3) provides simple, no cost property management practices that will minimize impacts and benefit the natural values which are part of their properties’ character and value, and 4) identifies how they can contribute if they wish to be more involved in stewardship. The education package could include the following recommendations:
 - remove invasive species;
 - plant native species, including examples of suggested species;
 - not drain pool water into natural areas;
 - not mow or cut vegetation from the Current EcoPark System Lands;

- not place yard waste or other refuse within the EcoPark System Lands;
- not trim branches or limbs, or cut trees from within the Current EcoPark System Lands; and
- use rain barrels to collect rainwater for watering gardens to reduce runoff and rain gardens.
- The Education and Signage Guideline may also include explanations of why the above list of recommendations is important, listing potential impacts associated with these types of encroachments into natural areas.
- Demonstrate how residents' actions can be instrumental in mitigating impacts and preserving the Heritage Lands.
- Develop interpretive signage on the themes listed above as part of an EcoPark System Education and Signage Guideline (see recommendation 4.3.4).

21: CN Safety Issue

- Close or reroute trails that dead end at the CN Rail line in Clappison Woods 1 (Figure 3).
- Consider that at-grade non-motorized crossings with rail lines should be at a right angle to tracks where possible, and appropriate traffic control devices (pavement markings, signage, etc.) are recommended where possible.
- Trail crossings should be consistent with Draft RTD-10 Road or Railway Grade Crossings: Technical Standards and Inspection, Testing and Maintenance Requirements (2002) available from Transport Canada.
- Enter into discussion with CN Rail to develop an appropriate solution to address trails crossing the CN Rail line.
- The future Recreation Plan developed for the Cootes to Escarpment EcoPark System should limit trail crossings of the CN Rail line to a minimum number of crossings, in consultation with CN Rail.

22: Trails

- Close trails that have a negative environmental impact or are considered inappropriate.
- Engage user groups (e.g., the cycling community) in the ongoing monitoring and management of the trail system.
- Undertake detailed inventory work prior to siting specific new trail segments or re-aligning existing ones to determine the sensitivity of the habitat that the trail will traverse.
- Apply appropriate buffers to habitats of species at risk through which trails traverse.
- Discourage trail development and close existing trails through wetlands due to the sensitive nature of soils and vegetation in wetlands (Figure 4).
- Consider installing a staircase or stepped trail using natural materials (e.g., logs) to reduce erosion in steep areas.
- Trails should be designed or re-routed to avoid seepage areas, or where trails are required trails should be constructed as elevated boardwalks.
- When constructing granular trails, stone that is light in colour (e.g., limestone or granite screenings) should be used to avoid attracting snakes that look to bask on dark-coloured surfaces. This is especially important in areas where high concentrations of reptiles are known to occur.
- Construct viewing platforms at strategic locations to allow EcoPark System users to view sensitive habitats (e.g., forest interior) without creating a trail within the feature and to deter trail users from venturing off-trail and disturbing these features.
- Care should be taken during the construction of trails not to disturb soils in areas adjacent to the trail. Soil disturbance may encourage the growth and spread of non-native invasive plants such as Dog-strangling Vine and Garlic Mustard.

23: User Conflicts

- Undertake a survey to increase the understanding on how the area is currently being used, what the desires of the park users are, etc. and to better understand potential use conflicts.
- Based on present policies, improve signage indicating that cycling is not permitted on the Bruce Trail where it is owned by the Bruce Trail Conservancy. Although cycling is not allowed anywhere on the Bruce Trail, where it occurs on lands owned by other partners, the policies of the landowner should prevail. Note that this is a prime example of a conflicting use policy that needs to be resolved among partner agencies. An alternative trail could be provided, where use changes from cycling being permitted to where it is not (i.e., Bruce Trail Conservancy-owned lands). See recommendations for a uniform set of rules for EcoPark System users in section 4.2.
- Adopt the 'preferred use' approach to trail use by allowing some flexibility in trail use rather than trying to implement use policies that will be virtually impossible to enforce. Monitor cycling activity and take appropriate action such as closing unauthorized trails and, to the extent possible, enforce use violations.

24: Off-leash Dogs

- Provide consistent signage that clearly explains permitted uses (e.g., dogs must be on-leash, cycling permitted), or conversely, uses that are prohibited.
- Increase education and management (including enforcement) of off-leash dog use where it is a non-permitted use.
- Encourage use of the existing off-leash dog park at Bayview Park in the Waterdown-Sassafras Woods Heritage Lands.
- Securement tends to focus on highly sensitive lands; however, consideration could be given to purchasing lands that are less ecologically sensitive that could provide opportunities and would be more suitable for a dog-friendly area (and/or other forms of more intensive recreation).
- Off-leash dog parks should preferably be located outside of sensitive natural areas.
- Engage the dog-walking community in evaluating opportunities to accommodate leashed and off-leashed dog-walking, where it can be accommodated without impacting sensitive and/or significant natural heritage features.

25: Ice Skating and Hockey on Stormwater Management Ponds

- Post signage to educate the public about the purpose of stormwater management ponds (SWM), the dangers of skating on SWM ponds and that skating and hockey are prohibited on SWM ponds.
- If necessary, consider artificial/natural barriers to discourage recreational use of SWM ponds.
- Evaluate the need for a by-law to address the prohibition of skating on SWM ponds.

26: Non-permitted Uses

- Partner agencies should look for appropriate locations for additional benches and picnic tables to facilitate small social gatherings in desired locations, in less sensitive park areas.
- Unsanctioned "party spots", campfire areas, etc. should be closed and remediated/restored.
- Certain activities and associated infrastructure (e.g., BMX jumps and ramps) should be decommissioned and/or trails re-routed on a case-by-case basis to best manage the area in accordance with the intent of the recommended Zoning (see also Management Theme 19).

27: Safety Concerns Associated with Non-permitted Uses

- Develop or refine local ordinances and by-law policies to include prohibition of non-permitted uses in natural areas.
- Illegal activities should be reported to the appropriate law enforcement agencies.
- Rope swings should be taken down.
- Post signage indicating permitted and non-permitted uses at each access point. This may include indication of fines where applicable. Undertake appropriate enforcement where supported.

4.3.5 Recommendations for Encroachment

This section of the Management Plan provides management recommendations for encroachment-related issues identified in section 3.4.

28: Impacts from Adjacent Use

- Establish a program to educate adjacent residential landowners by providing information on the impacts of free-ranging cats, disposing yard waste, garbage, garden structures, draining of pools, etc., and other forms of encroachment in natural areas.
- Post signage to educate the public about the impacts associated with encroachment.
- As part of the recommended EcoPark System-wide Recreation Plan, evaluate and where appropriate identify trail closures including the closure of personal trails from private residences (see Management Theme 20). Priority for closures could be related to the recommended zoning and/or presence of sensitive natural heritage features.
- Provide fencing along the outer perimeter of Nature Reserve Zones and any other areas where there are sensitive/significant natural heritage features, where they abut private property (see Management Theme 14). Priority should be given to fencing where management issues, such as encroachment, have been identified.
- Identify and monitor locations of dumped garbage and yard waste to facilitate clean up on an ongoing basis:
 - Remove old stoves from Grindstone Creek 1 (Figure 5).
 - Remove old page wire farm fencing from natural areas as it is encountered.
- Post signage at Eileen and John Holland Nature Sanctuary indicating No Dumping and that a fine will be applied if dumping occurs.
- Encourage landowners to maintain natural vegetation on their properties where it is adjacent to the EcoPark System (see recommendation 5.2.5 on providing an education package to adjacent landowners as part of the recommended Education and Signage Guideline).
- Review and evaluate the effectiveness of existing by-laws¹ and identify gaps in by-laws to facilitate the enforcement of use policies, including a cat control by-law.
- Agency partners should allocate additional resources to enforce encroachment polices. This should be implemented in conjunction with the education/awareness initiatives and Heritage Land boundary identification.

4.3.6 Recommendations for Hydrologic Impacts

This section of the Management Plan provides management recommendations for hydrologic impact-related issues identified in section 3.5.

¹ Many by-laws exist; however, due to the lack of staffing resources, municipalities are unable to enforce them and are thus unable to address encroachment issues through this approach.

29: Drainage, Erosion and Stormwater Management

- Monitoring of upper Grindstone Creek is currently occurring as part of the development process to determine any changes to the creek resulting from development above the Escarpment brow. Outcomes of this monitoring should be used to 1) determine if refinements to the SWM facilities in these developments are required, and 2) to inform the development of SWM requirements for future development applications. Monitoring results and recommendations should be included in the update of the Grindstone Creek Watershed Study that is currently being prepared by Conservation Halton.
- If one does not currently exist, consider implementing water quality sampling in the stormwater management ponds in Clappison Woods 2 to measure, at least, chloride concentrations.
- Encourage the City of Burlington and the City of Hamilton to develop a road maintenance program that limits the use of chloride and other de-icing agents to minimize impacts to water quality.
- Consider management options for mitigating nutrient-related water quality issues.
- Evaluate the options of low impact development techniques through the development and re-development process (e.g., underground storage tanks or super pipes, green rooftops) to reduce peak flow volumes to stormwater infrastructure receiving watercourses.
- Review the need to modify and/or improve water quality and quantity discharging from the stormwater management ponds at Clappison Woods 2, and consider the following options:
 - Pond expansion to allow longer detention time of water, and installation of an improved outflow device that would introduce an erosion control element to the discharge from the stormwater management facility. A bottom draw outlet is suggested to help the thermal stability of the receiving watercourse.
 - Either a hybrid (pond + wetland pond) or fully wetland pond would improve the quality of water to be discharged from the facility. A full wetland pond would provide more water quality polishing than a hybrid pond; however, it would also require more land to treat the same volume of water.
 - Exterior features to improve infiltration and reduce peak flows from the stormwater management facility would provide benefits.
 - The addition of a device, such as an Imbrium Jellyfish Filter, could provide water quality improvements; however, they require frequent maintenance in order to remain effective over time.
 - Other treatment train approaches could be considered immediately upstream or downstream of the stormwater management facility such as bioswales, infiltration trenches, grassed ditches, and oil and grit separators. It would be beneficial to locate such features upstream of the outlet of the stormwater management facility.
 - Evaluate cleanout requirements to improve storage capacity while maintaining the quality and extent of wetland vegetation and habitat that has developed in the stormwater management ponds.

