PLANNING &REGULATION POLICIES AND GUIDELINES

October 2011

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1 Introduction

Along with providing clarity to the reader on how this document should be read, this section also provides a background on the Hamilton Conservation Authority (*HCA*), the legislation that governs the *Authority's* decisions, the planning approach of the *HCA* and its objectives, and the guidelines that *Authority* staff follow when making decisions and recommendations.

1. 1 How to Read This Document

A policy-oriented planning system should work to recognize the multiple inter-relationships that exist between the environmental, physical, social, and economic factors influencing land use planning. The Planning & Regulation Policies and Guidelines document supports and recognizes linkages among policy areas and therefore this document is more than a set of individual policies and guidelines.

The policies and guidelines contained within this document should not be read in isolation of one another. Rather, they should be read concurrently and in their entirety and the appropriate range of policies and guidelines should be applied to each situation. A decision-maker should read all of the relevant policies as if they are specifically cross-referenced with each other. While specific policies sometimes refer to other policies for ease of use, these cross-references do not take away from the need to read this document as a whole.

There is no implied priority in the order in which the policies and guidelines appear.

This document consists of:

Section 1: A background on *HCA*, legislation and policy governing *HCA*, the planning approach and objectives, and the planning review process.

When reviewing planning and regulation proposals, *Authority* staff utilize policies and guidelines found in the following sections:

Section 2: Natural Hazard Policies

Section 3: Natural Heritage Policies

Section 4: *Development* Adjacent to *HCA* Land Holdings

Section 5: *Fill* Placement and Grade Modification

Section 6: *Pond* Construction

Section 7: Minor *Development* Exemptions

Section 8: *Floodproofing* Guidelines

Section 9: Erosion and Sediment Control Guidelines

Section 10: Vegetation Plan Policies and Guidelines

Section 11: Source Water Protection Planning Policies

Section 12: Stormwater Management Planning Policies

The following sections are included to provide clarity and direction to the reader:

Section 13: Definitions for italicized words

Section 14: A selected bibliography of referenced documents

Section 15: Appendices that relate to various policy requirements

1. 2 HCA Background

The Hamilton Conservation Authority (*HCA*) is located at the western end of Lake Ontario and encompasses the majority of the City of Hamilton, and portions of the Town of Grimsby and Township of Puslinch. The *HCA* is responsible for approximately 477 square kilometres of *watershed* area, with a population of almost 400,000 people. Our responsibilities involve: managing water resources within our *watershed* area to maintain water quality and quantity; preventing unacceptable risk to public safety and to property damage due to natural hazards; preserving *natural heritage features and areas* for their economic, environmental, and social benefits; providing plan review input to local municipalities; efficient management of recreational resources; and the development and delivery of environmental education programs.

The *HCA* was first created in 1958 as a result of petitions to the Province by the Townships of Puslinch, East Flamborough, West Flamborough, Beverly, and Ancaster and the Town of Dundas to establish a *watershed* unit charged with the responsibility of water resource management. The request was approved and the Spencer Creek Conservation Authority, having jurisdiction over the Spencer Creek *watershed*, was created June 1958. The area of jurisdiction was expanded in 1966 to include parts of the City of Hamilton and the City of Stoney Creek consequently creating the Hamilton Region Conservation Authority (HRCA). In addition to the Spencer Creek *watershed* the HRCA then encompassed the watersheds of Red Hill Creek, Stoney Creek, Battlefield Creek, and the numbered *watercourses* in the City of Stoney Creek.

The *HCA watershed* area now reaches from Fifty Point across to the Township of Puslinch in Wellington County (Figure 1). In 2000, with the amalgamation of the City of Hamilton, City of Stoney Creek, Town of Glanbrook, Town of Ancaster, Town of Dundas, and Town of Flamborough, the name of the Conservation Authority was changed to the Hamilton Conservation Authority for administrative purposes. For legal purposes, however, the name remains unchanged.

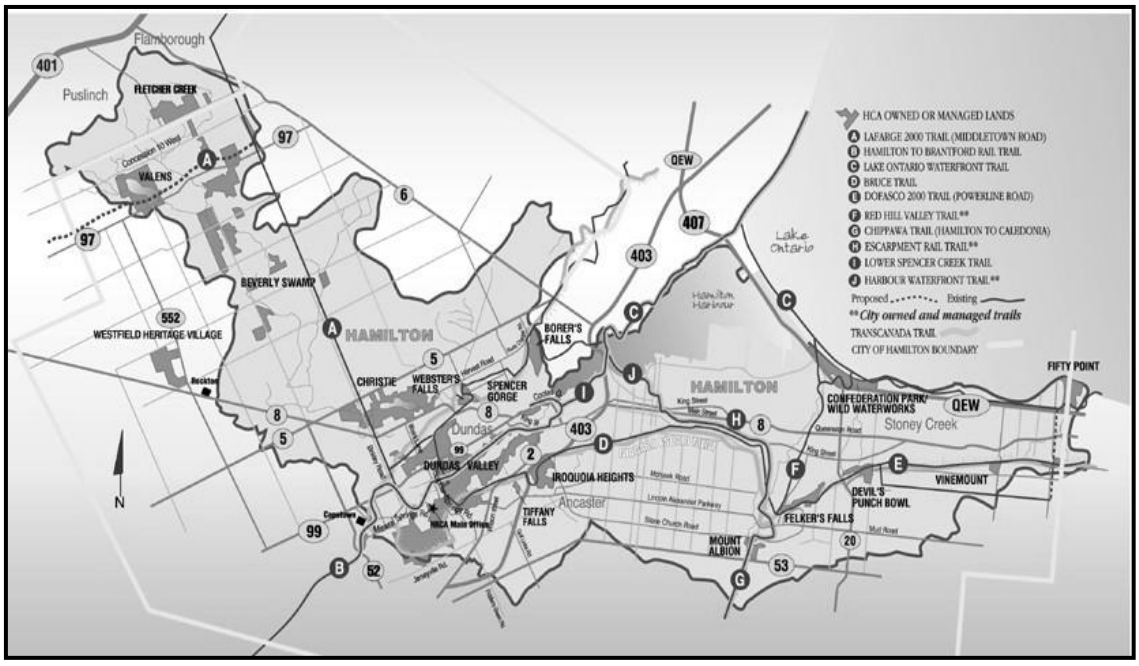

Figure 1: HCA Watershed Area

1. 3 Legislative and Policy Background

The following section outlines the legislation that governs decisions and recommendations of the *Authority*. They span all levels of government and may be applied concurrently at various stages of both the regulatory and planning processes. The first two sub-sections are specific to the *Authority's* mandate, while the following sub-section is additional legislation that *Authority* staff utilize when reviewing planning and regulation applications.

1. 3. 1 Description of Conservation Authority Role and Activities

Created in 1946, the Conservation Authorities Act (CA Act) provides the legal basis for actions associated with renewable natural resource management as undertaken by the *HCA*. Initiated in response to erosion and flooding concerns in the Province of Ontario, this provincial legislation is based on the recognition that those issues associated with flooding and erosion are generally best managed on a *watershed* basis. The primary function of the Act allows for the creation of Conservation Authorities (*CAs*) and regulations to control *development*, interference with *wetlands*, and alterations to shorelines and *watercourses*.

Conservation Authorities (*CAs*) are corporate bodies created through legislation by the province at the request of two or more municipalities in accordance with the requirements of the CA Act. Each *CA* is governed by the CA Act and by a Board of Directors whose members are appointed by participating municipalities located within a common *watershed* within the *CA* jurisdiction. *CA* Board composition is determined by the CA Act according to the proportion of the population from participating municipalities within the *watershed*.

Section 20 of the CA Act sets out the objects for *CAs* to establish and undertake, in the area over which it has jurisdiction, a program designed to further the conservation, restoration, development and management of natural resources other than gas, oil, coal and minerals.

Section 21 of the CA Act outlines the powers of *CAs* including the power to establish *watershed*-based resource management programs and/or policies and the power to charge fees for services, the services for which are approved by the Minister of Natural Resources.

The fundamental provincial role for all *CAs* focuses on water related natural hazard prevention and management and includes flood and erosion control. *CAs* may undertake the following roles and activities:

i. Regulatory Authorities – Under Section 28 of the CA Act, subject to the approval of the Minister of Natural Resources and in conformity with the Provincial Regulation 97/04 governing the content, *CAs* may make regulations applicable to the area under its jurisdiction to prohibit, restrict, regulate or give required permission for certain activities in and adjacent to *watercourses* (including *valleylands*), *wetlands*, shorelines of inland lakes and the *Great Lakes-St. Lawrence River System* and other *hazardous lands*

ii. Delegated 'Provincial Interest' in Plan Review – As outlined in the Conservation Ontario/ Ministry of Natural Resources (*MNR*) / Ministry of Municipal Affairs and Housing (*MMAH*) Memorandum of Understanding (*MOU*) on *CA* Delegated Responsibilities (Appendix A), *CAs* have been delegated responsibilities from the Minister of Natural Resources to represent the provincial interests regarding natural hazards encompassed by

Section 3.1 of the Provincial Policy Statement, 2005 (*PPS*). These delegated responsibilities require *CAs* to review and provide comments on municipal policy documents (Official Plans and comprehensive zoning by-laws) and applications submitted pursuant to the Planning Act as part of the Provincial One-Window Plan Review Service.

iii. Resource Management Agencies – In accordance with Section 20 and 21 of the CA Act, *CAs* are local *watershed*-based natural resource management agencies that develop programs that reflect local resource management needs within their jurisdiction. Such programs and/or policies are approved by the *CA* Board of Directors and may be funded from a variety of sources including municipal levies, fees for services, provincial and/or federal grants and self-generated revenue.

iv. Public Commenting Bodies – Pursuant to the Planning Act, *CAs* are 'public commenting bodies', and as such are to be notified of municipal policy documents and planning and *development* applications. *CAs* may comment as per their Board approved policies as local resource management agencies to the municipality or planning approval authority on these documents and applications. *CAs* may also be identified as commenting bodies under other Acts and Provincial Plans.

v. Service Providers – Individual *CAs* may enter into service agreements with federal and provincial ministries and municipalities to undertake regulatory or approval responsibilities and/or reviews (e.g. reviews under the Fisheries Act Section 35; septic system approvals under the Ontario Building Code).

CAs may also perform a technical advisory role to municipalities as determined under the terms of service agreements. These services may include, matters related to policy input and advice, the assessment or analysis of water quality and quantity, environmental impacts, *watershed* science and technical expertise associated with activities near or in the vicinity of sensitive natural features, hydrogeology and storm water studies.

vi. Landowners – *CAs* are landowners, and as such, may become involved in the planning and *development* process, either as an adjacent landowner or as a proponent. Planning Service Agreements with municipalities have anticipated that as *CAs* are also landowners this may lead to a conflict with the *CA* technical advisory role to municipalities. This potential conflict of interest is addressed by establishing a mechanism for either party to identify a conflict and implement an alternative review mechanism as necessary.

Section 20 of the CA Act describes the objects of a *CA*, which are to establish and undertake, in the area over which it has jurisdiction, a program designed to further the conservation, restoration, development, and management of natural resources other than gas, oil, coal, and minerals.

Section 21 of the CA Act lists the powers which *CAs* have for the purpose of accomplishing their objects. The objects identified in the CA Act relevant to this chapter include:

a. To study and investigate the *watershed* and to determine a program whereby the natural resources of the *watershed* may be conserved, restored, developed and managed;

e. To purchase or acquire any personal property that it may require and sell or otherwise deal therewith;

l. To use lands that are owned or controlled by the *Authority* for purposes, not inconsistent with its objects, as it considers proper;

m. To use lands owned or controlled by the *Authority* for park or other recreational purposes, and to erect, or permit to be erected, buildings, booths and facilities for such purposes and to make charges for admission thereto and the use thereof;

m.1 To charge fees for services approved by the Minister;

n. To collaborate and enter into agreements with ministries and agencies of government, municipal councils, local boards and other organizations;

p. To cause research to be done;

q. Generally to do all such acts as are necessary for the due carrying out of any project R.S.O. 1990, c. C.27, s. 21; 1996, c. 1, Sched. M, s. 44 (1, 2); 1998, c. 18, Sched. I, s. 11.

Pursuant to Section 28 (1) of the CA Act and in accordance with Ontario Regulation (O. Reg.) 97/04 "Content of Conservation Authority Regulations under Subsection 28(1) of the Act: Development, Interference with Wetlands, and Alterations to Shorelines and Watercourses" (i.e. Generic or Content Regulation)",

"Subject to the approval of the Minister, an *Authority* may make regulations applicable in the area under its jurisdiction,

b. Prohibiting, regulating or requiring the permission of the *Authority* for straightening, changing, diverting or interfering in any way with the existing channel of a river, creek, stream or *watercourse*, or for changing or interfering in any way with a *wetland*;

c. Prohibiting, regulating, or requiring the permission of the *Authority* for *development* if, in the opinion of the *Authority*, the control of flooding, erosion, dynamic beaches or *pollution* or the *conservation of land* may be affected by the *development*.

Section 28 (25) of the CA Act defines *development* as meaning:

- The construction, reconstruction, erection, or placing of a *building* or structure of any kind;

- Any change to a *building* or structure that would have the effect of altering the use or potential use of the *building* or structure, increasing the size of the *building* or structure or increasing the number of *dwelling units* in the *building* or structure;

- Site grading;

- The temporary or permanent placing, dumping, or removal of any material originating on the site or elsewhere.

Note: This definition for "*development*" differs from the definition that is contained in the *PPS*. The relevant definition needs to be applied to the appropriate process.

1. 3. 2 Development, Interference with Wetlands and Alterations to Shorelines and Watercourses

The Hamilton Conservation Authority has had a Section 28 Regulation, under the Conservation Authorities Act, since 1960. The Fill, Construction and Alteration to Waterways Regulation (Ontario Regulation 151/90) was in effect until May 2006. At this time the Development, Interference with Wetlands and Alterations to Shorelines and Watercourses Regulation (*HCA* Regulation 161/06 under Ontario Regulation 97/04) came into effect.

Section 2 of this Regulation states:

2. (1) Subject to section 3, no person shall undertake *development* in or on the areas within the jurisdiction of the *Authority* that are:

a. Adjacent or close to the shoreline of the *Great Lakes-St. Lawrence River System* or to inland lakes that may be affected by flooding, erosion or dynamic beaches, including the area from the furthest offshore extent of the *Authority's* boundary to the furthest landward extent of the aggregate of the following distances,
    i. The *100 year flood level*, plus the appropriate allowance for *wave uprush* and other related hazards,
    ii. The predicted long term stable slope projected from the existing stable toe of the slope or from the predicted location of the toe of the slope as that location may have shifted as a result of shoreline erosion over a 100-year period,
    iii. Where a dynamic beach is associated with the waterfront lands, a 30 metre allowance inland to accommodate dynamic beach movement,
    iv. 15 metres inland;

b. River or stream valleys that have depressional features associated with a river or stream, whether or not they contain a *watercourse*, the limits of which are determined in accordance with the following rules:
    i. Where the river or stream valley is apparent and has stable slopes, the valley extends from the stable *top of bank*, plus 15 metres, to a similar point on the opposite side,
    ii. Where the river or stream valley is apparent and has unstable slopes, the valley extends from the predicted long term stable slope projected from the existing stable slope or, if the toe of the slope is unstable, from the predicted location of the toe of the slope as a result of stream erosion over a projected 100-year period, plus 15 metres, to a similar point on the opposite side,
    iii. Where the river or stream valley is not apparent, the valley extends the greater of,
        A. The distance from a point outside the edge of the maximum extent of the *flood plain* under the applicable flood event standard, plus 15 metres, to a similar point on the opposite side, and
        B. The distance from the predicted meander belt of a *watercourse*, expanded as required to convey the flood flows under the applicable flood event standard, plus 15 metres, to a similar point on the opposite side;

c. *Hazardous lands*;

d. *Wetlands*; or

e. Other areas where *development* could interfere with the *hydrologic function* of a *wetland*, including areas within 120 m of all Provincially *Significant Wetlands*, and areas within 30 m of all other *wetlands*, but not including those where *development* has been approved pursuant to an applicant made under the Planning Act or other public planning or regulatory process.

Under Section 3 of the Regulation, the *Authority* may permit the above if, in the opinion of the *Authority*, *development* will not affect the control of flooding, erosion, dynamic beaches, *pollution*, or the *conservation of land* (*HCA* Regulation 161/06 under Ontario Regulation 97/04).

Section 6 of the Regulation allows the Hamilton Conservation Authority to grant permission to straighten, change, divert or interfere with the existing channel of a river, creek, stream or *watercourse* or to change or interfere with a *wetland* (Appendix B).

1. 3. 3 Additional Legislation and Policy

Authority staff utilize the following legislation, in conjunction with the Conservation Authorities Act and *HCA* Regulation 161/06, when reviewing regulation and planning proposals.

1. 3. 4. 1 Clean Water Act

The Clean Water Act came into effect on October 19, 2006, and it is part of the government's commitment to implement all of the recommendations of the Walkerton Inquiry. The legislation directly addresses 12 and supports the implementation of 22 recommendations of the Walkerton Inquiry on protecting drinking water at its source. It ensures that every Ontarian has access to safe drinking water by protecting municipal drinking water supplies at the source. This is part of an overall commitment to safeguard human health and the environment. A key focus of this legislation is the development of collaborative, locally driven, science-based protection plans. While it is not possible to completely remove all risks to our drinking water, the Clean Water Act will help reduce risks by addressing threats to drinking water quantity and quality. Protection plans will identify *vulnerable* aquifers and recharge areas and protect these areas from becoming contaminated or depleted. The Act is designed to promote voluntary initiatives but requires mandatory action where needed.

Protecting drinking water sources is an important part of protecting Ontario's natural resources, green spaces, and the environment. Source protection planning will give Municipalities a tool to help protect drinking water sources that fits together with long-term regional growth plans such as the Growth Plan for the Greater Golden Horseshoe.

In conjunction with the *HCA*, Municipalities, property owners, farmers, industry, community groups, and the public work side by side to meet common goals. Communities work together to identify potential risks to local water sources and take action to reduce or eliminate these risks. *HCA* works closely with the Halton-Hamilton Source Water Protection Team to accomplish the goals set out in the Clean Water Act and to implement the Source Water Protection Plan for the *HCA watershed*.

Where there is a conflict between a provision of a significant threat policy or designated Great Lakes policy set out in the source protection plan and a provision in the *PPS*, the Greenbelt Plan, the Niagara Escarpment Plan, or the Growth Plan for the Greater Golden Horseshoe, the

provision that provides the greatest protection to the quality and quantity of any water that is or may be used as a source of drinking water prevails. Consideration will be given to this legislation by *HCA* staff when reviewing planning applications.

1. 3. 4. 2 The Drainage Act

Statute law for land drainage dates back almost 150 years in Ontario. In 1894, the original Municipal Drainage Act was passed and provided for the first orderly, equitable mechanisms through which agricultural drainage issues could be handled. This Act has been amended several times during the last 100 years, the last revision having occurred in 1976, when the newly named Drainage Act was established. This Act is in use today and outlines very detailed and sophisticated means through which several types of drainage issues may be resolved. Local municipalities administer the provisions of the Act; while the Ministry of Agriculture and Food provides policy and program implementation assistance to them.

Municipal drains are generally designed to carry seasonal storm flows in order to remove the possibility of ponding water within cultivated fields. This water, if not removed, can harm crop growth, and ultimately crop value. Therefore, drains are designed to carry either the 2 year or the 5 year storm event.

The Drainage Act outlines three types of 'outlet' drains that may be constructed under its provision. They are:

1. Mutual Agreement Drains (Section 2 of the Act);
2. Requisition Drains (Section 3 of the Act); and
3. Petition Drains (Section 4 of the Act).

When two or more landowners wish to construct a new, or improve an existing, drainage works on their own properties and are willing to pay the costs for such works, they may, under Section 2(1) of The Drainage Act, enter into a written agreement to undertake the works. The result is a 'Mutual Agreement Drain', which is constructed and implemented by the landowners who are party to the agreement. This agreement is registered on title of the affected lands and is binding on all future landowners [Sections 2(2) and 2(3)].

With respect to 'Requisition Drains', Section 3(1) of The Drainage Act states that these types of drains differ from the other two in that there is a limit of cost ($7 500.00) stipulated for a requisition drain [Section 3(3)] and the assessment of costs is conducted on a 750 metre distance limit surrounding the drain itself [Section 3(4)].

The most common types of drain proposals in the Hamilton area are 'Petition Drains'. These kinds of drains are 'petitioned' by the majority of landowners in the '*watershed*' that will benefit from the proposed new drainage works. All *watershed* landowners are assessed the costs of the works. Please note that a municipality may also 'petition' municipal drainage works [Section 4(1) (c)] if they are required for a road (i.e. seasonal flooding problem).

Due to our *watershed* focus, Conservation Authorities have been specifically noted as commenting agencies for 'Petition Drains' under various sections of The Drainage Act. Specifically, the Act states that *CAs* are to receive 'notice' of the filing of a petition [Section 5(1) (b)]; *CAs* have the right to request, at the *CA's* expense, that an 'environmental appraisal' be undertaken as part of the project [Section 6(1)]; *CAs* are to receive the preliminary engineering reports for the works [Section 10(2) (c)]; *CAs* have the right to appeal to the Drainage Tribunal

the contents of a requested environmental appraisal if deemed unsatisfactory [Section 10(7) and (8)]; we are to receive the final engineer's report [Section 41(1) (f)]; and the Conservation Authority may appeal the final engineer's report to the Tribunal (Section 49) when, in its opinion, the drainage works "will injuriously affect a scheme undertaken by the *Authority* under The Conservation Authorities Act". Time limits for circulations and appeals are provided for in the above-noted sections of the Act. *Authority* staff should refer directly to The Drainage Act when dealing with such matters in order to ensure our concerns are included in the design of the drainage works.

The Hamilton Conservation Authority has developed policies stating that drains designed for agricultural purposes, if constructed under Section 4 (Petition Drains) of The Drainage Act, do not require 'waterway alteration' permits from our agency under The Conservation Authorities Act. We believe that if our concerns can be adequately addressed under the provisions of The Drainage Act, there is no need to duplicate the process.

1. 3. 4. 3 Endangered Species Act

Ontario's original Endangered Species Act was written in 1971. Since then there have been changes in land and resource use, planning processes, and increasing threats to our native species. Therefore, an updated Endangered Species Act came into effect in 2007. Aboriginal communities, industry and resource organizations, environmental groups, other partners, the Endangered Species Act Review Advisory Panel, and the Ontario public were consulted during the course of the update process.

This updated legislation provides for: broader protection for species at risk and their habitats; greater support for volunteer stewardship efforts of private landowners, resource users, and conservation organizations; a stronger commitment to recovery of species; greater flexibility; increased fines, more effective enforcement; and greater accountability, including government reporting requirements.

Under the Endangered Species Act 2007 there is a strong emphasis on science-based review and assessment of species. Species thought to be at risk are assessed by The Committee on the Status of Species at Risk in Ontario (*COSSARO*). *COSSARO* is an independent body that reviews species based on the best available science, including community knowledge, and Aboriginal Traditional Knowledge. Once species are classified "at risk", they are added to the Species at Risk in Ontario (*SARO*) List in one of the following four categories: Special Concern, Threatened, Endangered, or Extirpated.

The Act not only calls for the creation of recovery strategies for *endangered* and *threatened species*, and management plans for special concern species. It also permits general regulations to provide greater flexibility, and Habitat Regulations to describe the habitat of a species.

HCA staff work in collaboration with the Ministry of Natural Resources, and private landowners, to pre-screen *development* proposals for presence/absence of listed species or their habitats as part of our planning and regulation application review process. Consideration will be given to this legislation by *HCA* staff when reviewing planning and regulation applications.

1. 3. 4. 4 Environmental Assessment Acts

Within Ontario environmental assessments are governed by two Acts: The Canadian Environmental Assessment Act and the Ontario Environmental Assessment Act. Federally initiated projects fall under the mandate of the Canadian Environmental Assessment Act, while all others are administered and addressed according to the dictates of the Ontario Environmental Assessment Act. However, these two Acts can apply to the same project and in this case the proponent must meet the requirements of both Acts.

Although the Hamilton Conservation Authority is most commonly involved with those assessments that fall under the provincial legislation, *HCA* staff should be aware of the general principles of the federal process.

1. 3. 4. 4. 1 The Canadian Environmental Assessment Act

The Canadian Environmental Assessment Act works to ensure that the environmental effects of federal level projects are carefully examined prior to their initiation. This is done in order that potentially adverse environmental effects can be addressed before any works are undertaken. The federal environmental assessment process is administered by the Canadian Environmental Assessment Agency.

Generally speaking, the Act is applied to projects where the Government of Canada is the decision-making authority – whether as a funder, proponent, land manager, or regulator. The degree to which a project is assessed will depend on the scale and complexity of the project and its anticipated impacts on the environment. Following are the four types of environmental assessment under this Act, and a description of each:

1. **Screening** (including class screenings)**:** a responsible authority documents the environmental effects of a proposed project and determines methods by which eliminate or mitigate harmful effects through modifications to the project plan. A class screening is applied when a project has known effects that can be easily mitigated. Class screenings fall into one of two types;
    a. **Model Class Screening:** provides a generic assessment of all screenings within a class. The responsible authority uses information contained in a model report and prepares individual screening reports for projects within the class to account for location-specific or project-specific information.
    b. **Replacement Class Screening:** provides a generic assessment of all screenings within a class. No location-specific or project-specific information is needed, so the responsible authority does not need to prepare project-specific screening reports for projects covered by the replacement class.
2. **Comprehensive Study:** applied to large scale and environmentally sensitive projects; requires a more intensive assessment which includes mandatory opportunities for public participation.
3. **Mediation:** occurs when the Minister of the Environment appoints an impartial mediator to assess a project and help interested parties resolve issues. This approach is used when interested parties agree, are few in number and consensus appears possible.
4. **Review Panel:** assessments conducted by a Minister appointed panel. Applied when the environmental effects of a proposed project are uncertain or likely to be significant, or when warranted by public concern.

1. 3. 4. 4. 2 The Ontario Environmental Assessment Act

The stated purpose of the Environmental Assessment Act is "the betterment of the people of the whole or any part of Ontario by providing for the protection, conservation and wise management in Ontario of the environment" (R.S.O. 1990, c.E.18, s.2).

The concept of 'environment' in this regard is fairly broad, and taken by the Act to mean:

a. Air, land or water;
b. Plant and animal life, including human life;
c. The social, economic and cultural conditions that influence the life of humans or a community;
d. Any *building*, structure, machine or other device or thing made by humans;
e. Any solid, liquid, gas, odour, heat, sound, vibration or radiation resulting directly or indirectly from human activities; or
f. Any part or combination of the foregoing and the interrelationships.

The Environmental Assessment Act, passed by the Ontario government in 1975, sets up a process for reviewing the environmental impact of proposed activities prior to their implementation. The Act applies to government ministries and agencies, Conservation Authorities and municipalities, and some private sector undertakings. Under the Ontario Environmental Assessment Act there are two types of environmental planning and approvals process: Individual and Class Environmental Assessments (*EAs*). Both types of Environmental Assessments not only mitigate environmental impacts but also provide opportunities for enhancement.

Broadly speaking, Individual *EAs* are required for projects that do not fall under the umbrella of any of Ontario's 10 Class *EA* projects. For example, there are Class *EAs* for highway projects undertaken by the Ministry of Transportation and utility projects undertaken by utility companies. Individual *EAs* require that Terms of Reference (TOR) be developed and submitted to the Ministry of the Environment. Once approved, the *EA* project is then completed according to the details of the TOR. This process generally includes reports to relevant authorities at key decision points, and an extensive public consultation process.

Class *EAs* are undertaken for those groups or 'classes' of projects that are carried out on a routine basis, and whose environmental impacts can be largely predicted and mitigated. Under the Environmental Assessment Act there are five key features to planning that should be applied to the Class *EA* process:

1. Consultation with affected parties;
2. Consideration of reasonable alternatives and alternative methods of implementation;
3. Environmental considerations;
4. Systematic evaluation of net environmental impacts; and
5. Clear and consistent documentation.

