

Grey Sauble Conservation Authority

Policies for the Administration of the Development, Interference with Wetlands and Alterations to Shorelines and Watercourses Regulation Ontario Regulation 151/06

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Ontario Regulation 151/06

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1 Introduction

1.1 The Grey Sauble Area of Jurisdiction

The Grey Sauble area of jurisdiction is located in northern Grey and Bruce Counties and is situated between Lake Huron and Georgian Bay. The watershed covers an area of 3146 square kilometres (1215 square miles) and borders on 155 kilometres (96 miles) of Great Lakes shoreline.

The Grey Sauble area of jurisdiction includes five major watersheds. The Beaver, Bighead, Sydenham and Pottawatomi Rivers drain easterly to Georgian Bay. The Sauble River drains westerly to Lake Huron. Numerous smaller watersheds are found along both shorelines as well.

1.2 Role of the Grey Sauble Conservation Authority

The *Conservation Authorities Act* was passed in 1946 by the Ontario government in response to severe flooding and erosion problems experienced throughout the province. This legislation provided terms of reference and guidelines for watershed municipalities to voluntarily establish watershed partnerships for managing land and water resources.

Formed in 1985 Grey Sauble Conservation is comprised of the former North Grey Region Conservation Authority (1957) and the Sauble Valley Conservation Authority (1958). It consists of 8 member municipalities. Representatives from these municipalities comprise the board of directors that establishes the budget, policies and guidelines for the authority.

The objectives of the Authority are to establish and undertake in the area over which it has jurisdiction, a program designed to further the conservation, restoration, development and management of natural resources other than gas, oil, coal and minerals (Conservation Authorities Act, RSO 1990, c. 27, s. 20).

To fulfill its mandate, the GSCA works closely with all levels of government to enhance watershed health by coordinating and implementing a variety of programs and services with the goals to:

- facilitate watershed planning,
- enhance and protect water quantity and quality,
- maintain reliable water supply,
- reduce flood damages,
- protect natural areas and biodiversity,
- provide environmental education, *and*
- provide environmentally responsible outdoor recreational opportunities.

1.3 Development, Interference with Wetlands and Alterations to Shorelines and Watercourses Regulation

The *Conservation Authorities Act* first empowered conservation authorities to make regulations to prohibit filling in floodplains below the high water mark in 1956. These powers were broadened in 1960 to prohibit or regulate the placing or dumping of fill in defined areas where, in the opinion of the conservation authority, the control of flooding, pollution or the conservation of land may be affected (R.S.O. 1960, c. 62, s. 20 (1)). In 1968, an amendment to the *Conservation Authorities Act* (Statutes of Ontario, 1968, c. 15) further extended the power of Conservation Authorities to prohibit or control construction and alteration to waterways, in addition to filling.

In 1998, the *Conservation Authorities Act* was changed, as part of the *Red Tape Reduction Act* (Bill 25), to ensure that regulations under the Act were consistent across the province and complementary with contemporary provincial policies.¹ To better reflect provincial direction and to strengthen protection of public safety and the environment, the *Conservation Authorities Act* was modified to enable conservation authorities to enact the *Development, Interference with Wetlands and Alteration to Shorelines and Watercourses Regulation* (Ontario Regulation 97/04) to replace the *Fill, Construction and Alteration to Waterways Regulation*.

Ontario Regulation 97/04 allows conservation authorities to prevent or restrict development in areas where the control of flooding, erosion, dynamic beaches, pollution or the conservation of land may be affected by development, in order to prevent the creation of new hazards or the aggravation of existing ones.

The Conservation Authority can:

- ***prohibit or regulate development in river or stream valleys, wetlands, shorelines and hazardous lands,***
and
- ***prohibit or regulate the straightening, changing, diverting or interfering in any way with the existing channel of a river, creek, stream, watercourse or for changing or interfering in any way with a wetland.***

If it can be demonstrated to the satisfaction of the conservation authority that the proposed work will not affect the control of flooding, erosion, dynamic beaches or pollution or the conservation of land, a conservation authority may grant permission for the proposed work.

Pollution, as defined in the *Conservation Authorities Act*, means any deleterious physical substance or other contaminant that has the potential to be generated by development in an area to which the regulation applies (Conservation Authorities Act, RSO 1990, c. 27, s. 28 (25)).

Conservation of land is broadly interpreted to mean the protection, preservation, management, or restoration of lands within the watershed ecosystem (Conservation Ontario, 2006).

The Minister of Natural Resources approved *Ontario Regulation 151/06*, for the GSCA, consistent with *Ontario Regulation 97/04*, on May 4, 2006. This regulation is entitled the *Development, Interference with Wetlands and Alteration to Shorelines and Waterways Regulation* (hereafter referred to as the *Regulation*).

¹ **The policies for administering the *Development, Interference with Wetlands and Alterations to Shorelines and Watercourses Regulations* complement the Ontario Provincial Policy Statement, 2005 - Section 3.0, Protecting Public Health and Safety.**

Permission from the GSCA is required to develop in river or stream valleys, wetlands, shorelines or hazardous lands; alter a river, creek, stream or watercourse; or interfere with a wetland. All applications for permission received after May 4, 2006, are processed subject to the provisions of the *Development, Interference with Wetlands and Alterations to Shorelines and Watercourses Regulation*.

The GSCA policies for the administration of the *Regulation* are outlined in *Sections 7, 8 and 9*. **Figure 1** illustrates the legislative context within which these policies fit.

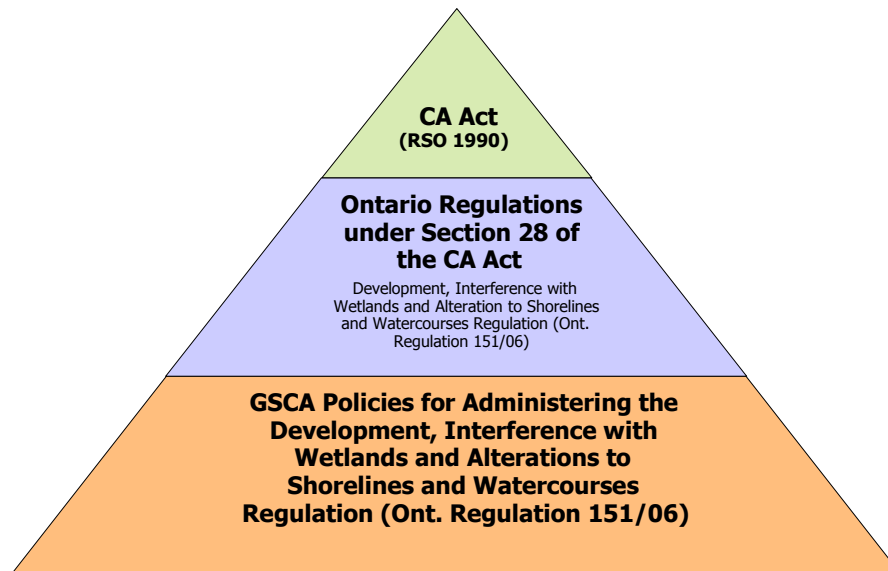


Figure 1. Hierarchy of Legislation and Policies

2 Policy Objectives

Policy objectives related to the administration of the *Regulation* include, but are not limited to:

- ❖ prevent loss of life, minimize property damage and social disruption, and avoid public and private expenditure for emergency operations, evacuation and restoration due to natural hazards and associated processes,
- ❖ prohibit development which, singularly or cumulatively, may restrict riverine channel capacities to pass flood flows, reduce storage capacity in floodplains and wetlands resulting in increased flood levels, and create potential danger to upstream and downstream landowners,
- ❖ prohibit development of flood and erosion susceptible river or stream valleys and shorelines which may increase hazard risk, create new hazards or aggravate existing hazards which would in future years require expensive protection measures,
- ❖ prevent interference with the hydrologic functions of wetlands throughout the Grey Sauble watershed,

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- ❖ avoid the degradation and loss of significant natural features and hydrologic and ecological functions in river or stream valleys, wetlands, shorelines and hazardous lands, and promote restoration and enhancement, wherever possible,
 - ❖ prevent pollution of surface and ground waters associated with development in river or stream valleys, wetlands, shorelines and hazardous lands, *and*
 - ❖ reduce potential nuisances associated with development by limiting the potential for floating objects and debris during flood events.

3 Intent

This document outlines the policies followed by the GSCA in making decisions regarding the outcome of all applications made under the *Regulation*. This will ensure a consistent, timely and fair approach to the review of applications, staff recommendations, and GSCA decisions, and efficient and effective use and allocation of available resources.

4 Areas Regulated

The *Regulation* pertains to areas that are river or stream valleys, wetlands and other areas where development could interfere with the hydrologic function of a wetland, adjacent or close to the shoreline of Lake Huron, Georgian Bay and inland lakes, and hazardous lands. The *Regulated Area* represents the greatest extent of the combined hazards plus a prescribed allowance as set out in the *Regulation*.

Areas regulated under Ontario Regulation 151/06 have been mapped according to the criteria and standards outlined in the *Grey Sauble Conservation Authority Terms of Reference for the Preparation of Regulation schedules* (November 2005) as approved by the Ontario Ministry of Natural Resources and Conservation Ontario.

Existing mapping is accurate to the scale at which the mapping was undertaken. Modifications to the extent of the *Regulated Area* may be made where more detailed studies determine a more precise boundary.

It is important to note that existing mapping *does not* delimit the extent of all of the areas regulated by the *Regulation*. Mapping will be updated by the GSCA as more detailed information becomes available.

The Regulation applies to all areas described by the Regulation, whether mapped or not.

The *Regulation* does not:

- limit the use of water for domestic or livestock purposes,
- interfere with the rights or powers conferred upon a municipality in respect of the use of water for municipal purposes,
- interfere with any rights or powers of any board or commission that is performing its functions for or on behalf of the Government of Ontario, or
- interfere with any rights or powers under the *Electricity Act* or the *Public Utilities Act*,
- apply to activities approved under the *Aggregate Resources Act (Conservation Authorities Act, RSO 1990, c. 27, s. 28 (10, 11))*.

Works for which permission is required under this *Regulation* may also be subject to other legislation, policies and standards that are administered by other agencies and municipalities such as the provincial *Planning Act*, *Drainage Act*, and *Environmental Assessment Act* or the federal *Fisheries Act*, among others. It is the responsibility of the applicant to ensure that all other necessary approvals are obtained prior to undertaking any works for which a permit under this *Regulation* has been obtained.

5 Activities Regulated

The Regulation gives the GSCA the mandate to prohibit or regulate development in river or stream valleys, wetlands, Lake Huron and Georgian Bay shorelines, inland lakes and hazardous lands within the GSCA watershed.

Development means:

- ***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, or***
- ***the temporary or permanent placing, dumping or removal of any material, originating on the site or elsewhere*** (Conservation Authorities Act, R.S.O. 1990, c. 27, s. 28 (25)).

The *Regulation* also gives the GSCA the authority to prohibit or regulate *alterations* which would result in the straightening, changing, diverting or interfering in any way with the existing channel of a river, creek, stream, watercourse or changing or interfering in any way with a wetland.

The GSCA interprets development to mean works that by their scale or scope could have measurable impacts on flooding, erosion, dynamic beaches, pollution or the conservation of land. With the *exception of activities within wetlands*, the GSCA will generally not require permission for the following activities, including but not limited to:

- non-habitable accessory buildings associated with existing residential uses less than 10 square metres (108 ft²),
- maintenance and upkeep of existing buildings and structures which do not change the existing footprint (e.g. replacement of windows, siding, roofs, stairs, etc.),
- replacement of existing service connections (e.g. telephone, cable, water, sewer),
- non-structural agricultural uses such as cropping, pasturing, and woodlot management,
- fill quantities (including placing, removal or re-grading) equal to or less than 10 metres³ (13 yards³) where the work is completed in one calendar year, is not an ongoing project, is not located on a steep slope and will not restrict the flow of water,
- minor alterations and on-going maintenance to existing dams in watercourses that would not affect the control of flooding, erosion, pollution or the conservation of land and that would not result in changes in the capacity to pass river flows or impacts on integrity of the structure or in-water works,
- on-going maintenance to stormwater management facilities that would not affect the control of flooding, erosion, pollution or the conservation of land,
- on-going operations associated with existing commercial/industrial uses that have been previously approved by the GSCA,

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- municipal water monitoring wells that would not affect the control of flooding, erosion, pollution or the conservation of land, *or*
 - other non-structural uses such as gardens, nurseries, open arboretums and forestry/wildlife management.
 - fences not within a floodplain or dynamic beach,
 - works entirely within the waters of Lake Huron, Georgian Bay or inland lakes that require a permit from the Ministry of Natural Resources under the Public Lands Act.

Development in areas defined in the *Regulation*, *interference* with wetlands or *alterations* to river, creek, stream or watercourse channels requires permission from the GSCA. Each application will be evaluated on its own merits, on a case-by-case basis, consistent with the policies outlined in *Sections 7, 8 and 9*.

Development and/or interference which is undertaken in *Regulated Areas* without permission of the GSCA are in violation of the *Conservation Authorities Act*. The landowner may be subject to a fine of not more than \$10,000 or to a term of imprisonment of not more than three months (*Conservation Authorities Act*, R.S.O. 1990, c. 27, s. 28, ss. 16). In addition, if convicted, the development/interference may be required to be removed at the expense of the landowner. The landowner may also be required to rehabilitate the impacted area in a manner prescribed by the courts (*Conservation Authorities Act*, R.S.O. 1990, c. 27, s. 28, ss. 17).

6 GSCA's Regulatory vs. Plan Review Function

In addition to its regulatory role under the *Conservation Authorities Act*, the GSCA has a significant advisory role to watershed municipalities under the *Planning Act*. In 1995, the Ministry of Natural Resources delegated the responsibility for municipal plan input and review for natural hazards to the GSCA. This means that the GSCA reviews and comments on municipal policy documents and development proposals to ensure that they are consistent with the *Ontario Provincial Policy Statement 2005 – Section 3.0., Protecting Public Health and Safety*.

Through Memoranda of Agreement, the GSCA also provides a range of planning advisory services to its member municipalities. In this capacity, the GSCA provides technical input regarding potential environmental impacts and advice about how damaging impact can be avoided or reduced. GSCA comments apply to a range of matters including but not limited to natural hazards, natural heritage, and water quality and quantity. These comments are consistent with the GSCA policies for the administration of the *Regulation* and for plan review.

The GSCA also reviews and comments on municipal policy and planning documents, development proposals under the *Planning Act* and other provincial legislation (e.g. *Aggregate Resources Act*, *Drainage Act*, *Environmental Assessment Act*) from a watershed perspective.

The policies contained in *Sections 7, 8 and 9* apply specifically to the GSCA's regulatory role under the *Conservation Authorities Act*. These policies must be considered in their entirety, since activities that fall within the mandate of the *Regulation* may influence river or stream valleys, wetlands, shorelines and hazardous lands and alteration to watercourses, either singly or in combination. Where more than one hazard exists in an area subject to a proposed activity that falls within the scope of the *Regulation*, the relevant policies will be applied jointly.

7 General Policies

7.1 Regulated Areas

Within areas defined by the *Regulation (Regulated Area)* including river or stream valleys and an allowance; wetlands or other areas where development could interfere with the hydrologic function of a wetland (areas of interference); lands adjacent or close to the shoreline of Lake Huron and Georgian Bay and inland lakes and an allowance; watercourses, or hazardous lands, the following general policies will apply:

7.1.1 *Development, interference or alteration* will not be permitted *within a Regulated Area*, except in accordance with policies in sections 7,8, and 9.

