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HARBOR BEACH HARBOR DREDGING AND DREDGED MATERIAL DISPOSAL, HUR--ETC(U)
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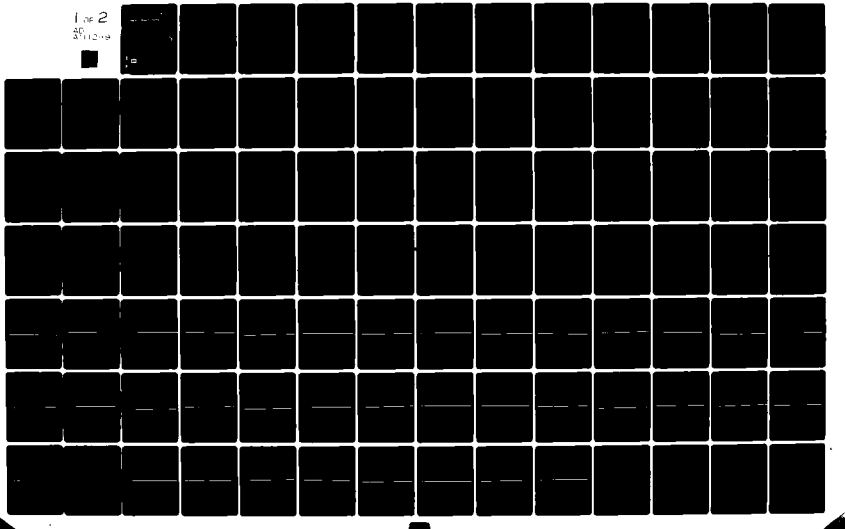


Final Environmental Impact Statement

12

Harbor Beach Harbor

Dredging & Dredged Material Disposal
Huron County, Michigan

The Detroit Edison Company Permit Application
and Corps of Engineers' Maintenance Operations

December 1981

US Army Corps
of Engineers
Detroit District

FINAL ENVIRONMENTAL IMPACT STATEMENT

DREDGING & DREDGED MATERIAL DISPOSAL

HARBOR BEACH HARBOR, HURON COUNTY, MICHIGAN

THE DETROIT EDISON COMPANY PERMIT APPLICATION (Process No. 792253C)
AND CORPS OF ENGINEERS' MAINTENANCE OPERATIONS

Prepared by:
U.S. ARMY ENGINEER DISTRICT
Detroit, Michigan
December 1981

SUMMARY

DREDGING AND DREDGED MATERIAL DISPOSAL
HARBOR BEACH HARBOR, HURON COUNTY, MICHIGAN

THE DETROIT EDISON COMPANY
AND THE CORPS OF ENGINEERS

( ) Draft (X) Final Environmental Impact Statement

Responsible Office: U.S. Army Engineer District, Detroit
P.O. Box 1027
Detroit, Michigan 48231
For Further Information Contact: Dan Allega
313-226-6237

1. Name of Action: (X) Administrative ( ) Legislative

2. Description of Action: The proposed action consists of dredging and dredged material disposal operations for Harbor Beach Harbor, Harbor Beach, Michigan. Detroit Edison Company has applied for a Department of Army Section 10 and Section 404 permit to perform maintenance dredging in Lake Huron offshore of the Harbor Beach Power Plant. In addition, the U.S. Army Corps of Engineers proposes to perform maintenance dredging of the Federal Navigation Channels at Harbor Beach Harbor. All dredged material would be placed into an open water disposal site located in Lake Huron approximately 3 miles easterly from the harbor entrance.

Sediments have accumulated offshore of the power plant wharf and in the Federal Navigation Channels. As a result of these accumulations, vessels delivering coal to the power plant have been forced to carry reduced loads and to make more frequent deliveries under adverse safety conditions. The purpose of Detroit Edison's project activities is to provide adequate depths near the plant's coal dock for coal-delivering vessels. The Corps of Engineers proposes to dredge the Federal channels to facilitate use of the harbor by these vessels. The Corps also seeks to maintain authorized depths so that the harbor may be used as a harbor of refuge by commercial and recreational water craft.

The open water disposal method for dredged material was discussed as an alternative in the Draft Environmental Impact Statement. It was originally proposed to place the harbor dredgings in a confined disposal facility that was to be constructed by Detroit Edison in Rubicon Township, Huron County, Michigan. Based on recent sediment tests and on a reexamination of alternatives, open water disposal is now believed to be the least

environmentally damaging method of dredged material disposal for Harbor Beach Harbor sediments.

3.a. Beneficial Impacts: Beneficial impacts of the proposed project would be realized through improved harbor draft depths that would insure safe and economical delivery of coal to the Harbor Beach Power Plant which serves electricity needs in Michigan. Maintenance of authorized depths in the Federal Navigation Channels would allow continued use of the harbor as a harbor of refuge during times of storm.

b. Adverse Environmental Impacts: The dredging and disposal operations would cause temporary conditions of water cloudiness (turbidity) in the harbor area and at the open water disposal site. Some bottom-dwelling aquatic organisms would be removed as a result of the dredging, and others may be smothered as a result of the dredged material disposal. Overall effects on water quality and to the aquatic ecosystem are expected to be minor. Suspended dredged material and the operation of the dredging equipment would have temporary adverse effects on the aesthetics of the harbor area.

4. Alternatives to the Proposed Action:

a. Confined disposal of dredged material (diked disposal).

b. Artificial habitat creation with dredged material.

c. Placement of dredged material on agricultural lands for soil improvement.

d. Alternative dredging methods.

e. No action.

5. Comments: Federal, State and local agencies, organized groups, and individuals were furnished copies of the Draft Environmental Impact Statement (DEIS). Comments received on the DEIS are included in the Final Environmental Impact Statement (FEIS) in Section 5.

6. DEIS to U.S. Environmental Protection Agency: 9 Jan 81.
DEIS noticed in the Federal Register: 23 Jan 81.
FEIS to U.S. Environmental Protection Agency. 14 DEC 81

PREFACE

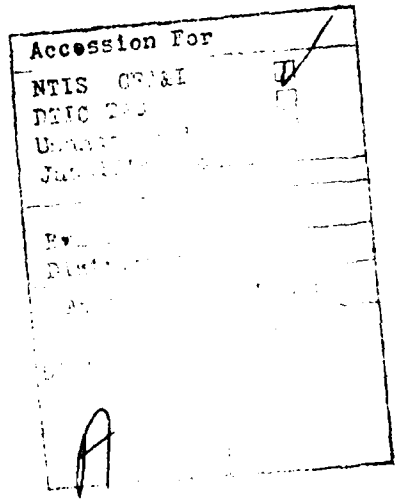
Technical data that was contained in the appendix of the Draft Environmental Impact Statement (DEIS) has not been included in the Final Environmental Impact Statement (FEIS). Also, some of the detailed environmental inventory and analysis data that was presented in the text of the DEIS to address the originally proposed disposal site in Rubicon Township (Huron County, Michigan) has been summarized in the FEIS. Readers should refer to the DEIS to obtain this supplemental information. Copies of the DEIS are available from the Detroit District Office of the Corps of Engineers, P.O. Box 1027, Detroit, Michigan 48231.

The following Detroit Edison Company reports were utilized in the preparation of the FEIS in order to provide information regarding open water disposal and the feasibility of other alternatives for dredged material disposal:

"Supplemental Information, Proposed Harbor Dredging and Dredged Material Disposal at Harbor Beach, Michigan". Architectural/Civil Engineering Division, Detroit Edison Company (June 1981).

"Characterization of Lake Huron Bottom for Disposal of Dredged Material from Harbor Beach Channel." Detroit Edison Company (July 1981).

These reports are on file and can be reviewed at the Detroit District Office of the Corps of Engineers, 477 Michigan Avenue, Detroit, Michigan.



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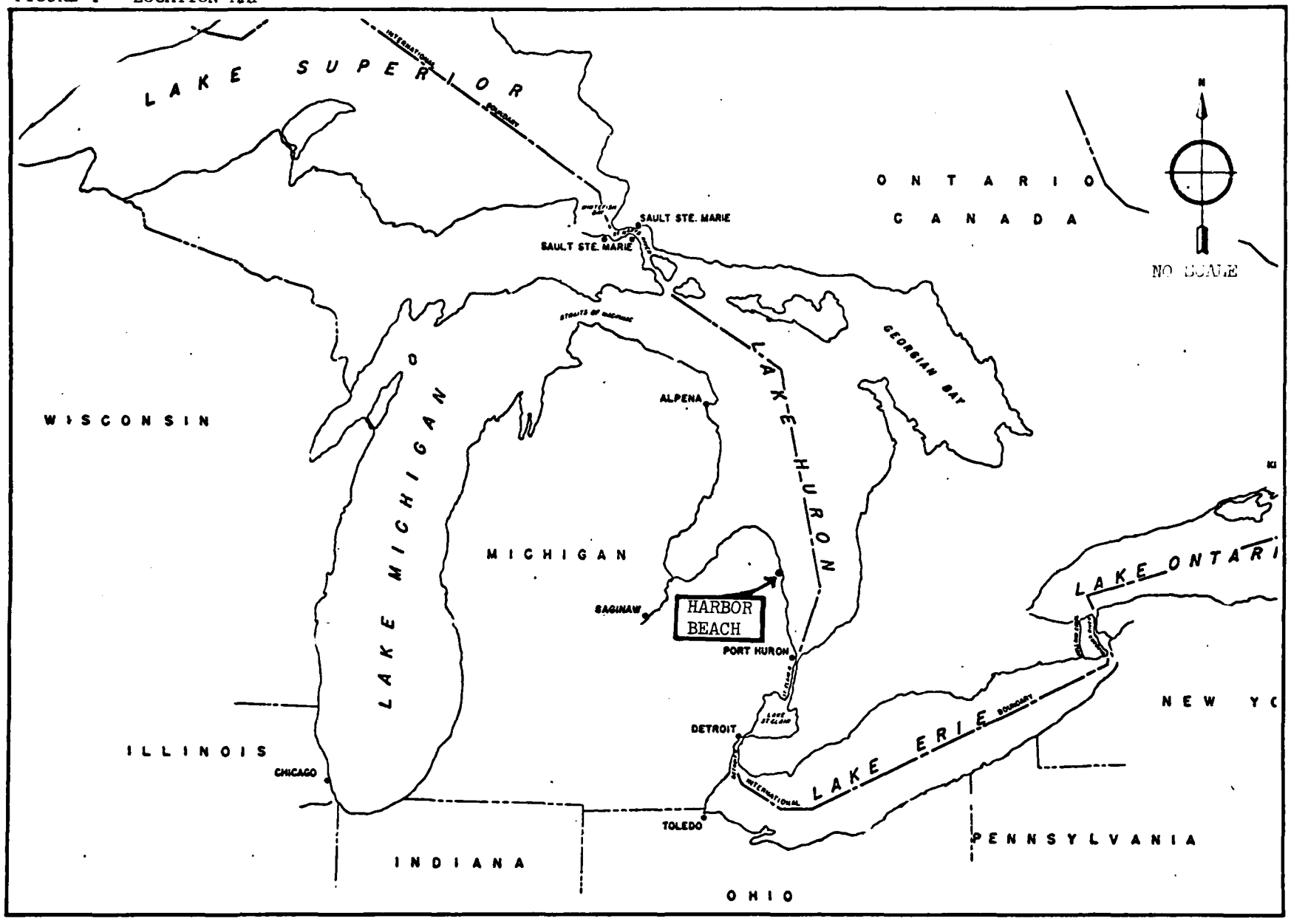


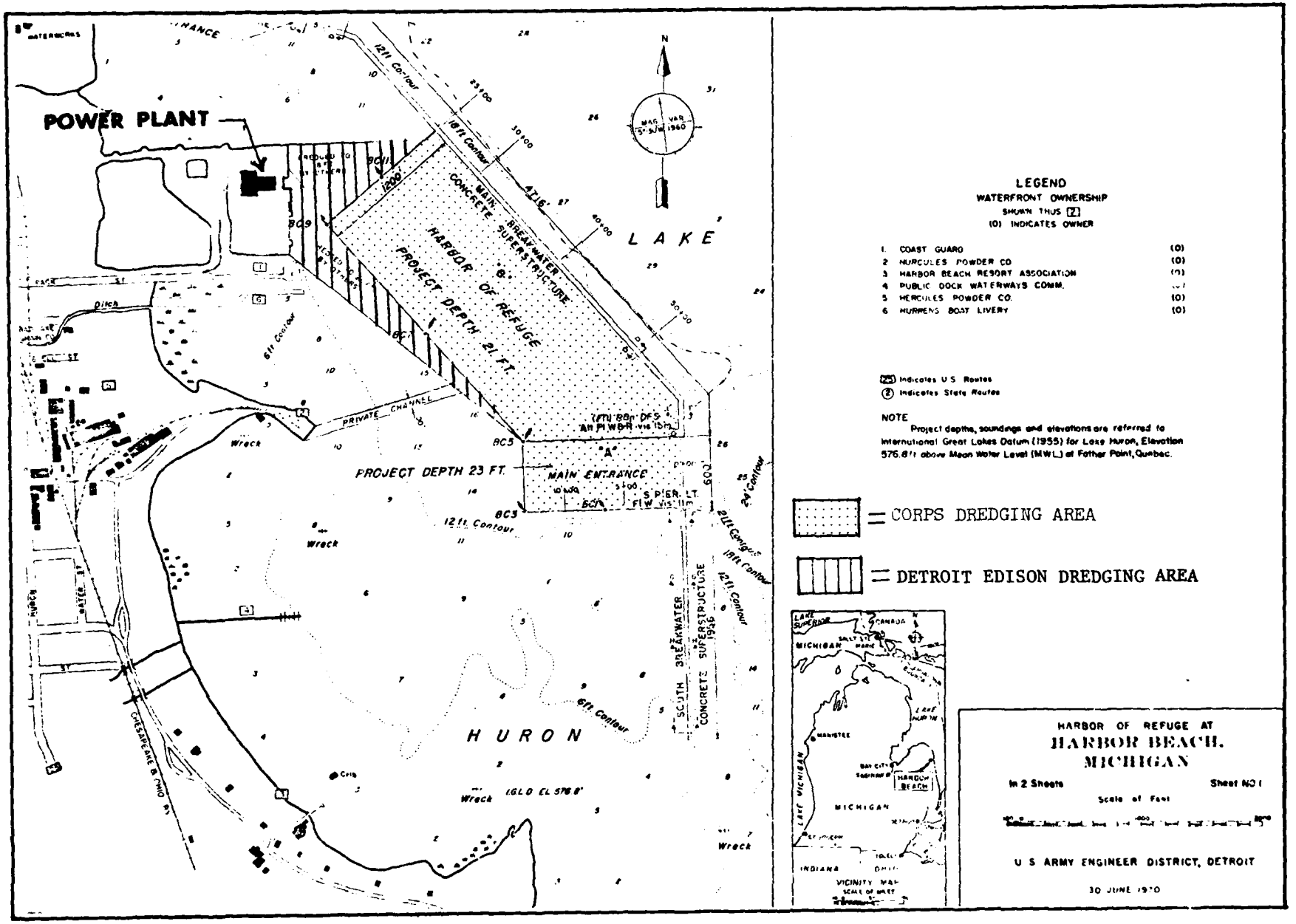


FIGURE 2 - DREDGING AREAS

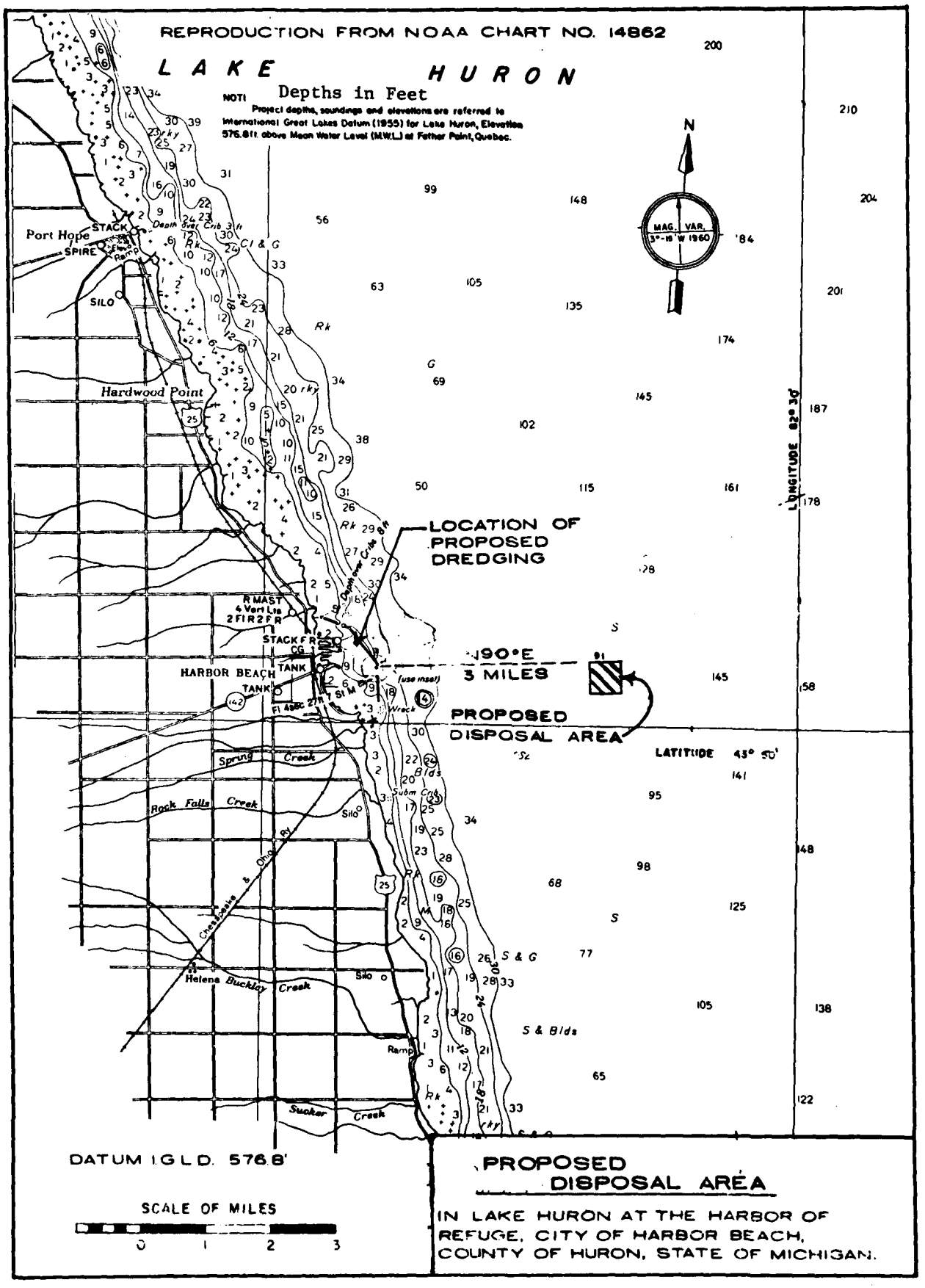


Figure 3 - PROPOSED DISPOSAL AREA

1. PURPOSE AND NEED FOR THE PROPOSED PROJECT

A. Purposes of the Project

1.01 The proposed project consists of dredging and dredged material disposal operations for Harbor Beach Harbor, Harbor Beach, Michigan. Sediments have accumulated offshore of the power plant wharf and in the Federal Navigation Channels. As a result of these accumulations, vessels delivering coal to the power plant have been forced to carry reduced loads and to make more frequent deliveries under adverse safety conditions. The purpose of Detroit Edison's project activities is to provide adequate depths near the plant's coal dock for coal-delivering vessels. The Corps of Engineers proposes to dredge the Federal channels to facilitate use of the harbor for these vessels. The Corps also seeks to maintain authorized depths so that the harbor may be used as a harbor of refuge by commercial and recreational water craft.

1.02 The open water disposal method for dredged material was discussed as an alternative in the Draft Environmental Impact Statement. It was originally proposed to dispose of the harbor dredgings (including dredgings from the Federal Navigation Channels) in a confined disposal facility that was to be constructed by Detroit Edison in Rubicon Township, Huron County, Michigan. Based on recent sediment tests and on a reexamination of alternatives, open water disposal is now believed to be the least environmentally damaging method of dredged material disposal for Harbor Beach Harbor sediments.

B. Historical Background

1.03 The Detroit Edison Company serves an area of about 7,600 square miles in Southeastern Michigan. Its customers exceed 1.6 million, and the population served is about 5.0 million. The Harbor Beach Power Plant was constructed in the mid-60's and placed in service in 1967 to enhance a stable and reliable electrical service to the highly agricultural areas of Huron, Sanilac, Tuscola and Lapeer Counties, which collectively comprise the Thumb Area of Michigan. This plant is a coal-fired plant consuming in excess of 260,000 tons of coal annually. The plant relies solely on marine vessel delivery of its coal supplies. These supplies are delivered each year during the regular shipping season, which is curtailed by winter ice conditions. The power plant is a winter peak plant, and its operation requires stockpiling in excess of 125,000 tons of coal on site prior to the end of each shipping season. Without such coal reserves, the plant would be incapable of continous generation throughout the winter months.

1.04 In the past few years, the Detroit Edison Company has had to resort to half loading all vessels bound for Harbor Beach due to the shallow depths within the harbor. Such practice substantially increases the cost of transporting coal to the plant and also restricts the maneuverability of these vessels and thereby hampers the ship's ability to safely navigate while in the harbor. If siltation continues within the harbor and/or lake levels decline in the coming years, the Harbor Beach Power Plant would be

incapable of providing reliable service to the Thumb Area of Michigan because of the shallow-draft limitations placed on coal shipments.

1.05 The Harbor Beach Power Plant is located within Harbor Beach Harbor on Lake Huron in Huron County, Michigan. This harbor was originally designed as a "harbor of refuge" for commercial vessels. The harbor is formed by stone-filled, timber crib and concrete capped breakwaters which parallel the shoreline at the southern end and angle toward the shore at the northern end. The U.S. Army Corps of Engineers constructed the harbor breakwater structures and is authorized to maintain a 21-foot depth for navigation in the area of the harbor designated as a Federal Project. Harbor depths outside of the Federal Project near the Power Plant are maintained by the Detroit Edison Company. Figure 2 shows the locations of the Federal Project and the access area maintained by Detroit Edison.

1.06 The Corps of Engineers did not maintain maximum project depths at Harbor Beach Harbor for many years since no demand existed. With completion of the Detroit Edison plant, it became necessary to plan for restoration of project depths. Condition surveys and computations in 1965 indicated about 880,000 cubic yards of material above established grade in the Federal project area. Considering only the harbor entrance and the westerly 600 feet of the inner basin, an amount of 474,000 cubic yards were above project depth, including one foot of overdraft. This smaller area was dredged by the Government dipper dredge GAILLARD in 1967, resulting in the removal of 192,500 cubic yards. Limitations of funds, loose sediment conditions, and dredge time availability precluded removing all of the above grade material. The excavated material was loaded in scows and dumped in nearby deep water in Lake Huron. The designated open water disposal area was located approximately 1-1/4 miles East 90° from the north breakwater light. In the same year, under permit, the Detroit Edison Company dredged an access area to their dock removing 399,847 cubic yards of material and dumped in the same deepwater disposal area.

1.07 Much of the dredging area maintained by Detroit Edison and the Federal project area "silted-in" to nearly its present level in approximately 6-8 years following the 1967 dredging. Thereafter, the rate of filling has slowed. Although the ship channel in the harbor filled in with sediment to an average depth of only 14.5 feet below Low Water Datum during the 6-8 years following the 1967 dredging, vessel delivery of coal was still possible through the mid-1970's because of relatively high Lake Huron water levels. Recently lake levels have begun to decline, and have caused vessels transporting coal to the Harbor Beach Power Plant to either off-load a portion of their coal at the Marysville Power Plant, or only carry partial loads from Toledo, in order to enter the harbor. The projected water level for the period 1981 through 1983 indicates a continuing decline in the water level of Lake Huron.

1.08 Coal is presently transported to the Harbor Beach Power Plant by vessels owned by the American Steamship Company and by the Columbia Transportation Division of the Oglebay Norton Company. Both shipowners have requested that action be taken to restore the ship channel to its approved

project depth, and have cited reports by ship captains of difficulties in bringing their ships into the harbor, and in maneuvering therein because of insufficient propeller immersion. If safe delivery capability is to be restored, or even maintained at the current curtailed levels, dredging of the Federal Project area and Detroit Edison's access area is necessary.

C. Need for the Harbor Beach Power Plant

1.09 Detroit Edison's Thumb Division serves the Thumb Area using an essentially square loop, 120 KV subtransmission system. There are four principle inputs that make up the four corners of the system. These inputs are: Hunter Creek Station on the southwest, Lee Station on the southeast, Atlanta Station on the northwest, and Harbor Beach Power Plant on the northeast. Atlanta Station is supplied through an interconnection with Consumers Power Company. The 1979-1980 winter peak demand for the four county area serviced by the Thumb Division was approximately 200 MW (megawatts).

1.10 When in operation, the Harbor Beach Power Plant is a significant source of power for the area. The availability of the Harbor Beach Power Plant, since placed in service, has also nearly eliminated the probability that the Thumb Division would experience a total loss of power. Due to the strategic location of the plant, if it was unable to operate because coal could not be received, the probability of an overload or low voltage condition in the Thumb Division service area would significantly increase. This is because an imbalance in the Thumb Division's stability would be caused by shutdown of the plant. In addition, the overall reliability of the Thumb Area served would be adversely effected, and temporary power reductions or power outages may result.

1.11 There has been no attempt by Detroit Edison to estimate the economic losses which would arise as a result of unexpected interruptions in electrical service to the customers within this four county area. However, depending on seasonal conditions, such losses could be substantial.

1.12 The Harbor Beach Power Plant provides a substantial portion of the tax revenues collected by the City of Harbor Beach. The 1980 property taxes on the Harbor Beach Power Plant are expected to be approximately $460,000 or roughly 40% of the total property tax collected by the City of Harbor Beach. Based on 1979 property tax rates, the total tax revenue dispersements made by the City would be broken down as follows:

Harbor Beach Schools	50%
City of Harbor Beach	38%
Huron County	12%
	100%

As a result of a prolonged reduction in operation or a shutdown of the Harbor Beach Power Plant, it is expected that approximately 50% of the plant's tax liability would be eliminated. Such a reduction would decrease revenues received by the City of Harbor Beach and the Harbor Beach School

System by roughly 20% of current levels based on past tax revenue dispersement trends. Thus, severe cutbacks in City services and educational monies would be expected as a result of the plant shutdown.

1.13 Likewise, the Harbor Beach Power Plant employs 30 support personnel which would be relocated to other Company installations. These employees comprise an annual payroll at the plant of over $600,000. Of this amount, all or a substantial portion of this payroll, and the buying power it represents, would be lost to Harbor Beach.

1.14 To the Detroit Edison Company, a shutdown of the Harbor Beach Power Plant would result in an increase of the Company's fuel costs and capacity charges. These costs are estimated to be approximately $16.0 million annually and would be passed on to Detroit Edison's customers in the form of higher rates.

1.15 Therefore, it is the opinion of the Detroit Edison Company that the loss of generating capacity at the Harbor Beach Power Plant would not only decrease the reliability and stability of the electric service provided to the northern Thumb Area of Michigan, but more importantly have a significant adverse economic effect on the Company's customers, the City of Harbor Beach, the surrounding community, and the Company.

2. PROPOSED ACTION INCLUDING ALTERNATIVES

A. The Proposed Action

2.01 Detroit Edison proposes to dredge the area near the unloading facility and approach area for the Harbor Beach Power Plant. Approximately 325,000 cubic yards of sediment would be removed during the initial dredging operation. In order to maintain a maximum depth of 22.0 feet below Low Water Datum elevation of 576.8 feet on International Great Lakes Datum, Detroit Edison has also requested authority to dredge an average of approximately 32,500 cubic yards of sediment on an annual basis for the next 10 years. The actual frequency of dredging in the years following the initial dredging would depend upon shoaling conditions. After the initial 325,000 cubic yards of sediment are removed, it is anticipated that dredging would only be required at 5 and 10 year intervals.

2.02 The Corps of Engineers proposes to dredge approximately 350,000 to 425,000 cubic yards during the initial dredging operations for the Federal channels. This quantity may vary depending upon shoaling conditions detected in the harbor prior to the actual dredging. The initial maintenance dredging of backlogged material may extend over two or more dredging seasons to accommodate the environmentally preferred dredging periods and funding limitations. Dredging of the Federal channels would also be performed in subsequent years when required. Shoaling throughout the Federal Navigation Channels averages 35,000 cubic yards annually. It is expected that maintenance dredging of the Federal channels would be scheduled one or two times over the next 10 years.

2.03 Bottom sediments in Detroit Edison's dredging area and in the Federal channels were tested in February 1981. Based on sediment test results, and on a reexamination of all the various alternatives for dredged material disposal of Harbor Beach Harbor sediments, it is believed that open water disposal is the most environmentally acceptable in accordance with Section 404(b) guidelines of the Clean Water Act. Therefore, it is proposed that all dredged material be placed into an open water disposal site located in Lake Huron approximately 3 miles from the harbor entrance. The center of this 160 acre disposal area is located at the intersection of 43° 50.81' latitude and 82° 33.73' longitude.

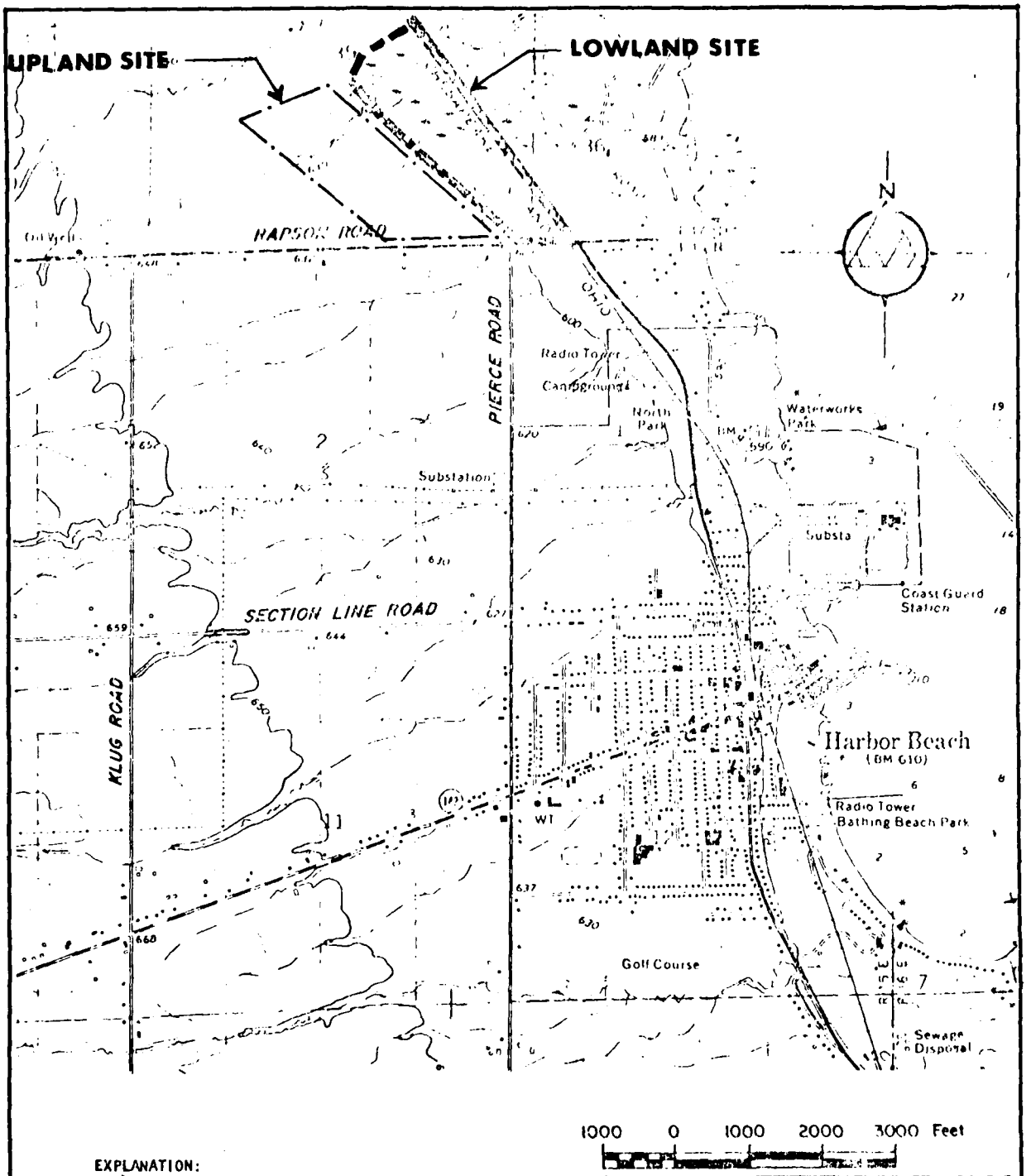
B. Confined Disposal of Dredged Material (Diked Disposal) - Not Selected

2.04 This alternative consists of constructing berms to form a containment facility in which dredged material would be placed. It was originally proposed because the sediments were believed to be unacceptable for open water disposal in Lake Huron. The harbor sediments have been sampled and analyzed since circulation of the DEIS in January of 1981. Preliminary consultation with the Environmental Protection Agency indicates that open water disposal is now a viable proposal. Open water disposal is expected to have less environmentally damaging effects than the other alternatives, including the diked disposal method.

2.05 Detroit Edison had proposed to construct an approximately 65 acre confined disposal facility in Rubicon Township, Huron County, Michigan. The facility was being designed to contain approximately 1,000,000 cubic yards of dredged material. It would have had the capacity for storing 325,000 cubic yards of Detroit Edison's initial dredgings and 325,000 cubic yards of maintenance dredgings from Detroit Edison's dredging area for a 10 year period. Detroit Edison had planned to offer the Corps of Engineers use of the facility to store approximately 350,000 cubic yards of material dredged from the Federal channels.

2.06 In order to locate a site for a confined disposal facility, Detroit Edison Company inventoried and preliminarily assessed its properties in the vicinity of Harbor Beach. Realizing that local residents in this predominantly agricultural area would discourage the usage of farmland for disposal of dredged material, minimizing of the impact on farmlands became a major consideration. Excluding farmland, the only remaining company-owned land is a lowland area. A portion of the lowland area located approximately 1.5 miles north of the harbor in Rubicon Township was selected as the proposed site for the confined disposal facility because it has the following advantages:

a. Close proximity to the harbor,
b. Favorable topography and geology,
c. Company-owned former railroad right-of-way available to serve as a slurry pipeline route from the harbor,
d. Minimal impact on farmland.



EXPLANATION:

Lowland Site Boundary

Upland Site Boundary

BASE MAP REFERENCE:
PORTIONS OF HARBOR BEACH, MICHIGAN AND PORT HOPE, MICHIGAN, 7.5 MINUTE USGS TOPOGRAPHIC QUADRANGLES, 1970.

THE DETROIT EDISON COMPANY

FIGURE 4

FORMERLY PROPOSED
CONFINED DREDGED MATERIAL DISPOSAL SITES
Rubicon Township, Huron County, Mich.

Use of this lowland site was presented in the DEIS as part of the proposed action. The majority of the lowland site is shrub and forested wetland under the Federal definition of wetlands. An upland alternative site adjacent to the lowland site was also examined. The upland site is situated west of the lowland site and is currently being used as farmland.

2.07 Lowland Site in Rubicon Township. The lowland site is bounded on the west by a natural bluff, on the south by Rapson Road, and on the east by State Highway M-25. Private property forms the northern boundary. Utilization of the approximately 65 acre lowland site calls for the excavation of two borrow pits to obtain materials for constructing berms.

2.08 The borrow pits would be excavated approximately 100 feet west of the lowland site. This borrow area comprises approximately 22.5 acres and is in use as farmland. The excavated materials would primarily consist of sandy clays and sandy silts.

2.09 If the lowland site were to be selected for a confined disposal facility, a hopper dredge could be used to hydraulically dredge the harbor area adjacent to the Harbor Beach Power Plant. The hopper dredge uses drag-arm suction units to pull material from the bottom of the harbor and pump it into hoppers aboard the dredge. When the hoppers are filled to capacity, the dredge would move to a designated mooring area and pump the material from the hoppers into a pipeline. The pipeline would then transport the dredged material in a hydraulic slurry to the disposal area. Booster pumps may be required to help transport this dredged material, depending on total length of pipeline. If booster pumps are necessary, they would be located on Detroit Edison property. The pipeline size would be determined by the contractor accomplishing the dredging work for Detroit Edison. From past dredging experiences, a pipe diameter of 16 to 18 inches is believed to be the most practical. It is also possible that a pipeline-cutterhead dredge might be used. This type of dredge would pump the dredged materials and water to the disposal site via a floating pipeline across the harbor and then through the overland pipeline to the disposal facility. Other types of dredges could also be utilized.

2.10 The pipeline route would be located almost entirely on Edison-owned property, including an abandoned railroad right-of-way now owned by Detroit Edison. The only exception is where the pipeline would cross State Highway M-25 and Rapson Road. Culverts or trestles would be provided where necessary so that the pipeline would not impact local vehicular traffic or streams. Minor improvements to the existing docking facilities on Detroit Edison property may be required to provide a pump out station where the dredge could connect to the overland pipeline. These improvements would likely consist of mooring piles and a platform structure.

2.11 During disposal operations and following a settlement period in the containment facility, the transport water would be returned to Lake Huron through an overflow wier at the northern-most end of the disposal facility. The volume of water overflowing the weir could be controlled by adjusting the weir opening levels. Detroit Edison would closely monitor the effluent

leaving the weir, making sure the water is maintained at an acceptable level of quality. Water flowing from the weir would enter Lake Huron via an existing natural drainage channel. Impounded water would be maintained within the proposed confined disposal facility.

2.12 Containment dikes would be constructed at the perimeters of the disposal area ("dikes" as used in this Environmental Statement imply "berm" or "containment barrier"). The dikes would be designed with slopes of two foot horizontal to one foot vertical (2:1). The area immediately underlying the dikes would be cleared of all trees, brush, and other vegetation prior to dike construction. Within the disposal basin itself, trees would be cut to waist-height and brush would not be cleared. An abandoned railroad embankment would be incorporated into the eastern dike to decrease the amount of borrow required. The dike crest would be approximately 12 feet wide and set at an elevation of 605 feet (Mean Sea Level Datum), which would create an average dike height of about 14 feet above the ground surface. Vehicle access would be provided to the dikes from Rapson Road. The flow of an existing intermittent stream at the north end of the proposed disposal area would be redirected around the northern dike.

2.13 Materials for dike construction would be obtained from two borrow pits to be excavated approximately 100 feet west of the proposed disposal area. These materials would primarily consist of sandy clays and sandy silts. To obtain the estimated 145,000 cubic yards of material to construct the dikes would require both borrow pits to be about four to five feet deep. The southern pit would be about 550 x 1,100 feet (plan dimensions) and the northern pit would be about 500 x 750 feet. At the borrow pit locations, the top foot of primarily loamy soil would be stripped and stockpiled along the western edge of the pits. No berm would be constructed around the perimeter of the pits. The possibility exists that these borrow pit areas could later be used for the disposal of fly ash from the Harbor Beach Power Plant. However, no plans for final disposition of the borrow pits have been submitted to the Corps.

Description of the Lowland Site

2.14 This site occupies a physiographically low, often-flooded area which is currently unsuited to agriculture because of seasonal inundation, a condition that may have partially resulted from man's alteration of drainage. Hazleton Environmental Sciences Corporation conducted a one-year field survey in 1978 for Detroit Edison to identify and describe the ecological communities of the site. A report of survey findings was subsequently prepared and submitted to the Detroit Edison Company on 22 June 1979. Information from the Hazleton Report together with observations made by Corps personnel at the site were utilized in writing the following paragraphs on vegetation and wildlife. Technical studies of the proposed disposal area have been completed for Detroit Edison by Dames and Moore, Inc. and by Harding-Lawson Associates. Paragraphs describing soils, ground water, and surface water utilize these studies.

Vegetation

2.15 The existing vegetation consists of three successional vegetation types in varying stages of recovery following clearing and grazing. This vegetation is typical of natural growth on wet and moist sites in Southeastern Michigan. Forested lowland, consisting of almost pure green ash in the upper story, occupies more than half of the site. The sparse lower story of common wet-site species is poorly developed because of low light penetration at ground level and the depth of standing water in all seasons. The second most prevalent habitat on the disposal site is shrub-carr, a successional community of wet sites that is dominated by a shrub canopy of red-osier dogwood and green ash. The ground layer consists of bluegrass, goldenrod, and wet-site sedges. The third most prevalent habitat on the proposed disposal site is a cattail marsh that has been maintained in this early stage of secondary succession by herbicide application to remove woody vegetation for transmission line maintenance. The marsh contains a dense stand of the two common cattail species. A minor successional community, old field, occurs in a few small locations. Old field is very similar to shrub-carr, but occupies drier sites and contains more mesic ground layer species. Occasional individuals of quaking aspen, paper birch, and other mesic species of the aspen-birch association occur along the bluff that marks the western boundary of the proposed disposal site.

Wetlands and Wildlife

2.16 Wetlands are defined as those areas that are inundated or saturated by surface or ground water at a frequency and duration to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions (Title 33 CFR 323.2). Wetlands generally include swamps, marshes, bogs, and similar areas. Using the above Federal definition, the majority of the proposed disposal site can be described as consisting of wetland. Technically, only the area identified as "old field" in the previous paragraph would be excluded from wetland classification. Table 1 (below) lists the acreage of vegetation types found within the boundary of the lowland site.

TABLE 1

Areal Extent of Vegetation Types

Forested Lowland (Seasonally flooded basin or flats, Type 1 Wetland, "U.S. Fish and Wildlife Service Circular 39")	33.3 acres
Shrub-Carr (Shrub swamp, Type 6 Wetland, IBID)	17.0 acres
Cattail Marsh (Inland shallow fresh marsh, Type 3 Wetland, IBID)	7.5 acres
Old Field	7.2 acres
Total =	65 acres
Wetland Total =	57.8 acres
Upland Total =	7.2 acres

2.17 The U.S. Fish and Wildlife Service has developed a new classification system for wetlands which is described in the publication entitled, "Classification of Wetlands and Deepwater Habitats of the United States", Cowardin, et al., December 1979. Using this classification, wetlands at the lowland site would fall under the Palustrine system. The forested lowland could be described as Forested Wetland with broad-leaved deciduous vegetation; the Shrub-Carr area would be included in the Scrub-Shrub Wetland class with broad-leaved deciduous vegetation; and the cattail marsh could be considered as Emergent Wetland with persistent vegetation. It is important to note that the majority of the site is seasonally flooded or saturated with water. The site was observed to have very little standing water during a site visit made in late July, 1980. Based on a 3 June 1980 site investigation, representatives of the U.S. Fish and Wildlife Service estimated that approximately 90 percent of the proposed disposal site was wetland.

2.18 During the Hazleton wildlife survey conducted in 1978, wildlife species in the forested area included gray squirrel, fox squirrel, raccoon, and white-tailed deer. Three small mammals were captured in the area including short-tailed shrew, white-footed mouse, and meadow vole. A total of 45 avian species were recorded in the forest. See page C-2 of the appendix for an avian species list.

2.19 The wildlife associated with the shrub-carr habitat was the most diverse sampled at the proposed disposal site. Larger mammalian species included eastern cottontail, woodchuck, gray and fox squirrels, raccoon,

and white-tailed deer. Four species of small mammals were captured during June and September: short-tailed shrew, white-footed mouse, meadow vole, and meadow jumping mouse. There were 52 avian species recorded in the shrub-carr. Debris and a variety of microhabitats provide excellent habitat for reptiles and amphibians.

2.20 The cattail marsh was relatively small in area but provided habitat for several wildlife species. Larger mammalian species included muskrat, raccoon, and white-tailed deer. Only two small mammal species were captured: short-tailed shrew and meadow vole. A total of 18 avian species were observed utilizing the cattail marsh habitat.

