

**TECHNICAL GUIDE FOR
GREAT LAKES - ST. LAWRENCE RIVER SHORELINES**

APPENDIX A7.2

EXISTING DEVELOPMENT WITHIN THE HAZARDOUS LANDS

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TABLE OF CONTENTS

Page

A7.2 EXISTING DEVELOPMENT WITHIN THE HAZARDOUS LANDS A7-2-1

List of Tables

Table A7.2.1 Summary of Considerations for Preparing Recommended Guidelines for Existing
Development Within the *Hazardous Lands* A7-2-3

A7.2 EXISTING DEVELOPMENT WITHIN THE HAZARDOUS LANDS

Municipalities and planning boards may establish local standards and procedures to deal with existing development within the *hazardous lands*. These standards and procedures are to recognize local conditions, the potential risks associated with being located within hazard susceptible shoreline areas and preserve the overall intent of the *Provincial Policy Statement* (1996) to minimize the potential risk to life and property.

It is not the intent of the *Provincial Policy Statement* (i.e., Policy 3.1 governing Natural Hazards) that the presence of existing development be used as a justification for increasing or intensifying the development. The first and primary premise of Policy 3.1 is to direct *development* and *site alteration* to locations outside of the *hazardous lands*. Standards and procedures to guide possible development in existing built-up shoreline areas should not be applied all along the shoreline but limited to select areas. Where infilling or redevelopment, or additions/alterations to existing development, is being considered within the *hazardous lands*, the *development* and *site alteration* must adhere to Policy 3.1.2 (identifies where *development* and *site alteration* is not permitted) and fulfil all of the requirements outlined in Policy 3.1.3. Where all of the requirements of Policy 3.1.3 cannot be fulfilled, the *development* and *site alteration* is to be directed to a location outside of the *hazardous lands*.

As previously identified, addressing the *flooding, erosion and/or dynamic beach hazards* in areas of existing development should be done in a coordinated manner. Shoreline management plans provide the best means of examining these *hazards* on a broad, ecosystem basis ensuring that all prevention, protection and emergency response approaches are properly evaluated and approaches considered to be "best management" approaches are identified for possible application within specific shoreline reaches. This may include identifying the type(s) and locations where protection works may be appropriate, the floodproofing requirements to be met, and methods for determining the setbacks (i.e., stable slope allowance, hazard allowance) to be applied in conjunction with the protection works.

Given that the preferred management approach is prevention, prior to any structural protection works being considered, it should be clearly demonstrated that the following options are not feasible:

- relocation of existing building;
- siting of building/structures landward of the *hazardous lands*; and
- acquiring adjacent properties to provide additional developable area landward of the *hazardous lands*.

Where *development* (including additions, alterations, infilling, redevelopment, replacement, etc.) is being considered within the *hazardous lands*, there should be a critical evaluation of this development with respect to the *flooding, erosion and dynamic beach hazards*, ingress/egress provisions, the creation or aggravation of *hazards* at other sites and environmental considerations. This critical assessment should include, but not be limited to a number of key factors:

- differentiation between types of development (i.e., repairs/maintenance, interior alterations, minor additions, major additions, redevelopment, replacement, minor or major structures, swimming pools, septic systems, decks, infilling, creating new lots);
- considering the size, use and expected lifespan of the proposed development;
- ensuring that new buildings are in keeping with size and nature of existing buildings, wherever possible;
- utilize the total lot depth to maximize the landward siting of development;
- discouraging proposed changes which intensify the land use (i.e., seasonal to permanent);
- consideration of the various and "preferred" floodproofing measures as outlined in Section 7.4.3(a);
- ensuring that the development does not encroach within the stable slope allowance;

- using extreme caution in areas of high to severe recession rates;
- being aware of and recognizing that along cohesive shorelines ongoing downcutting of the nearshore profile may seriously undermine existing protection works in the short-term and that this undermining may go undetected by a casual, visual observation of the protection works from the shore;
- ensuring that buildings be readily moveable by design;
- evaluating the condition, effectiveness, and estimated residual design life of any existing protection works at the site (residual life should be determined based on suggested design life of new structures (see Appendix A7.1) less the approximate age of the existing structure);
- evaluating the condition, effectiveness, and estimated residual design life of adjacent protection works;
- minimizing impacts to dynamic beach shores; and
- ensuring that other policies addressing the same shoreline areas are not compromised (e.g., natural heritage, fish habitat, wetlands, water quality and quantity, etc. which may not permit development)