7.1.2 *Development, interference or alteration within a Regulated Area* may be permitted where it can be demonstrated through appropriate technical studies and/or assessments, site plans and/or other plans as required by the GSCA that:

- a) the risk to public safety is not increased,
- b) susceptibility to natural hazards is not increased or new hazards created,
- c) there are no adverse hydraulic or fluvial impacts on rivers, creeks, streams, or watercourses,
- d) grading (e.g. placing and removing fill) is minimized and maintains stage-storage discharge relationships and floodplain flow regimes for a range of rainfall events, including the *Regional Storm*,
- e) there are no negative or adverse hydrologic impacts on wetlands,
- f) pollution, sedimentation and erosion during construction and post construction is minimized using best management practices including site, landscape, infrastructure and/or facility design (whichever is applicable based on the scale and scope of the project), construction controls, and appropriate remedial measures,
- g) intrusions on significant natural features or hydrologic or ecological functions are avoided, and no adverse impacts to significant natural features or hydrologic or ecological functions will occur,
- h) groundwater discharge areas which support significant natural features or hydrologic or ecological functions on-site and adjacent to the site are avoided,
- i) groundwater recharge areas which support significant natural features or hydrologic or ecological functions on-site and adjacent to the site will be maintained or enhanced,
- j) *safe* access for emergency works, maintenance, and evacuation is available,
- k) works are constructed, repaired and/or maintained according to accepted engineering principles and approved engineering standards or to the satisfaction of the GSCA, whichever is applicable based on the scale and scope of the project, *and*
- l) the control of flooding, erosion, dynamic beaches, pollution or the conservation of land is not adversely affected.

7.1.3 Notwithstanding *Section 7.1.2, development, interference or alteration* in a *Regulated Area* may be permitted subject to supplementary policies or standalone policies as specified in *Sections 8 and 9*.

7.1.4 Applications for permission to undertake *development, interference or alteration* in *Regulated Areas* must be accompanied by appropriate technical studies and/or assessments, site plans and/or other plans as required by the GSCA. These studies/plans will demonstrate to the satisfaction of the GSCA, how the applicable policies in *Sections 7, 8 and 9* will be met.

7.1.5 Technical studies and/or assessments, site plans and/or other plans submitted as part of an application for permit to undertake *development, interference* or *alteration* in *Regulated Areas* must be completed by a qualified professional to the satisfaction of the GSCA in conformance with the most current technical guidelines approved by the GSCA.

Prohibited Uses

7.1.6 Notwithstanding *Sections 7.1.2-7.1.3 – General Policies*, *development* will not be permitted within a *Riverine Flooding or Erosion Hazard or wetland* where the use is:

- a) an institutional use associated with hospitals, nursing homes, pre-school, nurseries, day care or schools, where there is a threat to the safe evacuation of the sick, the elderly, persons with disabilities or the young,
- b) an essential emergency service such as fire, police, ambulance or electrical substation,
- c) associated with the disposal, manufacture, treatment, transfer or storage of hazardous substances,
- d) associated with the outdoor storage of any materials, either temporary or permanent, *or*
- e) associated with an *assisted living facility*.

8 Policies to Prohibit or Regulate Development in River or Stream Valleys, Wetlands and Areas of Interference, Lake Huron and Georgian Bay Shorelines, Inland Lakes and Hazardous Lands

8.1 River or Stream Valleys - Riverine Flooding Hazards

Defining the Riverine Flooding Hazard

Flooding of river or stream systems typically occurs following the spring freshet and may occur again as a result of extreme rainfall events in the summer or fall. Rivers naturally accommodate flooding within their valleys. Historically, development occurred in floodplain areas because of the availability of water for power, transportation, energy, waste assimilation, and domestic and industrial consumption. However, floodplain development is susceptible to flooding which can result in property damage and/or loss of life.

For most of the Grey Sauble watershed, the *Riverine Flooding Hazard* is based on the greater of the Timmins storm event (the *Regional Storm*) or the 100-Year return period flood. For the Sauble River watershed the *Riverine Flooding Hazard* is based on the 100-Year return period flood. The flood produced through these calculations is called the *Regulatory Flood*, the limits of which define the extent of the *Riverine Flooding Hazard*.

Where the *Riverine Flooding Hazard* is delineated a 15 metre allowance has been added. The allowance is included to address limitations in base mapping scale and accuracy and consider activities directly adjacent to the *Riverine Flooding Hazard*, which could aggravate or increase the hazard risk.

The *Regulated Area* includes the *Riverine Flooding Hazard* (also referred to as the *Regulatory Floodplain*) and the *allowance* (**Figure 2**).

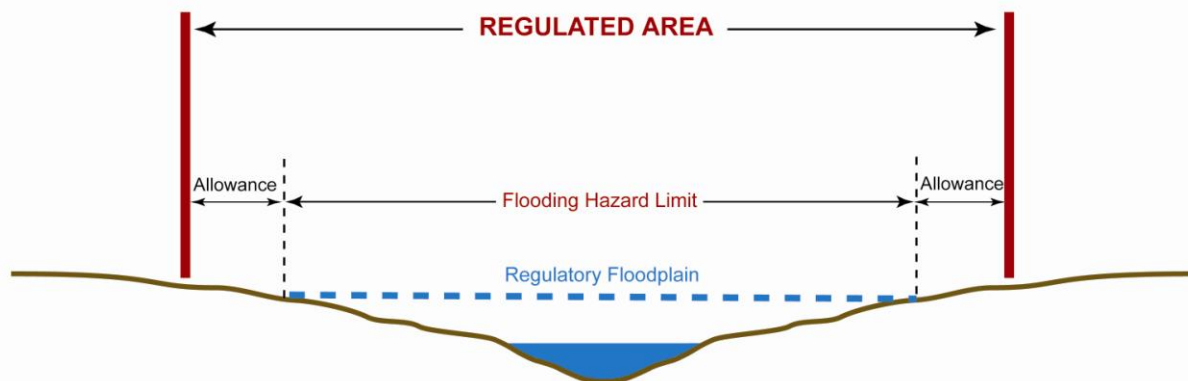


Figure 2. Riverine Flooding Hazard – Regulated Area for One Zone Policy Areas

Most regulated areas within the Grey Sauble watershed associated with the *Riverine Flooding Hazard* are *One-Zone Policy Areas*. In a *One-Zone Policy Area*, the entire *Regulatory Floodplain* is considered the *floodway*.

Exceptions to the *One-Zone Policy Area* may exist in urban areas where a *Two-Zone* or *Special Policy Area* may be selectively applied. Both approaches allow for limited development in the *flood fringe*. The *flood fringe* is the outer portion of the floodplain between the *floodway* and the *Riverine Flooding Hazard* limit where the depths and velocities of flooding are less severe than those experienced in the floodway (**Figure 3**).

A *Two-Zone Policy Area*² permits new development or redevelopment in the *flood fringe* provided that it is protected to the level of the *Regulatory Flood*. A *Two-Zone Policy Area* may be considered where the GSCA in cooperation with the municipality, after due consideration of local circumstances, agrees that application of the concept is suitable. The feasibility of a *Two-Zone Policy Area* requires the examination of a number of factors and implementation requires the assurance that various conditions will be complied with. The application of a *Two-Zone Policy Area* is not intended to be on a lot-by-lot basis, but on a subwatershed or major reach basis. Where the GSCA and the municipality agree to the use of a *Two-Zone Policy Area*, appropriate official plan designations and zoning must be put into place. The regional engineer of the Ministry of Natural Resources must also be involved in decision making regarding the potential application of a *Two-Zone Policy Area*.

Application of a *Special Policy Area* permits new development or redevelopment in the *flood fringe* and *floodway* where strict adherence to the *One-Zone* or *Two-Zone* approach would not provide sufficient development capability to maintain community viability. Where a *Special Policy Area* is applied, the municipality, GSCA and the Province of Ontario agree to relax provincial flood proofing and technical standards and accept a higher level of risk. *Special Policy Area* application is limited to areas of historic development that qualify on the basis of community and technical criteria. Application of a *Special Policy Area* requires the approval of the Province of Ontario (Ministry of Municipal Affairs and Housing

² In a *Two-Zone Policy Area*, the *floodplain* is divided into two distinct sections – the *floodway* and the *flood fringe*. The *floodway* is that area of the *floodplain* that is required to pass the flows of greatest depth and velocity. The *flood fringe* lies between the *floodway* and the edge of the *floodplain*. Depths and velocities of flooding in the *flood fringe* are much less than those in the *floodway*. The technical considerations used to determine the *floodway-flood fringe* delineation and the suitability of applying a *Two-Zone* policy are described in the Ministry of Natural Resources Technical Guide River and Stream Systems Flooding Hazard Limit (2002).

and Ministry of Natural Resources) and suitable policies and standards must be incorporated into the municipality's official plan and zoning regulations. Procedures for approval as specified by the Province must be adhered to.

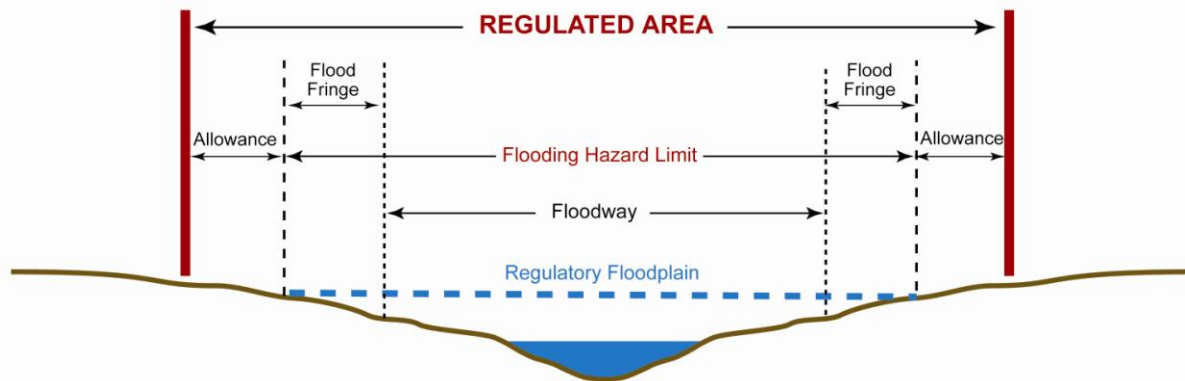


Figure 3. Riverine Flooding Hazard – Two Zone Policy Area

Regardless of the approach applied, *development* within the *Riverine Flooding Hazard* and related *allowances* connected with all watercourses in the Grey Sauble watershed requires permission from the GSCA.

Policies for One-Zone Policy Areas (excluding allowances)

The following policies apply to development proposed in a *One-Zone Policy Area* subject to a *Riverine Flooding Hazard*, excluding *allowances*.

8.1.1 *Development* will not be permitted within the *Riverine Flooding Hazard* except in accordance with the policies in *Sections 7.1.2-7.1.3 – General Policies* and *Sections 8.1.2-8.1.22 – Policies for One-Zone Policy Areas*.

Existing Uses

8.1.2 *Development* associated with existing uses located within a *Riverine Flooding Hazard* may be permitted in accordance with the policies in *Sections 7.1.2-7.1.3 – General Policies*, and where it can be demonstrated that:

- a) there is no feasible alternative site outside the *Riverine Flooding Hazard*,
- b) the site is not subject to *frequent flooding*,³
- c) ingress and egress is “dry” where this standard can be practically achieved, or floodproofed to an elevation which is practical and feasible, but no less than “safe”,
- d) floodproofing is undertaken to the extent practical, where floodproofing to the elevation of the *Regulatory Flood* is not technically feasible, and
- e) there is no risk of structural failure due to potential hydrostatic/dynamic pressures.

³ **Frequent flooding means that a site is subject to the 1:25 year flood event or a more frequent flood event.**

Residential

8.1.3 ***Ground Floor Additions*** to existing residential buildings or structures may be permitted in accordance with the policies in *Section 8.1.2 – Policies for One-Zone Policy Areas*, and where it can be demonstrated that:

- a) the ground floor addition is 50 percent or less of the original⁴ habitable ground floor area to a maximum footprint of 46.5 m² (500 ft²) or in the case of multiple additions, all additions combined are equal to or less than 50 per cent of the original habitable ground floor area to a maximum footprint of 46.5 m² (500 ft²).
- b) the number of dwelling units is the same,
- c) all habitable floor space is at or above the existing ground floor elevation, *and*
- d) no basement is proposed and any crawl space is non-habitable and designed to facilitate services only.

8.1.4 An ***Additional Storey*** to existing residential buildings or structures may be permitted in accordance with the policies in *Section 8.1.2 – Policies for One-Zone Policy Areas*, and where it can be demonstrated that the number of dwelling units is the same.

8.1.5 ***Replacement***⁵ of residential buildings or structures other than those destroyed by flooding, may be permitted in accordance with the policies in *Sections 7.1.2-7.1.3 - General Policies*, and where it can be demonstrated that:

- a) the building or structure to be replaced is relocated outside the *Riverine Flooding Hazard* or where this is not feasible, the building or structure is relocated to an area within the existing lot where the risk of flooding and property damage is reduced to the greatest extent, wherever possible,
- b) the number of dwelling units is the same or less,
- c) where the site subject to *frequent flooding*, the new building or structure is the same size or smaller than the original habitable ground floor area of the former building or structure and the use is the same,
- d) where the site is not subject to *frequent flooding*, the new building or structure is the same size or larger to a maximum of 50 percent of the original habitable ground floor area or a footprint of 46.5 m² (500 ft²), whichever is the lesser and the use is the same,
- e) the ground floor elevation is at or exceeds that of the former building or structure and raised to the greatest extent possible, where it is not practical to raise it to the level of the *Regulatory Flood*,
- f) ingress and egress is “dry” where this standard can be practically achieved, or floodproofed to an elevation which is practical and feasible,
- g) no basement is proposed and any crawl space is non-habitable and designed to facilitate services only,
- h) electrical, mechanical and heating services are located above the level of the *Regulatory Flood*, wherever possible, *and*

⁴ The habitable ground floor area existing in 1994 will be considered the “original” ground floor area for the purpose of this calculation. The year 1994 is used since it was the first year that the *Fill, Construction and Alteration to Waterways Regulation* was administered by the GSCA (Ontario Regulation 416/94).

⁵ Replacement does not include reconstruction on remnant foundations or derelict or abandoned buildings or structures.

i) there is no risk of structural failure due to potential hydrostatic/dynamic pressures.

8.1.6 Relocation of existing residential buildings and structures may be permitted in accordance with the policies in *Section 8.1.5 – Policies for One-Zone Policy Areas*, provided that the risk of flooding and property damage is reduced through relocation.

8.1.7 Ground Floor Additions to residential buildings or structures that have been replaced or relocated previously through permission received from the GSCA, may be permitted in accordance with the policies in *Section 8.1.2 – Policies for One-Zone Policy Areas*, provided that the total habitable ground floor area does not exceed 50 per cent of the original habitable ground floor area of the building that was replaced or relocated to a maximum footprint of 46.5 m² (500 ft²), and no new dwelling units are created.