The Municipal Class *EA*, the class most commonly directed to the *Authority* for comment, applies to municipal infrastructure projects including roads, water, and wastewater projects. These projects are categorized into Schedules based on their potential environmental impacts. The higher the potential impact of the project, the more detailed are the requirements of the *EA* process.

Within the Municipal Class *EA* there are three Schedules:

A. Normal/emergency operational and maintenance activities (pre-approved);

B. Improvements/minor expansions to existing facilities (screening); and
C. Construction of new facilities and major expansions to existing facilities (Full Class *EA*).

Schedule B projects are those that are considered to have the potential for having some adverse impacts on the environment. Such projects require mandatory contact with any relevant review agencies and those portions of the public that will be directly affected by the proposed works. This is to ensure that they are aware of the project and their concerns are addressed.

Schedule C encompasses those projects that are considered to have the potential to have significant effects on the environment. These types of works can include the construction of new or major expansions to water, sanitary sewer, and stormwater management facilities. Prior to beginning construction and operation of the project, the proponent is required to proceed through a series of full planning and documentation procedures, which include:

- Clear identification of the problem;
- Identification of alternative solutions and impacts;
- Establishment of the preferred solution;
- Examination of alternative methods of implementation of the solution; and
- Provision of extensive documentation of the rationale, planning, design and consultation process (referred to as the Environmental Study Report)

As part of the planning review process the Conservation Authority is expected to review and comment on all Class and Individual *EAs* occurring within its *watershed* boundaries. Conservation Authority staff may find that the planning features required by the *EA* Act used in combination with the steps required for Class *EA* projects provide a good place from which to initiate the *EA* review process and a general basis from which to formulate their comments.

The *Authority* will encourage the City of Hamilton and the Township of Puslinch to involve *HCA* staff in preliminary discussions of Municipal Class *EA* projects. Generally speaking, the role of the Conservation Authority in providing such comments is to ensure that environmental and resource concerns are identified early and considered throughout the *EA* process. This is to ensure that proposed impacts on the natural environment are minimized to the greatest extent possible. Appropriate mitigation techniques and relevant technical information should be incorporated into reviews and comments, as well as any concerns with regard to the application of the policies outlined in this document.

If a conflict of interest between *HCA* policies and the proposed action arises, *HCA* staff will work closely with the municipality to resolve *HCA* concerns, however *HCA* may also contact MOE to best determine a resolution of the issue.

Responses to *EAs* must be made within the time frame indicated on the document. Upon receiving a Notice of Completion, if it is felt that concerns were not adequately addressed the Director of Watershed Planning and Engineering should be notified in order to determine if further action is necessary.

1. 3. 4. 5 Federal Fisheries Act

The Hamilton Conservation Authority has a Level 2 agreement with Fisheries and Oceans Canada (*DFO*) which allows *HCA* staff to review projects under Section 35(1) of the Fisheries Act (Appendix E). The Fisheries Act states, "No person shall carry on any work or undertaking that results in the harmful alteration, disruption or destruction of *fish habitat*". Under a Level 2

agreement, the *HCA* has the responsibility to recommend mitigation measures to alleviate potential harmful alteration, disruption or destruction (*HADD*) to *fish habitat*. The *Authority's* agreement with *DFO* has been put in place for the conservation and protection of *fish habitat* while promoting the principles of good fisheries management and client service.

1. 3. 4. 6 The Greenbelt Act

The Greenbelt Act (2005) enabled the creation of the Greenbelt Plan which protects approximately one million acres of environmentally sensitive and agricultural lands in the Golden Horseshoe from urban development and sprawl. This is in addition to the lands protected under the Niagara Escarpment Plan and the Oak Ridges Moraine Conservation Plan.

The legislation of this Act authorizes the government to designate a greenbelt area as well as setting out the main elements and objectives for the Greenbelt. It also requires that planning decisions adhere to the Greenbelt Plan.

The Greenbelt Plan is intended to act as the cornerstone for the Province's proposed Growth Plan for the Greater Golden Horseshoe, providing clarity regarding urban structure, where and how future growth should be accommodated, and what must be protected for current and future generations.

The Greenbelt Plan identifies areas where urbanization should not occur in order to provide permanent protection for the agricultural land base and the ecological features and functions that occur within that landscape. This plan includes those lands within, and builds upon the ecological protections provided by, the Niagara Escarpment Plan and the Oak Ridges Moraine Conservation Plan. It also supports other provincial level initiatives such as the Parkway Belt West Plan.

The lands that are covered by the Greenbelt Plan are referred to collectively as Protected Countryside. The Protected Countryside is comprised of an Agricultural System and a Natural Heritage System, together with a series of settlement areas.

All lands that fall within those areas that are regulated by the Greenbelt Plan must conform to the requirements of that legislation. Where the Greenbelt Plan overlaps with areas that fall under the jurisdictional areas of the Niagara Escarpment Plan or the Parkway Belt West Plan both pieces of legislation shall apply over and above the Greenbelt Plan with the following exceptions:

- **Niagara Escarpment Plan (NEP):** the requirements of the NEP continue to apply and the Protected Countryside policies do not apply with the exception of Section 3.3 of the Greenbelt Plan.
- **Parkway Belt West Plan (PBWP):** the requirements of the PBWP continue to apply to lands within the PBWP area and the Protected Countryside policies do not apply with the exception of Sections 3.2 and 3.3 of the Greenbelt Plan.

When reviewing applications that fall under the jurisdictional authority of the Greenbelt Plan, *Authority* staff must ensure that their recommendations are in conformity with the requirements of that legislation. In the event that a discrepancy exists between the policies within this document and the Greenbelt Plan, the latter shall prevail.

1. 3. 4. 7 Hamilton Harbour Remedial Action Plan

The Hamilton Harbour is one of 42 identified Areas of Concern (*AOC*) within the Great Lakes Basin. *AOCs* are areas where human activity has caused or is likely to cause "impairment of beneficial uses or the area's ability to support aquatic life" (IJC, 1999). Canada and the United States, in cooperation with provincial and state governments, have developed and are implementing Remedial Action Plans (*RAPs*) for each *AOC*. Each *RAP* is intended to provide a systematic and comprehensive ecosystems approach to restoring beneficial uses, and to aid in the elimination of persistent toxic substances. The goal of the Hamilton Harbour *RAP* is to restore and protect beneficial uses to a state where it can be delisted by the year 2015.

While the *HCA* does not have a specific process with which it addresses the *RAP*, all planning applications should be considered for their impact on the Harbour, and decision making should occur such that it supports the goals and objectives of the *RAP* to the greatest extent possible.

1. 3. 4. 8 Lakes and Rivers Improvement Act

In April 2007 Ontario Regulation 160/07 came into effect and replaced Ontario Regulation 454/96 under the Lakes and Rivers Improvement Act (*LRIA*). This updated regulation provided an exemption to eliminate *LRIA* permits in the jurisdiction of Conservation Authorities, with the exception of dam installations. Since the *MNR* believes that impacts of stream crossings, channelization, stream enclosure, and utility crossings on public safety are adequately addressed by the *Authority* under the Conservation Authorities Act, this amendment reduces overlap and duplication of permits being issued by the *MNR* and Conservation Authorities.

The *MNR* will provide *HCA* staff with technical support related to public safety and ecosystem sustainability, and riparian interests when requested and as required, for work that previously required ministry approval.

1. 3. 4. 9 The Niagara Escarpment Planning and Development Act

"The Niagara Escarpment encompasses a variety of topographic features and land uses, extending 725 km from Queenston on the Niagara River to the islands off Tobermory on the Bruce Peninsula. The particular combination of geological and ecological features along the Niagara Escarpment results in a landscape unequalled in Canada" (Niagara Escarpment Plan, 2005).

The purpose of the Niagara Escarpment Planning and Development Act was to establish a planning process "to provide for the maintenance of the Niagara Escarpment and land in its vicinity substantially as a continuous natural environment and to ensure only such development occurs as is compatible with that natural environment" (R.S.O. 1990, c. N.2, s.2).

From this Act emerged the Niagara Escarpment Plan (*NEP*) which serves as a framework of objectives and policies to strike a balance between development, preservation and the enjoyment of the resource.

The Plan delineates the Escarpment and *adjacent lands* into seven land use designations;

- Escarpment Natural Area
- Escarpment Protection Area
- Escarpment Rural Area

- Minor Urban Centre
- Urban Area
- Escarpment Recreation Area
- Mineral Resource Extraction Area

The Plan is intended to act as a resource management document and contains specific direction for land use decisions in each of the area designations. Overall administration of the Plan is the responsibility of the Niagara Escarpment Commission (*NEC*). Members of the *NEC* are appointed by Order-of-Council, and represent the general public and the specific counties and regions that exist within the Escarpment area. The Commission reports to the Government of Ontario through the Ministry of Natural Resources.

The *NEP* takes precedence over all By-laws passed by a municipality that are in force, to the extent of any conflict. The *HCA* works with the *NEC* Georgetown office on matters of *development*.

An amendment to the *NEP* follows a process that is outlined in the Act. Any proposed amendments to the *NEP* must be justified and adequate proof be demonstrated that any impacts do not adversely affect the purpose and objectives of the Act or the Plan. Any amendment must be consistent with the purpose and objectives of the Act, the *NEP* and other relevant provincial policies. *HCA* staff should review relevant *NEP* amendments with regard to the *Authority's* policies and guidelines.

1. 3. 4. 9. 1 NEC Development Permit Applications

The *NEC* will circulate *development* applications to the *HCA* that fall within our jurisdictional boundaries for review and comment. *HCA* staff are requested to respond to these applications within the review period specified on the "Request for Comment" attachment.

Following the decision by the *NEC* on the application, a Notice of Decision will be circulated to the *HCA* indicating the specifics of the decision and the time frame within which appeals may be made.

Municipal or Conservation Authority permits should not be issued for land within the Escarpment area until such time a Development Permit has been issued by the *NEC*. When issued, Conservation Authority permits must be in conformity with *NEC* stipulations.

1. 3. 4. 10 Parkway Belt West Plan

The Parkway Belt West Plan (*PBWP*) was implemented in 1978 for the purpose of creating a multi-purpose utility corridor, urban separator, and linked open space system. The area covered by the *PBWP* is divided into two general land use categories; the Public Use Area, which is reserved for predominantly public uses, and the Complementary Use Area, which is for predominantly private uses that are thought to support the Plan's objectives.

Applications for amendments to the regulations made under the *PBWP* that may affect the *HCA's* area of jurisdiction are circulated to the Conservation Authority. In reviewing the application *HCA* staff should do so with respect to the Hamilton Conservation Authority Planning Policies and Guidelines.

1. 3. 4. 11 Places to Grow Act

The Places to Grow Act (2005) provides the legal framework for the Government of Ontario to designate any geographic region of the Province as a growth area and to develop strategic plans for those areas. In essence, the Act enables the government to plan for population growth, economic expansion and the protection of the environment, agricultural lands and other natural resources in a coordinated manner. Overall responsibility for implementation of the Government's various growth strategies is held with the Ministry of Public Infrastructure. The Greenbelt Act (2005) is complementary legislation to Places to Grow Act (2005).

The Growth Plan for the Greater Golden Horseshoe, approved June 16, 2006, is prepared under the Places to Grow Act (2005). This Growth Plan is the framework for implementing the Government of Ontario's vision for building stronger, prosperous communities by controlling growth until 2031. This Plan addresses issues as they relate to economic prosperity which include transportation, infrastructure planning, land use planning, urban form, housing, natural heritage, and resource protection.

This Growth Plan addresses the challenges of the above issues through policy directions that:

- Direct growth to built-up areas where the capacity exists to best accommodate the expected population and employment growth, while providing strict criteria for settlement area boundary expansions;
- Promote transit-supportive densities and a healthy mix of residential and employment land uses;
- Preserve employment areas for future economic opportunities;
- Identify and support a transportation network that links urban growth centres through an extensive multi-modal system anchored by efficient public transit, together with highways systems for moving people and goods;
- Plan for community infrastructure to support growth;
- Ensure sustainable water and wastewater services are available to support future growth;
- Identify natural systems and prime agricultural areas, and enhance the conservation of these valuable resources; and
- Support the protection and conservation of water, energy, air and cultural heritage, as well as integrated approaches to waste management.

Consideration will be given to this legislation by *HCA* staff when reviewing planning applications.

1. 3. 4. 12 The Planning Act and the Provincial Policy Statement

The Ontario Planning Act, R.S.O. 1990, sets the general ground rules for managing land use decision making within the Province, as well as establishing procedures for local autonomy in the decision making process. Of particular relevance to any agency involved in the planning process is Section 3 of the Act, wherein the ability of the Province to develop and implement detailed policy statements for matters of provincial interest is established.

These policy statements are articulated through the Provincial Policy Statement (*PPS*). Of particular interest to Conservation Authorities are: Policy 2.1 (Natural Heritage), Policy 2.2 (Water), and Policy 3.1 (Natural Hazards). However, it should be noted that a variety of policy threads run throughout the entire *PPS* and potentially contain implications for these areas,

therefore these sections should not be read in isolation of the remainder of the document (Appendix F).

In the early 1990s the Province began to download plan review responsibilities to municipal governments, shifting from their previous role as administrator of planning affairs to that of an auditor. By the mid 1990s the Province, through the Ministry of Municipal Affairs and Housing (*MMAH*), had entered into Memorandums of Understanding (MOUs) with municipalities to delegate this responsibility officially.

Although this delegation provided municipal governments with a greater level of authority than they had previously had, it also raised a number of challenges, particularly in the areas of environmental reviews and technical clearances, where they tended to have little expertise. Because environmental reviews commonly address issues of natural heritage, natural hazards, water quality and quantity, and groundwater recharge/discharge areas, it was a natural step to look to the Conservation Authorities to provide their expertise in these areas. Where Conservation Authorities exist, municipalities will generally use them as the environmental expert for planning matters. In many cases, these relationships have been formalized through the creation of MOUs between municipal governments and their local Conservation Authorities, as had been the case with the *HCA* and the City of Hamilton (Appendix G).

As a result of the *MOU*, the City of Hamilton circulates any *development* proposals to the *HCA* concerning:

- Official Plans
- Official Plan Amendments
- Zoning By-laws and Amendments
- Minor Variances
- Consents (severances)
- Subdivisions
- Condominiums
- Site Plans

1. 3. 4. 13 The Public Lands Act

The Ontario Public Lands Act works to ensure the wise management of public lands and forests as well as the sale and disposition of those lands. Permission from the Ministry of Natural Resources is required for specific activities and works on public lands and shore lands.

'Public lands' means any lands under the control and management of the Ministry of Natural Resources, referred to as 'Crown Lands', including the beds of most lakes and rivers in Ontario.

'Shore lands' means lands covered or seasonally inundated by the water of a lake, river, stream or pond and may include either patented (i.e. private) or public lands.

A work permit process is used to provide for effective stewardship of public lands and to ensure that specific activities undertaken on shore lands have regard for the environment, other users and neighbouring landowners. A work permit is required for the following matters:

- Fill shore lands such as creating a beach and constructing shoreline protection works (i.e. breakwall, seawall);
- Construct a dock or boathouse where the total surface area of the supporting structure exceeds 15 square metres;

- Construct a building on pubic lands;
- Construct a water crossing (i.e. bridge, culvert, causeway) on public land, except where authorized under the Crown Forest Sustainability Act;
- Remove aquatic vegetation;
- Dredge shore lands such as:
    - Creating a boat slip, boating channel or swimming area;
    - Installing a water line, heat loop or cable for commercial use (i.e. marina);
    - Removal of rocks/boulders from shore lands or the bottom of a lake or stream.

This list is not all inclusive and more detailed information on permitted activities and exemptions is provided at www.mnr.gov.on.ca.

In the Hamilton area, work permits under The Public Lands Act are often required for shoreline protection works or dredging along the Lake Ontario shoreline in Stoney Creek and the Hamilton Beach Area. *HCA* staff work very closely with the Vineland office of the Ministry of Natural Resources to ensure that the requirements of The Public Lands Act and The Conservation Authorities Act are met and the wise management of the affected natural resources is achieved.

1. 3. 4. 14 Species At Risk Act

The Species at Risk Act (*SARA*), effective June 2002, is one of three major components in the Government of Canada Strategy for the Protection of Species at Risk. The other two components are the Habitat Stewardship Program and the Accord for the Protection of Species at Risk endorsed by the provinces, territories and the Government of Canada. *SARA* is designed as a key tool for the conservation and protection of Canada's biological diversity and fulfils an important commitment under the United Nations Convention on Biological Diversity. Currently, there are over 300 wild plant and animal species protected under the Act.

The purpose of *SARA* is to: prevent wildlife species from becoming extinct or extirpated (lost from the wild in Canada); help in the recovery of extirpated, *endangered* or *threatened species*; and ensure that species of special concern do not become *endangered* or *threatened*.

The Committee on the Status of Endangered Wildlife in Canada (*COSEWIC*), an independent group of experts, assesses the status of wildlife species and recommends a classification for their legal protection. *COSEWIC's* assessment process is based on a rigorous criteria system that not only recognizes scientific sources but also places a significant emphasis on information from the people who live on the land and have an intimate familiarity with the animals and plants around them. *COSEWIC* is not part of the federal government, but rather offers the government independent advice based on the best available biological information, including scientific knowledge, community knowledge and Aboriginal traditional knowledge.

After receiving a recommendation from *COSEWIC*, the government consults with concerned ministers, relevant wildlife management boards and the public to consider many factors, including possible social and economic implications of listing the species. The government then decides whether to add the species to the List of Wildlife Species at Risk (Schedule 1 in the Act). Once a species is listed, the provisions under *SARA* apply to protect and recover the species. The List will continually evolve as species are added or removed or their status changes.

SARA contains prohibitions against the killing, harming, harassing, capturing, taking, possessing, collecting, buying, selling or trading of individuals of *endangered*, *threatened* and extirpated

species listed in Schedule 1 of the Act. The Act also contains a prohibition against the damage or destruction of their residences (e.g. nest or den). Additionally, the habitat necessary for the survival or recovery of an *endangered*, *threatened* or extirpated species (*critical habitat*), is intended to be protected through voluntary or stewardship actions, however if this cannot be achieved then the prohibitions against the destruction of that particular *critical habitat* may be applied.

If an environmental assessment of a project is conducted under federal legislation such as the Canadian Environmental Assessment Act, *SARA* requires that you notify the minister or ministers in writing if the project is likely to affect a species listed in Schedule 1 or its *critical habitat*. *SARA* also requires, among other things, that the adverse effects of your project are identified for all species listed in Schedule 1 or their *critical habitat*. In addition, if the project is carried out, you must ensure that measures are taken to avoid or lessen the effects on the listed species and its *critical habitat* and to monitor the effects. The measures must be taken in a way that is consistent with applicable recovery strategies and action plans.

HCA staff work in collaboration with various departments under the Federal Government, and private landowners, to pre-screen *development* proposals for presence/absence of listed species or their habitats as part of our planning and regulation application review process. Consideration will be given to this legislation by *HCA* staff when reviewing planning and regulation applications.

1. 4 Watershed Planning Approach

The Ontario Ministry of Natural Resources (*MNR*) best describes the *watershed* planning approach in the River and Stream Systems: Erosion Hazard Limit Technical Guide found in Adaptive Management of Stream Corridors of Ontario (*MNR* & Watershed Science Centre, 2001).

> The incorporation of *watershed* ecosystem concepts, *natural heritage features*, and natural hazards within the Planning Act establishes a rationale for the Conservation Authority and local municipalities to abandon traditional single purpose management schemes. There is a broad range of economic and environmental benefits associated with natural stream and valley systems. Healthy natural stream systems provide recreational and fishing opportunities, clean drinking water, places to walk along, cycle next to, swim in, or paddle a canoe on. They also provide habitat for numerous species of terrestrial and aquatic animals. When a stream is allowed to take its natural course and *development* is regulated by appropriate setbacks, loss of life and property damage from flooding and erosion are minimized. Healthy natural streams require almost none of the continuous engineering that is required by hard-lined systems and thereby negate the need for costly repair and maintenance. These features of stream systems can be effectively planned for through the *watershed* management planning process.
>
> A *watershed* management plan is a planning document developed co-operatively by government agencies and stakeholders to manage the water, land/water interactions, aquatic life, and aquatic resources within a particular *watershed*. The goal of a *watershed* management plan is to protect the health of the ecosystem. They allow communities to integrate municipal land use planning functions with the planning and management of water resources. *Watershed* planning and stream or river management are intrinsically linked. The stream plays an important role in linking the processes that dictate how a *watershed* functions and the resulting physical characteristics. Similarly, the land use activities and environmental processes taking place on the lands that drain into a stream control the characteristics and processes within a stream system.
>
> A comprehensive *watershed* management strategy must consider the role of the receiving stream in the *watershed* from both a hydrologic and biologic standpoint. Efforts to manage or rehabilitate streams also cannot be carried out in isolation from the *watersheds* that they drain. Consideration must be given to the linkages that exist, inherent dynamics of the system, and the changing conditions in a *watershed* over time.
>
> The *watershed* plan is a higher-order planning document, endorsed by the *watershed* member municipalities and stakeholders within *watershed* communities. *Watercourse* management and the protection or restoration of stream systems must occur on a *watershed* or sub-*watershed* basis. *Watershed* planning represents a significant step along the path towards achieving a fully functional ecosystem approach. For those managing and designing natural stream systems, *watershed* and sub-*watershed* plans provide overall guidance and direction.

Direction provided by *watershed* and sub-*watershed* plans may include, but is not limited to:

- The provision for conveyance and storage of water and sediment,

- The provision for flood flow attenuation within the *flood plain*,
- The provision for public safety from natural hazards,
- The provision for bank stability,
- The protection, maintenance, or enhancement of aquatic & terrestrial habitat,
- The maintenance and improvement of water quality, and
- The provision for source water protection activities.

There are many disciplines that must be considered when managing a *watershed*. The Hamilton Conservation Authority considers the net benefit of the *watershed* when making decisions on planning or permit applications. Figure 2 indicates the interdisciplinary links that the *Authority* consults when using a *watershed* approach to planning.

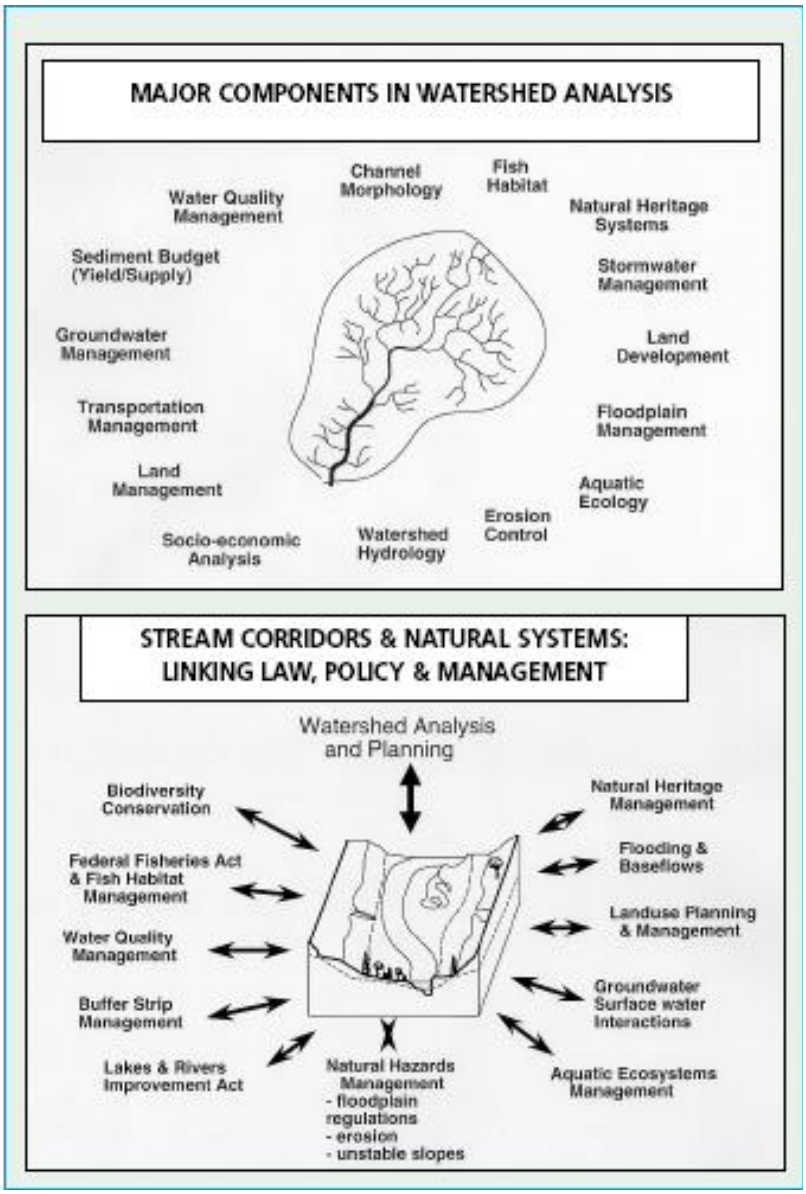

Figure 2: Interdisciplinary Links in Watershed Planning
(*courtesy of MNR & Watershed Science Centre, 2001)*

1. 5 HCA Program Objectives

The mandate of Ontario's Conservation Authorities is based on resource management at the *watershed* level and to create and implement programs that work to conserve, restore and responsibly manage Ontario's water, land, and natural habitats.

The broad objectives of Ontario's Conservation Authorities are:

- To ensure that Ontario's rivers, lakes and streams are properly safeguarded, managed, and restored;
- To protect, manage, and restore Ontario's *woodlands*, *wetlands*, and natural habitat;
- To develop and maintain programs that will protect human life and property from natural hazards such as flooding and erosion; and
- To provide opportunities for the public to enjoy, learn from and respect Ontario's natural environment.

The basis of the Hamilton Conservation Authority's mandate is focused on resource management at the *watershed* level. It has long been recognized that due to the interconnectivity of water systems, what happens in one part of the *watershed* will affect another. Since creeks and streams pay little attention to political boundaries, attempts to manage our water systems successfully will be most profitable at the *watershed* level.

Through the broad objectives listed above, the Hamilton Conservation Authority envisions the following returns:

- Safe streams, without the threat of floods;
- Environmentally-healthy streams;
- The full protection of all significant natural areas;
- Public ownership of large tracts of open space with connecting corridors;
- Healthy recreational use of publicly-owned lands;
- A second-to-none, multi-use trail network;
- "Greener" urban cores; and
- Environmentally informed and committed citizens - young and old.

These planning policies and guidelines are intended to provide detailed direction on how to best address *development* proposals so that they meet these objectives and to provide a basis from which the Conservation Authority can offer clear and consistent responses to *development* applications. Therefore, in the course of discharging their duties, *Authority* staff should be aware of and consider these objectives in all matters.

1. 6 Development Applications and the Review Process

The Hamilton Conservation Authority (*HCA*) has been delegated responsibility to review municipal policy documents and applications under the Planning Act to ensure that they are consistent with the natural hazards policies Section 3.1 of the Provincial Policy Statement, 2005 (*PPS*). The *HCA* has not been delegated responsibilities to represent or define other provincial interests on behalf of the Province under the Planning Act, the *PPS*, or other provincial legislation (e.g. Endangered Species Act, 2007) or provincial plans (e.g. Greenbelt Plan, etc.).

Under the *CO, MNR & MMAH MOU* on *CA* Delegated Responsibilities, the *HCA* has a commenting role in approval of new or amended '*Special Policy Areas*' for *flood plains* under Section 3.1.3 of the *PPS*, where such designations are feasible. *Special Policy Areas* (*SPAs*) are areas within *flood plain* boundaries of a *watercourse* where exceptions to the *development* restrictions of the natural hazards policy (3.1) in the *PPS*, may be permitted in accordance with technical criteria established by the *MNR*.