2.21 In summary, a total of 7 herptile, 85 avian, and 13 mammalian species was recorded on the proposed disposal site. This diversity of species is attributed to the variety of nonagriculture cover types, most of which are characteristic of seasonally inundated areas in Eastern Michigan. No endangered or threatened wildlife species were recorded at the proposed disposal site.

2.22 Near the western boundary of the proposed disposal site there is a nearly circular pond, approximately 60 feet in diameter. The small pond is referred to as "Deer Pond" by local residents and it is reportedly spring fed. According to local residents and representatives of the U.S. Fish and Wildlife Service, deer utilize the site and there are many deer-auto encounters along State Highway M-25 near the proposed project site.

Soils

2.23 Several soil borings have been taken at the lowland site. The surficial soils encountered by the borings were fine to medium sands containing varying amounts of silt and minor amounts of coarse sand and gravel. These sands are probably beach deposits in origin. The thickness of these surficial sands varied from 2.5 feet in the southeast end of the site to approximately 7 to 8 feet in the central and northeast parts of the site. Beneath the surficial sands and extending to bedrock, there is a layer of till consisting of silty clays and clayey silts with varying amounts of sand and gravel interspersed in a clay matrix. The depth to bedrock in the site varied from 17.5 feet in the southeast part of the site to 40 to 41 feet in the center and northwest parts of the site.

Ground Water

2.24 Ground water in the site area occurs in the upper, surficial sands, in the randomly distributed and discontinous sand and gravel pockets in the till, and possibly in the joints and fractures of the underlying bedrock. The fine grained portions of the lacustrine silts and clays of the till act as an aquiclude. That is, their ability to transmit water is so low they cannot be considered to be a source of water for wells.

(1) Surficial Sands. The water in the surficial sands is perched on the underlying till. Depth of ground water in these sands is generally less than 10 feet and is often less than 5 feet. The sand deposits are relatively fine grained, have a low transmisivity, and are essentially flat lying, thus the hydraulic gradient is flat. From this setting, it can be inferred that the ground water flow rates are very slow. The surficial sand is recharged by direct infiltration from rainfall.

Based on the geology of the area and on published mapping of the surficial soils (U.S. Department of Agriculture, Soil Conservation Service, 1980, Soil Survey of Huron County, Michigan: Covert-Tobico complex and Pipestone-Tobico-Adrian comlex), the thin surficial sand deposits present throughout most of the site originally formed a continuous cap extending from the bluff to the Lake Huron shoreline. The ground water in these surficial sands would have drained northeastward from the bluff area to the Lake. It is suspected that during the construction of the fill for State Highway M-25 and/or the railroad embankment that the sands were at least partially removed and the fills for either or both the highway and the railroad embankment are resting on the underlying till. This would then explain the blockage of the aquifer and result in the condition seen today of the ponding of water on the west side of both these embankments.

According to the Harding-Lawson Associates' study, the sand layer does not represent a good, potential source for potable water, unless it is treated to assure drinking quality standards. Since these sands are recharged by direct infiltration, this aquifer unit is subject to contamination from decaying organic material in the ponded areas on the west side of State Highway M-25, contamination from seepage from barnyard areas, and contamination from fertilizers used in the cultivated areas. Also, the gradation and thickness of the sand are such that only low yield wells are possible. Nevertheless, there are residences along Old Shore Drive between the proposed disposal site and Lake Huron which utilize ground water for domestic supplies. The depth of private wells is not known, but some are believed to be shallow.

Reported springs in the area most likely occur where the surficial sands have been breached and the perched water either fills a depressional area or seeps into an adjacent drainageway.

(2) Sand and Gravel Pockets in Till. The discontinuous sands and gravels in the till may be a source of water for low yield wells. Recharge to these discontinuous sand and gravel pockets is through the slow infiltration from the relatively impervious till. Wells developed in such sand and gravel pockets generally are limited in quantity and have a history of going dry during periods of heavy pumpage.

(3) Bedrock. Only low yields of ground water would be anticipated from the joints and fractures in the bedrock. Water which is present in

the bedrock is recharged through the slow infiltration from the overlying and relatively impervious till.

2.25 Harding-Lawson Associates, one of the consulting firms contracted by Detroit Edison, has analyzed ground water samples from two borings taken near the proposed disposal site. One boring was taken east of the proposed site on Old Shore Road, and the other was taken west of the proposed site on Rapson Road. The samples were taken monthly for a 5 month period. Page 28 of the DEIS lists the average and range of each parameter analyzed, and it gives an indication of the present composition of the ground water.

Surface Water

2.26 Surface water in the vicinity of the lowland consists of four intermittent streams and several areas of ponded water. These streams generally flow from west to east parallel to the northern border of the proposed site. The relatively impermeable soils in the area prevent significant infiltration. Consequently, drainage of the area consists mainly of runoff. Ground water contribution to stream flow is small. Thus, the streams in the area are subject to excessive flows during periods of snowmelt and heavy precipitation, but otherwise sustain only very low base flows. Many of the cultivated fields west of the proposed confined disposal facility are artificially drained, which accelerates the runoff process.

Lands Adjacent to the Lowland Site

2.27 There are approximately 10 acres of forested lowland owned by Detroit Edison which are located adjacent to the north boundary of the lowland site. This acreage is considered to be a forested wetland also. A private residence and driveway are situated north of the Detroit Edison property limits. The driveway extends from State Highway M-25 to the residence located on top of the bluff. Privately-owned land between Detroit Edison's northern property line and the driveway consists of approximately 22 acres. Included on the private land are a woodlot of approximately 5 acres which adjoins the forest on Detroit Edison's land, a small pond approximately 2 acres in size, and approximately 15 acres of grassland pasture. Farmland is located west of the lowland site. The eastern boundary of the site is formed by a railroad berm and State Highway M-25, and the southern boundary is Rapson Road. In general, the area in the vicinity of the site is rural.

2.28 Upland Site in Rubicon Township. Detroit Edison has considered using the land immediately west of the lowland site for the construction of a confined disposal facility. This land rises approximately 30 feet above the adjacent lowland. It is currently in use as farmland and is considered to be productive agricultural land. When compared with the lowland site, the upland site has a disadvantageous location for Detroit Edison in terms of construction and operation costs.

2.29 An existing bluff and a railroad berm could be used as berms for a proposed confined disposal facility at a lowland site. The upland site does not have these natural characteristics; therefore, use of the upland site would increase project costs. Operational costs of using the upland site instead of the lowland site are due to the costs of hydraulically transporting the dredged material. The 30 foot difference in elevation at the upland site would require greater pumping capabilities for the dredged material to reach the site. In addition, berms constructed at the upland site would be more visible than berms constructed at the lowland site due to this elevation change. Use of the upland site would remove approximately 66 acres of farmland from production.

2.30 Description of Sites Corps Has Considered for the Disposal of Dredged Material. The Corps of Engineers has evaluated a number of sites in the Harbor Beach area for the disposal of Corps' dredgings. These sites are discussed in the 1977 DEIS, entitled "Harbor of Refuge at Harbor Beach, Michigan, Confined Disposal Facility, Structure Repairs and Maintenance Dredging", prepared by the Corps of Engineers. Some of these sites are listed below. The locations of the sites are shown in Figure 5.

a. Corps Site 2. This site is located on property presently owned by the Hercules Powder Company. Site 2 was considered for use as an interim handling site in conjunction with an upland disposal site such as Site 3. For Corps' dredged material disposal, the City of Harbor Beach would have to obtain a 10-year lease for use of the property. However, the property owner has indicated that the property is not available.

b. Corps Site 3. An abandoned gravel pit situated about 4 miles southwest of the City of Harbor Beach. Construction of a confined disposal facility at this site was the preferred plan addressed in the DEIS referenced above. Local concerns over possible ground water contamination and the lack of local sponsorship caused the Corps to eliminate this site from consideration.

c. Corps Site 4. Site 4 is a gravel pit located immediately north of Site 3. The property is presently owned by Detroit Edison and was considered as a final disposal site. The volume available within the gravel pit was considered inadequate for disposal of the dredging volumes anticipated.

d. Corps Site 5. Detroit Edison also owns this site which is about 1 mile north of the City limits and east of State Highway M-25. The use of this site would require construction of a diked disposal area, and the dredgings would have to be pumped or trucked to this location. The site would require the filling of what is now a marshland, and therefore, it was not acceptable to the U.S. Environmental Protection Agency, the U.S. Fish and Wildlife Service, and the Michigan Department of Natural Resources.

e. Corps Harbor Sites. Several sites were considered within the breakwater in the harbor. These sites were 1b, A, B, C or combinations

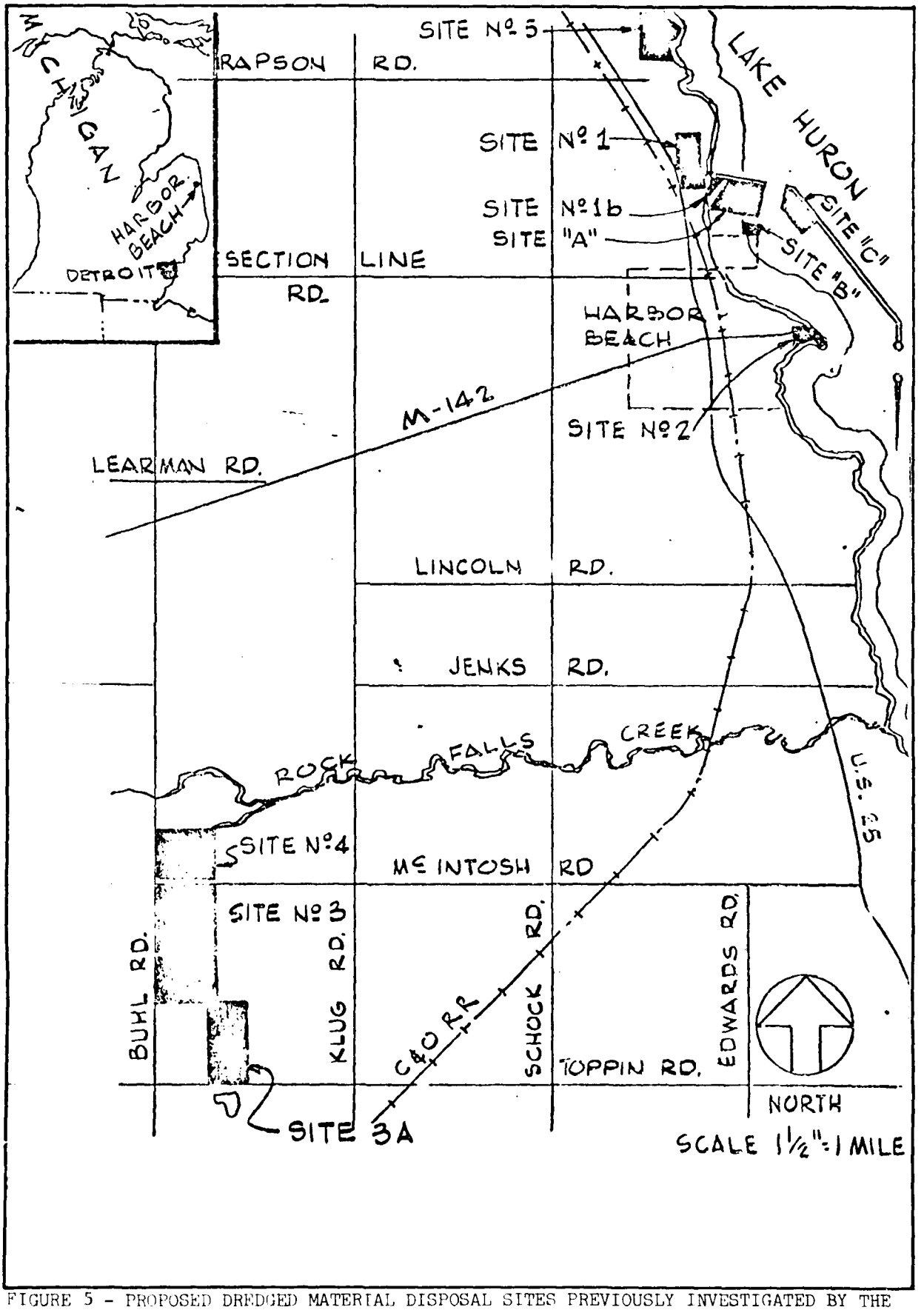


FIGURE 5 - PROPOSED DREDGED MATERIAL DISPOSAL SITES PREVIOUSLY INVESTIGATED BY THE CORPS

thereof. All of these involved the construction of dikes and the filling of this area to a level above the normal water level. These sites received favorable support from local residents. However, because all these sites would require the filling of lake bottomland, they were rejected due to environmental concern and lack of approval by the Department of Natural Resources, the Environmental Protection Agency, and the U.S. Fish and Wildlife Service.

f. Corps Alternative Transportation Methods for the Dredged Material. In conjunction with Sites 1 and 3, alternative transportation methods were considered. The general concept involved dewatering of the dredging slurry at Site 1 and transporting the settled solids to Site 3 by truck. An analysis of shoaling deposits taken from Harbor Beach indicated that the dredged material would be extremely difficult to dewater. These poor dewatering properties would result in large quantities of semi-fluid dredged material to be hauled from Site 1 to Site 3. Economic considerations eliminated truck hauling from Corps consideration due to inadequate volume reduction in the dewatering process and special handling requirements for a semi-fluid material. Economics also eliminated rail hauling because a two-mile spur line would have to be constructed from the existing C&O rail track to Site 3.

C. Artificial Habitat Creation - Not Selected

2.31 Dredged material has been used to create marsh areas and islands in some areas of Michigan. However, whether or not habitat creation would be feasible at Harbor Beach is dependent upon many factors. Some of these factors would include the compatibility of the dredged material with island creation, depth of water, currents, littoral drift, and economics. The aquatic habitat along the shoreline north and south of the harbor breakwaters is believed to be of a high quality. Filling actions in the nearshore areas have previously been ruled out because it was believed that the loss of aquatic habitat would not be desirable.

2.32 For Detroit Edison's originally proposed Harbor Beach disposal facility at the lowland site in Rubicon Township, an existing bluff and railroad berm would be utilized in the dike design. In addition, the materials for the dikes at the proposed site would be obtained from an adjacent borrow area. Detroit Edison has estimated costs for planned dike construction to be 2 million dollars. If an alternative involving island creation is opted for, it is likely that there would be substantial increases in construction costs. Stronger and more expensive dike materials would be required to withstand the force of wave action. It is possible that an island constructed within the harbor breakwaters could be constructed for less than an island outside of the breakwaters because of the wave protection afforded by the breakwaters. Opposition has been encountered on previous occasions from governmental agencies regarding filling bottomland within the harbor. No suitable sites for a marsh creation project have been found in the harbor area.

2.33 It has been suggested that the creation of an island could also have potential for recreational marina development. The saturated dredged material would be an unsuitable base for any building construction, unless methods of promoting drainage are utilized. Some practices that have been used for improving drainage include: ditching, sand drains, vacuum wells, electroosmosis, ground surface drains, and drainage by desiccation. These methods vary in cost and practicality.

D. Placement of Dredged Material on Agricultural Lands - Not Selected

2.34 One way of disposing dredged material would be to spread the material on farmland. Studies, summarized in the DEIS on page 15, have shown that in some cases dredged material can be utilized as a soil amendment for improving nonproductive soil.

2.35 In 1978 the Corps made inquiries to the Environmental Protection Agency (EPA) about using the dredged material in the Harbor Beach harbor for agricultural purposes. The EPA responded with a letter dated 8 September 1978 (see appendix page A1-21 of the DEIS). This letter indicates that the application of dredged material to farmland could be feasible providing application rates are controlled and potential effects are monitored. However, the Corps has encountered local public opposition on previous occasions in the Harbor Beach area concerning use of the dredged material for agricultural purposes. One of the major reasons for this opposition has been the unwillingness of land owners to accept dredged material in a saturated condition. Concern has also been expressed about the runoff of water from the dredge slurry.

2.36 Detroit Edison conducted further investigations concerning this alternative following circulation of the DEIS. Approximately five square miles of land in Rubicon Township north of the City of Harbor Beach are owned by Detroit Edison. Detroit Edison considers approximately three square miles of this total acreage to be non-prime farmland. The remaining land is believed to be prime farmland, lowland, woodlot, and stream channels. Placing material on prime farmland was not considered to be desirable. Therefore, the possibilities of using the non-prime farmland for dredged material disposal were investigated. It was found that the existing soils on these non-prime farmlands are not conducive for a prudent and feasible improvement through the application of dredged sediments.

2.37 Within the three square miles of non-prime farmland, the upper layer of soil is predominantly Aubarque loam. The Aubarque soil is level to gently undulating, and it is relatively thin, typically ranging from 12 to 17 inches in thickness. The Aubarque soil is underlain by an extensive pan of glacial till. Although the upper loamy soil possesses some permeability ranging from 0.6 to 2.0 inches/hour, it is generally poorly drained because of the underlying cemented till, which has a permeability of less than 0.6 inches/hour. The upper loamy soil has a high runoff coefficient and is fine grained, creating a high potential for runoff erosion.

2.38 Much of the non-prime farmland considered has been cleared and is used for cultivated crops, mainly corn. The major concerns in farming the land are the wetness and the slow permeability of the soil, which lower its crop-producing potential.

2.39 Due to the fine nature and saturated condition of the harbor sediments, hydraulic transport is considered to be the only feasible method for placing materials on farmland. Inherent in this method is the problem of handling large volumes of water carried with the sediment. The volume of dredged slurry which could be applied to approximately three square miles of non-prime farmland is estimated to be three million gallons per day (twelve percent solids by volume; 73 days duration).

2.40 One means of returning the excess water to Lake Huron would be to simply let the water flow over land following existing drainage patterns. This would likely result in massive erosion of farmland and siltation of the drainage channels because of the very high slurry flow rate and the thinness and low permeability of the topsoil.

2.41 Another means of handling the dredged slurry would be to confine it on the three square miles of farmland, allowing the excess water (the sluice water) to be absorbed by the soil. Small berms could be constructed to form a confinement. Confinement of the slurry would cause up to 24 inches of water and three inches of saturated sediments to be ponded for a prolonged period of time. Ponding of the sluice water could affect the crop yield from the farmland, since the harbor would be dredged and slurry deposited in the spring of the year to conform with the Michigan Department of Natural Resources' environmentally preferred dredging times. This deposition would cut off the corn crop's root oxygen supply during its growth period, resulting in either stunted plants with reduced yield or total crop loss. This loss is significant, since the approximate annual value of the corn crop for the three square miles of farmland is in excess of .5 million dollars.

E. Alternative Dredging Equipment - Not Selected

2.42 An alternative to using a conventional hopper dredge or a hydraulic dredge would be to use specialized dredging equipment. Specialized equipment has been designed to minimize water cloudiness (turbidity) resulting from dredging action. The costs of utilizing such equipment may be justified in areas where sediments contain highly toxic materials. Based on recent sediment tests results, Harbor Beach sediments are now considered suitable for open water disposal. The sediments are not considered to be toxic because they have not been found to contain elevated levels of heavy metals, polychlorinated biphenyls (PCB), or polybrominated biphenyls (PBB). Therefore, the degree of adverse impacts resulting from the dredging at Harbor Beach Harbor would not warrant use of specialized equipment.

F. General Alternatives For Processing Detroit Edison's Permit Application

2.43 In addition to reviewing the Federal dredging and dredged material disposal activities for Harbor Beach Harbor, the Army Corps of Engineers is required to review Detroit Edison's request for a Department of Army permit. There are three alternatives available to the U.S. Army Corps of Engineers:

- Issue the permit as proposed with general conditions in accordance with regulations.

- Issue a permit with restrictions or special conditions.

- Deny a permit for the project as proposed.

2.44 If a permit is granted as requested, the impacts will be those described in the body of this Environmental Impact Statement.

2.45 Department of Army permits can be conditioned to include measures for lessening (mitigating) or preventing some adverse environmental impacts. Weir monitoring, well monitoring, and mosquito abatement are examples of mitigative measures which could be included as part of a granted permit request. Costs for accomplishing mitigation would be borne by the permit applicant. If a permit with special conditions is issued, the impacts will be generally as described herein, with such differences as may result from the imposed conditions. If a conditioned permit is issued and increased costs develop as a result of the imposed conditions, the applicant may elect to accept the increased costs and continue, abandon the project, or submit a new application with a revised proposal.

2.46 Denial of the U.S. Army Corps of Engineers' permit for the project as proposed would have the same effect as "no-action", discussed in the following paragraphs.

G. No Action/Alternate Coal Delivery Concepts - Not Selected

2.47 Unless feasible methods are found for the disposal of dredged materials, the harbor area adjacent to the Harbor Beach Power Plant could not be dredged. The delivery of coal by ship would eventually become impossible or uneconomical. In addition, if a method is not found for the disposal of the Corps' dredgings from the Federal project area, the Federal channels would become unnavigable for coal carrying vessels.

2.48 For the "no action" alternative, Detroit Edison Company evaluated several hypothetical alternative coal delivery concepts that could provide the Harbor Beach plant with sufficient coal for its continued operation. Plant shutdown was also considered. The concepts included:

(1) Barge delivery systems, including both conventional self-unloading barges and extra-wide shallow-draft barges.

(2) All rain delivery system.

(3) Vessel delivery to Marysville, and truck delivery from Marysville to Harbor Beach.

(4) Plant shutdown.

2.49 Present Delivery System. Currently, all of the coal used by the Harbor Beach Power Plant is shipped from the producing mine by rail to Toledo, Ohio, and it is then transferred onto vessels for delivery to Harbor Beach. Approximately 250,000 tons of coal are delivered annually by vessels during the shipping season, which normally extends from April through November. The typical vessel currently used to supply the power plant at Harbor Beach with coal is approximately 650 feet long and has a draft of about 26 feet when full-loaded to 24,000 tons. Many smaller vessels, usually about 600 feet long and having a draft of 22 feet or less, have been retired or are nearing retirement because of their age, inefficiency, and new safety requirements. The existing coal handling facilities at the Harbor Beach Power Plant are designed only to accommodate vessel delivery of the coal needed for plant operation. Continuation of the present coal delivery system requires no capital expenditures to receive, store, and burn coal at the Harbor Beach Power Plant.

It was concluded that the present vessel delivery system is the only reasonable, feasible, and economical concept to provide the power plant with the coal it needs for continued operation. For vessel delivery of coal to continue, the ship channel in the harbor must be dredged to its approved depth. Delay in performing the needed dredging could result in shutdown of the power plant, adversely affecting the community, the Detroit Edison Company, and Detroit Edison's customers in the Service Area.

2.50 Barge Delivery Concept. Deck Type Barges are often utilized to transport coal on riverine inland waterways. However, this type of barge is not practical for use on the Great Lakes because its characteristics (low freeboard, no cargo hatches) makes it susceptible to taking on water and swamping and/or having coal washed overboard should even moderate storms be encountered. Deck-type barges are therefore not suitable for transporting coal from Toledo, Ohio, or other lakehead ports to Harbor Beach, Michigan.

Conventional Self Unloading Barges

2.51 The conventional hatch-type self-unloading barge currently in limited service on the Great Lakes could be used to transport coal to the Harbor Beach Power Plant without requiring modification of the existing plant coal handling facilities. However, the type of barge typically available ranges in size from a 10,000-ton capacity at a draft of 18 feet, to a 17,000-ton capacity at a draft of 21 feet. The shallowest draft barge in which a conventional gravity feed self-unloading system could be installed would have a draft of 16 feet and a capacity of only 7,800 tons. The

Company does not know of any such barge operating on the Great Lakes. Construction of such a barge and a tugboat to power are estimated to cost at least $20 million. This would require 2-3 years, assuming an experienced barging company could be found to build and operate this unique craft. Even using a barge with a 16-foot draft would also require dredging of the ship channel in the harbor to permit delivery of coal, because of the projected decline in lake levels.

2.52 Further, in evaluating the economics of using a barge to transport coal to Harbor Beach, a key consideration is the expected utilization of the equipment. If a 98-hour turn-around time between Toledo and Harbor Beach is assumed, the resulting utilization of the barge-tug combination would be only 50% over a normal 240-day shipping season. It is doubtful that other uses could be found for the barge because of its relatively small size; therefore, the construction cost of the tug-barge combination would be borne entirely by the Company. The coal delivery cost would include a debt payment based on 50% utilization.

2.53 The levelized annual comparison for a 20-year period indicates that the Company would incur an additional coal delivery cost of more than $6.4 million for conventional self-unloading barge delivery when compared with the present vessel delivery system. Therefore, delivery of coal by conventional self-unloading barges is not a practical and reasonable alternative to the present vessel delivery system.

Shallow-Draft Extra-Wide Self-Unloading Barge

2.54 Another hypothetical barge alternative considered was a shallow-draft extra-wide barge with a capacity of 12,000 tons of coal. Such a barge would have a draft limitation of 12 feet so that it could be used without dredging the ship channel in the harbor at this time. (However, dredging would be required in the future due to the expected continued build-up of sediment in the harbor.) There are no existing shallow-draft extra-wide barges with self-unloading capability operating on the Great Lakes nor planned for operation at this time. The self-unloading capability is required so that the barge could be used without needing modification of the existing coal handling facilities at the the Harbor Beach Power Plant.

2.55 Design requirements for the self-unloading system on an extra-wide shallow-draft barge are considerable and would require new and unproven technology. For a conventional barge (described above) a gravity-feed self-unloading system would be used, with the width-to-depth relationship of the cargo hopper established by the angle of repose for the cargo but not less than 30 degrees. The shallow-draft extra-wide barge would require the design of a new and unproven type of feed arrangement. At best, this would substantially increase costs over a conventional gravity-feed system and would produce uncertainty in terms of reliability, safety, and lifetime costs. For these reasons, Detroit Edison does not believe that the hypothetical shallow-draft extra-wide barge alternative affords a feasible or prudent potential coal delivery method.

Shallow-Draft Barge with Crane

2.56 The last hypothetical barge alternative considered was a shallow-draft extra-wide barge having a crane mounted on it. The crane would use a clam-shell bucket to unload the coal. A shallow draft barge sized to carry 12,000 tons of coal would be about 100 feet wide by 600 feet long. The crane would therefore have to be moveable to fully unload the barge, or the coal would have to be pushed by bulldozers into the reach of the crane.

2.57 The shallow-draft barge with a crane mounted on it is not considered to be a practical or feasible alternative, since the turn-around time would be excessive due to the slow rate of unloading, and alternative utilization of this type of barge is unrealistic. There are no existing barges of this type operating on the Great Lakes or planned for operation at this time.

2.58 All Rail Delivery Concept. The evaluation of the concept of rail delivery of coal is based upon using 80-ton bottom-dumping cars, in trains of 40-50 cars. The rail cars would be loaded at the mines, and they would carry the coal all the way to the Harbor Beach Power Plant. It is estimated that 1-1/2 trains per week would be required to supply the power plant with the 250,000 tons of coal needed annually.

2.59 Under the Staggers Railroad Deregulation Act, a railroad has the right to discontinue unprofitable routes. Accordingly, Detroit Edison Company contacted representatives of the Chessie System to ascertain the status of its trackage between Bad Axe and Harbor Beach. It has been learned that this portion of its rail system is up for abandonment at this time.

2.60 The unit cost of transporting coal by rail is estimated to be $19.41 per ton. This estimated cost is 22% greater than for the present rail/vessel delivery system and does not reflect any upgrading of the existing trackage in the Thumb Area. Upgrading of this trackage may well be needed, due to the substantially-increased traffic, the heavier cars that shipment of coal by rail would necessitate, and the probable lack of maintenance during recent years. Detroit Edison believes that this coal traffic would ultimately be required to bear the complete cost of upgrading and maintaining the trackage, causing either the unit cost to increase rapidly and significantly or the eventual abandonment of the line regardless of the usage for rail coal traffic.

2.61 At this time no coal unloading and handling facilities exist at the Harbor Beach Power Plant to accommodate rail delivery of coal. Facilities needed would include a rail car dumper house, thawing shed, fugitive dust collection system, and on-site trackage for assembling and breaking-down trains. The rail facilities would have to be located west of the existing plant and near the downtown area of Harbor Beach, and the addition of a new conveyor system to transport the coal from the dumper house to the

plant would be required. The total estimated cost for these facilities is at least $28.5 million.

2.62 An economic comparison of the all rail delivery concept with the present vessel delivery system is shown on page C-1 of the appendix. The levelized annual comparison for a 20-year period indicates that the Company would incur annually an additional cost of about $7.0 million for all rail delivery of coal. This increased cost is attributable to both increased delivery costs and capital investment in coal unloading and handling facilities. On a present worth basis, the all rail delivery concept would result in an increased cost to the Company of more than $59 million. The Company believes that the increased transportation costs for all rail delivery of coal combined with the costs of the required coal handling facilities make this concept economically unacceptable.

2.63 Truck Delivery Concept. This concept involves transporting the coal by rail to Toledo, then by vessel from Toledo to the Marysville Power Plant. At Marysville, the coal would be loaded onto trucks for delivery to the Harbor Beach Power Plant. Truck delivery of coal could be implemented quickly to provide the plant with coal should the harbor be closed to vessels due to the continued lack of dredging. Equipment could be either truck-trains (a truck with a trailer and pup) or a truck with a box and trailer capable of carrying 45-55 tons of coal per load. It is estimated that delivery of coal by truck would require 30 deliveries each day during a 5-day work week over an 8-month period. One truckload would depart from the Marysville Power Plant approximately every 30 minutes from 7:00 a.m. in the morning through 9:00 p.m. in the evening.

2.64 The major problem associated with truck delivery is the effect that the movement of approximately 250,000 tons of coal by truck from the Marysville Power Plant to the Harbor Beach Power Plant would have on the communities and residents along the route. From the Marysville Power Plant, trucks would travel west on Gratiot through Marysville to the interchange with Interstate 94, then northward along I-94 to its end at the north end of Port Huron. Trucks would then follow State Highway M-25, a 2-lane hard surface roadway paralleling the Lake Huron shoreline, passing through the communities of Lakeport, Lexington, Port Sanilac, Forester, Richmondville, Forrestville and White Rock before reaching the power plant at the north end of Harbor Beach.

2.65 The route from Marysville through Port Huron to Lakesport, approximately 15 miles in length, passes through extensive residential and commercial development. The truck traffic would disrupt the local traffic patterns and increase the congestion on the highways in this area. North of Lakeport, M-25 is bordered primarily by homes and summer cottages on the lake side and farmland on the inland side. Many residents along the highway and in the communities north of Lakeport are part-time residents, and reside there only during the summer months. The trucks carrying coal to Harbor Beach would disrupt the tranquility of the area and cause increased levels of noise and dust along the 50-mile route.

2.66 The estimated volume of truck traffic, previously noted as one truck-train leaving Marysville every half hour, could cause a significant increase in pavement wear along M-25. It may also be necessary to upgrade the shoulder along the highway, since if the tires leave the pavement on curves they could cause the present gravel shoulders to deteriorate. The use of truck-trains to haul coal to Harbor Beach would not be in accordance with current national energy policy to conserve petroleum fuels. It is estimated that transporting 30 truckloads of coal daily to Harbor Beach would utilize more than 800 gallons of diesel fuel.

2.67 Detroit Edison believes that truck delivery of coal is not a practical long-term solution to the problem of supplying coal to the Harbor Beach Power Plant. However, should the harbor be closed because of the continued lack of dredging of the ship channel, Detroit Edison may be forced to implement the truck delivery concept as a short-term solution.

2.68 Shutdown of the Harbor Beach Power Plant. A study of performance history and load flow network analysis by Detroit Edison reconfirms that the probability of maintaining acceptable voltage levels and circuit loadings in the Thumb Area would be greatly reduced if the Harbor Beach Power Plant is shutdown. The affected area is defined, approximately, as the area north of a line extending from the City of Lexington, northwesterly to the City of Sebewaing.

2.69 Prudent system maintenance practices require that station equipment and transmission lines be shutdown periodically for inspection, cleaning, and protective relay inspection and calibration. Present operating practice is to permit maintenance shutdown of 120-kV station equipment and/or transmission lines at Arrowhead, Bad Axe, Harbor Beach, Lee, Sandusky, and Tuscola only when the Harbor Beach Power Plant is in service, since there are several combinations of maintenance shutdowns and contingency losses that could isolate the Thumb Area from the rest of our system.

2.70 During the 1970's Detroit Edison experienced several severe winter storms which caused extensive damage to the transmission and distribution facilities in the Thumb Area, resulting in its isolation from the rest of the Service Area. The Harbor Beach Power Plant has in every instance played a vital role in maintaining service to the undamaged areas, and to the early restoration of service as facilities were repaired.

2.71 The Harbor Beach Power Plant, completed in 1967, is a relatively new 110-megawatt coal-fired generating plant and is one of the more economical units presently operated by the Company. The unit was designed to be an intermediate load plant, so that it could be brought on line efficiently and economically to meet fluctuations in system demands. The Harbor Beach Power Plant has a 40-year design life. The Company does not anticipate an early retirement for the plant.

2.72 If the Harbor Beach Power Plant were shutdown, the lost generation would be made up by operating other less-efficient generating units

and/or by increasing purchases of power from other utilities, with corresponding increases in costs and capacity charges for the Company. It is currently estimated that a sufficient supply of coal can be delivered by vessels to permit continued plant operation until late 1982. Therefore, using a base date of 1983, the annual levelized cost incurred by the Company due to a plant shutdown for the period 1983 through 1990 is estimated to be $20.4 million (1983 dollars).

2.73 The Harbor Beach Power Plant provides a substantial portion of the tax revenues collected by the City of Harbor Beach. The 1980 property taxes on the Harbor Beach Power Plant amounted to more than $460,000 or roughly 40% of the total property tax collected in Harbor Beach. As a result of a prolonged reduction in operation or a shutdown of the Harbor Beach Power Plant, it is expected that approximately 50% or more of the plant's tax liability would be eliminated. Such a reduction would decrease revenues received by the City of Harbor Beach and the Harbor Beach School System by roughly 20% of current levels based on past tax revenue disbursement trends. Thus, severe cutbacks in City services and educational monies would be expected as a result of the plant shutdown.

2.74 The Harbor Beach Power Plant employs 30 support personnel who would be reassigned to other Company installations if the plant were shut down. These employees comprise an annual payroll at the plant of over $600,000. Although some employees would be expected to commute to their new work locations, others would likely relocate their families. Those who relocate would cause a significant loss in available local purchasing dollars in the community, adversely affecting the local business establishments.

H. Economic Comparison of Alternatives

2.75 Open-lake disposal of the dredged material is the least costly method. Estimates made by Detroit Edison for their dredging activities are provided below in Table 2:

Table 2

Disposal Method	Total Estimated Cost (1982 Dollars)	Percent Increase
Open Lake Disposal	$1.9 Million	Base
Lowland Confined Disposal Facility	$3.7 Million	95%
Upland Confined Disposal Facility	$4.4 Million	231%

Cost data for the various delivery concepts discussed as alternatives are presented on page C-1 of the appendix.

Table 3

Comparison of Environmental Consequences for Alternatives

ALTERNATIVES:	A	B-1	B-2	C	D	G
Evaluation Factors:	Open Water Disposal (The Proposed Action)	Low Lying/Wetland Diked Disposal	Other Upland Diked Disposal	Open Water Disposal for the Creation of Artificial Habitats (e.g., Marsh or Island)	Upland Disposal on Agricultural Lands	No-Action
I. National Economic Development						
1. Property Values	No Effect	Same as Alternative B-2	Property values of areas adjacent to the disposal site may decrease.	Property values of areas adjacent to artificial habitat may increase.	Property values of treated agricultural land may increase.	Property value may decrease due to limited access to harbor area.
2. Tax Revenue/ Public Services and Facilities	Continuity of safe and economical delivery of coal.	Same as Alternative A	Same as Alternative A	Same as Alternative A	Same as Alternative A	Increased transportation costs would increase consumer's costs. Possible loss of local tax revenues.
3. Employment/ Labor Force	May provide increased employment opportunities.	Same as Alternative A	Same as Alternative A	Same as Alternative A	Same as Alternative A	Loss or transfer of 30 jobs.
4. Business/Industrial Activity	Selected contractors would benefit economically.	Same as Alternative A	Same as Alternative A	Increased recreational useage of the area could stimulate local businesses. Selected contractors would benefit economically.	Same as Alternative A	Possible decline due to loss of income in area from power plant shutdown.
5. Displacement of farms	No effect	Borrow pits occupy 22 acres of farmland.	Depends on site selected. Could cover more farmland than Alternative B-1.	No effect	Temporary encumberance, possibility for enhancement.	No effect
6. Construction Costs	Least costly alternative.	Less expensive than alternative B-2.	More expensive than B-1 and A.	More expensive than B-1 and A.	More expensive than B-1 and A.	None
7. Desirable Community Growth/Community Cohesion	Beneficial effect of being able to dredge harbor.	Same as Alternative A	Same as Alternative A	Could enhance tourism. Beneficial effect of being able to dredge harbor.	Could enhance agricultural economy.	Adverse effect

Note: Alternatives E (Alternate Dredging Equipment) and F (General Alternatives) are described in the text of the EIS. These alternatives are not appropriate for this table.

Table 3 (Continued)

Comparison of Environmental Consequences for Alternatives

ALTERNATIVES:	A	B-1	B-2	C	D	G
Evaluation Factors:	Open Water Disposal (The Proposed Action)	Low Lying/Wetland Diked Disposal	Other Upland Diked Disposal	Open Water Disposal for the Creation of Artificial Habitats	Upland Disposal on Agricultural Lands	No-Action
II. Environmental Quality						
1. Man-made Resources	No effect	No effect	No effect	Create new recreational area.	No effect	No effect
2. Natural Resources	Minor Alteration of aquatic bottomland in disposal area. Covering of benthos.	Alteration of wetland and subsequent loss of wildlife habitat.	Displacement/ elimination of terrestrial biota.	Create new habitat for fish & wildlife. Covering of existing habitat.	Possible agricultural improvement.	Continued shoaling of harbor area.
3. Air Pollution	Minor temporary increases in ambient levels caused by construction and/or operational activities.	Same as Alternative A	Same as Alternative A	Same as Alternative A	Same as Alternative A	No effect
4. Noise Pollution	No construction activities. Least amount of noise of all alternatives.	Minor temporary increases in ambient noise levels due to construction and operational activities.	Same as Alternative B	Same as Alternative B	Same as Alternative B	No effect
5. Water Pollution	Temporary turbidity at open water site due to disposal of sediments.	Possible water quality effects on drainage channels accepting of weir discharge. Removal of filtering wetland vegetation.	Possible water quality effects on drainage channels accepting weir discharge.	Temporary reduction in water quality due to suspension of bottom sediments and discharge materials.	Soil erosion and runoff from dredged slurry.	Continued accumulation of bottom sediments. Maintenance of status quo water quality.
III. Social Well-Being						
1. Aesthetic Values	Temporary turbidity may be visually displeasing.	Cutting of natural vegetation.	Berms more visible than B-1.	Attraction of additional fish and wildlife to area.	Soil erosion.	No significant effects.
2. Public Safety	No effect	Increased truck traffic could be hazardous.	Same as Alternative B	Possible hazard to navigation.	Same as Alternative B.	Potential adverse effects from loss of power.
3. Recreational Opportunities	Temporary water cloudiness may be aesthetically displeasing to recreational boaters.	Removal of wildlife habitat.	No effect	May provide greater recreational opportunities in the area.	No effect	More frequent fuel deliveries may affect recreational boating in the harbor area.

2.76 Exact cost figures are not available for the alternatives of artificial habitat creation (i.e., marsh or island creation) or for the agricultural application alternative. The cost of constructing containment dikes (berms) at the lowland site in Rubicon Township has been estimated to be 2 million dollars. This 2 million dollar amount applies to constructing dikes on land utilizing parts of an existing bluff and railroad berm. Constructing dikes for marsh or island creation in the water would likely cost more than 2 million dollars since stronger dikes would be required to withstand wave forces. No feasible sites for a marsh creation project have been located near the harbor area. The agricultural application of dredged sediment is not practical due to logistical considerations and the non-availability of suitable lands.

3. AFFECTED ENVIRONMENT

A. General Introduction

3.01 The proposed Detroit Edison dredging area fronts the Harbor Beach Power Plant between the plant and the limits of the Federally maintained channel. The Corps' dredging area and Detroit Edison's dredging areas are shown in Figure 2 on page vii.

3.02 The open-lake disposal site for the dredged material is located approximately 3 miles due East of the harbor entrance beacon. The designated site is 160 acres in surface area with the center being situated at the intersection of 43° 50.81' latitude and 82° 33.73' longitude.

B. Description of the Disposal Site

3.03 The location of the designated open water disposal site is a sufficient distance into the lake to be in relatively deep water, yet it is near enough to the harbor to facilitate the hauling of dredged material on barges or on other vessels. This proposed open-lake disposal site was selected after reviewing National Oceanic and Atmospheric Administration charts for Lake Huron in the vicinity of Harbor Beach. The indicated water depth at the proposed site is greater than 90 feet. The lake bottom is charted as sandy. These sandy conditions have been confirmed by physical sampling completed by divers contracted by Detroit Edison. Refer to pages C-5 to C-10 of the appendix for sampling data obtained from the disposal site.

3.04 The results of sediment and benthos (bottom dwelling organisms) analyses and visual reconnaissance of the proposed disposal site indicates that the investigated area is not a potential fish spawning site. This conclusion is based on the fact the sediments found were fine grained (lacking rocks, boulders, or significant amounts of gravel), there was an absence of clay ridges or ledges, and the area lacked high benthos densities. The benthic community in the proposed disposal area is dominated by fresh amphipods (Pontopereia) and aquatic worms, primarily Naididae and Tubificidae. Overall, the density of benthic organisms ranges from moderate to low.

C. Harbor Sediment Quality

3.05 Based on 1974 sediment sampling, the Environmental Protection Agency (EPA) classified the sediments in the harbor as unsuitable for open water disposal. In 1978 the Corps of Engineers had further tests conducted and determined that the conditions of the harbor sediments were such that the sediments should be confined in an on-land disposal facility.

3.06 The DEIS identified constituents and characteristics in the sediments which were found to be in excess of EPA's suggested criteria for unconfined open water disposal. These parameters included: total volatile solids, chemical oxygen demand, total Kjeldahl nitrogen, oil and grease, zinc, ammonia-nitrogen, phosphorus, arsenic, copper, iron, manganese, and nickel. When determining an overall pollutional classification for sediments, EPA also considers elutriate test results, sources of contamination, particle size distribution, benthic macroinvertebrate populations, color, and odor.

3.07 Sediments in the harbor (including those in the Federal project area and Detroit Edison's dredging area) have been retested during the time that has elapsed since circulation of the DEIS. These sediment tests included an analysis of water quality conditions expected to occur at an open water disposal site. State water quality standards and mixing zone calculations were used in the analysis. EPA has reviewed the most recent sediment test results and analyses and has indicated that open water disposal is now EPA's preferred method of disposing of Harbor Beach Harbor sediments (see page A-21 of the appendix for EPA's letter). EPA's recommendation of open water disposal is premised on EPA's belief that: (1) upland disposal alternatives have been shown to be technically or environmentally unacceptable, and (2) the harbor sediments are chemically and physically suited for open water disposal.

3.08 The sediments in the Federal project area and in Detroit Edison's dredging area are predominantly silts and clays with high amounts of organic matter (decayed vegetation). Some of the substances in the sediments of Harbor Beach are likely derived from agricultural runoff in the area. Zinc, phosphorus, and nitrogen are commonly applied to agricultural lands to improve crop yields. Storm water runoff from streets and paved areas as well as pollution from boat traffic also have an effect on the sediment quality. The degree to which past effluent discharges from the Hercules Powder Company may have affected present sediment quality is not known. This company was formerly engaged in the production of starch and gluten from wheat. It is believed that current sediment conditions have mostly resulted from a natural build-up of decayed vegetation and shoaled materials. The levels of nutrients, heavy metals, and synthetic organic chemicals are below levels of concern. Refer to Appendix B for sediment test results.

D. Water Quality

3.09 The Federal Water Pollution Control Commission sampled Harbor Beach water quality in 1965. Their results indicated fairly good water quality

in the harbor with only soluble phosphates exceeding current acceptable concentration levels. Three offshore water samples were taken on 18 February 1981, and the analyses of these samples are included with the elutriate test data in the appendix of this FEIS. The analyses indicate good water quality in the harbor.