30: Polluting Spills

- Improve spill prevention and response by ensuring that spill prevention plans, contingency plans and emergency response plans are updated for the purpose of protecting natural features along roads, railway lines and pipelines. Ensure that partner agencies inform themselves of what the spill response protocols are so that if they become aware of a spill, they know who to call.

4.3.7 Ecosystem Management and Restoration Recommendations

This section of the Management Plan provides management recommendations for ecosystem management and restoration-related issues identified in section 3.6.

31: Forest Health Decline and Loss of Open Woodland Habitat

- Partner agencies are encouraged to initiate or continue monitoring for invasive insect pests to enable appropriate management and control. These include: Gypsy Moth and Emerald Ash Borer.
- Partner agencies are encouraged to monitor or continue monitoring trails for hazard trees, especially in areas with a higher abundance of ash that may be impacted by Emerald Ash Borer (see Figure 4 for ash-dominated vegetation communities).
- Improve condition of rare and uncommon ecosystems, such as remnant open woodlands, possibly through thinning to increase light conditions, management of invasive species, trail closure or relocation, etc.
- Wherever possible, retain mature trees and snags for cavity nesting birds, and fallen logs for salamander and other wildlife habitat.
- Develop an EcoPark System Vegetation Management Guideline (Management Themes 32, 33 and 34), that considers historical and current vegetation composition and includes the following:
 - consider habitat requirements for provincially rare species and vegetation types in the context of overall vegetation management;
 - identify areas within each of the Heritage Lands, including Clappison-Grindstone Heritage Lands, that provide the best examples of the major ecosystem types to 1) provide examples of target vegetation for restoration initiatives, 2) act as a reference point for establishing baselines for monitoring, and 3) use interpretation to communicate to the public what the native woodland should look like;
 - where possible, open oak woodland should be incorporated into restoration targets as a reference ecosystem type;
 - include guidelines for grassland/prairie and open oak woodland restoration, including target amount, patch size, and best management practices;
 - include consideration of prescribed burns, which is considered best practice for managing prairie, savannah and open woodland habitats; and
 - note that it is likely impractical to restore the majority of the woodland that displays some level of degradation, and it is recommended that the area (size and number of patches) of vegetation identified for restoration be achievable as it would be better to have a limited number of representative woodlands and woodland that supports species at risk and other specialized ecosystem functions, than larger area where restoration is attempted but is not successful owing to limited human and financial resources.
- Conduct research in areas where there is a gap in knowledge, including:
 - the composition of the native woodlands which most likely occurred in the Heritage Lands;
 - woodland composition and management techniques to maintain woodland on steep, erosion-prone slopes associated with the valley systems in the Heritage Lands; and
 - ecological disturbances that maintained the original ecosystem types, including the feasibility of re-introducing or emulating certain natural disturbances that were a part of those ecosystems.

32: Vegetation Restoration and Management Recommendations

- Include options and recommendations for restoration in the EcoPark System Vegetation Management Plan (see Management Theme 32, 33 and 34) for the Heritage Lands, including:
 - explore options for restoring degraded woodlands and plantations to improve structure and function, biodiversity and ecosystem integrity;
 - restore natural area edges where they have been impacted by uncontrolled access (e.g., in Clappison Woods 2, adjacent to Sheppard's Quarry, or behind adjacent residential development) (see recommendation to complete an Edge Management Guideline in section 5.2.4);
 - investigate the possibility of restoring portions of the existing meadow area (i.e., CUM1-1 on Figure 4) at Smokey Hollow into native wildflower meadow or prairie (Figure 4);
 - explore options for restoring Current EcoPark System Lands to improve connectivity, patch size and/or shape (e.g., restoration of the field between two wooded ravines at the Eileen and John Holland Nature Sanctuary); and
 - wherever possible, tableland restoration should aim to achieve pre-settlement run-off conditions to reduce peak flows to watercourses (e.g., kettle and palustrine tableland wetland pockets could be included in restoration plans to reduce run-off).
- Contact and engage utility companies to pursue a collaborative arrangement to maintain open habitat conditions and manage invasive species along utility lines.

33: Management of Species at Risk and Rare Species Habitat

Although some species at risk and other rare species may persist with no or little management at current levels of use, it is anticipated that with the anticipated increased level of use, restoration and enhancement will be required to sustain and recover many of these species. As the majority of species at risk and rare species are associated with open oak woodlands, savannahs and prairies, restoration should, to the extent possible, follow an ecosystem-based approach to species at risk restoration, as opposed to species-specific restoration. This will be more efficient and benefit a wider range of flora and fauna.

- Partner agencies are encouraged to continue ongoing monitoring of the populations of significant plant species found in the area (e.g., American Columbo and Eastern Flowering Dogwood) in collaboration with academic and research groups.
- Identify any areas where existing trails and recreational uses could be impacting species at risk and rare species habitat, and identify the need for re-alignment or localized treatment in the preparation of the recommended Trail Guideline (refer to sections 4.3.4 and 5.2.1).
- Investigate management options for reducing existing recreational impacts on species at risk and species at risk habitat (e.g., alternatives to pruning Eastern Flowering Dogwood located near trails).
- Review the status and threats to each of the species at risk and other rare species to 1) prioritize management needs, and 2) most importantly, identify if any species are under immediate threat of extirpation. Some of this work has been completed through the Hamilton-Burlington Conservation Action Plan (Appendix C) (February 2010).
- Follow an ecosystem-based approach to species at risk restoration and if not possible, use a species-specific approach developed and implemented under a work plan for species identified as threatened or endangered in the Clappison-Grindstone Heritage Lands, with consideration given to any existing Recovery Strategies, Recovery Action Plans, Government Response Statements, etc. from the provincial or federal government.

- As part of stewardship/education initiatives, establish a protocol for reporting locations of species at risk and rare species to the MNR and Conservation Halton. See recommendation to complete an Education and Signage Guideline in section 5.2.5.

34: Fish Communities

- Manage lower Grindstone Creek as a coldwater fishery.

35: Invasive Species Management

- Formalize the program to document and map the locations of major aggressive invasive species, and monitor and control the spread of invasive plant species on an ongoing basis.
- Develop an Invasive Species Management Guideline as part of the EcoPark System Vegetation Management Guideline to direct the removal of priority invasive plant species throughout the Cootes to Escarpment EcoPark System.
- Within the Guideline, prioritize management of invasive plant species populations with consideration given to:
 - high quality vegetation communities;
 - threats to species at risk, rare species or rare vegetation types;
 - newly established and easily eradicated invasive plant populations;
 - budget and staff efficiencies (e.g., other projects occurring in an area);
 - volunteer and partnership opportunities; and
 - ease of access for management.
- Within the Guideline, provide detailed monitoring recommendations to evaluate the success of control/removal initiatives.

36: Noxious Plants

- Include recommendations for monitoring noxious plants as part of invasive species monitoring (e.g., to identify potential locations of Giant Hogweed, etc.).
- Post educational signage noting key identification features and the toxic properties of Poison Ivy and other known noxious species (e.g., Wild Parsnip) in a few key trailhead locations as an educational/precautionary measure.

37: Wildlife Crossing

- Maintain and protect the continuity and integrity of the Niagara Escarpment and Grindstone Creek corridors through the Clappison-Grindstone Heritage Lands, particularly across Waterdown and Snake Roads.
- Investigate the need for and feasibility of implementing wildlife corridors and ecopassages through the Environmental Assessment process. Ensure that best design principles for ecopassages are incorporated, including adequate fencing to accompany ecopassage structures.
- Identify representatives from City of Burlington, City of Hamilton and Halton Region that have responsibility for road maintenance and capital works projects in the Heritage Lands and include them in management discussions that involve roads (e.g., salt/de-icing agent management, pedestrian trail road crossings, ecopassages, roadkill clean-up, roadside parking, signage on roads, etc.).
- Develop a strategy to prioritize and upgrade existing crossing structures (e.g., road culverts) to improve wildlife passage. This could be completed across a municipal jurisdiction and would not necessarily need to be tied to the Cootes to Escarpment EcoPark System, but should be designed to

complement the objectives of the Cootes to Escarpment EcoPark System (e.g., Wildlife Crossing Plan recommended as part of Management Theme 7).

- Contribute to long-term monitoring opportunities by initiating and/or continuing to monitor wildlife crossing and road mortality. Monitoring programs could be developed at a municipal scale, and could be designed to complement the objectives of the Cootes to Escarpment EcoPark System.

4.3.8 Cultural Heritage Recommendations

This section of the Management Plan provides management recommendations for cultural heritage resource-related issues identified in section 3.0.

38: Cultural Heritage Conservation

Cultural heritage within the Clappison-Grindstone Heritage Lands can best be conserved by providing:

- access to information;
- inventory;
- the tools and best practices to guide stewardship;
- local heritage significance recognition under the Ontario Heritage Act;
- opportunities to develop co-operative action; and
- eligibility for specific programs and maintenance designed to support the protection and presentation of cultural historic resources and sites and artefacts.

The most effective conservation and protection will come from integrating cultural heritage resources into the comprehensive planning and management of the Clappison-Grindstone Heritage Lands. The following initiatives to conserve the cultural heritage resources of the Heritage Lands are recommended:

- Develop educational signage to commemorate local history and the recognition of community values and include guidelines for commemorative signage in the EcoPark System Education and Signage Guideline.
- The mill grindstone set in the grassed area adjacent to the Smokey Hollow parking lot is not being protected and the present condition will eventually lead to the loss of the artefact. This should be reviewed and a conservation strategy should occur to ensure continued protection, preservation and presentation of this cultural heritage resource for future public appreciation.
- Interpretation of the Smokey Hollow mill site could be made more dynamic by placing greater emphasis on the industrial history and the local families associated with the site.
- The use of a digital story-telling and other web-based applications could be implemented to relate the history of the site through smartphone technology. Development of a “Murmur” type listening post system could be considered.
- The former King City (Sheppard) Quarry provides another opportunity to explore the importance of quarrying in the Clappison-Grindstone Heritage Lands through a well-positioned trail network, interpretive or commemorative signage and story-board panels.
- Include recommendations for protecting significant views to provide opportunities for EcoPark System users to access and enjoy these views in a safe and controlled manner.
- Commemorative signage could be placed at the Little property, adjacent to the Bruce Trail, once non-permitted use is curtailed, as under current conditions signage would most likely be vandalized.