Shoreline protection works which may be allowed for existing development should meet all the requirements of the protection works standard to the greatest extent that is functional and aesthetically tolerable, must be environmentally sound and must not aggravate or cause *hazards* on the site itself and/or at updrift/downdrift locations. The three key components of the protection works standard, as presented in Section 7.4.3(b), are as follows:

- protection works should be of sound, durable construction and be designed by a qualified coastal engineer according to accepted practice;
- protection works should be used in conjunction with appropriate stable slope and hazard allowances; and
- there must be access to the protection works for heavy equipment for future rehabilitation, replacement or repairs.

At a minimum, two of the three key components must be fully addressed on a site specific basis, when dealing with the requirements for protection works for existing development, before the requirements for the remaining component can be "relaxed". For example, in an infilling situation where proper access for future repairs may not be not feasible, it is imperative that well designed, sound, durable protection works and complete, safe stable slope and hazard allowances be provided. Conversely, in an infilling situation where there is good and ready access for future repairs or replacement, it may be appropriate to permit a lesser hazard allowance (i.e., flooding, erosion, dynamic beach) provided the protection works are substantial and well designed.

Table A7.2.1 provides a summary of considerations that can serve as the basis for preparing recommended guidelines for existing development within each of the three components that define the *hazardous lands* (i.e., *flooding*, *erosion*, and *dynamic beach hazards*). Municipalities and planning boards are encouraged to review these considerations and then establish existing development guidelines which are most applicable to their local shoreline conditions and planning and development issues. This review should critically examine all the issues and identify the rationale for specific development requirements that may be established to guide and govern development within and along their shorelines. In all cases, regardless of the planning issue being evaluated, the overall intent of the *Provincial Policy Statement*, to minimize the potential risk to life and property, is to be preserved.

Table A7.2.1 Summary of Considerations for Preparing Recommended Guidelines for Existing Development Within the Hazardous Lands				
Development Activity	Flooding Hazard (FH)	Erosion Hazard (EH)		Dynamic Beach Hazard (DBH)
		Stable Slope Allowance	Erosion Allowance	
Existing Developed Lots				
Repairs/maintenance	No restrictions - advise of flood risk and potential damage	No restrictions - advise of imminent risk	No restrictions - advise of long-term erosion hazard	No restrictions -encourage goals of no development within DBH
Interior alterations	No restrictions - advise of flood risk and potential damage	No restrictions - advise of imminent risk	No restrictions - advise of long-term erosion hazard	No restrictions -encourage goals of no development within DBH
Minor additions -construction that is the lesser of less than 30% for erosion hazards, or 50% for flooding hazards, of the foundation area or market value of the existing structure. Limit of two additions per structure	Permitted provided it incorporates FPS floodproofing measures to the maximum extent and level possible based on site-specific conditions. The proponent shall demonstrate a "best effort" has been made to floodproof to the highest level that is functional and aesthetically tolerable. As a minimum, should not be significantly more flood vulnerable than the existing structure (including exposure to wave uprush, wave overtopping, wave spray and other water related hazards. Dry passive floodproofing is preferred and wet floodproofing is not acceptable for habitable use. Do not reduce existing ingress/egress.	Not permitted	Permitted provided: 1) it has a setback of the greater of a) not at risk to erosion hazard for 25 years or b) a minimum setback of 7.5 m from stable slope crest; and 2) it does not increase occupancy of existing structure; and 3) maintenance access to existing protection works is not diminished	Encourage goals of no development within DBH. Not permitted within defined portions of DBH. Permitted outside defined portions of DBH provided design minimizes impacts to dune areas. Follow 4 step preferred order of approaches as described in text.
Major additions/alterations -construction that is the greater of greater than or equals to 30% for erosion hazards, or 50% for flooding hazards, of the foundation area or market value of the existing structure	Permitted provided it has protection to full PWS and dry passive floodproofing to full FPS except where it significantly impacts on or is significantly out of context with neighbouring properties in which case other approaches (dry active or wet floodproofing) may be considered. Wet floodproofing not acceptable for habitable use. Proponent shall demonstrate a "best effort" has been made to floodproof to the highest level that is functional and aesthetically tolerable. As a minimum, major addition shall not be more flood vulnerable than the existing structure (including exposure to wave uprush, wave overtopping, wave spray and other water related hazards. Should meet full AS but as a minimum, access should be considered "safe" during times of flooding.	Not permitted	Permitted provided: 1) it meets requirements of PWS and AS to the maximum extent and level possible based on site-specific conditions; and 2) it utilizes maximum lot depth and width; and 3) as a minimum, uses the greater of a) erosion allowance based on planning horizon of not less than 50 years or b) minimum setback from stable slope allowance of 15 m; and 4) it does not increase occupancy of existing structure; and 5) it does not diminish maintenance access to any existing protection works.	Encourage goals of no development within DBH. Not permitted within defined portions of DBH. Permitted outside defined portions of DBH provided design minimizes impact to dune area. Follow 4 step preferred order of approaches as described in text.
Redevelopment - existing structure removed and new structure erected	See New dwellings (infilling)	See New dwellings (infilling)	See New dwellings (infilling)	See New dwellings (infilling)