E. Water Intake

3.10 The City of Harbor Beach supplies its residents with filtered and chlorinated water from Lake Huron. The water treatment plant is located approximately 1 mile north of the State Street-Huron Street intersection with the intake pipe extending .5 miles offshore and the intake point being approximately 1,500 feet north of the north breakwater.

F. Wastewater

3.11 Harbor Beach operates a storm water collection system. Discharge is by means of several natural as well as man-made ditches that carry the effluent into the harbor at points north and south of the City. There is no connection between the storm water collection system and the City's sanitary sewer system.

3.12 Currently, the City of Harbor Beach has a secondary sewage treatment system that has been filtering, chlorinating, and digesting wastewater since 1957. Effluent is discharged into Lake Huron at a point 1,500 feet south of the harbor. The sewage treatment plant handles an average of 451,000 gallons per day of residential wastewater and the discharge of one industry, Searle Laboratories, which manufactures pharmaceutical products. Expansion of the present sewage treatment facilities is planned in order to comply with all National Pollutant Discharge Elimination System effluent requirements.

G. Currents

3.13 Currents in the Harbor Beach area are related to wind and wave actions. Sounding records of the harbor (August 1976) profile the shoaling as being the heaviest in the northeast corner. This shoaling pattern is explained by the fact that the prevailing water currents are from the northward and eastward directions. The composition of the shoaling sediments (clay, mud, and fine sands) indicates that the harbor provides for an excellent settling basin for fine suspended sediments. The lack of larger grain sized sediments also suggests that what currents do exist in the harbor and adjacent waters are not especially strong.

H. Aquatic Fauna

3.14 The Harbor Beach area nearshore benthic community is marked by the dominance of a few species typical of those found in lakes of satisfactory water quality. The composition of this community includes large numbers of crayfish, snails, and bivalved mollusks. In June 1958, and again in August 1965, biological investigations were conducted by the Michigan Water

Resources Commission. The result of the survey taken near the wastewater discharge of the Hercules Powder Company demonstrated that the benthic community is typical of an organically over-enriched environment. It was determined by the data that the quality of the entire harbor had decreased between 1958 and 1965. In 1965, nuisance growths of aquatic weeds and filamentous algae were noted, and growths of slime bacteria were observed east of the Hercules discharge. The harbor was dredged in 1967, and some of this bottom material was likely removed at that time.

3.15 The large central basin of Lake Huron, which includes the offshore Harbor Beach area, traditionally had been the habitat of chubs and lake trout. The invasion of sea lamprey in the 1930's, with the additional pressure of commercial fishing, rapidly decimated the lake trout population. In 1966 the population collapsed. The sea lamprey population in Lake Huron is now under control and the re-establishment of high-value predator fish species is again taking place. Many of the species present today were deliberately introduced as a result of fishery management. From 1972 to 1975, approximately 65,000 brown trout and over 5,000 steelhead were placed in the Harbor Beach vicinity by the Michigan Department of Natural Resources (MDNR). Rainbow trout plantings for the period between 1971 and 1974 totalled 150,000. Brown and rainbow trout were again planted in 1976 in quantities totalling 20,000 and 30,000, respectively. In 1977, 10,000 rainbow trout and 10,000 brown trout were planted in the Harbor Beach area; in 1978, 50,000 chinook salmon were planted; and in 1979, 75,000 lake trout and 150,000 chinook salmon were planted. Splake and perch are also commonly found in the area.

I. Endangered and Threatened Species

3.16 The peregrine falcon (Falco peregrinus), the eastern timber wolf (Canus lupus lycaon), and the longjaw cisco (Coregonus alpenae) are species on the official U.S. List of Endangered and Threatened Wildlife and Plants, 14 July 1977 Federal Register that are reported to have ranges in the project area. The peregrine falcon is considered an occasional migrant, and the only known timber wolves in Michigan are located on Isle Royale in Lake Superior. Though the longjaw cisco formerly was found in Lakes Michigan, Huron, and Erie, it was last reported from Lake Erie in 1961 and is considered extinct in Lakes Michigan and Huron. In addition to the above listed species, the list of endangered species as listed in Michigan's Endangered and Threatened Species Program includes the deep water cisco (Coregonus johannae), blackfin cisco (Coregonus nigripinnis), and the shortnose cisco (Coregonus reighardi). All but the shortnose cisco are considered extinct in Lake Huron. The shortnose cisco primarily inhabits deep water (greater than 200 feet) and should not be affected by the project. No other threatened or endangered species are expected to be affected.

3.17 No known endangered or threatened plant species are expected to be impacted by the proposed plan. There have been no species of endangered or threatened plants identified at the proposed disposal site. Lists that have been consulted include: the Department of Interior, U.S. Fish and

Wildlife Service publication entitled "Republication of Lists of Endangered and Threatened Species and Correction of Technical Errors in Final Rules, 50 CFR 17, 20 May 1980" the Michigan Department of Natural Resources' list of endangered and threatened species filed with the Secretary of State on 22 January 1980, and "Michigan's Endangered and Threatened Species Program" (reprinted from the Michigan Botanist, Vol. 16, 1977).

J. Cultural Elements

3.18 Archaeological/Historical. The National Register of Historic Places, including the 3 February 1981 annual listing and subsequent updates, lists seven sites that occur in Huron County. The Frank Murphy birthplace is one such site, being located at 142 S. Huron Street in Harbor Beach. This site would not be impacted by the proposed project. No districts, sites, or cultural features of historical significance have been recorded in the project area.

3.19 Population/Economy. The population of the City of Harbor Beach was 2,282 in 1960 and 2,134 in 1970 for a decrease of 6.5 percent. During this 10-year period, Huron County remained virtually the same, showing a 0.2 percent population increase from 34,006 to 34,083. The preliminary 1980 census lists the population of the City of Harbor Beach as 2,005 persons (a 6 percent decrease from the 1970 census). This 1980 census for Huron County shows that the county's population is 36,422 persons, which represents a 6.8 percent increase from the 1970 figures.

3.20 Boating and fishing are the major recreational activities in the harbor area. Boat registrations for the entire State of Michigan in 1974 was over 534,000 for pleasure craft with about 2,020 from Huron County. Harbor Beach is used intensively for recreational boating and fishing during the summer season. There is a privately-operated marina and a public boat launching facility in the Harbor Beach Harbor area.

3.21 Hunting is also a popular activity in Huron County with pheasant, duck and goose hunters being attracted to the area. At one time, pheasants were more abundant, but clean farming practices have caused a decline in habitat quality. This has resulted in reduced ringneck populations.

3.22 The total area of Huron County as listed in the "Soil Survey of Huron County, Michigan" is 526,080 acres. Approximately 91 percent, or 470,000 acres, is used as farmland. The high productivity of many soils, the climatic conditions, and the economic conditions indicate that the future economy of Huron County will continue to be based largely on agricultural products. Information furnished by the Huron County Agricultural Extension Service has indicated that 318,900 acres of land were used for growing crops in 1979 as compared with 302,800 acres the previous year. Total land devoted to crops has not changed greatly because farm woodlots have been converted to cropland, thereby offsetting the loss to other developments.

3.23 According to the 1974 Michigan Recreation Plan, there are 4,182 acres of public recreation land in Huron County, including 1,172 acres for state parks, 2,340 for state game areas, and 144 acres for water access sites.

3.24 Commerce at Harbor Beach almost entirely consists of the shipping of coal and lignite. This information as published in the Waterborne Commerce of the United States, Part 3, Waterways and Harbors, Great Lakes, is as follows:

TABLE 4

Waterborne Commerce for Harbor Beach Harbor - Combined Tonnage for Coal and Lignite

Year	Tons	Year	Tons
1965	39,680	1972	233,859
1966	41,420	1973	201,260
1967	81,096	1974	237,402
1968	255,728	1975	283,011
1969	237,167	1976	296,511
1970	316,273	1977	268,318
1971	124,380	1978	253,711

The average annual tonnage for the last five-year period (1974 to 1978) is 267,791 tons. This is an increase from an average annual tonnage of 222,588 for the five-year period from 1969 to 1973. With the resumption of maintenance dredging operations, a total tonnage projection for the next ten years has been estimated to average 290,000 tons of commerce annually.

3.25 Man-Made Facilities and Activities. The major highway transportation routes that serve Harbor Beach are State Highway M-142 and State Highway M-25. State Highway M-25 transverses north and south and connects to Port Huron approximately 60 miles to the south. About 60 additional miles to the south is the Detroit Metropolitan Area.

3.26 Utilities in the Harbor Beach area include water, gas, electricity, and telephone services. City water services extend north of the City to Rapson Road.

4. ENVIRONMENTAL CONSEQUENCES

4.01 This section of the Final Environmental Impact Statement examines both adverse and beneficial consequences of the proposed project and the alternatives. Dredging impacts are discussed in the paragraphs under heading A. Paragraphs under headings B and C all concern the consequences of the proposed plan of open water disposal of dredged material. Paragraphs under D address the impacts of the alternatives.

A. Dredging Impacts

4.02 Effects on Water Quality. Dredging operations would cause temporary increases in turbidity (water cloudiness) in the dredging area. The installation of necessary pumpout facilities, such as mooring piles or platforms, could also cause turbidity. Suspended material would reduce light penetration and result in a subsequent decrease in productivity of organisms dependent on this type of energy. The impact of turbidity is considered minor because the turbidity would be temporary and localized.

4.03 Effects on Benthos. Any rooted aquatic vegetation or sessile benthic organisms that have colonized in the dredge area since the last maintenance dredging operation in 1967 would be removed by the proposed work. Changes in the benthic populations of the harbor would result in the loss of potential food organisms for resident fish populations. However, unaffected adjacent littoral zones and nearby Lake Huron would provide substantial and sufficient food organisms. Prior maintenance dredging at Harbor Beach has produced no noticeable effects on resident fish species. Some fishermen have observed that their fishing improves when following behind the dredge during the dredging operations. This is due to the initial release of infaunal food supplies caused by the action of dredging.

4.04 Effects on Macro-Organisms. The resuspension of bottom sediments, mainly in the form of finer, slower settling silts and clays cannot be considered beneficial to aquatic organisms, particularly fish. As discussed previously, resuspension of bottom sediments normally leads to a reduction in the dissolved oxygen concentration of the affected waters. Resuspended benthic material, if present in sufficient quantity, can result in damages to the respiratory organs; e.g., gill fibers and filaments of fish. However, this effect is anticipated to be minimal due to avoidance behavior to these conditions exhibited by fish. Fish instinctively move away from highly turbid or low dissolved oxygen areas. The sphere of influence of these impacts are greatest in a localized area immediately around the dredge. As the distance increases from the dredge, the severity of these impacts taper off. A beneficial effect of the resuspension of benthic material is that there is a temporary abundance of food made available to the local fish population. The proposed dredging would be carried out only during times approved by the Michigan Department of Natural Resources in order to have the least impact on fishery resources of the harbor area.

B. Disposal Impacts

4.05 It is now proposed to place the material that would be dredged from the Federal project area and from Detroit Edison's dredging area into the open water of Lake Huron. The disposal would occur approximately 3 miles from the harbor in greater than 90 feet of water. The total surface area of the designated disposal site is approximately 160 acres. Barges, hopper dredges, or other vessels loaded with dredged

material would discharge their loads below the water surface. This method of deposition would minimize dispersion of the material due to surface currents or wind action.

4.06 Effects on Water Quality. In order to ascertain the effects of open water disposal on water quality, the sediments were analyzed using an elutriate test. Elutriate tests are laboratory tests that are designed to simulate the dredging and disposal process. In the test, sediment and dredging site water are mixed in the ratio of 1:4 by volume. The mixture is shaken for 30 minutes, allowed to settle for 1 hour, centrifuged, and filtered. The filtered water (elutriate water) is then chemically analyzed. A comparison of the elutriate water with the dredging site water for like constituents indicates whether a constituent was or was not released in the test.

4.07 Detroit Edison compared the elutriate test results to State water quality standards and to toxic effluent standards. These comparisons are presented in the following paragraphs. This analysis was performed using average elutriate tests values from sediments taken from Detroit Edison's dredging area. Sediments in the Corps' dredging area are of similar quality; therefore, Detroit Edison's analysis would be valid for the Corps dredging activities also.

4.08 The water quality effects anticipated in an open water disposal operation would be a pulse of ammonia and manganese several times the background levels in the immediate vicinity of the disposal site. The pulse would only be of a few minutes duration per discharge load, following which, water concentrations would return to normal. The elutriate test results for Detroit Edison's dredging area indicated little release of any constituents found in the sediments. All chemical parameters with the exception of ammonia, zinc, manganese, barium, suspended solids, and fecal coliform were found to be at essentially the same concentration as background water quality and well within Michigan water quality standards. The exceptions were found at somewhat elevated concentrations but still well within Michigan water quality standards as shown in Table 5. The Michigan Water Quality Standards contain two applicable sets of criteria: an exposure time dependent maximum criteria which is established inside a mixing zone, and a long term safe concentration established outside the mixing zone. Table 5 compares the elutriate values with time dependent maximum criteria and also compares expected values outside the mixing zone with long term safe concentration. Since the Michigan Water Quality Standards references the "Report of the National Technical Advisory Committee to the Secretary of the Interior, Water Quality Criteria, 1968" and since this report often expresses criteria as a fraction of a 96 hour median Threshold Limit (TLm) rather than a specific numerical water concentration, the attached table references the 1968 Water Quality Criteria and in parethesis identifies generally accepted 96 hour TLm's. The data indicates compliance with both short term or mixing zone standards and the long term safe water quality standards.

Table 5

COMPARISON OF TEST RESULTS WITH WATER QUALITY STANDARDS

Parameter	Average Concentration in Elutriate	Water Quality Criteria Applicable within a mixing zone	Concentration outside of a mixing zone	Water Quality Criteria Applicable outside of a mixing zone
Zinc	.2 mg/l	TLm (7.6 mg/l)	.002	1/100 TLm (.076)
Ammonia	20. mg/l			
Unionized Ammonia[2]	.36 mg/l	TLm (.5 mg/l)	.0043	1/100 TLm (.02)
Suspended Solids	1,000. mg/l	No solids which are or may become injurious to any designated use	12	No unnatural turbidity
Fecal Coliform	244 counts	No applicable standard	2 counts	200 counts/100 ml
Barium	.28 mg/l	TLm (50 mg/l)[3]	.007	1/100 TLm (.5)
Manganese	.15 mg/l[5]	TLm (16 mg/l)[4]	Not Detectable	1/100 TLm (.16)

1) See page B-4 for derivation of concentration outside of a mixing zone.

2) The unionized ammonia fraction determines the toxity of ammonia to aquatic organisms. The above analyses provides a 96 hour TLm for the more sensitive trout and salmon specie and is based on a PH of 8.0 and a temperature of 10° C.

3) Quality Criteria for Water, EPA, 1976 pg. 20.

4) England, R.H. and K.B. Cummings. 1971. Stream damage from manganese stripmining. Pages 399-418 In: Proc. 25th Annual Conf. Strip-Mining Assoc.

5) The concentration of manganese reported in the anoxic elutriate is utilized because of the expected initially anoxic environment in the immediate disposal area.

4.09 Under Section 307(a) of the Clean Water Act, EPA has established effluent standards for a number of pollutants. Polychlorinated biphenyl (PCB) is the only parameter analyzed in sediment and elutriate testing for which a toxic effluent standard has been set. Since PCB was barely detectable in only one of the sediment samples(.04 mg/kg) and was non-detectable in all of the elutriates, the analyses indicate that there would not be any violation of toxic effluent standards.

4.10 The disposal operations would cause temporary conditions of water cloudiness at the disposal site. It is reported that a temporary "scum" (a floating substance) developed in the harbor area during the last dredging and disposal operations in 1967. If such a condition occurs again, dredging and disposal operations will be adjusted. Disposal actions would be halted until wind conditions are favorable at the open water disposal site. Overall, the adverse effects on water quality would not be significant.

4.11 Effects on Municipal Water Intake. The proposed dredging and disposal activities should not have any significant impact on the municipal water intake. The intake point is located approximately 1,500 feet north of the north harbor breakwater. During the time of dredging the operators of the municipal water system would be notified to monitor water quality conditions. If adverse quality occurs, the dredging operations would be modified or halted until satisfactory water quality is restored. Since the open water disposal area is located approximately 3 miles from the intake, no effects on the intake from disposal activities are expected.

4.12 Effects on Benthos/Wildlife. The disposal operations would cause some smothering of benthic organisms at the disposal site. The lake bottom at the disposal site has been investigated, and it was found that the density of benthic organisms ranged from moderate to low. Impacts on benthic organisms are not considered to be significant.

4.13 Dredging and disposal times would be coordinated with the Michigan Department of Natural Resources in order to have the least impact on fishery resources. The open water disposal site is not considered to be a spawning area because the lake bottom is composed of sand without rock, boulders, gravel, clay ridges, or ledges, and there is no rooted aquatic vegetation on the bottom.

4.14 Effects on Aesthetics. Minor adverse aesthetic effects would be caused by the dredging and disposal operations. The presence of dredging equipment in the harbor area may be aesthetically displeasing to some. In addition, the water cloudiness caused by dredging and disposal activities would be unsightly; however, this condition would be temporary.

4.15 Effects on Recreation. The dredging equipment in the harbor could temporarily hinder the movement of recreational craft in the harbor. Dredging times would be coordinated with the Michigan Department of Natural Resources to cause as little disruption on fishing activities as possible. Some swimming occurs at a beach located within the harbor. The water cloudiness caused by dredging and disposal activities may cause swimming

to be temporarily suspended. The City of Harbor Beach would be informed of the proposed dredging times and would be advised to monitor water quality conditions.

4.16 Effects on Endangered and Threatened Species. There are no known State or Federally listed endangered or threatened plant or wildlife species located in the dredging disposal areas. Therefore, no effects to these species are expected.

4.17 Effects on Historical and Archaeological Sites. No site listed on the National Register of Historic Places would be affected by the proposed project. The Michigan Historic Preservation Officer has reviewed the proposed dredging and open water disposal projects, and she has concluded that they would have no effect on any cultural resources either eligible for or listed on the National Register of Historic Places(see page A-20).

C. General Effects

4.18 Social and Economic Resources. Dredging and disposal operations would allow Detroit Edison to continue coal deliveries by waterborne transport to its Harbor Beach Power Plant. Providing dependable electric power obviously has many ramifications on social and economic well-being. The impacts of not being able to maintain navigation depth for the delivery of coal at the Harbor Beach Power Plant would be felt by Detroit Edison's customers in terms of both cost of power and dependability of service. Detroit Edison employs persons in the Harbor Beach area to work at the power plant, and these jobs could be affected by curtailment of Harbor Beach operations.

4.19 Land Use Plans and Other Permits. The Huron County Planning Commission has indicated that the disposal of Harbor Beach Harbor sediments in the open water is in the best interests of Huron County and the residents of Harbor Beach. Detroit Edison has obtained certification from the State of Michigan that the proposed open water disposal plan would comply with the State of Michigan's Approved Coastal Management Program as required by Section 307 of the Coastal Zone Management Act (PL 92-583). The State has provided certification under Section 401 of the Clean Water Act that Detroit Edison's project would comply with applicable provisions of Sections 301, 302, and 307 of the Act. A State permit for the proposed dredging and open water disposal project has been issued to Detroit Edison under the Great Lakes Submerged Lands Act, Act 247, 1955. The Corps of Engineers has also received 401 certification for the Corps' proposed activities at Harbor Beach. The Corps' work would be in compliance with the Endangered Species Act of 1972, the Floodplain Management Executive Order 11988, the Protection of Wetlands Executive Order 11990, the Coastal Zone Management Act, and the Clean Water Act. A Section 404(b)(1), Evaluation of Environmental Effects for the Corps' work is included in the appendix of this FEIS.

4.20 Relationship Between Short-Term Use of Man's Environment and the Maintenance and Enhancement of Long-Term Productivity. The disposal of dredged material in open water is not expected to affect the long-term productivity of Lake Huron. Dredging would have short-term adverse effects, but they would be temporary. The impacts of not dredging could have long-term consequences on the economy of the local community and power serving area. If the Harbor Beach Power Plant was shut down due to the inability of vessels to navigate the harbor, the loss in tax revenues could be substantial.

4.21 Irreversible and Irretrievable Commitment of Resources Which Would be Involved if the Proposed Action Should be Implemented. Commitments of labor, fuel, and equipment would be required for the dredging and disposal operations. Once labor and fuel are expended, these resources are generally irretrievable.

D. Environmental Consequences of Alternatives

4.22 Environmental consequences for alternatives are presented in comparative form in Table 3 on page 26. The DEIS considered the environmental consequences of utilizing a lowland site in Rubicon Township for dredged material disposal. Use of this site is no longer being proposed. Issues of concern over the use of the lowland site are the possible impacts on the municipal water intake, ground water supplies, flooding, and wildlife habitat. The alteration of approximately 57.8 acres of wetland is considered to be a major impact of this proposal. Development of the site was to have included a weir discharge into an existing creek which outlets approximately 1.3 miles from the City of Harbor Beaches' municipal water intake. However, the weir distance from the intake is believed to be sufficient for preventing any adverse impacts to municipal water supplies. The lowland site is underlain by clay which should form a seal thus protecting the ground water from any downward leaching of substances placed on the site. A stream diversion that was formerly planned in conjunction with use of this site would cause a minor rise in flood levels. The effects of this rise as well as the projected effects on shallow wells in the vicinity of the site are not completely known. If a plan is pursued to reconsider use of the lowland site, more information would have to be gathered to determine project effects on flooding and on sh low wells.

4.23 Use of an upland site for a confined disposal facility was also considered. In addition to being more expensive than use of the lowland site, the construction and operation of a facility at the upland site would remove approximately 66 acres of farmland from production.

4.24 Marsh creation and island development using dredged material could have wildlife and recreational benefits. These proposals would have adverse effects by covering existing aquatic habitat. The economic costs for this alternative are considered to be the greatest of all the alternatives.

4.25 The placement of dredged material on agricultural lands would cause soil erosion due to the necessity of using a hydraulic pipeline method for transporting the sediments. Excess water from the pipeline slurry would cause water quality deterioration in the drainage channels carrying the runoff. If compatible soils could be located and a feasible method for transporting the dredged sediments to farmland was available, the dredged material could improve the agricultural productivity of some lands.

4.26 The no action alternative would have economic ramifications on the local community and on the general economy of Michigan. Refer to Section G on page 19 for a discussion of all the implications of no action.

5. PUBLIC INVOLVEMENT

A. Detroit Edison's Permit Application for a Private Confined Disposal Site

5.01 On 8 May 1980, a Department of Army & MDNR Joint Public Notice (Permit Application Process No. 792253C/79-11-129G) was published describing Detroit Edison's proposed project and indicating the intent by the Corps of Engineers to prepare a Draft Environmental Impact Statement (DEIS). A Notice of Intent to prepare an EIS appeared in the Federal Register on 24 June 1980.

5.02 The public notice identified the lowland site in Rubicon Township as the proposed area for dredged material. Many adverse comments were received in response to the public notice for the permit application. These comments mainly concerned use of the proposed lowland site and are summarized as follows:

a. Water quality degradation resulting from toxic waste infiltration.
b. Hazards involved using borrow pits for fly ash disposal.
c. Disposal site is contrary to Huron County Zoning Ordinances.
d. Preferred alternative disposal sites (island in Lake Huron).
e. Possible flood damage.
f. Annual sediment contamination.
g. Loss of valuable wetlands, wildlife habitat, and resources.
h. Loss of farmland.
i. Error in Preliminary Environmental Assessment regarding the relative locations of the public water intake and disposal pond discharge point.

5.03 A scoping meeting was held on 16 July 1980 at Detroit District headquarters to discuss preparation of the DEIS. Federal, State, and local agencies as well as several interested individuals and organizations were invited to attend in order to identify significant project issues.

5.04 The DEIS was prepared and noticed in the Federal Register on 23 January 1981. A public notice indicating the availability of the DEIS was issued on 2 February 1981. Those agencies, organizations, and individuals

to whom copies of the DEIS were sent are listed on pages 82-86 of this Final Environmental Impact Statement (FEIS).

5.05 Comments received on the DEIS are presented and addressed in this section of the FEIS. The Environmental Protection Agency and the U.S. Fish and Wildlife Service responded to the DEIS indicating objections to use of the proposed lowland site because of impacts that its use would cause to a wetland area. The Michigan Department of Natural Resources has subsequently denied Detroit Edison a State permit to dispose of dredged material at the lowland site in Rubicon Township. Detroit Edison has now amended its permit application requests and is seeking authority to dispose of dredged material in the open water of Lake Huron.

B. Detroit Edison's Permit Application for Open Water Disposal of Dredged Material and the Corps of Engineers' Open Water Disposal Plans.

5.06 Open water disposal was addressed in the DEIS as an alternative. It was considered as a viable option, being dependent upon additional sediment testing and coordination with governmental agencies. Additional tests have been conducted, and the Environmental Protection Agency has been consulted. Open water disposal is presented as the proposed action in the FEIS.

5.07 Public notices have been issued to inform the general public and to solicit views relative to open water disposal at Harbor Beach. The notice concerning Detroit Edison's permit application revision of plans was issued on 17 August 1981. A notice describing the Corps of Engineers' plans for open water disposal was issued on 21 August 1981.

5.08 The Huron County Board of Commissioners responded to the notices and indicated that the Board did not have any adverse comments regarding the plans presented. The Huron County Planning Commission has indicated that it does not have any adverse comments regarding the Corps' project at Harbor Beach as long as the dredged material is deposited at the designated open water disposal site. It is also the opinion of the Commission that the project as proposed is in the best interest of Huron County and the residents of Harbor Beach. The City Council of the City of Harbor Beach has adopted a resolution in support of the open water disposal plan. Letters of approval for this plan have also been received from the Harbor Beach Community Schools superintendent and from the Harbor Beach Chamber of Commerce. A letter was received from the Huron Agricultural Resources Tomorrow (HART) organization in which it is stated that the open water disposal plan is acceptable to the organization. The Environmental Protection Agency (EPA) responded with letters dated 24 August 1981 and 31 August 1981. EPA considers open water disposal to be the environmentally preferable alternative. Regarding Detroit Edison's permit, EPA suggests that the Federal permit be issued for a 3 year period rather than a 10 year period. It is EPA's view that this period would allow the regulatory process to respond to existing conditions and relevant changes. The U.S.

Fish and Wildlife Service responded to the public notices by giving an indication of no objection.

5.09 This FEIS has been prepared according to the guidelines of Section 102 of the National Environmental Policy Act, and the evaluation of the effects of the discharge of dredged material into the waters of the United States has included the application of guidelines for Section 404(b) of the Clean Water Act. The EIS document or a notice of its availability has been circulated to governmental agencies, organized groups, individuals, and libraries. In addition, the availability of the FEIS has been transmitted through the issuance of a public notice. A 30-day comment period for public and agency review of the FEIS begins on the date the U.S. Environmental Protection Agency publishes a notice of the availability of the FEIS in the Federal Register or on the date of delivery for mailing of copies to agencies, groups, and individuals, whichever is later. Comments should be furnished to the District Engineer within this 30 day period.

C. Corps Efforts to Secure a Confined Disposal Site at Harbor Beach

5.10 The first contact of local government agencies was made in November 1971 with representatives of the City of Harbor Beach, Michigan Department of Natural Resources, and the Michigan Department of Commerce to discuss possible sites for the construction of a confined disposal facility to contain sediments unsuitable for open water disposal dredged from the Federal Navigation Project at Harbor Beach, Michigan. Three disposal site alternatives were discussed. All sites involved construction on lake bottomland within the confines of the harbor. A second meeting was held with local authorities on 8 February 1974 to update the committee.

5.11 On 29 August 1974 a site inspection was made in regard to confined disposal areas at Harbor Beach. The State of Michigan DNR, U.S. Fish and Wildlife Service, City of Harbor Beach, and the Corps of Engineers were represented. Two sites were considered; one was located partly on the City of Harbor Beach's Waterworks Park, the other just inside of the north end of the main breakwater on State submerged bottomlands.

5.12 Another meeting with city officials was held on 14 November 1974. The City of Harbor Beach was represented by the Mayor, a City Councilman, and representatives of EPA, Corps of Engineers, and Detroit Edison. Various configurations for offshore disposal sites were discussed.

5.13 A Public Workshop was held in the City of Harbor Beach on 10 December 1974 to obtain public input on consideration of alternative sites. The Corps of Engineers began by describing the purpose of the workshop and providing background information of the subject proposal. The Corps of Engineers discussed the Environmental Protection Agency responsibility for determining the quality of sediments, Public Law 91-611 calling for disposal of dredged materials which are unsuitable for release into open water, the Governor of Michigan's request, and the site selection process as well as the local responsibilities and the duration of the project.

The Corps discussed previous local contacts, presented slides of the candidate sites, explained the need for the project, the kinds of equipment, and costs.

5.14 Contact was again made with the City of Harbor Beach on 16 September 1976 to discuss the possible use of Detroit Edison property located north of the city. At this point in the project development, support was greater for using an upland disposal site in lieu of using Lake Huron's bottomland.

5.15 A second Public Workshop was held in Harbor Beach on 13 December 1976. Three possible sites for the confined disposal site were presented. Site No. 1 was land owned by the City of Harbor Beach and located in the Waterworks Park area. Site No. 2 was property owned by the Hercules Powder Company and is located just south of their plant along the waterfront. Site No. 3, owned by Huron County, is located between Buhl and McIntosh Roads. It was described as an abandoned gravel pit.

5.16 The Corps' proposed plan involved the use of Site No. 3 as a final disposal site and the use of Site No. 1 as an interim site. On 25 July 1978, a meeting was held between Corps' personnel and the Huron County Board of Commissioners. The Board voted against use of Site No. 3 and refused to grant necessary local approvals. Reasons for the Board's rejection of the proposed plan were related to concerns about ground water contamination.

5.17 After the Corps' proposal proved to be unacceptable in 1978, Detroit Edison Company began formulating plans to construct a confined disposal facility on company-owned land. The Corps was informed that it would be possible for the Corps to place approximately 350,000 cubic yards of Federal channel dredgings into this facility. Subsequently, the Corps discontinued its efforts to locate a site for a confined disposal facility.

D. COMMENTS TO DEIS AND CORPS' RESPONSES

UNITED STATES DEPARTMENT OF AGRICULTURE
FOREST SERVICE
NORTHEASTERN AREA STATE AND PRIVATE FORESTRY
370 REED ROAD – BROOMALL, PA. 19008

1950
March 3, 1981

U. S. Army Engineer District, Detroit
ATTN: General Regulatory Branch
Box 1027
Detroit, MI 48231

Dear Mr. McCallister:

The following comments are submitted on the DEIS for Maintenance Dredging and Dredged Material Disposal Area at Harbor Beach, Michigan.

1 The statement in section 2.07 at the top of page 8 should be rewritten in the final EIS to show a definite plan for treatment of the borrow site.

Stabilization and revegetation of this area should be provided to prevent soil erosion and return the area to production.

2 The alternatives section is somewhat confusing. Section 2.08 clearly states the three alternatives available to the U. S. Army Corps of Engineers regarding the proposed action, but then the following sections go on to list numerous other alternatives. Clarification is needed on how many alternatives are actually being considered along with a description of each.

3 In section 2.13 on page 9, three treatments of dredged material are listed and section 2.14 explains one of the treatments, but the other two are not addressed. This should be corrected in the final EIS by including a discussion of these treatments.

We appreciate the opportunity to comment on this document and hope our comments will prove helpful in preparing the final EIS.

Sincerely,

for ALLEN J. SCHMCHT
Area Director

Response to Comments

Letter From: U.S. Dept. of Agriculture, Forest Service

Comment No.	Response

1. Borrow Site

A definite plan for treatment of the borrow site is not available. Open water disposal of dredged material is now the proposed plan, and the open water disposal plan does not call for the excavation of any borrow pits.

2. Alternatives

Paragraph 2.08 of the DEIS lists the various options (alternatives) available to the Corps of Engineers for processing Detroit Edison's permit application. The proposed action is to dredge the harbor areas and to place the dredged materials at a selected site in the open waters of Lake Huron. Alternatives to the proposed action area: Confining the dredged material by constructing berms (diked disposal alternative); Using the dredged material for artificial habitat creation (an island or a marsh, for example); Placing the dredged material on agricultural land for soil improvement purposes; and, No action. The use of alternative dredging equipment is also discussed as a separate operational technique. Regarding the diked disposal alternative, two sites for a diked disposal facility were considered in detail by Detroit Edison and are presented as such in the DEIS and in the FEIS. One site is referred to as the "lowland site", and the other site is referred to as the "upland site". See pages 8 and 13 of the FEIS for a discussion of these two sites.

3. Treatment of Dredged Materials

An onshore treatment facility was discussed as a concept in the DEIS. The concept would involve constructing a specialized facility, similar to a sewage treatment facility, that would treat dredged material. Onboard treatment would involve adding chemicals (flocculents) to the dredged materials before discharging the material from the dredging vessel. Recent sediment tests indicate that the sediments are of a suitable quality to be placed into the open water without treatment.

United States Department of Agriculture | Soil Conservation Service | 1405 South Harrison Road Room 101 East Lansing, Michigan 48823

January 29, 1981

Mr. P. McCallister
Chief, Engineering Division
Department of the Army
Corps of Engineers
P.O. Box 10027
Detroit, Michigan 48231

Dear Mr. McCallister:

1 This in reply to your request for review of the Draft Environmental Assessment, Maintenance Dredging & Dredged Material Disposal Facility at Harbor Beach, Michigan. We have reviewed the draft and have no comments to make.

Sincerely,

Jerry L. Keller
Acting State Conservationist

JLK:rrd:kp 9732A

The Soil Conservation Service is an agency of the Department of Agriculture

45

Response to Comments

Letter From: U.S. Dept. of Agriculture, Soil Conservation Service

Comment No.	Response
1.	Comment is noted.

UNITED STATES
ENVIRONMENTAL PROTECTION AGENCY
REGION V
230 SOUTH DEARBORN ST
CHICAGO, ILLINOIS 60604

REPLY TO ATTENTION OF:
5XER

MAR 10 1981

Colonel Robert V. Vermillion
District Engineer
U.S. Army Engineer District, Detroit
P.O. Box 1027
Detroit, Michigan 48231

RE: D-COE-F35001-MI

Dear Colonel Vermillion:

We have completed our review of the draft Environmental Impact Statement (EIS) on the proposed maintenance dredging and dredged material disposal facility for the Detroit Edison Company's Harbor Beach Power Plant, Huron County, Michigan. The EIS was prepared as an independent assessment of the environmental impacts that could be expected to occur if a permit for the proposed action is issued by the Corps of Engineers. Detroit Edison is requesting a permit to perform maintenance dredging in Lake Huron offshore of the Harbor Beach Power Plant and to deposit the dredged material in a wetland area near U.S. Route 25 and Rapson Road in Rubicon Township. Alternatives to the proposed action include open-water disposal, alternative diked disposal sites, artificial habitat creation, placement of dredged material on agricultural land, and no-action.

The information in the draft EIS has clearly identified the environmental impact of the proposed action, and has led us to the conclusion that the impact of dredged material disposal at the preferred site (the wetland) is environmentally unacceptable. Studies conducted during the development of the EIS indicate the wetland area provides invaluable, natural environmental benefits. These benefits include surface water retention, removal of sediments and dissolved pollutants from surface waters, and diverse wildlife habitat. Of the alternatives considered, all of them appear to be less damaging to the environment than the proposed action; however, in assessing the environmental impacts of the alternatives, additional information is needed to adequately evaluate the impacts of disposal in open-water and on agricultural land. Our comments and recommendations on these subjects are detailed in the attachment to this letter.

Because the environmental impact of the proposed action is severe and alternatives exist which may avoid or minimize the impact, we are classifying the project EU-2. This means we find the impact of the proposed action environmentally unacceptable (EU), and additional information (2) is needed in order to fully assess the impacts of the alternatives. This classification will be published in the Federal Register in accordance with our responsibility under Section 309 of the Clean Air Act to inform the public of our comments.

Also, in accordance with Section 1504 of the Council on Environmental Quality's National Environmental Policy Act regulations (40 CFR Parts 1500-1508), we must advise you that we will consider this project for referral to the Council unless satisfactory resolution of the environmental impacts can be made.

Thank you for the opportunity to review and comment on the draft EIS. We are available, if necessary, to discuss the resolution of our concerns about the environmental impacts of this project. Please call Mr. James Hooper of the Office of Environmental Review (FTS 886-6694; COM 312/886-6694) if you have any questions about our review of or comments on this project.

Sincerely yours,

Valdas V. Adamkus
Acting Regional Administrator

Attachment

U.S. ENVIRONMENTAL PROTECTION AGENCY COMMENTS ON THE DRAFT ENVIRONMENTAL IMPACT STATEMENT FOR THE PROPOSED MAINTENANCE DREDGING AND DREDGED MATERIAL DISPOSAL FACILITY AT THE DETROIT EDISON COMPANY'S HARBOR BEACH POWER PLANT, HURON COUNTY, MICHIGAN

Wetland Disposal

1 The EIS states that approximately 55 acres of wetland would be destroyed by the disposal area. The wetland area, consisting of forested, scrub-shrub, and emergent wetland types is a valuable resource which has important ecological functions. The area provides waterfowl and wildlife feeding and nesting habitat, and retards and filters surface water runoff from the surrounding upland areas, removing pollutants in the runoff before it enters Lake Huron. In addition, the wetland is a groundwater recharge area for the surficial sands in the immediate vicinity.

The use of this wetland as a disposal area will eliminate or reduce the effectiveness of the valuable natural functions described above. The diverse habitat provided by this wetland is in sharp contrast to the surrounding agricultural lands and provides one of the few refuges available to wildlife in the area. Its loss would reduce significantly the number of wildlife the area is capable of maintaining. Natural stormwater retention and filtering benefits would also be reduced. In fact, the project may increase flooding on properties adjacent to the site. We consider the loss of these functions to be an unacceptable adverse environmental impact.

Agricultural Land Disposal

2 Disposal of dredged material on agricultural lands appears to be a reasonable alternative. Not only does the applicant own agricultural acreage, but studies have indicated that dredge material has the potential to enhance certain soils for agricultural uses. The degree of enhancement depends, of course, upon the physical and chemical properties of the soil and the dredge material, and on the type of crops cultivated after disposal. The potential for agricultural enhancement through the use of dredge material should be more thoroughly investigated in the final EIS.

The impact of such a practice can be readily predicted from easily obtainable information. Much of the required soils information is in the Huron County Soil Survey published by the Soil Conservation Service. Most of the required data on the nature of the dredged sediment has already been obtained. The evaluation of the agricultural application of dredged sediment is explained in a report published by the Corps of Engineers entitled "The Agricultural Value of Dredged Material." Using these references and gathering some additional soil and sediment information will result in a case-specific assessment of the environmental impact of the application of dredged material to agricultural soils.

Response to Comments

Letter From: U.S. Environmental Protection Agency

Comment No.	Response
1.	**Wetland Disposal** Approximately 57.8 acres of wetland would be affected by use of the lowland site for dredged material disposal. The major implication of this action appears to be the proposed cutting of approximately 33.3 acres of forested wetland which provides a habitat for many wildlife species during certain times of the year. Other wetland vegetation could also be smothered by dredged material; however, it was proposed to maintain water levels inside the confined area in order to allow for the reestablishment of wetland vegetation following dredged material disposal operations. Natural stormwater retention and filtering functions would be reduced but not altogether lost.
2.	**Agricultural Land Disposal** Detailed information regarding the placement of dredged material on agricultural lands for soil improvement is presented on page 17 of the FEIS. The data indicates that the soil conditions on the lands investigated are not favorable for implementation of this alternative. These soils consist of a thin layer of topsoil underlain by clay. The environmental problems involved with handling excess water from the dredged material also makes this alternative impractical. Because of the fine nature and saturated condition of the sediments, a pipeline transport method carrying a slurry of sediment and water would have to be used. The resultant runoff of the excess water would cause erosion and adverse effects on water quality.

The following information should be obtained to evaluate the potential for agricultural application of Harbor Beach sediments.

A. Soils

1. Detailed soil map (showing potential disposal sites).

   a. Scale 1:20000 (3.168 inches = 1 mile) or larger
   b. Delineated at the mapping unit level
   c. Legend

2. "Thumbnail description" of each soil series which may be used for disposal.

   a. Name
   b. Depth
   c. Drainage
   d. Parent material
   e. Landscape position
   f. Profile description (general) by horizon

      (1) Color
      (2) Texture
      (3) Thickness

   g. Slopes
   h. Use
   i. Classification (USDA Soil Taxonomy)
   j. Soil capability subclass

3. Capability of soil resource for agricultural use.

   a. Depth to bedrock (hard, soft)
   b. Depth to cemented pan
   c. Depth to high water table (kind, months)
   d. Slope
   e. Flood hazard (frequency, duration, season)
   f. Fraction greater than 3 inches (weighted average to 40 inches)
   g. Permeability rate
   h. Available water capacity
   i. Soil reaction (pH)
   j. Erosion factors (K, T)
   k. Wind erodibility group
   l. Organic matter percent
   m. Hydrologic group

4. Chemical nature of the soil.

   a. Nickel
   b. Manganese
   c. Arsenic
   d. Cadmium
   e. Chromium
   f. Lead
   g. Zinc
   h. Copper

B. Dredge Sediment

1. Partical size analysis (percent sand, silt, and clay) by a mechanical method (hydrometer), so that silt versus clay percentages can be determined.

2. Chemical nature of the sediment (parameters listed in A4 above).

The previous information is needed for a complete environmental assessment. First, it is necessary for an assessment of the quality of the agriculture land where disposal may occur. If it is presently a high quality area (i.e., prime farmland), the area should not be considered for disposal of dredged material. Secondly, it is required for a comparison of the levels of certain elements in the soil and in the dredged sediment. If the levels of contaminants (in this case heavy metals) in the dredged sediment greatly exceed the levels of these elements in the soil, there is a potential for crops to incorporate these elements in their tissues at levels which may cause environmental damage. Thirdly, this information allows an assessment of the physical properties of the dredged sediment and how it will affect the physical properties of the agricultural land when they are mixed. If the clay content of the sediment is too high, a physically desirable soil texture may not be achievable.

The desirable physical and chemical properties of agricultural soil are known. The information described above should identify whether or not Harbor Beach sediments and agricultural soils are compatible. If they are, we believe this alternative would be environmentally preferable to any other alternative described in the draft EIS. We would be very much interested in persuing this alternative with you and the applicant, if it proves to be feasible.

Open-Water Disposal

3 Open-water disposal, although less desirable than agricultural application at this time, should also be considered further. According to our guidelines, the sediments in the harbor are moderately contaminated. Specifically, they contain elevated levels of volitale solids, chemical oxygen demand, zinc, ammonia, phosphorus, iron, nickel, manganese, arsenic, and total kjeldahl nitrogen. Many of these contaminants are indicative of agricultural influences as opposed to industrial or urban influences. Thus, while these sediments may represent a degraded condition, it is unlikely they contain toxic or hazardous compounds. Additionally, the levels of the contaminants mentioned are not that far above our nonpolluted range, and only a few of them are bioaccumulative or have potential to produce chronic toxic effects.

In order to more adequately assess the ecological effects of open-water disposal, the chemistry of the bottom sediments and an elutriate test should be determined on at least 3 samples from the proposed dredging area. If the chemistry of the bottom sediments has not worsened since the 1974 and 1978 analyses, and the elutriate data do not indicate the release of any persistent pollutants (i.e., heavy metals) over background levels, we would consider open-water disposal an environmentally preferable alternative to disposal in the wetland. Our preferred alternative remains, however, agricultural application unless and until it is proven unacceptable.

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Response to Comments

Letter From: U.S. Environmental Protection Agency

Comment No.	Response
3.	Open-Water Disposal Open water disposal of dredged material is presented as the proposed action in the FEIS. The requested tests have been completed, and the test results are included in the FEIS in Appendix B. The agricultural application of dredged sediment has been shown to be impractical for the reasons stated above (response 2).

