

ESSEX REGION CONSERVATION AUTHORITY

POLICIES, GUIDELINES AND PROCEDURES
FOR FILL, CONSTRUCTION AND ALTERATION TO
WATERWAYS REGULATIONS
AND REVIEW OF
PLANNING DOCUMENTS AND
DEVELOPMENT PROPOSALS

DECEMBER 1987

NOTE: Approved December, 1987 - Except Section No. 5 Regulation (not yet in effect)
Refer to previous Ontario Regulation No. 730/82.

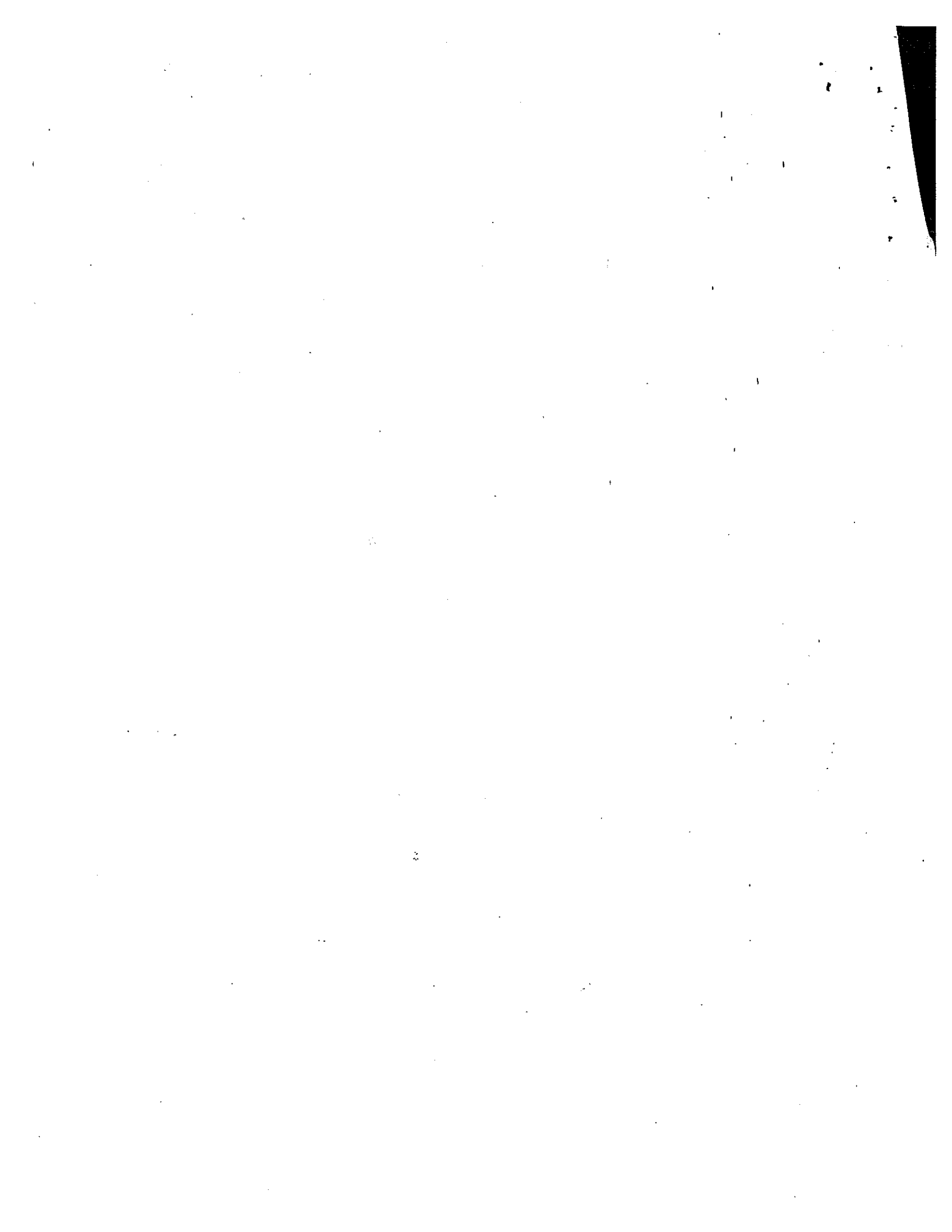
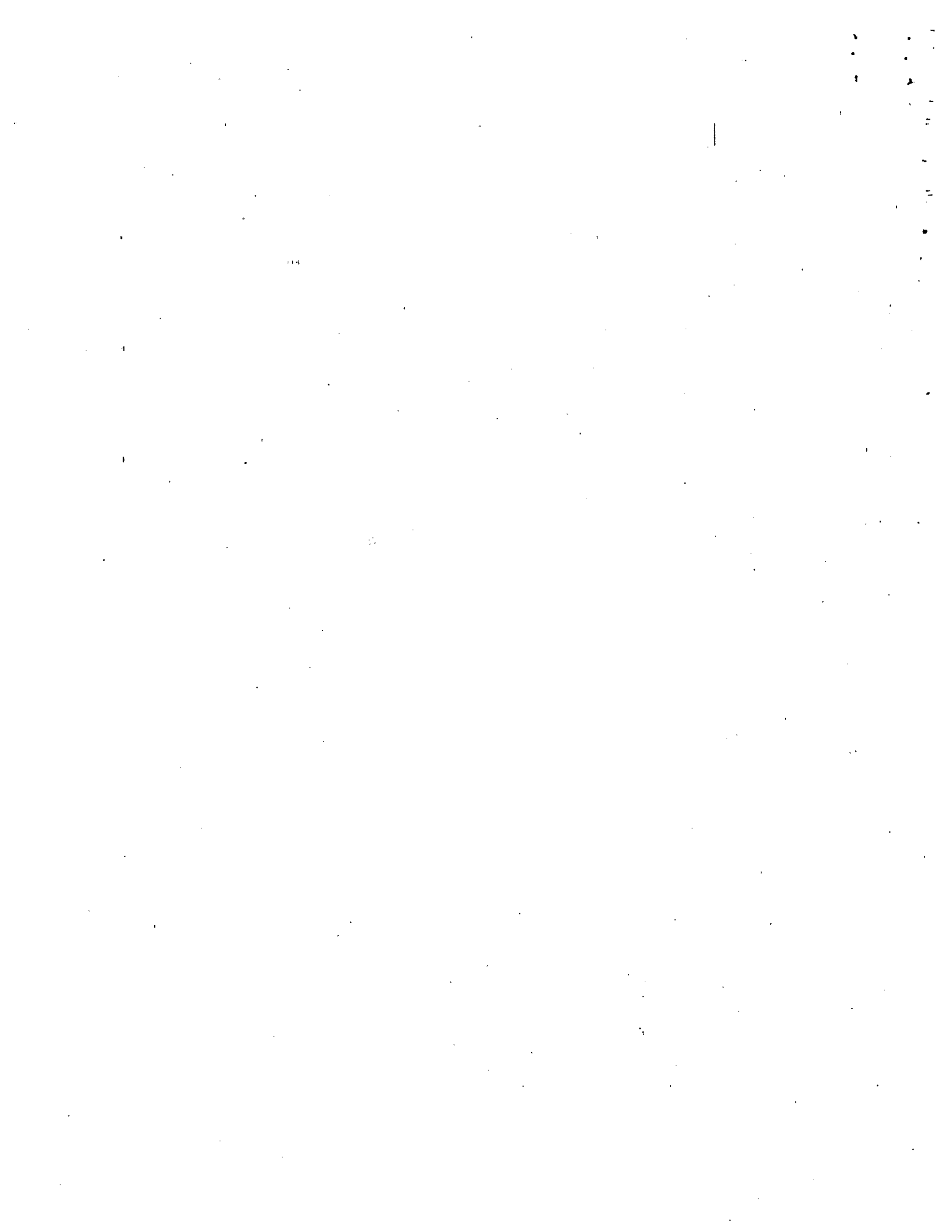


