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MANAGEMENT OF HIGH RISK EROSION AREAS ALONG MICHIGAN'S GREAT LAKES SHORELINES

This pamphlet is intended to explain, in a straightforward manner, the high-risk erosion features of Michigan's 1970 Shorelands Protection and Management Act. (Act 245, Public Acts of 1970)

I. BACKGROUND

High water levels on the Great Lakes in the early 1950's caused millions of dollars in damages to Michigan's shorelands. During subsequent low water years many homes were built close to the edge of the Lakes. When high lake levels began returning in the late 1960's damage to homes and other structures again increased. Since 1969 over 60 residences have been destroyed and another 800 are in immediate danger of destruction or severe damage. And damage is again in the many millions of dollars. It is for these reasons that legislative action became necessary.

In 1970, the Michigan Legislature passed Act 245, The Shorelands Protection and Management Act, to provide planning and action for the wise use of Michigan's shorelands.

II. THE PURPOSE OF THE ACT

Department of Natural Resources . . . "shall determine if the use of a high risk area shall be regulated to prevent property loss . . ." (Section 5 of Act 245).

"The director shall designate a high risk erosion area upon his finding that erosion is causing or is likely to cause damage or destruction to permanent buildings or structures . . ." "Upon designation of a high risk erosion area, the director shall also set forth recommended shoreland use restrictions based upon a 30-year period of life of a permanent building or structure . . ." (Rules of Act 245)

The erosion portion of the Act was adopted in large measure to prevent future damage to permanent residential, commercial and industrial buildings that may be built in the future in high risk erosion areas of the

Great Lakes shoreline. The program developed under authority of the Act recognizes shore erosion as a powerful, continuous, natural process which is extremely difficult and costly to control. The aim is to prevent damage to buildings, including septic systems and tile fields, for a 30 year period after their construction by requiring a setback distance from the bluff. Presently developed or platted property is not affected because the previous legal status of these properties cannot be altered under Act 245. Only undeveloped, unplatted property in areas designated as having significant erosion are affected. The portion of the law pertaining to high risk erosion areas has regulatory powers over approximately 10% of Michigan's Great Lake shoreline.

Pursuant to Sections 7, 8 and 9 of Act 245 local units of government . . . "may zone any shoreland and land to be zoned" . . . under its jurisdiction.

"An existing zoning ordinance or a zoning ordinance or a modification or amendment thereto which regulates a high risk erosion area . . . shall be submitted to the department for approval or disapproval." "The department shall determine if the ordinance . . . adequately prevents property damage to a high risk area." (Section 10 of Act 245)

Another primary purpose of this legislation is to provide a county, township, city or village with specific authority to enact zoning regulations. However, if zoning is not enacted by July 1, 1975 the Department of Natural Resources, by statute, must institute a permit procedure for approving building setbacks in all undeveloped, unplatted high risk erosion areas. The permit procedure will be in effect only until a zoning ordinance is approved.

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III. PROVISIONS OF THE ACT AND THE RULES REGARDING HIGH RISK EROSION AREAS

Act 245 and its Rules directs the Department of Natural Resources in part, to:

1. ". . . make or cause to be made an engineering study of the shorelands to determine (a) the high risk areas and (b) the areas of the shorelands which are platted or have buildings or structures and which require protection from erosion."

2. "The commission, in order to regulate the uses and development of high risk areas, . . . and to implement the purposes of this act, shall promulgate rules . . ."

The above citings are the provisions of the Act which give authority to make rules to prevent damage to structures which may in the future be built and which require the Department of Natural Resources to conduct a shoreland survey.

IV. WHAT LOCAL AND STATE ACTIONS ARE TO BE TAKEN

The Department of Natural Resources has determined three possible means of protecting structures from erosion. These are:

1. A setback distance from the bluffline sufficient to provide 30 years of protection. (The bluffline is defined as the edge or crest of the elevated segment of the shoreline above the beach or beach terrace which may be subjected to wave attack and normally presents a precipitous front and inclines steeply on the water side. Exception: Dunal terraces which accrete and erode depending on water level conditions on the Great Lakes would not normally be considered as permanent bluffline.)
2. Construction of moveable buildings including septic systems.
3. Protective works such as the installation of approved shore erosion control devices (groins, seawalls, revetments, etc.)