DEPARTMENT OF HEALTH & HUMAN SERVICES — Public Health Service

Centers for Disease Control
Atlanta, Georgia 30333

(404) 262-6649

March 4, 1981

P. McCallister, Chief
Engineering Division; GRB
U.S. Army Engineer District, Detroit
Box 1027
Detroit, Michigan 48231

Dear Mr. McCallister:

1 We have completed our review of the Draft Environmental Impact Statement (EIS) for Maintenance Dredging and Dredged Material Disposal Facility of Harbor Beach, Michigan. We are responding on behalf of the U.S. Public Health Service and are offering the following comments for your consideration in preparing the Final EIS.

We have serious concerns about the proposed disposal of dredged material in 58 acres of wetlands when other alternatives appear feasible. No indication is made in the EIS about the value of these wetlands relative to ecologic and public health considerations. The U.S. EPA, U.S. Fish and Wildlife Service (FWS), and the Michigan Department of Natural Resources (MDNR) should be asked to assess the value of these wetlands to the area and determine if their removal would be contrary to our nation's policy to preserve our valuable wetland resources. If Corps Site 5 is a wetland and is not acceptable to U.S. EPA, U.S. FWS, and MDNR because it is a wetland, why is the preferred site which consists of about 58 acres of wetlands being proposed?

2 Using the Section 404 review process, is open lake disposal an environmentally feasible alternative for the proposed dredged sediments? Was open lake disposal considered feasible for Federal maintenance dredgings from this harbor in the past? EPA's and MDNR's position on open water disposal for dredged materials from this harbor should be clarified in the Final EIS.

3 According to the EIS, the upland farmland alternative west of the preferred lowland site has disadvantages for Detroit-Edison in terms of its construction and operation costs. The EIS also indicates that productive farmland would be encumbered. However, approximately 22.5 acres of this same area will be excavated to obtain the construction materials for the preferred lowland site. The EIS should provide a discussion on the value of these impacted agricultural lands and how their removal is consistent with the national policy to protect and conserve prime and unique farmlands.

Response to Comments

Letter From: U.S. Dept. of Health and Human Services

Comment No. **Response**

1. **Wetlands Issue**

Letters of comment from the U.S. EPA and the U.S. Fish and Wildlife Service are presented elsewhere in this section of the FEIS. These agencies have objected to use of the lowland site (the wetland area) because of projected adverse effects on wetlands. The Michigan Department of Natural Resources has denied Detroit Edison a State permit to dispose of dredged material at the lowland site. The lowland site was proposed because the site has a favorable location, geology, and topography. It was also planned to maintain a water level in the confined area so that wetland vegetation could reestablish after disposal operations were completed. Use of this site is no longer being considered as part of the proposed action. The proposed action now calls for the open water disposal of dredged material.

2. **Open Lake Disposal**

Open lake disposal of Harbor Beach Harbor sediments is considered to be a feasible alternative according to the guidelines for Section 404 of the Clean Water Act. Open lake disposal was utilized for the last dredging of the Federal project and Detroit Edison's access area. This dredging occurred in 1967. In 1974, EPA declared that the sediments were unsuitable for open water disposal. Recent sediment tests and consultation with EPA indicate that open water disposal is now the environmentally preferable alternative. The Michigan Department of Natural Resources has approved the open water disposal plan and has issued water quality certification to Detroit Edison and to the Corps under Section 401 of the Clean Water Act.

3. **Protection of Farmlands**

Use of the upland site for dredged material disposal would remove approximately 66 acres of farmland from crop usage for at least 10 years. If the lowland site was utilized, impacts on farmland would be less; however, approximately 22.5 acres of farmland would be affected by the borrow pits. All of this farmland is considered to be productive land. The proposed action is to dispose of the dredged material into the open water of Lake Huron, and no farmland would be impacted by open water disposal.

4 From the discussion about flooding effects, the construction of the preferred disposal site will raise flood elevations for several private properties neighboring the proposed site. Are these flood level increases consistent with Section 2(a)(2) of Executive Order 11988 - Flood Plain Management?

5 In conclusion, we believe more consideration should be given to spreading the dredged material on agricultural lands provided such spreadings will not degrade the long-term agricultural potential of the land and will not contain adverse concentrations of toxic or hazardous materials.

We appreciate the opportunity to review this Draft EIS. Please send us one copy of the Final EIS when it becomes available. Should you have any questions regarding our comments, please contact Mr. Robert L. Kay of my staff at FTS 236-6649.

Sincerely yours,

Frank S. Lisella, Ph.D.
Chief, Environmental Affairs Group
Environmental Health Services Division
Center for Environmental Health

Response to Comments

Letter From: U.S. Dept. of Health and Human Services

Comment No.	Response

4. Flood Plain Management

The stream diversion would cause a minor rise in flood elevations for a north-neighboring property. Section 2(a)(2) of Executive Order 11988 states that Federal agencies shall consider alternatives to avoid adverse effects and incompatible development in the floodplains. Alternatives are presented in the DEIS and in the FEIS. If the lowland site is selected for the disposal of dredged material, construction techniques would be employed to minimize any potential harm within the floodplain. However, it is currently proposed to dispose of the dredged material in the open waters of Lake Huron. Open water disposal would have no effect on floodplains.

5. Agricultural Lands

Refer to page 17 of the FEIS for a complete discussion of the alternative of spreading the dredged material on farmland. Sufficient information has been presented to indicate that this alternative is not practical. The lands investigated by Detroit Edison have soils that would not be compatible with the dredged material. Locating enough land not owned by Detroit Edison where soils could be compatible, arranging operational agreements with land owners, and handling excess water from the dredged material to prevent soil erosion and water quality problems are factors that make this alternative impractical.

United States Department of the Interior

OFFICE OF THE SECRETARY
NORTH CENTRAL REGION
175 WEST JACKSON BOULEVARD
CHICAGO, ILLINOIS 60604

ER 81/69

March 16, 1981

Colonel Robert Vermillion
District Engineer
U.S. Army Engineer District
Detroit
P.O. Box 1027
Detroit, Michigan 38231

Dear Colonel Vermillion:

The Department of the Interior has reviewed the Draft Environmental Impact Statement (DEIS) for Maintenance Dredging and Dredged Material Disposal Facility at Harbor Beach, Michigan. Consolidated Departmental comments are provided for your consideration.

GENERAL COMMENTS

1 The proposed action to deepen the harbor at Harbor Beach, Michigan, and to dispose of the dredged material in a nearby containment facility will not adversely affect minerals or mining. The Bureau of Mines has no objections to the DEIS as written.

2 The wildlife data contained within the report text is generally too cursory in nature, and remiss in many areas relating to the wildlife values of the area. Additional data should be extracted from the appendix section for inclusion within the main body of the text. Adequate information is provided, however, to indicate

3 that the wetland area is not a suitable location for a dredging disposal site. Many alternative disposal methods suggested at the July 16, 1980, scoping meeting have not been adequately expanded within the report as requested by the Fish and Wildlife Service (FWS). Open-water disposal for the creation of artificial habitat

4 (pages 39 and 40), i.e., marsh creation, appears to be a very possible and desirable alternative for this location.

5 If the Corps of Engineers (COE) believes it to be expedient to reactivate the formal site selection process for a Harbor Beach disposal project, the FWS will be pleased to participate in locating an environmentally beneficial and acceptable location.

Response to Comments

Letter From: U.S. Dept. of the Interior

Comment No. Response

1. Bureau of Mines

Comment is noted.

2. Wildlife Data

The text of the DEIS summarizes significant wildlife data that was obtained from a one-year wildlife survey conducted for Detroit Edison by Hazelton Environmental Science Corporation. Detailed survey information is presented in the appendix to substantiate that contained in the text. This method of presentation is consistent with the guidelines for implementing the National Environmental Policy Act which advocate a concise format for the text.

3. Alternatives

All of the alternatives raised at the scoping meeting were considered in the DEIS. The alternative section of the FEIS has been expanded to include additional information concerning alternatives.

4. Artificial Habitat (Marsh Creation)

Marsh creation is discussed in the DEIS on pages 13 and 14. It is discussed in the FEIS on page 16. A marsh creation project would require that dikes be constructed offshore to contain dredged material. The costs of constructing dikes able to withstand expected wave forces would be substantial. Since the sediments are now believed to be suitable for open water disposal, the additional costs for marsh creation would not appear to justify possible benefits. A plan of utilizing an existing breakwater within the harbor in conjunction with a marsh creation project has been considered, but this would not be practical since it would cause a restriction of water flow within the harbor. Such a restriction would adversely affect water quality in the harbor.

5. Formal Site Selection

The sediments are considered to be of a suitable quality for open water disposal. Therefore, a site for a confined disposal facility is no longer believed to be necessary. The open water disposal plan has been coordinated with the U.S. Fish and Wildlife Service through the circulation of public notices dated 17 August 1981 and 21 August 1981. A "no comment" response was received for both public notices. The FEIS is also being forwarded to the Fish and Wildlife Service for review.

6 The wetland disposal site proposed within the draft document is not acceptable to the FWS. Therefore, we recommend denial of the permit. The proposed site is easily equated to Corps Site 5, page 11, which was previously found unacceptable by the site selection committee.

7 Use of the area by the Corps would be in violation of Executive Order 11990, Wetlands Protection.

8 Mitigation measures for unavoidable environmental losses associated with the different alternatives should be developed.

SPECIFIC COMMENTS

9 Page 13, Paragraph 2.18:

Artificial habitat creation should be considered more fully, but it should be under Corps jurisdiction (Section 150, Development). Marsh creation opportunities may exist by using the dredged material as marsh substrate.

10 Page 16, Paragraph 2.25:

Agricultural use of the dredged material would appear practicable and beneficial. All available methods for dewatering dredge material should be fully explored to negate objectionable aspects of its use. During the scoping meeting on July 16, 1980, area farmers expressed their support for use of the material. As no public hearing was conducted prior to publication of this document, current public opinion is not provided.

11 Pages 23 and 24, Paragraphs 3.07, 3.08, 3.09, and 310:

Avian species lists should be provided within the text. Numerous hawks are known to utilize the area during certain periods.

12 Page 24, Paragraph 3.11:

The value of the area as a deer wintering location has not been adequately addressed within the document. Such information was requested at the July scoping meeting. The high value of red-osier dogwood to the wintering deer herd should be considered in determining the value of the area.

By using the productivity data found on page A5-5, a carrying capacity of approximately 51 deer per year is calculated as being possible for the area.

Response to Comments

Letter From: U.S. Dept. of the Interior

Comment No.	Response

6. FWS Recommendation

Comment is noted.

7. Executive Order 11990

Comment is noted. Executive Order 11990 requires that the Corps determine whether practicable alternatives exist for actions proposed in wetlands. The open water disposal alternative is now believed to be practicable.

8. Mitigation

Mitigation is discussed in paragraph 2.30, page 18 of the DEIS.

9. Page 13, Paragraph 2.18

The discussion of the marsh creation alternative that was presented in the DEIS has been expanded in the FEIS. Under Section 150 of the Water Resources Development Act of 1976 (Public Law 94-587), funding for marsh creation projects can be provided if environmental, economics and social benefits of creating a wetland area justify the increased cost thereof above the cost required for alternative methods of disposing of dredged material. Open water disposal of dredged material is considered to be possible at Harbor Beach, and this method of disposing of the dredged material is also the least expensive. In all likelihood, the cost of constructing dikes for marsh creation would preclude consideration of funding for marsh creation under the Section 150 program.

10. Page 16, Paragraph 2.25

See page 17 of the FEIS for a discussion of the alternative involving the agricultural application of dredged sediment. Detroit Edison lands do not have compatible soils for the application of dredged sediment. There does not appear to be a feasible method of transporting the dredged material directly to agricultural lands, if acceptable private lands could be found. Trucking saturated sediments is not feasible. Hydraulic pipeline transport would cause erosion and water quality problems due to the runoff of large amounts of excess water. The logistics involved in locating enough land to spread the dredged material thinly also makes this alternative impractical. See page 4 of the FEIS for a discussion of public involvement.

11. Pages 23 and 24, Paragraphs 3.07, 3.08, 3.09, and 3.10.

An avian species list for the lowland site in Rubion Township has been included in the FEIS on page C-2.

12. Page 24, Paragraph 3.11

Pages A5-16 and A5-17 of the DEIS provide deer survey data that was compiled by Hazleton Environmental Sciences Corporation. Additional deer survey information has been added to the FEIS on page C-4. A total of 19 deer were sighted at the lowland site between April 1978 and Janaury 1979 (3 days per month of field investigations).

13 Page 38, Paragraph 4.02:

Although dredging operations would cause only temporary increases in turbidity, we believe that measures such as turbidity curtains should be considered for use in controlling the migration of the fine-grained sediments (page A3-23) that may be resuspended within the water column.

14 Pages 39 and 40, Table 5:

Cost figures should be provided for all alternatives. The type of artificial habitat creation is not defined. The cost of a marsh creation alternative should be documented.

Selection of an Environmental Quality Plan has not been made within the document.

15 Page 51, Paragraph 4.18:

The primary shrub species, red-osier dogwood, should be added to the shrub-swamp identification as the dominant species present.

16 Final disposition of the site, after filling, is not specified. Such information should be provided. The extent of the area's use as winter deer habitat should have been documented prior to DEIS publication. The value (status) for deer wintering habitat of the estimated 1,745 acres is not provided (i.e., carrying capacity, urbanization, farmsteads, farming, cleared land, roads, habitat quality). A cover map of the area **17** should have been made, utilizing low altitude aerial photographs as a base.

18 Page 53, Paragraph 4.24:

The overall secondary and cumulative effects of the habitat loss on the many wildlife species utilizing the area have not been provided. Loss of wintering habitat for many species can affect populations over a large area.

19 Page 54, Paragraph 4.30:

No documentation has been provided to indicate that loss of the area would result in only "a minor lessening effect on hunting opportunities". Overall deer populations could be severely affected by the project through loss of habitat and increased mortality.

20 SUMMARY

Based on available information and our field review, the FWS continues to object to the issuance of the necessary permits from the COE for the Rubicon Site.

Response to Comments

Letter From: U.S. Dept. of the Interior

Comment No.	Response
13.	Page 38, Paragraph 4.02 Comment is noted. Turbidity curtains could be used if the turbidity is determined to be a significant problem.
14.	Pages 39 and 40, Table 5 The available cost figures are provided on page 25 of the FEIS. Artificial habitat creation is presented in Table 5 of the DEIS as a concept of using the dredged material for wildlife habitat purposes or for a recreational use. If feasible, marsh creation could be considered as the Environmental Quality Plan. An Environmental Quality Plan is one specifically designed to enhance, complement, or preserve the environment of a project area or lessen adverse impacts while allowing implementation of the major objectives.
15.	Page 51, Paragraph 4.18 Red-osier dogwood is identified as a dominant shrub in the shrub - swamp in paragraph 3.04 of the DEIS.
16.	Final Disposition of the Site Detroit Edison has not formulated plans for disposition of the lowland site in Rubicon Township.
17.	Deer Habitat The DEIS was circulated to State and Federal wildlife agencies to solicit comments and information regarding wildlife issues. The results of a wildlife survey conducted by Hazelton Environmental Sciences Corporation for Detroit Edison were summarized in the DEIS. There was not sufficient space in the document to present all of the survey findings. Some information relating to deer surveys that was not presented in the DEIS has been included in the FEIS on page C-4.
18.	Page 53, Paragraph 4.24 Paragraph 4.19, page 51 of the DEIS correctly indicates that the major implication of utilizing the lowland site would be the less of approximately 33.3 acres of forested wetland. It was proposed to maintain a water level within the confined disposal facility to allow for the reestablishment of wetland vegetation following dredged material disposal. Habitat for those species of wildlife that utilize on aquatic environmental could be enhanced by this plan. Habitat would, therefore, be altered and not entirely lost. The loss of forested wetland vegetation would have cumulative effects.
19.	Page 54, Paragraph 4.30 Information regarding the exact number of deer that would be severely affected by the project through loss of habitat is not available. It is known that other deer habitat exists north and east of the lowland site in Rubicon Township. As previously mentioned, a total of 19 deer were sighted at the lowland site between April 1978 and Janaury 1979 (3 days per month of field investigations).
20.	Summary Comment is noted.

21 We recommend that the COE again initiate the formal site selection process to locate an environmentally suitable 10-year disposal location. We also recommend that the Corps Site 4 be used to accommodate the present backlog material. A permit could be issued to the Detroit Edison Company for this purpose. The location should not be designated as a 10-year site. Future dredge material may be clean enough for open-dike disposal.

If you have any questions concerning these comments or recommendations, please contact Mr. Rick Julian, Biologist, East Lansing Ecological Services Field Office, at 517/337-6657 (FTS: 374-6657).

Sincerely yours,

Sheila D. Minor

Sheila D. Minor
Regional Environmental Officer

Response to Comments

Letter From: U.S. Dept. of the Interior

Comment No.	Response
21.	**Site Selection** The Environmental Protection Agency has indicated that the sediments from Harbor Beach Harbor are now suitable for open water disposal. Therefore, a site for a confined disposal facility is no longer considered necessary.

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
REGION 5
18209 DIXIE HIGHWAY
HOMEWOOD, ILLINOIS 60430

February 13, 1981

IN REPLY REFER TO:
HEP-05

U.S. Army Engineer District, Detroit
P.O. Box 1027
Detroit, Michigan 48231

Gentlemen:

1 The draft environmental statement for the maintenance dredging and dredged material disposal facility for the Detroit Edison Company at Harbor Beach, Michigan has been reviewed. We note the proposed action will involve the construction of a pipeline crossing on M-25 and Rapson Road. While it is indicated the proposed construction will not impact local vehicular traffic, the statement does not indicate the possible effects of the proposed construction on existing highway drainage along Rapson Road or where the pipeline crosses M-25 to the south. We suggest these impacts be addressed in the final statement.

Sincerely yours,

FOR James A. Walsh
Associate Regional Administrator
for Planning and Program Development

cc: HEV-10
P-20
Reg. Rep. of Secy.
EPA W/O (5 copies)
D/O - Michigan

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Response to Comments

Letter From: U.S. Department of Transportation
Federal Highway Administration

Comment No.	Response
1.	Open water disposal is now the proposed action, and pipeline crossings of roads are no longer planned. If road crossings were to occur, provisions could be made for insuring that drainage is maintained along these roads.

Detroit Edison
2000 Second Avenue
Detroit, Michigan 48226
(313) 237-8000

March 9, 1981

Colonel Robert V. Vermillion
District Engineer
U.S. Army Corps of Engineers
P.O. Box 1027
Detroit, MI 48231

Subject: Draft Environmental Impact Statement Maintenance Dredging and Dredged Material Disposal Facility at Harbor Beach, Michigan, January 1981

Dear Colonel Vermillion:

The Detroit Edison Company (the Company) herewith submits its comments on the above-referenced Draft Environmental Impact Statement (DEIS). Detailed comments are attached to this letter and are referenced to specific pages. These comments result primarily from updated and more accurate information developed due to further engineering of the proposed lowland disposal facility and the alternative upland disposal facility.

There are several issues, however, which the Company believes warrant special attention and, therefore, are addressed in the body of this letter. They are:

1 Sediment Classification Criteria

The sediment classification criteria cited in the DEIS is the 1977 "interim guideline" developed by EPA Region 5. As noted on page A2-18 of the DEIS, these "interim guidelines" were to have been used "until more scientifically-sound guidelines are developed". Further, these "interim guidelines" were never formally promulgated by the U.S. EPA.

The Company believes that the informal "interim guidelines" have been superseded by the recently-promulgated EPA "Guidelines for Specification of Disposal Sites for Dredged or Fill Material", 40 CFR Part 230 (45FR85335, et seq). The EPA Guidelines, promulgated December 24, 1980, (the "1980 Guidelines") state that they are applicable to all 404 permit decisions made after March 23, 1981 and, therefore, are the more appropriate review criteria for the dredging and dredged material disposal for Harbor Beach.

Response to Comments

Letter From: Detroit Edison

Comment No.	Response
1.	**Sediment Classification Criteria** The 24 December 1980 guidelines are applicable for the environmental evaluations of dredged material disposal at Harbor Beach. It should be noted that the testing requirements which were published on 24 December 1980 in the Federal Register for these guidelines are proposed rules and have not been officially adopted. The 1980 guidelines have been published by EPA in an attempt to make it clear what has to be considered in evaluating a discharge and what weight should be given to such considerations. The guidelines allow some room for judgement in determining what must be done to arrive at a conclusion. Views of the U.S. Environmental Protection Agency, other Federal and State agencies, private organizations, and individuals are considered during the environmental review process to aid in forming judgements about proposed discharges of dredged material.

2 Sediment Characterization

In numerous instances in the DEIS, the sediments at Harbor Beach have been variously characterized as "polluted", and "moderately polluted" and also "contaminated". The Company believes that such characterization is both inappropriate and in conflict with the "1980 Guidelines".

The informal 1977 "interim guidelines" of EPA Region 5 relied on a single tier of analyses to characterize sediments and, if the concentration of certain constituents in the sediments exceeded specified limits, the material was then classified as "moderately polluted" or "heavily polluted". Consequently, nearly all fine-grained sediments as well as many rocks become classified as polluted under these interim guidelines.

Under the formal "1980 Guidelines", the presence of certain constituents in the fine-grained sediments or rock is not sufficient reason to automatically classify the material as "polluted". Rather, three tiers of analyses are used to identify those sediment constituents which would be released to the water column or benthos since only those constituents pose a threat to the aquatic environment.

The Company, at the request of the Corps of Engineers, is performing additional elutriate analyses, which is the second tier of analyses cited in the "1980 Guidelines". Based upon previous test results, it is our belief that the additional analyses will confirm that disposal of the sediments in the proposed diked facility will not result in the ready release of sediment constituents, nor in the contamination and degradation of the environment.

If the results of the additional elutriate tests confirm that open water disposal of the dredged material would not significantly degrade the water quality of Lake Huron, the Company would be amenable to utilizing open water disposal of the harbor dredgings if other governmental agencies with jurisdiction over the disposal would permit this method. Current cost projections show that open water disposal would be significantly less than alternative disposal methods, as follows:

Disposal Method	Total Projected Cost
Open Water Disposal	$1.9 Million
Lowland CDF	$3.7 Million
Upland CDF	$4.4 Million

Response to Comments

Letter From: Detroit Edison

Comment No.	Response
2. Sediment Characterization	The terms "nonpolluted," "moderately polluted," and "heavily polluted" are derived from the EPA, Region 5, guidelines. These terms are not defined in the guidelines, and the interpretation of the overall classification of sediments is necessarily somewhat subjective (as is stated in the guidelines). For purposes of open water disposal, sediments can best be described as either "suitable" or "not suitable". Based on the results of recent elutriate tests and consultation with the Environmental Protection Agency, the sediments from Harbor Beach Harbor are now considered to be suitable for open water disposal. The Michigan Department of Natural Resources has granted water quality certification to Detroit Edison and to the Corps for the proposed open water disposal plan under Section 401 of the Clean Water Act.

The increased costs for disposal of the dredged sediments would ultimately be passed on to the customers of the Company.

Thus, the Company submits that characterization of the sediments at Harbor Beach should be based on the additional elutriate test analyses and the "1980 Guidelines". Such characterization would result in more accurate assessment and description of the project impacts upon the environment.

3 Secondary and Cumulative Impacts

The Company does not believe that discussion of the possibility of using the borrow areas for ash disposal is appropriate in the DEIS. Such usage would require independant licensing activity (from the Michigan DNR under Act 641) from that under Section 10 and Section 404, for which the DEIS was prepared. Certainly, this possibility of use is not a "secondary or cumulative impact" since the ultimate use of the borrow areas is speculative and unrelated to the effects of creating them by construction of the lowland disposal facility.

The issue of whether there will or could be future power plant development is also speculative and should not be considered a "secondary or cumulative impact" in the DEIS. The proposed harbor dredging at Harbor Beach is needed to allow ships to continue to deliver coal to the Harbor Beach Power Plant and without which the continued plant operation could become uneconomical or impossible.

The Company appreciates this opportunity to comment on the DEIS. Please call Michael Blunden (649-7355) or John Decator (649-7377) should any additional information be required.

Yours truly,

Peter H. Cook, Supervisor
Civil Group II
Architectural/Civil Division

PHC:JRD/kt

Attachment

CC: M. Grazioli
G. Mannesto
M. Nielsen

Response to Comments

Letter From: Detroit Edison

Comment No.	Response
3.	Secondary and Cumulative Impacts

The borrow pits were planned to encompass approximately 22.5 acres. Since the borrow material was to have been used for construction of the dredged material disposal facility, impacts from excavating borrow pits were appropriately discussed as secondary impacts in the DEIS. Using borrow pits for fly ash disposal would be a logical proposal for a coal-fired power plant operation. Therefore, this use was discussed in the DEIS. No formal plans for final disposition of the borrow pits have been submitted to the Corps. The impacts of future power plant development were not discussed as secondary impacts because the Corps was informed that there are currently no plans to proceed with new generation facilities in the Harbor Beach area.

Colonel Robert V. Vermillion
March 9, 1981
Attachment - Page 1

COMMENTS BY THE DETROIT EDISON COMPANY
ON THE
DRAFT ENVIRONMENTAL IMPACT STATEMENT
MAINTENANCE DREDGING AND DREDGED MATERIAL
DISPOSAL FACILITY
HARBOR BEACH, MICHIGAN
JANUARY 1981

The Detroit Edison Company submits the following specific, detailed comments concerning the subject Draft EIS for your review and evaluation:

No.	Page	Line(s)	Comment
1	ii	12.14	The statement "....borrow area could be later utilized for the disposal of fly ash...." is both inappropriate and irrelevant. This usage is speculative and would require independent licensing activity (from the Michigan DNR under Act 641) from that under Section 10 and Section 404, for which the DEIS was prepared. This comment should be deleted.
2	ii	18,20,27	The characterization of the harbor sediments as "contaminated" is inappropriate. Refer to the comments in the cover letter regarding characterization of sediments.
3	ii	27,28	The statement "Disposal..... on land would aid in improving the water quality of Lake Huron..." is not substantiated. Although potentially-polluting substances are found in the sediments, Detroit Edison is unaware of any study which documents the release of such substances into the waters within the harbor. Additionally, the water quality within the harbor is described as "good" based on a 1978 sample analysis, noted on page 31, paragraph 3.19 in the DEIS.
4	iii	9	See Comment No. 1.

Response to Comments

Letter From: Detroit Edison

Comment No. Response

1. Borrow Pits

This particular statement has been deleted from the FEIS. However, the FEIS maintains a reference to the possibility of using the borrow pits for fly ash disposal. It is recognized that actual plans for use of the borrow pits have not been formulated. The open water disposal of dredged material now being proposed does not call for the excavation of any borrow pits.

2. Sediment Characterization

The sediments are described in the FEIS as being suitable for open water disposal. This determination is based on EPA's review of recent sediment test data.

3. Disposal On Land

Open water disposal of dredged material would have minor, temporary impacts on water quality. If the dredged material is placed on land, some of these effects on water quality could be avoided. However, on land disposal involves other impacts which are considered to be more environmentally damaging than open water disposal at Harbor Beach, Michigan.

4. Borrow Pits

Comment is noted. See No. 3 response.

No.	Page	Paragraph	Comment
5	3	1.07	The 1979-1980 winter peak demand was approximately 200 MW (megawatts).
6	5	2.01	The description of the quantity of dredgings is unclear. Current estimates are that 750,000 c.y. of sediment would be dredged initially, of which approximately half would be from the Federal portion of the harbor and the balance from the access area to the Harbor Beach Power Plant dock. Maintenance dredgings of approximately 150,000 c.y. each, of which half would be from the Federal portion of the harbor and the balance from the plant dock access area, would be planned at 5-year and 10-year periods following the initial dredging. Refer to page A3.22 in the DEIS.
7	7	2.06	The area immediately underlying the containment dikes would be cleared of all trees, brush, and other vegetation prior to dike construction. Within the disposal basin itself, trees would be cut to waist-height and brush would not be cleared.
8	7	2.07	At the borrow pit location, only the top foot of primarily loamy soil would be stripped and stockpiled along the western edge of the pit. No berm would be constructed around the perimeter of the borrow pit.
9	8	2.07	See Comment No.1.
10	9	2.12	The characterization of the sediments as "moderately polluted" is inappropriate. Refer to the comments in the cover letter regarding characterization of sediments.

Response to Comments

Letter From: Detroit Edison

Comment No. — Response

5. Megawatts

This correction has been made. See paragraph 1.09 of the FEIS.

6. Dredging Quantities

See paragraphs 2.01 and 2.02 of the FEIS. Approximately 325,000 cubic yards of sediment would be removed during the initial dredging of Detroit Edison's channel. Detroit Edison has also requested authority to dredge an average of approximately 32,500 cubic yards of sediment on an annual basis for the next 10 years. After the initial 325,000 cubic yards of sediment are removed, it is anticipated that dredging would only be required at 5 and 10 year intervals. The Corps of Engineers proposes to dredge approximately 350,000 to 425,000 cubic yards from the Federal project area during the initial dredging operations. The initial maintenance dredging of backlogged material may extend over two or more dredging seasons to accommodate the environmentally preferred dredging periods and funding limitations. Dredging of the Federal project area would also be performed in subsequent years when required. Shoaling throughout the Federal project area averages 35,000 cubic yards annually. It is expected that maintenance dredging of the Federal channels would be scheduled one or two times over the next 10 years.

7. Clearing of Trees

This paragraph has been corrected in the FEIS. See paragraph 2.12 on page 8 of the FEIS.

8. Borrow Pits

This paragraph has been corrected in the FEIS. See paragraph 2.13 on page 8 of the FEIS.

9. Borrow Pits

Comment is noted. See No. 3 response.

10. Sediment Characterization

See No. 2 response.

No.	Page	Paragraph	Comments
11	9	2.13	The discussion of treatment methods is inappropriate. The concern which should be addressed when considering open water disposal is the potential release of substances that would pollute the water column and the benthos. Present elutriate test results have indicated that little release of polluting substances would occur. Only ammonia was found in elevated concentrations in the effluent and its concentration was comparable to that found in the effluent from a properly designed and operated wastewater treatment plant. Refer to comments in the cover letter regarding characterization of sediments under the "1980 Guidelines".
12	10	2.15	The alternative upland disposal facility described was based on early conceptual engineering for an 8-celled disposal facility. Subsequent engineering has resulted in substantial design revision to the upland facility. Refer to the description of the lowland facility and the alternative upland facility on pages A3-21 through A3-30.
13	13	2.18	Creation of marsh areas and islands is not consistent with the characteristics of this portion of the Lake Huron shoreline.
14	17	2.26	Change "economically impractical" to "uneconomical".
15	17	2.28	See Comment No. 10.
16	19-24		It should be noted that terrestrial base line studies identified a flatland area bounded by Lake Huron on the east, the bluff on the west, Filion Road on the north and extending south of Rapson Road about one quarter mile. The total acreage of the flatland area is 1,745 acres, which far exceeds the 65 acres proposed for use as a disposal site. Additionally, the alternative upland site would impact on the hydrologic conditions which cause the adjacent lowland area to be seasonally inundated. See pages A3.26 through A3.28.
17	32	3.23 & 3.24	The description of the EPA Region 5 "interim guidelines" should be clarified with reference made to the "1980 Guidelines" mentioned in the cover letter.

Response to Comments

Letter From: Detroit Edison

Comment No. **Response**

11. Treatment Methods

Based on the recent sediment test results, treatment of the dredged material is no longer considered to be necessary for the open water disposal of the material.

12. Upland Facility

Comment is noted. This paragraph been revised in the FEIS. See paragraph 2.29 on page 14 of the FEIS.

13. Marshland Island Creation

Comment is noted.

14. Change

"Economically impractical" has been changed to "uneconomical" in the FEIS. See paragraph 2.47 on page 19 of the FEIS.

15. Comment No. 10

This paragraph has been rewritten in the FEIS to indicate that the sediments are considered to be suitable for open water disposal. See paragraph 2.42 on page 18 of the FEIS.

16. Base Line Studies

Comments are noted.

17. Interim Guidelines

These paragraphs have been rewritten in the FEIS to describe sediment quality. See paragraphs 3.05 to 3.08 on page 29 of the FEIS.

No.	Page	Paragraph	Comment
18	39,40	Table 5	Alternative A evaluation factors I.2, I.3 and I.4 are not consistent with the text on page 4 and page 52, paragraph 4.22.
18-1	"	"	Alternative A evaluation factor III.2 is not consistent with the text on pages 3 and 4.
18-2	"	"	Alternative C evaluation factor I.6 notes that treatment of sediment prior to disposal would cause this alternative to be more costly than Alternative F. If the envisioned treatment is that described on page 9, Detroit Edison submits that such treatment serves no purpose. If only mitigative measures to reduce siltation are envisioned, such as bottom discharging of dredgings through a chute or providing turbidity curtains around the disposal site, the associated costs for Alternative C would remain significantly lower than for Alternative F.
18-3	"	"	Alternative C evaluation factor II.2 describes open water disposal as eliminating aquatic bottomland. Although this disposal method would temporarily displace and/or eliminate benthos, the affected community is small when compared with the total shoreline community, and the affected area could reasonably be expected to recover with time.
18-4	"	"	Alternative D evaluation factors I.5 and I.7 are not valid. Since dredging of the harbor would be restricted to summer months, the resulting inundation of planted fields with several inches of dredged slurry would most probably result in stunting of the crop, particularly in the proximity of the discharge pipe. Also, if the former EPA "interim guidelines" are followed, about 10 square miles of crop would have to be destroyed the following year, or the land not used for agricultural purposes. See pages A1.21 and A1.22.

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Response to Comments

Letter From: Detroit Edison

Comment No. — Response

18. Alternative A, Table 5

Table 5 has been revised in the FEIS. See page 27 of the FEIS. Plant shutdown would have effects on the local labor force and on business activity. Readers of the EIS should refer to Section G on page 19 of the FEIS for a complete discussion of the "no action" alternative.

18-1. Alternative A, Table 5

This factor has been changed in the FEIS to indicate that loss of electrical power could have public safety implications.

18-2. Alternative C, Table 5

Comment is noted. The construction and operation of an on land treatment facility could conceivably be more expensive than the use of lowland site for dredged material dipsosal. The dredged material is now considered to be suitable for open water disposal without treatment. Table 5 has been changed accordingly in the FEIS.

18-3. Alternative C, Table 5

Comment is noted. "Elimination" on this table has been changed to "Alteration" in the FEIS. See paragraphs 3.03 and 3.04 on page 27 of the FEIS for a description of the open water disposal site.

18-4. Alternative D, Table 5

Comments are noted. Readers of the EIS should refer to Section D on page 17 of the FEIS for a discussion of the alternative of placing the dredged material on farmland.

No.	Page	Paragraph	Comment
19	43	4.10 & 4.11	A key trench would be cut through the surficial sand deposits to the underlying till, beneath the dikes of the disposal facility, if the results of the elutriate tests presently underway indicate a possibility of migration of polluting substances into the groundwater.
20	44	4.12	The supernatant chemistry analysis was performed by Harding-Lawson Associates and not Dames and Moore as noted.
21	52	4.21	See Comment No.2 regarding characterization of sediments.
22	53	4.24	See Comment No. 1 regarding use of the borrow pit site for fly ash disposal. Such usage would, at this time, be licensed by the Michigan DNR.
23	55	4.34	The zoning variance would be secured from the Huron County Planning Commission and not from Rubicon Township as noted.
24	56	4.35	After utilization for the initial dredging and two subsequent maintenance dredgings, the Company would allow the lowland site to revert back to a wetland environment. See page A3.28.
25	A2.17 through A2.22		See the cover letter regarding the "1980 Guidelines".
26	A3.2 through A3.20		These statements regarding environmental concerns have been updated and revised since their original preparation in July of 1980 to more effectively discuss the concerns expressed during the Scoping Meeting by various agencies and interested citizens. A revised copy was forwarded to the Corps of Engineers in January of 1981. The Company respectfully requests that the earlier submittal be deleted and the revised submittal be incorporated in the final EIS.

Response to Comments

Letter From: Detroit Edison

Comment No. — Response

19. **Key Trench**

    Comment is noted.

20. **Supernatant Chemistry**

    Comment is noted.

21. **Sediment Characterization**

    See No. 5 response.

22. **Borrow Pits**

    See No. 4 response. Comment is noted.

23. **Zoning Variance**

    Comment is noted.

24. **Lowland Site**

    Comment is noted.

25. **"1980 Guidelines"**

    Comment is noted.

26. **Environmental Concerns**

    This revised information has been included in the appendix of the FEIS. See page C-11.

March 5, 1981

Dear Mr. Vermillion

My name is Wally Booms, a local property owner near Harbor Beach. I am complying with your Public Notice Letter NCCCO-LP 792253 I am concerned about drinking water from our well so I own property just east of the proposed Dispoil site from the Harbor Dredging in Harbor Beach. I have reason to believe that the source of my well comes from that low lying wetland you described. My well has never gone dry or given trouble in its past 20 years as others have further North away from this wetland. The Harbor sludge just may seal off the source of supply to my well, or contaminate it. also Back in 1979 when Detroit Edison did a number drilling test holes on this same property the water from my well turned a murky, hazy color from its natural crystal clear state. This condition began after the drillings were started and continued throughout the summer of 1979 and part of the fall. Since then it is back to its former state pureness and excellent taste.

1

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Response to Comments

Letter From: Wally Booms

Comment No.	Response
1. Ground Water/Wells	Comments are noted. The current plan for disposing of the harbor sediments calls for the placement of the material in the open waters of Lake Huron. The selected disposal site is located approximate 3 miles east of the harbor breakwaters. This plan would not impact on any private wells. If the lowland site was to be used for dredged material disposal, more information than now available would be required to determine the effects on private wells. A system of monitoring the effects on groundwater could be employed if the lowland site was to be utilized.

I urge you to consider these facts as it may involve many more wells in the downstream area to this low lying wetland that is a wonderful
2 area for wildlife and nature at its best. I believe there are ways to deal with this problem other than piling up a collection of undesirables that do not comply with nature. Its also a complete destruction of farmland to create such a disposal pond.

Respectfully,
Wally Booms

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Response to Comments

Letter From: Wally Booms

Comment No.	Response
2. Wildlife	Comments are noted. The lowland site is not utilized as farmland, and it is considered unsuitable for such a purpose. Approximately 22.5 acres of adjacent farmland would be affected by the excavation of borrow pits to obtain dike material.

March 7, 1981

To: U.S. Army Engineer District, Detroit
From: Nancy L. and John T. Donaldson
26380 Wellington
Franklin, MI 48025 (313) 626-2650

Subject: Draft Environmental Statement on the Detroit Edison Co application for permit to dispose of dredged material at Harbor Beach, Michigan

Dear Sirs:

It has only recently come to our attention that the Detroit Edison Company seeks to dispose of material dredged from the Harbor Beach harbor on land that is very near our property on Lake Huron. Had we been contacted by your office, we would have submitted our comments earlier, but as we were not, we send them to you at this late date, hoping that you will still be able to answer our concerns and questions.

We own approximately 17+ acres of land between the Old Shore Road and Lake Huron. Our southern boundary is the northern boundary of property owned by the Detroit Edison Company (and owned formerly by Sullivan). In April, 1976, the Michigan Department of Natural Resources designated our property as an "environmental area" under the Great Lakes Shorelands Protection & Management Act (P.A. 245, 1970). The D.N.R. describes it as Environmental Area Number 11-12, Huron County, Rubicon Twp.

It is our understanding that our acreage was so designated because of its value in the nesting/spawning phases of coastal dependent fish and wildlife species. Under this designation we are prohibited from undertaking almost every activity known to man on our own property - certainly, not the least of which is to dredge, alter, enlarge, etc. the natural drainage within the Environmental Area.

Now we have discovered that Detroit Edison proposes to discharge overflow waters from its diked disposal area into Lake Huron through a heretofore intermittent stream that is on the southernmost portion of our property.

1 We are disappointed by the inadequacy of the EIS in describing the exact route of this overflow and the probable quality of the discharged waters. Writers of the EIS only seem concerned with convincing the world that the discharge is far enough away from the Harbor Beach Waterworks' intake not to pose a health hazard to the City's water supply. We can find no such reassurance about the discharge's effects on the fish and wildlife population in the stream and its point of discharge into Lake Huron. Nor does the EIS touch upon the quality of life for our family should we choose to build upon our designated "structure zone" in the Environmental Area.

2 Will this water be clean? Will it be odorless? Will it be released in reasonable quantities so as not to create excess erosion, turbidity, etc.? Will it carry suspended pollutants that will damage the wildlife that we, the Donaldsons, are paying taxes to preserve?

3 We urge the Corps to deny Detroit Edison's permit until it can be determined that the effluent from the diked disposal area will be (1) free from pollutants (2) odorless and (3) released in such a manner that the flow will not cause erosion and sedimentation of the receiving stream and its point of discharge into Lake Huron.

Please advise us of any further activity re this project.

Very truly yours,

Nancy L. Donaldson

John T. Donaldson

Copy: Michigan D.N.R.
Water Development Services Division

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Response to Comments

Letter From: Nancy and John Donaldson

Comment No.	Response
1.	**Weir Discharge** On page x of the DEIS, there is a map that indicates the weir discharge point and the overland flow. Weir discharge from other confined disposal facilities constructed by the Corps are monitored, and they have not had significant, adverse effects on fish and wildlife. Comment regarding the quality of life is noted.
2.	**Discharge Quality** Most of the solids from the dredged material would settle out within the confined disposal facility. The water discharged at the weir would be monitored to insure that acceptable water quality is maintained in accordance with Environmental Protection Agency and Michigan Department of Natural Resources policies. In addition, the flow from the weir could be controlled to preclude some of the adverse effects from erosion and turbidity. This control, as well as monitoring procedures, could be specified as part of the conditions of a Federal permit.
3.	**Water Quality** Comments are noted. These concerns will be considered in final actions on Detroit Edison's permit application and in the Corps' evaluation of the Federal dredging and disposal activities. The current plan for dredged material disposal is to place the material into the open waters of Lake Huron at a point approximately 3 miles east of the harbor breakwaters. Open water disposal is considered to be the least environmentally damaging of all the alternatives.

Harbor Beach, Michigan

February 9, 1981

U.S. Army Engineer District, Detroit
ATTN: General Regulatory Branch
Box 1027
Detroit, Michigan 48231

Ref (Process No. 7922530)

Dear Sir:

I want to thank you for sending me a copy of the Draft Enviromental Impact Statement.

1 My favorable comments concerning this project are limited to two alternatives. Before considering them, I feel that the new administration in Washington may have a new policy concerning projects such as this, in that it may be harder to get authorization and (or) funding. I am opposed to the low lying wetland disposal (the proposed action) (F), and also to (other wetland disposal) (E). The terrific expense involved in these two alternatives is basically my first consideration. I cannot in all fairness sit back and someday have my children or grandchildren ask me why did someone put a l that sour ground back up on the shore, when there is a huge lake to disfose it in. Is there any way (you or me) can get together with the appropriate agencies and have this material disposed of in the lake. No doubt other people are quite concerned because the proposed project will eliminate a low lying wetland wildlife area in the one case, and remove many acres of tillable land for farming in the other case.

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2 Now to the two alternatives that I prefer. I select alternative (C) as my first. Open water disposal will surely be the least expensive. The material is designated as being (moderately polluted). When I refer to disposal in the lake I mean taking it out at least 10-20 miles before dumping it, not a few miles as could easily be done and may have been in the past. The lake bottom samples that were taken inside the Harbor lead me to believe that a higher percentage of the material that is to be removed is really lake bottom and not polluted sludge.

3 My second preferred alternative is plan (B). I realize that this is more expensive, but I feel that an off shore island or land connected pennisula would be more appealing to the public, possibly even to the boating public for a small boat Harbor or docking facility's. I realize a lot more thought should go into this alternative as having lived here all my life, I am quite aware of how stormy and rough the lake gets when one is outside the Harbor of Refuge.

4 I would like to have the chance of hearing the pros and cons of this project discussed with the local people and representatives of DNR and Fish and Wildlife and EPA as well as Detroit Edison, preferably here in this area.

Thank you for the chance of addressing this situation.