Table A7.2.1 Summary of Considerations for Preparing Recommended Guidelines for Existing Development Within the Hazardous Lands

Development Activity	Flooding Hazard (FH)	Erosion Hazard (EH)		Dynamic Beach Hazard (DBH)
		Stable Slope Allowance	Erosion Allowance	
Replacement of dwelling destroyed by forces other than flood or erosion	Advise of flood hazards but permitted if same size or smaller and utilizes maximum lot depth for setback. Provide same or better ingress/egress as previous structure and incorporate appropriate floodproofing measures to same or higher level. Consider relocation or acquisition (willing buyer/willing seller arrangement).	Advise of slope stability hazards but permitted if same size or smaller and utilizes maximum lot depth for setback. Provide same or better ingress/egress as previous structure. Incorporate appropriate slope stabilization measures. Consider relocation or acquisition (willing buyer/willing seller arrangement).	Advise of erosion hazards but permitted if same size or smaller and utilizes maximum lot depth for setback and if structure readily moveable. Provide same or better ingress/egress as previous structure. Consider relocation or acquisition (willing buyer/willing seller arrangement).	Advise of dynamic beach hazards and encourage goals of no development within DBH. Permitted if same size or smaller and utilizes maximum lot depth for setback and if design minimizes impact to dunes - provide same or better ingress/egress as previous structure - consider relocation or acquisition (willing buyer/willing seller arrangement).
Replacement of dwelling destroyed by forces of flooding and/or erosion	Not permitted at same location. For replacement at new landward location, see <u>New dwellings (infilling)</u> .	Not permitted	Not permitted at same location. For replacement at new landward location, see <u>New dwellings (infilling)</u> .	Not permitted at same location. For replacement at new landward location, see <u>New dwellings (infilling)</u> .
Major structures -non-habitable buildings that do not qualify as minor structures -does not include shoreline protection works	Permitted provided it has dry passive floodproofing to full FPS except where it significantly impacts on or is significantly out of context with neighbouring properties in which case other approaches may be considered (dry active, where minimum 6 hours warning available, or wet floodproofing) . The proponent shall demonstrate a "best effort" has been made to floodproof to the highest level that is functional and aesthetically tolerable. Do not reduce existing ingress/egress.	Not permitted	Permitted provided: 1) it meets requirements of PWS and AS to the maximum extent and level possible based on site-specific conditions; and 2) it utilizes maximum lot depth and width; and 3) as a minimum, it uses the greater of a) erosion allowance based on planning horizon of not less than 50 years or b) minimum setback from stable slope allowance of 15 m; and 4) it does not diminish maintenance access to existing protection works or With no protection works, the building shall be readily moveable by design with no permanent foundations and temporary foundations to be removed when structure moved, relocation plan submitted and greater of 1) minimum setback of 30 times AARR from stable slope allowance or 2) not less than 15 m from stable slope allowance.	Encourage goals of no development within DBH. Not permitted within defined portions of DBH. Permitted outside defined portions of DBH provided design minimizes impact to dune area. Follow 4 step preferred order of approaches as described in text.