5.0 Implementation

It is recognized that resources and funding are limited and thus a key concern for implementation of this, and other Management Plans for the six Heritage Lands, is finding efficient and cost-effective ways to develop and implement the numerous management recommendations that have been identified. Two approaches that will assist with this are 1) identifying common management needs among the six Heritage Lands and developing solutions that can be used throughout the EcoPark System, and 2) prioritizing so that the management tasks that will reduce impacts (existing and anticipated) and protect high risk or locally threatened natural heritage features are addressed first. In view of this, it is recommended that a series of “EcoPark System Guidelines” be developed, as outlined below. The EcoPark System Guidelines and recommended Recreation Plan will address the majority of the issues identified for the Clappison-Grindstone Heritage Lands. Although this Management Plan applies only to lands owned by the partner agencies with land holdings in the Clappison-Grindstone Heritage Lands, the majority of the issues and recommendations provided are relevant throughout the EcoPark System and are thus of interest to all partner agencies.

Implementation of the management recommendations discussed in section 4.0 has been organized into three categories: 1) issues and recommendations that are perceived to be high priority are discussed in section 5.1; 2) issues and recommendations related to the recommended EcoPark System Guidelines are discussed in section 5.2 and Appendix 3; and 3) issues and recommendations that are site-specific management tasks are discussed in section 5.3. Table 4 provides suggested implementation of the recommendations made per Management Theme under these three categories.

Table 4: Suggested Implementation of Recommendations per Management Theme for the Clappison-Grindstone Heritage Lands.

Management Themes	High Priority Tasks	EcoPark System Guidelines				Other / Site-specific Management Tasks
		Trail	Education and Signage	Vegetation Management	Edge Management	
Classification and Zoning of the Heritage Lands						
1: Classification per NEPOSS						X
2: Zoning per NEPOSS						X
Overarching Management Recommendations						
3: Consistent Delineation		X	X		X	
4: Delineation of Current Boundaries		X	X		X	
5: Lack of Uniform Set of Rules		X	X		X	
6: Accommodating Stresses from Development						X
7: EcoPark System-wide Guidelines		X	X	X	X	
8: Funding						X
Heritage Lands Management Plan Recommendations						
9: Develop Vision						X
Recommended Management Directions						
10: Permitted Uses per NEPOSS Classification		X	X			X
11: Permitted Uses per NEPOSS Zone		X	X			X
Access and Infrastructure Recommendations						
12: Lack of Adequate/Appropriate Parking and Access		X	X			X
13: Relative Isolation of some Current Lands			X			X

Management Themes	High Priority Tasks	EcoPark System Guidelines				Other / Site-specific Management Tasks
		Trail	Education and Signage	Vegetation Management	Edge Management	
14: Trespassing	x	x	x		x	x
Recreation Recommendations						
15: General Trail Recommendations	x	x	x		x	
16: Duplication and Density of Trails	x	x	x			
17: Signage		x	x			
18: Overuse and Erosion of Trails	x	x	x			
19: Unsanctioned Structures and Trails		x	x			
20: Interpretation and Education			x			
21: CN Safety Issue	x	x	x			x
22: Trails		x	x			
23: User Conflicts		x	x			
24: Off-leash Dogs			x			
25: Ice Skating and Hockey on SWM Ponds			x			x
26: Non-permitted Uses	x	x	x	x		x
27: Safety Concerns	x	x	x			x
Recommendations for Encroachment						
28: Impact from Adjacent Use		x	x		x	x
29: Drainage, Erosion and Stormwater Management						x
30: Polluting Spills						x

Management Themes	High Priority Tasks	EcoPark System Guidelines				Other / Site-specific Management Tasks
		Trail	Education and Signage	Vegetation Management	Edge Management	
Ecosystem Management and Restoration Recommendations						
31: Forest Health Decline and Loss		x	x	x		
32: Vegetation Restoration		x		x		x
33: SAR and Rare Species Habitat	x	x	x	x		
34: Fish Communities						x
35: Invasive Species		x	x	x	x	
36: Noxious Plants			x	x		
37: Wildlife Crossing						x
Cultural Heritage Recommendations						
38: Cultural Heritage Conservation			x			
Monitoring the Implementation of Recommendations						
39: Review Schedule for Monitoring						x

5.1 High Priority Management Tasks

High priority management tasks are priorities that should be completed as soon as possible to address safety concerns, existing high priority impacts, and known trespassing issues. Table 5 lists the tasks that are considered high priority management tasks, and includes recommendations for the partner agency responsible. Although some issues identified in section 3 appear to be obvious candidates for immediate action, there may be others that are deemed high priority owing to the responsibilities and/or mandates of the partner agencies. Thus the list of high priority management tasks provided in Table 5 should be reviewed and refined by the partner agencies.

Table 5. High Priority Management Tasks for the Clappison-Grindstone Heritage Lands.

High Priority Management Tasks	Partner Agency Responsible
1. Close or re-route trails that dead end at the CN Rail line in Clappison Woods 1 (Figure 3).	Conservation Halton
2. Address BMX and mountain biking uses that are occurring down steep escarpment slopes in Clappison Woods 1 that are undesirable and negatively impact understory vegetation (Figure 3).	Conservation Halton
3. Address trail duplication issue in Clappison Woods 1 where trail density is extremely high and having a negative impact on understory vegetation and soils (Figures 3 and 5). Close trails and restore understory through restoration plantings.	Conservation Halton
4. Close or re-route trails that are in close proximity to species at risk and/or rare vegetation communities if the trail is causing negative impacts to the significant feature.	Conservation Halton and City of Hamilton
5. Install fencing along the outer perimeter of Nature Reserve Zones where there is evidence of encroachment or trespassing and where it is ecologically appropriate.	Conservation Halton and City of Hamilton
6. Either establish a formal agreement with the relevant landowner(s) or close the unsanctioned access point leading from Hidden Valley Road into the south end of Grindstone Creek 1 to address trespass and safety concerns.	Conservation Halton

5.2 EcoPark System Guidelines

As noted above the majority of issues identified for this Management Plan are relevant across all, or most of the Heritage Lands, and thus are most efficiently implemented in Guidelines that span the entire EcoPark System (see Management Theme 7). These are intended to be short reference documents that would only address generic issues. Partner agencies are encouraged to look internally and across partner agencies at certain management issues (e.g., trails, education and signage, etc.) to address these issues at an EcoPark System level. Addressing certain management issues at this higher level will introduce a broader efficiency and consistency to how the Current EcoPark System Lands are managed. Future Management Plans prepared for each of the remaining Heritage Lands may identify additional issues and recommendations to consider in the proposed EcoPark System Guidelines. Four potential EcoPark System Guidelines are listed below, however, some of these could be combined (e.g., Trails, and Education and Signage) and not all may be necessary (e.g., Edge Management):

- EcoPark System Guideline: Trails
- EcoPark System Guideline: Education and Signage
- EcoPark System Guideline: Vegetation Management
- EcoPark System Guideline: Edge Management

The potential purpose (to be refined by those developing the Guideline) of each Guideline is outlined broadly below:

- **Trails:** standardize the trail system within the Cootes to Escarpment EcoPark System (see Section 4.3.4);
- **Education and Signage:** standardize signage and educational messaging used within the Cootes to Escarpment EcoPark System, with acknowledgement of ownership where appropriate;
- **Vegetation Management:** identify guiding principles and best management practices for vegetation management, including the management of invasive species, within the Cootes to Escarpment EcoPark System; and
- **Edge Management:** identify guiding principles and best management practices to restore disturbed natural area edges, and standardize information used to engage adjacent landowners in appropriate management of natural area edges.

Responsibility for Developing EcoPark System Guidelines

The various EcoPark System Guidelines could be prepared internally by the partner agencies or through external contracts. Owing to funding constraints, and given that each of the partner agencies have substantial expertise and experience in the management of parks and natural heritage features, it is recommended that the guidelines would be best developed internally. Logistically, it will be most efficient for one partner agency to take the lead in the development of each guideline, and coordinate input from the other partners. The lead partner should be determined through internal discussion with consideration for experience and capacity.

The following provides a suggested framework for the development, organization and content of the EcoPark System Guidelines.

EcoPark System Guidelines Organization

Introduction

The proposed EcoPark System Guidelines should be developed as a series of reference documents. They should have a minimum of introductory text and focus on the identification of issues and their related management needs. It is suggested that they not contain figures showing the location of issues, but just provide guidance on solutions, possibly with illustrations of “typical” situations. The introductory sections that outline the purpose and organization of each EcoPark System Guideline can be generic and with minor variations be used for each of the proposed EcoPark System Guideline.

EcoPark System Issues

This section of each EcoPark System Guideline is an iterative task that draws on the collective experience to identify the issues or topics to be addressed. Thus a list of issues or topics for each EcoPark System Guideline, that apply to all or most Heritage Lands, should be developed (suggested lists for each EcoPark System Guideline are provided in Appendix 3, based on the issues identified at the Clappison-Grindstone Heritage Lands).

Management Recommendations

For each EcoPark System Guideline, compile all existing management approaches and protocols from partner agencies (e.g., trail construction and maintenance, boundary delineation, education/stewardship for adjacent landowners, etc.). The existing documents from the various agencies should be reviewed for consistency and the partners should, to the extent possible, agree on a single protocol for all lands within the EcoPark System. The recommendations provided in Section 4.0 of this Management Plan may also assist in the development of solutions to each of the issues.

References and Contacts

This section of each EcoPark System Guideline would provide reference material and contacts that may be useful in implementing management recommendations.

5.3 Site-specific Management Tasks

There are a few issues that were identified through this Management Plan that may be specific to the Clappison-Grindstone Heritage Lands and thus would not be addressed through the proposed EcoPark System Guidelines. These issues are discussed below.

Natural Resource Management Actions (Management Themes 26, 27, 28 and 32)

- Investigate the possibility of restoring portions of the existing non-native meadow area (i.e., CUM1-1 on Figure 4) at Smokey Hollow into native wildflower meadow or prairie (Figure 4).
- Close and remediate/restore unsanctioned “party spots” and campfire areas.
- Remove rope swings and slack-lines when encountered.
- Remove garbage and dumped refuse:
 - remove old stoves from Grindstone Creek 1 (Figure 5).
- Remove old page wire farm fencing from natural areas as it is encountered.