Sincerely,

Robert D. Duncanson

Response to Comments

Letter From: Robert D. Duncan

Comment No.	Response
1.	**Open Water Disposal** Additional tests of the harbor sediments have been taken since circulation of the DEIS. The test results have been forwarded to the Environmental Protection Agency (EPA) and the Michigan Department of Natural Resources (MDNR) for review. Preliminary consultation with the EPA indicates that the material is suitable for open water disposal. The MDNR has approved the open water disposal plan and has issued water quality certification to Detroit Edison and to the Corps under Section 401 of the Clean Water Act. Open water disposal is presented as the proposed action in the FEIS, and open water disposal is considered to be the least environmentally damaging alternative.
2.	**Open Water Disposal Location** In 1967 when the harbor was last dredged, the open water disposal site was located approximately 1 1/4 miles east from the north breakwater light. The site currently proposed for open water disposal is located approximately 3 miles east of the harbor entrance. This 3 mile distance is as far as the material can be transported for an economical dredging operation.
3.	**Island Plan** An offshore island is considered to be more expensive than the open water disposal alternative.
4.	**Hearing** Comment is noted.

NCECO-LP792253

3-2-1981

Dear Mr. Manness

On a project as large as this after examining your (Print's) that the Detroit Edison did not even contact us on the sale of our lot which would be effected by the pollution. Also the previous owner of 17 lots along the Huron shore maintained a road (Strawberry Lane) so we could get in and out of our lot area. Now it is over grown an unable to get in.

My understanding was that as long as there was private property and who ever bought it would have to maintain the road.

Please add our name to the rejection of the proposed plan because of

1 Groand Water Contamenation

Sincerely

M.S. Frances Kazak

10376 Dar Lane

Goodrich Mich 48438

Tele # 313-636-7262

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Response to Comments

Letter From: Frances Kazak

Comment No.	Response
1.	**Pollution/Ground Water** The lowland site is underlain by clay which would help to prevent any downward leaching of substances from the dredged material. More information would be required to determine the effects on shallow wells in the area. The current plan is to dispose of the dredged material into the open waters of Lake Huron. Open water disposal would have no effects on groundwater.

March 6, 1981

Colonel Vermillion
U. S. Army Engineers District, Detroit
General Regulatory Board
Box 1027
Detroit, MI 48231

Re: Detroit Edison Permit Application
Process No. 792253C, and Draft EIS

Dear Col. Vermillion:

Thank you for this opportunity to comment on the draft environmental impact statement prepared for Detroit Edison Company's proposed disposal ponds for harbor dredgings and fly ash near Harbor Beach, Michigan.

1 Despite these voluminous writings the Company's proposed disposal scheme still seems more quick, cheap and dirty than responsive to the law or the environment. The Company proposes to permanently change 22 acres of prime farmland and 65 acres of valuable wetland when feasible and more likely alternatives exist. The Company is in this predicament because the Corps of Engineers gave up in its attempts to put forth a disposal plan. The current proposal has less merit than previous proposals. In this instance the Corps would be the major user of a facility that it would probably not be permitted to construct itself.

2 This draft EIS is inadequate because it avoids discussion of Edison's 3,000 acre power plant site surrounding the proposed dredge disposal site even though Corps regulations require consideration of potential developments in a disposal site area. This matter has been raised in previous letters commenting on this project. Detroit Edison's public relations problems in Huron County are not sufficient reason to avoid this subject. The Company has held this land for ten years as a power plant site and spent millions of dollars studying the feasibility of the site for a 3,600 megawatt coal fired plant. The Company's ultimate use of the surrounding land is clearly relevant and the draft EIS is inadequate because it does not address the subject in detail. Ask the Company to provide you with a copy of "Generation Land Utilization Plan".

3 A review of the Corps' General Regulatory Branch file on this project reveals that many thoughtful and well written letters came from the public commenting on the permit application. None of these letters are included in the draft EIS. The Corps presents page after page of inscutable and

Response to Comments

Letter From: Charles A. Parcells III

Comment No.	Response

1. General Comments

The DEIS was prepared in response to existing law and environmental concerns. The planning reports and the environmental inventory data submitted by Detroit Edison to the Corps of Engineers for use in preparation of the EIS are of high quality, and they do not support the contention that the presented plan is "quick, cheap, and dirty." During the time that has elapsed since the circulation of the DEIS, the harbor sediments have been retested and the alternatives have been reevaluated. Disposing of dredged material in the open waters of Lake Huron is now considered to be feasible. Open water disposal is presented as the proposed action in the FEIS. The Corps did put forth a disposal plan in 1977 (DEIS, December 1977), but this plan was rejected by the Huron County Board of Commissioners. Local sponsorship and approvals for any confined disposal facility sites have not been forthcoming. The statement concerning the Corps' use of a facility that it would probably not be permitted to construct itself is not valid because permit applications are objectively evaluated in accordance with existing environmental laws and Corps' regulations.

2. Secondary Impacts

Impacts from the possible construction of new generation facilities in the Harbor Beach area are not addressed in the EIS as secondary impacts. The Corps has been informed that there are currently no plans to proceed with development of new facilities in the Harbor Beach area. The proposed dredging and dredged material disposal actions relate only to the operation of the existing power plant.

3. Letters

The DEIS summarized letters of comment received on the public notice for the proposed project. See paragraph 5.02 on page 47 of the DEIS. A petition that was signed by several local residents was included on pages A1-23 through A1-24. These methods of presenting and identifying public comments were considered to be sufficient for the DEIS. Information that is presented in the DEIS was scrutinized, and material was selected for presentation based on its value for determining environmental effects. Public views are necessarily required for articulating relevant issues. Issues for discussion in the DEIS were identified through the scoping process and by means of a public notice. The FEIS is also being circulated for public review and comment.

uninterpreted raw data instead. How is it possible that the local citizens of Huron County can do a better job of articulating the relevant issues than the experts at the Corps of Engineers? Why were none of the comment letters written by the public included in place of some of the uninterpreted data?

4 The most difficult material in the draft EIS is the data concerning the chemical composition of the dredge spoil. No interpretation of the sampling data is provided and the guideline data is expressed in different numerical values. Do the authors wish to be informative about the nature of the dredge spoil? An examination of the sampling data and the guidelines suggests to me that the dredge soil is not polluted to any significant degree and could be discharged into the lake with no lasting effects. Why does the draft EIS contain no detailed discussion of this option?

5 There are additional considerations and comments which I will be happy to convey at the upcoming public hearing.

Very truly yours,

Charles A. Parcells III

Charles A. Parcells III
1167 Lakepointe
Grosse Pointe Park, MI 48230

CAP:mms

Response to Comments

Letter From: Charles A. Parcells III

Comment No.	Response
4.	**Sediment Data** The chemical composition of the dredged material is difficult to understand for the average reader of the DEIS. An effort has been made to summarize and simplify the sediment description in the FEIS. The referenced Environmental Protection Agency (EPA) guidelines that classify sediments are subject to interpretation. Judgements of those having water quality expertise at EPA and at the Michigan Department of Natural Resources (MDNR) are utilized in arriving at an overall sediment classification. Based on recent test data and on preliminary consultation with EPA, open water disposal of dredged material is now believed to be the least environmentally damaging alternative and is presented as such in the FEIS. The MDNR has approved the open water disposal plan and has issued water quality certification to Detroit Edison and to the Corps under Section 401 of the Clean Water Act. The DEIS did not discuss open water disposal in detail because updated sediment test data was not available.
5.	**Hearing** Comment is noted.

March 6, 1981

Colonel Vermillion
U. S. Army Engineers District, Detroit
General Regulatory Board
Box 1027
Detroit, MI 48231

Re: Detroit Edison Permit Application
Process No. 792253C, and Draft EIS

Dear Col. Vermillion:

1 Sir, this draft EIS fails to serve the purpose of providing a balanced presentation of the proposed project for two reasons: it lacks information and it lacks objectivity. Critical issues formally raised by responsible citizens in correspondence and meetings were not addressed. In particular, public concerns about the need for the project, its costs, pollution and health effects, placement, jurisdiction, engineering and relationship to the proposed Detroit Edison power plant complex on the same site were either summarily dismissed or never mentioned. Facts about the very significant birdlife on the site were buried and obscured while a wealth of raw, uninterpreted data and corporate reassurances were given full play.

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2 Out of a document of over 208 pages, only 3 pages were allocated to public statements. With this ratio, how can there be any hope of objectivity?

What remains to be done before any informed decisions can be made is to present honest, relevant alternatives and environmental impacts without preconceptions. Give us good answers to our questions about

3 the nature and severity of pollutants,
4 the reasons why other forms of disposal were not pursued,
5 the necessity to destroy a wildlife habitat that supports species extremely uncommon (if not elsewhere unknown) in the county,
6 the purpose for risking damage or degradation of groundwater recharge areas, water table level, and city water supply, and
7 the unexplored coincidence that the project would severely impact neighboring residents who have not agreed to sell their land to Detroit Edison for its proposed A-4 mega-complex on the same site.

8 Covering these issues, and others raised in documents in Corps' files, the EIS might serve the useful, public purpose it was intended to provide. I urge you to consider your responsibilities to all parties in this matter.

Very truly yours,

Susan N. Parcells

Susan N. Parcells
1167 Lakepointe
Grosse Pointe Park, MI 48230

SNP:mms

Response to Comments

Letter From: Susan N. Parcells

Comment No.	Response
1.	**Miscellaneous Comments** At the scoping meeting held on 16 July 1980 to identify significant issues for assessment in the DEIS, it was determined that the emphasis of the DEIS should be on the effects resulting from the dredged material disposal operations. Many issues were identified in regard to the placement of dredged material. The principle issues concerned possible impacts on the municipal water intake, ground water supplies, flooding, and wildlife habitat. A determined effort was made to include adequate information in the DEIS for an objective presentation of the issues. The need for the project was addressed on pages 1-5 of the DEIS (pages 1 to 4 of the FEIS). Cost data was included in the DEIS on page A3-29. Additional economic information has been inserted in the FEIS on page 26. Pollution and health effects are discussed in paragraphs 4.02 - 4.13 and 4.21 of the DEIS. Placement was addressed in paragraph 2.01 on page 5 of the DEIS. Jurisdiction is described in paragraph 2 on page 1 of the DEIS. Engineering is discussed in paragraphs 2.01 - 2.07 of the DEIS. The Corps has been informed that there are currently no plans to proceed with the development of new generation facilities at Harbor Beach. The proposed dredging and disposal actions are related to maintaining the existing power plant. Paragraphs 3.05 - 3.11 of the DEIS address wetlands and wildlife. An avian species list has been added to the FEIS on page C-2.
2.	**Public Statements** Comments received on the public notice concerning use of the lowland site for a dredged material disposal facility were summarized on page 57 of the DEIS. The appendix of the DEIS included letters from Federal and State agencies as well as a 3-page petition signed by local residents. Objectivity is not necessarily judged by the volume of letters included in a document. The content of comment letters was considered in developing the issues for discussion in the DEIS. The FEIS does contain letters of comment received on the DEIS.
3.	**Nature and Severity of Pollutants** Section C on page 29 of the FEIS discusses sediment quality. Paragraphs 4.06 - 4.10 of the FEIS describe anticipated impacts on water quality.

Response to Comments

Letter From: Susan N. Parcells

Comment No.		Response
4.	Disposal Alternatives	This information is presented in the alternative section of the DEIS On page 5. Detroit Edison's site selection considerations are provided on pages A3-21 through A3-30 of the DEIS. The alternative section of the FEIS has been expanded from that presented in the DEIS. See page 4 of the FEIS.
5.	Wildlife Habitat	The current plan calls for the open water disposal of dredged material, and this proposal would not adversely affect wildlife habitat.
6.	Groundwater Recharge, Etc.	The lowland site was selected for a confined disposal facility because the site is underlain by clay. This condition is generally considered to be favorable for a confined disposal facility since clay forms a seal to prevent downward leaching from substances placed within the facility. It has not been found that there would be significant, adverse effects on ground water recharge, on water table level, or on the city water supply. The water in the surface sands in the vicinity is reportedly a source for private wells, but more information would need to be gathered to determine the projects effects from utilizing the lowland site. Open water disposal of dredged material is now the proposed action, and open water disposal would have no effects on ground water recharge, on water table level, or on the water supply.
7.	Future Power Plant	The Corps has been informed that there are currently no plans to proceed with the development of new generation facilities at Harbor Beach. The proposed dredging and disposal actions are related to maintaining the existing power plant.
8.	Issues	Comment is noted.

March 6, 1981

U. S. Army Corps of Engineers
Detroit District

Dear Sirs:

In regard to the Draft Environmental Impact Statement, Maintenance Dredging and Dredged Material Disposal Facility at Harbor Beach, Michigan. The Detroit Edison Company Permit Application. Prepared by U. S. Army Corps of Engineers Detroit District.

1 It is a very lengthy statement but it fails to answer any concerns about domestic water supplies.

The statement contains reports by the engineering firms hired by Detroit Edison Co. that reports several times, data about an impervious till and that the sand and gravel veins and pockets are discontinuous and that there can be no wells of any significance supplied by the proposed disposal area wetlands and that the area

Response to Comments

Letter From: Carl Roggenbuck

Comment No.	Response
1.	**Domestic Water Supplies** Comments are noted. The current plan for disposing of the harbor sediments calls for the placement of the material in the open waters of Lake Huron. The selected disposal site is located approximately 3 miles east of the harbor breakwaters. This plan would not impact on any private wells. If the lowland site were to be used for dredged material disposal, more information than is now available would be required to determine the effects on private wells. A system for monitoring the effects on ground water could be employed if the lowland site was to be utilized.

in question cannot be considered an aquifer.

The kindest thing I can say about those reports are that they are incomplete.

The fact is there are several residents living across the highway U.S. 25 from the proposed site who have good shallow wells that produce a plentiful supply of good quality water that does not run dry in the Summer or Fall months or anytime.

Obviously there are some continuous sand and gravel water bearing veins that have been missed by the study firms, further evidence to that fact is the accorance of cloudiness of the well water to the extent of unuseablity of the water during the drilling operations used to make those reports. I certainly think monitoring of these existing local wells should have been part of the study I think also that if

this proposed site is used as planned these wells will first be contaminated by the polluted water seeping down through the sludge. Then as settling occurs the water supply will be sealed up and these wells will go dry.

2 It is my opinion to me that the very best disposal of the sludge is to spread it thinly on crop-land. Probably of all the land that Detroit Edison Co. owns in the area were utilized for this it would handle it. However I would be willing to take some of the sludge on approximately 30 acres of land I own and I'm sure much more land could be found suitable and made available for this method of disposal.

3 I think the impacts of the proposed plan are too severe. One, loss of local residents wells, two, permanent loss of 23 acres of farmland, three, establishing of fly ash dumping

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Response to Comments

Letter From: Carl Roggenbuck

Comment No.	Response
2.	**Cropland Application** Refer to Section D on page 17 of the FEIS for a discussion of this alternative. Due to the nature of the harbor sediments, the trucking of saturated sediments to farmland is not considered to be feasible. Hydraulic pipeline transport would involve handling large amounts of excess water. The force of the water carried by the hydraulic pipeline would create soil erosion problems. In addition, the water quality in drainage channels carrying the runoff could be adversely affected.
3.	**Other Impacts** Fly ash disposal was mentioned as a possible use for the proposed borrow pits in conjunction with the lowland site. Formal proposals for such a use have not been submitted to the Corps. The Corps has been informed that Detroit Edison currently has no plans to proceed with the development of new generation facilities in the Harbor Beach area.

in the area, coupled with, four: 4
the possible cumulative effect of
the largest coal fired power plant
in the world being planned for this same
area.

Therefore, if the disposal cannot be
spread thinly on land I would urge
the Corps to look very, very seriously
4 at deep lake water disposal where I
think adverse impacts would be far
less than the diked disposal plans.
There is no clear adverse impact
listed in the draft E.I.S. for deep
water disposal.

Finally, I think there should definately
5 be a public hearing held in the area to
allow the local people a chance to utter
concerns in this matter.

Thankyou for the opportunity to state
my views.

Your truly,

CARL ROGGENBUCK
8271 RAMSEY RD.
PORT HOPE, MI. 48468

Phone
517-428-4464

Carl Roggenbuck

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Response to Comments

Letter From: Carl Roggenbuck

Comment No.	Response
4.	**Open Water Disposal** The placement of the dredged material into the open waters of Lake Huron is now being considered as the proposed action.
5.	**Hearing** Comment is noted.

March 4, 1981

Colonel Robert V. Vermillion
Detroit District
Corps of Engineers
PO Box 1027
Detroit, MI 48231

Subject: # 792253C/79-11-129-3

Dear Colonel Vermillion,

1 I have reviewed the draft report of the EIS for the Harbor Beach Dredging and dyked disposal facilities. I feel now as before that there should be a public hearing in Harbor Beach on this matter. Some of my concerns were not adequately addressed in the draft report.

2 The discharge of excess water from the dyked disposal facility would be very near the Harbor Beach city water system intake. Possible pollution of city water was not accounted for. The wetland area of the dyked disposal itself would be permanently altered and with it the permanent loss of wildlife habitat and possible contamination or colloring of area water wells. Also, the possibility exists that Detroit Edison will use the borrow pits on the nearby upland area to dispose of fly ash. This would confirm my concern that Detroit Edison has ambitious plans to develop the ajacent lands into a powerplant site and so link the dyked disposal project to other projects which should be considered before issuing permits.

3 On account of the above reasons, the people of Harbor Beach should be given an opportunity to air their views at a public hearing on this matter.

Sincerely,

Don Roggenbuck,
Rt. 1 Box 211
Ruth, MI 48470

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Response to Comments

Letter From: Dan Roggenbuck

Comment No.		Response
1.	Hearing	Comment is noted.
2.	General	Paragraphs 4.06 - 4.08 of the DEIS discuss the possible effects on the municipal water intake. Wildlife comments are noted. More information than is now available would be required to determine effects of use of the lowland site on private wells. However, the current plan is to place the dredged material into the open water of Lake Huron, and this method of disposal would have no effect on area wells. Regarding future power plant development, Detroit Edison has informed the Corps that there are currently no plans to proceed with development of new generation facilities in the Harbor Beach area.
3.	Hearing	Comment is noted.

Edwin A. Schubring
Township of Rubicon
Huron Co. Mich.
Feb. 13, 1981

U. S. Army Engineer District Detroit
Attn. General Regulatory Branch.
Box 1027 Detroit Mich.

Dear Sirs:

1 I am requesting a Public Hearing in regards to Public Notice Process NCECC-LP 792253.

Ifeel the extra Water from the weir may cause
2 flooding to homes in that area. Also seepage to wells of that areas residents. The outlet for the weir is only a natural drainage ditch and not sufficent to carry that extra load. The EIS Draft does not show any clear plan for this.

Yours Truly.

Edwin A. Schubring
Rubicon Twp. Supervisor

Edwin A Schubring

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Response to Comments

Letter From: Edwin A. Schubring

Comment No.	Response
1.	**Hearing** Comment is noted.
2.	**Weir Discharge** A discussion of flooding effects is included on page 46 of the DEIS. If the lowland site is utilized for a confined disposal facility, there would be minor, temporary increases in levels of ponded water in the adjacent lowland area during rainstorms. There would be no flooding of highway M-25. More information than now exists would be required to determine any effects on shallow wells. The current plan is to place the dredged materials into the open waters of Lake Huron. Open water disposal is considered to be the least environmentally damaging alternative.

ALBERT THOMS
HARBOR BEACH, MICHIGAN 48441
517-428-4466

March 3, 1981

Robert W Vermillion
Colonel, Corps of Engineers
District Engineer
Dear Sir,

After reviewing the Draft Environmental Statement, Maintainance Dredging & Dredged Material Disposal Facility at Harbor Beach, Michigan, I have the following comments to make,

1 First of all I am concerned that the Impact Statement does not cover all of the Contigious Porperties in Rubicon Township, Is this only the foot in the door to make this area a solid waste Disposal area? Detroit Edison has made Statements that there are no Plans for a Power Plant on that site.

On page 36 the prediction is made that Huron County will
2 decrease in Population, The preliminary 1980 Census actually shows an increase, especially in the areas bordering on Lake Huron, due to the declining Farm population in this area, I feel that the increasing population in this area has not been adressed to

I also feel that a Public Hearing should be held on a
3 matter as important as this.

Sincerely

Albert Thoms

81

Response to Comments

Letter From: Albert Thoms

Comment No.		Response
1.	Future Power Plant	The Corps has been informed by Detroit Edison that there are currently no plans to proceed with new generation facilities in the Harbor Beach area.
2.	Population	The preliminary 1980 population figures show that Huron County's population has increased by 2,339 persons from the 1970 Census. Paragraph 3.19 on page 32 of the FEIS has been written to indicate this increase in population.
3.	Hearing	Comment is noted.

E. LIST OF AGENCIES, ORGANIZATIONS, AND PERSONS TO WHOM COPIES OF THIS STATEMENT WERE SENT

Mr. George E. Heim, Harding-Lawson Associates, 125 Windsor Drive, Suite 107, Oak Brook, IL. 60521
Mr. Howard Anderson, Building & Zoning Department, Huron County Building, Bad Axe MI 48413
Mr. Wayne Schmidt, Michigan United Conserv. Clubs, P.O. Box 30235, Lansing, MI 48909
Mr. Rick Julian, Manly Miles Bldg, Room 202, 1405 South Harrison Road, East Lansing, MI 48823
Mr. Jim Sygo, E.C.M.P. & D.C., 500 Federal Ave., P.O. Box 30028, Saginaw, MI 48606
Mr. Jim Hooper, U.S. EPA, Region V, 230 South Dearborn Street, Chicago, IL 60604
Mr. Charles Parcells, III, 1167 Lakepointe, Grosse Pointe Park, MI 48230
Susan Parcell, 1167 Lakepointe, Grosse Pointe Park, MI 48230
Mr. Edwin Schulsing, Rubicon Township Supervisor, Township of Rubicon, Port Hope, MI 48468
Mr. William Klump, City of Harbor Beach, 149 N. First Street, Harbor Beach, MI 48441
Mr. Marvin Kociba, 1963 North Lakeshore, Harbor Beach, MI 48441
Mr. Albert Thomas, Route 2, Box 21, Harbor Beach, MI 48441
Mr. Scot Shalaway, Dept. of Natural Resources, P.O. Box 30028, Lansing, MI 48909
Mr. Gary Gettel, Dept. of Natural Resources, P.O. Box 30028, Lansing, MI 48909
Mr. Steve Spencer, Dept. of Natural Resources, P.O. Box 30028, Lansing, MI 48909
Mr. Bill Wickers, Detroit Edison Company, 2000 Second Avenue, 357 ICT, Detroit, MI 48226
Mr. Michael J. Blunden, Detroit Edison Company, 2000 Second Avenue, 357 ICT, Detroit, MI 48226
Mr. Ron Nowicki, Detroit Edison Company, 2000 Second Avenue, 357 ICT, Detroit, MI 48226
Mr. Carl Roggenbuck, 8271 Ramsey Road, Port Hope, MI 48468
Mr. Marvin L. Goretski, Supervisor, Port Austin Township, 8190 Hellems, Port Austin, MI 48467
Mr. Joseph Ruth, Supervisor, Hume Township, Rt. #1, Port Austin, MI 48467
Mr. Ted H. Schubel, Supervisor, Pte, Aux Barques Township, Pte. Auz Barques, MI 48467
Mr. Robert Lemanski, Supervisor, Dwight Township, Port Austin, MI 48467
Mr. William Lackowski, Supervisor, Paris Twonship, Ruth, MI 48470
Mr. Gene Knight, Knight Gravel Company, Port Sanilac, MI 48469
City Clerk, City of Port Hope, Port Hope, MI 48468
Mr. Robert Witherspoon, Supervisor, Huron Township, Port Hope, MI 48468
Mr. Edwin Schubring, Supervisor, Rubicon Township, Port Hope Rd., Port Hope, MI 48468
Mr. Pete Cook, Detroit Edison Company, 2000 Second Avenue, 357 ICT, Detroit, MI 48226

Village Clerk, 5605 Cedar Avenue, Forestville, MI 48434
Ms. Jeanette Learman, 46 Westland Drive, Bad Axe, MI 48413
Mr. Harry Gorney, Supervisor, Sigel Township, Rt. #1, Bad Axe, MI 48413
Mr. Frank Nichol, Supervisor, Bloomfield Township, Bad Axe, MI 48413
Mr. Robert Tufts, Huron County Drain Commissioner, P.O. Box 270, County Courthouse, Bad Axe, MI 48413
Mr. Harvey Murdock, Supervisor, Colfax Township, N. McMillan Rd., Rt. #1, Bad Axe, MI 48413
Mr. Robert D. Becking, Sheridan Township, Rt. #2, Bad Axe, MI 48413
Mr. Daniel Duda, Supervisor, Lincoln Township, Bad Axe, MI 48413
Mr. Arthur Polk, Supervisor, Verona Township, 1953 Tomillison Rd., Bad Axe, MI 48413
Mr. Nathan Kaufman, Supervisor, Gore Township, Port Hope, MI 48468
Sec., Conf. of Mich. Archaeology, The Museum/M.S.U., East Lansing, MI 48823
Mrs. William Klingbail, ECC, 56 Hawthorne, Grosse Pointe, MI 48236
West Michigan Regional Planning Commission, 1204 People's Building, 60 Monroe at Ionia, Grand Rapids, MI 49502
Connie Ferguson, Southcentral Michigan Planning Council, Conners Hall-Nazareth College, Nazareth, MI 49074
Michigan Department of State, State Historic Preservation Ofc., 3423 North Logan Street, Lansing, MI 48918
Mr. Terry L. Yonker, Exec. Sec., Mich. Env. Review Board, Dept. of Mgmt. and Bud., Second Floor, Lewis Cass Bldg., Lansing, MI 48913
Michigan Department of Commerce, Michigan Waterways Commission, Lansing, MI 48913
Exec. Ofc. of Gov./Planning Coord., Lewis Cass Building, Lansing, MI 48913
County Board of Commissioners, County Seat, Bad Axe, MI 48413
Mr. Karl R. Hosford, Michigan Dept. of Natural Resources, Chief, Division of Land Resource Program, P.O. Box 30028, Lansing, MI 48909
Mr. Larry Witte, Michigan Dept. of Natural Resources, Chief, Water Mgmt. Division, P.O. Box 30028, Lansing, MI 48909
Michigan Dept. of Transportation, P.O. Box 30050, Lansing, MI 48909
Capt. J.V. Cook, Port Development Sec., Michigan Dept. of Transportation, P.O. Box 30050, Lansing, MI 48909
Michigan United Conservation Clubs, P.O. Box 30235, Lansing, MI 48909
Adv. Council for Environ. Quality, Room #1, The Capitol, Lansing, MI 48903
Mr. David A. Merchant, Div. Engr., Michigan Divn., Dept. of Transp., Box 147, Lansing, MI 48901
Representative Mary Brown, State Representative, Room 306, Mutual Building, Lansing, MI 48901
Chief, Ofc. of Environmental Review, Department of Natural Resources, P.O. Box 30028, Lansing, MI 48909
Senator Kerry Kammer, 17th District, Capitol Building, Lansing, MI 48909
President, Village of Caseville, Main Street, Caseville, MI 48725
Officer in Charge, Saginaw River Station, USCG, Bay City, MI 48707
Hercules Incorporated, Harbor Beach, MI 48441
Mr. Art Chomistek, Dow Chemical U.S.A., 566 Building, Midland, MI 48640
West Michigan Shoreline Reg., Dvmt. Comm., 500 Hackley Bank Bldg.-Fifth Floor, Muskegon Mall, Muskegon, MI 49440
Dan Spalink, Izaak Walton League, 855 28th SE, Grand Rapids, MI 49508

Dr. Jack M. Heinemann, Adv. Env. Qual., Federal Energy Regulatory Comm., 825 North Capitol St. N.E., Washington, D.C. 20426

Advisory Council on Historic Preserv., 1522 K. Street, N.W., Suite 430, Washington, D.C. 20005

U.S. Dept. of the Interior, Division of Ecological Services, 1405 S. Harrison Rd., East Lansing, MI 48823

U.S. Dept. of Agriculture, Soil Conservation Service, 1405 South Harrison Road, East Lansing, MI 48823

Jay B. Reed, Regional Representative, National Audubon Society-Central Midwest, 990 Aullwood Road, Dayton, OH 45414

Mimi Becker, President, Great Lakes Tomorrow, Box 735, Hiram, OH 44234

Ida Ruppe Library, Port Clinton, OH 43452

Libraries, U.S. Government Pntg. Off-Pub. Doc. Whrse., Eisenhower Ave., Alexandria, VA 22304

Mr. Joel Eiseman, Office of Environmental Analysis, Federal Maritime Comm., Rm/9102, 1100 L Street, N.W., Washington, D.C. 20573

Mr. Robert J. Stern, Acting Director, Division of NEPA Affairs, Dept. of Energy, Mail Station E-201, GTN, Washington, D.C. 20545

Director, Environmental Impact Division, Federal Energy Regulatory Comm., New P.O. Bldg., 12th and Penns. Ave., NW, Washington, D.C. 20461

Director, Ofc. of Env. Project Review, Dept. of the Interior, Washington, D.C. 20240

U.S. Forest Service, 370 Reed Road, Broomall, PA 19008

Federal Emergency Mgmt. Agency, Regional Office, 26 Federal Plaza, New York, NY 10007

Sierra Club, 140 West Gorham Street, Madison, WI 53703

Mr. G. Vavoulis, HUD, 300 South Wacker Dr., (Env Clear Ofcr.), Chicago, IL 60606

Environmental Protection Agency, Reg V, 230 South Dearborn Street, Chicago, IL 60606, Attn: Office of Environmental Review

Loren A. Whittner, CNA Building-Room 1402, 55 East Jackson Blvd., Chicago, IL 60604

U.S. Department of Trans., Federal Highway Administration, 18209 Dixie Highway, Homewood, IL 60430

H. Paul Friesema, Ctr. for Urban Affairs, Northwestern University, 2040 Sheridan Road, Evanston, IL 60201

NSBE, 1999 Sheridan Road, Northwestern University, Evanston, IL 60201

National Marine Fisheries Service, 3300 Whitehaven Parkway, (Ecosystems Qual.), Washington, D.C. 20235

Sidney Galler, Dept. Asst. Sec./Env. Affrs., U.S. Department of Commerce, Washington, D.C. 20230

Honorable Carl Pursell, Representative in Congress, 510 E. 3rd Street, Monroe, MI 48161

Mr. Fred Schmidt, Documents Librarian, Colorado State University Libraries, Fort Collins, CO 80521

Perry Stearns, M.D., Dir., Wayne Co. Health Dept., Eloise, MI 48132

Michigan Natural Areas Council, University of Michigan, 1800 N. Dixboro, Ann Arbor, MI 48105

Greenpeace - Ms. Robin McClellan, 530 S. State Street, M: Union Box 53, Ann Arbor, MI 48109

Mr. Sol Baltimore, Director, American Lung Assoc. of Southeastern Mich., 28 W. Adams Street, Detroit, MI 48226
Mr. Robert Reid, President, TROUT UNLIMITED, 19401 W. McNichols, Detroit, MI 48219
Honorable Carl Levin, United States Senate, Washington, D.C. 20510
Honorable Donald Riege, United States Senate, Washington, D.C. 20510
Department of the Environment, Canada Ctr. for Inland Waters, P.O. Box 5050, 867 Lakeshore Road, Burlington, Ontario L7R 4A6
Mayor, City of Harbor Beach, Harbor Beach, MI 48441
Village Clerk, Village of Port Austin, P.O. Box 336, Port Austin, MI 48467
President, Village of Pigeon, Pigeon, MI 48775
Honorable Bob Traxler, House of Representatives, Washington, D.C. 20515
Coast Guard Marine Inspection Of., Patrick V. McNamara Bldg.-Room 550, 477 Michigan Avenue, Detroit, MI 48226
Officer in Charge, Harbor Beach Depot, USCG, Harbor Beach, MI 48441
City Engineer, 136 North First, Harbor Beach, MI 48441
Mr. Arthur L. Carpenter, Michigan Audubon Society, 3646 S. John Hix Road, Wayne, MI 48184
Department of HUD, Elmer Binford Area Director, Room 1741 McNamara Building 477 Michigan Avenue, Detroit, MI 48226
Executive Director SEMCOG, 810 Book Building, 1249 Washington Boulevard, Detroit, MI 48226
President, Village of Port Austin, Port Austin, MI 48467
Mr. Dieter W. Kubish, 410 Spezia, Oxford, MI 48051
Charles George, Chairman, 21043 LaSalle, Warren, MI 48089
Mr. Robert Armbruster, Supervisor, Winsor Township, 204 Berne St., Pigeon, MI 48755
Mr. Herman Rathke, Supervisor, McKinley Township, 6764 Berne Rd., Pigeon, MI 48755
Mr. Richard Warchuck, Supervisor, Sherman Township, Rt. #2, Harbor Beach, MI 48441
Township Supervisor, Sand Beach Township, Box 300, Harbor Beach, MI 48441
City Clerk, 149 North First, Harbor Beach, MI 48441
Mr. John D. Berchtold, City of Harbor Beach, 149 N. First Street, Harbor Beach, MI 48441
Mr. Don J. Roggenbuck, Rd #1, Box 211, Ruth, MI 48470
Donna Rees, 6973 Section Line Rd., Harbor Beach, MI 48441
Sharon Warren, Lone Tree Council, P.O. Box 421, Essexville, MI 48732
Harbor Beach Veterinary Service, ATTN: Mr. Hentschl, 8505 Sand Beach Rd., Harbor Beach, MI 48441
Gail Mauer, 7197 Atwater Rd., Ruth, MI 48470
Joel J. Weber, Ruth Rd., Ruth, MI 48470
Janet M. Krolczyk, 1101 Connecticut Ave., Suite 900, Washington, D.C. 20036
Fred Schmidt, Colorado State University, Ft. Collins, CO 80523
Robert V. Bartlett, 1800 N. Fee Lane, Bloomington, IN 47405
Mr. Tore Nilsen, 228 N. Huron Avenue, Harbor Beach, MI 48441
Mr. Joseph Vitek, Michigan United Conserv. Clubs, 4629 Midway St., Saginaw, MI 48603
Peggy L. Emerick, Township of Rubicon, Port Hope, MI 48468
Earl and Mary Gougeon, Rt. 2, Box 28, Harbor Beach, MI 48441

AD-A111 289 CORPS OF ENGINEERS DETROIT MI DETROIT DISTRICT F/G 13/2
HARBOR BEACH HARBOR DREDGING AND DREDGED MATERIAL DISPOSAL, HUR--ETC(U)
DEC 81

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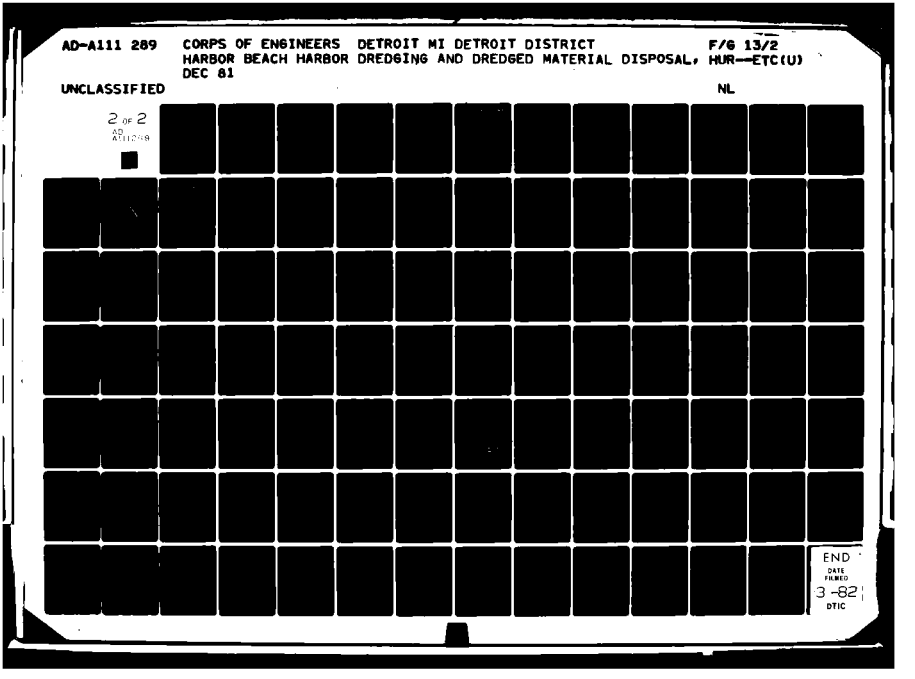

END
DATE FILMED
3-82
DTIC

RPF Ecological Assoc., ATTN: Robert W. Guth, Ph.D., 727 Reba Place, Evanston, IL 60202
Mr. Fred Yost, 1016 16th St., N.W., Suite 850, Washington, D.C. 20036
Mr. John Decator, Detroit Edison Company, 2000 Second Avenue, 357 ICT, Detroit, MI 48226
Mr. Robert D. Duncanson, 1677 N. Ruth Rd., Harbor Beach, MI 48441
Dr. Frank S. Lisella, Room E511, Center for Disease Control, Atlanta, GA 30333
Dr. H. Paul Friesma, 4600 Sunset Ave., Indianapolis, IN 46203
Marty Mager, 117 N. 1st St., Ann Arbor, MI 48104

6. LIST OF PREPARERS

6.01 The following Corps personnel were primarily responsible for the preparation of the Environmental Impact Statement.

Name	Expertise
Daniel R. Allega	Landscape Architecture
Steven W. Congdon	Physical Science
John Collis	Geography
Abram J. Nicholson	Civil Engineering
Franklin L. Snitz	Environmental Chemistry

6.02 The data base around which this document was organized was largely gathered by consultants to Detroit Edison. These consultants consisted of:

Consultant	Activity
Hazleton Environmental Sciences Corp. 1500 Frontage Road Northbrook, IL 60062	Terrestrial Baseline Studies
Harding-Lawson Associates 125 Windsor Drive Suite 107 Oak Brook, IL 60521	Geotechnical Engineering Services
Dames and Moore Inc. - 1550 Northwest Highway Park Ridge, IL 60068	Hydrogeological Studies

7. REFERENCES

U.S. Department of the Interior, Fish and Wildlife Service. Circular 39. Washington, D.C. 1956.

U.S. Department of the Interior, Fish and Wildlife Service. Classification of Wetlands and Deepwater Habitats of the United States. Washington, D.C. 1979.

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U.S. Department of the Army, Corps of Engineers, Detroit District. Harbor of Refuge at Harbor Beach, Michigan, Draft Environmental Statement. Detroit, Michigan. 1977.

Michigan Department of Natural Resources, Fisheries and Wildlife Divisions, Endangered and Threatened Species List. 1980.

U.S. Department of the Interior, Fish and Wildlife Service. Republication of Lists of Endangered and Threatened Species and Correction of Technical Errors in Final Rules. 1980.

U.S. Department of Agriculture, Soil Conservation Service. Soil Survey of Huron County, Michigan. 1980.

Dames and Moore. Hydrogeological Report Confined Dredge Facility Near Harbor Beach, Michigan for The Detroit Edison Company. July, 1979.

U.S. Department of the Army, U.S. Army Engineer Waterways Experiment Station. Disposal of Dredge Spoil Problem Identification and Assessment and Research Program Development. November, 1972.

U.S. Department of the Army, U.S. Army Engineer Waterways Experiment Station. The Agricultural Value of Dredged Material. July, 1978.

Dames and Moore. Hydrological Studies Harbor Beach Dredge Disposal Site Harbor Beach, Michigan. February, 1980.

Harding-Lawson Associates. Geotechnical Engineering Services Harbor Beach Dredged Spoil Disposal Facility Harbor Beach, Michigan. November, 1979.

U.S. Department of the Army, Corps of Engineers, Detroit District. Confined Disposal Facility at Pointe Mouille for Detroit and Rouge Rivers, Final Environmental Statement. March, 1974.

U.S. Department of the Army, Corps of Engineers, Buffalo District. West Harbor, Ohio Recreational Navigational Improvements, Final Environmental Statement. February, 1978 (revised March, 1979).

Michigan Department of Natural Resources. Fish Planting Records, 1977-1979.

Wagner, Voss, and Beaman. Michigan's Endangered and Threatened Species Program, Endangered, Threatened, and Rare Vascular Plants in Michigan (Reprinted from "The Michigan Botanist", Vol. 16, 1977).

8. INDEX

9. APPENDICES

APPENDIX A

PUBLIC NOTICE

AND

PERTINENT CORRESPONDENCE

US Army Corps of Engineers
Detroit District

Joint Public Notice

Applicant:	Date:
Detroit Edison Company	17 August 1981
In Reply Refer to: Process Number	Section:
792253C/79-11-129G	10/404

REVISION OF PLANS

PROPOSED MAINTENANCE DREDGING AND DISPOSAL OF DREDGED MATERIALS IN LAKE HURON AT HARBOR BEACH, MICHIGAN

1. The Detroit Edison Company, 2000 Second Avenue, Detroit, Michigan, has made application for permits to do work described in paragraph #2 to:

a. The Detroit District U.S. Army Corps of Engineers for a Department of the Army permit under authority of Section 10 of the River and Harbor Act of 1899 and Section 404 of the Clean Water Act of 1977, to perform maintenance dredging in Lake Huron offshore the Harbor Beach Power Plant and to discharge the dredged material in an area of Lake Huron located approximately 3 miles from the harbor entrance.

b. The State of Michigan, Department of Natural Resources for certification of this proposed work under Section 401 of PL 95-217, for compliance with the applicable provisions of Section 301, 306, and 307 of the Act. This statement has the approval of the Department of Natural Resources, Land Resource Programs Division and constitutes its public notice as required by Section 401 of the Act.

c. The State of Michigan, Department of Natural Resources, Land Resource Programs Division, for a permit under authority of 1955 P.A. 247.

2. As shown on the attached plan(s), the unloading facility and approach area for the Harbor Beach Power Plant will be annually dredged to provide and maintain a maximum depth of 22.0 feet below Low Water Datum elevation of 576.8 feet on International Great Lakes Datum. During the initial dredging operation approximately 325,000 cubic yards of organic silt and silty clay will be removed. Thereafter, an average of about 32,500 cubic yards of similar material will be dredged on an annual basis.

3. The applicant originally proposed to place the dredged material in a low-lying/wetland area adjacent to Lake Huron in Huron County at Harbor Beach, Michigan. See sheet 6 of 6. A public notice announcing the proposal was issued on 8 May 1980.

4. After conducting further investigations, the applicant now proposes to discharge the dredged material in an area of Lake Huron located approximately 3 miles from the harbor entrance. The center of the 160 acre disposal area is located at the intersection of 43° 50.81' Latitude and 82° 33.73' Longitude.

5. The purpose of the work is to provide and maintain adequate depths for commercial vessels delivering coal to the Harbor Beach Power Plant.

6. The applicant has not indicated that he has received or requested any other governmental authorization.

7. This notice is being published in compliance with Title 33 Code of Federal Regulations 320-340 and Michigan 1955 P.A. 247. Any interested parties and agencies desiring to express their views concerning the proposed work may do so by filing their comments in writing no later than 4:30 p.m., 30 days from the date of issuance of this notice. All responses must refer to public notice process number 792253C/79-11-129G. A lack of response will be interpreted as meaning that there is no objection to the permit application.

8. Any person may request, in writing, within the comment period specified in this notice, that a public hearing be held to consider this application. Requests for public hearings shall state, with particularity, the reasons for holding a public hearing.

9. Objections or views related to:

a. State water quality certification should be fil ed with the Michigan Department of Natural Resources, Land Resource Programs Division, P.O. Box 30028, Lansing, Michigan 48909.

b. Items other than certification should be fil ed with the District Engineer, Detroit District, Corps of Engineers, P.O. Box 1027, Detroit, Michigan 48231.

10. The Corps and the DNR will exchange comments received after closing of the 30 day response period to the public notice.