8.1.8 Non-Habitable Accessory Buildings or Structures associated with an existing residential use such as detached garages, tool sheds, gazebos and other similar structures, may be permitted in accordance with the policies in *Sections 7.1.2-7.1.3 – General Policies*, and where it can be demonstrated that:

- a) there is no feasible alternative site outside the *Riverine Flooding Hazard*,
- b) the site is not subject to *frequent flooding*,
- c) the building or structure is less than or equal to 46.5 m² (500 ft²) or in the case of additions, the combined area of the existing building or structure and any proposed addition is equal to or less than 46.5 m² (500 ft²),
- d) the building or structure is securely anchored such that it does not obstruct downstream culverts during a flood event where applicable,
- e) floodproofing is undertaken to the extent practical, where floodproofing to the elevation of the *Regulatory Flood* is not technically feasible, *and*
- f) there is no opportunity for conversion into habitable space in the future.

8.1.9 Above or Below Ground Swimming Pools may be permitted in accordance with the policies in *Sections 7.1.2-7.1.3 – General Policies*, and provided that:

- a) floodproofing of electrical facilities to the elevation of the *Regulatory Flood* is undertaken, *and*
- b) all fill, except that approved for landscaping, is removed from the *Riverine Flooding Hazard*.

Commercial/Industrial/Institutional

8.1.10 Additions to existing commercial/industrial/institutional buildings or structures may be permitted in accordance with the policies in *Section 8.1.2 – Policies for One-Zone Policy Areas*, and where it can be demonstrated that:

- a) the addition is 50 percent or less of the original ground floor area of the building or structure to a maximum of 100 m² (1,076 ft²), or in the case of multiple additions, all additions combined are equal to or less than 50 per cent of the original ground floor area of the building or structure to a maximum footprint of 100 m² (1,076 ft²), *and*
- b) no basement is proposed and any crawl space is designed to facilitate services only.

8.1.11 Accessory Buildings or Structures associated with commercial/industrial/institutional uses may be permitted in accordance with the policies in *Section 8.1.2 – Policies for One-Zone Policy Areas*, and where it can be demonstrated that:

- a) the building or structure is less than or equal to 100 m² (1,076 ft²) or in the case of additions, the combined area of the existing building or structure and any proposed addition is equal to or less than 100 m² (1,076 ft²),

-
- b) the building or structure is securely anchored such that it does not obstruct downstream culverts during a flood event where applicable,
 - c) the cumulative impact of multiple accessory buildings or structures on the subject property is negligible, *and*
 - d) no basement is proposed and any crawl space is designed to facilitate services only.

8.1.12 *Parking Lots* associated with existing *non-residential uses* located wholly or partially within the *Riverine Flooding Hazard* may be permitted in accordance with the policies in *Section 8.1.2 – Policies for One-Zone Policy Areas*, and where it can be demonstrated that the risk of property damage is minimized through site design.

Internal Renovations

8.1.13 *Internal Renovations* to existing buildings or structures which change the use or potential use of the building or structure but provide for no additional dwelling units may be permitted provided that:

- a) the risks associated with flooding are low,
- b) the internal renovation does not result in a new use prohibited by *Section 7.1.6*,
- c) electrical, mechanical and heating services are located above the level of the Regulatory Flood, wherever possible, *and*
- d) there is no risk of structural failure due to potential hydrostatic/dynamic pressures.

Stormwater Management

8.1.14 *Stormwater Management Facilities* are generally not permitted but may be permitted within the *Riverine Flooding Hazard* but outside of the riparian zone or effective flow area, whichever is greater, in accordance with the policies in *Sections 7.1.2-7.1.3 - General Policies*, provided that there is no feasible alternative site outside the *Riverine Flooding Hazard* and where it can be demonstrated that:

- a) there is no loss of flood storage,
- b) natural erosion and sedimentation processes within the receiving watercourse are not impacted,
- c) where unavoidable, intrusions on significant natural features or hydrologic or ecological functions are minimized and it can be demonstrated that best management practices including site and infrastructure design and appropriate remedial measures will adequately restore and enhance features and functions,
- d) facilities are excavated with minimal berming, stage-storage discharge relationships and floodplain flow regimes for a range of rainfall events including the *Regional Storm* are maintained, and all excavated material is removed from the *Riverine Flooding Hazard*, *and*
- e) design and maintenance performance requirements as determined by the GSCA for the receiving watercourse are met and the effect of the floodplain flow regime on the intended function of the facility is incorporated into the siting and design.⁶

⁶ Stormwater management facilities are regulated through the Ministry of the Environment (Certificate of Approval). The GSCA reviews the plans and provides comments at the plan review and/or subwatershed/master drainage planning stage. Permission from the GSCA is still required for the construction of the facility in a *Regulated Area*. The proposed works may be permitted provided that the policies in *Section 8.1.15* are met.

Public Infrastructure

8.1.15 *Public Infrastructure* including but not limited to roads, sanitary sewers, utilities, water and sewage treatment plants, water supply wells, well houses, and pipelines may be permitted in accordance with the policies in *Sections 7.1.2-7.1.3 – General Policies*, provided that there is no feasible alternative site outside the *Riverine Flooding Hazard* as determined through an *Environmental Assessment* or other *comprehensive plan* supported by the GSCA, and where it can be demonstrated that:

- a) adverse hydraulic or fluvial impacts are limited and any risk of flood damage to upstream or downstream properties is not increased or is minimized through site design and the affected landowner(s) is informed of the increased risk,
- b) there is no loss of flood storage wherever possible, *and*
- c) where unavoidable, intrusions on significant natural features or hydrologic or ecological functions are minimized and it can be demonstrated that best management practices including site and infrastructure design and appropriate remedial measures will adequately restore and enhance features and functions.

8.1.16 The maintenance and repair of ***Public Infrastructure*** may be permitted in accordance with the policies in *Sections 7.1.2-7.1.3 - General Policies*, and where it can be demonstrated that where unavoidable, intrusions on significant natural features or hydrologic or ecological functions are minimized and it can be demonstrated that best management practices including site and infrastructure design and appropriate remedial measures will adequately restore and enhance features and functions.

Recreational Uses

8.1.17 *Recreational Uses* such as passive parks, trails and river access points and other uses deemed appropriate by the GSCA, but *not* including new campgrounds, new golf courses or expansions to existing golf courses, marinas or permanent docks, may be permitted in accordance with the policies in *Sections 7.1.2-7.1.3 - General Policies*, and where it can be demonstrated that:

- a) there is no feasible alternative site outside the *Riverine Flooding Hazard*,
- b) there is no loss of flood storage,
- c) where unavoidable, intrusions on significant natural features or hydrologic or ecological functions are minimized and it can be demonstrated that best management practices including site, facility and/or landscape design and appropriate remedial measures will adequately restore and enhance features and functions, *and*
- d) the risk of property damage is minimized through site and facility design.

8.1.18 *Marinas* and *permanent docks* may be permitted in accordance with the policies in *Sections 7.1.2-7.1.3 - General Policies*, and where it can be demonstrated that:

- a) there is no measurable loss of flood storage,
 - b) facilities are designed to take advantage of existing impacted or open areas on the channel bank, wherever possible,
 - c) where unavoidable, intrusions on significant natural features or hydrologic or ecological functions are minimized and it can be demonstrated that best management practices including site, facility and/or landscape design and appropriate remedial measure will adequately restore and enhance features and functions, *and*
 - d) the risk of property damage is minimized through site and facility design.
-

8.1.19 *Golf Courses* or *Golf Course Expansions* are generally not permitted but may be permitted in accordance with the policies in *Sections 7.1.2-7.1.3 - General Policies*, and where it can be demonstrated that:

- a) all associated permanent, closed structures including clubhouses, washrooms with septic systems and maintenance buildings are located outside of the *Riverine Flooding Hazard*,
- b) there is no loss of flood storage,
- c) watercourse crossings are minimized and designed in accordance with the policies in *Section 9.1.2, and*
- d) the risk of property damage is minimized through site and facility design.

Dug-Out/Isolated Ponds

8.1.20 A new *Dug-Out or Isolated Pond* or a *Redesign of an Existing Dug-Out or Isolated Pond* may be permitted in the *Riverine Flooding Hazard* in accordance with the policies in *Sections 7.1.2-7.1.3 – General Policies*, and where it can be demonstrated that:

- a) the pond is located outside of the *Riverine Erosion Hazard*, and
- b) finished side slopes are stable.

8.1.21 *Dredging* of an existing *dug-out or isolated pond* may be permitted where it can be demonstrated that:

- a) all dredged material is removed from the *Riverine Flooding Hazard* and the *Riverine Erosion Hazard*,
- b) dredging does not enlarge the pond in area or volume beyond what was previously constructed,
- c) finished side slopes are stable,
- d) hydrologic and ecological functions are restored and enhanced to the extent possible, and
- e) the risk of pollution and sedimentation during dredging operations is minimized.

Agricultural Structures

8.1.22 *Agricultural Structures* which reduce risks associated with erosion or pollution or promote the conservation of land may be permitted in accordance with the policies in *Sections 7.1.2-7.1.3 - General Policies*, and where it can be demonstrated that:

- a) there is no feasible alternative site outside the *Riverine Flooding Hazard*,
- b) the risk of property damage is minimized through site design and flood emergency plans, and
- c) floodproofing is undertaken to the extent practical, where floodproofing to the elevation of the *Regulatory Flood* is not technically feasible.

Policies for Two-Zone Policy Areas (excluding allowances)

8.1.23 A *Two-Zone Policy Area* may be applied in urban areas where:

- a) the application of a *One-Zone Policy* will affect community viability in existing serviced built-up areas or where major channel enhancements or major dyke works have been carried out,
- b) the application of a *Two-Zone Policy Area* is supported by the GSCA, the municipality and the Ministry of Natural Resources after due consideration of a number of community-related and technical factors,
- c) a higher level of risk is accepted by the municipality and the GSCA,

-
- d) a hydraulic study is undertaken which determines the extent of the *floodway* and *flood fringe*, *and*
 - e) the municipality incorporates appropriate policies and standards into its official plan and zoning by-laws.

8.1.24 *Development* in the floodway of a *Two-Zone Policy Area* will not be permitted except in accordance with the policies in *Sections 8.1.14 - 8.1.19 – Policies for One Zone Policy Areas* (stormwater management, public infrastructure, and recreational uses).

8.1.25 *Buildings or Structures* may be permitted within the *flood fringe* of a *Two-Zone Policy Area* provided that:

- a) the building or structure is floodproofed to the elevation of the Regulatory Flood,
- b) all habitable floor space and electrical, mechanical and heating services are above the elevation of the Regulatory Flood,
- c) no basement is proposed, or where the building contains multiple units, the basement is floodproofed to the elevation of the Regulatory Flood to provide parking below grade or common amenities, *and*
- d) ingress and egress to the building or structure is “dry” where this standard can be practically achieved, or floodproofed to an elevation which is practical and feasible, but no less than “safe”.

8.1.26 *Development* in the *flood fringe* of a *Two-Zone Policy Area* associated with existing uses may be permitted in accordance with the policies in *Sections 8.1.2 – 8.1.13*.

Policies for Special Policy Areas (excluding allowances)

8.1.27 A *Special Policy Area* (SPA) may be allowed in urban areas where:

- a) it can be demonstrated by the municipality through detailed studies and appropriate documentation that the application of a *One-Zone Policy* or a *Two-Zone Policy* is not adequate to maintain a community’s social and economic viability,
- b) the application of a *Special Policy Area* is supported by the GSCA, the municipality and the Ministry of Natural Resources after due consideration of a number of community-related and technical factors,
- c) a higher level of risk is accepted by the municipality, the Province of Ontario (Ministry of Municipal Affairs and Housing and Ministry of Natural Resources) and the GSCA,
- d) a hydraulic study is undertaken to determine the extent of the *floodway* and *flood fringe*, *and*
- e) the municipality incorporates appropriate policies and standards into its official plan and zoning by-laws.

8.1.28 Development within a *Special Policy Area* may be permitted in accordance with the policies and standards approved by the municipality, Province of Ontario and the GSCA.

Prohibited Uses within the Riverine Flooding Hazard

8.1.29 Notwithstanding *Sections 8.1.2-8.1.28*, *development* will not be permitted within the *Riverine Flooding Hazard* as specified in *Section 7.1.6 - General Policies*, or where the use is:

- a) a new campground or the expansion of an existing campground,

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- b) a new parking lot associated with residential uses in a *One-Zone Policy Area* or the floodway of a *Two-Zone* or *Special Policy Area*,
 - c) underground parking associated with any use in a *One-Zone* or *Two-Zone Policy Area*,
 - d) a driveway or access way to lands outside of *Riverine Flooding Hazard* where *safe* access is not achievable and no alternative access way providing safe access is available , or
 - e) flood protection works and bank stabilization works to allow for future/proposed development.

8.1.30 Development, excluding non-habitable accessory buildings or structures associated with an existing use, will not be permitted within 15 metres (49.2 feet) of either bank of the watercourse with the exception of works permitted under the provisions of *Section 9*.

Policies for Riverine Flooding Hazard Allowances

8.1.31 *Development within Allowances* associated with *Two-Zone Policy* or *Special Policy Areas* may be permitted subject to the specific flood fringe policies which apply to the adjacent floodplain lands.

8.1.32 *Development within Allowances* associated with *One-Zone Policy Areas* may be permitted in accordance with the policies in *Sections 7.1.2-7.1.3 – General Policies*, provided that it can be demonstrated that there is no risk of structural failure due to potential hydrostatic/dynamic pressures.

8.2 River or Stream Valleys – Riverine Erosion Hazards

Riverine Erosion Hazards

Erosion is a natural process of soil loss due to human or natural processes. The *Riverine Erosion Hazard* within river or stream valleys is that area of river bank and lands adjacent to watercourses where erosion is actively occurring and/or where development could create slope stability issues.

The *Riverine Erosion Hazard* applies to those portions of the valleyland system that are both apparent (confined) and not apparent (unconfined). The extent of the hazard varies and is dependent on the characteristics of the bedrock and soils which comprise the valley slope, the degree to which the valley slope is stable or unstable, and whether or not the valley slope is subject to active erosion. Valley systems are considered to be apparent or confined where valley walls are greater than 3 metres (10 feet), with or without a floodplain.

Apparent Valleys can exhibit three different conditions within which erosion hazards exist or may develop: valley slopes which are steep but stable, valley slopes which are over steepened and potentially unstable, and valley slopes which are subject to active stream bank erosion.

Where a watercourse is not contained within a clearly visible valley section, valleys are *not apparent* (unconfined).

Defining the Regulated Area for Apparent Valleys (Confined Systems)

Where the valley slopes in *Apparent Valleys* have a slope inclination of $33\frac{1}{3}$ per cent (3H:1V) or greater, the limit of the *Regulated Area* includes two components: the *Stable Slope Allowance* plus an *allowance* of 15 metres (49.2 feet). Where active toe erosion is present in a *Confined System*, an additional *Toe Erosion Allowance* is included.

The 15-metre *allowance* helps to buffer development from the hazards of slope instability and to prevent the influence of development on the rate of slope movement. Development adjacent to valley slopes can cause increased loading forces on the top of slope, compromise slope stability or worsen erosion of the slope face, and result in the loss of stabilizing vegetation. *Allowances* also provide access for emergencies, maintenance and construction activities.

Defining the Riverine Erosion Hazard - Apparent Valley (Confined System) – Oversteepened (no toe erosion)

Slopes are considered oversteepened when the gradient is 3H:1V (33 1/3 per cent slope) or greater. These slopes can be unstable.

On over steepened slopes, where the toe of the slope is stable, the *Riverine Erosion Hazard* is defined using a *Stable Slope Angle*. The *Stable Slope Angle* is based on a stable slope gradient determined from a geotechnical study or engineering assessment. The *Stable Slope Allowance* is the distance between the actual valley top of slope and the point at which a stable slope gradient, rising from the same toe position, intersects the ground surface and includes an appropriate factor of safety. This is the distance required for the slope to reach a stable slope inclination.