Fish Communities (Management Theme 34)

- Manage lower Grindstone Creek as a coldwater fishery.

Flood Damage Centre (Management Theme 14)

- The unsanctioned access point leading from the end of Hidden Valley Road connects to unsanctioned trails that are located within a Flood Damage Centre. Conservation Authority policies would not support the appropriate infrastructure to facilitate the formalization of a trail at this location in the valley (e.g., parking lot and creek crossing). Parking lots are not supported within the 100-year floodplain or in confined valley systems. Due to the topography of the creek valley, to locate a crossing outside of the 100-year floodplain the crossing would be needed upstream, which would span the entire valley at a certain depth and would not be ecologically appropriate or in line with existing policies and regulations.
- At a future time, if additional regulated areas or natural heritage features and associated buffers are dedicated to a public agency, there could be the opportunity to develop a tableland trail connection associated with a plan of subdivision outside of the valley system.

CN Rail Crossings (Management Theme 21)

- Enter into discussion with CN Rail to develop a safe solution to trails crossing the CN Rail line.
- Consider that at-grade non-motorized crossings with rail lines should be at a right angle to tracks where possible, and appropriate traffic control devices (pavement markings, signage, etc.) are recommended where possible.
- Trail crossings should be consistent with Draft RTD-10 Road or Railway Grade Crossings: Technical Standards and Inspection, Testing and Maintenance Requirements (2002) available from Transport Canada.
- The formalized trail system for the Clappison-Grindstone Heritage Lands should limit trail crossing of the CN Rail line to the Main Bruce Trail (i.e., a single crossing), in consultation with CN Rail.

Ice Skating and Hockey on Stormwater Management Ponds (Management Theme 25)

- Post signage to educate the public about the purpose of SWM ponds, the dangers of skating on SWM ponds and that skating and hockey are prohibited on SWM ponds.
- If necessary, consider artificial/natural barriers to discourage recreational use of SWM ponds.
- Evaluate the need for a by-law to address the prohibition of skating on SWM ponds.

Stormwater Management (Management Theme 29)

- Review the need to modify and/or improve water quality and quantity discharging from the stormwater management ponds at Clappison Woods 2, and consider the following options:
 - Pond expansion to allow longer detention time of water, and installation of an improved outflow device that would introduce an erosion control element to the discharge from the stormwater management facility. A bottom draw outlet is suggested to help the thermal stability of the receiving watercourse.
 - Either a hybrid (pond + wetland pond) or fully wetland pond would improve the quality of water to be discharged from the facility. A full wetland pond would provide more water quality polishing than a hybrid pond; however, it would also require more land to treat the same volume of water.
 - Exterior features to improve infiltration and reduce peak flows from the stormwater management facility would provide benefits.

- The addition of a device, such as an Imbrium Jellyfish Filter, could provide water quality improvements; however, they require frequent maintenance in order to remain effective over time.
- Other treatment train approaches could be considered immediately upstream or downstream of the stormwater management facility such as bioswales, infiltration trenches, grassed ditches, and oil and grit separators. It would be beneficial to locate such features upstream of the outlet of the stormwater management facility.
- Restore the creek channel located downstream of the stormwater management ponds in Clappison Woods 2 to address erosion, and water quantity and quality issues.
- Evaluate cleanout requirements to improve storage capacity while maintaining the quality and extent of wetland vegetation and habitat that has developed in the stormwater management ponds.

Table 6 provides a recommended implementation priority for completion of EcoPark System Guidelines and site-specific management tasks.

Table 6. Implementation Priority for Completion of EcoPark System Guidelines and Site-specific Management Tasks for the Clappison-Grindstone Heritage Lands

Action	High Priority	Medium Priority	Low Priority
Recommended Guidelines			
Trail Guideline	x		
Education and Signage Guideline	x		
Vegetation Management Guideline	x		
Edge Management Guideline		x	
Site-specific Management Tasks			
Natural Resource Management Actions	x		
Fish Communities		x	
Flood Damage Centre			x
CN Rail Crossing	x		
Ice Skating/Hockey on Stormwater Management Ponds		x	
Stormwater Management		x	

6.0 Management Plan Monitoring and Evaluation

This section of the Management Plan provides direction on how to monitor the implementation of the Plan. This could be achieved indirectly through measures that determine changes in the Heritage Lands (e.g., degradation or improvement of trails, increase/decrease in invasive plants, etc.) or it can be measured directly by monitoring the number of recommendations that are implemented, and possibly the timing of their implementation. The difficulty with the indirect approach is that it will not discriminate between any particular recommendation being implemented, and the effectiveness of the recommendation. For example, trails may continue to degrade either because there was no attempt to implement the trails recommendations, or the trails recommendations were implemented, but the recommendations were either inadequate or use increased beyond the carrying capacity of the trail. Thus, since the main intent of this section is to measure implementation of the management plan, direct

measurement of the implementation of recommendations is preferred, regardless of their effectiveness. It is important to note that the effectiveness of management (i.e., efficacy of the recommendations) is also critically important, and so some guidance is provided on the development of performance indicators, but these can only be developed when the tasks that respond to recommendations in this report are developed.

6.1 Monitoring the Implementation of Recommendations

Section 4 of this Management Plan arranges the recommendations into 39 Management Themes, each of which is a general management issue for the Clappison-Grindstone Heritage Lands. It is recommended that each of these themes be evaluated annually to determine, 1) if action on the theme has been initiated in the timeframe that is recommended; and 2) has action been completed, or in the case of issues needing ongoing management (e.g., invasive species control), are there active programs in place that are resulting in ongoing management.

Table 7 provides an outline for tracking the implementation and completion of Management Themes. A blank column has been provided for indicating the agency(s) that are involved with implementing each theme. It is recommended that the Cootes to Escarpment EcoPark System Management Committee determine agency involvement. Once this information is available, the “Agencies Involved” column in Table 7 can be filled out. Without a better understanding of the capacity, available funding and other priorities of the partner agencies, it is not possible to provide guidance on realistic timeframes for initiation. Thus the Steering Committee should review and propose a realistic schedule for implementation.

39. Review and Refine Schedule for Monitoring Management Themes

- The Cootes to Escarpment EcoPark System Management Committee should identify the agencies involved in each of the Management Themes provided in Table 7.
- The Steering Committee should review and propose a realistic schedule for implementation.

Table 7: Outline for Tracking the Implementation and Completion of Management Themes for the Clappison-Grindstone Heritage Lands.

Management Themes	Agencies Involved	Task Initiated (date)	Task Completed (date)
Classification and Zoning of the Heritage Lands			
1: Classification per NEPOSS			
2: Zoning per NEPOSS			
Overarching Management Recommendations			
3: Consistent Delineation			
4: Delineation of Current Boundaries			
5: Lack of Uniform Set of Rules			
6: Accommodating Stresses from Future Development			

Management Themes	Agencies Involved	Task Initiated (date)	Task Completed (date)
7: EcoPark System-wide Guidelines			
8: Funding			
Heritage Lands Management Plan Recommendations			
9: Develop Vision			
Recommended Management Directions			
10: Permitted Uses per NEPOSS Classification			
11: Permitted Uses per NEPOSS Zone			
Access and Infrastructure Recommendations			
12: Lack of Adequate/Appropriate Parking and Access			
13: Relative Isolation of some Current Lands			
14: Trespassing			
Recreation Recommendations			
15: General Trail Recommendations			
16: Duplication and Density of Trails			
17: Signage			
18: Overuse and Erosion of Trails			
19: Unsanctioned Structures and Trail Improvements			
20: Interpretation and Education			
21: CN Safety Issue			
22: Trails			
23: User Conflicts			
24: Off-leash Dogs			
25: Ice Skating and Hockey on SWM Ponds			
26: Non-permitted Uses			
27: Safety Concerns			
Recommendations for Encroachment			
28: Impact from Adjacent Use			
29: Drainage, Erosion and Stormwater Management			

Management Themes	Agencies Involved	Task Initiated (date)	Task Completed (date)
30: Polluting Spills			
Ecosystem Management and Restoration Recommendations			
31: Forest Health Decline and Loss			
32: Vegetation Restoration			
33: SAR and Rare Species Habitat			
34: Fish Communities			
35: Invasive Species Management			
36: Noxious Plants			
37: Wildlife Crossing			
Cultural Heritage Recommendations			
38: Cultural Heritage Conservation			
Monitoring the Implementation of Recommendations			
39. Review and Refine Schedule for Monitoring			

6.2 Guidance for Performance Indicators

6.2.1 Adaptive Management

As noted above, it is important to evaluate the efficacy of management actions to determine if they are producing the desired outcome. The accepted approach to achieve this is Adaptive Management. Adaptive Management involves the following steps:

1. Implement management actions based on the best available information and analysis;
2. Monitor the outcome of the management actions;
3. Evaluate monitoring outcomes against management objectives and/or targets; and
4. Where objectives and/or targets are not being achieved, refine management prescriptions.

In some instances, Adaptive Management will reveal unrealistic or unattainable objectives and/or targets, in which case they will need to be revised. Monitoring and evaluation should continue until objectives and/or targets are achieved, or in the case where the management action is ongoing (e.g., invasive species management), as long as management is undertaken.

Adaptive Management is especially valuable where the outcome of management actions is uncertain, for example, when introducing a disturbance regime to restore a particular vegetation type, trying a new trail surface, or undertaking habitat modification to conserve a species at risk. However, it is also useful for actions such as trail closure, where it is simply a matter of seeing if the method to prevent further use of the trail (signage, restoration at trail entrance, placing obstructions across entrance, etc.) is effective. Adaptive Management is essential to increase knowledge, i.e., to gain a better understanding

of what management techniques work in a particular application. It is also very useful for reporting results, as it provides objective and defensible information on the progress of management.

A key component of Adaptive Management is establishing a benchmark for success; some yardstick against which results can be compared to evaluate progress. These can be objectives, targets or performance indicators. In most cases, these cannot be established until detailed management tasks are developed, and generally require more detail than is available for this Heritage Lands Management Plan. They would be established when the protocols for management are developed, or decisions on management are made (e.g., which trails should be closed, how EcoPark System boundaries will be demarcated, etc. Also, some management tasks may not lead themselves to establishing performance indicators, such as the development of education/stewardship material, as it would be extremely difficult to measure their efficacy. In such cases, it is probably reasonable to assume that they benefit overall management goals and evaluate the tasks simply by noting if they were completed, as outlined in Table 8.