11. The decision whether to issue the Department of Army and/or State permits will be based on independent conclusions and decisions by the Corps of Engineers and the Michigan Department of Natural Resources, respectively, after evaluation of the probable impact of the proposed activity on the public interest. These decisions will reflect the national/state concerns for both protection and utilization of important resources. The benefit which reasonably may be expected to accrue from the proposal must be balanced against its reasonably foreseeable detriments. All factors which may be relevant to the proposal will be considered; among those are conservation, economics, aesthetics, general environmental concerns, historic values, fish and wildlife values, flood damage prevention, land use classification, navigation, recreation, water supply, water quality and, in general, the needs and welfare of the people. The permits will not be granted unless issuance is found to be in the public interest.

12. A preliminary determination indicates that the proposed activity will not affect any known listed endangered species or their critical habitat; therefore, no formal consultation between the Corps, U.S. Fish and Wildlife Service, and National Marine Fisheries Service is planned. If future determinations by any of these agencies indicate that the proposed permit action will affect listed endangered species or their critical habitat, formal consultation will be complete prior to final action.

13. This activity involves the discharge of dredged or fill material into navigable waters. Therefore, the U.S. Army Corps of Engineers evaluation of the impact of the activity on the public interest will include application of the guidelines promulgated by the Administrator of the Federal Environmental Protection Agency, under the authority of Section 404 (b) of the Clean Water Act of 1977.

14. After review of the application, the U.S. Army Corps of Engineers made a preliminary determination that an Environmental Impact Statement (EIS) was required for the proposed work as described in the public notice dated 8 May 1980. Comments received in response to the revised plans as described in this public notice will be incorporated into the Final EIS.

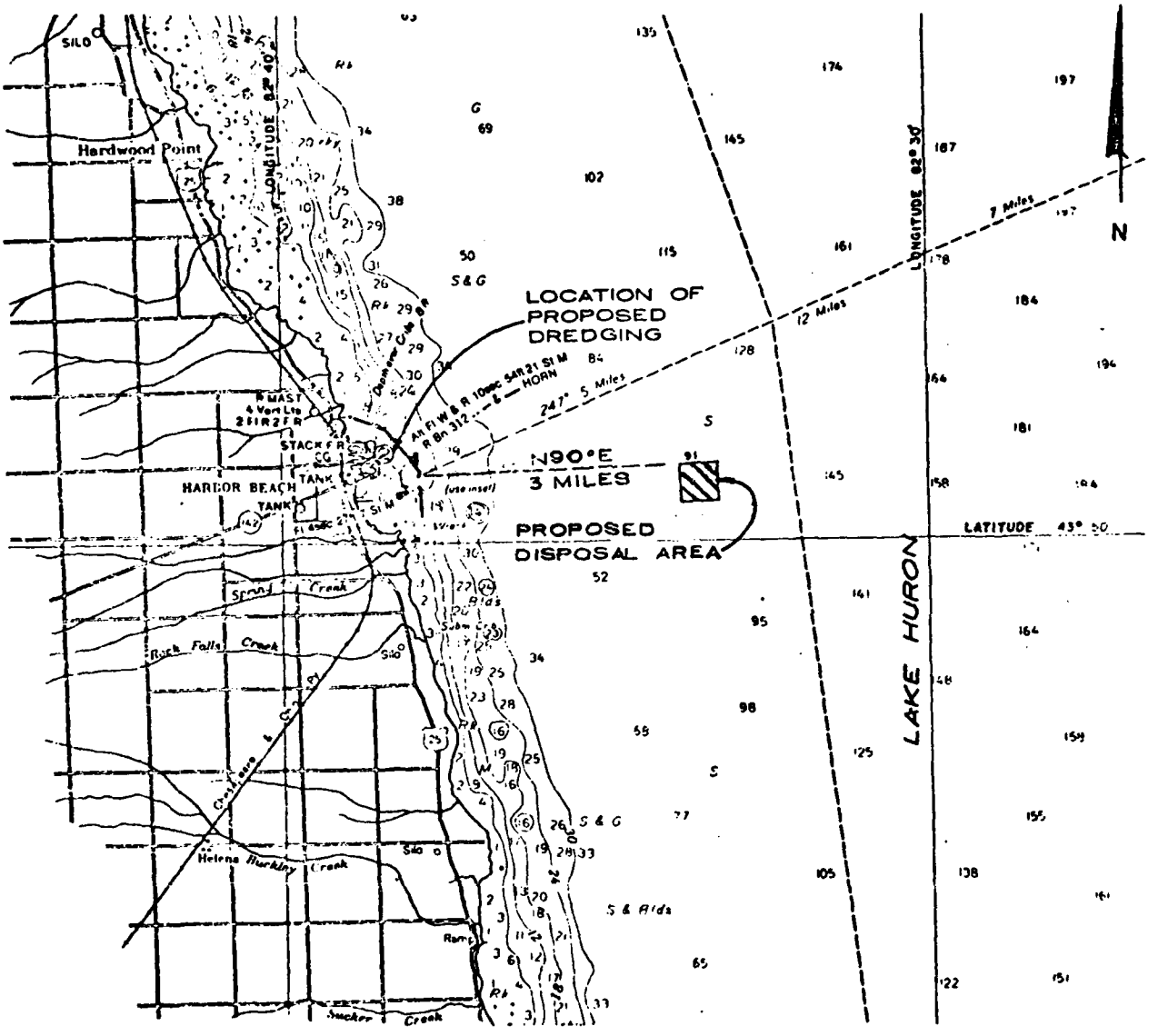
HOWARD A. TANNER
Director
Michigan Dept. of Natural Resources

ROBERT V. VERMILLION
Colonel, Corps of Engineers
Commander & District Engineer

NOTICE TO POSTMASTERS:

It is requested that the above notice be conspicuously and continuously posted for 30 days from the date of issuance of this notice.

Proposed Permit No. 79-16-95



REPRODUCTION FROM NOAA CHART NO. 14862

DATUM LG.L.D. 576.8'

VICINITY MAP

SCALE OF MILES

0 1 2 3

ADJACENT PROPERTY OWNERS

(1) CITY OF HARBOR BEACH
855 NORTH HURON AVE., HARBOR BEACH, MI. 48441

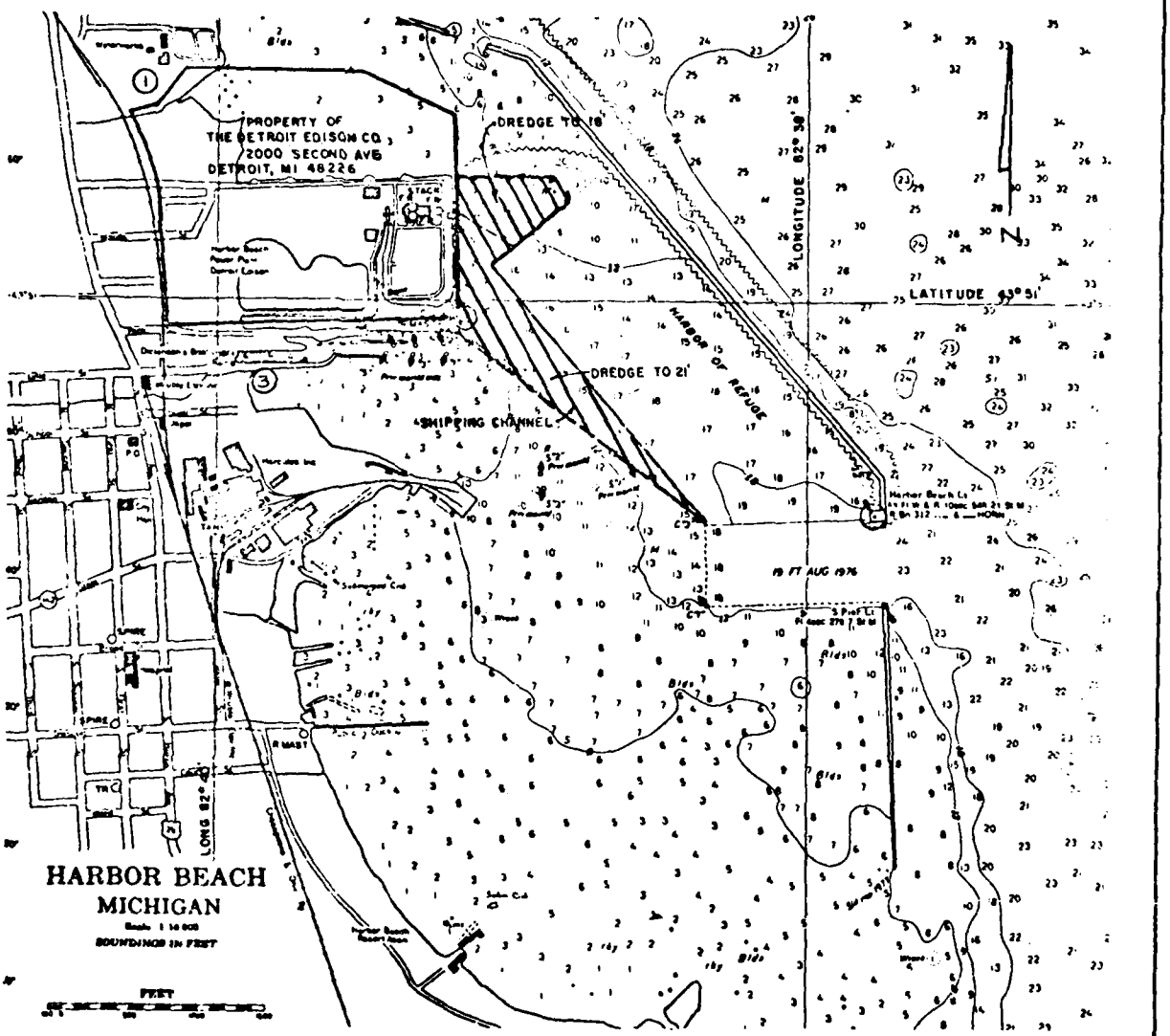
(2) CMDR OF US COAST GUARD, 9th C.G DISTRICT
MAIN POST OFFICE BLDG., CLEVELAND, OH

(3) DICKINSON'S MARINA
5 LYTLE, HARBOR BEACH, MI. 48441

PROPOSED DREDGING AND DISPOSAL AREA

IN LAKE HURON AT THE HARBOR OF REFUGE, CITY OF HARBOR BEACH, COUNTY OF HURON, STATE OF MICHIGAN.
APPLICATION BY THE DETROIT EDISON CO.

DATE: 5-1-81 1 OF 6



REPRODUCTION FROM NOAA CHART NO. 14862

LOCATION MAP

DATUM I.G.L.D. 576.8'

ADJACENT PROPERTY OWNERS:

(1) CITY OF HARBOR BEACH
855 NORTH HURON AVE., HARBOR BEACH, MI. 48441

(2) CMDR OF U.S. COAST GUARD, 9th C.G. DISTRICT
MAIN POST OFFICE BLDG., CLEVELAND, OH

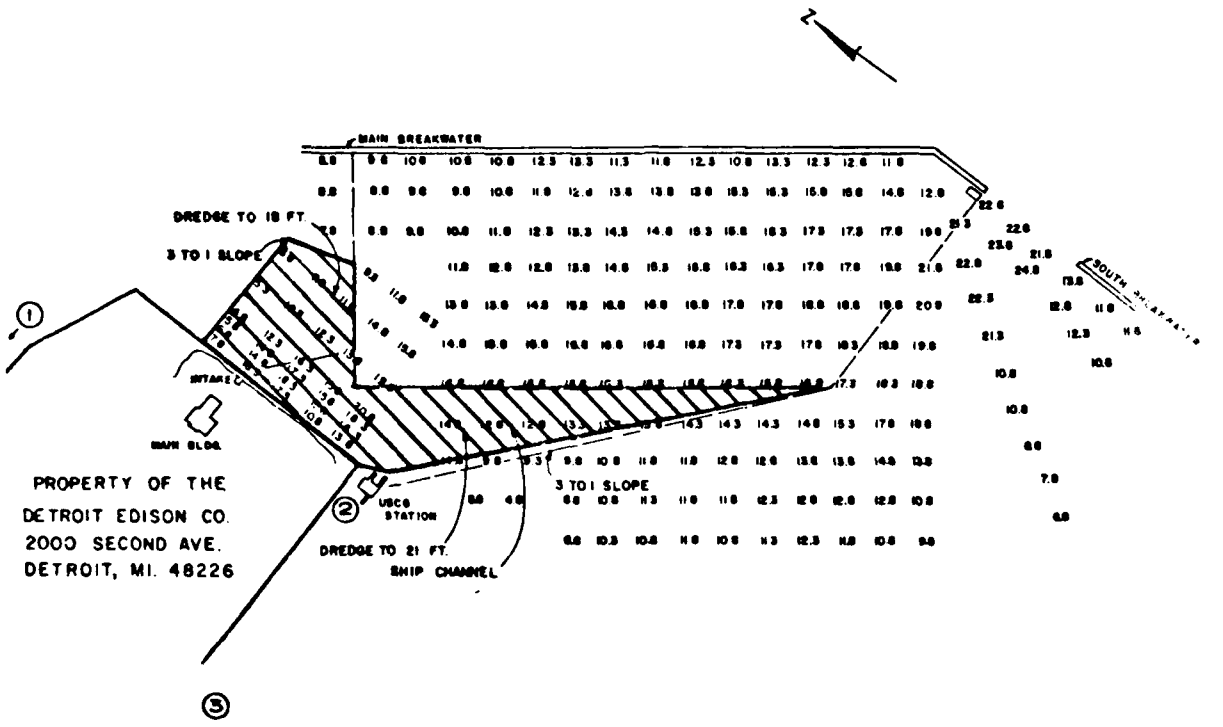
DICKINSON'S MARINA
YTLE, HARBOR BEACH, MI. 48441

PROPOSED DREDGING

IN LAKE HURON AT THE HARBOR OF REFUGE, CITY OF HARBOR BEACH, COUNTY OF HURON, STATE OF MICHIGAN.

APPLICATION BY THE DETROIT EDISON CO

DATE: 5-1-81 2 OF 6



DATUM I.G.L.D. 576.8'

SCALE IN FEET

0 500 1000 2000

ADJACENT PROPERTY OWNERS:

① CITY OF HARBOR BEACH
955 NORTH HURON AVE., HARBOR BEACH, MI. 48441

② CMDR OF U.S. COAST GUARD, 9th C.G. DISTRICT
MAIN POST OFFICE BLDG, CLEVELAND, OH.

③ DICKINSON'S MARINA
5 LYTLE, HARBOR BEACH, MI. 48441

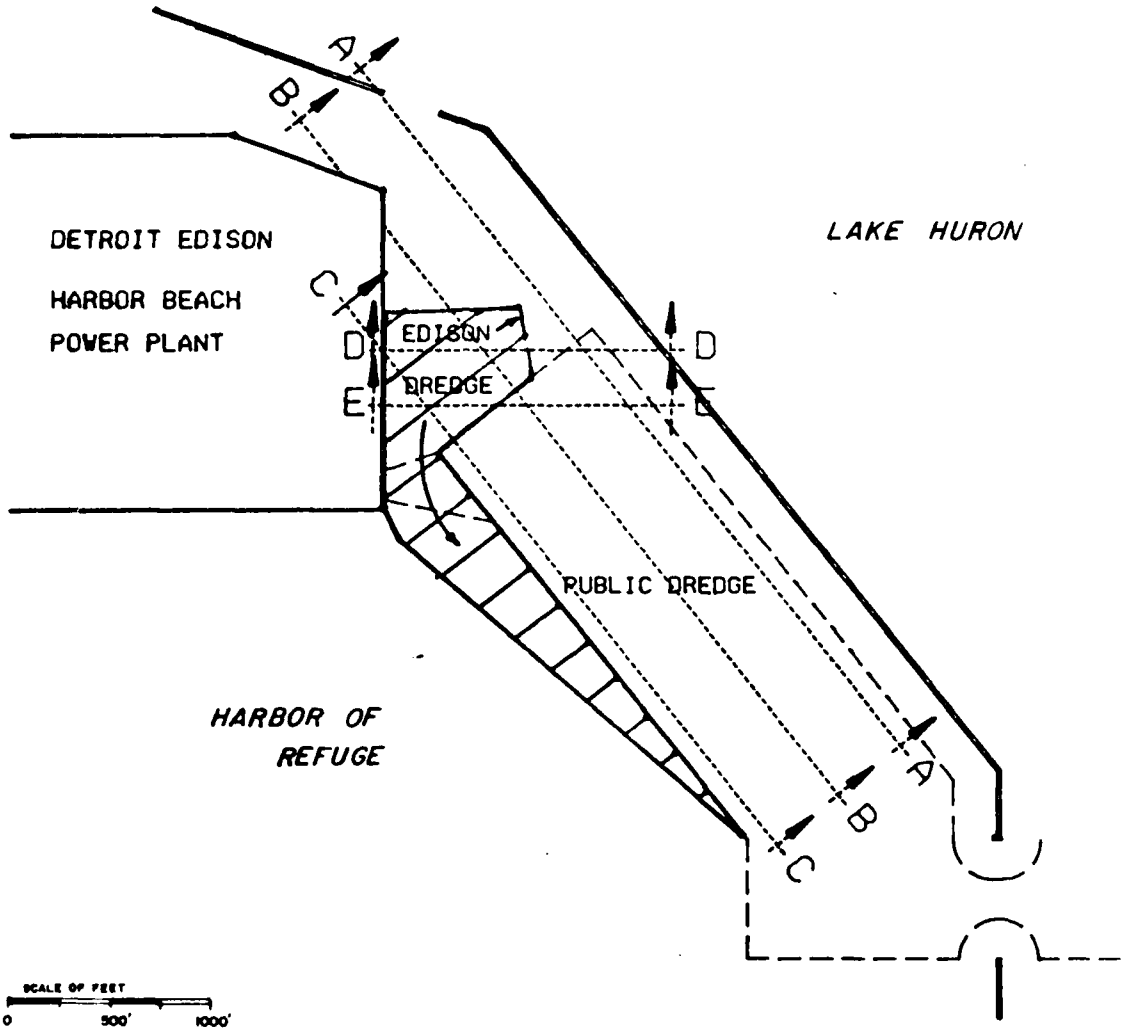
PROPOSED DREDGING

IN LAKE HURON AT THE HARBOR OF REFUGE, CITY OF HARBOR BEACH, COUNTY OF HURON, STATE OF MICHIGAN,

APPLICATION BY THE DETROIT EDISON CO.

DATE: 5-1-81 3 OF 6

PROPOSED DREDGE AREA



DATUM IGLD 576.8'

PROPOSED DREDGING

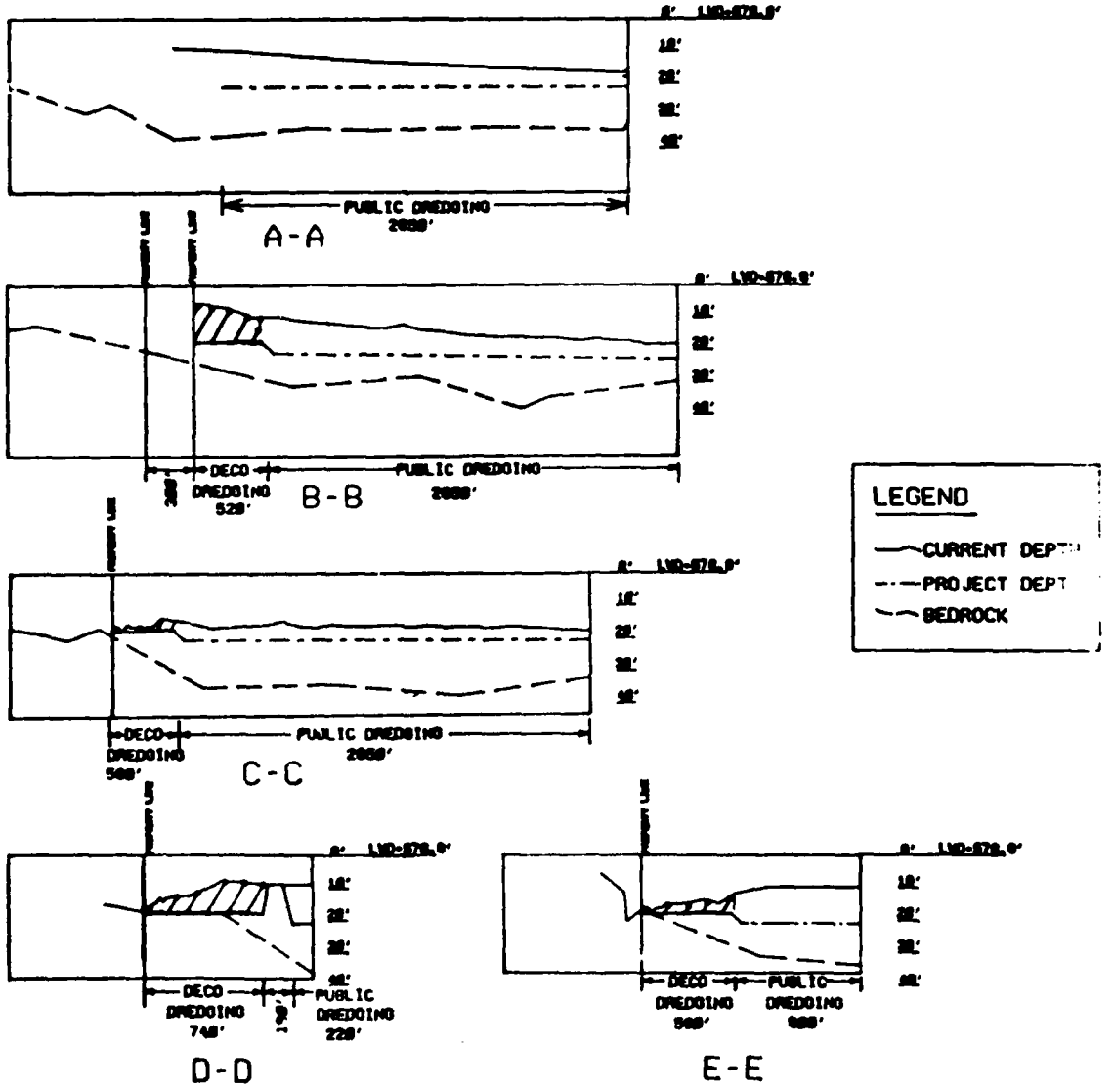
IN LAKE HURON AT THE HARBOR OF REFUGE CITY OF HARBOR BEACH, COUNTY OF HURON, STATE OF MICHIGAN

APPLICATION BY THE DETROIT EDISON CO

DATE: 5-1-81 SHEET 4 OF 6

IBDS/DAC

CROSS SECTIONS OF PROPOSED DREDGE AREA



DATUM I.G.L.D. 576.8'

PROPOSED DREDGING

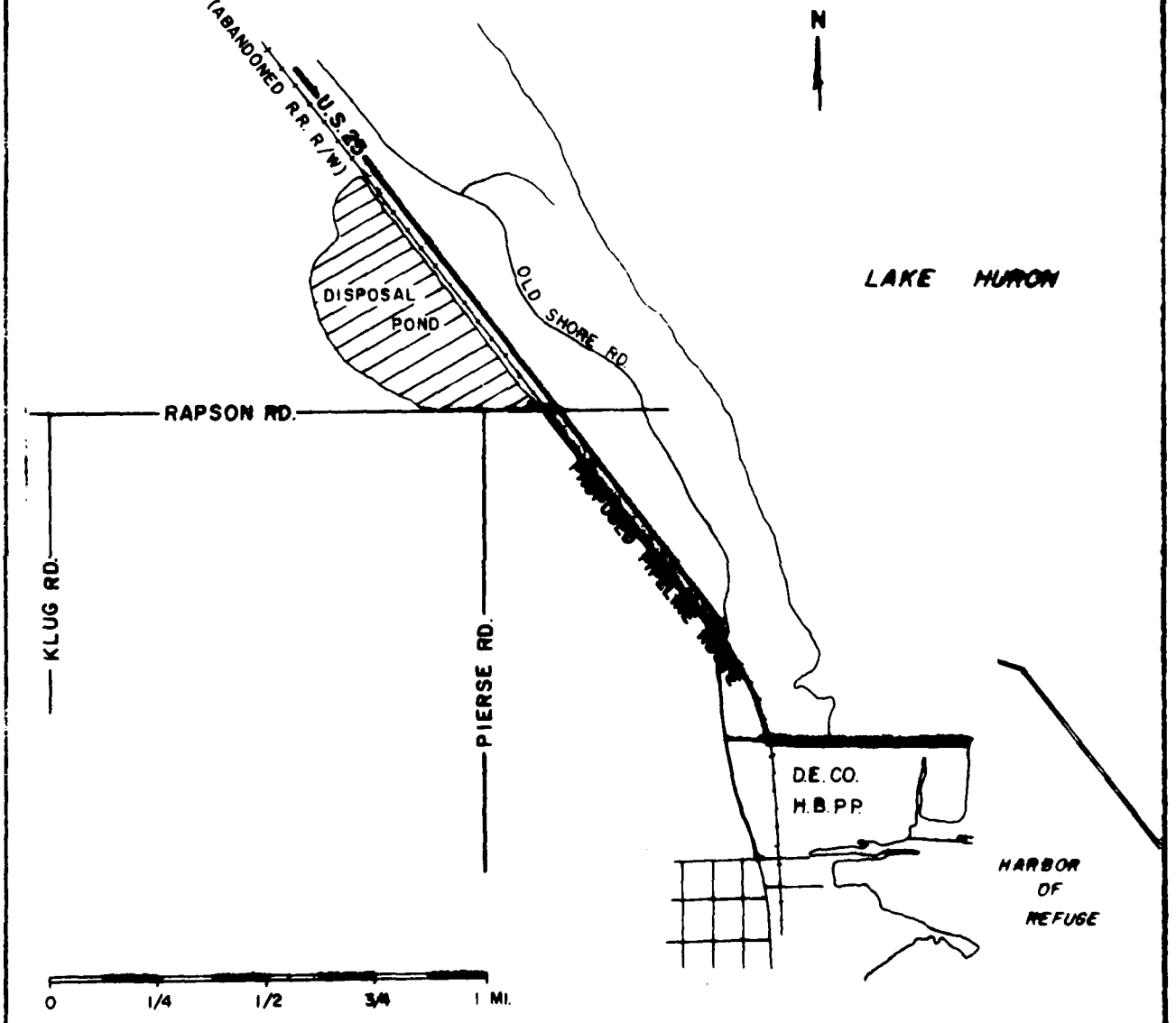
IN LAKE HURON AT THE HARBOR OF REFUGE, CITY OF HARBOR BEACH, COUNTY OF HURON, STATE OF MICHIGAN.

APPLICATION BY THE DETROIT EDISON CO.

DATE: 5-1-81 SHEET 5 OF 6

16.05/D4C

PROCESS # 792253C



PIPELINE ROUTE

DATUM IGLD 576.8'

PROPOSED DREDGING

IN LAKE HURON AT THE HARBOR OF REFUGE, CITY OF HARBOR BEACH, COUNTY OF HURON, STATE OF MICHIGAN.

APPLICATION BY THE DETROIT EDISON CO.

DATE: 11-8-79 SHEET 6 OF 6

US Army Corps of Engineers
Detroit District

Public Notice

Applicant: U.S. Army Engineer District, Detroit, Michigan
Date: August 21, 1981

In Reply Refer to: NCECO-O-48
Section: 404 (b) guidelines

MAINTENANCE DREDGING - HARBOR BEACH HARBOR, MICHIGAN

1. This public notice is issued to provide information to various Government agencies and the general public, and to solicit their comments and views relative to the proposed work.

2. The U.S. Army Corps of Engineers proposes to perform maintenance dredging of the Federal Navigation Channels at Harbor Beach Harbor, Michigan, in 1982 and in subsequent years when required to remove shoaling.

3. This Federal project consists of an entrance channel 23 feet deep and an anchorage area 21 feet deep, protected by a breakwater approximately 7,900 feet long.

4. The periodic maintenance dredging of this project is vital to deep draft vessels, both as a harbor of refuge and as a shipping channel. The total average annual cargo thru this harbor has been approximately 300,000 tons over the past 10 years. Shoaling throughout the project, consisting primarily of sand and silt, averages about 35,000 cubic yards annually.

5. Bottom sediments of the Federal channels at Harbor Beach Harbor were sampled by the U.S. Army Corps of Engineers in February 1981. Based on the sediment test results, and on a reexamination of all the various alternatives for dredged material disposal of Corps dredging at Harbor Beach, it is felt that open water disposal is the most environmentally acceptable in accordance with Section 404(b) guidelines of the Clean Water Act. Thus, it is proposed that the dredged material be placed into an open water disposal site located in Lake Huron approximately 3 miles from the harbor entrance. The center of this 160 acre disposal area is located at the intersection of 43° 50.81' latitude and 82° 33.73' longitude (See attached sketch).

6. The Detroit Edison Company also proposes to perform dredging in their channel located shoreward of the government anchorage area and adjacent to their Harbor Beach Power Plant. They also propose to dispose of their dredged material into this same open water disposal site. (See the Joint Public Notice dated 17 August 1981 Process No. 792253C/79-11-129G.)

7. Dredging of the Harbor Beach Federal Navigation Project has been accomplished by U.S. Government hopper dredge, however, the work can be performed by either a U.S. Government or private contractor-owned mechanical, hydraulic pipeline or hopper dredge.

8. This proposed dredging would be accomplished by working for a period of approximately 12 weeks in June, July, and August. Dredging periods will be coordinated with the U.S. Fish and Wildlife Service of the U.S. Department of the Interior, the Michigan Department of Natural Resources and the U.S. Environmental Protection Agency (EPA), prior to commencing dredging operations.

9. A draft Environmental Impact Statement concerning Detroit Edison Company's dredging operations and the Corps dredging activities at Harbor Beach Harbor was prepared and circulated for public review in January 1981. Copies are available upon request. Open water disposal of dredged material is discussed as an alternative in that document. A Final Environmental Impact Statement is currently being prepared to fully address open water disposal as the proposed action. The Final Environmental Impact Statement will be circulated for public review when completed and will incorporate comments received in response to this public notice.

10. This channel maintenance dredging work is being reviewed under the following laws: the Fish and Wildlife Act of 1956; the Fish and Wildlife Coordination Act of 1958; the National Historic Preservation Act of 1966, the National Environmental Policy Act of 1969; the Coastal Zone Management Act of 1972; the Endangered Species Act of 1973; the Water Resources Development Act of 1976; the Clean Water Act; Executive Order 11990, Wetlands Protection, May 1977; as well as the various Congressional Acts authorizing construction and maintenance of the Federal project.

11. This dredging, including the disposal, is part of the normal periodic maintenance dredging. Copies of this notice are being sent to the U.S. Environmental Protection Agency, the U.S. Department of the Interior, the U.S. Coast Guard, the U.S. Department of Commerce, the State of Michigan, Huron County, the City of Harbor Beach and other Federal, State, and local agencies, as well as to known interested groups and individuals.

12. Any person who has an interest which may be affected by the disposal of this dredged material may request a public hearing. The request must be submitted in writing to the District Engineer within thirty (30) days of the date of this notice and must clearly set forth the interest which may be affected by this activity.

13. Designation of the proposed disposal site for dredged material associated with the Federal project shall be made through the application of guidelines promulgated by the Administrator EPA, in conjunction with the Secretary of the Army. If these guidelines alone prohibit the designation of the proposed disposal site, any potential impairment to the maintenance of navigation, including any economic impact on navigation and anchorage which would result from the failure to use this disposal site, will also be considered.

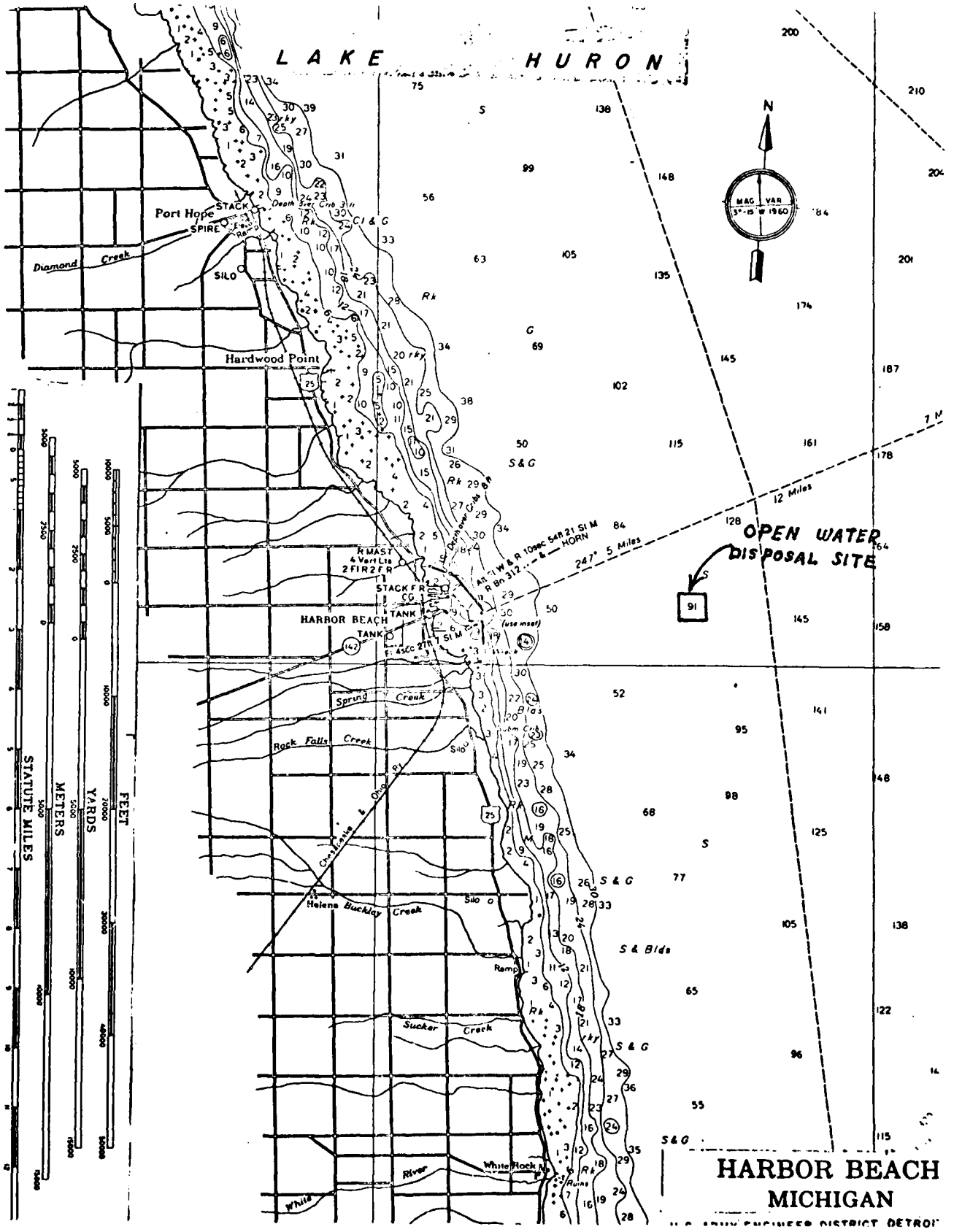
NCECO-O-48

14. This notice is being published in conformance with 33 US Code of Federal Regulations 209.145. Any interested parties desiring to express their views concerning the proposed disposal may do so by filing their comments in writing with this office not later than 4:30 p.m., 30 days from the date of issuance of this notice.

ROBERT V. VERMILLION
Colonel, Corps of Engineers
Commander and District Engineer

NOTICE TO POSTMASTER:

It is requested that the above notice be conspicuously and continuously posted for 30 days from the date of issuance of this notice.


LAKE HURON
Port Hope
STACK
SPIRE
Diamond Creek
SILO
Hardwood Point
OPEN WATER DISPOSAL SITE
HARBOR BEACH
TANK
Sprung Creek
Rock Falls Creek
Helena Buckley Creek
Sucker Creek
White River
STATUTE MILES
METERS
YARDS
FEET
HARBOR BEACH
MICHIGAN

STATE OF MICHIGAN

WILLIAM G. MILLIKEN, Governor

DEPARTMENT OF NATURAL RESOURCES

STEVENS T MASON BUILDING
BOX 30028
LANSING MI 48909
HOWARD A TANNER, Director

October 14, 1981

District Engineer
Detroit District
U. S. Corps of Engineers

The State of Michigan, Department of Natural Resources, acknowledged receipt of your public notice.

The State of Michigan having jurisdiction over the proposed activity(ies) under authority of 1955, P.A. 247, has issued a permit to the applicant(s).

CORPS PROCESS NUMBER/STATE PROCESS NUMBER

811773/81-8-130G
811675B/81-8-115G
811557C/81-4-83G
811457/81-9-165G MODIFIED
810651C/81-11-32G
811113C/81-14-329G
811114C/81-14-330G
811252B/81-14-349G
811246C/81-14-351G
811245C/81-14-352G
811253C/81-14-353G
811454/81-14-376G
792253/79-11-129G

Hereby concurs in the certification that the activity(ies) proposed by this applicant comply with the State of Michigan's Approved Coastal Management Program as required by Section 307 of the Coastal Zone Management Act (PL 92-583).

We will not object to the issuance of a Federal permit for work as proposed and certified under Section 401 of the Federal Water Pollution Control Act Amendments of 1972, PL 92-500, that the project will comply with the applicable provisions of Sections 301, 302, 306, and 307 of said Act.

LAND RESOURCE PROGRAMS DIVISON
Karl R. Hosford, Chief

By: M. C. Nielsen

M. C. Nielsen, Chief
Submerged Lands Management Unit

Copies of permits attached.

EN.REG.ER. OCT 81 8:32

STATE OF MICHIGAN
DEPARTMENT OF NATURAL RESOURCES
LAND RESOURCE PROGRAMS DIVISION

PERMIT

192253

ISSUED TO

Detroit Edison Company
(Peter H. Cook, Supervisor)
2000 Second Ave., 357 ECT
Detroit, Michigan 48226

Permit No. 79-11-129G
Date Issued October 8, 1981
Extension
Expiration Dec. 31, 1982

This permit is granted under provisions of:

☐ The Inland Lakes and Streams Act, 1972 P.A. 346.

☒ The Great Lakes Submerged Lands Act, 1955 P.A. 247, as amended.

Permitted Activity Dredge approximately 325,000 cubic yards of organic silt and silty clay from the Harbor Beach unloading facility and approach area. Bottom elevation to be 22.0 feet below LWD of 576.8' IGLD. Dredge spoil material will be deposited in the center of a 160 acre site located in Lake Huron at 43°50.81' latitude and 82°33.73' longitude.

Water Course Affected	County	Town	Range	Sect.	Sub. and Lot Number
Lake Huron	Huron	16N	15E	1	N/A

Authority granted by this permit is subject to the following limitations:

A. Initiation of any work on the permitted project confirms the permittees acceptance and agreement to comply with all terms and conditions of this permit.
B. The permittee in exercising the authority granted by this permit shall not cause unlawful pollution as defined by Act No. 245 of the Public Acts of 1929, as amended.
C. This permit shall be kept at the site of the work and available for inspection at all times during the duration of the project or until its date of expiration.
D. All work shall be completed in accordance with the plans and specifications submitted with the application and/or plans and specifications attached hereto.
E. No attempt shall be made by the permittee to forbid the full and free use by the public of public waters at or adjacent to the structure or work approved herein.
F. It is made a requirement of this permit that the permittee give notice to public utilities in accordance with Act 53 of the Public Acts of 1974, and comply with each of the requirements of that act.
G. This permit does not convey property rights in either Real Estate or material, nor does it authorize any injury to private property or invasion of public or private rights, nor does it waive the necessity of seeking federal consent, all local permits or complying with other state statutes.
H. This permit does not preclude or limit the right of a riparian owner or other person to institute proceedings in any circuit court of this state when necessary to protect his rights.
I. Permittee shall notify the Department of Natural Resources within one week after the completion of the activity authorized by this permit, by completing and forwarding the attached preaddressed post card to the office addressed thereon.
J. This permit shall not be assigned or transferred without the written approval of the Land Resource Programs Division, Department of Natural Resources.
K. Work to be done under authority of this permit is further subject to the following special instructions and specifications:

Site location will be by Loran C navigation equipment on all spoil transportation vessels.

Dredging and spoil disposal shall be done in accordance with attached plans.

Authority granted by this permit does not waive permit requirements under the Soil Erosion and Sedimentation Control Act, 1972 Public Act 347, or the need to acquire applicable permits from the County Drain Commission.

Notification shall be made to the Department of Natural Resources, Land Resource Programs Supervisor, five (5) days prior to starting the project.

Notify: M. C. Nielsen, Land Resource Programs Division, Box 30028 Lansing, Michigan 48909 (517)3738126.

Prior to initiation of construction, a pre-construction meeting shall be held with the contractor, permittee or his representative, and representatives of the Department of Natural Resources. To arrange the required meeting, contact:

CONTINUED ON PAGE #2

cc: _____

HOWARD A. TANNER
Director, Department of Natural Resources

By M. C. Nielsen

M. C. Nielsen

14-15

All construction activity to be conducted between October 15 and July 1.

In issuing this permit, the Department of Natural Resources has relied on the information and data which the permittee has provided in connection with the permit application. If, subsequent to the issuance of this permit, such information and data prove to be false, incomplete or inaccurate, the Department may modify, revoke or suspend the permit, in whole or in part, in accordance with the new information.

I have read and understand the conditions of this permit and I agree to these conditions.