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1. INTRODUCTION

The Essex Region Conservation Authority (E.R.C.A.) is an active participant in development control activities and land use planning within the areas under its jurisdiction. These activities generally involve the evaluation, assessment, and control of short or long term development projects. The area under the jurisdiction of the Authority covers 682 square miles (1,775 km²) and includes, in part, twenty-three separate municipalities and planning areas.

Section 19 of the Conservation Authorities Act states:

"The objects of an authority are to establish and undertake, in the area over which it has jurisdiction, a program designed to further the conservation, restoration, development and management of natural resources other than gas, oil, coal and minerals."

This broad mandate statement and other sections of the Act give to the Authority an interest in the protection of the environment and in particular the natural resources, other than gas, oil, coal and minerals, which could be affected by a development project and its associated land use activities. Further, Section 28 of the Conservation Authorities Act, R.S.O. 1980, assigns the Conservation Authority the authority of prohibiting or regulating construction of buildings or structures in areas which are, in the opinion of the Authority, susceptible to flooding, or regulating the placement of fill in areas where, in the opinion of the Authority, the dumping of fill would affect the flooding, pollution, or conservation of land.

This delegation of authority has led the Conservation Authority to develop a program whereby the potential for flooding, pollution, or conservation of land may be reduced where practical, and to develop a system whereby certain

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areas of severe flooding and erosion are identified, mapped and made known to the general public and other interested agencies.

The basic purpose of this program is to ensure that new development is adequately protected from flooding and erosion and to prevent those activities which would increase the potential for damage to existing structures and lands.

The Essex Region Conservation Authority carries out this program by:

- (a) providing technical assistance, information and financial incentives to municipalities and the general public;
- (b) establishing and enforcing regulations made under the Conservation Authorities Act;
- (c) undertaking projects to identify flood/erosion problems and solutions, and to construct remedial measures;
- (d) cooperating with the Ministry of Natural Resources and member municipalities in the maintenance of an adequate flood watch/warning system and an emergency response program for existing developments in flood prone areas;
- (e) acquiring, developing and managing significant properties;
- (f) by generally exercising its full rights, privileges and legal authority as assigned to it by the Conservation Authorities Act.

The purpose of this document is to formally state the policies which will direct the Essex Region Conservation Authority in implementing its statutory authority and regulations, and those activities dealing with review of development proposals and input into the land use planning process, in regulated and non regulated areas.

The Essex Region Conservation Authority has undertaken floodplain mapping and erosion studies for several municipalities within its watershed, many of

which could experience flooding under severe storm conditions. This work has been undertaken at the request of and with the assistance of the Authority's member municipalities.

In the preparation of this policy statement, the Conservation Authority has recognized the threat of future flooding and erosion. It is the intent of the Essex Region Conservation Authority to cooperate fully with member municipalities and to provide technical assistance, as required, so that the local official plans and zoning by-laws will complement the fill and construction regulation. Through implementation of the policies contained herein, flood and erosion damage to new development should be minimized and increased protection for existing development should be achieved.

The Essex Region Conservation Authority Fill, Construction and Alteration to Waterways Regulation is found on pages 15 to 23 of this document. All other material consists of an explanation of the regulations, and Authority policies, guidelines and procedures for implementing the regulations and for commenting on development projects and planning documents in regulated and non regulated areas.

2. EXPLANATION OF FILL, CONSTRUCTION, AND ALTERATION TO WATERWAYS REGULATION

With continued land development activities in both urban and rural municipalities, the Fill, Construction, and Alteration to Waterways Regulations of the Essex Region Conservation Authority have become increasingly important. The following is intended to provide a brief explanation of this Regulation.

Under Section 28 of the Conservation Authorities Act R.S.O. 1980, and subject to the approval of the Lieutenant Governor in Council, Conservation Authorities in Ontario have the power to establish regulations which apply to the area of the Authority's jurisdiction.

- (a) ("Fill Regulation") - prohibits or regulates the placing or dumping of fill of any kind in any defined part of the area over which the Authority has jurisdiction in which, in the opinion of the Authority, the control of flooding or pollution or the conservation of land may be affected by the placing or dumping of fill.
- (b) ("Construction Regulation") - prohibits or regulates the construction of any building or structure in or on a pond or swamp or in any area susceptible to flooding during a regional storm.
- (c) ("Alteration to Waterways Regulation") - prohibits or regulates the straightening, diverting or interfering in any way with the existing channel of a river, creek, stream or watercourse.

Such regulations are usually referred to as a Fill, Construction, and Alteration to Waterways Regulations and some further explanation concerning their establishment and enforcement is in order. Further information, if required, is available from the Authority office.

Paragraph (c) above states that the Authority has the power to prohibit or regulate the changing of an existing waterway. Since even minor alterations to a waterway can have unpredictable results, the Authority through this regulation, has the opportunity to prevent or control such alterations. This regulation applies throughout the area under the jurisdiction of the Authority to which it is made applicable.

The construction portion of the regulation in paragraph (b) above, is not quite as simple to formulate or explain as the previous section. A number of terms in this paragraph need to be defined. These are "pond", "swamp", "area

susceptible to flooding" and "regional storm". Since "pond" and "swamp" are easily defined, no further elaboration is provided here. The "regional storm" is defined in a technical way by the Conservation Authority and the Ministry of Natural Resources and is intended to define the flood to be used for Authority flood regulation purposes, also commonly known as regulatory flood. The regulatory flood is the 1 in 100 year flood or the maximum recorded flood, whichever is greater; plus appropriate freeboard for wave action, ice jamming, etc., as further defined in the body of the Regulations. This same definition applies to shoreline areas and watercourses.

The determination of "area susceptible to flooding", or "floodplain" is the complicated part of this paragraph. The services of a professional engineer are required to make this determination.