Notwithstanding, the difficulty of providing performance indicators before more detailed plans are developed, guidance for their development is suggested in Table 8. In making these suggestions it is realized that it would be possible to develop metrics to measure and evaluate probably all of the recommendations. However, the time and effort to actually develop and undertake that level of monitoring is probably not justified in most cases. For example, for the recommendation to install perimeter fencing, one could measure the length of fencing completed as a measure of implementation success, but it is probably sufficient to note that the fencing has been initiated, in progress, and finally completed. There are other recommendations where the efficacy of the recommendation is more tenuous, for example vegetation management, management of species at risk, etc., and it is these cases where targets and performance monitoring is recommended in Table 8. There are no standards for when a rigorous, Adaptive Management approach should be undertaken, thus the recommendations regarding the appropriateness of setting targets and performance measures can be re-evaluated and revised as deemed necessary.

Table 8: Guidance on Targets and Performance Indicators for the Clappison-Grindstone Heritage Lands.

Management Themes	Target/Performance Indicator Appropriate Y/N	Suggestions for Developing Targets and Performance Indicators
Classification and Zoning of the Heritage Lands		
1: Classification per NEPOSS	N	N/A
2: Zoning per NEPOSS	N	N/A
Overarching Management Recommendations		
3: Consistent Delineation	N	N/A
4: Delineation of Current Boundaries	N	N/A
5: Lack of Uniform Set of Rules	N	N/A
6: Accommodating Stresses from Future Development	N	N/A
7: EcoPark System-wide Guidelines	N	N/A
8: Funding	N	N/A
Heritage Lands Management Plan Recommendations		
9: Develop Vision	N	N/A
Recommended Management Directions		
10: Permitted Uses per NEPOSS Classification	N	N/A
11: Permitted Uses per NEPOSS Zone	N	N/A
Access and Infrastructure Recommendations		
12: Lack of Adequate/Appropriate Parking and Access	N	N/A
13: Relative Isolation of some Current Lands	N	N/A
14: Trespassing	N	N/A

Management Themes	Target/Performance Indicator Appropriate Y/N	Suggestions for Developing Targets and Performance Indicators
Recreation Recommendations		
15: General Trail Recommendations	Y	<ul style="list-style-type: none"> • Identify all potential trail connections in the EcoPark System (the target) and use proportion of connections achieved as a performance measure. • Use total number of trails to be closed as target, and use proportion of trails successfully closed as performance measure. • Considerations for general condition could include: <ul style="list-style-type: none"> • owing to extensive trails system, select representative sections of trails to monitor (e.g., 10 100m long sections) including: “typical” sections, sections where issues are contemplated, areas with steep slopes, sections adjacent to SAR, and sections in Natural and Nature Reserve Zones; • measure frequency of trail widening to circumvent wet areas; • measure frequency of substantial erosion issues; and • measure frequency of damage to trail-side vegetation from users leaving trail to avoid conflict with other users (e.g., hiker/cyclist conflicts). • Evaluate efficacy of closures using motion-triggered cameras to record use of newly closed trails; report number of uses per week for 6 weeks following closure and per month for one year and record if trail was accessed by foot and/or bicycle. Evaluate success of closure, determine need for re-visiting closure protocol based on number of users and considering if use is increasing or decreasing.
16: Duplication and Density of Trails	Y	<ul style="list-style-type: none"> • See suggestions for Management Theme 15. • Include trail monitoring sections wherever trail is in close proximity (e.g., 10 m) of a species at risk.
17: Signage	N	N/A

Management Themes	Target/Performance Indicator Appropriate Y/N	Suggestions for Developing Targets and Performance Indicators
18: Overuse and Erosion of Trails	Y	<ul style="list-style-type: none"> Determine total number of instances where a boardwalk or bridge is required to prevent impacts. Use proportion of structures installed as performance measure. Performance measures for evaluating different trails surfaces should be established but these will be dependent on the actual surface used and the impacts they are intended to address; it maybe the measures suggested for Management Theme 15 will suffice. Closures in response to erosion/steep slopes are covered in suggestions for Management Theme 15.
19: Unsanctioned Structures and Trails	Y	<ul style="list-style-type: none"> Determine total number of unsanctioned structures and instances of inappropriate, unsanctioned trail management (targets) and use proportion of structures and improvements removed as performance measures.
20: Interpretation and Education	N	N/A
21: CN Safety Issue	N	N/A
22: Trails	N	N/A
23: User Conflicts	N	N/A
24: Off-leash Dogs	N	N/A
25: Ice Skating and Hockey on SWM Ponds	N	N/A
26: Non-permitted Uses	N	N/A
27: Safety Concerns	N	N/A
Recommendations for Encroachment		
28: Impact from Adjacent Use	N	N/A

Management Themes	Target/Performance Indicator Appropriate Y/N	Suggestions for Developing Targets and Performance Indicators
29: Drainage, Erosion and Stormwater Management	Y	<ul style="list-style-type: none"> • Targets and performance measures should definitely be established for the stormwater management facilities, but this will have to be done collaboratively between ecologists and water resource engineers. • If not already done, targets and performance measures should be included in watershed/subwatershed studies.
30: Polluting Spills	N	N/A
Ecosystem Management and Restoration Recommendations		
31: Forest Health Decline and Loss	Y	<ul style="list-style-type: none"> • Targets and performance measures related to the control of invasive insects are specific to the species and largely dependent on the ability/practicality of controlling them; these will need to be established on a case-by-case basis. <p>Development of targets and performance measures for vegetation restoration and management is a substantial task that should be undertaken within the EcoPark System Vegetation Management Guideline, but some ideas are provided below.</p> <ul style="list-style-type: none"> • Determine the main vegetation types that are representative of the each of the Heritage Lands and any rare or otherwise significant vegetation types, especially those containing species at risk. • Identify areas with the Heritage Lands that are the best remaining remnants of these vegetation types; these may be relatively small patches (2500 - 10,000 m²?) within larger units of more disturbed vegetation. • Establish measurable characteristics that define each of the vegetation types (e.g., canopy closure, indicator species, extent of native ground cover, plant species richness, etc.) that could serve as to develop targets and related performance measures.

Management Themes	Target/Performance Indicator Appropriate Y/N	Suggestions for Developing Targets and Performance Indicators
		<ul style="list-style-type: none"> • Determine reasonable timelines for restoration, including response times for vegetation following management action, and use to determine monitoring/evaluation schedules.
32: Vegetation Restoration	Y	<ul style="list-style-type: none"> • See management theme 32 above.
33: SAR and Rare Species Habitat	Y	<ul style="list-style-type: none"> • Targets and performance measures for species at risk are species dependant and should be developed as part of the restoration/monitoring protocol. • Targets should be informed by the relevant provincial and federal Recovery Strategies, Government Response Statements, etc. and focus on maintaining or increasing population size(s) (number of individuals or number of patches). • Targets and performance measures could also include population health, i.e. monitoring whether flowering/seed set/recruitment is maintained or improved. • Where there are known threats to SAR, consider monitoring and evaluating the threats, rather than the species. • See Geomatics International (1994) for discussion and suggestions for monitoring species at risk, and Geomatics International (1991, 1992) and Finney, N. (2012) for monitoring American Columbo. • See suggestions for management themes 15 and 16 for trail monitoring.
34: Fish Communities	Y	<ul style="list-style-type: none"> • Targets and performance measures would have to be addressed as part of species-specific management recommendations.
35: Invasive Species	Y	<ul style="list-style-type: none"> • Targets and performance measures are essential to determine the efficacy of control measures. • Targets for species with the capacity for serious degradation of native ecosystems should be complete elimination, where feasible. • Consider most aggressive targets in Nature Reserves, representative

Management Themes	Target/Performance Indicator Appropriate Y/N	Suggestions for Developing Targets and Performance Indicators
		vegetation areas (see Management Theme 32), and where there may be threats to SAR. <ul style="list-style-type: none"> • Performance measures should focus on reduction of individuals, patch size and/or number of patches of invasive species.
36: Noxious Plants	Y	<ul style="list-style-type: none"> • Where noxious species is non-native, targets and performance measures should be determined in concert with invasive species (management theme 36 above). • Targets and performance measures for native noxious species (poison-ivy) should focus on control along sanctioned paths and areas where access is facilitated.
37: Wildlife Crossing	Y	<ul style="list-style-type: none"> • The number of priority locations for eco-passages can be used as the target, noting this will likely be refined as greater knowledge of the Heritage Lands is gained (e.g., implementation of the top 10 wildlife crossing locations throughout the Cootes to Escarpment EcoPark System). • Performance measures could be the proportion of potential locations where eco-passages are installed. • Efficacy (targets and performance measures) of individual eco-passages can only be determined when they are designed as they should focus on the target species that the passage is designed to accommodate (e.g., targets and performance measures will be different for deer and salamanders).
Cultural Heritage Recommendations		
38: Cultural Heritage Conservation	N	N/A
Monitoring the Implementation of Recommendations		
39. Review Schedule for Monitoring	N	N/A

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Appendix 1: Clappison-Grindstone Heritage Lands Land Classification and Zoning Report



Clappison-Grindstone Heritage Lands

LAND CLASSIFICATION AND ZONING REPORT

Prepared for Cootes to Escarpment EcoPark System

March 2016

Cootes to Escarpment EcoPark System Partners



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Cover Photograph of Clappison Woods taken by Leah Lefler, 2015

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1.0 Introduction

This report recommends classifications and zones for the Clappison-Grindstone Heritage Lands in accordance with the Niagara Escarpment Parks and Open Space System (NEPOSS). It builds on a previous report that provided a complete inventory of natural, cultural and recreation resources, identified management opportunities and issues, and provided preliminary thoughts on management of the Heritage Lands. Although the focus is on the classifications and zoning, permitted uses are also discussed in this report to provide a fuller understanding of the repercussions of the proposed classifications and zoning. More detail on permitted uses, as well as the overall management recommendations, will be developed for the final report to be prepared in June, 2016.