Table A7.2.1 Summary of Considerations for Preparing Recommended Guidelines for Existing Development Within the Hazardous Lands

Development Activity	Flooding Hazard (FH)	Erosion Hazard (EH)		Dynamic Beach Hazard (DBH)
		Stable Slope Allowance	Erosion Allowance	
Minor structures -non-habitable, moveable structures (sheds, gazebos) with no utilities and maximum size of 14 m ² - does not include shoreline protection works	Advise of flood risk. Permitted provided safety concerns due to flood hazards are addressed considering site conditions and nature and use of structure. Do not reduce existing ingress/egress.	Not permitted	Advise of erosion risk. Permitted provided safety concerns due to erosion hazards are addressed considering site conditions and nature and use of structure and maintenance access to any existing protection works is not decreased. It is recommended if any structure is within 5 m of stable slope crest, that surcharge effects on slope stability be assessed by a geotechnical engineer.	Encourage goals of no development within DBH. Not permitted within defined portions of DBH. Permitted outside defined portions of DBH provided design minimizes impact to dune area. Follow 4 step preferred order of approaches as described in text.
Swimming pools	Not permitted unless meets full requirements of FPS	Not permitted	Permitted provided: 1) not at risk to erosion hazard for 20 years for inground pools or 10 years for above ground pools; and 2) drainage is addressed; and 3) maintenance access to existing protection works is not decreased; and 4) existing ingress/egress is not reduced. It is recommended if any structure is within 5 m of stable slope crest, that surcharge effects on slope stability be assessed by a geotechnical engineer.	Encourage goals of no development within DBH. Not permitted within defined portions of DBH. Permitted outside defined portions of DBH provided design minimizes impact to dune area. Follow 4 step preferred order of approaches as described in text.
Septic systems	Not permitted	Not permitted	Permitted provided it is landward of primary dwelling and conforms to setbacks as required under EPA, Section VIII . Do not reduce existing ingress/egress.	Permitted provided it is landward of primary dwelling and conforms to setbacks as required under EPA, Section VIII
Decks, boardwalks, fixed walkways (not connected to dwelling)	Permitted provided safety concerns due to flood hazards are addressed considering site conditions and nature and use of development. Advise of flood risk and potential damage. Do not reduce existing ingress/egress. Level of safety varies with ingress/egress (i.e., limited access points or continuous access).	Decks and fixed walkways and boardwalks along the shore not permitted. Perpendicular access to shoreline by fixed walkways and boardwalks may be permitted.	Permitted provided not at risk to erosion hazard for 10 years. It is recommended if any structure is within 5 m of stable slope crest, that surcharge effects on slope stability be assessed by a geotechnical engineer.	Encourage goals of no development within DBH. Not permitted within defined portions of DBH except as dune cross-overs at selected points. Permitted outside defined portions of DBH provided design minimizes impact to dune area. Follow 4 step preferred order of approaches as described in text.