Date: October 6, 1981

Peter L. Cook

Detroit Edison
By:
Title: SUPERVISOR, CIVIL ENGINEERING

cc: District 11 Law Supervisor
Region III
Corps of Engineers
Fisheries Biolcgist J. Scott
Water Quality, J. Courchaine
Public Health
Water Management, L. Witte

FIGURE I DREDGE & DISPOSAL SITE

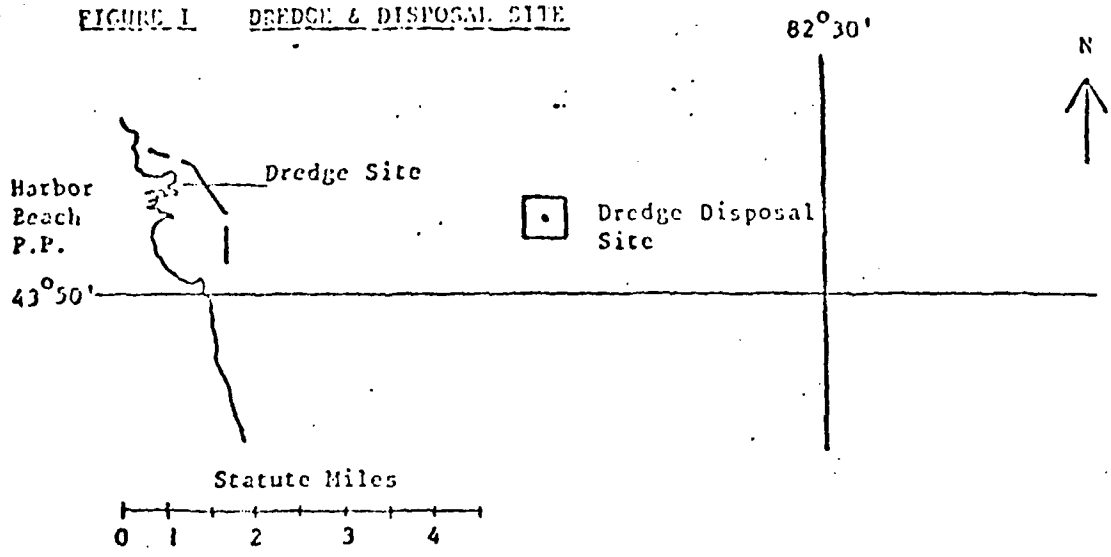
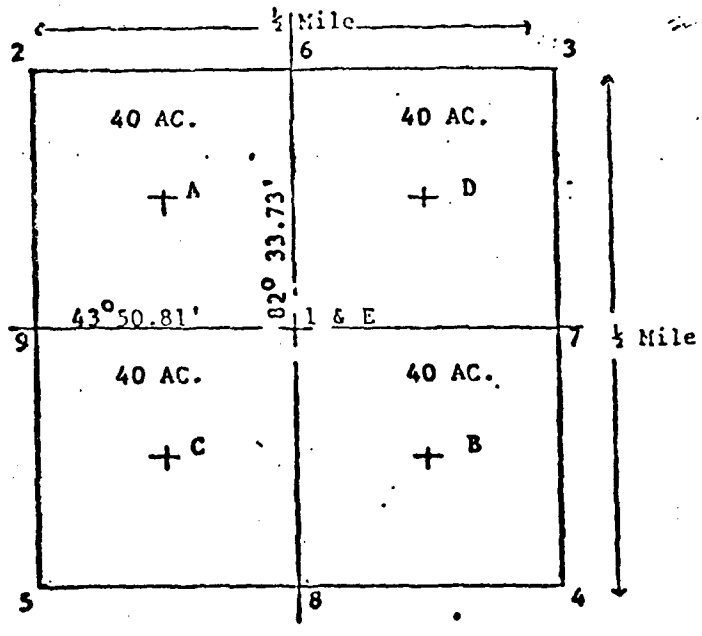


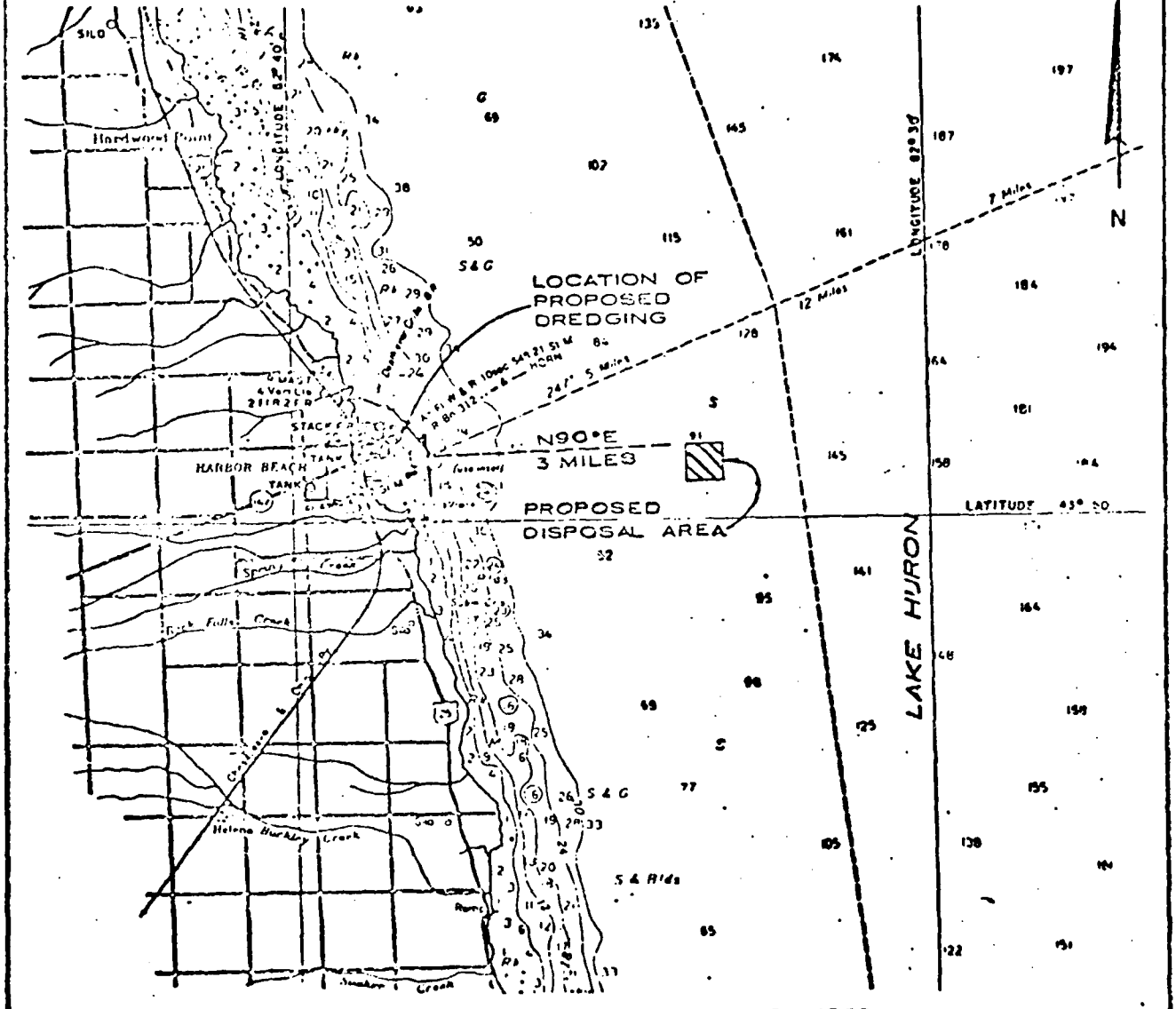
FIGURE II 160 ACRE DREDGE DISPOSAL SITE



1 Thru 5, Buoy Stations

1 Thru 9, Preliminary Ponar Sample Stations

A Thru E, Dive Stations



REPRODUCTION FROM NOAA CHART NO. 14862

DATUM I.G.L.D. 576.8'

VICINITY MAP

SCALE OF MILES

0 1 2 3

ADJACENT PROPERTY OWNERS

(1) CITY OF HARBOR BEACH
855 NORTH HURON AVE., HARBOR BEACH, MI 48441

(2) CMDR OF U.S. COAST GUARD, 9th C.G. DISTRICT
MAIN POST OFFICE BLDG., CLEVELAND, OH

(3) DICKINSON'S MARINA
5 LYTLE, HARBOR BEACH, MI. 48441

PROPOSED DREDGING AND DISPOSAL AREA

IN LAKE HURON AT THE HARBOR OF REFUGE, CITY OF HARBOR BEACH, COUNTY OF HURON, STATE OF MICHIGAN.
APPLICATION BY THE DETROIT EDISON CO.

DATE: 5-1-81 1 OF 6

STATE OF MICHIGAN

WILLIAM G. MILLIKEN, Governor
DEPARTMENT OF NATURAL RESOURCES
STEVENS T. MASON BUILDING
BOX 30028
LANSING, MI 48909
HOWARD A. TANNER, Director

October 15, 1981

Mr. Phillip McAllister, Chief
Engineering Division
U.S. Army Corps of Engineers
P.O. Box 1027
Detroit, Michigan 48231

Re: 401(a) Certification and
404(t) Concurrance
Stabilization Islands, St. Mary's River
Harbor Beach Maintenance Dredge Project

Dear Mr. McAllister:

The State of Michigan certifies under Section 401(a) of the Federal Pollution Control Act that the above projects will comply with the State's Water Quality Standards. Additionally, this document will serve as the State of Michigan concurrance for the work and fulfill the requirements of Section 404(t) of the Federal Water Pollution Control Act as amended by the Water Quality Act of 1977 (P.L. 95-217).

The St. Mary's River Project is described in the July 16, 1981 Corps of Engineers Public Notice and the Harbor Beach maintenance dredge project was public noticed on August 21, 1981.

This certificate shall remain in full force and effect for the period of time required to complete the project identified in the above-described notices. A further review of these projects will not be necessary unless there has been a significant variation in the project as described in the public notices.

Very truly yours,

WATER QUALITY DIVISION

Robert J. Courchaine
Division Chief

RJC:jKohunsky/vls
cc: L. Witte

MICHIGAN DEPARTMENT OF STATE

RICHARD H. AUSTIN SECRETARY OF STATE

LANSING
MICHIGAN 48918

MICHIGAN HISTORY DIVISION

ADMINISTRATION, PUBLICATIONS RESEARCH, AND HISTORIC SITES
208 N. Capitol Avenue

STATE ARCHIVES
3405 N. Logan Street

STATE MUSEUM
208 N. Capitol Avenue

November 18, 1981

Mr. C. Argiroff, P.E.
Chief Planning Division
Detroit District-Corps of Engineers
Department of the Army
P.O. Box 1027
Detroit, MI. 48231

Re: ER-4284
NCEPD-EA

Dear Mr. Argiroff:

Our staff has reviewed the following project and concludes that it will have no effect on any cultural resources either eligible for or listed on the National Register of Historic Places.

Maintenance Dredging and Dredged Material Disposal, Harbor Beach Harbor, Harbor Beach, Huron County, Michigan

If archaeological sites, features or materials are encountered during actual construction, please notify the Michigan State Historic Preservation Office.

Should you have any questions or require further assistance, please contact Donald E. Weston, Environmental Review Coordinator for the Michigan History Division at (517) 373-0510.

Thank you for giving us the opportunity to comment and for your cooperation.

Sincerely,

Martha M. Bigelow
Director, Michigan History Division
and
State Historic Preservation Officer

BY: Kathryn B. Eckert
Deputy State Historic Preservation Officer

MMB/KBE/DEW/sl

MH-69

UNITED STATES
ENVIRONMENTAL PROTECTION AGENCY
REGION V
230 SOUTH DEARBORN ST
CHICAGO, ILLINOIS 60604

REPLY TO ATTENTION OF
5XER

AUG 24 1981

Mr. P. McCallister, P.E.
Chief, Engineering Division
Detroit District, Corps of Engineers
P.O. Box 1027
Detroit, Michigan 48231

RE: Harbor Beach Harbor, Michigan

Dear Mr. McCallister:

As requested in your 5 August 1981 letter, we have reviewed and evaluated the disposal alternatives and the February 1981 sediment data from Harbor Beach Harbor, Michigan. These data were collected in response to our comments concerning the draft Environmental Impact Statement prepared for Detroit Edison Company's application for a Section 404 permit. The permit application requested permission to dispose of dredged sediment from the harbor into a wetland adjacent to Lake Huron. We found the proposed discharge to be environmentally unacceptable based on wetland impacts, and requested a more detailed analysis of alternatives that would avoid the impacts to this environmentally sensitive area.

One of the alternatives we recommended for further consideration was open-water disposal of harbor sediments in Lake Huron. Our acceptance of this alternative was premised on the determinations that: 1) upland disposal alternatives are shown to be technically or environmentally unacceptable, and 2) harbor sediments are chemically and physically suited for open-water disposal. The sediments are predominantly silts and clays and high in organic matter. This is reflective of the naturally occurring marshy shoreline of the area and does not indicate organic enrichment by cultural activities. The levels of nutrients, heavy metals, and synthetic organic chemicals do not exceed expected background concentrations. Because of the fine - grained nature of the dredged sediments, they are not particularly suited, in the quantities that would be removed from the harbor, for use as soil supplements or as construction materials. Upland alternatives are, therefore, considered technically unacceptable.

Based on the recent evaluation of disposal alternatives and on the sediment test results, we believe open - water disposal of dredged sediments from Harbor Beach Harbor is the environmentally preferable alternative. While we always prefer beneficial uses of a clean dredged sediment, there appear to be none for this project. Thus, we will not object to the open - water disposal alternative if it is the selected alternative in the final Environmental Impact Statement for this project, and if a disposal site is found that has low biological productivity and good characteristics for minimizing the dispersion of sediment away from the site. Please continue to coordinate with us in the selection of an environmentally suitable, open - water disposal area.

Thank you for responding to our questions and comments on the draft Environmental Impact Statement for this project. Your thorough investigations into the environmental consequences of the project's alternatives has been, in our opinion, an excellent example of how the environmental review process under the National Environmental Policy Act is supposed to work. We commend your staff for their efforts on this project. Please feel free to call Mr. James Hooper (312/886-6694) of my staff if you have any questions about our review.

Sincerely yours,

Valdas V. Adamkus
Acting Regional Administrator

UNITED STATES
ENVIRONMENTAL PROTECTION AGENCY
REGION V
230 SOUTH DEARBORN ST
CHICAGO, ILLINOIS 60604

5XER

31 AUG 1981

Chief, General Regulatory Branch
Detroit District, Corps of Engineers
Department of the Army
P.O. Box 1027
Detroit, Michigan 48231

Dear Sir:

This is in response to your request for comments on the August 17, 1981, revision of Public Notice #792253C/79-11-129G, under which the Detroit Edison Company had applied for a Section 10 and Section 404 permit to perform maintenance dredging in Lake Huron at Harbor Beach, Michigan.

In our March, 1981 response to the original public notice, we objected to the placement of the dredge spoils in the wetland as originally proposed, and recommended that the applicant seek alternative disposal sites. The results of subsequent sediment and elutriate testing were submitted to us with a letter from your Engineering Division, dated August 5, 1981.

We have reviewed the test results and have determined that the material is suitable for open-lake disposal. Disposal in Lake Huron at the site described in paragraph (4) and sheet 1 of the public notice will be in compliance with the 404(b)(1) guidelines. Accordingly, we have no objection to the issuance of a permit for dredging and disposal under the conditions described in the August 17, 1981, revision of plans.

Environmental industrial, and technological conditions can change rapidly, and activities that are now environmentally acceptable may become environmtally hazardous at a later date. Major spills of hazardous pollutants in the area to be dredged, discovery of previously undetected contaminants, unexpected changes in circulationn patterns or water chemistry, and unforseen synergistic effects on water quality or aquatic biota are examples of possible changes that could cause the continued dredging operation to have significantly adverse effects. The Michigan Department of Natural Resources has indicated that it will take these possibilities into consideration by issuing its permit under P.A 247 for a period of not more than three years. If at the end of the permit period, there is no evidence to indicate such changes, the permit will be renewed or extended. We believe it would be in the public interest for the Section 10 and Section 404 permits to be issued in the same way. This would allow the regulatory process to respond to existing conditions and relevant changes, and conditions in the permit could be added, maintained, or deleted to reflect conditions in the environment. Therefore, we suggest that the Corps' permits be issued for a three-year (or, at the longest, six-year) period to correspond with the renewal of the State Permits.

We appreciate the opportunity to comment of this permit application. If you have any questions, please contact Mr. Thomas Glatzel at (312) 886-6684.

Sincerely yours,

Elmer D. Shannon, Chief
Wetlands, Dredge and Fill Staff
Office of Environmental Review

cc: U.S. F&WS, East Lansing, MI
Michigan Dept. of Natural Resource, Lansing, MI
James Hooper, EPA, EIS Section, Office of Environmental Review, Chicago, IL

O-48

United States Department of the Interior

FISH AND WILDLIFE SERVICE
EAST LANSING FIELD OFFICE (ES)
Room 301, Manly Miles Building
1405 S. Harrison Road
East Lansing, Michigan 48823

IN REPLY REFER TO:

September 15, 1981

Colonel Robert V. Vermillion
District Engineer
U.S. Army Engineer District
Detroit
P.O. Box 1027
Detroit, Michigan 48231

GEN.REG.BR Dear Colonel Vermillion:

17 SEP 81 3: The Fish and Wildlife Service has reviewed the project plans advertised by the public notices on the following list. No significant affects on fish and wildlife, their habitat, or human uses thereof are expected to result from the proposed work or activity. Nor do the plans offer any potential opportunities to restore or improve resources or human uses. Therefore, the Service has no objection to the issuance of permits related to these notices.

In regard to Federally listed endangered species, the following proposed projects are within the known or historic range of the following endangered (E), threatened (T), or proposed (P) species:

County	Public Notice Process Number
Muskegon	811227B/81-9-131
Allegan	811496B/81-5-80W
Grand Traverse	811351B/81-6-125
Allegan	811295B/81-12-124
Bald eagle (T), Haliaeetus leucocephalus	
Iosco	811270C/81-7-76
Bald eagle (T), Haliaeetus leucocephalus Kirtland's warbler (E), Dendroica kirtlandii	
Calhoun	811287B/81-13-77
Indiana bat (E), Myotis sodalis	
Ottawa	811298C/81-9-146
Ottawa	811291C/81-9-149
St. Clair	811609/81-14-338
Sanilac	811330C/81-11-73G
St. Clair	811472C/81-14-401G
Sanilac	811258C/81-11-58G

St. Clair	811414/81-14-380
Huron	0-48
Chippewa	811474C/81-4-81
Macomb	811407C/81-14-403G
Huron	792253C/79-11-129G
St. Clair	801799C/80-14-512G
Clinton	810724B/81-9-71
Macomb	811254C/81-14-354G
St. Clair	811544/81-14-416G jt permit 81-12-79
Van Buren	811377B/81-12-188

There is no designated critical habitat at the project sites for the aforementioned endangered and threatened species.

The above list of species constitutes informal consultation only. It does not fulfill the requirements of Section 7 of the Endangered Species Act of 1973, as amended, which requires the Federal Agency which authorizes, funds, or carries out any major action, to request of the Secretary information whether Federally listed or proposed species are likely to be found in the project areas.

Sincerely yours,

Clyde R. Odin
Field Supervisor

cc: Director, Michigan DNR, Lansing, MI
U.S. EPA, Office of Environmental Review, Chicago, IL

US Army Corps of Engineers
Detroit District

Joint Public Notice

Applicant:	Date:
Detroit Edison Company	17 August 1981
In Reply Refer to: Process Number	Section:
792253C/79-11-129G	10/404

REVISION OF PLANS

PROPOSED MAINTENANCE DREDGING AND DISPOSAL OF DREDGED MATERIALS IN LAKE HURON AT HARBOR BEACH, MICHIGAN

1. The Detroit Edison Company, 2000 Second Avenue, Detroit, Michigan, has made application for permits to do work described in paragraph #2 to:

a. The Detroit District U.S. Army Corps of Engineers for a Department of the Army permit under authority of Section 10 of the River and Harbor Act of 1899 and Section 404 of the Clean Water Act of 1977, to perform maintenance dredging in Lake Huron offshore the Harbor Beach Power Plant and to discharge the dredged material in an area of Lake Huron located approximately 3 miles from the harbor entrance.

b. The State of Michigan, Department of Natural Resources for certification of this proposed work under Section 401 of PL 95-217, for compliance with the applicable provisions of Section 301, 306, and 307 of the Act. This statement has the approval of the Department of Natural Resources, Land Resource Programs Division and constitutes its public notice as required by Section 401 of the Act.

c. The State of Michigan, Department of Natural Resources, Land Resource Programs Division, for a permit under authority of 1955 P.A. 247.

2. As shown on the attached plan(s), the unloading facility and approach area for the Harbor Beach Power Plant will be annually dredged to provide and maintain a maximum depth of 22.0 feet below Low Water Datum elevation of 576.8 feet on International Great Lakes Datum. During the initial dredging operation approximately 325,000 cubic yards of organic silt and silty clay will be removed. Thereafter, an average of about 32,500 cubic yards of similar material will be dredged on an annual basis.

3. The applicant originally proposed to place the dredged material in a low-lying/wetland area adjacent to Lake Huron in Huron County at Harbor Beach, Michigan. See sheet 6 of 6. A public notice announcing the proposal was issued on 8 May 1980.

4. After conducting further investigations, the applicant now proposes to discharge the dredged material in an area of Lake Huron located approximately 3 miles from the harbor entrance. The center of the 160 acre disposal area is located at the intersection of 43° 50.81' Latitude and 82° 33.73' Longitude.

5. The purpose of the work is to provide and maintain adequate depths for commercial vessels delivering coal to the Harbor Beach Power Plant.

6. The applicant has not indicated that he has received or requested any other governmental authorization.

NO COMMENT

Robert A. Owens
ACT. SUPV. DATE SEP 03 1981

US Army Corps
of Engineers
Detroit District

Public Notice

Applicant: U.S. Army Engineer District, Detroit, Michigan

Date: August 21, 1981

In Reply Refer to: NCECO-O-48

Section: 404 (b) guidelines

MAINTENANCE DREDGING - HARBOR BEACH HARBOR, MICHIGAN

1. This public notice is issued to provide information to various Government agencies and the general public, and to solicit their comments and views relative to the proposed work.

2. The U.S. Army Corps of Engineers proposes to perform maintenance dredging of the Federal Navigation Channels at Harbor Beach Harbor, Michigan, in 1982 and in subsequent years when required to remove shoaling.

3. This Federal project consists of an entrance channel 23 feet deep and an anchorage area 21 feet deep, protected by a breakwater approximately 7,900 feet long.

4. The periodic maintenance dredging of this project is vital to deep draft vessels, both as a harbor of refuge and as a shipping channel. The total average annual cargo thru this harbor has been approximately 300,000 tons over the past 10 years. Shoaling throughout the project, consisting primarily of sand and silt, averages about 35,000 cubic yards annually.

5. Bottom sediments of the Federal channels at Harbor Beach Harbor were sampled by the U.S. Army Corps of Engineers in February 1981. Based on the sediment test results, and on a reexamination of all the various alternatives for dredged material disposal of Corps dredging at Harbor Beach, it is felt that open water disposal is the most environmentally acceptable in accordance with Section 404(b) guidelines of the Clean Water Act. Thus, it is proposed that the dredged material be placed into an open water disposal site located in Lake Huron approximately 3 miles from the harbor entrance. The center of this 160 acre disposal area is located at the intersection of 43° 50.81' latitude and 82° 33.73' longitude (See attached sketch).

6. The Detroit Edison Company also proposes to perform dredging in their channel located shoreward of the government anchorage area and adjacent to their Harbor Beach Power Plant. They also propose to dispose of their dredged material into this same open water disposal site. (See the Joint Public Notice dated 17 August 1981 Process No. 792253C/79-11-129G.)

7. Dredging of the Harbor Beach Federal Navigation Project has been accomplished by U.S. Government hopper dredge, however, the work can be performed by either a U.S. Government or private contractor-owned mechanical, hydraulic pipeline or hopper dredge.

NO COMMENT
RBS-GLAO
Robert A. Owens
ACT. SURV. DATE SEP 03 1981

APPENDIX B

WATER QUALITY AND SEDIMENT DATA

Detroit Edison
2000 Second Avenue
Detroit, Michigan 48226
(313) 237-8000

April 22, 1981

Colonel Robert V. Vermillion
District Engineer
U.S. Army Corps of Engineers
P.O. Box 1027
Detroit, MI 48231

Dear Colonel Vermillion:

Subject: Elutriate Test Program to Characterize the Sediments to be Dredged at Harbor Beach, Michigan

The Detroit Edison Company has compared the results of recent core sediment and elutriate analyses to the Environmental Protection Agency's December 24, 1980 Guidelines for Specification of Disposal Sites for Dredge or Fill Material. The Company provides this comparison in response to a request from the Environmental Resource Branch of the Corps and to allow for the dissemination of this information to other State and Federal agencies involved in the review of the Harbor Beach Dredging Project.

The results indicate that open water disposal of these sediments would not cause any "chemical contamination" (as used in 40 CFR 230.5(h)). Furthermore, the results indicate that open water disposal of these sediments would be allowed under the provisions of 40 CFR 230.10(b). These conclusions are based on the findings that open water disposal

- would not cause any violation of State water quality standards
- nor would such disposal cause any violation of any applicable toxic effluent standard

The balance of this letter elucidates on these points.

COMPARISON OF ELUTRIATE RESULTS TO STATE WATER QUALITY STANDARDS

The elutriate test results indicate little release of any constituents found in the sediments. All chemical parameters with the exception of ammonia, zinc, and suspended solids were found to be at essentially

the same concentration as background water quality and well within Michigan water quality standards (see attached report and following discussion). Ammonia, zinc, suspended solids, and fecal coliform were found at somewhat elevated concentrations but still well within Michigan water quality standards as shown below.

The Michigan Water Quality Standards contain two applicable sets of criteria: an exposure time dependent maximum criteria which is established inside a mixing zone, and a long term safe concentration established outside the mixing zone. The attached table compares the elutriate values with time dependent maximum criteria and also compares expected values outside the mixing zone with long term safe concentration. Since the Michigan Water Quality Standards references the "Report of the National Technical Advisory Committee to the Secretary of the Interia, Water Quality Criteris, 1968" and since this report often expresses criteria as a fraction of a 96 hour median Threshold Limit (TLm) rather than a specific numerical water concentration, the attached table references the 1968 Water Quality Criteria and in parethesis identifies generally accepted 96 hour TLm's. The data indicates compliance with both short term or mixing zone standards and the long term safe water quality standards.

COMPARISON OF ELUTRIATE TEST RESULTS TO TOXIC EFFLUENT STANDARDS

Under Section 307(a) of the Clean Water Act, EPA has established effluent standards for a number of pollutants. PCB is the only parameter analysed in sediment and elutriate testing for which a toxic effluent standard has been set. Since PCB was not detected in either sediments or elutriates, the results indicate that there would not be any violation of any toxic effluent standard.

The Company trusts that this data and analyses prove helpful and would appreciate any comments you might have. If you have any questions regarding this analyses, please contact me at 649-7511.

Yours truly,

D. A. Leonard
Environmental Licensing Engineer
Plant Improvement Projects

DAL/sjm

Attachments

COMPARISON OF TEST RESULTS WITH WATER QUALITY STANDARDS

Parameter	Average Concentration in Elutriate	Water Quality Criteria Applicable within a mixing zone	Concentration outside of a mixing zone	Water Quality Criteria Applicable outside of a mixing zone
Zinc	.2 mg/l	TLm (7.6 mg/l)	.002	1/100 TLm (.076)
Ammonia	20. mg/l			
Unionized Ammonia [2]	.36 mg/l	TLm (.5 mg/l)	.0043	1/100 TLm (.02)
Suspended Solids	1,000.mg/l	No solids which are or may become injurious to any designated use	12	No unnatural turbidity
Fecal Coliform	244 counts	No applicable standard	2 counts	200 counts/100 ml

1) See appendix for derivation of concentration outside of a mixing zone.

2) The unionized ammonia fraction determines the toxity of ammonia to aquatic organisms. The above analyses provides a 96 hour TLm for the more sensitive trout and salmon specie and is based on a PH of 8.0 and a temperature of 10^{o} C.

DL/sjm

APPENDIX

DERIVATION OF CONCENTRATION OUTSIDE OF A MIXING ZONE

The above derivation was performed in accordance with the EPA/Corps of Engineers Technical Committee on Criteria for Dredge and Fill Material report. Utilization of equation H2 found on Page H6 of that report allowed calculation of the volume of water found within an approximately 100 meter radius mixing zone. That volume was compared with the volume of water utilized in the elutriate test. The subsequent dilution factor was applied to the elutriate concentration. Finally that value was added to the background water concentration of the parameter under consideration. The resulting concentration was reported in the attached table under the heading "Concentration Outside of a Mixing Zone." The following is the derivation of the zinc concentration.

1. Volume of Water in a Mixing Zone

   Use Equation H2

   Mixing Zone = $\pi(100)^2$ depth of water *

   + 200 (width of disposal vessel)(depth of water) *

   + (200 + width of vessel) (length of vessel) (depth of water) *

   * Twenty meters is to be taken as the maximum water depth (see discussion on page H6)

   Assumptions
   - $\pi = 3.1416$
   - a disposal site will be is at least 20 meters of water
   - the vessels will be approximately 10 meters by 40 meters

   The volume of the mixing zone is, therefore, 800,000 cubic meters.

2. Derivation of Comparable Quantity of Water used in Elutriate Test

   Given

   4 parts of water were used in elutriate test to every part of sediment

   Assumption

   A barge will contain approximately 2,000 cubic meters of sediment

   A comparable quantity of elutriate water would be (2,000 cubic meter) (4) or 8,000 cubic meters

3. Comparison of Mixing Zone Volume to Comparable Elutriate Volume

$$\frac{\text{eq. 1}}{\text{eq. 2}} = \frac{800{,}000}{8{,}000} = 100$$

4. Applicaton of Dilution Factor to Elutriate Concentration

Given

An elutriate zinc concentration of .2 mg/l

A dilution factor 100 from equation 3

.2/100 = .002 mg/l

5. Consideration of Background Zinc Concentration

Given

A non-detectable background zinc concentration

Therefore, *assume no background* concentration

6. *Concentration Outside of a Mixing Zone*

This concentration = concentration due to disposal

+ background concentration

= .002 mg/l + 0 mg/l = .002 mg/l

DL/sjm

Detroit Edison

November 4, 1981

Mr. Daniel Allega
Environmental Resource Branch
U.S. Army Corps of Engineers
P.O. Box 1027
Detroit, Michigan

Dear Mr. Allega:

Subject: Elutriate Test Program to Characterize the Sediment to be Dredged at Harbor Beach

In response to your request for additional information of the impact of open water disposal, the attached analyses is provided. This analyses employs the procedure described in the attached April 22nd letter and indicates that the levels of barium and manganese, which will be released from the sediments, will neither be appreciable or significant. This data is consistent with the findings of Environmental Protection Agency in "Quality Criteria for Water" 1976. EPA reported that neither substance is prevalent or persistent in the environment. Both substances readily form insoluble salts. This data further reinforces the acceptability of open water disposal.

If you have any additional questions, please contact me at 649-7511.

Sincerely,

D. A. Leonard

DAL/dls

Attachment

COMPARISON OF TEST RESULTS WITH WATER QUALITY STANDARDS

Parameter	Average Concentration in Elutriate	Water Quality Criteria Applicable within a mixing zone	Concentration outside of a mixing zone[3]	Water Quality Criteria Applicable outside of a mixing zone
Barium	.28 mg/l	TLm (50 mg/l)[1]	.007	1/100 TLm (.5)
Manganese	.15 mg/l[4]	TLm (16 mg/l)[2]	Not Detectable	1/100 TLm (.16)

1) Quality Criteria for Water, EPA, 1976 pg. 20.

2) England, R.H. and K.B. Cummings. 1971. Stream damage from manganese stripmining. Pages 399-418 In: Proc. 25th Annual Conf. Strip-Mining Assoc.

3) See appendix for derivation of concentration outside of a mixing zone.

4) The concentration of manganese reported in the anoxic elutriate is utilized because of the expected initially anoxic environment in the immediate disposal area.

DETROIT EDISON SEDIMENT TESTS

FIELD METHODOLOGY
DETROIT-EDISON
HARBOR BEACH, MICHIGAN

On February 18, 1981, Environmental Research Group, accompanied by Hartley & Associates (Civil Engineers) and Frank Snitz, U.S. Army Corp of Engineers, collected water quality, benthos, elutriate water and sediment cores from the Detroit Edison Harbor Area.

Sediment samples were collected at stations 1, 2, and 3. At station number 2, samples for water quality, benthos, and sufficient water for elutriate testing was collected.

SAMPLING METHODOLOGY

Water quality samples and elutriate water were collected utilizing a peristaltic pump equipped with Teflon sampling line and a stainless steel probe. For elutriates, water was collected from 3.0 feet off bottom and pumped directly into two, 2.5 gallon glass carboys. Water quality samples were collected at the same depth as elutriate water and pumped directly into properly preserved bottles. All preservation of samples was in accordance with the December 3, 1979 Federal Register. Samples were kept at 4°c for transport back to our laboratory.

Onsite field measurements were taken utilizing the following equipment:

pH - Orion Model 407 A -
D.O. - Y.S.I. Model 54 ARC Meter
Temp - Y.S.I. Model S-C-T Meter
Secchi - Standard Secchi Disk

Benthos were collected at station number 2 using a 6" x 6" petite ponar. Three ponar grabs were collected at this location and worked through a Standard U.S. No. 30 mesh screen. All material retained on the screen was backwashed into a 500 ml plastic container and preserved with 70% ethanol.

Sediments were collected using a 24" x 1.5" split-spoon sampler. To receive the sample the split-spoon was fitted with 24" x 1.5" acrylic core sleeves. Upon sample retrival, the core sleeves were removed, capped with Teflon, stored upright and cooled to 4 c for shipment.

Due to the unconsolidated nature of the top 4" to 5" of sediment, it was very difficult to collect this portion of the bottom by coring. Upon contact by the split-spoon, the top layer became suspended and was forced out through the breathing holes on the split-spoon sampler. To compensate for this problem, it was decided to take one ponar grab per location and composite it with the core samples to represent the top layers of the sediment.

STATION NO. 1

Station No. 1 was located 860' w.s.w. (250°) of the 2500 foot marker on the east breaker wall. Upon arrival at this location, the following coordinates were read using a hand-held sight through compass:

76° - 2500' marker e. breaker wall
347° - end of n. breaker wall
276° - n.w. corner of Edison Building
227° - s.w. corner Coast Guard Station

The total water dpeth for station 1 was 8.0 feet.

This area was designated to be dredged to a total depth of 18.0 feet.

One ponar grab was collected to represent the top 4" to 5" of sediment. A total core length of 10.0 feet was collected by split-spoon sampling, the deepest penetration from the surface was 18.0 feet.

SEDIMENT CHARACTERISTICS STATION NO. 1

Depth of Core	Color	Sample Description	Odor	Oil
ponar grab	brown & gray	muck with light silt	earthy	none
8'-10'	brown & gray	muck and moderate silt	earthy	none
10'-13'	brown & gray	muck and moderate silt	earthy	none
13'-16'	light brown, gray	muck and sand	earthy	none
16'-18'	light brown, gray	sand silt and muck hard pack (clay) in bottom of tube	earthy	none

STATION NO. 2

Due to the unstable ice conditions near the Detroit Edison ship moaring area, Station No. 2 had to be moved. The original location was approximately 187' due east of the docking area. The new sampling area was chosen to closely simulate the shoaling characteristics needed for sampling. This new location was 750 feet w.s.w (250°) from the Corp of Engineers monument on the east breaker wall. The monument is located between the 2500 foot and 2600 foot markers on the breaker wall. The following coordinates were read following the establishment of Station No. 2:

132° - center of lighthouse
346° - end of n. breaker wall
294° - n.w. corner of Edison Building
236° - s.w. corner of Coast Guard Station

The total water depth at Station No. 2 was 10.75 feet. Samples for water quality parameters and elutriate water was collected at a depth of 7.5 feet.

One ponar grab was collected to represent the top 4" to 5" of sediment. A total core length of 8.25 feet was collected by split-spoon sampling, the deepest penetration from the surface was 19.0 feet.

SEDIMENT CHARACTERISTICS STATION NO. 2

Depth of Core	Color	Sample Description	Odor	Oil
ponar grab	brown & gray	muck with light silt	earthy	none
10.75'-13.0'	brown & gray	muck and silt mix	earthy	none
13.0'-15.0'	brown & gray	muck and silt mix	earthy	none
15.0'-17.0'	light brown, gray	muck, silt and sand	earthy	none
17.0'-19.0'	light brown, gray	silt and sand	earthy	none

STATION NO. 3

Station No. 3 was located 1390 feet w.s.w. (230°) of the 3200' mark on the east breaker wall. The following coordinates were read following the establishment of Station No. 3:

289° - n.w. corner of Coast Guard Station
358° - end of n. breaker wall
326° - s.w. corner of Edison Building
124° - center of lighthouse

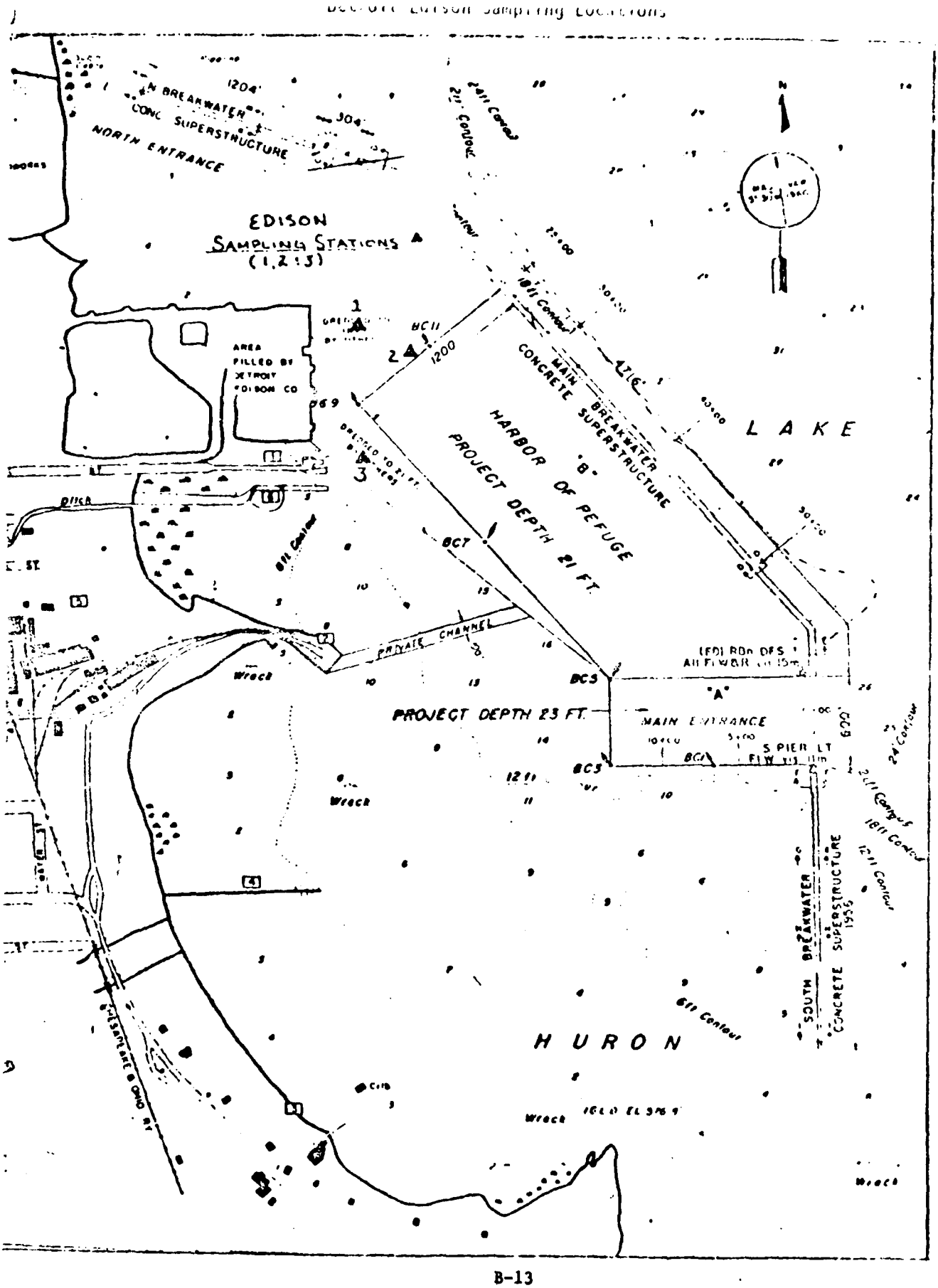
The total water depth at Station No. 3 was 15.0 feet.

One ponar grab was collected to represent the top 4" to 5" of sediment. A total core length of 7.0 feet was collected by split-spoon sampling, the deepest penetration from the surface was 22.0 feet.

An attempt was made to sample the 21 foot to 23 foot sediment layer. From the 21 foot to 22 foot section the split-spoon sampler was hammer-driven using a 140 lb. driver. For 30 blows the sampler only penetrated 1.0 foot of sediment; the material encountered was hard-packed clay and sand.

SEDIMENT CHARACTERISTICS STATION NO. 3

Depth of Core	Color	Sample Description	Odor	Oil
ponar grab	brown & gray	silt and muck	earthy	none
15'-17'	brown & gray	silt and muck	earthy	none
17'-19'	brown & gray	sand and silt mix	earthy	none
19'-21'	light brown, gray	mostly sand, some silt	earthy	none
21'-22'	light brown, gray	top portion sand bottom portion clay very hard-packed	earthy	none


EDISON
SAMPLING STATIONS
(1,2,3)
1
2
3
BC11
BC9
BC7
BC5
BC4
1200
1204
304
N BREAKWATER
CONC SUPERSTRUCTURE
NORTH ENTRANCE
AREA
FILLED BY
DETROIT
EDISON CO
DITCH
MAIN CONCRETE BREAKWATER SUPERSTRUCTURE
HARBOR OF REFUGE
PROJECT DEPTH 21 FT.
PROJECT DEPTH 23 FT.
PRIVATE CHANNEL
MAIN ENTRANCE
S PIER
"A"
"B"
LAKE
HURON
SOUTH BREAKWATER
CONCRETE SUPERSTRUCTURE
1955
Wreck
18' Contour
21' Contour
24' Contour
6ft Contour
PENNSYLVANIA R.R.
N

B-13

FIELD DATA
Detroit Edison
Harbor Beach, Michigan
Water Quality

Date	Station number	Depth (ft.)	Water Collected (depth) (ft.)	Cond. (µmhos)	D.O. (ppm)	Temp. (°C)	pH (S.U.)	Secchi (Avg.)	Weather Conditions & Ancillary Observations
2/18/81	1	8.0	5.0	139	13.4	1	7.4	8.0'	overcast, foggy, visibility appr ¼ mile, winds-s.s.w.@ 5 m.p.h. ambient temp. 4.5 c.
2/18/81	2	10.75	7.5	128	12.8	1	7.5	10.75	sunny, clear, winds-s.w.@ 4 m.p. ambient temp. 6.5 c, water very clear.
2/18/81	3	15.0	12.0	125	12.2	1	7.4	12.75	sunny, clear, winds-s.w.@ 4 m.p. ambient temp. 9.0 c.

DETROIT EDISON
Macroinvertebrate Pesults
STATION NO. 2
Harbor Beach, Michigan
(2/18/81)

	2
	59045
Oligochaeta	
Limnodrilus hoffmeisteri	14
Limnodrilus sp.	16
Potamothrix sp.	
Insecta	
Diptera	
Chironomidae	
Chironomus anthracinus	17
Chironomus plumosus	
Tanytarsus sp.	
TOTAL Number of Organisms	47
TOTAL Number of Species	3

Detroit Edison
Harbor Beach, Michigan
Project #7345
2/18/81

Parameters and units	WATER Station 2	ELUTRIATE STUDY RESULTS Station 1 Ambient[1]	Station 1 Anoxic[2]	Station 2 Ambient[1]	Station 2 Anoxic[2]	Station 3 Ambient[1]	Station 3 Anoxic[2]
	AA59045	AA59046	AA59049	AA59047	AA59050	AA59048	AA59051
arsenic, mg/L	0.001	ND(0.001)	0.003	ND(0.001)	0.003	0.003	0.003
barium, mg/L	0.040	0.29	0.29	0.28	0.27	0.30	0.27
cadmium, mg/L	ND(0.003)	ND(0.003)	ND(0.003)	ND(0.003)	ND(0.003)	ND(0.003)	ND(0.003)
carbon, total organic, mg/L	2	67	22	35	10	19	16
chromium, mg/L	ND(0.005)	ND(0.005)	0.005	0.007	ND(0.005)	0.010	0.006
coliform, fecal*, colonies/100 mL	ND(1)	130	270	1,200	710	93	93
cyanide, mg/L	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)
iron, mg/L	0.028	0.025	0.36	0.032	0.26	0.020	0.36
lead, mg/L	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)
manganese, mg/L	ND(0.005)	0.013	0.15	0.012	0.22	0.033	0.25
mercury, mg/L	ND(0.0002)	0.0002	0.0003	0.0003	0.0008	0.0004	0.0003
nickel, mg/L	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)
nitrogen, ammonia, mg/L	0.04	22	20	24	26	13	15
nitrogen, total Kjeldahl, mg/L	0.27	37	39	37	61	26	33
oil and grease*, mg/L	ND(1)	9	ND(1)	7	3	ND(1)	26
oxygen demand, chemical, mg/L	4	52	44	39	15	58	23
PCB, total*, µg/L	ND(0.3)	ND(0.3)	ND(0.3)	ND(0.3)	ND(0.3)	ND(0.3)	ND(0.3)
phenols, mg/L	ND(0.004)	ND(0.006)	ND(0.006)	0.022	ND(0.006)	ND(0.006)	0.014
phosphorus, dissolved, mg/L	0.04	--	--	--	--	--	--
phosphorus, total, mg/L	0.03	ND(0.02)	ND(0.02)	ND(0.02)	ND(0.02)	ND(0.02)	ND(0.02)
solids, dissolved, mg/L	120	100	110	130	110	120	200
solids, suspended*, mg/L	2	1,200	1,200	1,100	740	750	590
solids, total volatile, mg/L	17	48	46	34	54	57	64
zinc, mg/L	ND(0.005)	0.20	0.21	0.17	0.21	0.18	0.20
copper, mg/L	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)

ND = non-detectable, detection limit shown in parentheses.

*Analyses performed on settled unfiltered supernatant.
Samples were allowed to settle at a 11 cm/hr rate peior to sub-sampling.