1.1 Niagara Escarpment Parks and Open Space System

The majority of the Clappison-Grindstone Heritage Lands are located within the Niagara Escarpment Planning Area (NEPA) and are thus subject to the policies associated with the NEPOSS. These policies form a framework for establishing and coordinating a system of publicly owned lands on the Escarpment. NEPOSS is comprised of more than 140 parks and open space areas, most of which are or will be connected by the Bruce Trail (MNR 2012). These parks and open space areas are owned and managed by a number of conservation authorities and agencies, including local municipalities, Bruce Trail Conservancy and the Royal Botanical Gardens. NEPOSS balances protection, conservation and sustainable development to ensure that the Escarpment will remain largely as a natural environment for future generations (MNR 2012). The objectives of NEPOSS are:

- to protect unique ecological areas;
- to provide adequate opportunities for outdoor education and recreation;
- to provide for adequate public access to the Niagara Escarpment;
- to complete a system of major parks and open space areas through additional land acquisition and park and open space planning;
- to secure a route for the Bruce Trail;
- to maintain and enhance the natural environment of the Niagara Escarpment;
- to support tourism by providing opportunities on public land for discovery and enjoyment by Ontario's residents and visitors;
- to provide a common understanding and appreciation of the Niagara Escarpment; and
- to show leadership in supporting and promoting the principles of the Niagara Escarpment's UNESCO¹ World Biosphere Reserve Designation through sustainable park planning, ecological management, community involvement, environmental monitoring, research and education.

The Niagara Escarpment Plan (NEP) requires that management plans be prepared for each park and open space in the NEPOSS. Management plans lay out the goals and objectives, and guide the protection and management of natural heritage features and cultural heritage features, and activities in parks and open space areas. This poses a unique situation for this current project, and the Cootes to Escarpment EcoPark System in general, as the Clappison-Grindstone Heritage Lands (and other Heritage Lands) are comprised of several parcels, some of which are classified separately in the NEP. In the context of the Cootes to Escarpment EcoPark System, a single management plan is being prepared for each of the six Heritage Lands. A single management plan is required by the Cootes to Escarpment Park

¹ UNESCO = United Nations Educational, Scientific and Cultural Organization.

System Conservation and Land Management Strategy Phase II Report (Wong 2009) for each of the Heritage Lands. A single management plan is desirable in order to manage the lands in a holistic and integrated manner, among the multiple owners.

Thus the Clappison-Grindstone Heritage Lands will not be classified as a single park and/or open space area, but will adopt the classifications for each park as identified in the NEP. This report confirms the classifications and recommends zoning for each of the individual park and open space areas that make up the Heritage Lands. As a result, the Heritage Lands will contain multiple classifications, including Natural Environment, Nature Reserve and Escarpment Access.

The intent of these management plans is to provide high-level guidance for the future management of the Heritage Lands. Detailed property-specific master plans may be prepared at a later date by individual landowners or agencies to further refine recommendations and these will need to be submitted for approval through the NEPOSS process. There is no intent to submit this current management plan being prepared for the Clappison-Grindstone Heritage Lands to the Niagara Escarpment Commission for endorsement, or to the Ministry of Natural Resources and Forestry for approval.

Within NEPOSS, classifications and zones serve as a guide to agencies and other landowners in the management and use of a park or open space. Detailed descriptions of NEPOSS classifications and zones are provided in sections 1.2 and 1.3. A discussion of how the parks and open space areas identified in the NEP are addressed in the Clappison-Grindstone Heritage Lands management plan, and the classification and zoning of the Heritage Lands follows in section 2.0.

While not all of the Clappison-Grindstone Heritage Lands are in the NEPA, they are part of the broader ecosystem. As such, tools outlined in the NEPOSS Planning Manual (MNR 2012) have been used to guide the classification and zoning of all the Current EcoPark Lands within the Heritage Lands, including those outside of the NEPA, in combination with other guiding principles based on best practices. The following sections contain a summary of the NEPOSS guidelines for the classification and zoning of lands and the uses permitted in each area.

As this management plan is not going through the NEPOSS approval process, the classifications and zoning are recommendations based on current understanding of the areas. They will be used to guide the development of future park-specific management plans that will need to be approved through the NEPOSS process.

1.2 NEPOSS Classifications

NEPOSS provides six classifications which are assigned based on the predominant characteristics of park and open space areas within the NEPA. Each of the six classifications serves a specific purpose and provides planning and management direction to agencies. The classifications are included within the NEP and re-classification is generally discouraged. The classifications are described in the NEPOSS Planning Manual (MNR 2012) as follows:

Table 1. NEPOSS Classification Descriptions

Classification	Description
Nature Reserve	Nature Reserves represent the most significant and distinctive natural areas and landforms found along the Niagara Escarpment. These areas serve to protect selected life science and earth science Areas of Natural and Scientific Interest (ANSI).
Natural Environment	Natural Environment lands are characterized by the variety and combination of outstanding natural heritage features, cultural heritage features and outstanding landscape.
Recreation	Recreation parks are some of the best recreational environments along the Niagara Escarpment. Such parks occur naturally or are capable of being developed to provide a wide variety of outdoor recreation opportunities in attractive Escarpment surroundings.
Historical	Historical parks or open spaces are characterized by the distinctive features that represent the Escarpment’s archaeological and historic heritage.
Escarpment Access	Escarpment Access parks or open spaces will complement the larger and, in some cases, more developed parks or open space areas, by providing opportunities for public access to the Niagara Escarpment at appropriate points of interest along it. Generally, these areas are small (4 ha – 25 ha).
Resource Management Area	Resource Management Areas include certain public lands that are managed primarily to provide resource-related benefits such as forest products, fish and wildlife, or flood control.

1.3 NEPOSS Zones

The use of zoning is outlined in the NEP as “essential to the orderly planning, development and effective management of a park or open space area”. NEP zoning is intended to work within each of the park classifications to guide uses based on the significance of resources, the need for protection, and the potential for recreation or other activities. According to the NEPOSS Planning Manual, zones are intended to fulfill a variety of functions in a park or open space area, including the following:

- identification and recognition of the features and attributes;
- protection of key natural heritage features and cultural heritage features and functions;
- segregation of conflicting recreational activities by directing activities with higher impacts to the least sensitive areas and low-impact activities to areas that are more sensitive, if appropriate;
- delineation of areas on the basis of their requirements for management;
- standardization of the approach to support management objectives and actions, based on a variety of features;
- balancing of public use with the preservation of the natural environment; and
- encouraging users to understand the park and open space policies and to appreciate the unique contribution each park or open space makes to NEPOSS.

The NEPOSS Planning Manual provides six zones and each one serves a specific purpose and provides direction on planning and management. The six zones and their descriptions are:

Table 2. NEPOSS Zone Descriptions

Classification	Description
Nature Reserve	<p>Nature Reserve Zones include significant natural heritage features or areas that require careful management to ensure the long-term protection of their natural features. This type of zone should ensure ecological diversity and provide long-term protection for significant natural heritage features such as the following:</p> <ul style="list-style-type: none"> • habitat of endangered, threatened and rare species or species of special concern • wildlife and fish habitat • hydrological systems (e.g., streams, wetlands, ponds) • woodlands • ANSIs • escarpment features (e.g., brow, slope, face, toe, and related landforms)
Natural	<p>Natural Zones include aesthetic landscapes in which a minimum of development is permitted to support low- to moderate-intensity recreational activities. This type of zone includes natural landscapes and high-quality natural settings.</p>
Access	<p>Access Zones serve as staging areas (e.g., trailheads, parking lots) where minimal facilities support the use of Nature Reserve Zones and relatively undeveloped Natural and Historical Zones.</p>
Historical	<p>Historical Zones include significant archaeological or cultural heritage features or areas that require management that will ensure the long-term protection of the significant features.</p>
Development	<p>Development Zones provide the main access to the park or open space, and facilities and services to support the recreational activities available. This type of zone may allow for the development of visitor and park facilities.</p>
Resource Management	<p>Resource Management Zones include certain public lands that are managed primarily to provide resource-related benefits such as forest products, fish and wildlife, or flood control. Previously disturbed sites (e.g., abandoned quarries, old fields) where active measures are being taken to re-establish natural vegetation should also be considered for this type of zoning. This type of zone may include land that has traditionally been managed under long-term resource agreements (e.g., forest management agreements or agricultural leases).</p>

In addition to providing the above descriptions of each zone, the NEPOSS Planning Manual includes the management direction and types of uses that are considered appropriate within the zone description. Management direction and permitted uses within each zone are reviewed in section 4.0.

2.0 Establishing Classifications and Zones

2.1 Establishing Classifications

Within the Clappison-Grindstone Heritage Lands, four park and open space areas and associated classifications have been identified in the NEP:

1. Clappison Woods – Natural Environment;
2. Grindstone Creek – Nature Reserve;
3. Little Property – Nature Reserve; and
4. Smokey Hollow – Escarpment Access.

No changes to these classifications are proposed at this time. However, it is recommended that the classification of the Little Property be re-examined at a later time as part of any future master plan work, as discussed in section 3.0.

The inventories and analysis undertaken in the Inventory, Opportunities and Issues report (North-South Environmental et al. 2016) for the Clappison-Grindstone Heritage Lands were used to review and confirm the classifications applied to parks and open space areas within NEPOSS. Classifications are recommended for those portions of the Heritage Lands that are located outside the NEPA, based on the description and management direction of each classification provided in the NEPOSS Planning Manual. The management direction provided by the NEPOSS manual (MNR 2012, Table 5.1) for the classifications applied are as follows:

Nature Reserve:

Management practices and uses in a Nature Reserve will ensure that the features and values for which it was established remain protected in perpetuity.

Natural Environment:

Natural Environment lands provide opportunities for the protection of important natural heritage features and cultural heritage features.

Escarpment Access:

Escarpment Access park or open space areas are intended to provide opportunities for public access to the Escarpment.

2.2 Establishing Zones

Zoning, according to section 3.1.5 of the NEP, is essential to the planning, development and effective management of a park or open space area. Within the Heritage Lands, zones were applied within each classified park and open space area through a process that examined the park and open space areas and Current EcoPark Lands of the Clappison-Grindstone Heritage Lands in detail to determine:

- what natural heritage features and cultural heritage features exist;
- what permitted uses and development options are appropriate; and
- what management priorities and policies should be put in place for the future.