The *HCA* provides supportive background and technical data regarding existing and proposed SPAs. New SPAs and any proposed changes or deletions to existing boundaries and/or policies are approved by both the Ministers of Natural Resources and Municipal Affairs and Housing, with advice from *HCA*, prior to being designated by a municipality or planning approval authority.

The *HCA* is considered a public commenting body pursuant to Section 1 of the Planning Act and regulations made under the Planning Act. As such, The *HCA* must be notified of municipal policy documents and applications within its jurisdiction as prescribed. To streamline this process, the *HCA* has screening protocols with its *watershed* municipalities, normally through service agreements, which identifies those applications that the *HCA* should review.

In addition to the *HCA's* legislative requirements and mandated responsibilities under the CA Act, Section 28 Regulations as regulatory authorities, and Section 3.1 of the *PPS* as delegated plan reviewers for provincial interest, the *HCA's* role as a *watershed*-based, resource management agency also allows the *HCA* to review municipal policies, planning documents and applications pursuant to the Planning Act as a 'public commenting body' as outlined in the *CO, MNR & MMAH MOU* on *CA* Delegated Responsibilities (Appendix A).

In some cases, provincial plan (e.g. Greenbelt Plan; Niagara Escarpment Plan) requirements may exceed *HCA* regulatory requirements and such greater requirements take precedence. For example, the provincial plans may have greater requirements for vegetation *buffers* or more restrictions on the uses permitted than *HCA* regulatory requirements.

A typical requirement of the legislation for those plans is that comments, submissions, or advice provided by the *HCA*, that affect a planning matter within those areas, shall conform to the provincial plan. Similarly, where there are regulations (including CA Act Section 28 and the Fisheries Act) that are more restrictive than those contained in these provincial plans, the more restrictive provisions prevail.

The "principle of development" is established through Planning Act approval processes, whereas the CA Act permitting process provides for technical implementation of matters pursuant to

Section 28 of the CA Act. The scope of matters that are subject to CA Act S. 28 regulations is limited to the activities in areas set out under Section 28(1) and Section 28(5) of the CA Act.

HCA staff should ensure that concerns they may have regarding the establishment of the "principle of development" are conveyed to the municipality/planning approval authority during the preparation of a municipal Official Plan, secondary plan or Official Plan amendment, or during the Planning Act approvals process and not through the CA Act S. 28 permitting process.

An established "principle of development" does not preclude the ability of the *HCA* (or *MMAH* as per the *MOU*) to appeal a planning matter to the Ontario Municipal Board (*OMB*) (e.g., based on newer technical information relevant to the *PPS*). It is recognized that there may be historic planning approval decisions that were made in the absence of current technical information which could now preclude *development* under the CA Act regulations. Where possible, if an issue remains unresolved, the *HCA* will work with the proponent and the municipality to pursue a resolution.

The *HCA* may provide a number of other programs and services (extension services, community relations, information, education services and permissions under other legislation) that may or may not be linked to applications made pursuant to the Planning Act or CA Act S. 28 regulation permissions. These programs and services are not governed by this chapter.

1. 6. 1 Policies and Procedures for Municipal Plan Review by Conservation Authorities

Authority staff utilize the following policies and procedures for municipal plan review.

1. 6. 1. 1 'Provincial Interest' Memorandum of Understanding of CA Delegated Responsibilities

Through the Minister's delegation letter and under the *MOU* signed in 2001 (Appendix A), *CO*, *MNR* and *MMAH* agreed to support the provisions of the *MOU* as an appropriate statement of the roles and responsibilities of the relevant Ministries and *CAs* in the implementation of the *PPS* and now continued in the *PPS*, 2005.

Pursuant to the delegation letter and the *MOU*, *CAs* have been delegated the responsibility to review municipal policy documents and planning and *development* applications submitted pursuant to the Planning Act to ensure that they are consistent with the natural hazards policies found in Section 3.1 of the *PPS*. These delegations do not extend to other portions of the *PPS*, unless specifically delegated or assigned in writing by the Province.

Note: At the time of signing, the 2001 *CO, MNR & MMAH MOU* stipulates that plan review was to determine whether application had "regard to" Section 3.1 of the PPS, 1997, while the amendment made to the Planning Act 3 (5) and 3 (6) by the Strong Communities (Planning Amendment) Act (Bill 51) and described in S. 4.2 of the *PPS*, 2005 changes this wording, "to be consistent with" the policies outlined in the *PPS*, 2005.

The *PPS* provides for appropriate *development* while protecting resources of provincial interest, public health and safety, and the quality of the natural environment. The policies of the *PPS* may be complemented by provincial plans or by locally-generated policies regarding matters of municipal interest. Provincial plans and municipal Official Plans provide a framework for

comprehensive, integrated and long-term planning that supports and integrates the principles of strong communities, a clean and healthy environment and economic growth, for the long term.

The *HCA* will collaborate with *watershed* municipalities to recommend policies and provisions for inclusion into Official Plan policies for complete planning application requirements so that information or studies needed by the *HCA* for reviewing Planning Act applications from the delegated responsibility for natural hazards policies found in Section 3.1 of the *PPS* is addressed early in the process.

The *HCA* should ensure that all concerns relevant to its delegated responsibilities for natural hazards are made available to *watershed* municipalities and planning approval authorities under the Planning Act during the application review process.

In participating in the review of *development* applications under the Planning Act, the *HCA* should at the earliest opportunity:

i. Ensure that the applicant and municipal planning authority are also aware of the Section 28 regulations and requirements under the CA Act; and

ii. Assist in the coordination of applications under the Planning Act and the CA Act to eliminate unnecessary delay or duplication in the process.

The *HCA* will confer with *watershed* municipalities to recommend policies and provisions for potential inclusion into Official Plans and comprehensive zoning by-laws that may be complementary to *HCA* Board-approved policies as resource management agencies and other planning responsibilities as outlined in Section 1.0 to ensure that municipal land use decisions may address them.

Recognizing that there is no requirement for *watershed* municipalities to invite the *HCA* to pre-consultation meetings, the *HCA* will contact municipalities, where appropriate, to ensure that the *Authority* is involved in pre-consultation and attend associated meetings on Planning Act applications, especially where such applications may trigger a related permit application under the CA Act S. 28. Technical service agreements between *watershed* municipalities and the *HCA* may formalize arrangements for *CA* involvement in pre-consultation. As coordinated by the municipality or planning approval authority, depending on the scope of the project, pre-consultation could include staff from the following parties: the *HCA*, the municipality (for example, planning and engineering staff), the applicant, consultants, the developer (owner) and may be supplemented by staff from provincial ministries, Parks Canada and any other government agencies.

If involved in providing a technical advisory role, *CAs* and municipalities should establish formal technical service agreements. *CAs* should ensure that the service agreement with a municipality addresses obligations of the *CA* to participate in pre-consultation and other meetings; how the *CA* may participate in *OMB* hearings or other tribunals; how the parties or participants may be represented at hearings for the purpose of legal representation; and limits on the *CA's* ability to represent the municipality's interests. Service agreements or contracts should specify that regular reviews by the parties of the agreement or contract are required and should be publicly accessible (e.g. posted on the respective *CA* and municipal websites). Refer to Appendix G.

The *HCA* will operate in accordance with the provisions of the *CO, MNR & MMAH MOU* when undertaking its role in plan review. This will include informing a municipality as to which of its

comments or inputs, if any, pertain to the *HCA's* delegated responsibilities for the provincial interest on natural hazards and which set of comments are provided on an advisory basis or through another type of authority (e.g. as a 'resource management agency' or as a 'service provider' to another agency or the municipality).

MNR has natural heritage responsibilities under the *PPS* and some provincial plans for the delineation and technical support in the identification of *natural heritage systems*, the identification or approval of certain *natural heritage features* as *significant* or key features, and the identification of criteria related to these features.

As part of the *HCA* commenting or technical advisory function, the *HCA* will identify *natural heritage features* and systems through the initial plan review process. *HCA* developed *natural heritage systems* are advisory unless corresponding designations and policies are incorporated into the municipal Official Plan (i.e., municipality has the decision-making authority under the Planning Act). Where service agreements are in place with participating municipalities, *CAs* are encouraged to collaborate with local *MNR* District offices to ensure the appropriate and best available information on natural heritage is provided to a municipality. *MNR* is responsible for notifying municipalities and the *HCA* when there is new information about a feature for which *MNR* has responsibilities; for example, a *wetland* is evaluated and approved as a provincially *significant wetland* (*PSW*), so that advice can be given and decisions made accordingly.

Where provincial plans and associated guidance materials apply, *HCA* comments shall reflect the policy direction contained in these provincial plans or guidance materials as these pertain to matters relating to *natural heritage systems* and features, including:

1. Definitions of "*significant*" features;
2. Minimum setbacks for these defined features;
3. Outlining a process for determining whether the minimum setbacks are adequate and if not, recommend appropriate setbacks;
4. Specifying permitted uses, setbacks and policies within identified *significant* features;
5. Delineation of *natural heritage systems*;
6. The *HCA* may provide input, as a public commenting body or 'resource management agency', on matters of local or regional interest within their *watershed* with respect to natural heritage with participating municipalities and liaise with the *MNR* regarding natural heritage interests including and beyond those covered by 2.9 (those of "provincial interest") to promote sharing of the most up-to-date natural heritage information and to promote coordinated planning approaches for these interests.

1. 6. 2 Official Plans and Official Plan Amendments

Municipalities maintain their Official Plans (*OP*) to provide general direction for the *development* of their land base and to meet the needs of their population. On occasion the *OP* will require that amendments are made to it or that the entire Plan be rewritten in order to address those amendments and any major changes that have occurred over the course of the existing *OP*.

Under the Planning Act, Municipal Councils must provide agencies that are considered to have an interest in the *OP* adequate information and opportunity to submit comments to any proposed changes. In reviewing such proposals, *HCA* staff should ensure that the *Authority's* policies are reflected in reviews of proposed land use plans and that in all responses to the municipality the

Conservation Authority's position and concerns are clearly stated. Wherever appropriate, recommendations should be made that municipal documents reference identified hazards in accordance with section 3.1 of the Provincial Policy Statement.

1. 6. 3 Zoning By-laws/Amendments

Zoning By-laws put Official Plans into effect through the control of land uses in the municipality. This occurs by detailing exactly how land may be used, where *buildings* and other structures can be located, the types of *buildings* that may be erected and their permitted uses, and lot sizes and dimensions, parking requirements, *building* heights and setbacks.

1. 6. 4 Minor Variances

In instances where only minor changes are required to the zoning provisions that exist on a property (e.g. a small reduction in a yard setback for a structure) a landowner may apply for relief on a site-specific basis. Applications of this nature are minor variances. Every municipality has an appointed Committee of Adjustment who is responsible for reviewing and making decisions on minor variance applications.

The review of minor variance applications provides Conservation Authority staff with the opportunity to monitor and comment on *development* activities in the *flood plain*; as such applications will often pertain to minor structural expansions or the construction of *accessory structures* in the *flood plain*.

Conditions of approval relating to permit requirements as they are outlined by *HCA* Regulation 161/06 under Ontario Regulation 97/04 may be requested by *HCA* staff. Staff should be prepared to attend Committee of Adjustment meetings in order to support *Authority* recommendations. If the Conservation Authority has no objections or concerns with regard to the application this should be clearly indicated in the response.

1. 6. 5 Consents (Severances)

A consent, or severance, is the authorized separation of a piece of land to form two new adjoining properties. If several severances are intended for the same property, the consent granting authority may decide that a plan of subdivision is necessary.

Severance applications should be reviewed with respect to the policies contained within this document and the Development, Interference with Wetlands and Alterations to Shorelines and Watercourses Regulation. Generally speaking the *HCA* will not support the creation of new lots within the *flood plain*.

1. 6. 6 Subdivision and Condominium Plans

When a piece of land is divided into three or more parcels, a plan of subdivision may be required. Plans of subdivision will normally have conditions of approval attached to them by various consent granting authorities (e.g. Conservation Authorities, Commissions, and/or municipalities). A condominium is a form of subdivision in which the title to a unit is held by an individual with a share in the rest of the property that is common to all of the owners. The process for condominium plan approval resembles that required for plans of subdivision. The approval

authorities for plans of subdivision will circulate the proposals to the *HCA* for comment in order that matters concerning land conservation and resource management may be addressed.

Conservation Authority concerns are to be addressed on a site-specific basis and should be reflective of the natural features of the area in question. Concerns regarding the management of *flood plains* and natural hazard lands should be reviewed by *HCA* engineering staff, and those pertaining to *wildlife habitat*, *Environmentally Significant Areas* or other *natural heritage features and areas*, by *HCA* staff ecologists.

If the *Authority* has concerns regarding the proposal they may either:

- Propose revisions to the existing plan; or
- Suggest that the Plan is premature as further studies are required; or
- Clearly indicate that the *Authority* is unable to support the Plan due to its lack of conformity with *PPS* policies.

1. 6. 7 Site Plan Controls

Site plans detail the specifics of the *development* proposed for a parcel of land. The conditions set out in a site plan are applied over and above those detailed in zoning By-laws. Generally speaking, site plan controls are used to ensure that: *developments* are built and maintained in a manner that has been agreed on by the approval granting body, proposed *developments* meet certain standards of quality and appearance, there is safe and easy access for pedestrians and vehicles, there is adequate parking, landscaping and drainage, and that nearby properties are protected from incompatible *development*.

1. 6. 8 Conservation Authorities Act Section 28 Permitting

Pursuant to Section 28 of the CA Act, under Ontario Regulation 97/04 "Content of Conservation Authority Regulations under Subsection 28 (1) of the Act: "Development, Interference with Wetlands, and Alterations to Shorelines and Watercourses" (Content Regulation), each *CA* has developed individual regulations approved by the Minister that identify and regulate certain activities in and adjacent to *watercourses* (including *valleylands*), *wetlands*, shorelines of inland lakes and *hazardous lands*. In general, permissions (permits) may be granted where, in the opinion of the *CA*, the control of flooding, erosion, dynamic beaches, *pollution* or the *conservation of land* is not impacted.

An application for a CA Act S. 28 permission (permit) is made, usually by the landowner or an agent on behalf of a landowner or an infrastructure manager and owner such as a Municipal Corporation. Information required to support an application is outlined in the Appendices section of the document.

1. 6. 8. 1 Pre-consultation on Permission (Permit) Applications

Pre-consultation is encouraged to provide clarity and direction, to facilitate receipt of complete applications and to streamline the permit application review and decision making process. To meet these objectives, depending on the scale and scope of the project, pre-consultation may include staff from the following parties: *HCA*, the municipality (for example, planning and engineering staff), the applicant, consultants, the developer and owner, and may be supplemented by staff from provincial ministries, Parks Canada and any other appropriate government agencies; and may occur concurrently with Planning Act pre-consultation.

The *HCA* may request pre-consultation, prior to the submission of a permission (permit) application, to provide an opportunity for the *HCA* and applicants to determine complete application requirements for specific projects. Applicants are encouraged to engage in pre-consultation with the *HCA* prior to submitting an application.

Applicants may request that the *HCA* undertake pre-consultation, prior to the submission of a permit application, to provide an opportunity for the *HCA* and applicants to determine complete permit application requirements for specific projects. The *HCA* will engage in pre-consultation in a timely manner so as not to delay the proponent's ability to submit an application.

In order to determine complete application requirements, applicants should submit in writing adequate information for pre-consultation, such as property information (lot number, concession number, township, etc.), a concept plan of the proposed *development* which shows the property limit, and a description of what is being proposed (i.e. what is being planned and when the work will take place).

The *HCA* will identify and confirm complete application requirements for specific projects, in writing within 21 days of the pre-consultation meeting. However, substantial changes to a proposal or a site visit after pre-consultation may warrant further pre-consultation and/or necessitate changes to the complete application requirements.

1. 6. 8. 2 Complete Permission (Permit) Application

The *HCA* will notify applicants, in writing within 21 days of the receipt of a permit application, as to whether or not the application has been deemed complete.

If a permit application is deemed incomplete, the *HCA* will provide the applicant with a written list of missing and needed information when notifying the applicant that the application has been deemed incomplete.

If not satisfied with the decision on whether an application is deemed complete, the applicant can request an administrative review by the *HCA* Chief Administrative Officer (CAO). This review will be limited to a complete application policy review and will not include review of the technical merits of the application.

During the review of a 'complete application', the *HCA* may request additional information if the *Authority* deems a permit application does not contain sufficient technical analysis. Delays in timelines for decision making may occur due to *HCA* requests for additional information to address errors or gaps in information submitted for review. Thus, an application can be put "on hold" or returned to the applicant pending the receipt of further information. If necessary, this could be confirmed between both parties as an "Agreement to Defer Decision".

1. 6. 8. 3 Decision Timelines for Permissions (Permits)

From the date of written confirmation of a complete application, the *HCA* will make a decision (i.e. recommendation to approve or refer to a Hearing) with respect to a permit application and pursuant to the CA Act within 30 days for a minor application and 90 days for a major application.

Major applications may include those that:

1. Are highly complex, requiring full technical review, and need to be supported by comprehensive analysis
2. Do not conform to *HCA's* existing Planning & Regulation Policies and Guidelines document, including any amendments, updates, or revisions thereto.

If a decision has not been rendered by the *HCA* within the appropriate timeframe (i.e. 30 days for minor applications and 90 days for major applications) the applicant can submit a request for administrative review by the CAO.

Subsequent to receipt of a complete application, delays in timelines for decision making on a permit application may occur due to *HCA* requests for additional information to address errors or gaps in technical information submitted for review. Through an "Agreement to Defer Decision" between the applicant and the *HCA*, applications can be put "on hold" or returned to the applicant pending the receipt of further information to avoid premature refusals of permissions (permits) due to inadequate information.

1. 6. 8. 4 Hearings and Appeals

If the decision is "referred to a Hearing of the Authority Board" the *MNR*/*CO* Hearing Guidelines will be followed (see Appendix O).

As per the guidelines and subsections 28 (12), 28 (13), 28 (14) and 28 (15) of the CA Act and in summary:

After holding a hearing, the *HCA* shall: refuse the permission; grant the permission with conditions; or, grant the permission without conditions. If the *HCA* refuses permission or grants permission subject to conditions, the *HCA*, shall give the person who requested permission written reasons for the decision.

A person who has been refused permission or who objects to conditions imposed on a permission may, within 30 days of receiving the written reasons appeal in writing to the Minister of Natural Resources.

The Office of the Mining and Lands Commissioner (OMLC) has been delegated the authority, duties and powers of the Minister of Natural Resources under the Ministry of Natural Resources Act O. Reg. 571/00 to hear appeals from the decisions of *CAs* made under CA Act S. 28 regarding a refusal to grant permission (permit) or with respect to conditions imposed on a permission (permit) granted by the *HCA*. The Mining and Lands Commissioner (MLC) may: refuse the permission; or, grant the permission, with or without conditions.

If the applicant does not agree with the MLC decision, under the Mining Act an appeal can then be made to the Divisional Court, a Branch of the Superior Court of Justice.

1. 6. 8. 5 Expiry of Permission (Permit)

By regulation, a permit shall not be extended. The maximum period of validity of a permit is generally 24 months. If the works covered by the application are not completed within the legislated timeframe, the applicant must re-apply and delays in approval may result. Typically, the policies in place at the time of the re-application will apply.

2 Natural Hazards

Within the jurisdiction of the Hamilton Conservation Authority (*HCA*) there are three major natural hazards that are regulated pursuant to the *HCA* Regulation 161/06 under Ontario Regulation 97/04 (Development, Interference with Wetlands and Alterations to Shorelines and Watercourses Regulation). *River and stream systems*, shorelines, and *hazardous sites* are of public interest and can pose a risk to property and human safety by causing flooding, slope failure, and unexpected collapsing of the land. The following sections outline policies and guidelines for regulating *development* and *site alteration* and for providing planning advice to our municipalities within the limit of these *hazardous lands*.

When reviewing *development* proposals within these *hazardous lands*, *Authority* staff will refer to the River and Stream Systems: Flooding Hazard Limit Technical Guide found in Adaptive Management of Stream Corridors in Ontario (*MNR* & Watershed Science Centre, 2001), and any amendments, updates, or revisions thereto. Where a discrepancy exists between this policy document and the *MNR* Technical Guides, the latter document will prevail. Each *development* proposal should utilize *Best Management Practices* (*BMPs*) and should provide all opportunities for protection and rehabilitation of natural features and their *ecological functions*.

The policies and guidelines contained within this document should not be read in isolation of one another. Rather, they should be read concurrently and in their entirety and the appropriate range of policies and guidelines should be applied to each situation. In the case where more than one policy applies to a situation, the more restrictive policy will apply.

2. 1 River and Stream Systems

Flooding and *erosion hazards* put people at risk, can cause extensive damages to property and infrastructure, and cause social and economic disruption to the communities that are affected. *River and stream systems* can be affected by severe flooding events or *valley slope* failures along shorelines.

Over the years there have been thousands of flood events in Ontario with varying impacts on lands, property, and human populations. By managing flood prone lands proactively, in conjunction with appropriate protective and emergency response measures, it is possible to mitigate many of the damaging effects of river and stream flooding.

The Provincial Policy Statement recognizes unacceptable risks associated with such events, and has required municipalities to address hazard lands (which include *valleyland* systems and flood and erosion prone lands along riverine systems) in their Official Plan (*OP*) processes. Much of the responsibility for such areas has subsequently been delegated to the Conservation Authorities, who have the required technical and professional expertise for managing such lands.

Development within the Regulation limit of the *Authority's* jurisdiction is governed by the Development, Interference with Wetlands and Alterations to Shorelines and Watercourses Regulation (*HCA* Regulation 161/06 under Ontario Regulation 97/04).

The hazard limit of *river and stream systems* is delineated by the Ontario Ministry of Natural Resources (*MNR*) standards and criteria and consists of both *flooding hazards* and *erosion hazards* along the shoreline. These standards and criteria are provided in Appendix C.

2. 1. 1 Flooding Hazard Limit

The Hamilton Conservation Authority manages *flood plain* lands at the *Regulatory Flood* level of the Regional Storm (*Hurricane Hazel*) with the exception of those numbered *watercourses* in the Stoney Creek area that have undergone a criteria reduction in the *Regulatory Flood* level to the *100 year flood* event and the *Special Policy Areas* (*SPAs*) in Dundas. The Conservation Authority manages these lands as one zone areas with the exception of the Dundas *SPAs*, which utilize the *floodway* and *flood fringe* management approach, and are treated as two zone areas.

As they currently exist, the Dundas *SPAs* were created in 1999 as the result of an Official Plan amendment, which amalgamated and officially designated a wider range of *SPAs*. There are now four officially recognized *SPAs* within the former municipality of Dundas, which are regulated through a set of policies separate from those used for the Hamilton Conservation Authority's one zone areas. The policies for the former Town of Dundas *SPAs* are provided in Section 2.1.1.4.1 within this document.

2. 1. 1. 1 Permitted Uses in the Flood Plain

- Agriculture or open space/recreational uses that do not require permanent, closed structures or any major alteration of the landscape;
- Flood, erosion and sediment control structures;
- Gardens, nurseries and *open arboretums*;
- Other non-structural uses such as forestry and wildlife management;
- *Replacement structures* or minor *additions* to existing structures;
- Municipal infrastructure such as water treatment facilities/wastewater discharge/water intakes, pumping stations, etc. that must be located in the *flood plain* as determined through the Class *EA* process; and
- Any other relevant or appropriate use and/or *development* as deemed satisfactory by the *Authority*.

2. 1. 1. 2 Prohibited Uses in the Flood Plain

- Institutional uses associated with hospitals, nursing homes, pre-school, school nurseries, day care and schools, where there is a threat to the safe evacuation of the sick, the elderly, persons with disabilities or the young during an emergency as a result of flooding, failure of *floodproofing* measures or protection works, or erosion;
- An essential emergency service such as that provided by fire, police and ambulance stations and electrical substations, which would be impaired during an emergency as a result of flooding, the failure of *floodproofing* measures and/or protection works, and/or erosion;
- Uses associated with the disposal, manufacture, treatment or storage of *hazardous substances*; and
- Any other use and/or *development* as deemed unsatisfactory by the *Authority*.

2. 1. 1. 3 One Zone Areas

One zone areas are those where the Conservation Authority prohibits all *development* or *site alteration* within the boundaries of the *Regulatory Flood* level. This is the most effective way of minimizing threats to public health or safety or property damage. The *one zone concept* is the preferred approach for the management of *flooding hazards* within *river and stream systems* as it provides the most cost-effective means of minimizing potential threats to life and risks of property damage and social disruption. Where the *one zone concept* is applied, the entire *flood plain* or the entire *flooding hazard* limit defines the *floodway* (Figure 3).

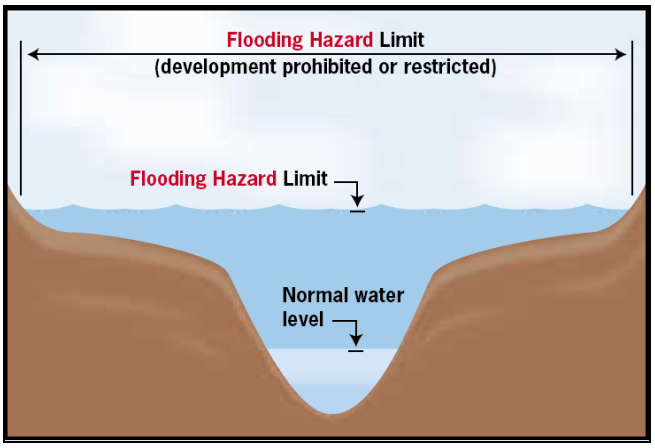

Figure 3: Flooding Hazard Limit for One Zone Concept

2. 1. 1. 3. 1 Development

Any *development* and/or *site alteration* within the jurisdiction of the *Authority* and within the *flooding hazard* limit for one zone areas must be in accordance with the following policies and guidelines and must be to the satisfaction of the *Authority*.

a. With the exception of those uses outlined in Section 2.1.1.1, and under the provisions of these *development* policies and sub-policies, *development* within the *flood plain* will be prohibited in all one zone areas.

b. In spill areas, *development* may be permitted in areas where flooding depths are less than or equal to 0.3 m and/or flooding velocities are less than or equal to 0.3 m/sec. Supporting calculations to assess onsite and offsite flood elevation impacts may be required. Only *developments* with no net impacts on flood elevations will be considered. *Dry floodproofing* measures with a 0.3 m freeboard above the *Regulatory Flood* elevations will be required.

c. Interior renovations to any *building* or structure that do not alter the use or potential use, do not increase the size, and do not increase the number of *dwelling units* of that *building* or structure will only require a letter of permission from the *Authority* pursuant to *HCA* Regulation 161/06 under Ontario Regulation 97/04.

d. *Development* and/or *site alteration* that is within the Regulation limit but outside of hazard limits generally will only require a letter of permission from the *Authority* pursuant to *HCA* Regulation 161/06 under Ontario Regulation 97/04.