It should be noted that alternative 3 is likely to be the most expensive. Whichever alternative is used, the Rules of the Act require that the structures be protected for a 30 year period. The property owner for the protection of his property must provide assurance that the installation of a protective work will provide the same degree of protection as a setback. The local unit of government has the opportunity to exercise its responsibility through adoption of a zoning ordinance which makes use of these alternatives. The local units of government may zone all those lands which are designated

as high risk erosion areas or it may zone only the lands designated as high risk erosion areas which are undeveloped and unplatted. It is also possible for the local unit of government to zone a setback on all shoreland under its jurisdiction using zoning authority other than that contained in Act 245. Regardless of the zoning authority used, the Department will approve the zoning if it provides 30 years of protection in high risk erosion areas. Section 10 of Act 245 requires that all zoning ordinances which regulate a high risk area be submitted to the Department of Natural Resources which shall determine if the ordinance is adequate to meet statutory requirements. When approved, the local zoning ordinance will take effect. If an ordinance is not approved it shall not have force or effect until appropriately modified.

Within 30 days after a zoning ordinance or amendment has been submitted by a local governmental agency, the director shall notify the local governmental agency in writing of approval or disapproval. In case of disapproval the reasons will be stated.

A local governmental agency which contests the disapproval of its zoning ordinance or amendments will be given a hearing if it petitions within 30 days of the disapproval.

"In the absence of an approved zoning ordinance . . . and after July 1, 1975, any person or local governmental agency proposing a new shoreland use within a high risk area . . . shall submit to the director for his approval, a site plan for the proposed shoreland use." (Rules of Act 245)

If there is no local zoning control over high risk erosion areas after July 1, 1975; the Department must establish a permit system. Under such a permit system, building site-plans will be reviewed and approved or disapproved on an individual basis by the Department. The state's criteria to provide 30 years of protection applies to the approval of a building site plan and is the same criteria used to approve a local zoning ordinance. However, the state permit system will only affect undeveloped, unplatted high risk areas,

while a zoning ordinance may affect all high risk property. The site-plan which is submitted to the state for approval must contain the location of the proposed building, tile fields and septic system in relation to the existing bluff line. In lieu of using this state permit system, local governmental units are urged to develop local zoning ordinances. At any time after July 1, 1975 a local governmental unit may adopt zoning and upon DNR approval of the zoning, the permit system requirement will be dropped and the ordinance will take effect.

V. HOW HIGH RISK EROSION AREAS ARE DETERMINED

Trained Department personnel have walked the shoreline, taking notes and photographs. The investigator considers each of the items on the field survey checklist and classifies the shoreline accordingly.