Zoning was based on the inventory and analysis undertaken in the Inventory, Opportunities and Issues report (North-South Environmental et al. 2016). It included the location of Areas of Natural and Scientific Interest (ANSI), Environmentally Sensitive or Significant Areas (ESA), Species at Risk (SAR) and other rare or uncommon species, rare vegetation communities, etc. Knowledge of the Heritage Lands gained through fieldwork for this study, existing information, and reference to aerial photography were all used in determining the recommended zones. Zones were marked on a map by hand. In general, there is flexibility in the precise location of zoning boundaries. For example, in Clappison Woods, the distinction between the Nature Reserve Zone and the Natural Zone is more of a transitional area, rather than a discrete line. Zoning boundaries can be refined as part of future property-specific master plans.

Zoning assigns uses to lands based on their significance for protection and their potential for recreation within the classification policy (MNR 2012). In the NEPOSS Planning Manual the management direction provided for the zones applied are as follows:

Nature Reserve:

Nature Reserve Zones are predominantly natural and should contain naturally functioning ecosystems. Such zones should protect natural heritage features in the long term.

Natural:

The Natural Zone can function as a buffer between Development Zones and Historical or Nature Reserve zones. Natural Zones are not permitted in Nature Reserve class parks.

Access:

Access Zones are intended to support the use of and access to adjacent zones.

Historical:

Management planning for archaeological or cultural heritage features may range from maintaining their present condition to restoring and/or reconstructing the site.

Development:

A Development Zone is usually oriented to the provision of recreational opportunities that are suited to the natural character of the particular park or open space and are conducted in an environmentally sustainable manner. This zone should have minimal negative impact on natural heritage features and cultural heritage features, the natural landscape or watersheds. Development Zones are not permitted in Nature Reserve class parks.

Resource Management:

Resource Management Zones are sustainably managed for many diverse values, such as wildlife, fisheries, forestry and outdoor recreation. Such zones may be places for experimenting with alternative resource management practices and developing a better understanding of ecosystem structure and function in a scientifically sound manner. This zone should demonstrate exemplary conservation and stewardship. Resource Management Zones should not be established in Nature Reserve parks, provincial parks or in life science ANSIs, except as noted in section 3.1.5 of the Niagara Escarpment Plan. These exceptions are:

- a) where existing forestry agreements are in effect;
- b) to facilitate uses permitted under existing approved Parks Master/Management Plans;

- c) to maintain or protect the unique features of an Area of Natural or Scientific Interest, where such features would otherwise disappear without active management;
- d) for emergency access (e.g., fire protection); and
- e) on public lands included in the Resource Management Area Class.

In this report, the Resource Management Zone has been applied to lands with the sole intent of providing for future restoration activities, i.e., not to provide for active resource extraction. It is recommended where restoration would be a principal management activity in the future owing to the current characteristics of the area. If ecological restoration is undertaken within a Resource Management Zone, consideration could be given to changing the zoning from Resource Management to Natural. For example, two areas of plantation have been zoned Resource Management at the south end of Grindstone Creek 1. If these areas are managed using ecological restoration techniques to restore natural vegetation and ecological functions, zoning may be changed to Natural.

3.0 Recommended Classifications and Zones

Recommended classifications and zones for the Current EcoPark Lands within the Clappison-Grindstone Heritage Lands are provided in Table 3, which includes supporting rationale. Figure 1 illustrates the recommended classifications and zones. For additional information on property boundaries and property ownership, refer to Figure 2 in the Inventory, Opportunities and Issues report (North-South Environmental et al. 2016).

The Clappison-Grindstone Heritage Lands are comprised of large natural areas that have received limited use in recent past. The Heritage Lands are largely homogeneous, predominantly consisting of wooded escarpment features and wooded areas associated with the Grindstone Creek system. As a result, the range of uses and the subsequent application of zones are limited compared to other areas within the Cootes to Escarpment EcoPark System, such as the Burlington Heights Heritage Lands.

In regard to the Bonta Property: there is a potential access point at the end of Horning Road. This location is not currently suitable for high-volume access; however, as adjacent lands are developed, agencies could look for opportunities to have this access point developed. With future public land dedicated with land development, the future Access Zone could be located outside of the current Heritage Lands and would need to be added to the zoning system.

A suitable location for an Access Zone in proximity to the Snake Road crossing of the Bruce Trail is currently unavailable within the Heritage Lands. There is a need for access in this general location and agencies could look for opportunities to have an access point developed outside of the current Heritage Lands.

In Clappison Woods 1, the Suncor Oil pipeline is an infrastructure feature located within the Nature Reserve and Natural Zones, as it was too small to warrant separating out at the scale of mapping used in this report. It is important to note that maintenance on this utility easement will continue to occur.

As noted previously, the Niagara Escarpment Plan has classified the Little Property as Nature Reserve. The Little Property contains forest that is contiguous with the forests of Clappison Woods, which is classified as Natural Environment. The rationale for this specific Nature Reserve classification is not

provided in the NEP and the reason for it is not evident. Based on the current inventory information and classification of the adjacent Clappison Woods, it is felt that a Natural Environment classification best fits the Little Property. The process for re-classifying a park is not within the scope of work for this project and thus it is not being currently undertaken; however, we recommend it be re-examined as part of any future studies, especially if a master plan for the area, or the adjacent Clappison Woods, is undertaken.

In assigning/confirming the NEPOSS classifications, and in determining the appropriate zoning, it is very important to take into account the context of the Heritage Lands. The NEPOSS Planning Manual applies to the whole of the Niagara Escarpment and must address a variety of parks, each with its own unique characteristics. The Clappison-Grindstone Heritage Lands are located within an urban context and are subject to a number of urban pressures, mostly related to existing uses. These uses are well-established and, without management, are expected to escalate with the substantial recent and anticipated urban development approvals adjacent to, or in proximity to the Heritage Lands. Because of this we recommend that flexibility in the application of some “permitted uses” be provided. It is not feasible or realistic to prohibit many of these uses and thus it is critical that the classification and zoning be able to accommodate the management of these uses such that their impacts do not threaten the health or integrity of the natural or cultural heritage features for which it is designated and impacts to the natural environment are minimized, both in terms of location and intensity.

It may be beneficial in places to classify and/or zone an area in recognition of its natural values (e.g., as a Nature Reserve), yet still accommodate activities such as cycling, which in other circumstances or locations may not be acceptable. Recognition of the natural and/or cultural value of such areas through classification and zoning helps convey their importance to the public (and thus assists in getting acceptance of restrictive management and limited use), as well as providing the mandate for protection, restoration and management of valued resources as required.

Table 3. Classification and Zoning of the Clappison-Grindstone Heritage Lands

Parcel	Classification	Zoning	Rationale
Clappison Woods			
Clappison Woods 1	Natural Environment	Access	existing access points off of Rockcliffe Road
		Natural	high-quality natural setting
		Nature Reserve	Species at Risk (SAR)/rare vegetation communities
Clappison Woods 2	Natural Environment	Resource Management	quarry and stormwater management facility
		Development	staging area for access, potential development
		Natural	corner of Life Science ANSI
Clappison Woods 3	Natural Environment	Natural	Environmentally Sensitive Area (ESA)
		Resource Management	mowed grass/restoration opportunity
Grindstone Creek			
Grindstone Creek 1	Nature Reserve	Nature Reserve	SAR/ANSI, Grindstone Creek ravine
		Resource Management	tree planting/restoration area, restoration opportunity
Grindstone Creek 2 (part)	Nature Reserve	Nature Reserve	SAR/ANSI, Grindstone Creek ravine
Bonta	Nature Reserve	Nature Reserve	SAR/ANSI, Grindstone Creek ravine
Johnson Easement	Nature Reserve	Nature Reserve	SAR/ANSI, Grindstone Creek ravine
Little Property			
Little Property	Nature Reserve ²	Nature Reserve	SAR/ANSI
Smokey Hollow (BTC property, east of Waterdown Road)			
Smokey Hollow	Natural Environment	Natural	high-quality natural setting
		Access	access off of Renwood Place
		Resource Management	old fields/restoration opportunity
Smokey Hollow (NEPOSS park, west of Waterdown Road)			
Grindstone Creek 2 (part)	Escarpment Access	Nature Reserve	SAR/ANSI, Grindstone Creek ravine
		Historical (overlay)	old mill site/grindstone artefact
		Access	existing parking area, grassed slope
Holland Nature Sanctuary			
Holland Nature Sanctuary	Natural Environment	Resource Management	old fields/restoration opportunity
		Access	existing parking area
		Natural	high-quality natural setting
		Nature Reserve	ravines/sensitive ecosystems

² The classification of the Little Property as Nature Reserve is questioned (refer to section 3.0). This classification can be re-examined as part of a master plan for the area.



Cootes to Escarpment EcoPark System

Figure 1: Classification and Zoning of Clappison-Grindstone Heritage Lands

Legend

Classifications

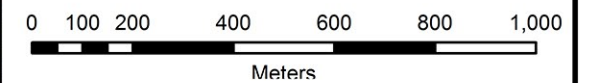
- Nature Reserve
- Natural Environment
- Escarpment Access

Zones

- Nature Reserve
- Natural
- Development
- Access
- Resource Management
- Historical
- Municipal Boundary

Sources of Information:

Conservation Halton
 Hamilton Conservation Authority
 City of Burlington
 City of Hamilton
 Bruce Trail Conservancy



4.0 Permitted Uses

4.1 Permitted Uses per Classification

The NEPOSS Planning Manual provides the following direction on permitted uses per classification (subject to management planning):

Table 4. Permitted Uses per Classification

Classification	Permitted Uses
Nature Reserve	<ul style="list-style-type: none"> • Access to Nature Reserve class parks will not be widely promoted due to the sensitivity of the features in them. Activities will be limited to those that can further scientific understanding and education (e.g., scientific research, natural history interpretation, nature trails or the Bruce Trail). • Facilities will be kept to a minimum. • Forestry or tree cutting in a life science ANSI in public ownership will be permitted where it is necessary to maintain the features for which the area was designated, for emergency access or to implement uses permitted in an approved NEPOSS management plan that are not in conflict with the Niagara Escarpment Plan.
Natural Environment	<ul style="list-style-type: none"> • Activities may range from back-country hiking in the interior to car-camping and day use activities in the more developed or accessible areas. Agencies should consider compatible uses within the park or open space.
Escarpment Access	<ul style="list-style-type: none"> • Modest facilities may be provided to support day use activities at viewpoints, rest areas, trailheads, picnic sites, scenic areas, fishing areas, beaches or other points of interest.