2. 1. 1. 3. 1. 1 Additions and Replacement Structures

Additions and *replacements* of the structures listed in Policies 2.1.1.1 and 2.1.1.3.1 will be permitted in one zone areas provided they meet the following conditions to the satisfaction of the *Authority*.

a. Applications for the reconstruction of structures that have been destroyed or extensively damaged by flooding and that would be subject to the same level of risk will not be supported by the *Authority*.

b. In no instance shall an *addition* or renovation be more flood vulnerable than the existing structure, nor shall the flood vulnerability of the existing structure be increased as a result of the *addition*.

c. A minor *addition*, including the basement area, shall be less than 50% of the *original ground floor area* and does not increase the number of *dwelling units* of the existing structure. Minor *additions* may be permitted in the *flood plain* subject to the following conditions:
   i. Where *Authority* staff deem it to be necessary, the proponent shall be required to complete a hydraulic analysis at their own expense;
   ii. Proposed *additions* may not cause a new or aggravate an existing hazard;
   iii. Minor *additions* to an existing *building* should incorporate *floodproofing* measures to the extent and level possible, based on site-specific conditions. At a minimum, the *addition* should not be more flood vulnerable than the existing structure, in that no openings on the *addition* are to be below the elevation of existing openings;
   iv. Wherever possible, minor *additions* should be constructed 0.3 m (1 foot) above the level of the *Regulatory Flood*;
   v. Minor *additions* will only be permitted where existing flood depths do not exceed 0.8 m and the velocity does not exceed 1.7 m/sec;
   vi. Vehicles and people must have a way of safely entering and existing the area during times of flooding, erosion and other emergencies;
   vii. New basements will be permitted as part of an *addition* only if the existing main structure already has a basement. Crawl spaces will not be considered a basement area; and
   viii. Subsequent requests for *additions* which will result in the cumulative exceedance of the maximum permitted allowance, as based on the *original ground floor area*, shall not be permitted.

d. A major *addition* shall exceed or be equal to 50% of the *original ground floor area* of the existing structure. Major *additions* shall not be permitted in the *flood plain* in one zone areas with the exception of those provisions detailed in Section 2.1.1.3.1.

e. *Replacement structures* shall be restored to their original form (i.e. same dimensions, square footage, and *building* footprint), provided they were not destroyed by flooding.

f. Locating *replacement structures* or *additions* on a portion of the property where the *flooding hazard* is the least significant must be examined in the case of all proposals and applied wherever possible.

g. *Replacement structures* will require that *dry passive floodproofing* to the level of the *Regulatory Flood* be implemented to the fullest extent possible. In no case shall the proposed *development* be more flood susceptible than the previous structure.

h. The finished floor/lowest opening of any *replacement structure* is to be constructed 0.3 m (1 foot) above the level of the *Regulatory Flood*, if possible.

i. Any walls or floor space located below the level of the *Regulatory Flood* must be capable of withstanding the hydrostatic pressures of elevated water tables. Proposals that intend to utilize such measures will require professionally engineered and approved plans.

j. Wherever possible, all electrical panels and outlets should be located 0.3 m above the level of the *Regulatory Flood*. Where this is not reasonable, electrical equipment must be located no lower than the level of the *Regulatory Flood* and be *floodproofed* to the greatest extent possible.

k. The existing stage/storage of the *Regulatory Flood plain* must be maintained.

l. *Replacement structures* must be constructed and located such that vehicles and people have a way of safely entering and exiting the area during times of flooding, erosion and other emergencies.

2. 1. 1. 3. 1. 2 Accessory Structures

Accessory structures shall be permitted within the *flood plain* provided that they meet the following conditions to the satisfaction of the *Authority*:

a. *Accessory structures* less than 10 m^2 (108 sq. ft.) will not require a permit pursuant to *HCA* Regulation 161/06 under Ontario Regulation 97/04, however the *Authority* requires a minimum 6 m *erosion access allowance*, where possible, from the *top of slope* or the *toe of slope* and/or a 15 m setback from the channel bank of any *watercourse* is maintained. *Accessory structures* greater than or equal to 10 m^2 will require a permit. Any proposed *accessory structure* that is greater than or equal to 28 m^2 (300 sq. ft.) in size must meet the requirements of Section 2.1.1.3.1.

b. *Accessory structures*, greater than 10 m^2 (108 sq. ft.) but less than 28 m^2 (300 sq. ft.) in size, will generally not be permitted within the *flood plain*, subject to the following:
   i. *Accessory structures* will only be permitted within the *flood plain* if it can be demonstrated to the satisfaction of the *Authority* that the structure cannot reasonably be located elsewhere on the property;
   ii. The *accessory structure* must not increase the *Regulatory Flood* elevation. Such determinations are to be made by a professional engineer, and must be to the satisfaction of the *Authority*; and
   iii. *Accessory structures* must be *wet floodproofed* to the level of the *Regulatory Flood* when erected in the *flood plain*.

c. Above-ground swimming pools shall not be permitted in the *flood plain*.

d. In-ground swimming pools may be permitted provided that all *fill* is removed from the *flood plain*.

e. In providing a permit for an *accessory structure*, *Authority* staff will ensure that the applicant is aware that all other zoning By-laws and municipal building requirements must also be met prior to the erection of the structure.

2. 1. 1. 3. 1. 3 Fencing

a. Fencing projects will not be required to secure a permit.

2. 1. 1. 4 Two Zone Areas

The *two zone concept* identifies the *floodway* and *flood fringe* (Figure 4). The *floodway* refers to that portion of the *flood plain* where *development* and *site alteration* would cause a threat to public health and safety and property damage. In other words it is that portion of the *flood plain* required for the safe passage of flood flow and/or that area where flood depths and/or velocities are considered to be such that they pose a potential threat to life and property damage. The *flood fringe* is the portion of the *flood plain* where *development* may be permitted subject to certain policies and procedures. Some factors to take into account when determining the more hazardous areas of *flood plains* include depth of water, velocity of flow, combined depth and velocity, vehicle access and structural integrity (*MNR* & Watershed Science Centre, 2001).

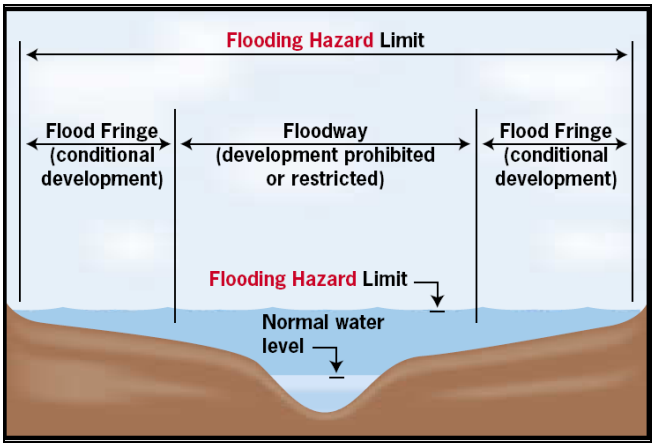

Figure 4: Flooding Hazard Limit for Two Zone Concept

2. 1. 1. 4. 1 Special Policy Areas

Due to historical *development* in the now former Town of Dundas, the *HCA* and the Town underwent a technical assessment and Official Plan (*OP*) consolidation in October of 2000. This had the effect of creating four designated *Special Policy Areas* (*SPAs*) within the former Town of Dundas and these lands are managed as two zone areas. In instances where *Authority* staff receive applications for *development* within the *SPAs* of the Spencer Creek *watershed* for *hazardous lands* surrounding the Spencer, Sydenham, and Anne Creeks they will refer to the following policies.

Any *development* and/or *site alteration* within the jurisdiction of the *Authority* and within the former Town of Dundas *Special Policy Areas* (*SPAs*) must be in accordance with the following policies and guidelines and must be to the satisfaction of the *Authority*.

a. When considering *development* within *SPAs* in the former Town of Dundas, *Authority* staff will refer to, and require conformity to, *SPA* policies within the former Town of Dundas' *OP*, dated October 27 2000, or any amendments, updates, or revisions thereto (see Appendix H). At such a time that the new City of Hamilton's *OP SPA* policies are in effect, *Authority* staff will refer to, and require conformity to, the City of Hamilton's *OP SPA* policies or any amendments, updates, or revisions thereto.

b. All *floodproofing* measures noted in the *SPAs* policies will be in accordance with Section 8.1, of this document, and its sub-sections.

c. Where the former Town of Dundas *OP*, dated October 27 2000, refers to Ontario Regulation 151/90 (Fill, Construction and Alteration to Waterways), *HCA* Regulation 161/06 under Ontario Regulation 97/04 will prevail.

d. The Conservation Hazard Lands designations in respect to *SPA* 2, noted within the former Town of Dundas *OP*, dated October 27 2000, will be found within Appendix H. At such a time that the new City of Hamilton's *OP* Conservation Hazard Land policies are in effect, *Authority* staff will refer to the City of Hamilton's *OP* Conservation Hazard Land policies or any amendments, updates, or revisions thereto.

e. Where *additions* and *replacement* structures are noted in respect to *SPA* 3, Section 2.1.1.3.1.1, of this document, will be utilized.

2. 1. 1. 5 Cut and Fill Operations

Cut and *fill* is a technique that is used to balance flood storage losses resulting from the placement of *fill* within a *flood plain*. This is achieved by removing a volume of earth at the appropriate elevation and location to offset areas within the *flood plain* to be filled. The suitability of cut and *fill* operations is extremely site-specific.

It should be recognized that in conducting a cut and *fill*, additional flood free lands are not obtained. A cut and *fill* will only serve to transfer floodwaters from one area to another as a result of the manipulation of the land's contours. In reviewing applications that will require cut and *fill*, the following policies will be applicable.

2. 1. 1. 5. 1 General Policies

The *Authority* does not encourage cut and *fill* operations as this type of *development* alters the existing contours of the *flood plain* which can lead to potential safety risks to both property and life. Any proposals that involve cut and *fill* operations within the jurisdiction of the *Authority* and within the *flooding hazard* limit must be in accordance with the following policies and guidelines and must be to the satisfaction of the *Authority*.

a. The preservation of *valleylands* and natural vegetation must be taken into account in all proposed cut and *fill* operations.

b. The amount of *fill* removed (cut) must be equal to or greater than the volume of *fill* proposed for placement within the *flood plain*.

c. All excess *fill* material removed (cut), as part of this operation, shall be required to be moved to an area that is outside of the *flood plain*.

d. Cut and *fill* must be balanced in 0.3 m (1 foot) increments.

e. No *negative impacts* on the hydraulic conveyance capabilities of the *watercourse* will be permitted.

f. Depending on the location of the proposed works, a geotechnical evaluation may be required in order to ensure the long-term stability of the works (Appendix I).

g. A cut and *fill* plan must be submitted and meet all requirements of Appendix J.

2. 1. 1. 5. 2 Hydraulic Analysis Requirements

In order to ensure that there is no significant impact on upstream or downstream flooding and erosion potential, a hydraulic analysis will be required for existing and proposed conditions. HEC-RAS is a backwater model developed by the US Army Corps of Engineers and is most widely used in *flood plain* management. Accordingly, it is the only model discussed in this document.

At a minimum, this analysis shall be required to submit the following information:

a. When generating a flood line the following information is required:
   i. Explanation of how the starting water level was determined;
   ii. A description of how/where flow values utilized in the model were determined;
   iii. A topographic map showing cross-sections and flood lines; and
   iv. Hard copy and electronic files of the input and output for existing and proposed conditions and Edit 2 results.

2. 1. 1. 6 Flood Plain Dedication

a. *Flood plain* lands will only be accepted through dedication in accordance with the *Authority's* lands acquisition policy.

2. 1. 2 Erosion Hazard Limit

Erosion hazards mean the loss of land, due to human or natural process, that pose a threat to life and property. The *erosion hazard* limit for *river and stream systems* is determined by using the 100 year erosion rate (the average annual rate of recession extended over a hundred year time span), and includes allowances for toe erosion, slope stability, and access during emergencies. The *erosion hazard* component of *river and stream systems* is intended to address both, erosion potential of the actual river and stream bank, as well as erosion or potential slope stability issues related to valley walls through which rivers flow. The application of the *erosion hazard* limit will depend on whether the *watercourse* flows through a well defined valley system and is confined within a valley corridor or whether it flows through landscapes that are relatively flat, and is not confined or bounded by valley walls.

Generally, *development* should not occur on or on top of valley walls because the long-term stability of the slope, and therefore public health and safety, cannot be guaranteed. *Development* should be set back from the top of valley walls far enough to avoid increases in loading forces on the top of the slope, changes in drainage patterns that would compromise slope stability or exacerbate erosion of the slope face, and loss of stabilizing vegetation on the slope face.

In order to determine what the *erosion hazard* limit for *river and stream systems*, the following components must be taken into consideration. These components would be utilized to a varying degree depending on whether the stream system is *confined* or *unconfined*. If the stream system was considered a *confined system* then one would consider if the slope is stable or unstable. Not all of these components would be utilized for one *river or stream system*.

The following defines how the *erosion hazard* limit was established for *HCA* Regulation 161/06 under Ontario Regulation 97/04:

a. *Toe erosion allowance*, determined using one of the following methods:
    i. The average annual recession rate as based on 25 yrs worth of accumulated erosion data over a 100 year planning horizon; or
    ii. Up to a 15 m *toe erosion allowance* measured inland horizontally and perpendicular to the toe of the *watercourse* slope where the distance between the *watercourse* and the base of the valley wall is $\leq$ 15 m; or
    iii. Based on a valid study, which is based on 25 yrs worth of accumulated erosion data; or
    iv. An analysis based on soil types and hydraulic processes or analytical studies, where the *watercourse* is $\leq$ 15 m from the base of the valley wall. Table 1 details the minimum *toe erosion allowances* for specific soil types. If valid studies indicate that allowances should be greater than those indicated within the table, the greater of the two will be utilized;

b. A *stable slope allowance* of 3(H):1(V) or as determined by a valid study;

c. A *meander belt allowance*; and

d. An *erosion access allowance*. The *Authority* requires a minimum 6 m *erosion access allowance* is utilized, where possible. If the width of the allowance is determined to be insufficient, then *Authority* staff may require that a wider allowance be established.

Type of material Native Soil Structure	Evidence of active erosion or where the bankfull flow velocity is greater than competent flow velocity	No evidence of active erosion		
		bankfull width		
		<5m	5-30m	>30m
Hard rock (e.g. granite)	0-2m	0m	0m	1m
Soft rock (shale, limestone), cobbles, boulders	2-5m	0m	1m	2m
Clays, clay-silt, gravels	5-8m	1m	2m	4m
Sand, silt	8-15m	1-2m	5m	7m

Table 1: Minimum toe erosion allowance - where river is within 15 m of slope toe

2. 1. 2. 1 Erosion Hazard Limit for Confined Systems

Confined systems are those where the *watercourse* is located within a valley corridor, either with or without a *flood plain*, and is confined by valley walls. The *watercourse* may be located at the toe of the *valley slope*, in close proximity to the toe of the *valley slope* (less than 15 m), or removed from the toe of the *valley slope* (more than 15 m). The *watercourse* can contain perennial, intermittent or ephemeral flows and may range in channel configuration, from seepage and natural springs to detectable channels.

The following defines how the *erosion hazard* limit for *confined systems* was established for *HCA* Regulation 161/06 under Ontario Regulation 97/04:

a. The *erosion hazard* limit for *confined river and stream systems* shall be the greater of (Figure 5 & Figure 6):
   i. The *toe erosion allowance* (as outlined in Section 2.1.2). *Toe erosion allowance* is only considered for *watercourses* located less than 15 m from the *toe of slope*;
   ii. A *stable slope allowance* (3:1) or as determined by a valid study*;* and
   iii. An *erosion access allowance* of 6 m, where possible, or as determined by a valid study.

   OR

   i. As determined by a valid study which takes into consideration all of the above criteria.

b. The *Authority* may, where it is deemed necessary, require the proponent to submit a geotechnical evaluation in order to determine the safety and potential impacts of the proposed *development* (see Appendix I).

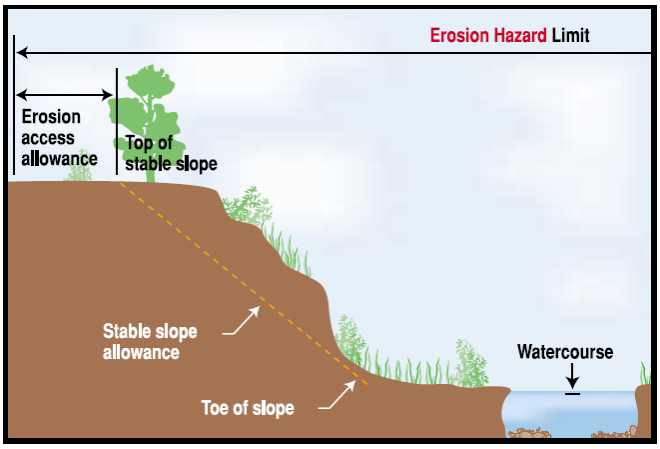

Figure 5: Erosion Hazard Limit for a Confined System (where toe of slope is more than 15 m from watercourse)

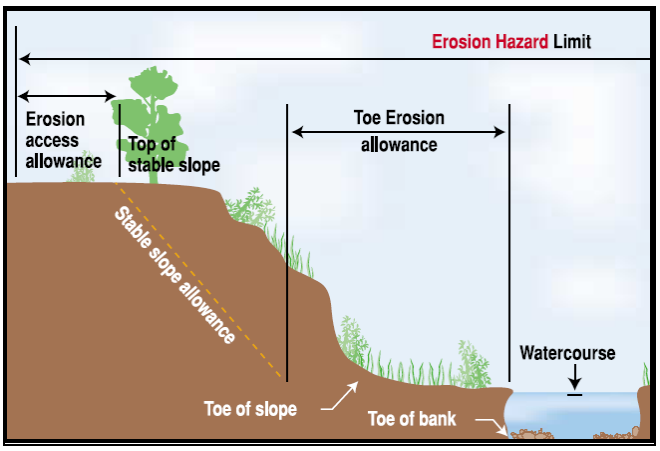

Figure 6: Erosion Hazard Limit for a Confined System (where toe of slope is less than 15 m from watercourse)

2. 1. 2. 1. 1 Stable Slopes

Section 2.1.2.1 and Section 2.1.2.3, and their sub-sections, shall apply to stable slopes in addition to the following policies and guidelines.

a. A slope which, through a surface inspection, **does not** reveal evidence of any of the following:
   i. Bare slope areas, e.g. no vegetation;
   ii. Outward tilting of trees;
   iii. Toe erosion at the base of the slope;
   iv. The addition of *fill*;
   v. An easily erodable soil type;
   vi. Slumping, gullying or other visible erosion processes; or
   vii. An angle greater than 3(H):1(V),

   Shall be subject to the application of the following policies:

1. The physical *top of slope* is to be established through a site visit by *Authority* staff and, where appropriate, in consultation with municipal staff.

2. When measuring *top of slope* the *Authority* recommends that *disconnected features* be included on a case by case basis. These cases shall be reviewed by *Authority* staff in conjunction with the appropriate municipal authorities.

3. The *Authority* requires a minimum 6 m *erosion access allowance*, where possible, from the *Authority* approved physical *top of slope* for any *development* and/or *site alteration*. This includes swimming pools, sub-surface sewage disposal systems and the placement of *fill*. Wherever possible existing vegetation should be maintained in the setback areas.

4. The *Authority* requires that any *development* and/or *site alteration* maintains a minimum 6.0 m *erosion access allowance*, where possible, from the *Authority* approved *toe of slope*.

5. The *Authority* will require that an appropriate limit of construction fence is erected a minimum of 3 m from the top of stable slope, and maintained during construction to discourage dumping of *fill* material and disturbance of the vegetation on the *valley slope*.

2. 1. 2. 1. 2 Unstable Slopes

Policies 2.1.2.1 and 2.1.2.3, and its sub-policies, shall apply to unstable slopes in addition to the following policies and guidelines.

a. A slope which, through a surface inspection, **does** reveal evidence of any of the following;
   i. Bare slope areas, e.g. no vegetation;
   ii. Outward tilting of trees;
   iii. Toe erosion at the base of the slope;
   iv. The addition of *fill*;
   v. An easily erodable soil type;
   vi. Slumping, gullying or other visible erosion processes; or
   vii. An angle greater than 3(H):1(V),

   Shall be subject to the application of the following policies:

   1. In all instances where the stability of the bank is questionable the *Authority* will require the proponent to submit a geotechnical report undertaken by a qualified professional (Appendix I). This is required in order to assess the appropriate *erosion hazard* limit and setback from an unstable slope as well as the slope stability, as they relate to the specific *development* proposal. Reports should also provide recommendations for approaches to stabilizing the slope if necessary.

2. At minimum, all reports must include:
    A. The nature and property of soils;
    B. Information regarding average annual recession rate;
    C. *Toe erosion allowance*, where a stream is less than 15 m from the *toe of slope* and not in a meander belt; and
    D. The allowance for a stable slope.

3. The *Authority* requires a minimum 6 m *erosion access allowance*, where possible, from the *stable slope allowance* and from the *Authority* approved *toe of slope* for any *development* and/or *site alteration*.

2. 1. 2. 2 Erosion Hazard Limit for Unconfined Systems

Unconfined systems are those systems where the *watercourse* is not located within a valley corridor with discernable slopes, but relatively flat to gently rolling plains and is not confined by valley walls. The *watercourse* can contain perennial, intermittent or ephemeral flows and may range in channel configuration, from seepage and natural springs to detectable channels.

The following defines how the *erosion hazard* limit for *unconfined systems* was established for *HCA* Regulation 161/06 under Ontario Regulation 97/04:

a. The *erosion hazard* limit for *unconfined river and stream systems* shall be the greater of (Figure 7):
    i. The *flooding hazard* limit; or
    ii. The *meander belt allowance*; or
    iii. As determined by a valid study; plus
    iv. An *erosion access allowance* of 6 m, where possible, or as determined by a valid study.

b. The *Authority* may, where it is deemed necessary, require the proponent to submit a geotechnical evaluation in order to determine the safety and potential impacts of the proposed *development* (see Appendix I).

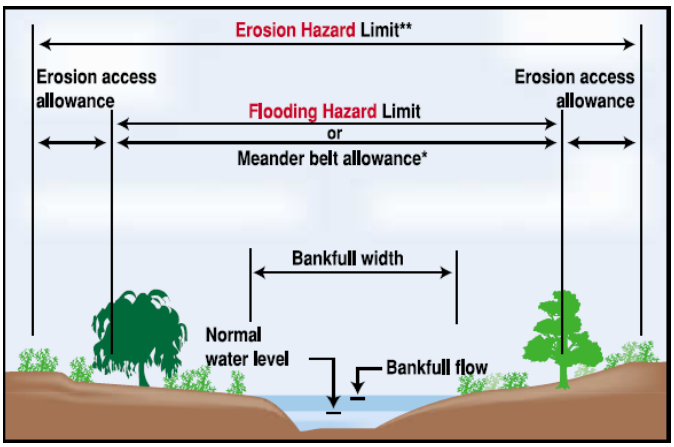

Figure 7: Erosion Hazard Limit for an Unconfined System
** the bankfull channel width with the largest amplitude meander in the reach is used to determine the meander belt width*
*** the erosion access allowance is also added to the flooding hazard limit, when known, to define the erosion hazard limit*

2. 1. 2. 2. 1 Meander Belt Allowance

The width of a meander belt can be determined by analyzing the bankfull channel width of the largest amplitude meander. The *meander belt allowance* is defined as 20 times the bankfull channel width of the reach and centred on the meander belt axis (Figure 8). When determining the meander belt for relatively straight reaches, the meander belt should be centred on the mid-line of the channel.

Section 2.1.2.3 shall apply to the *meander belt allowance* in addition to the following policies and guidelines.

a. Any *development* and/or *site alteration* proposal which is within the *meander belt allowance* must be supported by a valid engineering study and/or an Environmental Impact Statement (*EIS*).

b. *Buildings* and structures located within the *meander belt allowance*, other than those destroyed by erosion or flooding, will be permitted to be replaced or relocated within the *meander belt allowance* provided the *buildings* or structures are of the same size and use, contain the same number of *dwelling units* and where the works will not increase the risk to life or damage to properties as a result of erosion.

c. Locating the *building* or structure on a portion of the property where the *flooding hazard* and/or *erosion hazard* is the least significant must be examined in the case of all proposals and applied wherever possible.

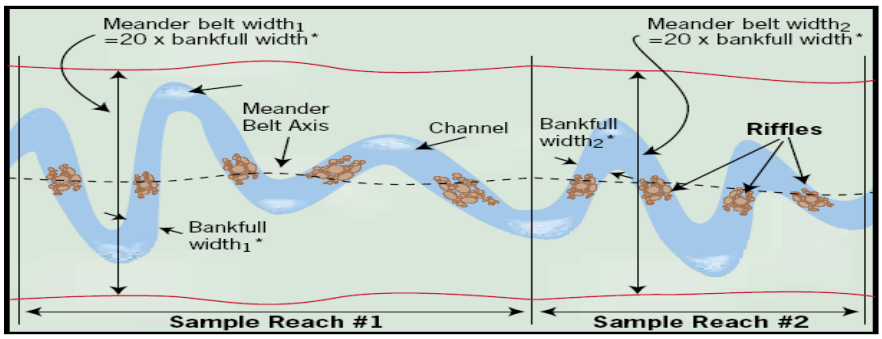

Figure 8: Meander Belt
** use bankfull channel width of largest amplitude meander in the reach to determine the meander belt width*

2. 1. 2. 3 Development

Any *development* and/or *site alteration* within the jurisdiction of the *Authority* and within the *erosion hazard* limit and/or in, on or adjacent to *valleylands* must be in accordance with the following policies and guidelines and must be to the satisfaction of the *Authority*.

a. *Development* activities and uses on natural *valley slopes* will generally be prohibited. At its discretion, however, the *Authority* may permit the following uses:
    i. Passive recreation and associated structures (e.g. staircases);
    ii. Structures associated with erosion and sediment control; and
    iii. Any other relevant or appropriate use and/or *development* as deemed satisfactory by the *Authority*.

b. *Development* is not permitted in *significant valleylands* unless it can be demonstrated through the submission of an *EIS* that there will be no *negative impacts* on the natural features or the *ecological functions* for which the area is identified.

c. *Development* will not be permitted on lands adjacent to *significant valleylands* (50 m from the boundary of the *valleyland*) unless the *ecological function* of the *adjacent lands* has been evaluated and it has been demonstrated through the submission of an *EIS* that there will be no *negative impacts* on the natural features or on their *ecological functions*.

d. Any *development* proposals adjacent to *valleylands* must be located outside of the *erosion hazard* limit and incorporate a *vegetation protective zone* appropriate for the features associated with that valley.

e. Increased fragmentation of ownership within *valleylands* and riverine systems will be discouraged by the *Authority*. Possible occurrences of fragmentation should be monitored through the plan review process.

f. The *Authority* will encourage the municipality to designate all *valleylands* in their Official Plans in a manner that recognizes their inherent environmental characteristics and limitations to *development* and to zone *valleylands* within appropriate open space zoning.

g. Where new lots are created near *valleylands* the *Authority* will encourage their creation outside of the hazard land limits.

h. The *Authority* requires that a minimum *erosion access allowance* of 6 m wide be incorporated into the *development* proposal, where possible, and that the *erosion access allowance* permit access from a municipal roadway to and along the *top of slope* for regular maintenance purposed and/or to repair protection works. Side yard access allowances may be shared between adjacent landowners provided that the shared easement is registered on title.

i. The proponent shall be required to demonstrate to the satisfaction of the *Authority* that the proposed *development* includes the presence of a *building* envelope that incorporates all relevant setbacks from the natural features of the property and conforms to all applicable zoning By-law requirements.

j. The *Authority* will encourage the re-establishment of native and locally appropriate vegetation on disturbed *valley slopes* in order to minimize soil erosion both during and after construction. Where *Authority* staff deem it to be necessary, the proponent will be required to submit a vegetation plan based on those guidelines established in Section 10.1 of this document.

k. The *Authority* will encourage overland drainage to be directed away from *valley slopes* when reviewing *development* proposals on existing lots of record and newly created lots, in areas adjacent to valley systems.

l. Where *fill* placements, grade modifications or other *development* activities are proposed within or adjacent to *valleyland* areas, those guidelines established in Section 5.1 (Fill Placement and Grade Modifications) and Section 9.1 (Erosion and Sediment Control Standards) of this document shall be applied wherever appropriate.

m. Interior renovations to any *building* or structure that do not alter the use or potential use, do not increase the size, and do not increase the number of *dwelling units* of that *building* or structure will only require a letter of permission from the *Authority* pursuant to *HCA* Regulation 161/06 under Ontario Regulation 97/04.

n. *Development* and/or *site alteration* that is within the Regulation limit but outside of hazard limits generally will only require a letter of permission from the *Authority* pursuant to *HCA* Regulation 161/06 under Ontario Regulation 97/04.