The most economical way to obtain floodline mapping, for any reasonably large area, is to undertake aerial photography and use this to obtain contoured base mapping. For watercourses, in calculating the peak flow volume to be expected at any given location as a result of any given rainstorm, the engineer takes many factors into consideration. Some of these are: the size of the watershed; slope of the streambed; channel configuration; type of soils; type of vegetation cover; constrictions or obstructions in the river channel, such as dams, bridges, culverts, fill, buildings, etc.; and land use in the watershed. Having estimated from these calculations the volume and velocity of the water and having determined from the mapping and field surveys, the cross-sectional capacity of the river, the engineer can determine water surface elevations or "flood levels" affecting the area under consideration. The flood levels resulting from the regulatory storm (1:100 year or maximum observed) are known as the regulatory flood levels. The area of land at or below the regulatory flood level is the floodplain. This floodplain is then marked on

the contour mapping and is then encompassed by the "regulatory flood limits" which provide an additional freeboard for wave action, ice jamming etc. These limits depict the areas in which the Authority regulates construction. For shoreline areas, a similar exercise is carried out with flood levels being determined from a frequency analysis of historical lake levels, considering the effect of windstorms on water level setup and wave formation.

With regard to the fill regulation in paragraph (a) above, mention is made of a "defined part of the area over which the Authority has jurisdiction" in which the control of flooding or pollution or the conservation of land may be affected by the placing or dumping of fill. The location of this fill line usually coincides with the regulatory flood limits and, therefore, the areas regulated by the fill regulation and construction regulation will be the same area of land in most cases. However, where the valley or shoreline slopes are quite steep, and/or prone to erosion, the fill lines will be set back from the top of bank to permit control of filling over the entire hazard area. Since development at the top of a slope can easily affect the slope bottom, and vice versa, control of the entire slope is essential. Thus, the "restricted fill area" can, depending on the topography of the shoreline or the river valley, include just the floodplain, or the floodplain and a section of land adjacent to it. The fill lines are also marked on the contour mapping. This complete set of maps is commonly referred to as Fill and Floodline Mapping and is available for inspection or purchase at the Conservation Authority office.

The Regulation, then, is a written document which contains numerous definitions, such as "fill line", and "regional storm", quotations from the Act, and details on the application process. Accompanying the Regulation are schedules which describe the area to which the fill regulation section applies,

as well as a map showing the fill lines and flood line. Copies of the schedules and other documents, if required, are available from the Authority for a nominal fee. The Authority's enforcement of the Regulation will be in accordance with a policy adopted by the Full Authority and stated in this document.

3. POLICIES

In June 1983, the Essex Region Conservation Authority completed its Conservation Plan containing Objectives and Policies for Flood Control, Erosion Control, and Biological Resources. The policies and objectives in the Conservation Plan have formed the basis for establishing the following policy of the Essex Region Conservation Authority on Fill, Construction and Alteration to Waterways Regulations and review of planning documents and development proposals.

It shall be the policy of the Essex Region Conservation Authority that:

- 3.1 Floodplain management must take place within an overall, coordinated land use and watershed planning framework.
- 3.2 Floodplain regulations are an integral part of a watershed management program to control flood damage, pollution, and the conservation of land.
- 3.3 The Conservation Authority will implement a program that includes the adoption and administration of appropriate regulations, in accordance with the guidelines and procedures contained in this document.
- 3.4 The Conservation Authority will request the full cooperation from member municipalities in the establishment of a successful watershed management program. Municipalities will be requested to incorporate the watershed management considerations (i.e. floodplains, wetlands, erosion prone

- areas, etc.) in their official plans and zoning by-laws which are consistent with the policies and guidelines contained in this document.
- 3.5 Existing developments and persons within areas susceptible to flooding and erosion are to be protected, to the extent possible, against major flood losses and personal harm through the provision, wherever possible, of flood watches/warnings and implementation of other damage reduction measures in the most critical areas.
- 3.6 Future land uses which will be susceptible to significant flood or erosion damages or which will increase flood and erosion damages to existing uses should not be permitted.
- 3.7 The two-zone floodway-flood fringe concept will be applied to all regulated watercourses in the watershed. The regulated area and the minimum level of protection will be the 1:100 year flood or the maximum observed flood event, whichever is greater, plus appropriate freeboard for wave action or ice jams.
- 3.8 Future land uses which will be susceptible to damage resulting from erosion or slope instability or which may increase such damages to existing uses should not be permitted.
- 3.9 Future land uses which will have a significant detrimental impact upon the surrounding natural resources, other than gas, coal, oil and minerals, should not be permitted.
- 3.10 All proposed development activities must be assessed and evaluated in accordance with the procedures and guidelines contained herein, and must satisfy the minimum requirements contained therein. This includes development proposals and planning documents in non-regulated areas. In such cases the Authority will encourage the proponent to satisfy the guidelines and will request the municipality and the Ministry of Municipal Affairs to enforce the requirements.

4. PROCEDURES

4.1 Development Projects Regulated Under The Conservation Authorities Act

Each proposed development project which requires the approval of the Essex Region Conservation Authority under Section 28 of the Conservation Authorities Act will be dealt with in the following manner.

- 4.1.1 An application under sub-section (a), (b) and/or (c) of Section 3 of the Regulation shall be made by the owner of the land in respect of which the application is being made, or any person authorized in writing by the owner, or any person with a current written offer to purchase the land.
- 4.1.2 An application for permit under sub-section (a), (b) and/or (c) of Section 3 of the Regulation shall be filed with the General Manager of the Authority, and the applicant shall include such information as is required under sub-sections (1), (2) and/or (3) of Section 6 of the Regulation, and as described on the application form.
- 4.1.3 The Executive Committee of the Authority shall review all applications and advise the applicant of its decision within sixty (45) days of receipt of such application. All applications will be considered in accordance with the guidelines and policies contained in this document.
- 4.1.4 In cases where delay would result in financial loss and hardship to the applicant, and where the application complies with the policies and guidelines contained in this document, the General Manager may grant the permit prior to the Executive Committee meeting. In granting such emergency permits, where municipal comments have not been received, the Head of Council will be consulted.
- 4.1.5 The application shall be approved or refused by the Executive

Committee, but before refusing permission, the Executive Committee shall hold a hearing to which the applicant or his agent shall be made a party.

- 4.1.6 The General Manager shall forward to the applicant, written notice of the time and place of the hearing. Such notice shall be deemed to have been served when sent to the address given in the application by registered mail, at least fourteen (14) days prior to the hearing.
- 4.1.7 Upon hearing the submission of the applicant or his designated agent and reviewing any other information submitted at the hearing, the Executive Committee shall approve or refuse the application, and upon refusal or approval of the application, the Executive Committee shall give written reasons for its decision to the applicant.
- 4.1.8 A copy of each application shall be forwarded to the respective municipality for information and comments regarding same. A time period of 30 days will normally be allowed for the receipt of municipal comments. The respective municipality will also be forwarded written notice of time and place of any hearings to permit representation if desired. A copy of the circulation letter will be sent to the respective member.
- 4.1.9 An applicant who has been refused permission may, within thirty (30) days of the receipt of the reasons for the decision, appeal to the Minister of Natural Resources, who may dismiss the appeal or grant the approval of the application.
- 4.1.10 Notice of appeal to the Minister will also be forwarded to the respective municipal council.