Table A7.2.1 Summary of Considerations for Preparing Recommended Guidelines for Existing Development Within the Hazardous Lands				
Development Activity	Flooding Hazard (FH)	Erosion Hazard (EH)		Dynamic Beach Hazard (DBH)
		Stable Slope Allowance	Erosion Allowance	
Relocation of dwelling away from shoreline	Optional on part of owner but recommended. Relocate outside FH.	Optional on part of owner but recommended	Optional on part of owner but recommended. Relocate outside EH.	Optional on part of owner but recommended. Relocate outside DBH.
Existing Vacant Lots				
New dwellings (infilling) -development on previously undeveloped lot(s), with foundation area less than 500 square metres, generally bounded by existing development on adjacent sides of property	Permitted provided it provides protection to full PWS and dry passive floodproofing to full FPS except where it significantly impacts on or is significantly out of context with neighbouring properties in which case other approaches (dry active or wet floodproofing) may be considered. Wet floodproofing not acceptable for habitable use. Proponent shall demonstrate a "best effort" has been made to floodproof to the highest level that is functional and aesthetically tolerable. Should meet full AS but as a minimum, access should be considered "safe" during times of flooding.	Not permitted	Permitted provided more than 50% of existing lots/parcels in the residential or cottage area are developed and: 1) the proponent demonstrates that it meets requirements of PWS and AS to the maximum extent and level possible and that a "best effort" has been made to provide the maximum erosion allowance that is functional and aesthetically tolerable; and 2) it utilizes maximum lot depth and width; and 3) as a minimum, uses the greater of a) an erosion allowance based on planning horizon of not less than 60 years or b) minimum setback from stable slope allowance of 15 m; and 4) proper maintenance access is provided to any existing protection works (see Note 7).	Encourage goals of no development within DBH. Not permitted within defined portions of DBH. Permitted outside defined portions of DBH provided design minimizes impact to dune area. Follow 4 step preferred order of approaches as described in text.
New dwellings (infilling)... with foundation area greater than or equal to 500 square metres...	See <u>New Development</u> , Create new lot(s)	See <u>New Development</u> , Create new lot(s)	See <u>New Development</u> , Create new lot(s)	See <u>New Development</u> , Create new lot(s)
Buildings which by the nature of their use are located in close proximity to water	Requires detailed site specific evaluation. Observe overall intent of Policy to minimize potential risk to life and property.	Requires detailed site specific evaluation. Observe overall intent of Policy to minimize potential risk to life and property.	Requires detailed site specific evaluation. Observe overall intent of Policy to minimize potential risk to life and property.	Requires detailed site specific evaluation. Observe overall intent of Policy to minimize potential risk to life and property.
Septic systems	Not permitted	Not permitted	Permitted provided it is landward of primary dwelling and conforms to setbacks as required under EPA, Section VIII - do not reduce existing access	Permitted provided it is landward of primary dwelling and conforms to setbacks as required under EPA, Section VIII.

Table A7.2.1 Summary of Considerations for Preparing Recommended Guidelines for Existing Development Within the Hazardous Lands				
Development Activity	Flooding Hazard (FH)	Erosion Hazard (EH)		Dynamic Beach Hazard (DBH)
		Stable Slope Allowance	Erosion Allowance	
New Development				
Create new lot(s)	Permitted provided it meets full requirements of FPS and PWS - incorporate dry passive floodproofing measures - wet floodproofing measures not considered acceptable - must meet requirements of AS	Not permitted	Permitted provided it meets full requirements of PWS	Encourage goals of no development within DBH. Not permitted within defined portions of DBH. Permitted outside defined portions of DBH provided design minimizes impact to dune area. Follow 4 step preferred order of approaches as described in text.
Technical severance	No restriction	No restriction	No restriction	No restriction
Lot consolidation	No restriction	No restriction	No restriction	No restriction
Land use designation/zone changes	Support changes to planning documents to natural hazard designation in accordance with the Policy			
	Do not support proposed zoning, land use designation or official plan changes which further intensify land use (i.e., seasonal residential to year-round residential, or single family residential to multi-unit dwelling)			

NOTES:

- 1) All development to adhere to requirements of Policies 3.1.2 and 3.1.3 unless specifically noted otherwise.
- 2) All of the above is subject to appropriate setbacks and maximum lot coverage requirements as listed in municipal zoning by-laws.
- 3) Development which by the nature of its use must be in close proximity to or within the water (i.e., water intakes, docks, non-habitable boathouses, utilities) may require a more detailed evaluation to determine the acceptable potential risks. In all these situations, regardless of the planning issue being evaluated, the overall intent of the Policy, to minimize the potential risk to life and property, is to be preserved.
- 4) Dry passive floodproofing measures preferred for all development.
- 5) "Not at risk to erosion hazard" includes consideration of protection works, stable slope and erosion allowances.
- 6) Stable slope allowance is 1:3 unless geotechnical study carried out.
- 7) Maintenance access to the shoreline typically requires sufficient width (i.e., approximately 4 m to 5 m) for heavy construction equipment.
- 8)
 - FPS: Flood Protection Standard
 - PWS: Protection Works Standard
 - AS: Access (Ingress/Egress) Standard
 - AARR: Average annual recession rate