2. 1. 2. 3. 1 Additions and Replacement Structures

a. *Additions* to existing structures may be permitted provided that they are located outside of the *erosion hazard* limits**.**

b. Any proposed *addition* or *replacement structure* may be subject to a geotechnical report at the expense of the proponent if the *Authority* deems it to be necessary (Appendix I).

c. When necessary the *addition*, renovation, basement or *replacement structure* will be subject to the *floodproofing* requirements of *Authority* staff and as determined by Section 8.1, and its sub-policies.

d. *Replacement structures* shall be restored to their original form (i.e. same dimensions, square footage, and footprint).

e. Locating *replacement structures* or *additions* on a portion of the property where the *erosion hazards* are the least significant must be examined in the case of all proposals and applied wherever possible. An *addition* will only be permitted within the *erosion hazard* limit if it can be shown that the structure cannot reasonably be located elsewhere on the property and the *addition* does not encroach any further into the *erosion hazard* limit than the existing structure.

2. 1. 2. 3. 2 Accessory Structures

a. *Accessory structures* less than 10 m^2 (108 sq. ft.) will not require a permit pursuant to *HCA* Regulation 161/06 under Ontario Regulation 97/04, but the *Authority* requires a minimum 6 m *erosion access allowance*, where possible, from the *top of slope* or the *toe of slope* and/or a 15 m setback from the channel bank of any *watercourse* is maintained. *Accessory structures* greater than or equal to 10 m^2 will require a permit. Any proposed *accessory structure* that is greater than or equal to 28 m^2 (300 sq. ft.) in size must meet the requirements of Section 2.1.2.3

b. *Accessory structures*, greater than 10 m^2 (108 sq. ft.) but less than 28 m^2 (300 sq. ft.) in size, will generally not be permitted within the *erosion hazard* limits, subject to the following:

i. That any proposed *accessory structure* will only be permitted if it can be demonstrated to the satisfaction of the *Authority* that the structure cannot reasonably be located elsewhere on the property;
ii. That any proposed *accessory structure* may be subject to a geotechnical study conducted at the expense of the proponent if the *Authority* deems it to be necessary (Appendix I); and
iii. That a geotechnical study noted in (ii) above is to the satisfaction of the *Authority*.

2. 1. 3 Alterations to Watercourses

Any *alteration to a watercourse* within the jurisdiction of the *Authority* must be in accordance with the following policies and guidelines and must be to the satisfaction of the *Authority*.

a. The *Authority* shall encourage municipalities to place restrictive zoning on *watercourse vegetation protective zones*.

b. Any *alterations to a watercourse* shall be designed in accordance with natural channel design principles, as outlined in Adaptive Management of Stream Corridors in Ontario (*MNR* & Watershed Science Centre, 2001), to the maximum extent possible and where applicable.

c. *Alterations to a watercourse* will be evaluated on an individual basis, having consideration for the following:
   i. No *negative impacts* on the natural features or on the *ecological functions*, including *fish* and wildlife requirements as set out by other federal, provincial or municipal legislation/plans/technical guidelines and a *net environmental benefit* is achieved;
   ii. Maintenance of the natural topography of the *watercourse* system, flood conveyance and flood storage;
   iii. No adverse impacts upstream and/or downstream of the proposed works in respect to fluvial geomorphological processes, storage capacity of the *flood plain*, *flood plain* elevations, flood frequency, erosion rates or erosion frequency along either side of the *watercourse*;
   iv. No adverse impacts on *ground water features* and recharge/discharge;
   v. Geotechnical issues are addressed to the satisfaction of the *Authority*; and
   vi. Adequate erosion and sediment control measures are incorporated and utilized during the construction phase.

d. An *alteration to a watercourse* shall only be permitted with prior written approval of the *Authority*. An exception is made for activities conducted pursuant to the Drainage Act, where the *Authority* has an opportunity to work in cooperation with member municipalities and other approval agencies (including Fisheries and Oceans Canada – *DFO*) to consider and mitigate the environmental impacts of drain maintenance and new drainage proposals.

e. Notwithstanding Policy 2.1.3 (d), bridges and other major structures proposed on municipal drains will require prior written approval from the *Authority*.

f. The *quality and quantity of water* within *watercourses* shall be protected, improved or restored by minimizing potential *negative impacts* including cross-jurisdictional and cross-*watershed* impacts.

g. The *Authority* generally does not support proposals to realign or re-channelize natural *watercourses*. The proposal may be considered if the alteration provides flood relief, erosion control, *fish habitat*, and/or environmental enhancement to the *Authority's* satisfaction. Approvals from other agencies may be required.

h. The *Authority* will require an undisturbed *vegetation protective zone* running consistently along both sides of all *watercourses*. A reduction in the *vegetation protective zone* will not be considered for *development* and/or *site alteration* proposals. Exceptions may be considered for *additions*, *replacement structures* and *accessory structures*, where locating *buildings* and/or structures outside of the *vegetation protective zone* is not viable. The *vegetation protective zone* is to be measured perpendicularly outward from each of the two edges of the bankfull width with the following provisions.

NOTE: *Authority* staff will use thermal regimes documented at the time these policies were approved by the Board of Directors. In all cases, the methods of Stoneman, C.L. and Jones, M.L. (1996) will be utilized to determine the thermal regime of a *watercourse*.

i. A minimum 15 m (49 ft.) *vegetation protective zone* for all warmwater *watercourses* (30 m total);
ii. A minimum 30 m (98 ft.) *vegetation protective zone* for all coldwater or marginally coldwater (coolwater) *watercourses* (60 m total). Where *watercourses* have not been studied as to thermal regimes or *fish* population, the 30 m *vegetation protective zone* is required;
iii. Greater *vegetation protective zones* may be required in some areas as a result of sensitive soil conditions (e.g. high permeability, shallow soil depths, steep slopes, or extensive organics, etc.) and/or in the habitat of *endangered* or *threatened species*;
iv. The *vegetation protective zone* may be required to be enhanced as determined by the *Authority*;
v. The *vegetation protective zone* for a meandering stream shall be the greater of either the *meander belt allowance* or the required *vegetation protective zone* for warmwater, marginally coldwater, or coldwater *watercourses*;
vi. *Best Management Practices* (*BMPs*) should be used where the *vegetation protective zone* is interrupted to allow *watercourse* crossings, as permitted in Section. 2.1.3. An interruption should occur only where it is proven to be least intrusive; and
vii. Trails and paths may be allowed in the *vegetation protective zone* provided that:
    1. The trail or path is located outside of *erosion hazard*, except for crossings;
    2. The trail or path should not come closer than 4 m to the edge of a *watercourse*, except for crossings, unless it has been demonstrated through the completion of an Environmental Impact Statement (*EIS*) that there will be no *negative impacts* on the natural features or on their *ecological functions*;
    3. The trail or path does not impede the natural function of *valleylands*;
    4. Permeable surfacing is recommended for trail or path construction; and
    5. There is a compensating *vegetation protective zone* allowance added to the width of the *vegetation protective zone*.

i. The *Authority* will consider *watercourse* crossings with the following provisions:
i. That the crossings are proposed to be located in areas of least environmental impact;
ii. An erosion and sediment control plan (Section 9.1) be submitted for approval;
iii. A site restoration plan be submitted for approval;
iv. The number of crossings be kept to a minimum;
v. Crossings should be perpendicular to the *watercourse*;

vi. Crossings, especially any culvert crossings, should not be placed where the stream meanders, and the crossing must be constructed such that low flow conditions are maintained within the crossing;

vii. The *Authority* encourages that culverts be open-bottomed or embedded a minimum of 20% in order to maintain *fish* passage. Where closed-bottom culverts are used, natural substrate parent to the *watercourse* should be placed within the culvert, and the hydraulic capacity of these culverts must consider this requirement. All culvert installations must be appropriately sized such that flows will permit the passage of all *fish* species inhabiting the affected *watercourse*.

viii. The *Authority* requires the use of crossing methods with the least impact on the *watercourse* and maintains the character of the stream bed and banks, where possible (e.g. spanning bridges/structures, open-bottom culverts); and

ix. In rural/agricultural areas, low-level crossings may be considered to allow controlled cattle crossing between pasture lands only where necessary. Low-level crossings for farm or other machinery will not be supported. The permission of low-level crossings will be subject to provisions (i) through (viii) above.

2. 2 Lake Ontario Shoreline

Areas that lie along the Lake Ontario shoreline, including Hamilton Harbour, may be subject to *flooding hazards*, *wave action* and *other water-related hazards*, *erosion hazards* or *dynamic beach hazards*. In considering *development* applications for lands located in such areas, it is important to consider and account for the landward limits of such hazards in order to mitigate, to the greatest extent possible, the potential effects of these hazards on property and human safety. By incorporating hazard limits into *development* considerations, the *Authority* is able to conserve and protect what are often fragile and sensitive ecosystems.

The Provincial Policy Statement recognizes unacceptable risks associated with such events, and has required municipalities to address hazard lands (which include flood and erosion prone lands along shoreline systems, and dynamic beach processes) in their Official Plan (*OP*) policies. Much of the responsibility for such areas has subsequently been delegated to the Conservation Authorities, who have the required technical and professional expertise for managing such lands.

Development within the Regulation limit of the *Authority's* jurisdiction is governed by the Development, Interference with Wetlands and Alterations to Shorelines and Watercourses Regulation (*HCA* Regulation 161/06 under Ontario Regulation 97/04).

The hazard limit of the *Great Lakes-St. Lawrence River System* is delineated by the Ontario Ministry of Natural Resources (*MNR*) standards and criteria and consists of *flooding hazards*, *erosion hazards*, and *dynamic beach hazards* along the shoreline. The *HCA* Regulation limit for this natural hazard is the furthest landward extent of the aggregate of the *flooding hazard* limit plus the *erosion hazard* limit plus the *dynamic beach hazard* plus 15 m inland.

2. 2. 1 Shoreline Hazard Limits

The following limits will apply in all instances unless it can be shown to the satisfaction of the *Authority* and through valid engineering studies (by a qualified professional), at the expense of the proponent, that other allowance limits will maintain the integrity of the feature in question. The need for greater hazard land limits may be demonstrated through the completion of these studies. The shoreline hazard limit is the furthest landward extent of the aggregate of the *flooding hazard* limit plus the *erosion hazard* limit plus the *dynamic beach hazard* limit.

2. 2. 1. 1 Flooding Hazard Limits

Where *Authority* staff consider proposed *developments* and/or *site alterations* in or on the areas adjacent or close to the shoreline of Lake Ontario, *flooding hazard* land limits will apply (e.g. Figure 9).

a. *Flooding hazards* are based on the combined influence of:
   i. The *100 year flood level*;
   ii. The extent of *wave action*;
   iii. The extent of *other water-related hazards*; and
   iv. The existence or absence of shoreline protection works.

b. For the Lake Ontario shoreline, excluding Hamilton Harbour, the *flooding hazard* limit has been determined to be 78.5 m IGLD 1955 (International Great Lakes Datum). This elevation includes the *100 year flood level* (76.0 m IGLD) plus the *wave action* and *other water-related hazards* (2.5 m) [Great Lakes-St. Lawrence River System and Large Inland Lakes Technical Guides (*MNR* & Watershed Science Centre, 2001) and Lake Ontario Waterfront Study, Stoney Creek (F.J. Reinders and Assoc. and Conroy Dowson Planning Consultants Inc., March 1980)].

c. For Hamilton Harbour shoreline, the *flooding hazard* limit has been determined to be 77.5 m IGLD 1955 which includes the *100 year flood level* (76.0 m IGLD***)*** plus the *wave action* and *other water-related hazards* (1.5 m) [Great Lakes-St. Lawrence River System and Large Inland Lakes Technical Guides (*MNR* & Watershed Science Centre, 2001), Lake Ontario Waterfront Study, Stoney Creek (F.J. Reinders and Assoc. and Conroy Dowson Planning Consultants Inc., March 1980), and West Harbour Waterfront Recreation Master Plan: Phase 1 Technical Report (City of Hamilton, October 2006)].

d. A valid engineering study, undertaken by a qualified coastal engineer and at the expense of the proponent, may be undertaken or may be required to be undertaken, in areas where the exact extent of the *flooding hazard* limit needs to be verified. The need for greater hazard land limits may be demonstrated through the completion of this study.

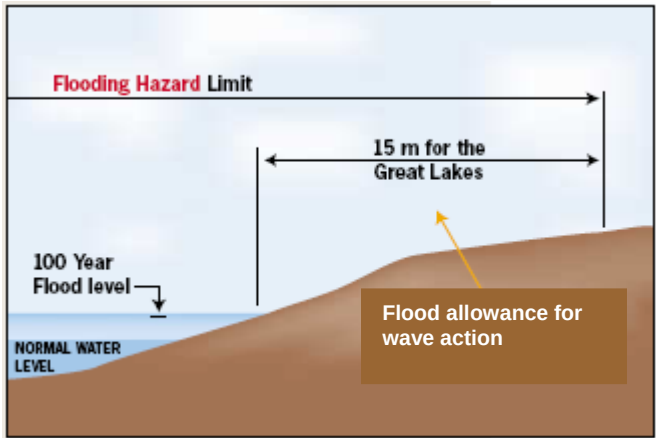

Figure 9: Flooding Hazard Limit for Lake Ontario

2. 2. 1. 1. 1 Wave Action

The Ministry of Natural Resources discuss *wave action* in Understanding Natural Hazards: Introductory Guide (2001). The following is taken from that guide.

> Along shorelines subject to *wave action*, winds can drive water farther inland, beyond the *100 year flood level* limit. Planning authorities must add the area covered by *wave uprush* to the area covered by the *100 year flood*.
>
> Along irregular shorelines, or where there are docks, protection structures or other structures, planners also have to take into account the effect of waves hitting vertical surfaces and sending spray inland. They also have to calculate the area affected when particularly strong waves overtop breakwalls, bluffs or other shoreline structures that act as barriers.

Planning authorities also have to take into account other water-related factors that can magnify flood destruction. They include these and other influences: ship generated waves, ice piling, and ice jamming.

In some areas, *wave uprush* may overtop banks or protection works and the water may collect, or pond, beyond the *100 year flood level*, thereby causing a long-term *flooding hazard*. Given the variety in protection works and naturally occurring shoreline banks that could contribute to ponding, no one suggested approach is useful. In this situation, planning authorities should undertake studies to determine the flood allowance for *wave uprush* and *other water-related hazards*.

All proposals for *development* along the Lake Ontario shoreline shall be subject to an allowance for *wave action* and *other water-related hazards*.

2. 2. 1. 2 Erosion Hazard Limits

Where *Authority* staff consider *development* proposals and/or *site alterations* in or on the areas adjacent or close to the Lake Ontario shoreline the *erosion hazard* limit shall be applicable (e.g. Figure 10).

a. *Erosion hazards* are based on a combined influence of:
   i. *Stable slope allowance* of 3(H):1(V);
   ii. A 30 m *toe erosion allowance* (measured from *stable slope allowance*); and
   iii. The existence or absence of shoreline protection works.

b. A valid engineering study, undertaken by a qualified coastal engineer and at the expense of the proponent, may be undertaken or may be required to be undertaken, in areas where the exact extent of the *erosion hazard* limit needs to be verified. The need for greater hazard land limits may be demonstrated through the completion of this study.

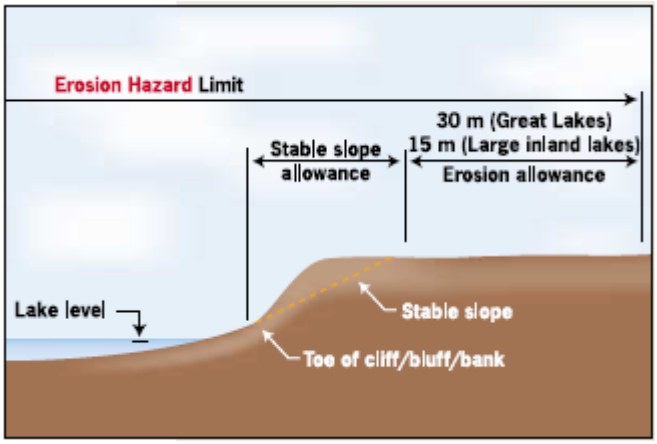

Figure 10: Erosion Hazard Limit for Lake Ontario

2. 2. 1. 3 Dynamic Beach Hazard Limits

To define a dynamic beach, the first step is to know the location of the *flooding hazard* limit. In dynamic beach areas, elevations can change quite dramatically from season to season and year to year due to build up and erosion of sand, cobbles, and other beach deposits. When elevations change, so does the location of the *flooding hazard* limit. This is an especially important consideration, because in times of low lake levels, the near shore areas that have been submerged under normal or high lake levels are now exposed, subjected to accretion and erosion processes. It may seem that the landward extent of the dynamic beach has changed, thereby introducing potential for *development* or expansion of existing *development*. Historic information about the farthest landward extent of flooding will be an important consideration for good long-term management of *dynamic beach hazards* (*MNR*, 2001).

Where *Authority* staff consider that proposed *developments* might impact on a dynamic beach system, the following *dynamic beach hazard* limit shall apply (Figure 11).

a. The *dynamic beach hazard* limit is determined by:
    i. The *flooding hazard* limit (*100 year flood level* plus an allowance for *wave action* and *other water-related hazards*); plus
    ii. A 30 m dynamic beach allowance.

b. A valid engineering study, undertaken by a qualified coastal engineer and at the expense of the proponent, may be undertaken or may be required to be undertaken, in areas where the exact extent of the *erosion hazard* limit needs to be verified. The need for greater hazard land limits may be demonstrated through the completion of this study.

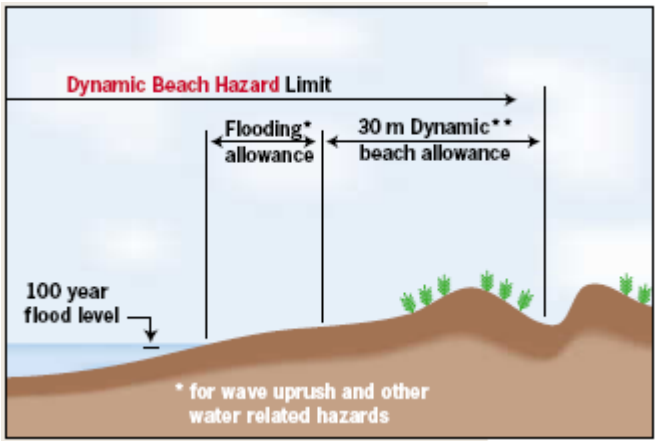

Figure 11: Dynamic Beach Hazard Limit for Lake Ontario
(*** is not applicable*)

2. 2. 2 Development

Any *development* and/or *site alteration* within the jurisdiction of the *Authority* and in, on or adjacent to the areas of shorelines must be in accordance with the following policies and guidelines and must be to the satisfaction of the *Authority*.

a. *Development* and/or *site alteration* will not be permitted in or on the areas within the *dynamic beach hazard*.

b. The *Authority* will generally direct *development* to occur outside of *hazardous lands* adjacent to the Lake Ontario shoreline that are impacted by flooding and/or erosion, unless the following conditions are met:
    i. The *ecological function* of areas adjacent or close to the shoreline have been evaluated and it has been demonstrated through the submission of an *EIS* that there will be no *negative impacts* on natural features or their *ecological functions*;
    ii. The hazards can be safely addressed, and the *development* and/or *site alteration* is carried out in accordance with *floodproofing* standards, *protection works standards*, and *access standards*;
    iii. Vehicles and people have a way of safely entering and exiting the area during times of flooding, erosion and other emergencies;
    iv. New hazards are not created and existing hazards are not aggravated; and
    v. No adverse environmental impacts will result.

c. *Development* and/or *site alteration* will not be permitted in or on *hazardous lands* where the use is:
    i. An institutional use associated with hospitals, nursing homes, pre-school, school nurseries, day care and schools, where there is a threat to the safe evacuation of the sick, the elderly, persons with disabilities or the young during an emergency as a result of flooding, failure of *floodproofing* measures or protection works, or erosion;
    ii. An essential emergency service such as that provided by fire, police and ambulance stations and electrical substations, which would be impaired during an emergency as a result of flooding, the failure of *floodproofing* measures and/or protection works, and/or erosion;
    iii. Uses associated with the disposal, manufacture, treatment or storage of *hazardous substances*; or
    iv. Any other use and/or *development* as deemed unsatisfactory by the *Authority*.

d. *Development* and/or *site alteration* that will be susceptible to flood damage or is likely to increase flood damages to existing *developments*/uses will be prohibited.

e. Any proposed *development* will be subject to appropriate *floodproofing* standards (Section 8.1, including its sub-sections), erosion and sediment control measures (Section 9.1), and/or vegetation plans (Section 10.1) and as determined to be necessary by the *Authority*.

f. Wherever possible the municipality will be encouraged to obtain public access, shore strip dedication, easement, or right-of-way to the waterfront when multiple residential, commercial, industrial or recreational *development* occurs. These lands will provide linkages between and among *natural heritage features and areas, surface water features, ground water features* and *hydrologic functions*, and aid in maintaining the diversity and connectivity of natural features in an area and the long-term *ecological functions* and biodiversity of these natural systems. *Authority* staff will encourage the union of these sections of open space so as to form an almost continuous public shore.

g. The *Authority* will encourage shoreline protection works that incorporate an ecosystem approach and natural shoreline processes. Shoreline protection works must meet the requirements of Section 2.2.2.1.

h. Interior renovations to any *building* or structure that do not alter the use or potential use, do not increase the size, and do not increase the number of *dwelling units* of that *building* or structure will only require a letter of permission from the *Authority* pursuant to *HCA* Regulation 161/06 under Ontario Regulation 97/04.

i. *Development* and/or *site alteration* that is within the Regulation limit but outside of hazard limits generally will only require a letter of permission from the *Authority* pursuant to *HCA* Regulation 161/06 under Ontario Regulation 97/04.

2. 2. 2. 1 Shoreline Protection Works

a. Where shoreline protection works are proposed the applicant must meet the following requirements:
    i. The purpose of the proposed works must be clearly defined;
    ii. Shoreline works must be designed for the *100 year flood level*, *wave uprush*, and according to accepted scientific coastal engineering principles, where viable;
    iii. The works must be designed and/or approved by a professional engineer with experience and qualifications in coastal engineering;
    iv. Slope stability must be assessed by a professional engineer with experience and qualifications in coastal/geotechnical engineering;
    v. The ownership of land, where the protection works are proposed, must be clearly established by the applicant;
    vi. The design and installation of protection works must allow for access to and along the protection works for appropriate equipment and machinery for regular maintenance purposes and/or to repair the protection works should failure occur;
    vii. The works will not aggravate existing hazards and/or create new hazards at updrift/downdrift properties;
    viii. In areas of existing *development*, protection works should be coordinated with adjacent properties, where possible; and
    ix. The *Authority* requires that the protection works incorporate a minimum *erosion access allowance* of 6 m, where possible, and that the *erosion access allowance* permit access from a municipal roadway to and along the shoreline protection works for regular maintenance purposes and/or to repair the protection works, where possible. Side yard access allowances may be shared between adjacent landowners provided that the shared easement is registered on title.

b. The *Authority* will generally not support shoreline protection works that:
    i. Do not consider natural coastal processes;
    ii. Are not effective against long-term erosion;
    iii. Do not preserve cobble/shingle beaches;
    iv. Do not protect/regenerate aquatic and terrestrial habitat;
    v. Encroach on *fish habitat* (in accordance with the *Authority's* agreement with Fisheries and Oceans Canada – *DFO*); and
    vi. Negatively impact neighbouring shorelines.

    In addition, determination of a stable slope (where required) shall be at the loss of the proponent's land, not *fish habitat*. If *fish habitat* loss occurs, compensation for the loss of habitat may be required under the direction of a Fisheries Act authorization.

c. The *Authority* will notify and encourage shoreline property owners with existing protection works on their properties of the importance of regular maintenance of these structures to ensure long-term protection.

d. Where shoreline protection works exist, the *Authority* may request that the integrity of that protection works be assessed by a qualified coastal engineer, at the expense of the proponent, and any recommendations for improvement be incorporated into the *development* proposal.

e. Groynes generally will not be permitted within *hazardous lands* along the Lake Ontario shoreline.

f. The *MNR* will be consulted for all shoreline works to determine if there are Crown interests and if any permits are required.

2. 2. 2. 2 Additions and Replacement Structures

a. *Additions* to structures existing within the shoreline hazard limits will not be permitted, unless the proposed *addition* meets Policy 2.2.2 (b) and Policy 2.2.2.1 (a). Additionally, adequate side and rear yard access for regular maintenance purposes and/or to repair the protection works is required.

b. *Additions* may be permitted on existing structures outside of the shoreline hazard limits, but within the regulated area.

c. The viability of locating *replacement structures* or *additions* on a portion of the property where the shoreline hazards are the least significant must be examined in the case of all proposals and applied wherever possible. *Replacement structures* can only be rebuilt within the shoreline hazard limits if the structure is adequately protected from the shoreline hazards through the installation of shoreline protection works as per Section 2.2.2.1.

2. 2. 2. 3 Accessory/Minor Structures

a. Minor or *accessory structures* will not be permitted within shoreline hazard limits, unless that structure is adequately protected from the shoreline hazards.

b. *Accessory structures* less than 10 m^2 (108 sq. ft.) will not require a permit pursuant to *HCA* Regulation 161/06 under Ontario Regulation 97/04. *Accessory structures* greater than or equal to 10 m^2 will require a permit. Any proposed *accessory structure* that is greater than or equal to 28 m^2 (300 sq. ft.) in size must meet the requirements of Section 2.2.2.

2. 2. 2. 4 Swimming Pools

a. Swimming pools will not be permitted within the shoreline hazard limits, unless adequate shoreline protection works are installed as per Section 2.2.2.1.

2. 3 Hazardous Sites

Areas that exhibit karstic features are classified as *hazardous sites*. Karsts are landforms that have a unique drainage network, with the majority of this network being located beneath the surface. Karst topography includes features such as *sinkpoints*, caves, *sinkholes*, fissures, and springs, and is found in areas along and above the Niagara Escarpment. These *hazardous sites* may be subject to erosional collapse, flooding, and water quality issues. In considering *development* applications for lands located in such areas it is important to consider and account for the landward limits of such hazards in order to mitigate, to the greatest extent possible, the potential effects of these hazards on property and human safety. Although the main regulatory issue is public safety and property damage, the *Authority* is also concerned with conserving and protecting the sensitive ecosystems that may be influenced by *development*.

The Provincial Policy Statement recognizes unacceptable risks associated with such areas, and has required municipalities to address *hazardous sites* in their Official Plan (*OP*) processes. Much of the responsibility for such areas has subsequently been delegated to the Conservation Authorities, who have the required technical and professional expertise for managing such lands.

Development within the Regulation limit of the *Authority's* jurisdiction is governed by the Development, Interference with Wetlands and Alterations to Shorelines and Watercourses Regulation (*HCA* Regulation 161/06 under Ontario Regulation 97/04).

Unlike *river and stream systems* or the Lake Ontario shoreline, *hazardous sites* do not have one formula for defining a hazardous area associated with karst formations; therefore the hazard must be defined on a site-specific basis.

In the *watershed* of the Hamilton Conservation Authority, there exists the Eramosa Karst *Area of Natural and Scientific Interest* (*ANSI*) as determined through a Ministry of Natural Resources investigation and report dated April 2003. This *ANSI* is located in the former City of Stoney Creek, is 195.7 hectares in size, and is considered a provincially *significant* earth science *ANSI*. It contains numerous diverse karstic features, including dry valleys, overflow sinks, sinking streams and a post glacial stream cave of significant length – the Nexus Cave.

The April 2003 provincial report provides guidance to decision-makers on how best to manage the Eramosa Karst and recommends certain technical studies that need to be undertaken as part of *development* within the karst and its three main sub-areas – Developed Area, Core Area, and Feeder Area.

Sixty (60) hectares of the Core and Buffer areas of the Eramosa Karst are in public ownership and will remain in public ownership in order to preserve its geomorphology and the hydrological function of the karst.