Figure 4 shows the two components used to establish the *Regulated Area* where slopes are oversteepened and no erosion is occurring at the toe of the valley slope.

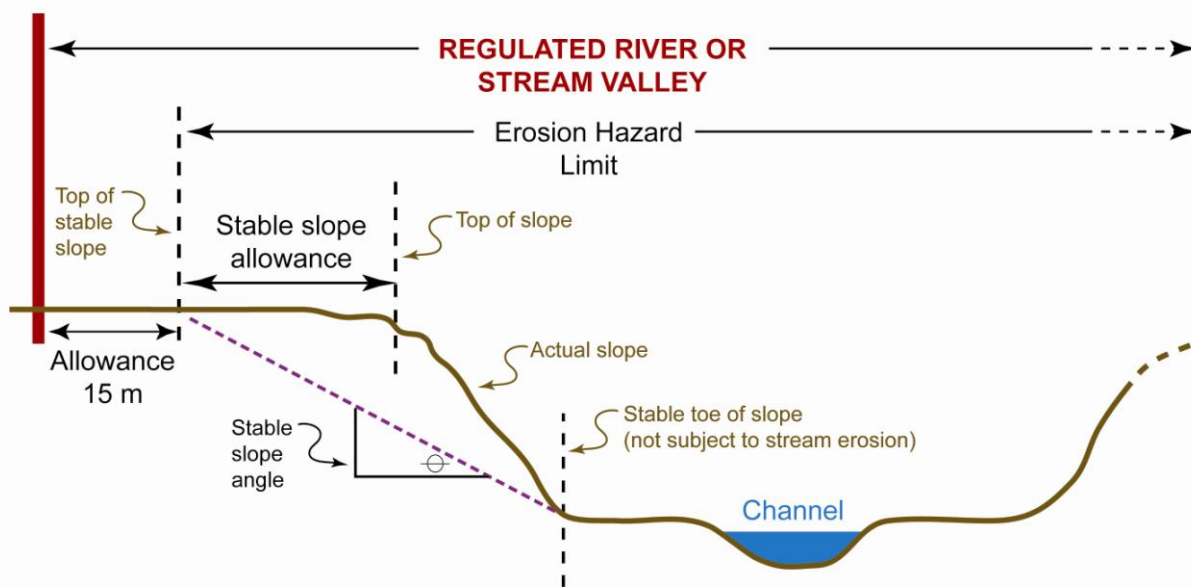


Figure 4. Riverine Erosion Hazard – Regulated Area for Apparent Oversteepened Valleys with Stable Toe

Defining the Riverine Erosion Hazard - Apparent Valley (Confined System) – Active Toe Erosion

Where valley slopes in *Apparent Valleys* are subject to active toe erosion, a *Toe Erosion Allowance* is added into the *Riverine Erosion Hazard*. The *Toe Erosion Allowance* is the distance calculated from the toe of the slope by multiplying the average annual recession rate (as determined by an engineered study based on observation of twenty-five years or longer) over a 100 year planning horizon. This method

estimates the amount of erosion that would occur over the next 100 years. In the absence of an engineering study or where the toe of the slope is less than 15 metres (49.2 feet) from the watercourse, a *Toe Erosion Allowance* of 15 metres (49.2 feet) from the bank of the stream is used.

Figure 5 illustrates the three components used to establish the *Regulated Area* where slopes are oversteepened and active toe erosion is occurring.

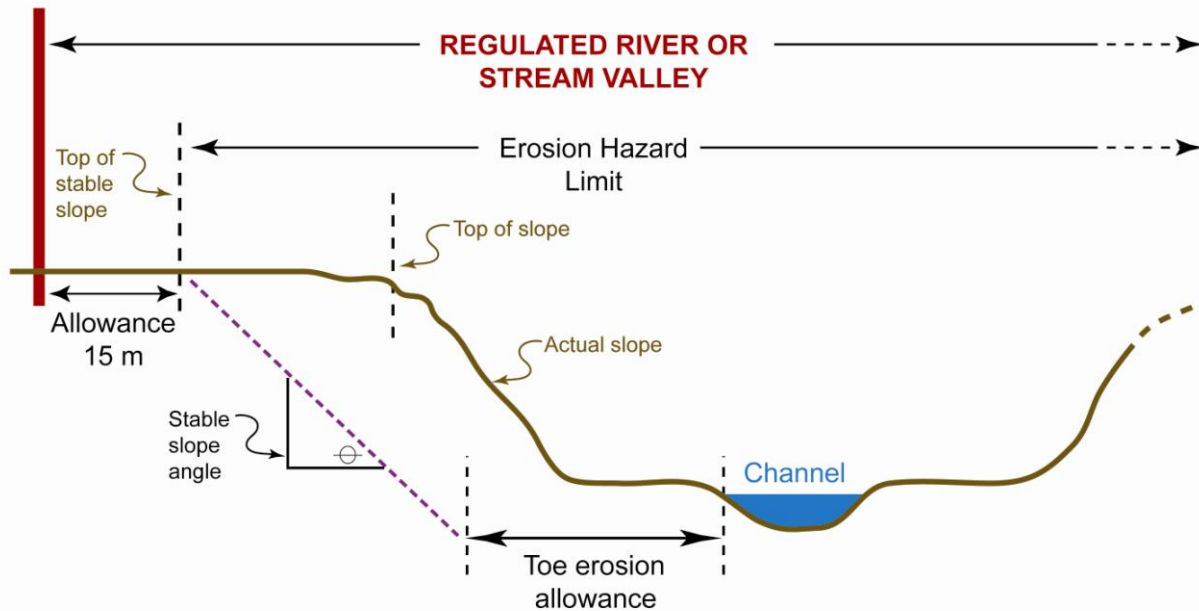


Figure 5. Riverine Erosion Hazard – Regulated Area for Apparent Oversteepened Valleys with Active Toe Erosion

Defining the Regulated Area for No Apparent Valley (Unconfined Systems)

Where there is *No Apparent Valley*, the flow of water is free to shift across the shallower land. Although toe erosion and slope stability are not deemed potential hazards, consideration for the meandering tendencies of the system must be provided. In these valley sections, the *Regulated Area* is the greater of the extent of the *Riverine Flooding Hazard* plus the prescribed allowance or the *Meander Belt Allowance* plus an allowance of 15 metres (49.2 feet).

The *Meander Belt Allowance* provides a limit to development within the areas where the river system is likely to shift. This allowance is based on twenty (20) times the bankfull channel width, where the bankfull channel width is measured at the widest riffle section of the reach. A riffle is a section of shallow rapids where the water surface is broken by small waves. The meander belt is centered over the channel (**Figure 6**).

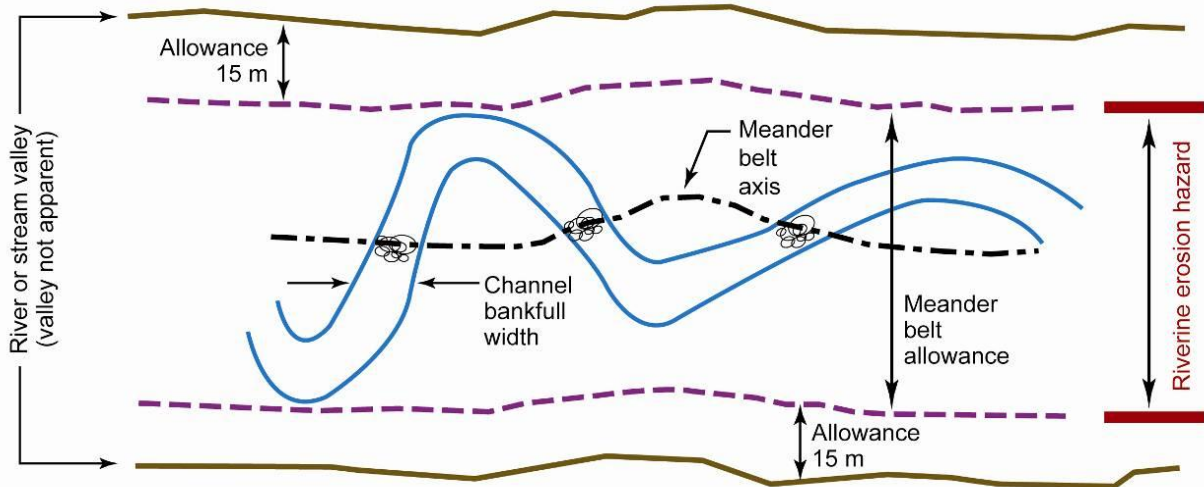


Figure 6. Riverine Erosion Hazard – Regulated Area – No Apparent Valley

Development within the *Regulated Area* of any valley land requires permission from the GSCA.

Policies for Riverine Erosion Hazards and the Associated Allowance

8.2.1 *Development* will not be permitted within the *Riverine Erosion Hazard* and the associated allowance except in accordance with the policies in Sections 8.2.2–8.2.22.

Development in the Riverine Erosion Hazard Allowance – Apparent Valleys

8.2.2 *Development* within the *Riverine Erosion Hazard Allowance* may be permitted in accordance with the policies in Sections 7.1.2-7.1.3 - *General Policies*, and where a site-specific geotechnical or engineering assessment based on established provincial guidelines and an appropriate *factor of safety* against slope failure or slipping establishes a more precise *Riverine Erosion Hazard* limit, and where it can be demonstrated that:

- a) there is no feasible alternative site outside the *Regulated Area*,
- b) the proposed development is not subject to a *Riverine Erosion Hazard* or a *Riverine Flooding Hazard*,
- c) there is no impact on existing and future slope stability,
- d) the risk of creating new *Riverine Erosion Hazards* or aggravating existing *Riverine Erosion Hazards* as a result of the development is negligible,
- e) the potential of increased loading forces on the top of the slope is addressed through appropriate structural design,
- f) the potential for surficial erosion is addressed by a drainage plan,
- g) access into and through the valley for preventative actions or maintenance or during an emergency will not be prevented, *and*
- h) an appropriate setback from the *Riverine Erosion Hazard*, as established in Sections 8.2.3-8.2.10.

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- 8.2.3** *Non-Habitable Accessory Buildings or Structures* associated with an existing residential use such as tool sheds, gazebos and other similar structures, may be permitted within the *Riverine Erosion Hazard Allowance* in accordance with the policies in *Section 8.2.2*, provided that a development setback of not less than 6 metres (20 feet) is maintained from the *Riverine Erosion Hazard*, where practical.
- 8.2.4** *Accessory Buildings or Structures* associated with an existing industrial/commercial/institutional uses may be permitted within the *Riverine Erosion Hazard Allowance* in accordance with the policies in *Section 8.2.2*, provided that a development setback of not less than 6 metres (20 feet) is maintained from the *Riverine Erosion Hazard*.
- 8.2.5** *Ground Floor Additions* to existing residential buildings or structures may be permitted within the *Riverine Erosion Hazard Allowance* in accordance with the policies in *Section 8.2.2* provided that a development setback of not less than 6 metres (20 feet) is maintained from the *Riverine Erosion Hazard*.
- 8.2.6** *Ground Floor Additions* to existing industrial/commercial/institutional buildings or structures may be permitted within the *Riverine Erosion Hazard Allowance* in accordance with the policies in *Section 8.2.2* provided that a development setback of not less than 6 metres (20 feet) is maintained from the *Riverine Erosion Hazard*.
- 8.2.7** *An Additional Storey* to existing buildings or structures within the *Riverine Erosion Hazard Allowance* may be permitted in accordance with the policies in *Section 8.2.2* provided that the existing development setback is maintained.
- 8.2.8** *Buildings or Structures* associated with new multi-lot or multi-unit uses (residential/industrial/commercial/institutional), large-scale uses such as golf courses or commercial/institutional complexes may be permitted within the *Riverine Erosion Hazard Allowance* in accordance with the policies in *Section 8.2.2*, provided that all building lots or greens and fairways (in the case of golf courses) are set back, in their entirety, a minimum of 6 metres (20 feet) from the *Riverine Erosion Hazard*.
- 8.2.9** *Buildings or Structures* on single lots not associated with new multi-lot or multi-unit uses (residential/industrial/commercial/institutional), large-scale uses or commercial/institutional complexes may be permitted within the *Riverine Erosion Hazard Allowance* in accordance with the policies in *Section 8.2.2*, provided that a development setback of not less than 6 metres (20 feet) is maintained from the *Riverine Erosion Hazard*.
- 8.2.10** *Replacement or relocation* of existing buildings or structures located within the *Riverine Erosion Hazard Allowance* may be permitted in accordance with the policies in *Section 8.2.9*.
- 8.2.11** *Development* within the *Riverine Erosion Hazard Allowance* may be permitted without a site-specific geotechnical or engineering assessment where existing geotechnical or engineering assessments based on established provincial guidelines and an appropriate *factor of safety* against slope failure or slipping undertaken in the immediate area establish that the site is not subject to a *flooding or erosion hazard* and it can be demonstrated that the policies in *Section 8.2.2* are met.

Development Associated with Existing Uses in the Riverine Erosion Hazard – Apparent Valleys

8.2.12 ***Development associated with existing uses*** located within the *Riverine Erosion Hazard* may be permitted in accordance with the policies in *Sections 7.1.2-7.1.3 – General Policies*, and where it can be demonstrated through a site-specific geotechnical or engineering assessment based on established provincial guidelines that:

- a) there is no feasible alternative site outside the *Riverine Erosion Hazard*,
- b) the proposed development or building or structure is located in the area of least risk,
- c) the site is located in an area where an appropriate *factor of safety* has been identified in accordance with the type of use and size of the building or structure,
- d) there is no impact on existing and future slope stability and bank stabilization or erosion protection works are not required,
- e) the risk of creating new *Riverine Erosion Hazards* or aggravating existing *Riverine Erosion Hazards* as a result of the development is negligible,
- f) the potential of increased loading forces on the top of slope is addressed through appropriate structural design,
- g) access into and through the valley for preventative actions or maintenance or during an emergency will not be prevented, *and*
- h) the potential for surficial erosion is addressed by a drainage plan, where applicable.

8.2.13 ***Non-Habitable Accessory Buildings or Structures*** less than or equal to 46.5 m² (500 ft²) associated with an existing residential use such as tool sheds, gazebos and other similar structures, may be permitted within the *Riverine Erosion Hazard* in accordance with the policies in *Section 8.2.12*. Additions may be permitted provided that the combined area of the existing non-habitable accessory building or structure and the addition is equal to or less than 46.5 m² (500 ft²).

8.2.14 ***Accessory Buildings or Structures*** less than or equal to 100 m² (1,076 ft²) associated with an existing industrial/commercial/institutional uses may be permitted within the *Riverine Erosion Hazard* in accordance with the policies in *Section 8.2.12*. Additions may be permitted provided that the combined area of the existing accessory building or structure and the addition is equal to or less than 100 m² (1,070 ft²).

8.2.15 ***Ground Floor Additions*** to existing residential uses may be permitted in accordance with the policies in *Section 8.2.12* provided that the addition is less than 50 per cent of the original ground floor area of the building or structure to a maximum footprint of 46.5 m² (500 ft²).

8.2.16 ***Ground Floor Additions*** to existing industrial/commercial/institutional uses may be permitted in accordance with the policies in *Section 8.2.12* provided that the addition is less than 50 per cent of the original ground floor area of the building or structure to a maximum footprint of 100 m² (1,076 ft²).

8.2.17 ***An Additional Storey*** to existing buildings or structures may be permitted in accordance with the policies in *Section 8.2.12*.