4.2 Development Proposals Circulated to the Authority by Other Agencies and Municipalities

All proposed development projects which are controlled by other agencies or municipalities; and all municipal planning documents, will be reviewed in accordance with the guidelines contained within this document.

The Conservation Authority will provide comments and recommendations in accordance with normal procedures under the legislation or policies of the agency or municipality involved. Such comments will be based on the approved policies and guidelines contained in this document. Comments and recommendations outside normally approved policies, guidelines and procedures shall be directed to the Executive Committee for their consideration.

4.3 Private Inquiries

Private individuals requesting assistance will receive advice based upon the policies and guidelines contained herein. Advice to persons other than the owner of the subject property or their authorized agent will be limited to a description of the hazard, and descriptions of typical remedial measures, but will not include detailed site specific recommendations or cost estimates.

Written comments and recommendations outside normally approved policies, guidelines and procedures shall be directed to the Executive Committee for their consideration.

4.4 Procedure for Violations or Non-Compliance with Permit

Development projects which are subject to the Authority's Regulations, and which proceed without a permit or in non-compliance with a permit shall be dealt with according to the following procedure:

- 4.4.1 A notice of violation will be issued to the owner under the signature of the General Manager.
- 4.4.2 The notice of violation shall be accompanied by a stop work order or a request to undertake corrective works, or both, at the discretion of the General Manager.
- 4.4.3 The notice of violation shall specify a period of thirty (30) calendar days from the date of the notice within which time the owner must complete modifications to the works to ensure compliance with an approved permit.
- 4.4.4. If an application is submitted by the owner, acceptable to the Executive Committee, the time frame for modification or removal of the offending works may be extended at the discretion of the Executive Committee.
- 4.4.5 Depending on the seriousness of the offence, the time frame for compliance may be altered at the discretion of the Executive Committee.
- 4.4.6 Failure to comply within the specified time frame will usually result in prosecution.

4.5 Amendments

Amendments to the contents of this document shall be approved by the Members of the Full Authority prior to implementation.

4.6 Interpretation

The Executive Committee of the Essex Region Conservation Authority is responsible for the final interpretation of any part of this document in the consideration of any matter related to the contents contained herein.

5. FILL, CONSTRUCTION, AND ALTERATION
TO WATERWAYS REGULATION
FOR SHORELINES AND WATERCOURSES

ESSEX REGION CONSERVATION AUTHORITY

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ABSTRACT FROM THE CONSERVATION AUTHORITIES ACT, 1980

Objects

20. The objects of an Authority are to establish and undertake, in the area over which it has jurisdiction, a program designed to further the conservation, restoration, development and management of natural resources other than gas, oil, coal and minerals. R.S.O. 1970, c. 78, s. 19.

Regulations by Authority

28. (1) Subject to the approval of the Lieutenant Governor in Council, an Authority may make regulations applicable in the area under its jurisdiction,
- (a) restricting and regulating the use of water in or from rivers, streams, inland lakes, ponds, swamps, and natural or artificially constructed depressions in rivers or streams;
 - (b) prohibiting or regulating or requiring the permission of the authority for the straightening, changing, diverting or interfering in any way with the existing channel of a river, creek, stream or watercourse;
 - (c) regulating the location of ponds used as a source of water for irrigation;
 - (d) providing for the appointment of officers to enforce any regulation made under this section or section 29;
 - (e) prohibiting or regulating or requiring the permission of the authority for the construction of any building or structure in or on a pond or swamp or in any susceptible to flooding during a

regional storm, and defining regional storms for the purposes of such regulations; and

- (f) prohibiting or regulating or requiring the permission of the authority for the placing or dumping of fill of any kind in any defined part of the area over which the authority has jurisdiction in which in the opinion of the authority the control of flooding or pollution or the conservation of land may be affected by the placing or dumping of fill. R.S.O. 1970, c. 78, s. 27 (1); 1971, c. 64, s. 5 (1); 1973, c. 98, s. 8 (1-3).

Exceptions

28. (2) No regulation made under this section,

- (a) shall limit the the use of water for domestic or live stock purposes;
- (b) shall interfere with any rights or powers conferred upon a municipality in respect of the use of water for municipal purposes;
- (c) shall interfere with any rights or powers of Ontario Hydro or of any board or commission that is performing its functions for or on behalf of the Government of Ontario; or
- (d) interfere with any rights or powers under the Public Utilities Act. R.S.O. 1970, c. 78, s. 27 (2); 1971; c. 64, s. 5 (2); 1973, c. 57, s. 19; 1980, c. 423.

Hearings

- (3) Before refusing permission required under a regulation made under clause (1) (b), (e) or (f), the authority, or where the power to issue permission has been delegated to its executive committee, the executive committee shall hold a hearing to which the applicant shall be invited.

Reasons for Decision

- (4) After holding a hearing under subsection (3), the authority or committee, as the case may be, shall give written reasons for its refusal to the applicant.

Appeal

- (5) An applicant who has been refused permission may, within thirty days of the receipt of the reasons for the decision, appeal to the Minister who may dismiss the appeal or grant the permission. 1973, c. 98, s. 8 (4).

Offence

- (6) Every person who contravenes any regulation made under this section is guilty of an offence and on conviction is liable to a fine of not more than \$1,000 or to a term of imprisonment of not more than three months.

Order for Removal of Fill, Structure, etc.

- (7) In addition to any other remedy or penalty provided by law, the court, upon making a conviction under subsection 6 for constructing a building or structure or placing or dumping fill in contravention of any regulation made under this section, may order the person convicted to remove any such building, structure or fill within such time as the court orders, and, if such person fails to comply with such order, the authority having jurisdiction in the area in which such building, structure or fill is situated may cause the building, structure or fill to be removed, and the cost thereof shall be borne and paid by the person convicted and is recoverable by the authority by action in a court of competent jurisdiction. R.S.O. 1970, c. 78, s. 27 (3, 4).

REGULATION MADE UNDER THE CONSERVATION AUTHORITIES ACT
 FILL, CONSTRUCTION, AND ALTERATION TO WATERWAYS
 ESSEX REGION CONSERVATION AUTHORITY

INTERPRETATION

1. In this Regulation,

- (a) "Authority" means the Essex Region Conservation Authority;
- (b) "building or structure" means a building or structure of any kind, including additions and/or reconstruction;
- (c) "drainage area" means, for a point, the area which contributes runoff to that point;
- (d) "fill" means earth, sand, gravel, building materials, storage materials, rubble, rubbish, garbage or any other material whether similar to or different from any of the aforementioned materials, whether of a temporary or a permanent nature, whether originating on the site or elsewhere, used or capable of being used to raise, lower or in any way affect the contours of the ground;
- (e) "fill lines" means any line designated as such on the maps referred to in the Schedules;
- (f) "river", "lake", "creek", "stream" or "watercourse" means any river, lake, creek, stream or watercourse under the jurisdiction of the Authority;
- (g) "regional storm" means a storm producing the "regulatory flood" which is defined as the greater of
 - (i) the water level having a probability of 1% of being equalled or exceeded in any given year; plus a freeboard of 0.3 metres,

OR

- (ii) the maximum observed water level plus a freeboard of 0.3 metres;
whichever is greater.