2. 3. 1 Development

Any *development* and/or *site alteration* within the jurisdiction of the *Authority* and within *hazardous sites* (identified or not) must be in accordance with the following policies and guidelines and must be to the satisfaction of the *Authority*.

a. *Development* within and adjacent to the Eramosa Karst *ANSI* shall be in conformity with the policies outlined in Section 2.3.1 of this document and shall also be in conformity with the recommendations contained within the April 2003 Ministry of Natural Resources report entitled, "Earth Science Inventory and Evaluation of the Eramosa Karst Areas of Natural and Scientific Interest".

b. The limit of the any *hazardous site* will be established in the field in conjunction with the *Authority* staff and a qualified professional. If proponent is other than the landowner, then permission must be received from landowner before staking limit of the *hazardous site*.

c. *Development* and/or *site alteration* shall generally be directed to areas outside of *hazardous sites*.

d. *Development* and/or *site alteration* shall not be permitted:
   i. In or on the areas that are *hazardous sites*;
   ii. In or on the areas that are adjacent to *hazardous sites*;
   iii. Within a setback distance of 50 m from the boundary a *hazardous site*,

   Unless in the opinion of the *Authority*, it has been demonstrated (through the submission of an *EIS*) that there will be no *negative impacts* on natural features or their *ecological functions*, including but not limited to, the control of flooding, erosion, *pollution*, or the *conservation of land*.

e. *Development* and/or *site alteration* shall not be permitted to locate in *hazardous sites* where the use is, but not limited to:
   i. An institutional use associated with hospitals, nursing homes, pre-school, school nurseries, day care and schools, where there is a threat to the safe evacuation of the sick, the elderly, persons with disabilities or the young during an emergency as a result of flooding, failure of *floodproofing* measures or protection works, or erosion;
   ii. An essential emergency service as that provided by fire, police and ambulance stations and electrical substations, which would be impaired during an emergency as a result of flooding, the failure of *floodproofing* measures and/or protection works, and/or erosion;
   iii. Uses associated with the disposal, manufacture, treatment or storage of *hazardous substances*; and
   iv. Any other use and/or *development* as deemed unsatisfactory by the *Authority*.

f. *Development* and/or *site alteration* may be permitted in those portions of *hazardous sites* where the effects and risk to public safety are minor so as to be managed or mitigated in accordance with provincial standards, as determined by the demonstration and achievement of all of the following:
    i. *Development* and/or *site alteration* is carried out in accordance with *floodproofing* standards, *protection works standards*, and *access standards*;
    ii. Vehicles and people have a way of safely entering and exiting the area during times of flooding, erosion and other emergencies;
    iii. New hazards are not created and existing hazards are not aggravated; and
    iv. No adverse environmental impacts will result.

g. *Development* and/or *site alteration* will only be considered in or on areas that are *hazardous sites* if the following concerns are addressed to the satisfaction of the *Authority*:
    i. Stormwater drainage;
    ii. Utilities;
    iii. Groundwater contamination;
    iv. Flooding; and
    v. Protection of unique features and dynamic processes that cause formation of karst.

h. *Development* and/or *site alteration* shall not be permitted within a setback distance of 50 m from any karst feature, unless the uses are:
    i. Fences, signs, roads and drainage structures that do not obstruct surface or groundwater flows;
    ii. Trails and other passive recreation facilities, excluding *buildings*;
    iii. Agricultural uses excluding *buildings* and structures;
    iv. Properly designed and maintained stormwater management facilities;
    v. Utility lines that do not obstruct surface or subsurface flows;
    vi. Conservation uses excluding *buildings* or structures;
    vii. Forestry uses excluding *buildings* or structures; and
    viii. Any other relevant or appropriate use and/or *development* as deemed satisfactory by the *Authority*.

i. Surface water run-off shall be controlled such that it could not interfere with the ecological and hydrogeological function of any *hazardous site* and:
    i. Non-point source *pollution* load of nutrients and sediment shall not exceed the pre-*development* load; and
    ii. Surface water run-off shall not directly enter a *sinkhole* or closed depression unless that is the natural drainage pattern. Drainage plans shall be designed to route surface water run-off through vegetative filters or other filtration measures before it enters such features.

j. Site plans associated with *development* and/or *site alteration* shall provide for a stable vegetative cover on areas not occupied or covered by the *building* footprint, access, parking, loading or storage areas.

k. Stormwater management ponds shall not be located within depressions or areas containing *sinkholes*. Stormwater management ponds shall be designed with impervious materials to prevent groundwater *pollution*.

l. Utility installations shall be designed to prevent potential subsidence and/or karst-forming processes.

m. Water wells shall be installed as far away as viable from a *sinkhole*. The *Authority* may require an assessment of the draw down impact of the well on the water table and may decline approval where the draw down has the potential to destabilize the karst topography.

n. All permitted land uses which involve above ground storage tanks shall make provision for secondary containment.

o. A monitoring program may be required by the *Authority* to measure the potential impacts of any *development*.

p. The *Authority* will encourage local municipalities to zone lands to restrict land use activities which may have a *negative impact* on the groundwater resource.

q. The *Authority* will encourage local municipalities to identify *hazardous sites* through municipal planning documents (e.g. Official Plans, Zoning By-Laws, neighbourhood plans, and sub-*watershed* plans) and to develop conservation policies for these areas and the lands adjacent to them.

r. All land uses within *hazardous sites* shall be subject to a site plan, as deemed necessary by the *Authority*, to illustrate mitigation and remedial measures, proper siting and containment of storage facilities, lot grading and drainage, and site design plans.

s. The *Authority* will encourage *Best Management Practices* (*BMPs*) for *development* and/or *site alteration* in *hazardous sites* or in those *watershed* areas that directly drain into the *hazardous sites*.

3 Natural Heritage

In addition to regulating *hazardous lands*, the *Authority* also manages *natural heritage features and areas* within its jurisdiction. These areas include *Environmentally Significant Areas* (*ESAs*), habitat of *endangered* and *threatened species*, *fish habitat*, *woodlands* and forested areas, *significant wildlife habitat*, *Areas of Natural and Scientific Interest* (*ANSIs*), and *wetlands*. These areas may be classed as locally, regionally, or Provincially *Significant*. These areas provide economic, social, and environmental benefits to our communities, by drawing tourists to natural areas, supporting human health and recreation, protecting water sources, and providing habitat for wildlife. The Conservation Authority plays an important role in protecting and maintaining such areas within the *watershed*, for both present and future generations.

When reviewing *development* proposals that may affect *natural heritage features or areas* and/or *ESAs*, *Authority* staff will refer to the Natural Heritage Reference Manual (*MNR*, 1999), and any amendments, updates, or revisions thereto. Where a discrepancy exists between this policy document and the *MNR* Reference Manual, the latter document will prevail. Each *development* proposal should utilize *Best Management Practices* (*BMPs*) and should provide all opportunities for protection and rehabilitation of natural features and their *ecological functions*. All reference to *wetlands* within Section 3.1.7 also includes *coastal wetlands*.

The policies and guidelines contained within this document should not be read in isolation of one another. Rather, they should be read concurrently and in their entirety and the appropriate range of policies and guidelines should be applied to each situation. In the case where more than one policy applies to a situation, the more restrictive policy will apply.

3. 1 General Policies

Any *development* and/or *site alteration* within the jurisdiction of the *Authority* and in, on or adjacent to *natural heritage features and areas* and/or *Environmentally Significant Areas* (*ESAs*) must be in accordance with the following policies and guidelines and must be to the satisfaction of the *Authority*.

a. The *Authority* will encourage that natural features and areas be protected for the long term.

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

c. The *Authority* will encourage the protection of the ecological landscape surrounding unprotected groundwater recharge or discharge zones. Wherever possible, the *Authority* will work with the applicant to encourage conservation in *adjacent lands*. Appropriate techniques for such efforts will be determined on a case by case basis, and as appropriate to the feature in question.

d. With the exception of those policies in Section 3.1.3, the *Authority* will require a minimum 10 metre *vegetation protective zone* for *natural heritage features*, where viable.

e. Reduced setbacks from *natural heritage features* may be considered for brownfield *development* on a site by site basis.

f. The *Authority* does not intend to limit the ability of existing agricultural uses from continuing.

g. Interior renovations to any *building* or structure that do not alter the use or potential use, do not increase the size, and do not increase the number of *dwelling units* of that *building* or structure will only require a letter of permission from the *Authority* pursuant to *HCA* Regulation 161/06 under Ontario Regulation 97/04.

h. *Development* and/or *site alteration* that is within the Regulation limit but outside of hazard limits generally will only require a letter of permission from the *Authority* pursuant to *HCA* Regulation 161/06 under Ontario Regulation 97/04.

3. 1. 1 Environmentally Significant Areas

a. The limit of any *ESA* will be established in the field by *Authority* staff and municipal staff prior to the review of any *EIS*.

b. *Development* and/or *site alteration* shall be directed away from all *ESAs* as defined in the Regional Municipality of Hamilton-Wentworth Official Plan (*OP*), dated April 1998, and/or the City of Hamilton *OP*, and any amendments, updates, or revisions thereto.

c. When reviewing planning applications involving the creation of new lots (i.e. draft plan of subdivision, severance), *Authority* staff will work to ensure that no new lot lines extend into the *natural heritage feature* and its *vegetation protection zone* in order to maintain the natural area as one whole unit.

d. *Authority* staff will bring updated information on *ESAs* to the City of Hamilton and/or the Township of Puslinch as it is developed, and encourage the incorporation of new designations into their Official Plan.

e. Any *development* proposed for lands within, overlapping or adjacent to an *ESA* may require the completion of an *EIS* by the proponent, and each *EIS*:
   i. Will be conducted using the guidelines set forth by the City of Hamilton or the Township of Puslinch (dependant on where the *development* is proposed); and
   ii. Shall be required to examine the study area for the presence of an *Element Occurrence* (*EO*). Should an *EO* be present the *MNR* Guelph District Office is to be notified.

f. Wherever appropriate, the *Authority* will offer its assistance to the municipality and individual applicants in reviewing *EISs*.

g. In instances where lands of an *ESA* are being used for agricultural purposes, the *Authority* will encourage the use of *Best Management Practices* (*BMPs*).

h. In instances of land acquisition the *Authority* will place a high priority on acquiring *ESAs*.

3. 1. 2 Endangered and Threatened Species

a. *Development* and/or *site alteration* will not be permitted in the *significant* habitat of *threatened* and *endangered species*.

b. *Development* and/or *site alteration* will not be permitted on lands adjacent to *significant* habitat of *threatened* or *endangered species* (within 50 m of the boundary of the habitat) unless the *ecological function* of the *adjacent lands* has been evaluated and it has been demonstrated through the submission of an *EIS* that there will be no *negative impacts* on the natural features or on their *ecological functions*.

c. When reviewing planning applications, *Authority* staff will check proposals against the Species at Risk Act, Endangered Species Act, associated regulations, and internal database, as well as, the *Natural Areas Inventory* (Hamilton Naturalist Club, 2003) and any amendments, updates, or revisions thereto, in order to determine if any *endangered* or *threatened species* could be impacted by the proposed *development*.

d. In the absence of *Authority* listings of *endangered* and *threatened species*, *Authority* staff shall consult:
   i. The *MNR* list of Species at Risk in Ontario (http://www.mnr.gov.on.ca/en/Business/Species/2ColumnSubPage/246809.html); and
   ii. The Federal list of Species at Risk in Ontario (http://www.sararegistry.gc.ca/species/schedules_e.cfm?id=1).

3. 1. 3 Fish Habitat

a. *Development* and/or *site alteration* will not be permitted in *fish habitat* except in accordance with *provincial and federal requirements*.

b. *Development* and/or *site alteration* will not be permitted on lands adjacent to *fish habitat* (within 30 m of the boundary of the habitat) unless the *ecological function* of the *adjacent lands* has been evaluated and it has been demonstrated through the submission of an *EIS* that there will be no *negative impacts* on the natural features or on their *ecological functions*. In the case of *fish habitat*, *adjacent lands* should generally be measured from the bankfull width.

   In instances where a valid study indicates the viability of implementing a reduction in the width of *adjacent lands*, these reductions will be required to comply with the appropriate *vegetation protective zone* widths for *Critical*, *Important* and *Marginal Habitats* [Policy 3.1.3 (d)], wherever appropriate.

c. When reviewing applications that will cause a harmful alteration, destruction or disruption to *fish habitat* (*HADD*) the project shall be referred to the Fisheries and Oceans Canada (*DFO*) in accordance with the *HCA's* Level 2 agreement with this agency (see Appendix E for the full agreement).

d. The *Authority* will require an undisturbed *vegetation protective zone* running consistently along both sides of all *watercourses*. A reduction in the *vegetation protective zone* will not be considered for *development* and/or *site alteration* proposals. Exceptions may be considered for *additions*, *replacement structures* and *accessory structures*, where locating *buildings* and/or structures outside of the *vegetation protective zone* is not viable. The *vegetation protective zone* is to be measured perpendicularly outward from each of the two edges of the bankfull width with the following provisions.

NOTE: *Authority* staff will use thermal regimes documented at the time these policies were approved by the Board of Directors. In all cases, the methods of Stoneman, C.L. and Jones, M.L. (1996) will be utilized to determine the thermal regime of a *watercourse*.

i. A minimum 15 m *vegetation protective zone* for all *Important* (Type 2) and *Marginal* (Type 3) *Habitats* (30 m total);

ii. A minimum 30 m *vegetation protective zone* for all *Critical* (Type 1) *Habitats* (60 m total),

1. In the case of *Critical habitats*, the *Authority* may require that the *vegetation protective zone* be adjusted upwards based on the findings of a fisheries habitat assessment. Such assessments are to be completed at the expense of the proponent and by a qualified professional;

iii. Greater *vegetation protective zones* may be required in some areas as a result of sensitive soil conditions (e.g. high permeability, shallow soil depths, steep slopes, or extensive organics, etc.) and/or in the habitat of *endangered* or *threatened species*;

iv. The *vegetation protective zone* may be required to be enhanced as determined by the *Authority*

v. The *vegetation protective zone* for a meandering stream shall be the greater of either the *meander belt allowance* or the required *vegetation protective zone* for C*ritical*, *Important* or *Marginal Habitats*;

vi. *Best Management Practices* (*BMPs*) should be used where the *vegetation protective zone* is interrupted to allow *watercourse* crossings, as permitted in Section. 2.1.3. An interruption should occur only where it is proven to be least intrusive; and

viii. Trails and paths may be allowed in the *vegetation protective zone* provided that:

1. The trail or path is located outside of *erosion hazard*, except for crossings;
2. The trail or path should not come closer than 4 m to the edge of a *watercourse*, except for crossings, unless it has been demonstrated through the completion of an Environmental Impact Statement (*EIS*) that there will be no *negative impacts* on the natural features or on their *ecological functions*;
3. The trail or path does not impede the natural function of *valleylands*;
4. Permeable surfacing generally must be used for trail or path construction; and
5. There is a compensating *vegetation protective zone* allowance added to the width of the *vegetation protective zone*.

3. 1. 4 Significant Woodlands and Forested Areas

a. *Development* and/or *site alteration* will not be permitted in *significant woodlands* unless it has been demonstrated through the submission of an *EIS* that there will be no *negative impacts* on the natural features or their *ecological functions.*

b. *Development* and/or *site alteration* will not be permitted on lands adjacent to *significant woodlands* (within 50 m of the boundary of the *woodland*) unless the *ecological function* of the *adjacent lands* has been evaluated and it has been demonstrated through the submission of an *EIS* that there will be no *negative impacts* on the natural features or on their *ecological functions*.

c. In situations where a proposed *development* and/or *site alteration* is located in or adjacent to a potentially *significant woodland*, *Authority* staff will apply the criteria used by the municipality in order to determine if the policies regulating *development* in such areas are applicable.

d. Where trees have been removed for the purposes of *development* and/or *site alteration*, the *Authority* may require compensatory replanting within a comparable habitat. At a minimum, this should be done at a 2:1 ratio using locally appropriate native species and shall be required to follow the guidelines established in Section 10.1 of this document.

e. Wherever possible, the *Authority* will work to maintain existing tree cover or other stabilizing vegetation, particularly in sloped areas.

f. Where *development* and/or *site alteration* proposals affect undesignated and/or unassessed *woodlands*, the *Authority* will work with the applicant to encourage conservation. Appropriate techniques for such efforts will be determined on a case by case basis, and as appropriate to the feature in question.

g. Where appropriate, the *Authority* will encourage the municipality to include *woodlands* in park and other open space dedications.

3. 1. 5 Significant Wildlife Habitat

a. *Development* and/or *site alteration* will not be permitted in *significant wildlife habitat* unless it has been demonstrated through the submission of an *EIS* that there will be no *negative impacts* on the natural features or their *ecological functions.*

b. *Development* and/or *site alteration* will not be permitted on lands adjacent to *significant wildlife habitat* (within 50 m of the boundary of the habitat) unless the *ecological function* of the *adjacent lands* has been evaluated and it has been demonstrated through the submission of an *EIS* that there will be no *negative impacts* on the natural features or on their *ecological functions*.

c. Where *development* and/or *site alteration* proposals affect unprotected *wildlife habitat*, the *Authority* will work with the applicant to encourage conservation and will promote the use of conservation management techniques. Such techniques will be determined on a case by case basis, and as appropriate to the wildlife in question.

d. Wherever possible, the *Authority* will encourage the municipality to acquire lands through public dedication such that they contribute to the formation of wildlife corridors.

3. 1. 6 Areas of Natural and Scientific Interest

a. The *Authority* will direct *development* and/or *site alteration* away from Provincially *Significant Areas of Natural and Scientific Interest* (*ANSIs*) unless it can be demonstrated through the submission of an *EIS* that there will be no *negative impacts* on the natural features or the *ecological functions.*

b. *Development* and/or *site alteration* will not be permitted on lands adjacent to Provincially *Significant ANSIs* (within 50 m of the boundary of the area) unless the *ecological function* of the *adjacent lands* has been evaluated and it has been demonstrated through the submission of an *EIS* that there will be no *negative impacts* on the natural features or on their *ecological functions*.

3. 1. 7 Wetlands

a. *Development*, *site alteration*, and/or *interference with wetlands* will generally not be permitted:
   i. In or on the areas of Non-*PSWs*;
   ii. Within the *adjacent lands* of *PSWs* (120 m); or
   iii. Within the *adjacent lands* of Non-*PSWs* (30 m)

   Unless the hydrological, hydrogeological, and *ecological function* of the subject lands and of the *adjacent lands* has been evaluated and it has been demonstrated that there will be no *negative impacts* on natural features or their *ecological functions*, such proposals may require the completion of an *EIS*, and should utilize all opportunities for protection and rehabilitation of the *wetland* feature.

b. Except as provided for in Policy 3.1.7 (h) (i), no *development*, *site alteration*, and/or *interference with wetlands* is permitted within a *PSW*.

c. Except as provided for in Policy 3.1.7 (i), no *development*, *site alteration*, and/or *interference with wetlands* is permitted within 30 m of any *wetland*.

d. The viability of locating the *development* proposal on a portion of the property outside of the 30 m *area of interference* of a *PSW* must be examined in all cases and applied wherever possible.

e. The limit of any *wetland* will be established in the field by the *Authority* staff and municipal staff, with reference to provincial mapping.

f. The *Authority* will encourage the local municipalities to continue to identify local and regional *wetlands* through municipal planning documents (e.g. Official Plans, Zoning By-Laws, neighbourhood plans, and sub-*watershed* plans) and to develop conservation policies for these areas and the lands adjacent to them.

g. The *Authority* will recommend that municipalities seek the dedication of the *wetland* to a public agency to protect the *wetland* and its features when applications for plan of subdivision are reviewed.

h. **Within Any *Wetland***

i. *Development, site alteration,* and/or *interference with wetlands* will not be permitted in or on the areas of Provincially *Significant Wetlands* (*PSWs*). This includes *additions*, *accessory structures*, decks, and/or pools;

1. An exception may be considered for *replacement structures* where Policy 3.1.7 (d) has been examined and *floodproofing* concerns, as outlined in Section 8.1 (and its sub-policies), have been addressed;

ii. The *Authority* will not support the *development* of roads, or driveways, through any *wetland* in order to access *building* sites. As a general principle, the *Authority* will refuse applications that would necessitate such an access road, or driveway, being built; and

iii. *Ponds* will not be permitted within any *wetland*.

i. **Within 30 m of Any *Wetland* – Permit**

These policies regulate *development, site alteration,* and/or *interference with wetlands* on lands located within 30 m of *PSWs* and within 30 m of Non-*PSWs*, and will require a formal permit under *HCA* Regulation 161/06 under Ontario Regulation 97/04, and may require the completion of an *EIS*. Where *buildings* and structures already exist within 30 m of any *wetland*, the following provisions will apply:

i. No new septic systems permitted;

ii. No swimming pools (above ground and in-ground) permitted;

iii. Existing septic systems may be upgraded and/or replaced provided there are no viable locations available outside of the 30 m *area of interference* and it does not encroach any closer to the *wetland* than the existing system;

iv. A *replacement structure* / *addition* may be permitted to encroach closer to the *wetland* than the existing *development* at its closest point; and

v. An *accessory structure* may be permitted to encroach closer to the *wetland* than the existing *development* at its closest point.

j. **Between 30 and 120 m of *PSW* – Letter of Permission**

Provided major *fill* placement (>0.3 m in elevation) is not associated with the following *development, site alteration,* and/or *interference with wetlands*, the following may be permitted and will only require a letter of permission if proposed within 30 to 120 m from the limit of a *PSW*, with the provision that where *Authority* staff require an *EIS* then a permit will be required pursuant to *HCA* Regulation 161/06 under Ontario Regulation 97/04:

i. A single family residential dwelling equal to or less than 200 m^2 (2153 ft^2) in size;

ii. Swimming pools, decks, *accessory structures* to a single family residential dwelling that combined with the dwelling are equal to or less than 300 m^2 (3229 ft^2) in size;

iii. *Replacement structures*;

iv. Minor *additions* to existing residential *buildings*/structures provided the *addition* does not encroach closer to the *wetland* than the existing structure and the *addition* combined with the dwelling are equal to or less than 300 m^2 (3229 ft^2) in size;

v. Residential septic systems with the provision that a qualified professional(s) conducts percolation tests and soil description, a site inspection, a licensed septic system installer installs the system, and a mound system or a raised filter bed is utilized. The system must be located as far from the *wetland* as possible;
vi. Existing septic systems may be replaced provided they do not encroach any closer to the *wetland* than the existing system, and they meet the requirements of (iv) above;
vii. Agricultural *buildings*/structures provided *BMPs* are implemented and, where applicable, proper manure storage facilities are demonstrated as part of the proposal and the *building* is equal to or less than 500 m^2 (5382 ft^2) in size;
viii. Minor *additions* to existing agricultural *buildings*/structures provided that combined with the existing *building* are equal to or less than 700 m^2 (7535 ft^2) in size; and
ix. Landscaping and minor grading.

Best efforts must be made to locate the above uses as far from the *wetland* as possible in order to minimize the potential impacts to the hydrological, hydrogeological, and/or *ecological functions*. Cumulative impacts will be considered.

k. **Between 30 and 120 metres – Permit**
Any *development, site alteration,* and/or *interference with wetlands,* other than those outlined in Policy 3.1.7 (j), proposed within 30 to 120 m of a *PSW*, will require a formal permit under *HCA* Regulation 161/06 under Ontario Regulation 97/04, and may need to be supported by an *EIS*, prepared by a qualified professional, that identifies whether the proposed *development, site alteration,* and/or *interference with wetlands* would cause a negative hydrological, hydrogeological, and/or *ecological* impact on the *wetland* features/functions.

4 Development Adjacent to Authority Land Holdings

The Hamilton Conservation Authority owns, leases, or manages approximately 4,000 hectares of land. This land base is managed to protect *flood plain*, *wetland*, and headwater areas, *wildlife habitat*, flora and fauna and to provide recreational opportunities. It is important to ensure that proposed land uses adjacent to *Authority* Land Holdings do not have a *negative impact* on the existing or proposed uses of the *Authority's* property.

The policies and guidelines contained within this document should not be read in isolation of one another. Rather, they should be read concurrently and in their entirety and the appropriate range of policies and guidelines should be applied to each situation. In the case where more than one policy applies to a situation, the more restrictive policy will apply.

4. 1 General Policies

Any *development* and/or *site alteration* adjacent to *Authority* Land Holdings must be in accordance with the following policies and guidelines and must be to the satisfaction of the *Authority*. Each *development* proposal should utilize *Best Management Practices* (*BMPs*) and should provide all opportunities for protection and rehabilitation of natural features and their *ecological functions*.

a. Where appropriate, existing *vegetation protective zone* between adjacent properties and *Authority* Land Holdings shall be maintained and enhanced in conjunction with adjacent *development*.

b. In rural areas, *Authority* staff shall work to encourage adjacent landowners to establish a 5 m *vegetation protective zone* (50/50 split) comprised of native and locally appropriate plant and tree species on the boundary of the subject properties.

c. In urban areas, *Authority* staff shall request that a 1.8 m high continuous chain link fence be established on the boundary of the subject property adjacent to *Authority* lands. In areas where the construction of a fence will result in the removal or destruction of excessive vegetation, alternate property boundary demarcation may be considered. Where appropriate, this should be included as a condition for draft plans of subdivision, consent or site plan.

d. Open space and recreational uses that will complement the existing or proposed use of a Conservation Area of other *Authority* Land Holding are to be encouraged.

e. In order to prevent dumping and encroachment onto *Authority* lands, gates will not be permitted within fences that are adjacent to *Authority* lands.

5 Fill Placement and Grade Modifications

Under the Conservation Authorities Act, the Hamilton Conservation Authority is responsible for controlling and monitoring the placement or dumping of *fill* and *site alteration* within regulated areas. Such activities require careful monitoring due to their potentially harmful impacts on flooding, flood storage capacity, erosion, and sedimentation.

The policies and guidelines contained within this document should not be read in isolation of one another. Rather, they should be read concurrently and in their entirety and the appropriate range of policies and guidelines should be applied to each situation. In the case where more than one policy applies to a situation, the more restrictive policy will apply.

The following policies will be used when reviewing *fill* placement, grade modifications, and dredging proposals within the jurisdiction of the *Authority*.

5. 1 General Policies

Any *fill* placement or site grading within the jurisdiction of the *Authority* must be in accordance with the following policies and guidelines and must be to the satisfaction of the *Authority*.

a. *Fill* placement and grade modifications will be evaluated on an individual basis, having consideration for the following:
    i. No *negative impacts* on the natural features or on the *ecological functions*, including *fish* and wildlife requirements as set out by other federal, provincial or municipal legislation/plans/technical guidelines and a *net environmental benefit* is achieved;
    ii. Maintenance of the natural topography of the *watercourse* system, flood conveyance and flood storage;
    iii. No adverse impacts upstream and/or downstream of the proposed works in respect to fluvial geomorphological processes, storage capacity of the *flood plain*, *flood plain* elevations, flood frequency, erosion rates or erosion frequency along either side of the *watercourse*;
    iv. No adverse impacts on *ground water features* and recharge/discharge;
    v. Geotechnical issues are addressed to the satisfaction of the *Authority*; and
    vi. Adequate erosion and sediment control measures are incorporated and utilized during the construction phase.

b. *Fill* material shall not be permitted within hazard limits, with the following exceptions:
    i. Where *fill* is required in order to ensure the long-term stability of a slope;
    ii. As part of cut and *fill* operations, where it can be shown that there will be no hydraulic impacts; and
    iii. Within the Dundas *Special Policy Areas*, as regulated by the appropriate policies.

c. Where appropriate, the *Authority* may require the completion of an erosion and sediment control plan. Such plans shall be required to conform to those guidelines detailed in Section 9.1 of this document.

d. The *fill* material must be:
    i. Clean and inert;
    ii. Placed so as not to be susceptible to washout or scour under the action of floodwater;
    iii. Placed so as to ensure the long term stability of slopes in accordance with sound engineering standards; and
    iv. Placed outside of any *wetlands*.