8.2.18 ***Replacement or relocation*** of existing buildings or structures may be permitted in accordance with the policies in *Section 8.2.12*.

Development – No Apparent Valleys

8.2.19 *Development* will not be permitted within the *Riverine Erosion Hazard* where there is no apparent valley. A site-specific geotechnical, hydraulic or engineering assessment may be required to establish more precise limits for the *Riverine Flooding Hazard* and the *Riverine Erosion Hazard*.

8.2.20 *Development* proposed in an area subject to the *Riverine Flooding Hazard* but beyond the limits of the *Riverine Erosion Hazard*, may be permitted in accordance with the policies in *Section 8.1 – River or Stream Valleys – Riverine Flooding Hazards*.

Public Infrastructure

8.2.21 *Public Infrastructure* including but not limited to roads, sanitary sewers, utilities, water supply wells, well houses, and pipelines, may be permitted in accordance with the policies in *Sections 7.1.2-7.1.3 – General Policies*, and provided that: (a) there is no feasible alternative site outside the *Regulated Area* as determined by an *Environmental Assessment* or other *comprehensive plan* supported by the GSCA, and (b) a site-specific geotechnical or engineering assessment based on established provincial guidelines and an appropriate *factor of safety* establishes a more precise *Riverine Erosion Hazard*, and (c) where it can be demonstrated that:

- a) there are no impacts on existing and future slope stability,
- b) the risk of creating new *Riverine Erosion Hazards* or aggravating existing *Riverine Erosion Hazards* is minimized through site and infrastructure design and appropriate remedial measures,
- c) the potential of increased loading forces on the top of the slope is addressed through appropriate structural design,
- d) the potential for surficial erosion is addressed by a drainage plan, *and*
- e) where unavoidable, intrusions on significant natural features or hydrologic or ecological functions are minimized and it can be demonstrated that best management practices including site and infrastructure design and appropriate remedial measures will adequately restore and enhance features and functions.

Recreational Infrastructure

8.2.22 *Recreational Infrastructure* which by its nature must locate in river valleys such as fencing, stairways, and access points, and other recreational uses deemed appropriate by the GSCA may be permitted in accordance with the policies in *Sections 7.1.2-7.1.3 – General Policies*, and where it can be demonstrated through a site-specific geotechnical or engineering assessment based on established provincial guidelines and appropriate *factor of safety* that:

- a) there is no impact on existing and future slope stability,
- b) the risk of creating new *Riverine Erosion Hazards* or aggravating existing *Riverine Erosion Hazards* is minimized through site and infrastructure design and appropriate remedial measures,
- c) facilities are designed and constructed to minimize the risk of structural failure and/or property damage,
- d) the potential for surficial erosion is addressed by a drainage plan, *and*

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- e) where unavoidable, intrusions on significant natural features or hydrologic or ecological functions are minimized and it can be demonstrated that best management practices including site and infrastructure design and appropriate remedial measures will adequately restore and enhance features and functions.

Prohibited Uses within the Riverine Erosion Hazard

8.2.23 Notwithstanding *Sections 8.2.2-8.2.22*, **development** will not be permitted within the *Riverine Erosion Hazard* as specified in Section 7.1.6 – General Policies, or where the use is:

- a) a bank stabilization project intended to protect new development, with the exception of public infrastructure,
- b) placement or dumping of fill not associated with works approved by the GSCA,
- c) a Stormwater Management Facility, *or*
- d) excavation works at the toe of a valley slope, with the exception of works which may be permitted in accordance with the policies in *Section 9.1*.

8.3 Policies for Headwater Streams

8.3.1 Notwithstanding *Sections 8.1* and *8.2* development adjacent to watercourses will generally not be permitted within a minimum 15 metres of the bankfull width of the watercourse. In situations where no development currently exists, a minimum 30 metre setback will be encouraged to further aid in the protection of fish habitat and water quality.

8.4 Other Slope Hazards

Defining Other Slope Hazards

Where post glacial re-entrant valley and shoreline slopes are not associated with the current river or shoreline location and the slopes are considered to be over steep, these slopes can be unstable. Generally these slopes are considered over steep when the gradient is 3H:1V (33 ½ per cent slope) or greater. In areas of sandy soil the slopes are considered over steep when the gradient is 5H:1V (20 per cent slope).

On over steep slopes where the toe is stable, the Slope Hazard is defined using a Stable Slope Angle. The Stable Slope Angle is based on a stable slope gradient determined from a geotechnical study or engineering assessment. Where a geotechnical study or engineering assessment does not exist, the Stable Slope Line will be considered to be at a gradient of 3H:1V measured from the toe of the slope.

The Stable Slope Allowance is the distance between the actual valley top of slope and the point at which the stable slope gradient, rising from the same toe position, intersects the ground surface and includes an appropriate factor of safety. (See Figure 4)

Policies for Other Slope Hazards and the Associated Allowance

8.4.1 **Development** within *Other Slope Hazards and the Associated Allowance* will not be permitted except in accordance with the policies in *Sections 8.4.2 to 8.4.18* where applicable.

Development in the Other Slope Hazard Allowance

8.4.2 **Development** within the *Slope Hazard Allowance* may be permitted in accordance with the policies in *Sections 7.1.2. – 7.1.3 – General Policies*, and where a site-specific geotechnical or engineering assessment based on established provincial guidelines and an appropriate *factor of safety* against slope failure or slipping establishes a more precise *Stable Slope Line*, and where it can be demonstrated that:

- a) there is no feasible alternative site outside the *Regulated Area*,
- b) the proposed development is not subject to *Other Slope Hazards*,
- c) there is no impact on existing and future slope stability,
- d) the risk of creating new *Slope Hazards* or aggravating existing *Slope Hazards* as a result of the development is negligible,
- e) the potential of increased loading forces on the top of the slope is addressed through appropriate structural design.
- f) the potential for surficial erosion is addressed by a drainage plan, and
- g) an appropriate setback from the *Stable Slope Line*, as established in *Sections 8.4.3 – 8.4.10*.

8.4.3 ***Non-Habitable Accessory Buildings or Structures*** associated with an existing residential use such as tool sheds, gazebos and other similar structures, may be permitted within the *Slope Hazard Allowance* in accordance with the policies in *Section 8.4.2* provided that a development setback of not less than 6 metres (20 feet) is maintained from the *Stable Slope Line*, where practical.

8.4.4 ***Accessory Building or Structures*** associated with an existing industrial/commercial/institutional uses may be permitted within the *Slope Hazard Allowance* in accordance with the policies in *Section 8.4.2*, provided that a development setback of not less than 6 metres (20 feet) is maintained from the *Stable Slope Line*.

8.4.5 ***Ground Floor Additions*** to existing residential buildings or structures may be permitted within the *Slope Hazard Allowance* in accordance with the policies in *Section 8.4.2* provided that a development setback of not less than 6 metres (20 feet) is maintained from the *Stable Slope Line*.

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- 8.4.6 **Ground Floor Additions** to existing industrial/commercial/institutional buildings or structures may be permitted within the *Slope Hazard Allowance* in accordance with the policies in *Section 8.4.2* provided that a development setback of not less than 6 metres (20 feet) is maintained from the *Stable Slope Line*.
- 8.4.7 **An Additional Storey** to existing buildings or structures within the *Slope Hazard Allowance* may be permitted in accordance with the policies in *Section 8.4.2* provided that the existing development setback is maintained.
- 8.4.8 **Buildings or Structures** associated with new multi-lot units uses (residential/industrial/commercial/institutional), large-scale uses such as golf courses or commercial/institutional complexes may be permitted within the *Slope Hazard Allowance* in accordance with the policies in *Section 8.4.2*, provided that all building lots or greens and fairways (in the case of golf courses) are set back, in their entirety, a minimum of 6 metres (20 feet) from the *Stable Slope Line*.
- 8.4.9 **Buildings or Structures** on single lots not associated with new multi-lot or multi-unit uses (residential/industrial/commercial/institutional), large-scale uses or commercial/institutional complexes may be permitted within the *Slope Hazard Allowance* in accordance with the policies in *Section 8.4.2*, provided that a development setback of not less than 6 metres (20 feet) is maintained from the *Stable Slope Line*.
- 8.4.10 **Replacement or relocation** of existing buildings or structures located within the *Slope Hazard Allowance* may be permitted in accordance with the policies in *Section 8.4.9*.
- 8.4.11 **Development** within the *Slope Hazard Allowance* may be permitted without a site-specific geotechnical or engineering assessment where existing geotechnical or engineering assessments based on established provincial guidelines and an appropriate *factor of safety* against slope failure or slipping undertaken in the immediate area establish that the site is not subject to a *slope hazard* and it can be demonstrated that the policies in *Section 8.4.2* are met.
- 8.4.12 **Development within the Slope Hazard Allowance** may be permitted without a site-specific geotechnical or engineering assessment where the *Stable Slope Line* is defined by a gradient of 3H:1V (or 5H:1V for sandy soils), and a minimum setback of 6 metres (20 feet) can be maintained from the *Stable Slope Line*.

Public Infrastructure

- 8.4.13 **Public Infrastructure** including but not limited to roads, sanitary sewers, utilities, water supply wells, well houses, and pipelines, may be permitted in accordance with the policies in *Sections 7.1.2-7.1.3- General Policies*, and provided that “ (a) there is no feasible alternative site outside the *Regulated Area* as determined by an *Environmental Assessment* or other *comprehensive plan* supported by the GSCA, and (b) a site-specific geotechnical or engineering assessment based on established provincial guidelines and an

appropriate *factor of safety* establishes a more precise *Stable Slope Line*, and (c) where it can be demonstrated that:

- a) there are not impacts on existing and future slope stability,
- b) the risk of creating new *Slope Hazards* or aggravating existing *Slope Hazards* is minimized through site and infrastructure design and appropriate remedial measures.
- c) the potential of increased loading forces on the top of the slope is addressed through appropriate structural design,
- d) the potential for surficial erosion is addressed by a drainage plan, *and*
- e) where unavoidable, intrusions on significant natural features or hydrologic or ecological functions are minimized and it can be demonstrated that best management practices including site and infrastructure design and appropriate remedial measures will adequately restore and enhance features and functions.

Recreational Infrastructure

8.4.14 ***Recreational Infrastructure*** which by its nature must be located on or near slope features such as fencing, stairways, and other recreational uses deemed appropriate by the GSCA may be permitted in accordance with the policies in *Sections 7.1.2 – 7.1.3 – General Policies*, and where it can be determined through a site-specific geotechnical or engineering assessment based on established provincial guidelines and appropriate *factor of safety* that:

- a) there is no impact on existing and future slope stability,
- b) the risk of creating new *Slope Hazards* or aggravating existing *Slope Hazards* is minimized through site and infrastructure design and appropriate remedial measures,
- c) facilities are designed and constructed to minimize the risk of structural failure and/or property damage,
- d) the potential for surficial erosion is addressed by a drainage plan, *and*
- e) where unavoidable, intrusions on significant natural features or hydrologic or ecological functions are minimized and it can be demonstrated that best management practices including site and infrastructure design and appropriate remedial measures will adequately restore and enhance features and functions.

Prohibited Uses Within Other Slope Hazards

8.4.15 Notwithstanding *Sections 8.4.2-8.4.14*, *development* will not be permitted within the *Other Slope Hazard* as specified in *Section 7.1.6 – General Policies*, or where the use is:

- a) a bank stabilization project intended to protect new development, with the exception of public infrastructure,

-
- b) placement or dumping of fill not associated with works approved by the GSCA,
 - c) a Stormwater Management Facility, *or*
 - d) excavation works at the toe of a slope not associated with a riverine feature

8.5 Wetlands and Areas of Interference

Defining Wetlands

Wetlands are defined in the Conservation Authorities Act and means land that:

- *is seasonally or permanently covered by shallow water or have a water table close or at the surface,*
- *directly contributes to the hydrological function of a watershed through connection with a surface watercourse,*
- *has hydric soils, the formation of which have been caused by the presence of abundant water, and*
- *has 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 wetland characteristics (Conservation Authorities Act, R.S.O. 1990, c. 27, s. 28, ss. 25).

Wetlands are important natural features on the landscape, whether permanently or seasonally wet. Wetlands moderate water flow by absorbing much of the surface water runoff from the land and then slowly releasing it. This helps to reduce flooding and to sustain stream flows during dry spells. Many wetlands recharge groundwater by moving surface water into the groundwater system.

Other benefits include protecting and improving water quality, providing habitat for fish and wildlife, and providing recreational opportunities. The lands which surround wetlands are also important to sustaining their essential hydrologic and ecological functions.

Defining Areas of Interference

The areas surrounding wetlands where development could interfere with the hydrologic function of the wetland are called “areas of interference”. These areas include lands that are 120 metres (394 feet) from the boundaries of *Provincially Significant Wetlands*⁷ or 30 metres (100 feet) from other wetlands greater than 2 ha in size as shown in **Figure 7**. These areas may be adjusted where detailed hydrologic studies define a more accurate “area of interference”.

For the purpose of the *Regulation*, wetlands less than 2.0 hectares (4.8 acres) do not have an associated area of interference.

⁷ *Provincially Significant Wetlands* are generally identified and approved by the Ontario Ministry of Natural Resources using the current Wetland Evaluation System.

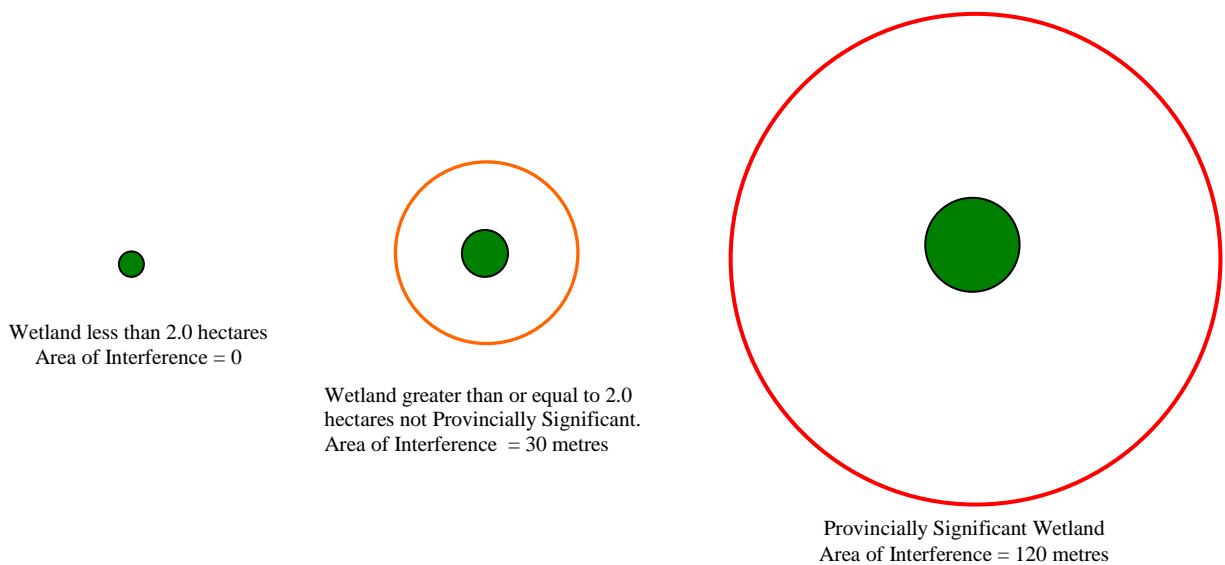


Figure 7. Wetlands and Associated Areas of Interference

All wetlands and their associated areas of interference are regulated under the *Development, Interference with Wetlands and Alteration to Shorelines and Watercourses Regulation*.