2. The areas described in the Schedules are areas in which, in the opinion of the Authority, the control of flooding or pollution or the conservation of land may be affected by the placing or dumping of fill.
3. Subject to Section 4, no person shall,
- (a) construct any building or structure or permit any building or structure to be constructed in or on a pond or swamp or in any area susceptible to flooding during a regional storm;
 - (b) place or dump fill or permit to be placed or dumped in the areas described in the Schedules whether such fill is already located in or upon such area, or brought to or on such area from some other place or places; or
 - (c) straighten, change, divert or interfere in any way with the existing channel of a river, creek, stream, watercourse, or lake.
4. Subject to the Ontario Water Resources Act or to any private interest, the Authority may permit in writing the construction of any building or structure or the placing or dumping of fill or the straightening, changing, diverting or interfering with the existing channel of a river, creek, stream or watercourse to which Section 3 applies if, in the opinion of the Authority, the site of the building or structure or the placing or dumping and the method of construction or placing or dumping or the straightening,

changing, diverting or interfering with the existing channel will not affect the control of flooding or pollution or the conservation of land.

5. No person shall commence to construct any building or structure or dump or place fill or straighten, change, divert or interfere with the existing channel of a river, creek, stream or watercourse in any area to which Section 3 applies before permissions to do so has been obtained under Section 4

6. (1) A signed application for permission to construct a building or structure shall be filed with the Authority and shall include,
 - (a) four copies of a plan of the property showing the proposed location of the building or structure, its elevation and the proposed final grade plan;
 - (b) four copies of a complete description of the type of building or structure to be constructed, including drainage details;
 - (c) four copies of a statement of the dates between which the construction will be carried out; and
 - (d) four copies of a statement of the proposed use of the building or structure following completion of the construction.

- (2) A signed application for permission to place or dump fill shall be filed with the Authority and shall include,
 - (a) four copies of a plan of the property on which the fill is to be placed, showing the proposed location of filling, the depth to which it is proposed to fill and the proposed final grade of the land when filling is completed;

- (b) four copies of a complete description of the type of fill proposed to be placed or dumped;
 - (c) four copies of a statement of the dates between which the placing or dumping will be carried out; and
 - (d) four copies of a statement of the proposed use of the land following completion of placing or dumping.
6. (3) A signed application for permission to straighten, change, divert or interfere in any way with the existing channel of a river, creek, stream or watercourse, shall be filed with the Authority and shall include,
- (a) four copies of a plan on which shall be shown in plan view and cross-section the details of such straightening, change, diversion or interference;
 - (b) four copies of a description of the protective measures to be undertaken;
 - (c) four copies of a statement of the dates between which the straightening, changing, diverting or interfering will be carried out; and
 - (d) four copies of a statement of the purpose of the proposed works.
7. The Authority may, at any time, withdraw any permission given under this Regulation, if, in the opinion of the Authority, the representations contained in the application for permission are not carried out.

8. Staff members of the Authority are appointed as officers to enforce this Regulation.

ESSEX REGION CONSERVATION AUTHORITY

Chairman

Dated at Essex, this

day of 198__

Secretary-Treasurer.

APPENDIX - GUIDELINES

This section details the minimum amount of information and/or criteria which the Conservation Authority will consider in the evaluation and assessment of a proposed development project or activity. This information is required so that an individual project can be evaluated in the context of the policies presented in this report. The Conservation Authority may, however, consider other information should the situation warrant it.

This information is intended to supplement the Provincial Floodplain Planning Policy Statement Implementation Guidelines (1986), which will also be used as a guideline by the E.R.C.A.

A.1 Definitions

- A.1.1 "Flood" means a temporary rise in the water level resulting in the inundation of areas adjacent to a watercourse not ordinarily covered by water.
- A.1.2 "Flood fringe" means the outer portion of the floodplain between the floodway and the limit of the regulatory flood. Flood depths and velocities are generally less severe in the flood fringe than those experienced in the floodway.
- A.1.3 "Floodplain" means the area, usually low lands, adjoining a watercourse which has been, or may be covered by flood water.
- A.1.4 "Floodproofing" means a combination of structural changes and/or adjustments incorporated into the basic design and/or construction or alteration of individual buildings, structures or properties subject to flooding so as to reduce or eliminate flood damages.

- A.1.5 "Floodway" means the channel of a watercourse and that inner portion of the floodplain where flood depths and velocities are generally higher than those experienced in the flood fringe. The floodway represents that area required for the safe passage of flood flows 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.
- A.1.6 "Level of protection" means a specified level, elevation and/or flow velocity to which new development must not be susceptible to flood related damage.
- A.1.7 "Observed flood event" means a flood actually experienced in a particular watershed or portion thereof.
- A.1.8 "100 year flood" means that flood, based on an analysis of precipitation, snow melt, ice jams or combinations thereof, having a return period of 100 years on average, or having a 1% chance of occurring or being exceeded in any given year.
- A.1.9 "Regulatory flood" means the approved standard used in a particular watershed to define the limit of floodplain for regulatory purposes. In the Essex Region, this standard is the 100 year flood, or the maximum observed flood event, whichever is greater. In defining the regulatory flood limits and the level of protection, a freeboard of 0.3 metres is added to the 1:100 year flood levels as a measure of safety to account for possible wave action, ice jams, etc. In Lakeshore areas subject to direct wave attack, the regulatory flood level is the 1:100 year wave run up level or maximum observed wave run up level; as determined by a qualified engineer taking into account the shoreline features and protective works, if any.

A.1.10 The lands regulated by fill regulations shall be those within the fill lines, shown on maps in possession of the Essex Region Conservation Authority. These maps show the extent of the area regulated by the Authority for the control of flooding, pollution, and conservation of land.

This section is divided into the two subsections, namely Environmental Impact and Environmental Hazards, to reflect the two main areas of concern to the Authority.

A.2 Environmental Impact

The Conservation Authority must be satisfied that a proposed development project and its associated land use activities will not have a significant detrimental impact upon the surrounding natural resources of concern to the Authority.

In considering each proposal, the Authority shall have regard for:

- (a) the significance of the natural resources affected;
- (b) the degree to which those natural resources may be detrimentally affected;
- (c) the degree to which those resources may be enhanced;
- (d) the possible methods whereby the impact upon the environment may be eliminated or minimized in accordance with accepted engineering techniques and resource management practices; and
- (e) the methods and degree of control of the Conservation Authority over the development project and its associated land use activities.

A.3 Environmental Hazards

This section concerns itself with hazards due to flooding, erosion or unstable slopes, associated with watercourses or lakes.