Nature trails are understood to refer to low-impact hiking trails. Therefore, mountain-biking and other higher impact recreational activities are not recommended or encouraged in parks classified as Nature Reserve. Natural Environment classified parks may include recreational activities of moderate intensity, and would include mountain-biking.

4.2 Permitted Uses per Zone

The NEPOSS Planning Manual provides the following direction on permitted uses per zone (subject to management planning):

Table 5. Permitted Uses per Zone

Zone	Permitted Uses
Nature Reserve	<ul style="list-style-type: none"> • To protect, preserve and rehabilitate identified natural heritage features, visitor uses are limited or restricted. • Development is generally restricted to trails, necessary signs, interpretative facilities (where warranted), temporary research facilities and conservation practices.
Natural	<ul style="list-style-type: none"> • Low- to moderate-intensity recreational activities are permitted. • A minimal level of development (e.g., trails, backcountry campsites, necessary signs and minimal interpretive facilities) is permitted to support low-intensity recreational activities.
Access	<ul style="list-style-type: none"> • Development may include minimal facilities to support Nature Reserve, Natural and Historical Zones. Examples include roads, signs, trailheads and parking lots.

Zone	Permitted Uses
Historical	<ul style="list-style-type: none"> Development will include protection and interpretation of archaeological or cultural heritage features. Examples include interpretive, educational, research and management facilities, trails, signs, and historical restorations or reconstructions.
Development	<ul style="list-style-type: none"> Development may include roads, parking lots and gates, beaches, picnic areas, campgrounds and commercial service facilities, and orientation, interpretive, educational, research and maintenance facilities. Development of facilities must be designed and undertaken in a way that will minimize their environmental and visual impact.
Resource Management	<ul style="list-style-type: none"> Resource Management Zones may be used to demonstrate ecologically sustainable resource management practices. Establishing permanent research plots for monitoring purposes (e.g., permanent sample plots for growth and yield studies) is encouraged in these zones. Water may be controlled for purposes related to flood protection, watershed management or municipal water supply. The recreation uses of Resource Management Zones are subject to park management planning.

The Clappison-Grindstone Heritage Lands are situated in an urbanized/urbanizing environment. Recreational uses have, and will continue to become established within the Heritage Lands, and there is an obvious high desire from the public to access the Heritage Lands. It is understood that limiting access and minimizing recreational impacts within the Nature Reserve classification and zone is best suited to protecting the ecological and earth science values of the area; however, given the proximity of the Heritage Lands to a large population base, it is unrealistic to expect that some level of recreation will not continue within these areas, despite the Nature Reserve classification or zone.

Conservation Halton has begun utilizing a “preferred use” concept in the management of their lands (e.g., Hilton Falls Conservation Area). This approach provides the opportunity to educate the public about what the preferred use of an area is. For example, within the Nature Reserve zone, the preferred use is low-impact hiking; within the Natural Zone, the preferred use may be hiking, mountain-biking, or mixed-use. The preferred use concept provides flexibility and is a realistic approach for managing recreational use and impacts to natural areas. A strict interpretation of the Nature Reserve classification and zone, which would prohibit mountain-biking activity, would only be implementable with a substantial, and unrealistic, enforcement effort. The alternative would result in a Nature Reserve classification or zone being used by an unplanned and incompatible use. The preferred use concept provides the opportunity to educate the public, while recognizing the continuation of an existing use. Thus, in the case of Grindstone Creek, which is classified as Nature Reserve, mountain biking would not be encouraged, but some limited management may be recommended to reduce or eliminate any impacts from mountain biking as an existing use (e.g., providing trail connections, ensuring appropriate trail construction and maintenance is in place).

A management recommendation should be made that specifies that hiking is the preferred use in the Nature Reserve zone, mountain biking is tolerated but not preferred, and that increased use by mountain biking activities is not recommended within the Nature Reserve Zone. Certain activities and infrastructure may be decommissioned and/or rerouted on a case-by-case basis to best manage the area in accordance with the intent of a Nature Reserve zone. In addition, a “special protection” sub-zone could be added under the Nature Reserve zone, where recreational activities are not permitted.

This sub-zone may be desired in locations such as rare species habitat, talus slopes, wetlands, etc. The benefits of applying a “special protection” sub-zone include protecting sensitive and/or significant natural heritage features by directing recreational activities away from these areas. The “special protection” sub-zone could be established in future property-specific management plans.

5.0 Next Steps

NEPOSS classifications and zones have been applied to the Current EcoPark Lands within the Clappison-Grindstone Heritage Lands as a means of categorizing and defining appropriate management actions. Three classifications have been applied: Nature Reserve, Natural Environment, and Escarpment Access. All six of the NEPOSS zones have been applied: Nature Reserve, Natural, Access, Historical, Development and Resource Management.

The designation of a zone acknowledges that a range of activities may take place. It also highlights where existing incompatible uses are occurring. Within the Clappison-Grindstone Heritage Lands, existing incompatible uses include mountain biking in Nature Reserve classed parks and open spaces, and in Nature Reserve zoned lands. The incompatibility of existing uses will be explored further with regard for the preferred use concept in the management plan, following refinement and acceptance of the classifications and zones recommended in this report.

Classification and zoning set the management direction for the Clappison-Grindstone Heritage Lands. Following the review and approval of the recommended classifications and zones by the Steering Committee and Stakeholder Advisory Committee, recommendations for bringing existing uses in line with the recommended classifications and zones will be provided in the Clappison-Grindstone Heritage Lands Management Plan, along with opportunities for education, research, interpretation and restoration.

6.0 References

Niagara Escarpment Plan. Office Consolidation, October 1, 2015.

North-South Environmental Inc., LURA Consulting, Schollen and Company Inc., Unterman, McPhail & Associates, and Andlyn Ltd. January 2016. Clappison-Grindstone Heritage Lands: Inventory, Opportunities and Issues Report. v+195 pp.

Ontario Ministry of Natural Resources. March 2012. Niagara Escarpment Parks and Open Space System Planning Manual. Toronto: Queen's Printer for Ontario. 86 pp.

Wong, Janet. 2009. Cootes to Escarpment Park System: Conservation and Land Management Strategy. Royal Botanical Gardens. Burlington, Ontario, Canada.

Appendix 2: Clappison-Grindstone Heritage Lands Stakeholder Advisory Committee Members

Appendix 2: Clappison-Grindstone Heritage Lands Stakeholder Advisory Committee Members.

Linda Axford – Aldershot Resident
Susan Cooper – Ministry of Natural Resources and Forestry
Michael Fischer – Hamilton Naturalists' Club
Guy Granka – Friends of Kerncliff Park
Lisa Grbinicek – Niagara Escarpment Commission
John Hall – Hamilton Harbour RAP
Cam Levack – Hager Creek Stewardship Group
Lorraine Norminton – Ministry of Natural Resources and Forestry
Gloria Pennycook – Iroquoia Bruce Trail Club
Shelly Petrie – Greenbelt Foundation
Paul Schnepf – Bicycle Works
Sue Somers – Waterdown Resident
Wayne Terryberry – McMaster University

Appendix 3: Suggested List of Issues to be Addressed in Each Proposed EcoPark System Guideline

Appendix 3: Suggested List of Issues to be Addressed in Each Proposed EcoPark System Guideline

EcoPark System Guideline: Trails

- Lack of adequate and safe parking and access
- Lack of accessibility
- Trespassing
- Duplication and density of trails
- Overuse and erosion on trails
- Unsanctioned structures and trail improvements
- User Conflicts
- Off-leash dogs
- Natural area degradation associated with non-permitted recreational uses
- Safety concerns associated with non-permitted recreational uses
- Personal trails

EcoPark System Guideline: Education and Signage

- Consistent branding of the Cootes to Escarpment EcoPark System
- Identification of Current EcoPark System Lands boundaries to reduce trespass and encroachment issues
- Trespassing
- User conflicts
- Off-leash dogs
- Interpretation
- Natural area degradation associated with non-permitted recreational uses
- Safety concerns associated with non-permitted recreational uses
- Dumping
- Unsanctioned structures and trail improvements
- Interpretation
- Natural area degradation associated with non-permitted recreational uses
- Safety concerns associated with non-permitted recreational uses
- Personal trails
- Structures and “Yard Extension”
- Vegetation removal
- Cats/domestic pets
- Drainage and erosion
- Interpretation and commemoration

EcoPark System Guideline: Vegetation Management

- Natural area degradation associated with non-permitted recreational uses
- Vegetation removal (encroachment)
- Forest health decline
- Loss of open woodland habitat
- Conservation and recovery of species at risk
- Invasive species
- Noxious plants

EcoPark System Guideline: Edge Management

- Personal trails leading from backyards
- Structures and “yard extension”
- Dumping along edges of Current EcoPark System Lands (e.g., yard waste, Christmas Trees, potted plants)
- Vegetation removal along edges of Current EcoPark System Lands
- Cats/domestic pets
- Drainage and erosion (e.g., caused from swimming pool drainage)

Appendix 4: Definition of Stewardship Lands as Used Within the Management Plan Document

Appendix 4: Definition of Stewardship Lands as Used Within the Management Plan Document

Identified privately-owned lands that are situated adjacent to properties owned by Cootes to Escarpment EcoPark System partners are referred to as ‘Stewardship Lands’ within this report. This term does not imply that there are formal stewardship agreements on these lands between private landowners and any partner within the Cootes to Escarpment EcoPark System. The term references the fact that there are opportunities for private landowners within the Stewardship Lands to seek advice from Cootes to Escarpment EcoPark System staff, if the private landowner is interested in projects that enhance the environment on their properties. This Management Plan is intended as a guiding document for partner staff at each of the nine partner organizations within the Cootes to Escarpment EcoPark System and does not impose restrictions to private landowners living in proximity to Cootes to Escarpment EcoPark System partner properties.

Entry onto identified Stewardship Lands by members of the public without express permission of private property owners is an act of trespass.