Any *development* or *interference* within wetlands or development in areas of interference requires permission from the GSCA.

Policies for Wetlands and Areas of Interference

8.5.1 *Development/Interference* within a wetland or *development* within an *area of interference* will not be permitted except in accordance with the policies in *Sections 8.5.2-8.5.8*.

Development/Interference within Wetlands

8.5.2 *Development* within a wetland may be permitted where it can be demonstrated that the wetland is not:

- a) part of a Provincially Significant Wetland,
- b) located within a floodplain or riparian community,
- c) part of a Provincially or municipally designated natural heritage feature, a significant woodland, or hazard land,
- d) a bog, fen,
- e) fish habitat,
- f) significant wildlife habitat,
- g) confirmed habitat for a Provincially or regionally significant species as determined by the Ministry of Natural Resources or as determined by the municipality,
- h) part of an ecologically functional corridor or linkage between larger wetlands or natural areas,
- i) part of a groundwater recharge area, *or*

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- j) a groundwater discharge area associated with any of the above.

8.5.3 Public Infrastructure including but not limited to roads, sanitary sewers, utilities, water supply wells, well houses, and pipelines, **within a wetland** may be permitted in accordance with the policies in *Sections 7.1.2-7.1.3 - General Policies*, provided that it can be demonstrated that:

- a) an *Environmental Assessment* or other *comprehensive plan* supported by the GSCA, demonstrates that all alternatives to avoid wetland loss or interference have been considered and that the proposed alignment *minimizes* wetland loss or interference to the greatest extent possible, *and*
- b) where unavoidable, intrusions on significant natural features or hydrologic or ecological functions are minimized and it can be demonstrated that best management practices including site and infrastructure design and appropriate remedial measures will adequately restore and enhance features and functions.

8.5.4 Where an *Environmental Assessment* or other *comprehensive plan* is available and supported by the GSCA as specified in Section 8.5.3, the GSCA may request a more detailed site-specific study (i.e. a *Scoped Environmental Impact Study*) consistent with the *comprehensive plan*. This study will determine a more precise area wetland boundary in accordance with the current Provincial Wetland Evaluation System, and demonstrate how the hydrologic and ecological functions of the wetland will be restored and enhanced.

8.5.5 Dredging of existing ponds within a wetland may be permitted in accordance with the policies in *Section 7.1.2* and *Section 8.5.2*, and provided that all dredged material is placed at a suitable distance from the wetland.

Development within Areas of Interference

8.5.6 Development within an area of interference from a wetland may be permitted in accordance with the policies in *Sections 7.1.2-7.1.3 – General Policies*, and where it can be demonstrated that:

- a) there are no negative or adverse hydrological impacts on the wetland,
- b) all development is located outside of the wetland and maintains the maximum setback possible,
- c) development is located above the water table, except as specified in *Section 8.5.8*, *and*
- d) septic systems are located a minimum of 15 metres from the wetland and 0.9 metres above the annual maximum water table⁸.

Conservation Projects within Wetlands and Areas of Interference

8.5.7 Wetland Conservation Projects within *wetlands* and *areas of interference* may be permitted where an *Environmental Impact Study* demonstrates how the hydrologic and ecological functions will be protected, created, restored and/or enhanced.

⁸ This standard is prescribed by the Ontario Building Code.

Stormwater Management within Wetlands and Areas of Interference

8.5.8 Stormwater Management Facilities will not be permitted within a wetland, but may be permitted in the area of interference where it can be demonstrated that:

- a) all structural components and actively managed components of the stormwater management facility including constructed wetlands, are located outside of the wetland,
- b) a detailed study demonstrates how the hydrologic and ecological functions of the wetland will be protected, restored and/or enhanced,
- c) pollution and sedimentation during construction and post construction are minimized using best management practices including site and facility design, construction controls, and appropriate remedial measures,
- d) design and maintenance requirements as determined by the GSCA are met, *and*
- e) works are constructed, repaired or maintained according to accepted engineering principles and approved engineering standards or to the satisfaction of the GSCA, whichever is applicable based on the scale and scope of the project.

8.6 Lake Huron and Georgian Bay Shoreline

About 155 kilometres (96 miles) of Lake Huron and Georgian Bay shoreline is within the jurisdiction of the GSCA. For the purposes of defining the extent of the *Regulated Area*, a 15 metre (50 foot) allowance is added to the furthest landward extent of the *flooding hazard*, *erosion hazard* or *dynamic beach hazard*.

A *Shoreline Management Plan (SMP)* was completed in May 1994. The plan lays out the technical basis and recommended management plan for the lakeshore. The *Shoreline Erosion Hazard* and *Dynamic Beach Hazard* are determined based on information from the *Shoreline Management Plan* and updated shoreline mapping.

Lake Huron and Georgian Bay Shoreline Flooding Hazard

Flooding from Lake Huron and Georgian Bay affects the entire shoreline area, backshore areas, and also extends up the lower portions of several rivers. The *Lake Flooding Hazard* limit is based on the 100 year flood limit including wave uprush and other water-related hazards (**Figure 8**).

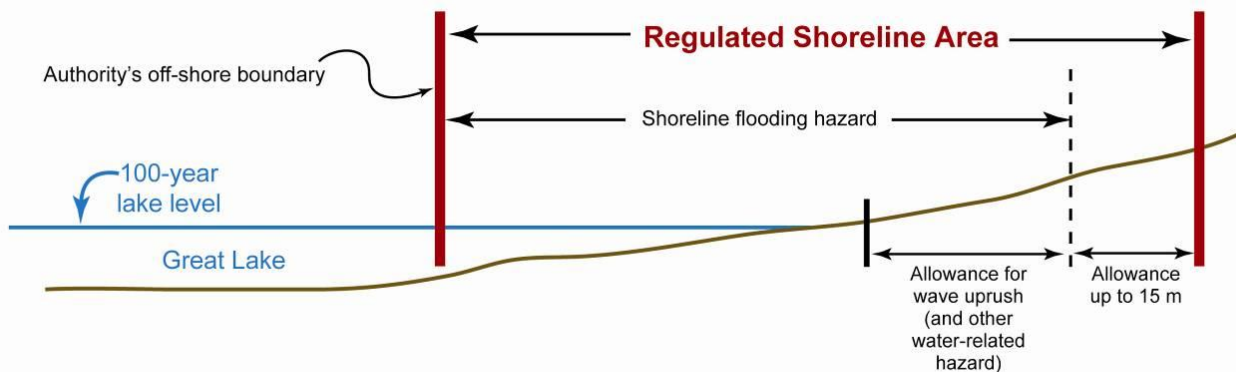


Figure 8. Lake Huron and Georgian Bay Shoreline Flooding Hazard - Regulated Area

Lake Huron and Georgian Bay Shoreline Erosion Hazard

The *Lake Shoreline Erosion Hazard* is defined as the average annual rate of recession extended over a 100 year period. The erosion hazard is determined using a stable slope allowance (equal to the horizontal distance measured landward from the toe of the slope equal to 3 times the height of the cliff, bluff or bank) and an erosion allowance equal to 100 times the average annual recession rate (**Figure 9**).

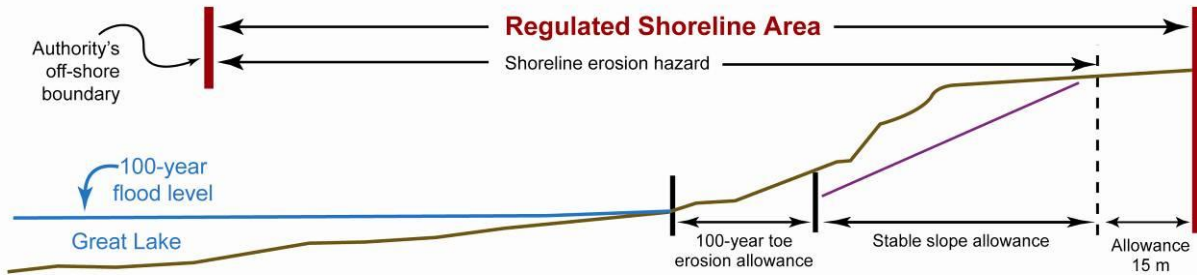


Figure 9. Lake Huron and Georgian Bay Shoreline Erosion Hazard - Regulated Area

Lake Huron and Georgian Bay Dynamic Beach Hazard

The *Lake Dynamic Beach Hazard* is that portion of a shoreline where accumulated unconsolidated sediment continuously moves as a result of naturally occurring processes associated with wind and water and changes in the rate of sediment supply. The extent of the *dynamic beach hazard* is defined as the extent of the *flooding hazard* plus a dynamic beach allowance of 30 metres (**Figure 10**).

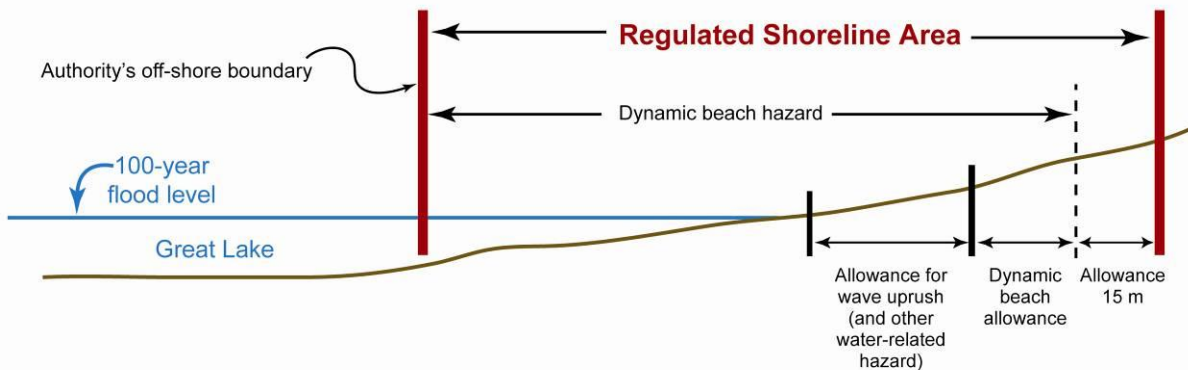


Figure 10. Lake Huron and Georgian Bay Dynamic Beach Hazard - Regulated Area

Any development adjacent or close to the shoreline of Lake Huron and Georgian Bay within the *Regulated Area* requires permission from the GSCA.

Policies for Lake Huron and Georgian Bay Shoreline

8.6.1 Development within the *Regulated Area* associated with the Lake Huron and Georgian Bay shoreline will not be permitted except in accordance with the policies in *Sections 8.6.2-8.6.7*.

Development – Lake Huron and Georgian Bay Shoreline Flooding or Erosion Hazard

8.6.2 Development within lands subject to *Lake Huron and Georgian Bay Shoreline Flooding or Erosion Hazards* may be permitted outside the 1:100 year flood limit in accordance with the policies in *Sections 7.1.2-7.1.3 – General Policies*, and where there is no feasible alternative site outside the *flooding or erosion hazard*, provided that it can be demonstrated that:

- a) the recommendations of the Shoreline Management Plan for the applicable shoreline reach are met,
- b) flood proofing standards, protection works standards and access standards as determined by the GSCA are met,
- c) protection works are designed to create or restore aquatic habitats to the extent possible,
- d) vehicles and people have a way of safely entering and exiting the area during times of flooding, erosion and other emergencies,
- e) no basement is proposed and any crawl space is non-habitable and designed to facilitate services only, *and*
- f) a maintenance access of at least 6 metres (20 feet) is retained to and along existing shoreline protection works.

8.6.3 Replacement of buildings or structures other than those destroyed by flooding or erosion within lands subject to the *Lake Huron and Georgian Bay Shoreline Flooding or Erosion Hazard* may be permitted in accordance with the policies in *Section 8.6.2*, and where it can be demonstrated that:

- a) the building or structure to be replaced is relocated to an area within the existing lot where the risk of flooding, erosion and/or property damage is reduced to the greatest extent, wherever possible,
- b) the number of dwelling units is the same or less,
- c) the ground floor elevation is at or exceeds that of the former building or structure, where it is not practical to raise it to the level of the *Shoreline Flooding Hazard*,
- d) the elevation for ingress and egress is the same or higher than that which was available with the original building or structures, *and*
- e) no basement is proposed and any crawl space is non-habitable and designed to facilitate services only.

8.6.4 Relocation of existing buildings and structures within lands subject to *Lake Huron and Georgian Bay Shoreline Flooding or Erosion Hazard* may be permitted in accordance with the policies in *Sections 8.6.2-8.6.3*, provided that the risk of flooding, erosion and/or property damage is reduced through relocation.

8.6.5 Non-Habitable Accessory Buildings or Structures associated with an existing uses such as detached unenclosed decks, tool sheds, gazebos and other similar structures within lands subject to the *Lake Huron and Georgian Bay Shoreline Flooding or Erosion Hazard* may be permitted outside the 1:100 year flood limit in accordance with the policies in *Sections 7.1.2-7.1.3 – General Policies*, and where it can be demonstrated that:

- a) there is no opportunity for conversion into habitable space in the future, *and*

-
- b) a maintenance access of at least 6 metres (20 feet) is retained to and along existing shoreline protection works.

Development – Lake Huron and Georgian Bay Shoreline Flooding or Erosion Hazard Allowance

8.6.6 *Development* within the *Lake Huron and Georgian Bay Shoreline Flooding or Erosion Hazard Allowance* may be permitted in accordance with the policies in *Sections 7.1.2-7.1.3 – General Policies*, and provided that a maintenance access of at least 6 metres (20 feet) is retained to and along existing and proposed shoreline protection works.

Internal Renovations

8.6.7 *Internal Renovations* to existing buildings and structures within the *Lake Huron and Georgian Bay Shoreline Regulated Area* which change the use or potential use of the building or structure but provide for no additional dwelling units may be permitted provided that the internal renovation does not result in a new use prohibited by *Section 7.1.6*.

Prohibited Uses within Lake Huron and Georgian Bay Flooding or Erosion Hazards

8.6.8 Notwithstanding *Sections 8.6.2-8.6.7*, *development* will not be permitted in accordance with the policies in *Section 7.1.6 – General Policies*, or where the proposed location is:

- a) on lands within dynamic beach hazard and its associated allowance,
- b) used for a Stormwater Management Facility,
- c) used for underground parking, *or*
- d) within areas that would be rendered inaccessible to people or vehicles during times of flooding hazards, erosion hazards and/or dynamic beach hazards unless safe access is available.

8.7 Inland Lakes

Lands that are adjacent or close to the shorelines of inland lakes that have a surface area of greater than 2 hectares (5 acres) and less than 100 km² (39 mile²) and/or that respond to a single runoff event could be affected by flooding or erosion. These lands are within the jurisdiction of the GSCA. Any development proposed adjacent to an inland lake will require permission from the GSCA.

Policies for Inland Lakes

8.7.1 *Development* along inland lake shorelines that are impacted by flooding or erosion hazards will not be permitted except in accordance with the policies in *Sections 8.1 and 8.2*, where applicable.

8.7.2 Notwithstanding *Section 8.7.1*, development along inland lake shorelines will generally not be permitted within a minimum 15 metres of the shoreline. In situations where no development currently exists, a minimum 30 metre setback will be encouraged to further aid in the protection of fish habitat and water quality.

8.8 Other Hazardous Lands

Hazardous land is defined as land that could be unsafe for development because of naturally-occurring processes associated with flooding, erosion, dynamic beaches or unstable soil or bedrock (*Conservation Authorities Act*, R.S.O. 1990, c. 27, s. 28, ss. 25).