6 Pond Construction

When constructed correctly, a *pond* can provide valuable habitat for wildlife and *fish*, recreational opportunities and a reliable source of water for livestock, irrigation or fire protection. When poorly planned, however, *ponds* can create changes in water levels and temperatures, increase erosion and sedimentation hazards, reduce water quality, and negatively impact *fish habitat* through the loss of migration routes and blockage of spawning grounds.

The policies and guidelines contained within this document should not be read in isolation of one another. Rather, they should be read concurrently and in their entirety and the appropriate range of policies and guidelines should be applied to each situation. In the case where more than one policy applies to a situation, the more restrictive policy will apply.

The following policies are to be applied to all *ponds* with the exception of those that are associated with stormwater management facilities. Stormwater management ponds shall be subject to those policies provided in Section 12.1.

6. 1 General Policies

Any *pond* construction within the jurisdiction of the *Authority* and must be in accordance with the following policies and guidelines and must be to the satisfaction of the *Authority*.

a. The *Authority* will not support the establishment of in-stream *ponds*.

b. The *Authority* will require that all *ponds* maintain a minimum setback of 15 m from all *watercourses*.

c. *Ponds* will not be permitted within:
   i. Hazard limits;
   ii. The *floodway* of a *river or stream system*;
   iii. Provincially *Significant* or other regionally or locally recognized *wetlands*; or
   iv. *Environmentally Significant Areas*.

d. If deemed necessary, the *Authority* may require the proponent to complete an Environmental Impact Statement (*EIS*) at their own expense.

e. *Ponds* may be approved on *adjacent lands* to those areas noted in Policy 6.1 (c), such proposals are subject to the following:
   i. Groundwater sources for nearby *watercourses* and all types of *wetlands* are not negatively impacted. Such determinations are to be made by a professional geoscientist or engineer;
   ii. Where applicable, *flooding hazards* upstream and downstream are not significantly altered;
   iii. There will be no detrimental effects on the features or functions of *ESAs*, *natural heritage features or areas*, or any *wetlands*;
   iv. All *fill* materials excavated from the site of the *pond* are removed from the *flood plain*; and
   v. Where applicable, it must be shown that there will be no *negative impacts* on nearby *watercourses*, particularly with regards to water quality and thermal *pollution*.

f. Prior to issuing a permit, the *Authority* will require a site plan detailing erosion and sediment controls (Section 9.1) to be applied during and after construction. These measures must be in place prior to the commencement of construction, and are to be maintained until all disturbed soils have re-vegetated.

g. The *Authority* will require that all soil surfaces exposed during the construction process be restored and re-vegetated following the completion of grading in order to guard against sedimentation and erosion. Landowners shall be encouraged to re-vegetate using species that are native to the area. If deemed necessary by *Authority* staff, the proponent will be required to submit a vegetation plan. Such plans shall follow the guidelines established in Section 10.1 of this document.

7 Minor Development Exemptions

This section outlines minor *development* that are exempt from requiring a formal permit pursuant to *HCA* Regulation 161/06 under Ontario Regulation 97/04, subject to the proposed *development* maintaining appropriate setbacks and meeting the requirements of the following policies.

The policies and guidelines contained within this document should not be read in isolation of one another. Rather, they should be read concurrently and in their entirety and the appropriate range of policies and guidelines should be applied to each situation. In the case where more than one policy applies to a situation, the more restrictive policy will apply.

7.1 General Policies

Minor *development* exemptions must be in accordance with the following policies and guidelines and must be to the satisfaction of the *Authority*. Each *development* proposal should utilize *Best Management Practices* (*BMPs*) and should provide all opportunities for protection and rehabilitation of natural features and their *ecological functions*.

The following *development* proposals are exempt from requiring a formal permit pursuant to *HCA* Regulation 161/06 under Ontario Regulation 97/04:

a. *Accessory Structures*
   i. *Accessory structures* less than 10 m^2 (108 sq. ft.), but the *Authority* requires a minimum 6 m *erosion access allowance*, where possible, from the *top of slope* or the *toe of slope* and/or a 15 m setback from the channel bank of any *watercourse* is maintained.

b. Fencing
   i. All fencing projects.

c. *Site Alteration*
   i. A one-time placement of *fill* less than or equal to 10 m^3 in volume within or adjacent to a valley or within the *Regulatory Flood plain*, provided that there is a minimum 6 m *erosion access allowance*, where possible, from the *top of slope* or the *toe of slope* and/or a 15 m setback from the channel bank of any *watercourse* is maintained, the filled and re-graded area is immediately stabilized, and that the *fill* does not have an effect on *Regulatory Flood* elevations as deemed by the *Authority*;
   ii. Provided (i) above is met, top dressing of existing lawns or gardens with organic material such as topsoil (50 mm depth); and
   iii. Resurfacing of existing driveways and parking lots, where the final grade is generally the same as the existing grade.

8 Floodproofing Standards

The term *floodproofing* is used to describe the combination of measures that are incorporated into the basic design and/or construction or alteration of individual *buildings*, structures or properties so as to reduce the impacts of flood related damages. *Floodproofing* alleviates damages to *buildings* and structures and therefore reduces the risk to public safety and property. The purpose of these planning guidelines is to provide direction when *floodproofing* is required, therefore the following policies will apply to all proposed *developments*, where applicable.

The policies and guidelines contained within this document should not be read in isolation of one another. Rather, they should be read concurrently and in their entirety and the appropriate range of policies and guidelines should be applied to each situation. In the case where more than one policy applies to a situation, the more restrictive policy will apply.

8. 1 General Policies

Any *development* within the jurisdiction of the *Authority* and within any and all *flooding hazards* (i.e. rivers and streams, shorelines, karst areas) must be in accordance with the following policies and guidelines, where applicable, and must be to the satisfaction of the *Authority*.

a. *Floodproofing* is dependent on the following characteristics of a flood. These criteria will be taken into consideration when deciding *floodproofing* on a site-specific basis:
    i. The combination of depth and velocity of the flood waters;
    ii. The duration of the flood;
    iii. The rate of rise and fall of the flood waters; and
    iv. The type of flood warning system in place.

b. All mechanical and electrical systems must be designed and installed so that the heating, lighting, ventilation, air conditioning and other systems are not vulnerable to flood damage during the flood standard. Where flooding could interrupt key power supplies, it may be necessary to provide stand-by or backup systems, with power and controls located above the level of the flood standard.

8. 1. 1 Safe Access

a. Safe ingress and egress for pedestrians and vehicles must be such that the depth is less than 0.3 m (1 ft) and the velocity is no greater than 1.7 m/s (5.5 ft/s).

8. 1. 2 Additions and Replacement Structures

a. *Replacement* residential/habitable structures will require *dry passive floodproofing* to the level of the *Regulatory Flood* plus a freeboard of 0.3 m (1 ft) wherever possible.

b. Minor *additions* to an existing *building* are the only *developments* that shall be permitted to be *floodproofed* to less than the *Regulatory Flood* level. In all instances they should incorporate *floodproofing* measures to the extent and level possible, based on site-specific conditions. At a minimum, the *addition* should not be more flood vulnerable than the existing structure, in that no openings on the *addition* are to be below the elevation of existing openings.

8. 1. 3 Dry Floodproofing

a. The use of *dry active floodproofing* measures will only be accepted in instances where it is not possible and/or practical to utilize *dry passive* approaches.

b. When reviewing *dry passive floodproofing* designs, *Authority* staff shall ensure that adequate use of *fill*, columns or design modifications are used in order to ensure that openings in *buildings* or structures will be elevated above the level of the *Regulatory Flood*, plus a freeboard of 0.3 m (1 foot), where possible.

c. Where *Authority* staff determine that it is not viable or practical to use *dry passive floodproofing* measures, *dry active* measures may be explored and utilized. In reviewing such approaches, staff shall ensure that the use of water tight doors, seals, berms/floodwalls or other similar measures to prevent water from entering openings below the *Regulatory Flood* level are adequately and appropriately incorporated into the design.

d. All *dry floodproofing* designs must be prepared and certified by a qualified engineer.

e. Wherever possible, *dry floodproofing* measures should be passive rather than active.

8. 1. 4 Wet Floodproofing

a. *Wet floodproofing* shall only be considered for structures that are non-residential or non-habitable.

b. *Wet floodproofing* shall be to the level of the *Regulatory Flood* plus a freeboard of 0.3 m. (1 foot), where possible.

c. When reviewing *wet floodproofing* measures *Authority* staff shall ensure that appropriate use is made of materials, methods and design measures such that structural integrity may be maintained in the event of a flood, and that water damage will be minimized to the greatest extent possible.

d. When reviewing *wet floodproofing* measures *Authority* staff shall ensure that designs have included two openings below the level of the *Regulatory Flood* in order that water is able to freely enter and exit the structure.

e. If deemed necessary, the *Authority* may require that *wet floodproofing* designs be prepared and submitted by a qualified engineer.

9 Erosion and Sediment Control Standards

Although erosion is a naturally occurring process the impacts of construction activities can cause soil erosion amounts and rates to increase by up to 40,000 times those of undeveloped lands or forests. Erosion and the resulting deposition of sediments into natural *watercourses* can cause degradation in water quality, the destruction of *fish habitat*, increased *flooding hazards*, and reduced navigational capacities in waterways. During a typical construction season, it is estimated that between 2.5 to 5 dump truck loads of soil erode off every hectare of an unprotected site. Once soil begins to move it becomes far more difficult to control; therefore, erosion control at the source is far more effective than end-of-pipe measures.

The policies and guidelines contained within this document should not be read in isolation of one another. Rather, they should be read concurrently and in their entirety and the appropriate range of policies and guidelines should be applied to each situation. In the case where more than one policy applies to a situation, the more restrictive policy will apply.

The intention of these policies and guidelines is to reduce erosion and to minimize the amount of sediment moving off of construction sites, thereby preventing degradation of the environment.

9. 1 General Policies

Any *development* and/or *site alteration* within the jurisdiction of the *Authority* and that requires erosion and sediment control measures must be in accordance with the following policies and guidelines and must be to the satisfaction of the *Authority*.

a. The *Authority* will require that all *development* activities utilize appropriate erosion and sediment control measures as part of the construction process.

b. Where deemed necessary, the *Authority* will require the preparation and implementation of an Erosion and Sediment Control Plan that has been prepared by a qualified professional.

c. All landowners will be responsible for implementing, monitoring and maintaining all erosion/sedimentation control measures until the establishment of a permanent vegetative cover. This will include field inspection of all measures before and after a storm event, and follow-up with any required maintenance.

9. 2 Erosion and Sediment Control Plans

a. All Erosion and Sediment Control Plans shall use the guidelines detailed in the Erosion and Sediment Control Guideline for Urban Construction (December 2006), or any amendments, updates, or revisions thereto. The requirements of these plans shall be determined based on:
   i. The type of *development* proposed; and
   ii. What is deemed to be necessary by the *Authority*,

      A. Part One: Erosion and Sediment Control Plan **Document/Report** including:
         - Project descriptions
         - Condition of existing site
         - Condition of existing receiving water
         - Adjacent areas and features
         - Soils
         - Critical areas
         - Permanent stabilization
         - Record keeping procedure
         - Stockpile details
         - Design details of erosion and sediment control measures
         - Emergency contact
         - Stamped and signed by a Professional Engineer

      B. Part Two: Erosion and Sediment Control Plan **Drawing** including:
         - General items
         - Site boundary limits
         - Existing contours
         - Proposed contours/elevation
         - Existing vegetation
         - Water resources location(s)
         - Critical areas
         - Existing and proposed drainage systems
         - Stormwater management systems
         - Stormwater discharge locations
         - Limits of clearing and grading
         - *Regulatory Flood* level and *HCA* regulated areas
         - Access road
         - Internal haul road
         - Stockpile and berm data
         - Construction phasing and scheduling
         - Erosion and sediment control measures locations and details
         - Inspection and maintenance
         - Stamped and signed by a Professional Engineer

10 Vegetation Plans

The early re-vegetation of areas that have been denuded during *development* is an important component of efforts to control erosion and sedimentation. Planting will also provide benefits in terms of water quality, *wildlife habitat*, nutrient and pesticide movement, and the protection of biodiversity.

In instances where the Conservation Authority requires the implementation of re-vegetation strategies, (most notably along *watercourses*, lands adjacent to or within *Environmentally Significant Areas* and regulated areas) it may also request that a vegetation plan be submitted with the application. In some instances it may be appropriate to have such plans submitted in conjunction with erosion and sediment control plans.

The policies and guidelines contained within this document should not be read in isolation of one another. Rather, they should be read concurrently and in their entirety and the appropriate range of policies and guidelines should be applied to each situation. In the case where more than one policy applies to a situation, the more restrictive policy will apply.

10. 1 General Policies

Any *development* and/or *site alteration* within the jurisdiction of the *Authority* that requires a vegetation plan must be in accordance with the following policies and guidelines and must be to the satisfaction of the *Authority*.

a. The vegetation plan shall include the following;
    i. An inventory of existing vegetation, noting species composition and their general condition;
    ii. The location of the proposed *development* and/or *site alteration* and anticipated disturbances;
    iii. Areas that are to be retained in their natural condition;
    iv. Drainage patterns of the land (including swales, run-off areas, *ponds*, streams, and *wetland* areas);
    v. Location and type of measures that are to be utilized during and after construction so as to control erosion and protect environmental features; and
    vi. Areas that will be replanted, noting the types, quantities and variety of native species that will be used.

b. All plantings should use native, non-invasive and locally appropriate species.

c. Topsoil should be present at depths of 0.45 to 1.0 m above the permanent water level. This may be achieved either through raised beds or by spreading the material evenly across the area to be planted.

d. Planting should take place within seven days of the completion of final grading for the area in question unless it can be demonstrated that doing so will significantly reduce the likelihood of those plants surviving. In such instances proponents may be required to create a temporary cover for the area through seeding or other measures, until permanent plantings can be made.

e. Proponents shall be encouraged to establish vegetation corridors where possible.

f. Proponents shall be encouraged to consider genetic diversity and the incorporation of a variety of native, locally appropriate plant species into their vegetation plans in order to promote biodiversity. *Authority* staff may be required for consultation in order to provide information on suitable species.

g. Any removal, protection and/or replanting works that are engaged in must be performed to the satisfaction of the *Authority*.

h. Wherever applicable, vegetation plans should address all measures required by municipal tree preservation policies.

11 Source Water Protection

Source water is untreated water from streams, lakes, rivers, or underground aquifers used to supply private wells and public drinking water. By protecting source water, Conservation Authorities are providing economic, social, and environmental benefits to our communities.

As deemed necessary by the *Authority*, the following policies may be applicable to all quality and quantity issues submitted with planning applications with respect to water within the *Authority's* jurisdiction. Please note that *HCA* Regulation 161/06 under Ontario Regulation 97/04 does not yet allow for the regulation of activities in or near source water protection areas. However, *Authority* staff can work with the local municipalities in response to *development* applications under the Planning Act, to protect these important areas.

The policies and guidelines contained within this document should not be read in isolation of one another. Rather, they should be read concurrently and in their entirety and the appropriate range of policies and guidelines should be applied to each situation. In the case where more than one policy applies to a situation, the more restrictive policy will apply.

11. 1 General Policies

The following policies and guidelines will be used by *Authority* staff in the review of *development* applications.

a. *Authority* staff will notify the Ministry of the Environment immediately when an imminent risk or threat to drinking water is evident (Figure 12). *Authority* staff will refer to Watershed-Based Source Protection Planning, Science-Based Decision-Making for Protecting Ontario's Drinking Water Resources: A Threats Assessment Framework (OMOE, Nov 2004)

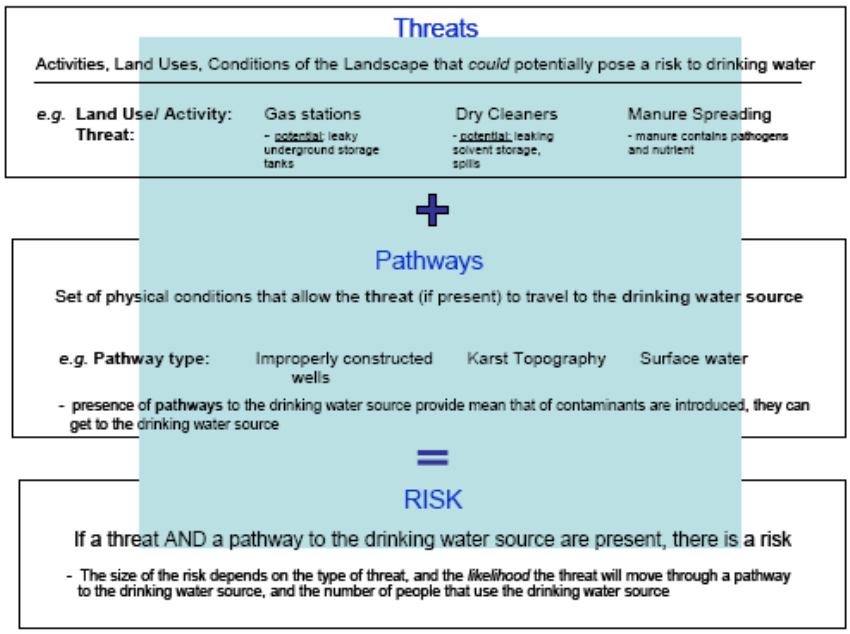

Figure 12: Concepts of Threat, Pathways and Risk to drinking water sources (*courtesy of OMOE, 2004)*

b. The *Authority* shall protect, improve or restore the *quality and quantity of water* by:
    i. Using the *watershed* as the ecologically meaningful scale for planning
    ii. Minimizing potential *negative impacts*, including cross-jurisdictional and cross-*watershed* impacts;
    iii. Identifying *surface water features*, *ground water features*, *hydrologic functions* and *natural heritage features and areas* which are necessary for the ecological and hydrological integrity for the *watershed*;
    iv. Implementing necessary restrictions on *development* and *site alteration* to:
        1. Protect all municipal drinking water supplies and *designated vulnerable areas*; and
        2. Protect, improve or restore *vulnerable* surface and ground water, *sensitive surface water features* and *sensitive ground water features*, and their *hydrologic functions*;
    v. Maintaining linkages and related functions among *surface water features*, *ground water features*, *hydrologic functions*, and *natural heritage features and areas*;
    vi. Promoting efficient and sustainable use of water resources, including practices for water conservation and sustaining water quality; and
    vii. Ensuring stormwater management practices minimize stormwater volumes and contaminant loads, and maintain or increase the extent of vegetative and pervious surfaces.

c. *Development* and/or *site alteration* shall be restricted in or near *sensitive surface water features* and *sensitive ground water features* such that these features and their related *hydrologic functions* will be protected, improved or restored.
    i. Mitigative measures and/or alternative *development* approaches may be required in order to protect, improve or restore *sensitive surface water features*, *sensitive ground water features*, and their *hydrologic functions*.

12 Stormwater Management

Stormwater runoff acts as a link between the change in land uses and the impacts on receiving streams and lakes. Changes in the landscape, stream geomorphology and the hydraulic regime has led to problems such as flooding, stream-bank erosion, increased pollutant loadings, temperature effects, base-flow reduction, habitat changes and groundwater impacts. Because of this, it is important that the *Authority* ensures that stringent stormwater management (*SWM*) practices are used in all applicable circumstances in order that the impacts of stormwater runoff are mitigated to the greatest extent possible.

The policies and guidelines contained within this document should not be read in isolation of one another. Rather, they should be read concurrently and in their entirety and the appropriate range of policies and guidelines should be applied to each situation. In the case where more than one policy applies to a situation, the more restrictive policy will apply.

In the Hamilton Conservation Authority *watershed*, the following stormwater quality controls as determined by the Stormwater Management Planning and Design Manual (OMOE, 2003) are applied in the following areas:

- Hamilton Harbour *Watershed* – Enhanced (Level 1) Quality Control Standards
- Stoney Creek *Watersheds* (outletting directly to Lake Ontario) – Normal (Level 2) Quality Control Standards

In reviewing a *SWM* plan, the *Authority* will also examine potential impacts of that facility on aquatic species, stream morphology and/or flooding and erosion.

12. 1 General Policies

Any stormwater management proposals within the *Authority's watershed* must be in accordance with the following policies and guidelines and must be to the satisfaction of the *Authority*. These proposals, including detailed engineering studies and analyses, must be prepared by a qualified professional. Each proposal should utilize *Best Management Practices* (*BMPs*) and should provide all opportunities for protection and rehabilitation of natural features and their *ecological functions*.

a. In providing preliminary input into and review of stormwater management (*SWM*) plans, *Authority* staff shall refer developers and their consultants to the Stormwater Management Planning and Design Manual (OMOE, 2003), and any amendments, updates, or revisions thereto, for assistance in preparing *SWM* plans that will be acceptable to all reviewing agencies.

b. In reviewing *SWM* plans within the City of Hamilton, *Authority* staff shall refer developers and their consultants to the draft Storm Drainage Policy (City of Hamilton and Phillips Engineering Ltd., 2006) and the Criteria and Guidelines for Stormwater Infrastructure Design (City of Hamilton, 2004), and any amendments, updates, or revisions thereto, in order to ensure that proponents are in compliance with municipal requirements for such projects.

c. In reviewing *SWM* plans, *Authority* staff will ensure that they are in conformity with any municipally-approved sub-*watershed* plans.

12. 2 Additional Requirements

The Ontario Ministry of the Environment (OMOE) Stormwater Management Planning and Design Manual provides comprehensive technical and procedural guidance for the planning, design and review of Stormwater Management (*SWM*) facilities. The *HCA's* role as a planning authority, coupled with its mandate to consider the impacts of *development* on the natural environment, means that the *Authority* has a responsibility to consider long-term impacts when reviewing the designs of such facilities.

The following policies are based on the *Authority's* understanding of the need to develop and monitor stormwater facilities for their impacts on natural environmental features, particularly with regard to water quality and quantity.

12. 2. 1 Stormwater Management Ponds

a. All *SWM* pond site placements shall adhere to fisheries setback requirements. Additionally, they shall be required to locate above the *Regulatory Flood* level wherever site conditions permit.

b. The *Authority* will not support the establishment of in-stream *SWM* ponds.

c. Stormwater management ponds will not be permitted on lands adjacent to an *Environmental Significant Area* (*ESA*), a *natural heritage feature or area*, or a hydrologically *sensitive* area unless the *ecological function* of the *adjacent lands* has been evaluated and it has been demonstrated, through the completion of an Environmental Impact Statement (*EIS*), that there will be no *negative impacts* on the natural features or on their *ecological functions*.

12. 2. 2 Environmental Monitoring Studies

a. In instances where a *SWM* facility is located adjacent to an *Environmentally Significant Area* (*ESA*), a *natural heritage feature or area*, or a hydrologically *sensitive* area (i.e. recharge/discharge area), the *Authority* will encourage the municipality to require that an Environmental Monitoring Study be prepared by the applicant. Such a study may require the review of any or more of the following features:
   i. *Watercourses*;
   ii. Groundwater;
   iii. The natural features or *ecological functions* for which the area in question is identified; and
   iv. The completed *SWM* facilities.

   Additionally, the *Authority* will encourage the municipality to ask for any or all of the following conditions as part of these studies:
   1. A Report of Findings, to be conducted on an annual basis over a 2-5 yr time period, as determined to be necessary by the appropriate decision-making body;
   2. That baseline conditions for monitoring studies be taken prior to *development* and related to post-*development* conditions; and
   3. That monitoring reports clearly indicate any adaptive management strategies that may be required for implementation in the event of future need, as based on study findings.

12. 2. 3 Quality and Quantity Controls

a. Proponents are to consult with the *Authority* on the appropriate water quality and quantity requirements for the proposed *development*.

b. Water quality requirements are to be based on fisheries habitat assessments.

c. Vegetative planting will be required for all quality *SWM* ponds. Where *Authority* staff deem it to be necessary a vegetation plan may be required. Such plans should follow the guidelines established in Section 10.1 of this document.

d. For those areas within sub-*watersheds* that contain centralized stormwater quantity facilities, no constructed on-site quantity controls will be required. However, any passive/conveyance quantity controls (e.g. reduced lot grading, etc.) that have been recommended by an Environmental Assessment, Master Drainage Plan, Sub-*watershed* Plan or any other plan or study deemed to be relevant for that *development* by the *Authority*, are to be implemented.

e. For those areas within sub-*watersheds* that contain centralized stormwater quality facilities, any required *development* controls as have been recommended by an Environmental Assessment, Master Drainage Plan, Sub-*watershed* Plan or any other plan or study deemed to be relevant for that *development* by the *Authority*, are to be implemented.

f. For those areas without centralized *SWM* facilities, Sub-*watershed* or Master Drainage Plans, the proponent may be required, at a minimum, to control pre- to post-*development* flows from the 1:2 year storm event up to the 1:100 year storm event where required. In addition, the proponent will be required to implement appropriate water quality controls, and any erosion control requirements as have been identified by an Environmental Assessment, Master Drainage Plan, Sub-*watershed* Plan or any other plan or study deemed to be relevant for that site by the *Authority*.

g. Lot-level and conveyance control (e.g. parking lot storage, grassed swales) ponding depths shall generally be limited to 300 mm with durations of less than one hour.

h. Generally, rooftop controls will not be considered by the *Authority*. Where rooftop controls are necessary due to site constraints, a maintenance agreement, and restrictive covenant with the owner will be required.

12. 2. 4 Stormwater Management Report Requirements

a. All *SWM developments* within the *watershed* that are >0.25 ha, or are deemed by the *Authority* to be a high pollutant *development* (e.g. transport truck washing stations, truck parking facilities, etc.), will be required to complete a *SWM* plan to the satisfaction of the *Authority*.

b. Areas of hydrological significance where groundwater, surface water, fisheries or terrestrial habitat are of concern, shall be required to conduct a water balance for the *development* and design the *development* to meet or improve existing conditions.

12. 2. 5 Report Time Frames

a. When the *Authority* determines that the natural, policy, or regulatory environments have changed to such a degree that an existing report (e.g. Master Drainage Plan, Environmental Assessment, etc.) may be deemed outdated, the completion of a new study or the revision of applicable sections of the original report, may be required.

13 Definitions

100 year flood: means rainfall or snowmelt, or a combination of rainfall and snowmelt producing at any location in a river, creek, stream or *watercourse*, a peak flow that has a probability of occurrence of one per cent during any given year. The quantity and distribution of this storm is defined by the Conservation Authority and is used as the storm centred event for regulatory purposes for *watercourses* WCO, WCI, WC2, 3,4,5.0, 5.1, 6.0, 6.1, 6.2, 6.3, 6.4, 7.0, 7.1, 7.2, 7.3, 8.0, 9.0, 10.0, 10.1, 10.2, 11.0 and 12.0 as indicated on Map Figure 1 of Project 98040-A, Stoney Creek, Stormwater Management Assessment, prepared by Philips Engineering and located at the *Authority* Administrative office in Ancaster, Ontario, to which *watercourses* the 100 year flood event applies. [*PPS* & *HCA* Reg. 161/06]

100 year flood level: means, for the shorelines of Lake Ontario in the *Great Lakes-St. Lawrence River System*, the peak instantaneous still water level plus an allowance for *wave action* and *other water-related hazards* that has a probability of occurrence of one per cent during any given year. [*HCA* Reg. 161/06]

AOC: means Area of Concern.

Access standards: means methods or procedures to ensure safe vehicular and pedestrian movement, and access for the maintenance and repair of protection works, during times of *flooding hazards*, *erosion hazards* and/or *other water-related hazards*. [*PPS*]

Accessory structure: means a secondary, freestanding, non-habitable *building* or structure on the same lot as the main *building* to which it is subordinate, devoted exclusively to a use naturally and normally incidental to the main use of the premises. Examples of such structures include decks, tool sheds, pools, pool houses, and gazebos. Above ground swimming pools are not considered to be an accessory structure.