Field Survey Checklist

___Vegetation removed

___Narrow Beach

___Flat beach (slope)

___Bank slumping

___Turbidity of adjacent water

___Damaged erosion control structure

___Damaged land structures

___Protective works present

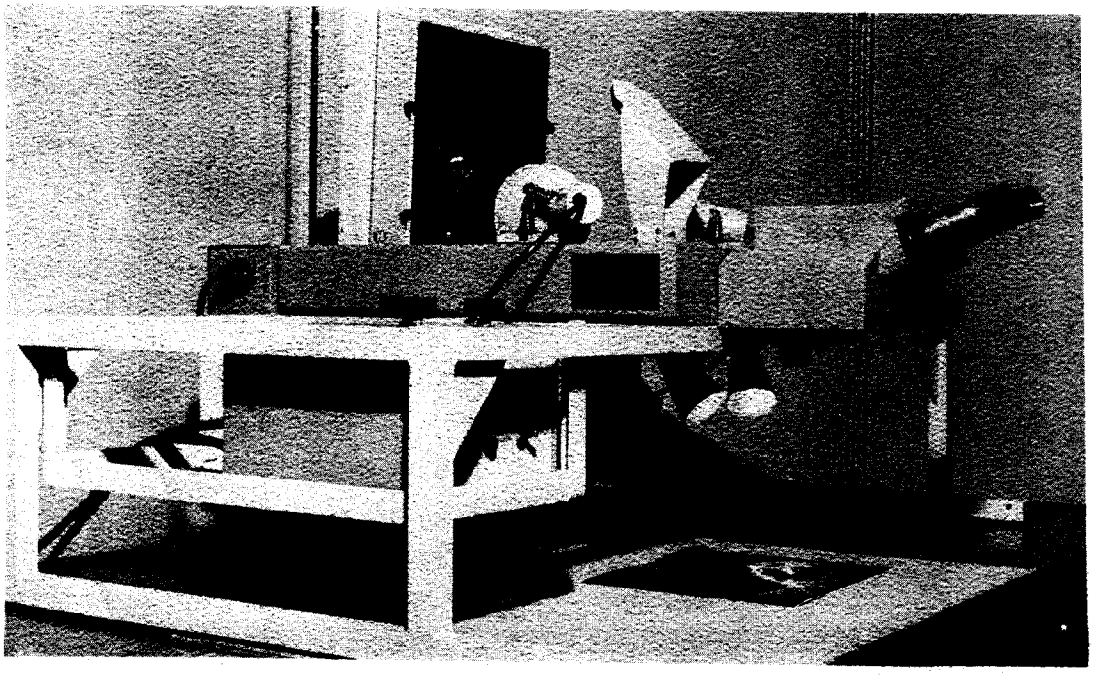
___Unusual angle of repose

These surveys have been conducted on at least two and in some areas four occasions between 1971 and 1974 to continuously update the information. The field surveys were conducted to determine which areas have serious erosion. Any length of shoreline bluff that is receding at a long term rate of one foot or more per year is considered to have significant erosion and is classified as a high risk erosion area. Unfortunately, when an investigator

views the shore during the field survey he cannot directly determine the recession of the bluffline. The investigator must deduce how severe the erosion is from the physical evidence present. The conclusion may be subjective to the degree that the investigator misinterprets the evidence or that the evidence is not strongly linked to actual recession. The information gathered in the field is only preliminary until recession rates confirm the high risk designation. For this reason the Department stands ready and willing to review any high risk erosion area at the property owner's request.

VI. HOW RECESSION RATES ARE DETERMINED

Bluff recession is determined by using aerial photographs of the shoreline from two different time periods and noting the movement of the bluffline. Calculations are then made to determine the average annual recession rate. Two different photogrammetric methods are used. First, the Zoom Transfer Scope pictured below measures changes in the bluffline by superimposing two images.