The Grey Sauble watershed contains other hazardous lands including organic soils and unstable bedrock such as the karst formations.

Organic and peat soils, formed by the decomposition of vegetative and organic materials into humus can release humic acids to the ground water system and create highly combustible methane gas. Peat and other organic soils also lack soil structure making them susceptible to erosion and unable to support structure because they compress easily.

Any development within hazardous lands requires permission from the GSCA.

Policies for Other Hazardous Lands

8.8.1 *Development* within hazardous lands will not be permitted except in accordance with the policies in *Section 8.8.2*.

Development in Other Hazardous Lands

8.8.2 *Development* may be permitted within hazardous lands in accordance with the policies in *Section 7.1.2-7.1.3 – General Policies*, and where a site-specific study establishes a more precise hazard land boundary and where it can be demonstrated that:

- a) there is no feasible alternative site outside the *Regulated Area*, and
- b) the risk of instability which would result in structural failure or property damage is minimized.

Prohibited Uses in Other Hazardous Lands

8.8.3 Notwithstanding *Section 8.8.1*, *development* will not be permitted in accordance with the policies in *Section 7.1.6 – General Policies*.

9. Policies for the Straightening, Changing, Diverting or Interfering With the Existing Channel of a River, Creek, Stream, Watercourse

9.1 Straightening, Changing, Diverting or Interfering with an Existing Channel

The area along both sides of any river, creek, stream or watercourse, called the riparian zone, not only provides habitat for a wide range of flora and fauna, it also filters surface runoff before it reaches open waterways. As runoff passes through, the riparian zone retains excess nutrients, some pollutants and reduces the sediment flow. A healthy zone can also keep stream flow going even during the dry seasons, by holding and releasing groundwater back into the stream. This interface between terrestrial and aquatic environments acts as a sponge for storing water, which in turn helps to reduce flooding and shelters the banks against shoreline erosion. Alterations to the channel of a watercourse can negatively impact the hydrologic and ecological features and functions provided by riparian zones.

Any alteration to the channel of a river, creek, stream or watercourse requires permission from the GSCA. This includes activities such as, but not limited to, culvert placement or replacement, bridge construction, bed level crossings, piping of watercourses, installation or maintenance of pipeline crossings, cable crossings, construction or maintenance of by-pass, connected or online ponds, straightening and diversions as well as any work on the bed or the banks of the watercourse such as bank protection projects. Alterations involving construction or repair of dams may also require a permit from the Ministry of Natural Resources under the Lakes and Rivers Improvement Act.

9.1.1 *Straightening, changing, diverting or interfering* with existing river, creek, stream or watercourse channel is not permitted except as specified in *Sections 9.1.2-9.1.17*.

Crossings

9.1.2 *Crossings* including but not limited to bridges, culverts, pipelines, channel enclosures of less than 20 metres (66 feet) and causeways may be permitted to be constructed, replaced or upgraded in accordance with the policies in *Sections 7.1.2-7.1.3 – General Policies* and *Sections 8.1.16-8.1.17* and/or *Section 8.2.22* where appropriate, and provided that all feasible alternative sites and alignments have been considered through an *Environmental Assessment* supported by the GSCA or through site-specific studies, whichever is applicable based on the scale and scope of the project,⁹ and where it can be demonstrated that:

- a) crossings avoid any bends in the watercourse to the extent practical,
- b) crossings are located to take advantage of existing impacted or open areas on the channel bank or valley slope, wherever possible,
- c) crossing structures avoid the *Riverine Erosion Hazard* in order to accommodate natural watercourse movement, wherever possible,
- d) the risk of flood damage to upstream or downstream properties is not increased and is reduced through site and infrastructure design, wherever possible,
- e) there is no inhibition of fish passage,
- f) where unavoidable, intrusions on significant natural features or hydrologic or ecological functions are minimized and it can be demonstrated that best management practices including site and infrastructure design and appropriate remedial measures will adequately restore and enhance features and functions.
- g) physical realignments or alterations to the river, creek, stream or watercourse channel associated with a new crossing are avoided or are in accordance with the policies in *Section 9.1.16, and*
- h) maintenance requirements are minimized.

Water Control Structures

9.1.3 *Water Control Structures* to protect existing development or other uses deemed appropriate by the GSCA from the *Riverine Flooding Hazard* including dykes and berms, but excluding stormwater management facilities and dams, may be permitted to be constructed maintained or repaired in accordance with the policies in *Sections 7.1.2-7.1.3 – General Policies*, and where it can be demonstrated that:

- a) all feasible alignments have been considered through an *Environmental Assessment* supported by the GSCA or other site specific technical studies, whichever is applicable based on the scale and scope of the project, *and*
- b) where unavoidable, intrusions on significant natural features or hydrologic or ecological functions are minimized and it can be demonstrated that best management practices including site and infrastructure design and appropriate remedial measures will adequately restore and enhance features and functions.

⁹ A study to address all feasible sites and alignments may not be required for the replacement, maintenance or upgrading of existing crossings.

Dams

9.1.4 Dams which by their nature must be located within or directly adjacent to a river, stream, creek or watercourse, including stormwater management facilities, may be permitted where it can be demonstrated that:

- a) all feasible alternative sites and alignments have been considered through an *Environmental Assessment* supported by the GSCA or through site-specific studies, whichever is applicable based on the scale and scope of the project,
- b) the water management benefits of the dam or stormwater management facility are demonstrated to the satisfaction of the GSCA,
- c) pollution, sedimentation and erosion during construction and post construction are minimized using best management practices including site, landscape, infrastructure design, construction controls, and appropriate remedial measures,
- d) where unavoidable, intrusions on significant natural features or hydrologic or ecological functions are minimized, and it can be demonstrated that best management practices including site and infrastructure design and appropriate remedial measures will adequately restore and enhance features and functions, *and*
- e) works are constructed according to accepted engineering principles and approved engineering standards or to the satisfaction of the GSCA, whichever is applicable based on the scale and scope of the project.

9.1.5 Alterations¹⁰ to existing **Dams** may be permitted where it can be demonstrated that:

- a) pollution, sedimentation and erosion during construction and post construction are minimized using best management practices including site, landscape, infrastructure design, construction controls, and appropriate remedial measures,
- b) where unavoidable, intrusions on significant natural features or hydrologic or ecological functions are minimized, and it can be demonstrated that best management practices including site and infrastructure design and infrastructure design and appropriate remedial measures will be adequately restore and enhance features and functions,
- c) there are no adverse impacts on the capacity of the structure to pass flows
- d) the integrity of the original structure is maintained or improved
- e) works are altered according to accepted engineering principles and approve engineering standards or to the satisfaction of the GSCA, whichever is applicable based on the scale and scope of the project.

9.1.6 The Retirement of Dams¹¹ or the **Removal of Dams** which are structurally unsound or no longer serve their intended purpose, located within a river, stream creek or watercourse may be permitted where an *Environmental Assessment* or a detailed decommissioning plan supported by the GSCA demonstrates that:

¹⁰ Alterations to existing dams in watercourses that, in the opinion of the GSCA, would not affect the control of flooding, erosion, pollution or the conservation of land and that would not result in changes in the capacity to pass river flows or impacts on integrity of the structure or in-water works do not require a permit under *Regulation 151/06*.

¹¹ Retirement of a dam refers to a situation in which its original purpose or use is no longer necessary and its operation is cancelled. Some retirement activities may involve the demolition of a structure or a change in the purpose, use, capacity, or location of a structure.

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- a) all potential hydrologic and ecological impacts have been identified and considered,
 - b) significant natural features and hydrologic and ecological functions within or adjacent to the river, creek, stream or watercourse are restored and enhanced through the retirement or removal of the structure and a site restoration plan supported by the GSCA.
 - c) the risk of pollution and sedimentation during and after retirement or removal is addressed through a draw down plan supported by the GSCA, *and*
 - d) susceptibility to natural hazards is not increased or new hazards created.

Conservation Projects within or Adjacent to a River, Creek Stream or Watercourse

9.1.7 ***Conservation Projects*** such as stream rehabilitation works, small impoundments and realignments which restore or enhance watercourse morphology or aquatic health and habitat may be permitted in accordance with the policies in *Sections 7.1.2-7.1.3 – General Policies*, and provided that:

- a) the hydrologic and ecological benefits of the project are demonstrated to the satisfaction of the GSCA,
- b) stream bank stability is enhanced,
- c) significant natural features and hydrologic and ecological functions are restored and enhanced using best management practices including site and/or infrastructure design and appropriate remedial measures,
- d) natural channel design principles are followed to the extent possible, *and*
- e) maintenance requirements are minimized.

Erosion and Sediment Control Structures

9.1.8 ***Erosion and Sediment Control Structures*** to protect existing development and other uses deemed appropriate by the GSCA may be permitted in accordance with the policies in *Sections 7.1.2-7.1.3 - General Policies*, and where it can be demonstrated that:

- a) erosion risk on adjacent, upstream and/or downstream properties is reduced or erosion and sedimentation processes are controlled to reduce existing or potential impacts from adjacent land uses, whichever is appropriate,
- b) natural channel design principles are followed to the extent possible,
- c) where unavoidable, intrusions on significant natural features or hydrologic or ecological functions are minimized, and it can be demonstrated that best management practices including site and infrastructure design and appropriate remedial measures will adequately restore and enhance features and functions, *and*
- d) maintenance requirements are minimized.

Maintenance of Dams or Erosion and Sediment Control Structures

9.1.9 The maintenance and repair of ***Dams or Erosion and Sediment Control Structures*** may be permitted where it can be demonstrated that:

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- a) pollution and sedimentation during maintenance and repair activities is minimized using best management practices including site and infrastructure design, construction controls and appropriate remedial measures,
 - b) where unavoidable, intrusions on significant natural features or hydrologic or ecological functions are minimized, and it can be demonstrated that best management practices including site and infrastructure design and appropriate remedial measures will adequately restore and enhance features and functions,
 - c) susceptibility to natural hazards is not increased or new hazards created, *and*
 - d) works are maintained or repaired according to accepted engineering principles and approved engineering standards or to the satisfaction of the GSCA based on the scale and scope of the project.

Ponds

9.1.10 *Connected Ponds* with no water intakes from the watercourse but which outflow into the watercourse may be permitted provided that the provisions of *Sections 7.1.2-7.1.3 – General Policies* are met and a site plan and/or other site-specific study demonstrates that:

- a) there is no negative impact on the downstream water quality or thermal regime, *and*
- b) maximum berm heights above existing grades do not exceed .3 metres (1 foot) within the *Riverine Flooding or Erosion Hazard* and all remaining fill is removed from the hazard area.

9.1.11 *Bypass Ponds*¹² connected to watercourses created as part of site restoration plan or a conservation project may be permitted subject to the provisions of *Section 9.1.10*, and where it can be demonstrated that the water intake is set above the elevation that permits continuous flow (i.e., refreshing of the pond will depend on increased stream flows from snow melt and rainfall events).

9.1.12 *On-Line Ponds*¹³ in a river, creek, stream or watercourse are not permitted except as specified in *Sections 9.1.4 and 9.1.13*.

9.1.13 *On-Line Ponds* at the very upstream end of watercourses may be permitted for *wetland restoration and fish and wildlife habitat enhancement* in accordance with the policies in *Sections 7.1.2-7.1.3 – General Policies* and where a site plan and/or other site-specific study demonstrates that:

- a) there is no negative impact on the downstream thermal regime,
- b) there is no inhibition of fish passage, *and*
- c) there are no negative impacts on areas of groundwater recharge/discharge.

9.1.14 *Dredging* of an existing connected, bypass or on-line pond may be permitted in accordance with the policies in *Section 8.1.21*.

¹² A bypass pond is created by diverting some of the flow from a natural watercourse into an adjacent pond. The outlet of this type of pond usually returns water to a natural watercourse.

¹³ An on-line pond is built by digging-out or dredging an area within an existing watercourse or by damming a watercourse.

9.1.15 Dredging of a river, creek, stream or watercourse may be permitted to improve hydraulic characteristics and fluvial processes or to improve aquatic habitat or water quality in accordance with the policies in *Sections 7.1.2-7.1.3 – General Policies*, and where a dredging plan and/or other site-specific study demonstrates that:

Dredging of a River, Creek, Stream or Watercourse

- a) stream bank stability is enhanced,
- b) where unavoidable, intrusions on significant natural features or hydrologic or ecological functions are minimized and it can be demonstrated that best management practices including site design and appropriate remedial measures will adequately restore and enhance features and functions, *and*
- a) all dredged material is removed from the *Riverine Flooding and Erosion Hazard* and safely disposed of in accordance with the policies in provincial guidelines.

Realignment, Channelization or Straightening

9.1.16 Realignment, channelization or straightening of a river, creek, stream or watercourse may be permitted to improve hydraulic characteristics and fluvial processes or to improve aquatic habitat or water quality in accordance with the policies in *Sections 7.1.2-7.1.3 – General Policies* and where a site plan and/or other site-specific study demonstrates that:

- a) all feasible alternative alignments have been considered through an *Environmental Assessment* supported by the GSCA or through site-specific studies, whichever is applicable based on the scale and scope of the project,
- b) stream bank stability is enhanced,
- c) where unavoidable, intrusions on significant natural features or hydrologic or ecological functions are minimized and it can be demonstrated that best management practices including site design and appropriate remedial measures will adequately restore and enhance features and functions, *and*
- d) natural channel design principles are followed to the extent possible.

Enclosures

9.1.17 Enclosures of creeks, streams or watercourses are generally not permitted but may be permitted where a site specific study demonstrates that:

- a) all feasible alternative options and methods have been explored,
- b) the risk to public safety is not increased,
- c) susceptibility to natural hazards is not increased and no new hazards are created,
- d) there are no negative or adverse impacts on hydrologic and ecological functions,
- e) pollution, sedimentation and erosion during construction and post construction is minimized using best management practices including site and infrastructure design, construction controls, and appropriate remedial measures,
- f) intrusions within or adjacent to the river, creek, stream or watercourse are minimized and it can be demonstrated that best management practices including site design and appropriate remedial measures will adequately restore and enhance features and functions to the extent possible,

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- g) there is no negative impact on the downstream thermal regime,
 - h) there is no inhibition of fish passage and no net loss of fish habitat, *and*
 - i) works are constructed, repaired and/or maintained according to accepted engineering principles and approved engineering standards or to the satisfaction of the GSCA, whichever is applicable based on the scale and scope of the project.

10. Definitions

Accepted Engineering Principles means those current coastal, hydraulic and geotechnical engineering principles, methods and procedures that would be judged by a peer group of qualified engineers (by virtue of their qualifications, training and experience), as being reasonable for the scale and type of project being considered, the sensitivity of the locations, and the potential threats to life and property.

Accepted Scientific Principles means those current principles, methods and procedures which are used and applied in disciplines including but not limited to geology, geomorphology, hydrology, botany, and zoology, and that would be judged by a peer group of qualified specialists and practitioners (by virtue of their qualifications, training and experience), as being reasonable for the scale and type of project being considered, the sensitivity of the locations, and the potential threats to life and property.

Access (Ingress/Egress) means standards and procedures applied in engineering practice associated with providing safe passage for vehicles and people to and from a shoreline or river-side property during an emergency situation as a result of flooding, other water related hazards, the failure of floodproofing, and/or protection works, and/or erosion that have been reviewed and approved by the Grey Sauble Conservation Authority and/or the Ontario Ministry of Natural Resources.