Addition: means any construction occurring on an existing structure that serves to increase the total area of that *building*. The *Authority* categorizes additions according to the following guidelines:

a. **Minor**: means any addition less than 50% of the *original ground floor area* of the existing structure, which does not increase the number of *dwelling units*, as existed on October 6, 2005.
b. **Major**: means any addition greater than or equal to 50% of the *original ground floor area* of the existing structure as existed on October 6, 2005.

Adjacent lands: means those lands contiguous to a specific *natural heritage feature or area*, where it is likely that *development* or *site alteration* would have a *negative impact* on the feature or area. The extent of the adjacent lands may be recommended by the Province or based on municipal approaches which achieve the same objectives. The extent of adjacent lands is based on information on the effectiveness of setbacks, landforms and sustainable natural vegetation in preventing or mitigating any *negative impacts* that might be expected to occur adjacent to a feature or area. Adjacent lands are not synonymous with *vegetation protective zone* / *buffer* areas, nor are they necessarily no-*development* zones. [*PPS* & *MNR* Natural Heritage Reference Manual]

Alteration to a watercourse: means straightening, changing, diverting or interfering in any way with the existing channel of a river, creek, stream or *watercourse*. Examples of an alteration include, but are not limited to: channelizations, full or partial diversions, retaining walls, revetments, bridges, culverts, pipeline crossings, docks, erosion protection measures, and construction of storm sewer outlets.

ANSI: see *area of natural and scientific interest*.

Area of interference: means the area located outside of the *wetland* that could impact the *wetland* if *development* were to be permitted.

Area of Natural and Scientific Interest (ANSI): means an area of land and/or water containing natural landscapes or features that have been identified as having life science or earth science values related to protection, scientific study or education. ANSI's are identified using evaluation procedures established by the Province, as amended from time to time. [*PPS*]

Authority: means the Hamilton Conservation Authority.

Best Management Practices (BMPs): means methods, facilities and structures which are designed to protect or improve the environment and *natural heritage features* from the effects of land *development* activities. BMPs can include, but are not limited to, land use restrictions, source control of pollutants, stormwater management ponds, grassed swales, underground storage facilities, woodlot management, soil erosion control, crop rotation, tree windbreaks and natural fencerows.

Buffer: see *vegetation protective zone.*

BMP: see *best management practices.*

Building: means something that is built; a structure of any kind.

CA: means Conservation Authority.

CO: means Conservation Ontario.

COSEWIC: means the Committee on the Status of Endangered Wildlife in Canada.

COSSARO: means the Committee on the Status of Species at Risk in Ontario.

Coastal wetland: means

a. any *wetland* that is located on one of the Great Lakes or their connecting channels (Lake St. Clair, St. Mary's, St. Clair, Detroit, Niagara and St. Lawrence Rivers); or
b. any other *wetland* that is on a tributary to any of the above-specified water bodies and lies, either wholly or in part, downstream of a line located 2 kms upstream of the 1:100 year floodline (plus wave run-up) of the large water body to which the tributary is connected. [*PPS*]

Confined system: means a system wherein the *watercourse* is located within a valley corridor, either with or without a *flood plain*, and is confined by valley walls. The *watercourse* can be located at the toe of the *valley slope*, in close proximity to the toe of the *valley slope* (less than 15 m), or removed from the toe of the *valley slope* (more than 15 m). The *watercourse* can contain perennial, intermittent or ephemeral flows and may range in channel configuration, from seepage and natural springs to detectable channels.

Conservation of land: means the protection, preservation, management, or restoration of land (including the physical and biological resources and processes) from loss, damage, or neglect.

Critical Habitat: those *fish habitats* which have high productive capacity, are rare, highly sensitive to *development*, or have a critical role in sustaining fisheries (e.g., spawning and nursery areas for some species, and ground water discharge areas). The *Authority* requires that a minimum *vegetation protective zone* / *buffer* of 30 m be maintained on both sides of a *watercourse* that has been identified as Critical Habitat, although this may be adjusted upwards if indicated appropriate through fisheries assessments. Critical Habitat corresponds with the older *MNR* classification for Type 1 *watercourses*. Also see *Important* and *Marginal Habitat*.

DFO: means Fisheries and Oceans Canada.

Designated vulnerable area: means areas defined as *vulnerable*, in accordance with provincial standards, by virtue of their importance as a drinking water source that may be impacted by activities or events. [*PPS*]

Development:

A. As it pertains to the Conservation Authorities Act, means:
   a. The construction, reconstruction, erection or placing of a *building* or structure of any kind;
   b. Any change to a *building* or structure that would have the effect of altering the use or potential use of the *building* or structure, increasing the size of the *building* or structure or increasing the number of *dwelling units* in the *building* or structure;
   c. Site grading; or
   d. The temporary or permanent placing, dumping or removal of any material originating on the site or elsewhere.

B. As it pertains to the Planning Act, Provincial Policy Statement, and Greenbelt Plan means the creation of a new lot, a change in land use, or the construction of *buildings* and structures, requiring approval under the Planning Act, but does not include:
   a. Activities that create or maintain infrastructure authorized under an environmental assessment process; or
   b. Works subject to the Drainage Act. (*PPS*).

Disconnected features: means those features that have, as a result of *development* or natural processes, become disconnected from the feature with which they were originally associated. An example of a disconnected feature is a section of *valley slope* that has been disconnected from the primary slope as a result of road construction.

Dry floodproofing: means *floodproofing* where the objective is to keep a *development* or structure and its contents completely dry during a flood event. There are two basic techniques to dry floodproofing:

a. Dry passive *floodproofing* includes the use of *fill*, columns or design modifications to elevate openings in the structure at or above the level of the *Regulatory Flood*. These measures do not require flood warning or any other action to put the flood protection into effect.
b. Dry active *floodproofing* utilizes techniques such as water tight doors, seals, berms/floodwalls to prevent water from entering openings below the level of the *Regulatory Flood*. Advance flood warning is almost always required in order to make the flood protection operational (i.e. closing of water tight doors, installation of waterproof protective coverings over windows, etc.). [Flood Plain Planning Policy Statement]

Dwelling unit: means one or more habitable rooms, occupied or capable of being occupied as an independent and separate housekeeping establishment, in which separate kitchen and sanitary facilities are provided for the exclusive use of the occupants. [Planning Act]

Dynamic beach hazard: means areas of inherently unstable accumulations of shoreline sediments along the *Great Lakes-St. Lawrence River System* and *large inland lakes*, as identified by provincial standards, as amended from time to time. The dynamic beach hazard limit consists of the *flooding hazard* limit plus a dynamic beach allowance. [*PPS*]

EA: means Environmental Assessment.

EC: means Environment Canada.

EIS: means Environmental Impact Statement.

EO: see *element occurrence.*

ESA: see *environmentally significant area*.

Ecological function: means the natural processes, products or services that living and non-living environments provide or perform within or between species, ecosystems and landscapes. These may include biological, physical and socio-economic interactions. [*PPS*]

Endangered species: means a wildlife species that is facing imminent *extirpation* or *extinction*. These species are listed or categorized as an "Endangered Species" on the Ontario Ministry of Natural Resources' official species at risk list, as updated and amended from time to time. [*PPS* & *EC*]

Element occurrence (EO): A term used by conservation data centres and NatureServe that refers to an occurrence of an element of biodiversity on the landscape; an area of land and/or water on/in which an element (e.g. species or ecological community) is or was present. An EO has a conservation value for the element: it is a location important to the conservation of the species or community. For a species, an EO is generally the habitat occupied by a local population. What constitutes an occurrence varies among species. Breeding colonies, breeding *ponds*, denning sites and hibernacula are general examples of different types of animal EOs. For an ecological community, an EO may be the area containing a patch of that community type.

Environmentally Significant Area (ESA): means a natural area that has been identified as being significant and worthy of protection based on three criteria: ecology, hydrology and geology.

Erosion access allowance: is an *access standard* that is needed to ensure there is a big enough safety zone for people and vehicles to enter and exit an area during an emergency, and/or for maintenance purposes, such as a slope failure or flooding. The *Authority* requires that the minimum erosion access allowance is 6 m, where possible. [*MNR*, 2001]

Erosion hazard: means the loss of land, due to human or natural processes, that poses a threat to life and/or property. The erosion hazard limit is determined using considerations that include the 100 year erosion rate (the average annual rate of recession extended over a hundred year time span), an allowance for slope stability and an erosion/*erosion access allowance*. This includes erosion due to karst-forming processes. [*PPS*]

Extinction: refers to a species and indicates that it no longer exists. [*EC*]

Extirpation: refers to a wildlife species and indicates that it no longer exists in the wild in Canada, but exists elsewhere. [*EC*]

Fill: means earth, sand, gravel, rubble, garbage or any other material whether similar to or different from any of the aforementioned materials, whether originating on the site or elsewhere, used or capable of being used to raise, lower or in any way affect the existing contours of the ground.

Fish: means fish, which as defined in S.2 of the Fisheries Act, c. F-14, as amended, includes fish, shellfish, crustaceans, and marine animals, at all stages of their life cycles. [*PPS*]

Fish habitat: as defined in the Fisheries Act, C. F-14, means the spawning grounds and nursery, rearing, food supply and migration areas on which *fish* depend directly or indirectly, in order to carry out their life processes. [*PPS*]

Flooding hazard: means the inundation, under the conditions specified below, of areas adjacent to a shoreline or a *river or stream system* and not ordinarily covered by water:

a. Along the shorelines of the *Great Lakes-St. Lawrence River System* and *large inland lakes*, the flooding hazard limit is based on the *100 year flood level* plus an allowance for *wave action* and *other water-related hazards*.
b. Along *river and stream systems*, the flooding hazard limit is the greater of:
    i. The flood resulting from the rainfall actually experienced during a major storm such as the *Hurricane Hazel* Storm (1954), transposed over a specific *watershed* and combined with the local conditions, where evidence suggests that the storm event could have potentially occurred over *watershed* in the general area;
    ii. The *100 year flood*; or
    iii. A flood which is greater than (i) or (ii) which was actually experienced in a particular *watershed* or portion thereof as a result of ice jams and which has been approved as the standard for that specific area by the Minister of Natural Resources,

    Except where the use of the *100 year flood* or the actually experienced event has been approved by the Minister of Natural Resources as the standard for a specific *watershed* (where the history of past flooding supports the lowering of the standard). [*PPS*]

Floodproofing (also see *Wet* and *Dry floodproofing*): means the combination of structural and non-structural *additions*, changes or adjustments incorporated into the basic design and/or construction of *buildings*, structures, or properties to reduce or eliminate flood damage to real estate, improved real property, water and sanitary facilities, structures or their contents.

Flood fringe: means the outer portion of the *flood plain* between the *floodway* and the *flooding hazard* limit. In the case of the Dundas *Special Policy Areas*, the flood fringe is defined as the balance of those lands located between the *floodway* and the furthest limit of the Regional Storm (*Hurricane Hazel*).

Flood plain: means the area, usually low lands adjoining a *watercourse*, which has been or may be subject to *flooding hazards*.

Floodway: means the channel of a *watercourse* and that inner portion of the *flood plain* where flood depths and velocities are generally higher than those experienced in the *flood fringe*. The floodway represents that area required for the safe passage of flood flow and/or that area where flood depths and/or velocities are considered to be such that they pose a potential threat to life and/or property damage. In the case of the Dundas *Special Policy Areas* the floodway is defined as the *flood plain* resulting from the 100 year storm, with the *flood fringe* being the balance of the *Regional Flood plain*.

Great Lakes-St. Lawrence River System: means the major water system consisting of Lakes Superior, Huron, St. Clair, Erie and Ontario and their connecting channels, and the St. Lawrence River within the boundaries of the Province of Ontario. [*PPS*]

Ground water feature: refers to water-related features in the earth's subsurface, including recharge/discharge areas, water tables, aquifers and unsaturated zones that can be defined by surface and subsurface hydrogeologic investigations. [*PPS*]

HADD: means the harmful alteration, disruption or destruction of *fish habitat*, as defined under the Fisheries Act.

HCA: means the Hamilton Conservation Authority.

Hazardous lands: means property or lands that could be unsafe for *development* due to naturally occurring processes. Along the shorelines of the *Great Lakes-St. Lawrence River System*, this means the land, including that covered by water, between the international boundary, where applicable, and the furthest landward limit of the *flooding hazard*, *erosion hazard* or *dynamic beach hazard* limits. Along the shorelines of *large inland lakes*, this means the land, including that covered by water, between a defined offshore distance or depth and the furthest landward limit of the *flooding hazard*, *erosion hazard* or *dynamic beach hazard* limits. Along river and stream and small inland lake systems, this means the land, including that covered by water, to the furthest landward limit of the *flooding hazard* or *erosion hazard* limits. Hazardous lands also include *hazardous sites*. [*PPS*]

Hazardous sites: means property or lands that could be unsafe for *development* and *site alteration* due to naturally occurring hazards. These may include unstable soils (organic soils) or unstable bedrock (karst topography). Karst topography can include, but is not limited to features such as: *sinkpoints*, caves, *sinkholes*, fissures, and springs. [*PPS*]

Hazardous substance: means substances which, individually, or in combination with other substances, are normally considered to pose a danger to public health, safety and the environment. These substances generally include a wide array of materials that are toxic, ignitable, corrosive, reactive, radioactive or pathological. [*PPS*]

Hurricane Hazel: means a storm occurring in October 1954 in Southern Ontario, whose quantity and distribution is defined in Ontario Regulation 161/06, under Regulation 97/04 and which is used as the riverine flood event standard to all *watersheds* in the jurisdiction of the *HCA* with the exception of the numbered *watercourses* in the former City of Stoney Creek.

Hydrologic function: means the functions of the hydrological cycle that include the occurrence, circulation, distribution and chemical and physical properties of water on the surface of the land, in the soil and underlying rocks, and in the atmosphere, and water's interaction with the environment including its relation to living things. [*PPS*]

Important Habitat: means those *fish habitats* which are moderately sensitive to *development* and, although important to the *fish* population, are not considered critical (e.g. feeding areas, open water habitats of lakes). The *Authority* requires that a minimum *vegetation protective zone* / *buffer* of 15 m be maintained on both sides of a *watercourse* that has been identified as Important Habitat. Important Habitat corresponds with the older *MNR* classification for Type 2 *watercourses*. Also see *Critical* and *Marginal Habitat*.

Interference with Wetlands: means any *development* and / or *site alteration* within a *wetland's area of interference*.

LRIA: means Lakes and Rivers Improvement Act.

Large Inland Lakes: means those water bodies having a surface area equal to or greater than 100 km^2 where there is not a measurable or predictable response to a single runoff event.

MMAH: means the Ontario Ministry of Municipal Affairs and Housing.

MNR: means Ontario Ministry of Natural Resources.

MOU: means Memorandum of Understanding.

Marginal Habitat: means those *fish habitats* which have low productive capacity or are highly degraded, and do not currently contribute directly to *fish* productivity. They often have the potential to be improved significantly (e.g. a portion of a waterbody, such as a channelized stream, that has been highly altered physically). The *Authority* requires that a minimum *vegetation protective zone* / *buffer* of 15 m be maintained on both sides of a *watercourse* that has been identified as Marginal Habitat. Marginal Habitat corresponds with the older *MNR* classification for Type 3 *watercourses*. Also see *Critical* and *Important Habitat*.

Meander belt allowance: means the setback that keeps *development* from being affected by river and stream meandering (this includes allowance for the 100 year erosion rate). [*MNR*, 2001]

NEC: means Niagara Escarpment Commission.

NEP: means Niagara Escarpment Plan.

Natural Areas Inventory (NAI): refers to an extensive biological review of all the significant natural areas in the former Regional Municipality of Hamilton-Wentworth (now the City of Hamilton). The resulting documents contain detailed descriptions of each natural area and its significant features including:

- A complete listing of the flora and fauna of each natural area;
- An annotated listing of plants, reptiles, amphibians, butterflies, *fish*, nesting birds and mammals of this Region;
- A detailed description of the geology, soils and hydrology of the Region;
- *Watershed* summaries of all the stream systems;
- Mapped locations of rare species; and
- A technical library backing up all of the database and report information.

Natural heritage features or areas: means features and areas, including *significant wetlands*, *significant coastal wetlands*, *fish habitat*, *significant woodlands*, *significant valleylands*, *significant* habitat of *endangered species* and *threatened species*, *significant wildlife habitat*, and *significant Areas of Natural and Scientific Interest*, which are important for their environmental and social values as a legacy of the natural landscape of an area. [*PPS*]

Natural heritage system: means a system made up of *natural heritage features and areas*, linked by natural corridors which are necessary to maintain biological and geological diversity, natural functions, viable populations of indigenous species and ecosystems. These systems can include lands that have been restored and areas with the potential to be restored to a natural state. [*PPS*]

Negative impacts: means

a. In regard to water, the degradation to the *quality and quantity of water*, *sensitive surface water features* and *sensitive ground water features*, and their related *hydrologic functions*, due to single, multiple or successive *development* or *site alteration* activities;
b. In regard to *fish habitat*, the harmful alteration, disruption or destruction (*HADD*) of *fish habitat*, except where, in conjunction with the appropriate authorities, it has been authorized under the Fisheries Act, using the guiding principle of no net loss of productive capacity; and
c. In regard to other *natural heritage features and areas*, the degradation that threatens the health and integrity of the natural features or *ecological functions* for which an area is identified due to single, multiple or successive *development* or *site alteration* activities. [*PPS*]

OMB: means Ontario Municipal Board.

OP: means Official Plan.

One zone concept: means the approach whereby the entire *flood plain*, as defined by the *Regulatory Flood*, is treated as one unit, and all *development* is prohibited or restricted.

Open arboretum: means a plot of land or facility where trees and shrubs are cultivated for scientific, educational, and/or ornamental purposes and which does not require any closed structures.

Original ground floor area: means the habitable ground floor area of a *building* as existed on October 6, 2005.

Other water-related hazard: means water-associated phenomena other than *flooding hazards* and *wave action* which act on shorelines. This includes, but is not limited to ship-generated waves, ice piling and ice jamming. [*PPS*]

PBWP: means Parkway Belt West Plan.

PPS: means Provincial Policy Statement, 2005, or any amendments, updates, or revisions thereto.

PSW: see Provincially *Significant Wetland*.

Pond: means a body of water usually smaller than a lake, encircled by vegetation, and generally shallow enough for sunlight to reach the bottom. Rooted plants can grow in any spot within the pond creating a habitat for various forms of animal life.

- **In-stream pond (a.k.a. on-line):** a pond that has been constructed by digging out or dredging an area within an existing *watercourse* or by damming a *watercourse*.

Pollution: means any deleterious physical substance or other contaminant that has the potential to be generated by *development* in an area. [O. Reg. 97/04]

Protection works standards: means the combination of non-structural or structural works and allowances for slope stability and flooding/erosion to reduce the damage caused by *flooding hazards*, *erosion hazards* and *other water-related hazards*, and to allow access for their maintenance and repair. [*PPS*]

Provincial and federal requirements: means legislation and policies administer by the federal or provincial governments for the purposed of the protection of *fish* and *fish habitat*, and related, scientifically established standards such as water quality criteria for protecting lake trout populations. [*PPS*]

Quality and quantity of water: is measured by indicators such as minimum base flow, depth to water table, aquifer pressure, oxygen levels, suspended solids, temperature, bacteria, nutrients and hazardous contaminants, and hydrologic regime. [*PPS*]

RAP: means Remedial Action Plan.

Regional Flood: means the rainfall event and soil conditions existing during *Hurricane Hazel*, transposed over a specific *watershed* and combined with local conditions.

Regulatory Flood: means the applicable flood or storm standard utilized to determine the maximum susceptibility to flooding of lands or areas within the *watersheds* in the jurisdiction of the *Authority*. The flood event standards used to define the regulatory flood within the *Authority's* jurisdiction are: *Hurricane Hazel*, the *100 Year Flood*, and the *100 Year Flood Level* plus *wave action* and *other water-related hazards*.

Replacement structure: means the restoration of a *building* or structure to its original form (i.e. same dimensions, square footage and *building* footprint).

River, stream and small inland lake systems: means all *watercourses*, rivers, streams, and small inland lakes or waterbodies that have a measurable or predictable response to a single runoff event. [*PPS*]

SARA: means the Species at Risk Act.

SARO: means Species at Risk in Ontario.

SPA: see *Special Policy Area*.

SWM: means stormwater management.

Sensitive: in regard to *surface water features* and *ground water features*, means areas that are particularly susceptible to impacts from activities or events including, but not limited to, water withdrawals, and additions of pollutants. [*PPS*]

Significant: means

a. In regard to *wetlands*, *coastal wetlands* and *Areas of Natural and Scientific Interest*, and area identified as Provincially Significant by the *MNR* using evaluation procedures established by the Province, as amended from time to time;
b. In regard to the habitat of *endangered species* and *threatened species*, means the habitat, as approved by the *MNR*, that is necessary for the maintenance, survival, and/or the recovery of naturally occurring or reintroduced populations of *endangered species* or *threatened species*, and where those areas of occurrence are occupied or habitually occupied by the species during all or any part(s) of its life cycle;
c. In regard to *woodlands*, an area which is ecologically important in terms of features such as species composition, age of trees and stand history; functionally important due to its contribution to the broader landscape because of its location, size or due to the amount of forest cover in the planning area; or economically important due to site quality, species composition, or past management history; and
d. In regard to *valleylands* and *wildlife habitat*, ecologically important in terms of features, functions, representation or amount, and contributing to the quality and diversity of an identifiable geographic area or *natural heritage system*. [*PPS*]

Sinkhole: means a topographically closed depression, commonly circular or oval in plain view; commonly referred to as dolines. [*MNR*, 2003]

Sinkpoint: means the point where a stream sinks underground into a conduit. [*MNR*, 2003]

Site Alteration: means activities, such grading, excavation and the placement of *fill* that would change the landform and natural vegetative characteristics of a site. [*PPS*]

Special Policy Area (SPA): means an area within a community that has historically existed in the *flood plain* and where site-specific policies, approved by both the Ministers of Natural Resources and Municipal Affairs and Housing, are intended to provide for the continued viability of existing uses (which are generally on a small scale) and address the significant social and economic hardships to the community that would result from strict adherence to provincial policies concerning *development*. The criteria and procedures for approval are established by the Province. A Special Policy Area is not intended to allow for new or intensified *development* and *site alteration*, if a community has viable opportunities for *development* outside the *flood plain*. [*PPS*]

Stable slope allowance: means the setback that ensures safety if slumping or slope failure occur. Refers to the suggested angle of stability for a slope is 3:1 (horizontal: vertical) or approximately 18 degrees. The stable slope allowance is a horizontal allowance measured landward from the *toe of slope* that is relative to the height of the slope. [*MNR*, 2001]

Surface water feature: refers to water-related features on the earth's surface, including headwaters, rivers, stream channels, inland lakes, seepage areas, recharge/discharge areas, springs, *wetlands*, *sinkholes*, and associated riparian lands that can be defined by their soil moisture, soil type, vegetation or topographic characteristics. [*PPS*]

Threatened species: means a wildlife species that is likely to become an *endangered species* if nothing is done to reverse the factors leading to its *extirpation* or *extinction*. These species are listed or categorized as a "Threatened Species" on the Ontario Ministry of Natural Resources' official species at risk list, as updated and amended from time to time. [*PPS* & *EC*]

Toe erosion allowance: means the setback that ensures safety if the toe of the slope adjacent to the river or stream erodes and weakens the bank, increasing the risk of slumping. (*MNR*, 2001)

Toe of slope (a.k.a. base of slope): means the point of the slope where the downward inclination of the land levels off or the upward inclination of the land begins.

Top of slope (a.k.a. crest of slope, top of bank): means the point of the slope where the downward inclination of the land begins or the upward inclination of the land levels off.

Two zone concept: means the approach whereby certain areas of the *flood plain* are considered to be less hazardous than others such that *development* potentially could safely occur. The *flood fringe* defines that portion of the *flood plain* where *development* may be permitted, subject to appropriate *floodproofing*. The *floodway* defines that portion of the *flood plain* wherein *development* is prohibited or restricted. These technical studies need to be approved by the province prior to implementation of the two zone concept.

Unconfined system: means a system wherein the *watercourse* is not located within a valley corridor with discernible slopes, but relatively flat to gently rolling plains and is not confined by valley walls. The *watercourse* can contain perennial, intermittent or ephemeral flows and may range in channel configuration, from seepage and natural springs to detectable channels.

Valley Slope: refers to the area between *top of slope* and *toe of slope*.

Valleylands: means a natural area that occurs in a valley or other landform depression that has water flowing through or standing for some period of the year. [*PPS*]

Vegetation Protective Zone (Buffer): means permanent zones of natural self-sustaining native vegetation that border natural features (e.g. streams, *wetlands*, woodlots, shorelines) and are established to protect natural areas from the impacts of *development* or *site alteration*. The width of the vegetation protection zone is to be of sufficient size to protect the feature and its functions from the impacts of the proposed change and associated activities that will occur before, during and after construction, and where possible, restore or enhance the feature and/or its function. [Greenbelt Plan, 2005]

Vulnerable: means surface and groundwater that can be easily changed or impacted by activities or events, either by virtue of their vicinity to such activities or events or by permissive pathways between such activities and the surface and/or groundwater. [*PPS*]

Watercourse: means an identifiable depression in the ground in which a flow of water regularly or continuously occurs. Where the thermal regime of a watercourse is in question (i.e. whether the watercourse is classified as warmwater, coolwater, or coldwater) the methods of Stoneman, C.L. and Jones, M.L. (1996) will be utilized.

Watershed: means an area that is drained by a river and its tributaries.

Wave action: means the combination of *wave uprush*, *wave setup*, and *wave overtopping*. [*MNR*, 2001]

Wave overtopping: essentially occurs when the height of the natural shoreline, or of the protection work, above the stillwater level is less than the limit of uprush. As a result, waves overtopping the protection work can cause flooding of the onshore and can threaten the structural stability of protection works. [*MNR*, 2001]

Wave setup: means the mean increase in water level caused by the onshore transport of water due to waves breaking at the shoreline. [*MNR*, 2001]

Wave uprush: means the rush of water up onto a shoreline or structure following the breaking of a wave; the limit of wave uprush is the point of furthest landward rush of water onto the shoreline. [*MNR*, 2001]

Wet floodproofing: means *floodproofing* that involves designing a structure using materials, methods and design measures that maintain structural integrity by avoiding external unbalanced forces from acting on *buildings* during and after a flood, to reduce flood damage to contents, and to reduce the cost of post flood clean up. *Buildings* or structures are designed so as to intentionally allow flood waters to enter and exit. These *floodproofing* measures require that the interior space below the level of the *Regulatory Flood* remain unfinished, be non-habitable, and be free of service units and panels. [Flood Plain Planning Policy Statement]

Wetlands: means lands that:

a. Are seasonally or permanently covered by shallow water or has a water table close to or at its surface;
b. Directly contribute to the hydrological function of a *watershed* through connection with a surface *watercourse*;
c. Have hydric soils, the formation of which has been caused by the presence of abundant water; and
d. Have vegetation dominated by hydrophytic plants or water tolerant plants, the dominance of which has been favoured by the presence of abundant water,

But does not include periodically soaked or wet land that is used for agricultural purposes and no longer exhibits a wetland characteristic referred to in clause (c) or (d). The four major types of wetlands are swamps, marshes, bogs and fens. [O. Reg. 97/04]

Wildlife habitat: means areas where plants, animals and other organisms live, and find adequate amounts of food, water, shelter and space needed to sustain their populations. Specific wildlife habitats of concern may include areas where species concentrate at a vulnerable point in their annual or life cycle and areas which are important to migratory or non-migratory species. [*PPS*]

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

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15 Appendices

Appendix A – CO, MNR & MMAH Memorandum of Understanding
Appendix B – HCA Regulation 161/06 under Ontario Regulation 97/04
Appendix C – Determination of Regulation Limits
Appendix D – Transitional Policies
Appendix E – Fisheries Act - Section 35 (Level 2 Agreement)
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