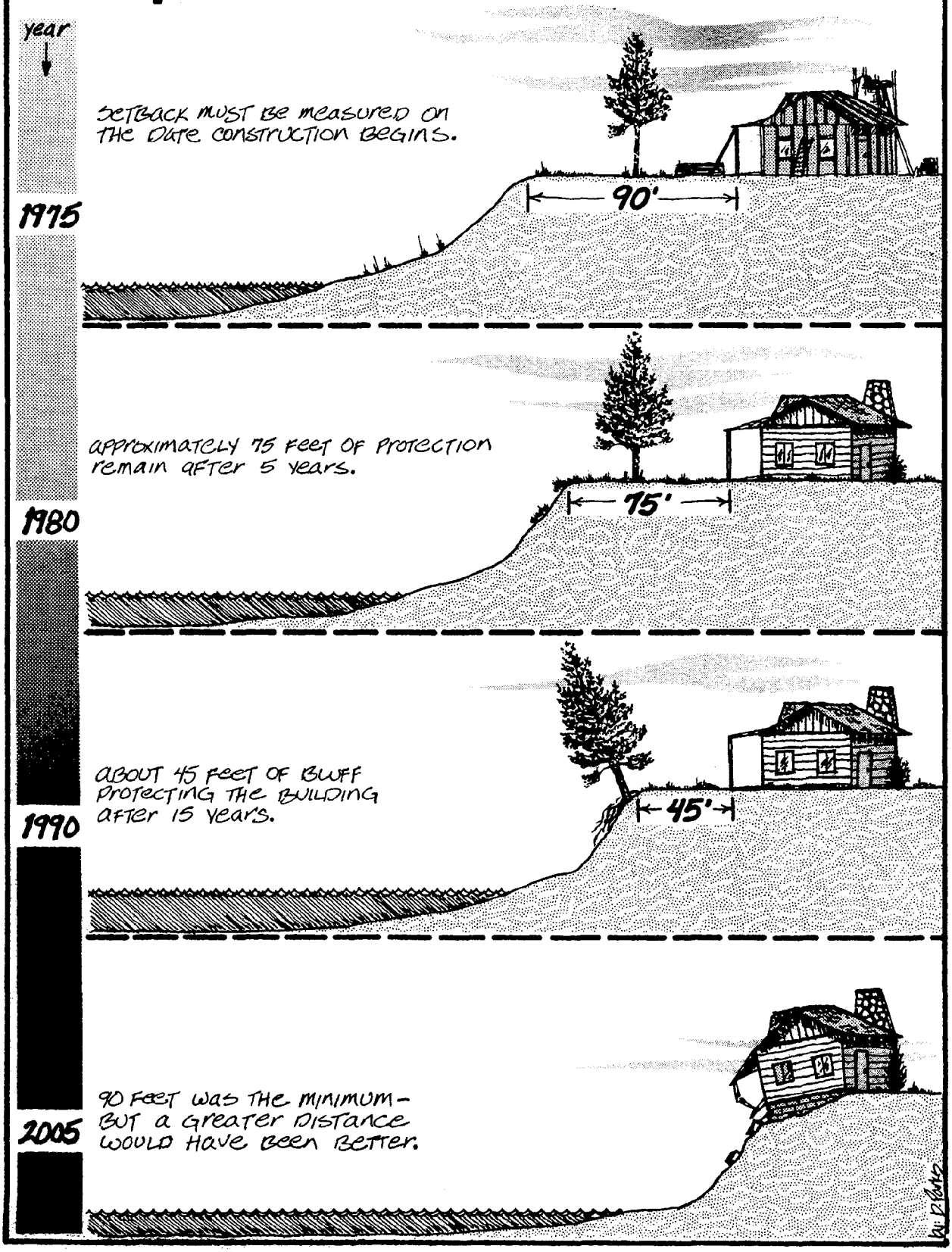
Secondly, stereoscopic examination allows more accurate bluff detection for certain areas. In addition, some recession rates have been determined from field surveys. The average annual recession rate is determined for the last 35 years, taking into consideration both high and low water levels. This is used as the best indicator of future erosion. It is important to note that if lake levels remain at or near the levels of the past 3 or 4 years, erosion will continue to be severe and recession rates will be much higher than the long term averages.

VII. HOW THE SETBACK IS DETERMINED

Building setback is determined from the average annual recession rates. The Rules of the Shorelands Protection and Management Act have established a 30 year economic life span for buildings. The average annual recession rate of the bluff is multiplied by 30 to give the setback distance from the bluffline. For example, an area with an average annual recession rate of three feet per year would require a ninety foot setback from the bluff edge. Tile fields and septic systems, as well as the building, must adhere to the setback.

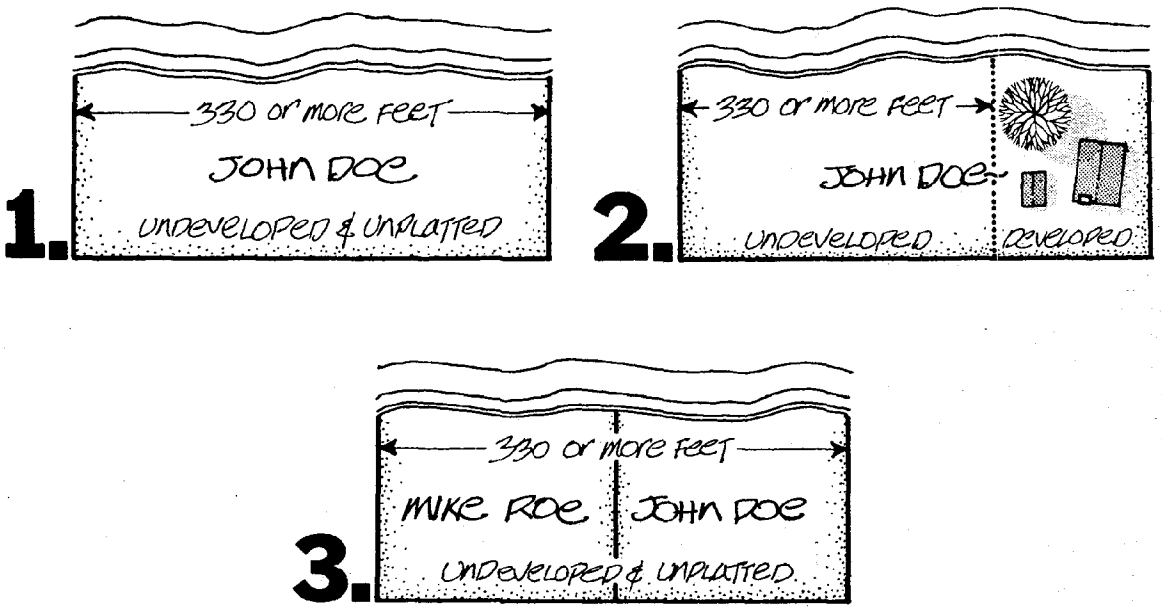
The following illustration shows what is expected to occur if the long term recession rate continues to be the same as has been determined and a structure is built back the minimum setback distance the law requires. Assume the bluff recession rate is three feet per year. When construction is begun the building must be ninety feet from the bluff.