Accessory Building or Structure means a use or a building or structure that is subordinate and exclusively devoted to a main use, building or structure and located on the same lot.

Adverse Hydraulic and Fluvial Impacts means flood elevations are not increased, flood and ice flows are not impeded and the risk of flooding to and erosion on adjacent upstream and/or downstream properties is not increased.

Apparent Valley or Confined Valley means that part of the *valleyland* system where the valley walls are greater than 3 metres (10 feet), with or without a floodplain.

Anthropogenic means created by a human.

Assisted Living Facility means a multiple residential unit that is constructed with limited kitchen facilities in the unit(s) or a group home, where individuals who require full or partial assistance with activities of daily living (e.g. bathing, toileting, ambulating, self administration of medications, etc.) reside.

Aquifer means an underground layer of water-bearing permeable rock or unconsolidated materials (gravel, sand, silt or clay).

Areas of Interference means those lands where development could interfere with the *hydrologic function* of a wetland.

Bankfull Width means the formative flow of water that characterizes the morphology of a fluvial channel. In a single channel stream, “bankfull” is the discharge, which just fills the channel without flowing onto the floodplain.

Best Management Practices (BMPs) means methods, facilities and structures which are designed to protect or improve the environment and natural features and functions from the effects of development or interference.

Comprehensive Plan means a study or plan undertaken at a landscape scale such as a watershed/subwatershed plan, an *Environmental Assessment*, a detailed *Environmental Implementation Report (EIR)* that has been prepared to address and document various alternatives and is part of a joint and harmonized planning or *Environmental Assessment* process, or a community plan that includes a comprehensive *Environmental Impact Statement*.

Conservation of Land means the protection, preservation, management, or restoration of lands within the watershed ecosystem.

Create in the context of wetlands means the development of a wetland through the manipulation of physical, chemical, or biological characteristics where a wetland did not previously exist.

Creek means a natural stream of water normally smaller than and often tributary to a river.

Cumulative Effects means the combined effects of all activities in an area over time and the incremental effects associated with individual project in an area over time.

Dam means a structure or work holding back or diverting water and includes a dam, tailings dam, dyke, diversion, channel, artificial channel, culvert or causeway (Lakes and Rivers Improvement Act, R.S.O. 1990 c. L3, s. 1)

Development means:

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

Drainage Area means, for a point, the area that contributes runoff to that point.

Dug-out or Isolated Ponds mean anthropogenic waterbodies that are created by excavating basins with no inlet or outlet channels and in which surface and ground water collect.

Dwelling unit means a *suite* operated as a housekeeping unit, used or intended to be used as a domicile by one or more persons and usually containing cooking, eating, living, sleeping and sanitary facilities.

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.

Ecosystem means systems of plants, animals and micro-organisms together with non-living components of their environment, related ecological processes and humans.

Effective Flow Area means that part of a river, stream, creek or watercourse where there are significant flow velocities and most of the flow discharge is conveyed.

Enclosure means a pipe or other conduit for carrying a creek, stream or watercourse underground.

Endangered Species means any indigenous species of fauna or flora which on the basis of the available scientific evidence is facing imminent extinction or extirpation.

Enhance in the context of wetlands means the altering of an existing functional wetland to increase or improve selected functions and benefits.

Environmental Assessment means a process that is used to predict the environmental, social and economic effects of proposed initiatives before they are carried out. It is used to identify measure to mitigate adverse effects on the environment and can predict whether there will be significant adverse environmental effects, even after the mitigation is implemented.

Environmental Impact Statement (EIS) means a report prepared to address the potential impacts of development or interference on natural features and ecological functions. There are three types:

- a *Comprehensive EIS* is a landscape scale, watershed or subwatershed study which sets the width of setbacks and offers guidance for the investigation, establishment and maintenance of buffers.
- a *Scoped EIS* is an area or site-specific study that addresses the potential negative impacts to features described previously in a comprehensive study.
- a *Full EIS* is an area or site-specific study prepared, in the absence of a comprehensive study to address possible impacts from a development. Due to the lack of guidance from a comprehensive study, the full EIS is typically much more detailed than a scoped study, and will also include statements to address possible negative impacts at a regional scale.

Existing Use means the type of activity associated with an existing building or structure or site on the date of a permit application.

Factor of Safety means the ratio of average available strength of the soil along the critical slip surface to that required to maintain equilibrium. The design minimum factors of safety are provided by the Ministry of Natural Resources Technical Guide for River and Stream Systems (2002). The higher factor of safety is used in complex geotechnical conditions or where there are *geologically metastable materials*.

Land-Uses	Design Range in Factor of Safety
Passive: no buildings near slope: farm field; bush; forest; timberland; and woods.	1.10
Light: no habitable structures near slope: recreational parks; golf courses; buried small utilities; tile beds; barns; garages; swimming pool; sheds; satellite dishes; and dog houses.	1.20 to 1.30
Active: habitable or occupied structures near slope: residential, commercial and industrial buildings; retaining walls; decks; stormwater management facilities; and, storage/warehousing of non-hazardous substances.	1.30 to 1.50
Infrastructure and Public Use: public use structures or buildings (i.e. hospitals, schools, stadiums); cemeteries; bridges; high voltage power transmission lines; towers; storage/warehousing of hazardous materials; and, waste management areas.	1.40 to 1.50

Fill means any material used or capable of being used to raise, lower or in any way affect the contours of the ground, whether on a permanent or temporary basis, and whether it originates on the site or elsewhere.

Flood Fringe means the outer portion of the *floodplain* between the *floodway* and the *Riverine Flooding Hazard* limit where the depths and velocities of flooding are less severe than those experienced in the *floodway*.

Floodproofing means structural changes and/or adjustments incorporated into the basic design and/or construction or alteration of individual buildings, structures or properties to protect them from flood damage.

Floodway for river, stream, creek, watercourse or inland lake systems means the portion of the floodplain where development would cause a danger to public health and safety or property damage.

- where the one-zone concept is applied, the floodway is the entire contiguous floodplain.

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- where the two-zone concept or special policy area concept is applied, the floodway is the contiguous inner portion of the floodplain, representing 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. Where the two-zone concept or special policy area applies, the outer portion of the *floodplain* is called the *flood fringe*.

Frequent Flooding means that a site is subject to the 1:25 year flood event or a more frequent flood event.

Geologically Metastable Material means a material susceptible to earth flow or where low safety factors may lead to creep movements and progressive softening.

Groundwater Discharge means the flow of water from an aquifer. Discharge areas are locations at which ground water leaves the aquifer and flows to the surface. Ground water discharge occurs where the water table or *potentiometric surface* intersects the land surface. Where this happens, **springs** or **seeps** are found. Springs and seeps may flow into fresh water bodies, such as lakes or streams, or they may flow into saltwater bodies.

Groundwater Recharge means downward movement of water through the soil to the groundwater or the process by which external water is added to the zone of saturation of an aquifer, either directly into a formation or indirectly by way of another formation. Most areas, unless composed of solid rock or covered by development, allow a certain percentage of total precipitation to reach the water table. The sustainable yield of an aquifer is mainly controlled by the amount of recharge it receives. If total discharges (natural discharge plus water use from human activities) exceed recharge, water levels in an aquifer will decline. This decline will continue until a new balance is reached between total discharge and recharge, or the aquifer becomes depleted to the point where further withdrawals are no longer feasible.

Quantifying recharge is not easy, because it depends on a number of variables including:

- soil type
- geology and hydrogeology
- precipitation (including amount, type, and melt rate for snow)
- prior soil moisture conditions
- runoff
- topography
- evapotranspiration.

For a given climatic condition, recharge is much higher in areas of coarse sands and gravels than in areas of low-permeability clays.

Habitable Floor Space means any area that has the potential to be used as or converted to residential living space, including basements.

Hazardous Land means land that could be unsafe for development because of naturally-occurring processes associated with flooding, erosion, dynamic beaches or unstable soil or bedrock.

Hazardous Substances means substances which individually or in combination with other substances, are normally considered to pose a danger to or threat to public health, safety and the environment. These substances generally include a wide range of materials that are toxic, ignitable, corrosive, reactive, radioactive or pathological.

Headwater means the source and extreme upper reaches of a river, creek, stream or watercourse.

Hydrologic Function means the functions of the hydrologic 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.

Hydrologic Study means a report prepared to address the potential impacts of development and interference on the hydrologic functions of a wetland or other natural feature.

Karst means an area of irregular limestone in which erosion has produced fissures, sinkholes, underground streams, and caverns.

Lake Huron and Georgian Bay Dynamic Beach Hazard means that portion of the Lake Huron and Georgian Bay shoreline where accumulated unconsolidated sediment continuously moves as a result of naturally occurring processes associated with wind and water and changes in the rate of sediment supply. The extent of the *dynamic beach hazard* is defined as the extent of the *flooding hazard* plus an allowance as identified in the *Lake Erie Shoreline Management Plan*.

Lake Huron and Georgian Bay Erosion Hazard means the loss of land, due to human or natural processes, that poses a threat to life and 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 one hundred year time span), an allowance for slope stability, plus a 15 metre allowance.

Lake Huron and Georgian Bay Flooding Hazard means the inundation, under the 100 year flood including *wave uprush* and *other water-related hazards*.

Meander Belt Allowance means a limit for development within the areas where the river system is likely to shift. It is based on twenty (20) times the bankfull channel width where the bankfull channel width is measured at the widest *riffle* section of the reach. A *riffle* is a section of shallow rapids where the water surface is broken by small waves. The meander belt is centred over a meander belt axis that connects the riffle section of the stream.

Meander Belt Axis means the line or "axis" that the meander belt is centred over which connects all the *riffle* sections of a stream.

Meander Belt means the area of land in which a watercourse channel moves or is likely to move over a period of time.

Multi-lot means four lots or more.

Multi-unit means any building or structure or portion thereof that contains more than one unit for any use (e.g. a residential dwelling unit, an industrial/commercial/institutional space designed or intended to be occupied or used for business, commercial, industrial or institutional purposes).

Negligible means not measurable or too small or unimportant to be worth considering.

Non-Apparent Valley or Unconfined Valley means that part of the valleyland system where a river, creek, stream or watercourse is not contained within a clearly visible valley section.

One Hundred Year Erosion Rate means the predicted lateral movement of a river, creek, stream or watercourse or inland lake over a period of one hundred years.

Other Water-Related Hazards means water-associated phenomena other than *flooding hazards* and *wave uprush* which act on shorelines. This includes, but is not limited to ship-generated waves, ice piling and ice jamming.

Oversteepened Slope means a slope which has a slope inclination equal to or greater than $33\frac{1}{3}$ per cent (3H:1V).

Pollution means any deleterious physical substance or other contaminant that has the potential to be generated by development.

Potentiometric Surface means the potential level to which water will rise above the water level in an aquifer in a tightly cased well that penetrates a confined aquifer; if the potential level is higher than the land surface, the well will overflow.

Protect in the context of wetlands, means the preservation of wetlands in perpetuity through implementation of appropriate physical and/or legal mechanisms (e.g. ecological buffers, development setbacks, zoning, fencing, conservation easements, etc.).

Protection Works means structural or non-structural works which are intended to appropriately address damages caused by flooding, erosion and/or other water-related hazards.

Qualified Professional means a person with specific qualifications, training, and experience authorized to undertake work in accordance with the policies in accepted engineering or scientific principles, provincial standards, criteria and guidelines, and/or to the satisfaction of the GSCA.

Regulated Area means the area encompassed by all hazards and wetlands, plus any allowances.

Regulatory Flood means the inundation under a flood resulting from the rainfall experienced during the Timmins storm, the 100 year flood, wherever it is greater, the limits of which define the *riverine flooding hazard*.

Replacement means the removal of an existing building or structure and the construction of a new building or structure. Replacement does not include reconstruction on remnant foundations or derelict or abandoned buildings or structures.

Riffle means a section of shallow rapids where the water surface is broken by small waves.

River means a large natural stream of water emptying into an ocean, lake, or other body of water and usually fed along its course by converging tributaries.

Restore in the context of wetlands means the re-establishment or rehabilitation of a former or degraded wetland with goal of returning natural or historic functions and characteristics that have been partially or completely lost by such actions as filling or draining.

Riparian Vegetation means the plant communities in the riparian zone, typically characterized by hydrophilic plants.

Riparian Zone means the interface between land and a flowing surface water body. Riparian is derived from Latin *ripa* meaning river bank.

Riverine Erosion Hazard means the loss of land, due to human or natural processes, that poses a threat to life and property. The *riverine erosion hazard limit* is determined using considerations that include the 100 year erosion rate (the average annual rate of recession extended over a one hundred year time span), an allowance for slope stability, plus a 15 metre allowance or, in unconfined systems, the meander belt allowance plus a 15 metre allowance.

Riverine Flooding Hazard means the inundation, under a flood resulting from the rainfall experienced during the Timmins storm or, the 100 year flood, whichever is greater.

Riverine Hazard Limit means the limit which encompasses the *flooding* and *erosion hazards* and the river, creek, stream or watercourse.

Safe Access means locations where during the *Regulatory Flood*, the flow velocity does not exceed 1.7m/s, the depth of flooding along the access route does not exceed .8 metres and the product of depth and velocity does not exceed 0.4 m²/s.

Significant Nature Features means features and areas including all wetlands, fish habitat, valleylands, habitat of endangered species, significant wildlife habitat, confirmed habitat for provincially or regionally significant species, part of an ecologically functional corridor or linkage between natural areas, or any other features or areas that are considered ecologically important in terms of contributing to the quality and diversity of an identifiable geographic area or natural heritage system.

Special Policy Area means an area within a community that has historically existed in the floodplain and where site-specific policies, approved by the Ministers of Natural Resources, Municipal Affairs and Housing, GSCA and the municipality 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 the provincial policies concerning development. The Province establishes the criteria and procedures for approval.

A *Special Policy Area* is not intended to allow for new or intensified development, if a community has feasible opportunities for development outside the floodplain.

Stage-Storage Discharge Relationship means the relationship of flood storage and flood elevation values at various flood flow rates within a particular watercourse/floodplain reach. This relationship is used as a factor to determine whether the hydraulic function of the floodplain is preserved.

Stream means a flow of water in a channel or bed, as a brook, rivulet, or small river.

Thermal Impact means the impairment of water quality through temperature increase or decrease. Changes in temperature can also effect species composition of plants, insects and fish in a water body.

Toe of Slope means the lowest point on a slope, where the surface gradient changes from relatively shallow to relatively steep.

Top of Slope means the point of the slope where the downward inclination of the land begins, or the upward inclination of the land levels off. This point is situated at a higher topographic elevation of land than the remainder of the slope.

Valleyland means land that has depressional features associated with a river or stream, whether or not it contains a watercourse.

Watercourse means an identifiable depression in the ground in which a flow of water regularly or continuously occurs.

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

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.

Wetland means land that:

- is seasonally or permanently covered by shallow water or has a water table close or at the surface
- directly contributes to the hydrological function of a watershed through connection with a surface watercourse,
- has hydric soils, the formation of which have been caused by the presence of abundant water, and
- has 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 wetland characteristics

11. Links to Key References

Provincial Legislation and Regulations – www.e-laws.gov.on.ca

Federal Legislation and Regulations - <http://laws.justice.gc.ca/en/>

Conservation Authorities Act – http://www.e-laws.gov.on.ca/html/statutes/english/elaws_statutes_90c27_e.htm

Ontario Regulation 150/06 – http://www.e-laws.gov.on.ca/html/regs/english/elaws_regs_060150_e.htm

Provincial Policy Statement - <http://www.mah.gov.on.ca/Page215.aspx>