The Conservation Authority, in reviewing a development proposal or planning document, must be satisfied that all inherent hazards relating to the proposal have been assessed and acceptable measures proposed for removing the hazard. In addition, the project will be assessed in terms of its potential for increasing the risk to surrounding persons or properties.

In considering each development proposal or planning document, the Essex Region Conservation Authority shall have regard for:

- (a) the significance and potential of the hazard(s) present;
- (b) the effect that the project would have in increasing or decreasing the significance and potential of the hazard(s) affecting surrounding persons and properties;
- (c) the possible methods whereby the significance and potential of the hazard(s) may be minimized; and
- (d) the methods and degree of control of the Conservation Authority over the development and its associated land use activities.

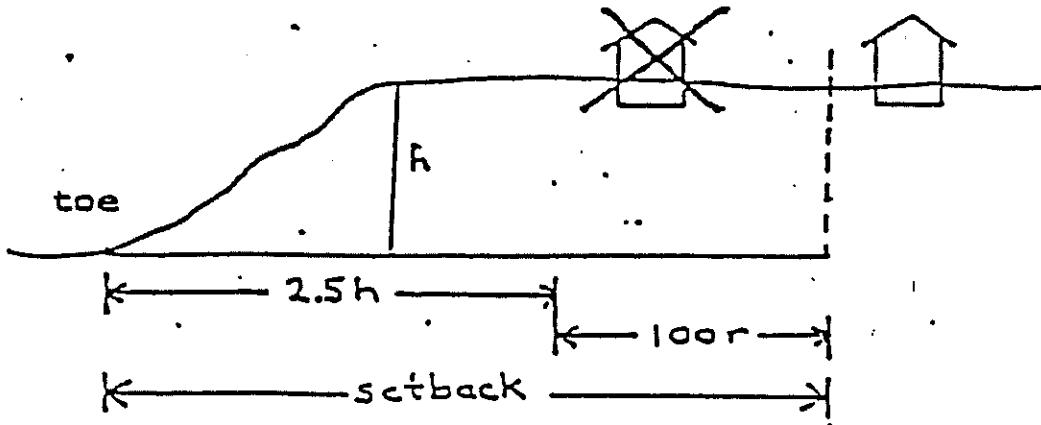
With regard to the aforementioned, the Conservation Authority has established the following minimum criteria for development projects. A project must meet all of these criteria (Sections A.3.1, and A.3.3).

NOTE: Accessory buildings and additions with a floor area less than 100 square feet (9.29 square metres) are exempt from these requirements and do not require a permit. Building additions, up to 50 percent of the size of the original building, shall be exempt from the requirements for new buildings, provided that the number of dwelling units is not increased and provided that the floodproofing elevation and the setback from the watercourse or shoreline must be no less than the original building.

ENVIRONMENTAL HAZARD AREAS

UNSTABLE SLOPES OR INADEQUATELY PROTECTED EMBANKMENTS OR SHORELINES

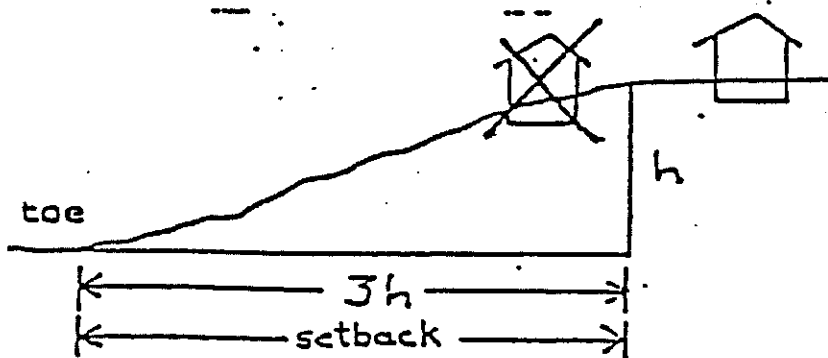
(i) Erosion Rate Known (most cases)



h - height of bank

r - known rate of erosion

(ii) Erosion Rate Unknown



A.3.1 Slopes, Embankments and Shorelines of Watercourses and Lakes

(a) A new building or addition may be permitted:

1) near a slope, embankment or shoreline which exhibits signs of instability or erosion, provided that it is set back a horizontal distance from the toe of the slope equal to or greater than the distance calculated using the formula:

$$S = 2.5 \times h + 100r; \text{ OR}$$

$$S = 3 \times h, \text{ whichever gives the greater setback}$$

where: S = setback from toe of slope (or from the shoreline, where no slope exists)

r = rate of erosion (as estimated by a qualified engineer)

h = height of slope; OR

ii) where erosion protection and bank stabilization have been provided, as certified by a qualified engineer, or where the bank or shoreline appears stable (ie. no signs of erosion, slumping, fill, or groundwater seepage); provided that the following minimum setbacks shall generally apply; as measured from the protective works or from the top of bank, whichever results in a greater setback:

All Watercourses (including Detroit River): A

horizontal setback equal to 8 metres plus the depth of the watercourse, to a maximum setback of 15 metres.

Low Lakeshores (areas subject to wave uprush): A minimum horizontal setback of 15 metres.

Bluff-Type Lakeshores (areas on embankments or bluffs): A minimum horizontal setback equal to the height of the bluff or embankment, with a minimum of 8 metres and a maximum of 15 metres.

The purpose of these setbacks is to accommodate future maintenance access, future minor erosion beyond the lifespan of the protective works, and dissipation of wave uprush. These minimum setbacks are general guidelines which apply to most situations in the absence of detailed engineering studies. Different setbacks can be considered in individual cases based on site specific engineering studies indicating an appropriate setback to protect against erosion, instability, and wave uprush, for the 1:100 year design standard. These studies shall include detailed geotechnical investigations where deemed necessary by the Authority, and must also account for the condition of the shoreline on adjacent properties.

- (b) The maintenance, repair or replacement of an existing building on or near a slope may be permitted, however the applicant will be encouraged to comply with the criteria for a new building.
- (c) No fill will be permitted to increase the grade of the slope to a point greater than 2.5:1 (H:V) unless approved by a qualified engineer. No fill will be permitted above the top of bank within the 2:5.1 plane of the slope unless approved by a qualified engineer.
- (d) Other types of proposed development projects will be assessed on a site specific basis.

A.3.2 Breakwalls and Other Protective Works on Shorelines and Banks

In regulated areas, permits are required from the Conservation Authority for breakwalls or similar protective works on or near banks or shorelines of watercourses or lakeshores. Such protective works, including breakwalls, revetments, rubble, groynes and jetties, must comply with the following guidelines:

- (a) Protective works on or near watercourses must not adversely restrict the passage of flood waters or adversely redirect flows.
- (b) Where the protective works are being installed to permit the construction of a new building or addition, in accordance with Section A.3.1 (a)(iii), the works must be designed or certified by a qualified engineer.
- (c) Protective works on lakeshores must not adversely affect other portions of the shoreline, in the opinion of the Authority.