example: bluff recession...



VIII. HOW PROPERTY IS DETERMINED TO BE UNDEVELOPED AND UNPLATTED

Property which comes under the authority of the Act is any continuous high risk shoreline frontage of 330 feet or more in length which is not part of a recorded plat nor developed with permanent structures. This property, however, can be in multiple ownership. The following are examples of property in high risk areas which come under the authority of the Act:



The reasoning behind the 330 foot length of shoreline originates in the fact that a common sized parcel of 40 acres cannot be equally divided into a smaller dimension without coming under the jurisdiction of the Subdivision Control Act of 1967. Since the vast majority of property less than 330 feet in length will, in all probability, be either platted or developed, the Department chose this length as the minimum that will come under the authority of the Shorelands Act.

IX. HOW TO CONTEST A HIGH RISK DESIGNATION

Property owners are able to formally contest the high risk designation

simply by writing a letter to the Director of the Department of Natural Resources within 8 weeks of high risk notification. A hearing will then be held within 8 weeks of receipt of the letter. The director will appoint a hearings officer who will hear the evidence, prepare a record of the proceedings of the hearing and make a "proposal for decision". The proceedings of the hearing and the proposal for decision are then forwarded to the Natural Resources Commission. The Commission may reach a decision on the Hearings Officer's recommendation or they may hold additional hearings prior to reaching a decision. If the contestor wishes to carry his case further, he has 30 days after the Commission's final determination to petition the Michigan Circuit Court for their judgement.

X. SUMMARY

In summary the following points should be emphasized:

1. The state permit system will only affect undeveloped, unplatted high risk erosion shoreline.
2. An approved zoning ordinance will eliminate the need for a state permit procedure and may be enacted at any time.
3. The only Department requirement that must be met in the high risk erosion area affected by Act 245 is a building setback or other protection. The particular kind of use of the property is matter between the property owner and the local government.
4. This legislation does not prohibit the use of high risk property.
5. No action is necessary on the part of the property owner if the owner agrees with the high risk designation and is not intending to build on the property.
6. The Department is willing to review the designation of any property at the owner's request.

7. If, after reading this publication, you have further questions please write or call the Water Development Services Division, 8th Floor, Stevens T. Mason Building, Lansing, Michigan 48926 (517/373-1950).

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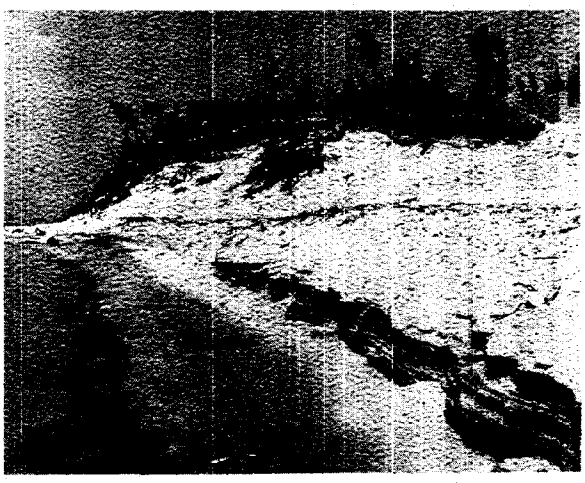

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