A.3.3 Areas Susceptible to Flooding

Areas susceptible to flooding are usually termed floodplain and can be illustrated geographically on maps whereon the floodplain is delineated by a floodline. The floodplains and channels of all watercourses with a watershed area exceeding 125 hectares and the floodplains of Lake Erie, Lake St. Clair and the Detroit River, are considered to be of concern to the Conservation Authority. The area of such floodplains will vary according to topography, soil conditions, volume of water and velocity of flow.

The floodplain is the area of land within the limits of the regulatory flood as described in the definition section of this document and in the Regulation.

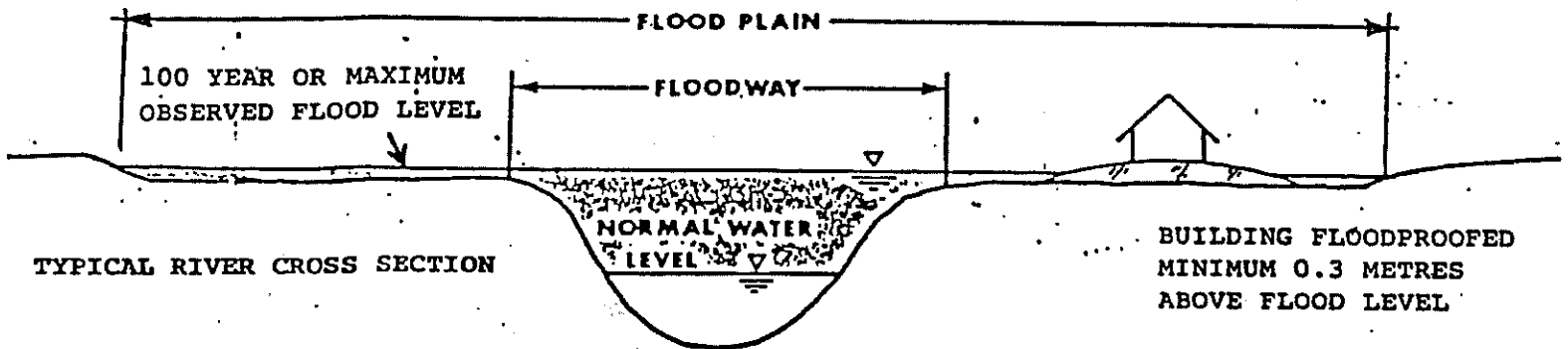
In this area, the Essex Region Conservation Authority has floodline mapping for most of the watercourses and shoreline areas within its jurisdiction. The floodline mapping along the watercourses and lakeshores shows the area which would be flooded by a 1 in 100 year flood. The mapping also shows any maximum observed floods which have exceeded the 1:100 year event.

Watercourses (excluding Detroit River): For the purpose of this document, the floodplain of a watercourse may be divided into two areas intitled the floodway and the flood fringe. The floodway is the central portion closest to the watercourse where risk of flood damage is highest, as described in the definitions section. The flood fringe is the remainder of the floodplain.

Lake Erie, Lake St. Clair and Detroit River: The floodplains of these bodies of water are treated in the same manner as the flood fringes of watercourses and often affect the same area of land, in the area of stream and river mouths.

ENVIRONMENTAL HAZARD AREAS
- AREAS SUSCEPTIBLE TO FLOODING

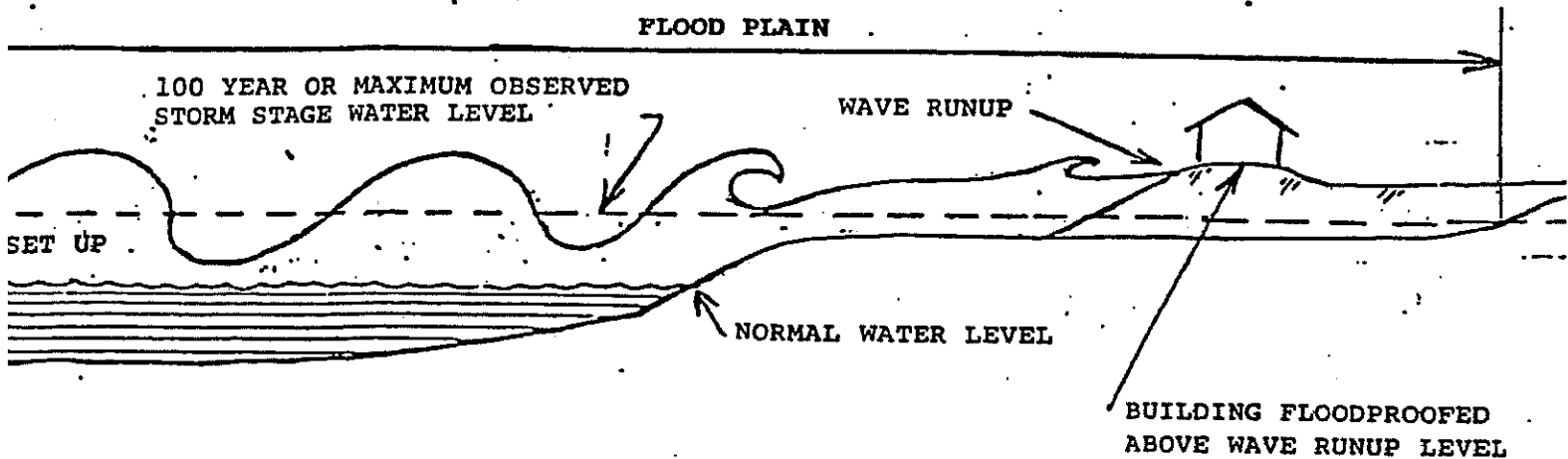
WATERCOURSE FLOODING



FLOODPLAIN - The land area that is flooded during the 100 year return period flood or maximum observed. Development can occur in the floodfringe outside of the floodway, provided that it is floodproofed.

FLOODWAY - The portion of the floodplain where river flows are too rapid and deep during flood times to allow development or fill.

LAKE FLOODING



A.3.4.1 Floodway (applies to watercourses only - excluding Detroit River)

The floodway is defined in the definitions sections of this document. The extent of the floodway will be different for various reaches of individual watercourses. This section describes the guidelines which will be used in establishing the extent of the floodway for individual reaches of watercourses.

The floodway limits will encompass all of the following areas and will be based on whichever criterion results in the greatest area:

- (a) Areas where the depth of flooding exceeds 0.8 metres under 1:100 year flood conditions on the watercourse, or where the calculated velocity exceeds 1.7 m/sec.
- (b) Areas identified as being necessary to accommodate future maintenance, channel enlargements and related easements.
- (c) The area within the average or typical floodway width established for a particular reach of a watercourse, using the criteria in items (a) and b). This floodway width will be maintained throughout the reach regardless of other criteria.
- (d) The narrowest width in the 1:100 year floodplain in a given reach will also be maintained as the minimum width of the floodway in that reach. The existing narrow restrictions in the 100 year floodplain will also be the boundaries of the reaches.

Where all of the above criteria have been satisfied, a minimum horizontal setback of 8 metres plus the depth of the watercourse to a maximum of 15 metres shall generally apply, as described in

Section A.3.1(a)(ii), in the absence of adequate site specific engineering studies.

A.3.4.1.1 Permitted Activities in Floodway:

The following development projects and land use activities may be permitted within the floodway of a watercourse.

- (a) Open space uses not requiring a closed building such as agricultural cropland, livestock feeding and grazing, or open type public or private recreation areas.
- (b) The type of development or land uses that are normally associated with areas susceptible to flooding such as flood and erosion control structures, including berms and dykes; and buildings and structures essential to marine activities provided that such works do not significantly restrict the passage of flood waters or adversely redirect flows, and provided that any new or disturbed fill material is adequately protected or retained, in the opinion of the Authority, to prevent it from eroding into the watercourse.
- (c) Storage yards, seasonal trailer parks (excluding house trailers), parking areas for equipment, vehicles and materials, provided they are properly anchored to prevent their transportation downstream during flood conditions into bridges or other debris-catching areas, or removable within the limited time available after a flood warning or not subject to major damage by floods. No storage of explosive pollutant, bouyant, corrosive, or flammable liquid materials which may be dangerous shall be permitted.
- (d) Railroads, streets, bridges, and public services and pipelines of approved hydrological design.

- (e) Excavation of materials providing that the stock piling of materials, products, or over-burden will not restrict the passage of flood waters.
- (f) Fences, walls or other appurtenances, provided they would not constitute an obstruction or debris-catching obstacle to the passage of flood waters.
- (g) Landscaping, provided that the capacity of the floodplain to contain flood flows is not diminished.
- (h) The maintenance and repair of an existing building if damaged to the extent of less than fifty percent of the appraised value of the structure. If the building has been damaged or destroyed by fire or other natural disasters to the extent of fifty percent or more of the appraised value of the structure, repair or reconstruction may be permitted;
 - (i) Provided that it is reconstructed to withstand Regional Storm Flood conditions or the shoreline Regulatory Flood Levels, whichever are the greatest.
 - (ii) Provided that the usable floor area is not significantly increased in the opinion of the Authority, and
 - (iii) Provided the use remains the same or becomes a use less affected by flooding.
- (i) Minor additions, expansions and accessory buildings with a floor area less than 100 square feet (9.29 square metres).
- (j) Stormwater drainage works such as open channels or pipe outlets, provided such works are designed or certified by a qualified engineer so as not to increase flows which would adversely affect flooding conditions, considering the cumulative effects of all similar future works in the watershed.

A.3.4.2 Flood Fringe of Watercourses and Floodplain of Great Lakes

The following development projects and land use activities may be permitted within the flood fringe of a watercourse or the floodplain of Lake Erie, Lake St. Clair and Detroit River (i.e. any floodprone area outside a watercourse floodway).

- (a) Any development and use permitted in a watercourse floodway per section A.3.4.1.
- (b) New buildings or structures, including additions which would not be permitted in the floodway, provided that the following minimum criteria are met:
 - (1) The entire new structure, including the foundation, footings and slab on grade, walls and other appurtenances, must be designed and constructed to withstand regulatory flood levels, including hydrostatic pressures of an elevated water table and the momentum of flood flows and to provide access during a flood. Normally this will require the lowest structural opening, and the finished grade for a minimum horizontal distance of 2 metres around all outside walls, to be above the Regulatory Flood Level. Regulatory flood levels are defined as the greater of:

A - 100 year or maximum observed flood level plus a freeboard of 0.3 metres in watercourses and lakeshore floodplains not subject to direct wave attack. (In areas subject to flooding from both watercourses and lakes, the higher of the two flood levels shall govern.)

OR

B - In lakeshore areas subject to direct wave attack, the regulatory flood level will be the 1:100 year or maximum observed wave run-up elevation as calculated for the specific site conditions. In the absence of site specific engineering data, as a rule of thumb, a 0.3 metre free board above the 1:100 year beach run-up level will be used.

- (ii) Buildings or structures, or other uses normally permitted in the floodway, must be constructed with the first floor above grade being above the regulatory flood levels.
- (iii) Driveways, walkways and local roadways essential to ingress and egress, should be 0.15 metres above the 1:100 year monthly mean water level, or 0.3 metres below the regulatory flood level, whichever is greater.
- (iv) All electrical equipment, circuits and installed electrical appliances shall be located so as not to be subject to flooding, or shall be floodproofed to prevent damage resulting from inundation by the regulatory flood levels.
- (v) Stormwater drainage works servicing the new structures must be designed or certified by a qualified engineer such that there shall be no adverse effects on flooding conditions downstream due to increased flows from the development, accounting for the cumulative effect of all potential similar

- future land developments and associated drainage works in the watershed, for flows up to the 1:100 year event.
- (c) Chemical storage, explosive, bouyant, corrosive or flammable liquid storage, provided it is adequately floodproofed to prevent flotation of tanks or other damage or escape into the flood waters of any materials.
 - (d) Placement of fill provided such placement does not restrict the passage of flood waters or adversely redirect flows in the opinion of the Authority and provided that the fill is adequately retained or protected, in the opinion of the Authority, to prevent it from eroding into the watercourse of lake.
 - (e) Institutional buildings, servicing the sick, elderly, young or disabled (e.g. schools, hospitals), or essential public services (e.g. police, fire, ambulance) provided these meet the requirements listed under item (b), and the additional requirement that "dry" routes must be provided for ingress and egress (i.e. above regulatory flood levels).

A.3.4.3 Special Policy Areas

It is acknowledged that the strict application of the guidelines for areas susceptible to flooding may not always be feasible. This policy and guidelines document, therefore, makes provision for "Special Policy" status to those areas where it is deemed appropriate in the public interest, by the municipalities, Conservation Authority and the province, to assume a higher degree of flood risk than that which would normally be acceptable under the approved Provincial Cabinet policy on Floodplain Management, or if the threat can be overcome or reduced.

As an example, areas which are protected by dykes may be considered as potential "Special Policy Areas" if it is deemed appropriate to provide a lower level of flood protection than would be required without the dykes. Another example might be where it is deemed appropriate to allow infilling in an existing developed area within a floodway.

The designation of any areas as a "Special Policy Area" shall be requested by the affected municipality and approved by the Executive Committee of the Authority in consultation with the Authority member(s) from the municipality concerned, as part of the approval process established by the Ministry of Natural Resources and Ministry of Municipal Affairs.

Where a request for "Special Policy Area" consideration is received by the Authority, alternative solutions to the flooding problem shall be examined which could result in reduction or elimination of the need for the "Special Policy Area" during the "Special Policy Area" negotiations.

Each area proposed for "Special Policy Area" status will be considered on an individual basis. Specific guidelines for each "Special Policy Area" will be detailed in accompanying schedules as they are developed.