Except where noted, analyses were performed on pressure filtered samples passed through a 0.45 µm filter.
Analyses were performed according to Corps of Engineers procedures.
[1] D.O. at 12.5 mg/L
[2] D.O. at <0.2 mg/L

Detroit Edison
Harbor Beach, Michigan
Project #7345
2/18/81

Sediment Results

	Station 1 AA59096	Station 2 AA59097	Station 3 AA59098
arsenic, mg/kg	6.0	4.9	4.8
barium, mg/kg	30	39	37
cadmium, mg/kg	ND(0.75)	ND(0.75)	ND(0.75)
carbon, total organic, mg/kg	33,000	27,000	25,000
chromium, ng/kg	16	20	17
coliform, fecal*, colonies/g	ND(4)	4	ND(4)
cyanide, mg/kg	ND(0.9)	ND(1)	ND(0.8)
iron, mg/kg	24,000	28,000	24,000
lead, mg/kg	17	24	19
manganese, mg/kg	310	370	300
mercury, mg/kg	0.24	0.17	0.21
nickel, mg/kg	14	20	17
nitrogen, ammonia, mg/kg	260	310	140
nitrogen, total Kjeldahl, mg/kg	2,400	2,600	2,100
oil and grease, mg/kg	220	480	670
oxygen demand, chemical, mg/kg	61,000	88,000	62,000
PCB, total, mg/kg	ND(0.05)	ND(0.05)	ND(0.05)
phenols, mg/kg	ND(0.4)	ND(0.5)	ND(0.4)
phosphorus, total, mg/kg	460	450	520
solids, %	46	42	48
solids, total volatile, %	5.8	7.2	5.4
grain size:			
>2.0 mm, %	<0.1	<0.1	3.5
>0.43 mm, %	0.1	0.6	5.4
>0.25 mm, %	0.7	1.2	20.4
>0.075 mm, %	36.7	45.2	56.4
<0.075 mm, %	63.3	54.8	43.6
zinc, mg/kg	88	110	96
copper, mg/kg	13	15	15

*All results reported on a dry weight basis with the exception of fecal coliform which is reported on a wet weight basis.

Analyses were performed according to Corps of Engineers procedures.

CORPS' DREDGING AREA - SEDIMENT TESTS

Field Methodology

Harbor Beach, Michigan

for

Detroit District

Army Corp of Engineers

(1)

On February 17, 1981 Environmental Research Group, accompanied by Hartley & Associates (Civil Engineers) and Frank Snitz, U.S. Army Corp. of Engineers, collected water quality, sediments, benthos and elutriate water from the safe harbor located in Harbor Beach, Michigan.

Sediment cores and elutriate water were collected from Stations 1, 2, and 3. Water quality and benthos samples were collected from Stations 1 and 3. In-situ parameters andancillary observations were made for all three stations.

Sampling Methodology

Water quality samples and elutriate water were collected utilizing a peristaltic pump equipped with teflon sampling line and a stainless steel probe. For elutriates, water was collected from 3.0 feet off bottom and pumped directly into a 2.5 gallon glass carboy. Water quality samples were collected at the same depth as elutriate water and pumped directly into properly preserved bottles. All preservation was in accordance with the December 3, 1979 Federal Register. Samples were cooled to 4°C for transport back to our laboratory.

Onsite field measurements were taken utilizing the following equipment:

1. pH - Orion Model 407 A
2. Dissolved Oxygen - Y.S.I. Model 54 ARC
3. Temperature - Y.S.I. Model 54 ARC
4. Conductivity - Y.S.I. Model S-C-T
5. Secchi - Standard Secchi disk with sounding line.

Benthos samples were collected at Stations 1 and 3 using a 6" x 6" petite ponar. Three ponar grabs were taken for each station and worked through a Standard U.S. No. 30 mesh screen. All material retained on the screen was back-washed into 500 ml plastic containers and preserved with 70% ethanol.

Sediment cores were collected using a hydraulic drilling rig equipped with a 24" x 1.5" split-spoon sampler. To receive the sample the split-spoon was fitted with 24" x 1.5" acrylic core sleeves. Upon sample retrieval, the core sleeves were removed, capped with teflon, stored upright and cooled to 4°C for shipment.

Station No. 3

Station Number 3 was initially located within the main entrance between the south and main breaker wall. Due to unstable ice conditions near the entrance, Station No. 3 was reloacted. The new location for Station No 3 was 250' southwest of the 5,000 foot marker located on the main breaker wall

The following compass bearings were read for this location:

1. Coast Guard Station - 298°
2. Lighthouse (Center) - 132°
3. 5,000 Foot Marker - 58°
4. End of Public Dock - 245°

Ice thickness at station No. 3 was 11.0 inches.

Station No. 2

Station Number 2 was located 250' southwest of the 4,000 foot marker on the main breaker wall.

The following compass bearings were read for this location:

1. Coast Guard Station - 281°
2. Lighthouse (Center) - 136°
3. 4,000 Foot Marker - 55°
4. End of Public Dock - 223°

Ice thickness at Station No. 2 was 12.0 inches.

Station No. 1

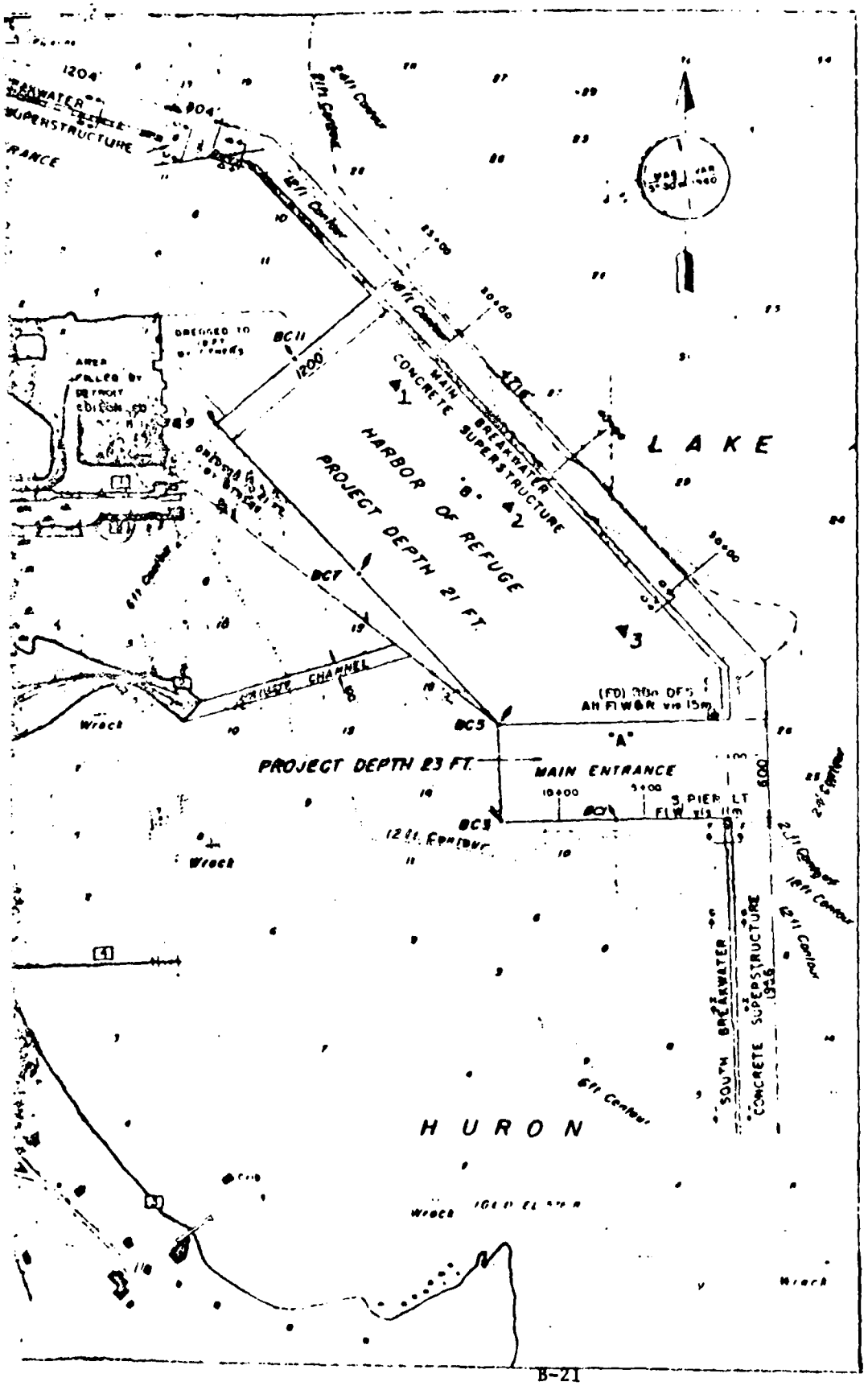
Station Number 1 was located 250' southwest of the 3,000 foot marker on the main breaker wall.

The following compass bearings were read for this location:

1. Coast Guard Station - 254°
2. Lighthouse (Center) - 140°
3. 3,000 Foot Marker - 58°
4. End of Public Dock - 210°

Ice thickness at Station No. 1 was 12.0 inches.

Distance measurements for the above stations were taken from the main breaker wall at established U.S.A.C. foot markers, utilizing a 1,000 foot tag-line with 10 foot increments.


SAMPLING STATION
(1,2,3)
LAKE
HARBOR OF REFUGE
PROJECT DEPTH 21 FT.
PROJECT DEPTH 23 FT.
MAIN ENTRANCE
MAIN CONCRETE BREAKWATER SUPERSTRUCTURE
SOUTH BREAKWATER CONCRETE SUPERSTRUCTURE
HURON
MICHIGAN
CANADA
Wreck

Sediment Characteristic

Harbor Beach, Michigan

2/17/81

ation No.	Water Depth	Depth of Core	Sample Description	Color	Odor	Oil	General Remarks
3	17.5'	17.5'-20'	Silt & Muck-unconsolidated	brown & gray	non-specific	No	1'2" of sample for First Core.
		17.5'-21'	Silt & Muck-unconsolidated	brown & gray	non-specific	No	1.0' of sample in Second Core.
		17.5'-25'	Silt & Sand Mix (≈10% Sand)	light brown & gray	non-specific	No	2.0' of sample in Third Core.
		17.5'-28.5'	Silt & Sand Top Half, Clay & Sand Mix Bottom	light brown & gray	non-specific	No	2.0' of sample in Fourth Core.
2	14.5'	14.5'-20'	Silt & Muck-unconsolidated	brown-gray	non-specific	No	1'6" of sample for First Core.
		14.5'-22.5'	Silt & Muck-unconsolidated	brown & gray	non-specific	No	1'9" of sample for Second Core.
		14.5'-24.5'	Silt & Sand Mix (≈10% Sand)	light brown & gray	non-specific	No	2.0' of sample for Third Core.
		14.5-26.5'	Silt & Hard Packed Sand (≈40% Sand)	light brown & gray	non-specific	No	2.0' of sample for Fourth Core.
1	11.0'	11.0'-15'	Silt & Muck-unconsolidated	brown-gray	non-specific	No	1'4" of sample for First Core.
		11.0'-17'	Silt & Muck-unconsolidated	brown-gray	non-specific	No	1'6" of sample for Second Core.
		11.0'-22'	Silt & Sand (≈20% of Sand)	brown, light brown & gray	non-specific	No	2.0' of sample for Third Core.
		11.0'-25'	Silt & Sand (≈40% Sand) No Clay	light brown & gray	non-specific	No	2.0' of sample for Fourth Core.

Water Quality
Field Data
Harbor Beach, Michigan

Date	Station Number	Depth (ft.)	Water Collected (depth) (ft.)	Cond. (umhos)	D.O. (ppm)	Temp. (C°)	pH (S.U.)	Secchi (avg.)	Weather Conditions
2-17-81	#3	17.5	15.0	130	12.6	1.0	7.5	14.25	Winds S.W. 7-10mph., 100% overcast ambient temperature 2°C.
2-17-81	#2	14.5	11.0	130	13.2	1.0	7.5	14.5	Winds S.W. 7-10mph., 75% overcast ambient temperature 4.0°C, bottom visible @ 14.5' with Secchi disk.
2-17-81	#1	11.0	7.5	130	12.8	1.0	7.5	11.0	Winds S.S.W. 7-10mph., clear and sunny, ambient temperature 5°C, bottom visible A 11.0' with Secchi disk.

U.S. Army Corp of Engineers
Macroinvertebrate Results
Harbor Beach, Michigan
(2/20/81)

	Station No. 1 59052	Station No. 3 59054
Oligochaeta		
Limnodrilus hoffmeisteri	9	22
Limnodrilus sp.	10	14
Potamothrix sp.		5
Insecta		
Diptera		
Chironomidae		
Chironomus anthracinus	13	4
Chironomus plumosus	1	1
Tanytarsus sp.	1	
TOTAL Number of Organisms	34	46
TOTAL Number of Species	5	5

Corps of Engineers, Detroit District
Harbor Beach, Michigan
Samples Collected: 2/17/81

Sediment Results

	Station 1 AA59102	Station 2 AA59103	Station 3 AA59104
arsenic, mg/kg	6.3	7.4	7.2
cadmium, mg/kg	ND(0.75)	ND(0.75)	ND(0.75)
carbon, total organic, mg/kg	34,000	37,000	34,000
chromium, mg/kg	22	21	19
copper, mg/kg	22	24	21
coliform, fecal*, colonies/g	290	4	4
iron, mg/kg	28,000	27,000	29,000
lead, mg/kg	23	23	20
manganese, mg/kg	350	340	350
mercury, mg/kg	0.27	0.24	0.11
nickel, mg/kg	19	20	17
nitrogen, ammonia, mg/kg	690	460	530
nitrogen, total Kjeldahl, mg/kg	3,400	3,100	3,300
oil and grease, mg/kg	300	310	420
oxygen demand, chemical, mg/kg	69,000	67,000	73,000
PCB, total, mg/kg	0.04	ND(0.05)	ND(0.03)
phenols, mg/kg	0.97	3.1	ND(0.04)
phosphorus, total, mg/kg	670	580	670
solids, %	49	52	45
solids, total volatile, %	5.6	5.7	5.9
grain size:			
>2.0 mm, %	<0.1	1.4	0.2
>0.43 mm, %	0.1	1.7	0.6
>0.25 mm, %	0.3	2.2	1.9
>0.075 mm, %	10.4	10.3	36.9
<0.075 mm, %	89.6	89.7	63.1

*All results reported on a dry weight basis with the exception of fecal coliform which is reported on a wet weight basis.

Corps of Engineers, Detroit District
Harbor Beach, Michigan
Samples Collected: 2/17/81

Elutriate Study Results

Parameters and units	Station 1 A AA59055	Station 1 B AA59099	Station 2 A AA59056	Station 2 B AA59100	Station 3 A AA59057	Station 3 B AA59101
arsenic, mg/L	0.003	0.002	0.003	0.003	0.003	0.002
cadmium, mg/L	ND(0.003)	ND(0.003)	ND(0.003)	ND(0.003)	ND(0.003)	ND(0.003)
carbon, total organic, mg/L	24	45	33	25	25	26
chromium, mg/L	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
copper, mg/L	ND(0.005)	0.033	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
coliform, fecal*, colonies/100 mL	450	680	60	60	20	210
iron, mg/L	0.042	0.060	0.033	0.026	0.024	0.054
lead, mg/L	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)
manganese, mg/L	0.014	0.007	0.050	0.031	0.052	0.019
mercury, mg/L	0.0003	0.0003	0.0004	0.0004	0.0004	0.0003
nickel, mg/L	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)
nitrogen, ammonia, mg/L	52	45	36	32	28	26
nitrogen, total Kjeldahl, mg/L	110	89	78	81	58	56
oil and grease*, mg/L	ND(1)	1	1	1	1	ND(1)
oxygen demand, chemical, mg/L	50	56	63	47	59	44
PCB, total*, µg/L	ND(0.9)	ND(0.9)	ND(0.9)	ND(0.9)	ND(0.9)	ND(0.9)
phenols, mg/L	ND(0.004)	0.022	0.067	0.024	0.011	ND(0.004)
phosphorus, total, mg/L	ND(0.02)	ND(0.02)	ND(0.02)	ND(0.02)	ND(0.02)	0.04
solids, dissolved, mg/L	210	290	260	260	230	360
solids, suspended*, mg/L	12	8	8	8	8	8

ND = non-detectable, detection limit shown in parentheses.

*Analyses performed on settled unfiltered supernatant.
Samples were allowed to settle overnight.
Except where indicated, analyses were performed on pressure filtered samples passed through a 0.45 µm filter.

Corps of Engineers, Detroit District
Harbor Beach, Michigan
Samples Collected: 2/17/81

Water Quality Results

Parameters and units	Station 1 AA59052	Station 2 AA59054
arsenic, mg/L	ND(0.001)	ND(0.001)
cadmium, mg/L	ND(0.003)	ND(0.003)
carbon , total organic, mg/L	2	2
chromium, mg/L	ND(0.005)	ND(0.005)
copper, mg/L	ND(0.005)	ND(0.005)
coliform, fecal, colonies/100 mL	6	ND(1)
iron, mg/L	0.047	0.037
lead, mg/L	ND(0.010)	ND(0.010)
manganese, mg/L	0.007	ND(0.005)
mercury, mg/L	0.0002	ND(0.0002)
nickel, mg/l	ND(0.010)	0.010
nitrogen, ammonia, mg/L	0.12	0.04
nitrogen, total Kjedahl, mg/L	0.36	0.40
oil and grease, mg/L	ND(1)	ND(1)
oxygen demand, chemical, mg/L	5	6
PCB, total, µg/L	ND(0.3)	ND(0.3)
phenols, mg/l	ND(0.004)	ND(0.004)
phosphorus, dissolved, mg/L	ND(0.02)	ND(0.02)
phosphorus, total, mg/L	ND(0.02)	0.04
solids, dissolved, mg/L	110	120
solids, suspended, mg/L	2	2
conductivity, specific, µmhos/cm	130	130
oxygen, dissolved, mg/L	12.8	12.6
pH	7.5	7.5
temperature, °C	1.0	1.0

ND = non-detectable, detection limit shown in parentheses.

APPENDIX C

MISCELLANEOUS ENVIRONMENTAL INFORMATION

ECONOMIC COMPARISON OF COAL DELIVERY CONCEPTS

	COAL DELIVERY CONCEPT	PRESENT RAIL/VESSEL SYSTEM	RAIL/BARGE 50% UTILIZ.	RAIL/ VESSEL/ TRUCK	ALL RAIL
COAL DELIVERY COST	RAIL ($/TON)	12.52	12.52	12.52	19.21
	DOCK @ TOLEDO ($/TON)	1.19	1.19	1.19	—
	VESSEL ($/TON)	2.37	—	2.17	—
	BARGE ($/TON)	—	13.30	—	—
	TRUCK ($/TON)	—	—	4.25	—
	SUBTOTAL ($/TON)	16.08	27.01	20.13	19.61
	CAPITAL COST	—	—	—	26.5 MILLION
LEVELIZED ANNUAL COMPARISON	20 YR. LEVELIZED UNIT COST ($/TON)	37.78	63.45	47.29	25.60
	20 YR. LEV. DEL. COST ($) (BASED ON 250,000 TON)	9,445,000	15,863,000	11,823,000	11,400,000
	20 YR. LEV. CAPITAL COST (COAL UNLOAD HANDLING)	—	—	—	5,000,000
	TOTAL ANNUAL LEV. COST (OVER 20 YEARS)	9,445,000	15,863,000	11,823,000	16,400,000
	$ DIFFERENCE (OVER 20 YEARS)	BASE	6,418,000	2,378,000	6,955,000
PRESENT WORTH COMPARISON	PRESENT WORTH COMPARISON (BASED ON 20 YEARS)	80,415,000	135,058,000	100,661,000	139,630,000
	$ DIFFERENCE PRESENT WORTH BASIS (OVER 20 YRS)	BASE	54,643,000	20,246,000	59,215,000

*NOTE: 1981 IS THE BASE DATE FOR ECONOMIC COMPARISON

Species list, residency status, location, and seasonal occurrence of avifauna observed at the proposed disposal site, Rubicon Township, Huron County, Michigan, April 1978 through January 1979.

Common Name	Scientific Name	Residency Status	Sampling Area: Cattail Marsh	Sampling Area: Shrub-Carr	Sampling Area: Ash Swamp	Miscellaneous Observations	Month: Apr	May	Jun	Sep	Oct	Jan
Common Loon	Gavia immer	M				X		X				
Great Blue Heron	Ardea herodias	S				X				X		
Green Heron	Butorides striatus	M	X			X		X				
American Bittern	Botaurus lentiginosus	S	X	X	X	X	X	X	X			
Canada Goose	Branta canadensis	S				X					X	
Mallard	Anas platyrhynchos	P		X	X	X	X	X	X			
Blue-winged Teal	Anas discors	S		X				X				
Wood Duck	Aix sponsa	S		X		X		X			X	
Bufflehead	Bucephala albeola	M		X			X					
Turkey Vulture	Carthartes aura	S				X		X				
Sharp-shinned Hawk	Accipiter striatus	M				X		X				
Red-tailed Hawk	Buteo jamaicensis	P		X	X	X			X		X	
Broad-winged Hawk	Buteo platypterus	S				X		X				
Rough-legged Hawk	Buteo lagopus	M				X					X	
American Kestrel	Falco sparverius	P	X					X				
Ring-necked Pheasant	Phasianus colchicus	P		X							X	X
Virginia Rail	Rallus limicola	S	X			X	X		X			
Sora	Porzana carolina	S	X			X		X	X			
Common Snipe	Capella gallinago	S			X		X					
Mourning Dove	Zenaida macroura	P	X	X			X	X			X	
Great Horned Owl	Bubo virginianus	P			X			X				X
Common Nighthawk	Chordeiles minor	S		X				X	X			
Ruby-throated Hummingbird	Archilochus colubris	S				X		X				
Belted Kingfisher	Megaceryle alcyon	M	X	X		X		X		X		
Common Flicker	Colaptes auratus	S	X	X	X	X	X		X	X		
Red-headed Woodpecker	Melanerpes erythrocephalus	S		X	X			X	X			
Yellow-bellied Sapsucker	Sphyrapicus varius	M			X		X					
Hairy Woodpecker	Picoides villosus	P			X		X					
Downy Woodpecker	Picoides pubescens	P		X	X	X	X	X		X	X	
Eastern Kingbird	Tyrannus tyrannus	S				X			X			
Great Crested Flycatcher	Myiarchus crinitus	S		X	X	X			X			
Willow Flycatcher	Empidonax traillii	S		X		X			X			
Alder Flycatcher	Empidonax alnorum	S				X		X				
Least Flycatcher	Empidonax minimus	S		X		X			X			
Eastern Wood Pewee	Contopus virens	S			X	X			X			
Blue Jay	Cyanocitta cristata	P	X	X	X	X		X	X	X	X	X
Common Crow	Corvus brachyrhynchos	P	X	X	X	X		X	X	X	X	X
Black-capped Chickadee	Parus atricapillus	P	X	X	X		X			X	X	
White-breasted Nuthatch	Sitta carolinensis	P			X				X		X	
Red-breasted Nuthatch	Sitta canadensis	M			X	X		X		X		
Brown Creeper	Certhia familiaris	M		X	X		X	X	X			
House Wren	Troglodytes aedon	S		X	X			X		X		
Gray Catbird	Dumetella carolinensis	S		X	X	X		X	X	X		
Brown Thrasher	Toxostoma rufum	S	- X	X		X		X	X			
American Robin	Turdus migratorius	S		X	X	X	X	X	X	X	X	
Wood Thrush	Hylocichla mustelina	S		X	X					X		
Hermit Thrush	Catharus guttatus	M		X		X	X	X				
Veery	Catharus fuscescens	S			X				X			
Golden-crowned Kinglet	Regulus satrapa	M			X						X	
Ruby-crowned Kinglet	Regulus calendula	M		X	X	X	X	X			X	
Cedar Waxwing	Bombycilla cedrorum	S		X		X			X	X		
Northern Shrike	Lanius excubitor	W		X							X	
Starling	Sturnus vulgaris	P		X			X					
Yellow-throated Vireo	Vireo flavifrons	M				X		X				
Red-eyed Vireo	Vireo olivaceus	S		X	X	X		X	X			

Common Name	Scientific Name	Residency Status	Sampling Area: Cattail Marsh	Sampling Area: Shrub-Carr	Sampling Area: Ash Swamp	Miscellaneous Observations	Month: Apr	May	Jun	Sep	Oct	Jan
Warbling Vireo	Vireo gilvus	S		X						X		
Black-and-white Warbler	Mniotilta varia	S			X	X		X				
Nashville Warbler	Vermivora ruficapilla	M			X	X		X				
Yellow Warbler	Dendroica petechia	S	X	X	X	X		X	X			
Magnolia Warbler	Dendroica magnolia	M		X						X		
Black-throated Blue Warbler	Dendroica caerulescens	M		X		X		X		X		
Yellow-rumped Warbler	Dendroica coronata	M	X	X	X	X		X		X		
Blackburnian Warbler	Dendroica fusca	M			X	X		X				
Chestnut-sided Warbler	Dendroica pensylvanica	S			X			X				
Bay-breasted Warbler	Dendroica castanea	M			X	X		X		X		
Blackpoll Warbler	Dendroica striata	M		X	X					X		
Common Yellowthroat	Geothylpis trichas	S	X		X	X		X	X	X		
Wilson's Warbler	Wilsonia pusilla	M				X		X				
American Redstart	Setophaga ruticilla	S		X	X	X		X	X	X		
Eastern Meadowlark	Sturnella magna	S		X			X					
Red-winged Blackbird	Agelaius phoeniceus	S	X	X	X	X	X	X	X	X	X	
Northern Oriole	Icterus galbula	S		X		X		X				
Common Grackle	Quiscalus quiscula	S			X	X			X			
Brown-headed Cowbird	Molothrus ater	S		X		X	X	X	X			
Scarlet Tanager	Piranga olivacea	S		X				X				
Cardinal	Cardinalis cardinalis	P		X	X		X	X			X	
Rose-breasted Grosbeak	Pheucticus ludovicianus	S		X	X	X		X	X			
Indigo Bunting	Passerina cyanea	S		X		X			X			
American Goldfinch	Carduelis tristis	S		X	X	X		X	X	X		
Dark-eyed Junco	Junco hyemalis	W		X	X		X			X	X	
Tree Sparrow	Spizella arborea	M		X							X	
White-throated Sparrow	Zonotrichia albicollis	M		X	X		X	X		X	X	
Fox Sparrow	Passerella iliaca	M		X							X	
Swamp Sparrow	Melospiza georgiana	S	X		X	X	X	X	X		X	
Song Sparrow	Melospiza melodia	S	X	X	X	X	X	X	X	X	X	
Species Total			18	52	45		24	52	34	26	23	4

M - migrant
S - summer resident
P - permanent resident
W - winter resident

Deer Survey

Aerial deer surveys were conducted in November and January. Only two white-tailed deer were noted in November. Although snow cover was absent during this survey, these sightings do not indicate substantial deer numbers. Numerous hunters noted in the area at the time of the survey may have contributed to the low number of deer observed. No deer were observed during January aerial surveys although tracks and trails were noted in the snow at the site.

In contrast to the aerial surveys, white-tailed deer were commonly observed in all sampling areas during reconnaissance surveys on and near the proposed disposal site. The wooded habitat provided cover for a moderate number of deer that range through the adjoining agricultural land. White-tailed deer populations in Huron County and surrounding counties of the southern lower peninsula of Michigan (Region III) are stable and of medium density compared to northern regions of Michigan (Great Lakes Basin Commission 1975).

Data supplied by the Michigan Department of Natural Resources showed that 17% of the 1977 deer harvest in Michigan was recorded from the southern lower peninsula, including Huron County. Deer herd composition data for 1977 showed an average for Huron County of 20.8 deer seen per 100 hr. patroling (July through October) compared to 11.9 deer seen per 100 hr. as a total average for the entire Region III. Although not reflected in the scheduled aerial deer surveys, miscellaneous observations, heavily-used deer trails, and numerous pellet groups near the proposed disposal site indicated moderate numbers of white-tailed deer in the sampling areas.

THE DETROIT EDISON COMPANY

July 23, 1981

CHARACTERIZATION OF LAKE HURON BOTTOM FOR DISPOSAL OF DREDGE MATERIAL FROM HARBOR BEACH CHANNEL

Introduction

The purpose of this report is to summarize the work done in June, 1981 to characterize the bottom of Lake Huron for the disposal of Harbor Beach dredge material This information complements earlier chemical analyses of the harbor sediments.[1]

Summary

The results of sediment and benthos analyses and visual reconnaissance indicate that the investigated area is not a potential fish spawning site for the following reasons:

- Sediments were fine grained lacking rocks, boulders or significant amounts of gravel.
- Absence of clay ridges or ledges which are potential spawning sites.
- Area lacked high benthos densities which may contribute to making an area suitable for spawning.

No archaeological or historic artifacts were discovered.

Previous work[1] established that open water disposal of the sediments would not cause any violation of water quality standards. That conclusion and these findings indicate that open water disposal harbor dredgings at the site would not cause any significant environmental degradation.

Field Study Investigation

An area of interest; about 3 miles east of the plant, See Figure I, page 4, in 90 feet of water was determined from lake chart data. A 160 acre square was marked with bouys at each corner and in the center as shown in Figure 1. A Loran C unit was used to determine accurate buoy placement. All depth measurements were made with a recording fathometer which has been calabrated prior to the study.

Field studies were conducted in this area in the following manner. Nine preliminary Ponar samples obtained by boat indicated a sandy bottom. See Figure II, page 5. Confirmation of bottom conditions was made by a surface supplied diver.

Dives were made at the center of the site and at the center of each 40 acre sub-section, see Figure II. The procedure was to lower the diver, TV camera, closed Ponar sampler and a 1 liter plastic sample bottle to the bottom. The diver recorded his observations on video tape, hand set the Ponar sampler

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1. Environmental Research Group, Inc. Project #7345, February 1981

to obtain a benthic sample and filled the sample bottle by hand with sediment from the top 2 inches of lake bottom. After 10-12 minutes of bottom time the diver and equipment were returned to the boat. A representative benthic sample was obtained from the Ponar sampler and fixed with 5 percent Formalin. All 10 samples (2 per dive) were returned to Engineering Research Department for further analysis. The only fish sighted by the diver was a sculpin which was video recorded. No wrecks were sited and none are identified in lake charts. The video tape is available for future use. Field observations and notes are listed in Table I.

Laboratory Analysis

Benthic organisms were separated from inorganic sediments under 7 X magnification identified and counted. The benthic community in the proposed dredge disposal area was dominated by fresh amphipods (*Pontoporeia*) and aquatic worms primarily Naididae and Tubificidae (see Table II, Page). This faunal assemblage is fairly typical of deep water sandy substrates in the Great Lakes. The mean density of amphipods was 40.2/0.05 m^2 and the mean density of worms was 54.2/0.05 m^2. Overall, the density of benthic organisms ranged from moderate to low.

Attachments I-V, pages 7-11, show the results of the sediment analysis collected at locations A-E, Figure II. The samples were dried, weighed and run through standard sieves in accordance to A.S.T.M. methods. Briefly, these results confirm that the lake bottom surfaces investigated contained fine to course sand.

Conclusion

Based on field study and laboratory analysis, the proposed dredge spoil disposal site was determined to be unsuitable for fish spawning for the following reasons. First, the lake bottom was composed of fine to course sand without rock, boulders, gravel, clay ridges or ledges. Second, there was no rooted aquatic vegetation. Third, the densities of benthic organisms ranged from moderate to low.

Keith J. Mains

FIGURE I DREDGE & DISPOSAL SITE

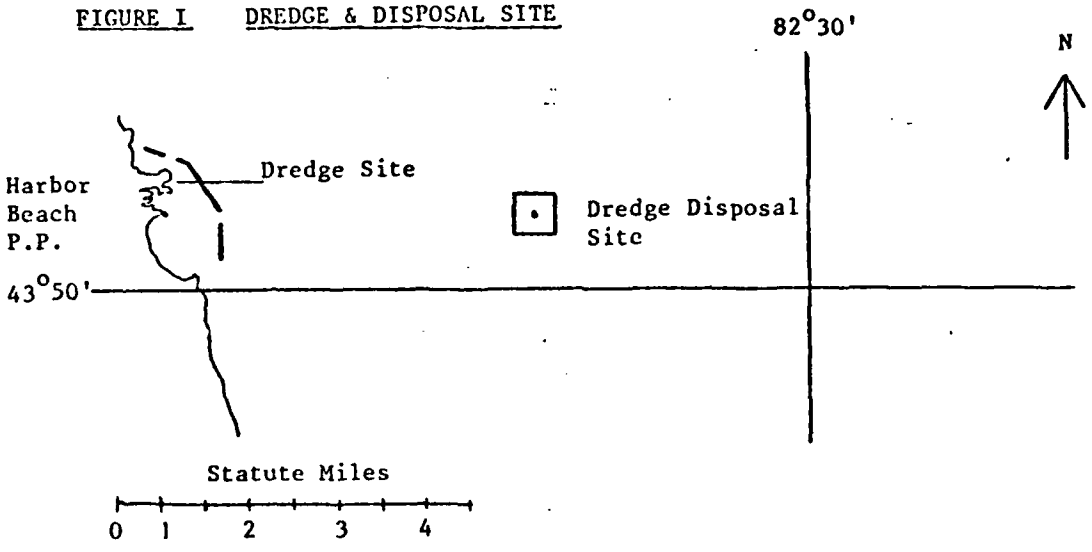
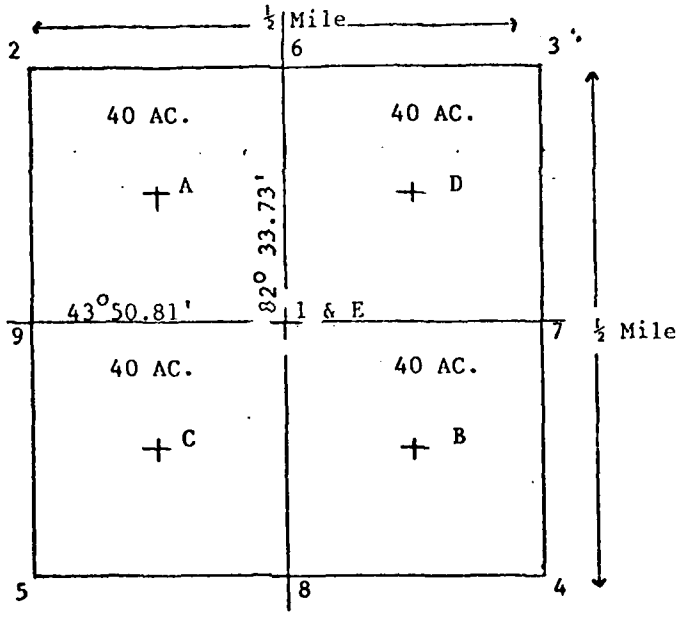


FIGURE II 160 ACRE DREDGE DISPOSAL SITE



1 Thru 5, Buoy Stations

1 Thru 9, Preliminary Ponar Sample Stations

A Thru E, Dive Stations

TABLE I

FIELD FINDINGS, HARBOR BEACH POWER PLANT DREDGE DISPOSAL SITE STUDY

STATION #	LOCATION DATE	LAT.	LON.	DEPTH(FT.)	COMPOSITION (VISUAL) PONAR SAMPLES SAND	GRAVEL	OTHER
1	6-10-81	43° 50.81'	82° 33.73'	101	95%	0	5% Ash 1/4-3/4", Trace Silt
2	6-10-81	43° 51.03'	82° 34.02'	89.5	75%	25%Pea Size & Less	
3	6-11-81	43° 51.00'	82° 33.47'	102	99%	0	1% Ash 1/4-3/4"
4	6-11-81	43° 50.55'	82° 33.46'	102	98%	0	2% Ash 1/4-3/4" Trace Silt
5	6-11-81	43° 50.53'	82° 33.96'	100	99%	0	1% Ash, Trace Silt
6	6-16-81	43° 51.00'	82° 32.72'	101	99%	0	1% Ash, Trace Silt
7	6-16-81	43° 50.80'	82° 33.42'	103	99%	0	1% Ash, Trace Silt
8	6-16-81	43° 50.60'	82° 33.67'	99	98%	1%(1 3/4")	1% Silt
9	6-16-81	43° 50.84'	82° 34.01'	93	99%	1% Pea Size & less	

DIVER OBSERVATIONS

A	6-18-81	43° 50.93'	82° 33.87'	100	Flat Sandy Bottom
B	6-19-81	43° 50.64'	82° 33.62'	98	Flat Sandy Bottom-Few Small Rocks, No Water Mvmt.
C	6-19-81	43° 50.61'	82° 33.87'	98	Flat Sandy Bottom-Few Small Rocks, No Water Mvmt.
D	6-20-81	43° 50.93'	82° 33.58'	100	Flat Sandy Bottom-Few Small Rocks, No Water Mvmt.
E	6-20-81	43° 50.81'	82° 33.73'	100	Flat Sandy Bottom-Few Small Rocks, No Water Mvmt.

Note: A,B,C,D,E Contained Clinkers From Boats; C Contained 3 to 4 cu" of Gravel (80% 3/8" to 1/2", 20% 1 to 2")

C-9

-81

TABLE II

ABUNDANCE OF BENTHIC ORGANISMS (NUMBER 0.05 m^2) AT FIVE LOCATIONS (See Text) AT THE PROPOSED DREDGE SPOIL DISPOSAL SITE

Taxon	Common Name	Location A	B	C	D	E	Mean
Turbellaria							
Tricladida	Flatworm		2		1	3	1.2
Amphipoda							
Pontoporeia	Scud	49	4	38	25	85	40.2
Isopoda							
Asellus	Aquatic Sowbug					1	0.2
Oligochaeta (Primarily Naididae & Tubificidae)	Aquatic Worm	29	29	45	35	133	54.2
Sphaeriidae							
Sphaerium	Fingernail Clam		1		1	1	0.5
Diptera							
Chironomidae	Midge	3	1	2	4	7	3.4
Chaoboridae	Phantom Midge					1	0.2
Unknown		1		1		5	1.4
TOTAL		82	37	86	66	236	101.4

gm
7-17-81

DREDGED SPOIL DISPOSAL FACILITY

HARBOR BEACH, MICHIGAN

ENVIRONMENTAL CONCERNS

I. Ground Water Conditions

II. Hydrologic Conditions

III. Discharge from Disposal Area into Lake Huron

IV. Fish and Wildlife Habitat

Prepared by:

Harding-Lawson Associates

and

The Detroit Edison Company

I. GROUND WATER CONDITIONS

I. Geologic Setting

The site for the disposal of the dredged materials occupies the relatively flat lowland area bounded on its eastern side by State Highway M-25 and on its western side by a north-northwest trending, 15 to 20 feet high bluff. An abandoned Chesapeake and Ohio Railroad embankment parallels the west side of the highway. The highway and railroad embankments are separated by a distance of approximately 80 feet; this area contains a drainage ditch and a dense growth of trees and brush.

Drainage for that portion of the lowland area, where the facility is to be located, is provided by poorly defined and maintained ditches which lead to either a railroad drainage trestle or two culverts beneath the highway. The unimproved ditches and the railroad and highway embankments have resulted in ponding of approximately one to two feet of surface water in the lowland area during the wet seasons. This usually dries up by late summer or early fall. The lowland is covered with dense vegetation ranging from grasses to trees up to about 18 inches in diameter. An Edison electric distribution line traverses the southern portion of the lowland area.

The lowland site is blanketed by dune sand and beach sands and gravels consisting of fine to course sand with mixed layers of lacustrine silts and clays. The thickness of these surficial sands encountered in the 7 HLA and 3 Able (lowland) borings varied from two feet near the bluff to about five feet near the east side railroad embankment.

Underlying the sandy layer is very stiff to hard till consisting of essentially impervious silty clays and clayey silts with interspersed granular material in the clay matrix. The till contains randomly distributed and discontinuous pockets or lenses of silty and clayey sands and gravel.

The till is underlain by the Coldwater Formation, consisting of interbedded layers of siltstone, sandstone, and shale. The bedrock surface is highly weathered and the occasional shale interbeds have decomposed to clays and silty clays. The depth at which the bedrock was encountered in the HLA borings in the lowland varied between 20 to 40 feet, being deeper at the north and west ends of the lowland area.

The subsurface water in the disposal site was generally encountered at a depth of two to three feet in the HLA and Able test borings at the time they were drilled (HLA borings, June 19-22, 1979; Able borings, March 28 - April 4, 1978).

II. Occurance of Ground Water

In the site area, ground water occurs in:

1. the upper, surficial sand,
2. the randomly distributed and discontinuous sand and gravel pockets in the till, and
3. possibly in the joints and fractures of the underlying bedrock.

The fine-grained portions of the lacustrine silts and clays, and of the till, are essentially impervious and they cannot be considered to be a source of water for wells.

A. Surficial Sands. The water in the surficial sands is perched on the underlying till. The sand deposits are relatively fine-grained, have a low transmissivity, and are essentially flat-lying. Thus, the hydraulic gradient is essentially flat and the groundwater flow rates are very slow.

Based on our knowledge of the area, investigations of the subsurface geology, and on published mapping of the surficial soils (U.S. Department of Agriculture, Soil Conservation Service, 1980, Soil Survey of Huron County, Michigan: Covert - Tobico complex and Pipestone - Tobico - Adrian complex), the thin surficial sand deposits present throughout most of the site originally formed a continuous cap extending from the bluff to essentially the Lake Huron shoreline. The ground water in these surficial sands would have drained northeastward from the bluff area to the Lake (following the general slope of the topography). It is suspected that during the construction of the highway fill for M-25 and/or the railroad embankment the sands were at least partially removed, and the fills for either or both embankments are resting on the underlying till. This would have resulted in blockage of the aquifer, and could account for the seasonal ponding of water observed on the west side of both these embankments.

In our opinion, these thin surficial sands do not represent a good, potential source for potable water. Recharge of these sands is by direct infiltration, thus they are subject to contamination from decaying organic material in the ponded areas on the west side of Highway M-25, contamination from seepage from barnyard areas, and contamination from fertilizers used in the cultivated areas. Also, the gradation and thickness of the sand is such that only low yield wells would be possible.

Reported springs in the area most likely occur where the surficial sands have been breached and the perched water either fills a depressional area or seeps into an adjacent drainageway.

B. Sand and Gravel Pockets in Till. The discontinuous sands and gravels in the till may be a source of water for low yield wells. Recharge to these discontinuous sand and

gravel pockets is through the slow infiltration from the relatively impervious till. Wells developed in such sand and gravel pockets generally are limited in quantity and have a history of going dry during periods of heavy pumpage.

C. Upper Coldwater Formation. Only low yields of ground water would be anticipated from the joints and fractures in the relatively impervious underlying bedrock. Water which is present in the bedrock is recharged through the slow infiltration from the overlying and relatively impervious till.

III. Design of Spoil Disposal Facility

The spoil disposal facility will occupy approximately 65 acres of the lowland area extending from the railroad embankment on the east to the bluff on the west, and from Rapson Road on the south to approximately 3000 feet north. Construction of the facility will consist of exterior dikes constructed of impervious till borrowed from the adjacent upland area west of the facility. A key trench would be cut through the surficial sand deposits to the underlying till, to cut-off an interconnection between the surficial sands within the facility and those outside the facility, should the results of elutriate tests indicate a need.

IV. Impact of the Disposal Facility on Ground Water Resources

A. Seepage

1. Because the dredged material is fine-grained, it will effectively seal the surficial sand layer, and thereby prevent infiltration into this layer.
2. The till which underlies the thin surficial sand layer is essentially impervious and is not considered to be a ground water aquifer.
3. The randomly distributed and discontinuous sand and gravel deposits within the till are separated from the pond by the impervious till, thus seepage into the granular materials will be inhibited.

4. Ground water which may be present in the upper portions of the Coldwater Formation is separated from the bottom of the dredged disposal facility by more than 25 feet of impervious till and is therefore, well protected.

B. Recharge

1. Recharge from the disposal facility should not cause degradation of any usable aquifer. The recharge rate through the relatively impermeable silt and clay dredgings will be minimal, and the quality of the water will be within drinking water standards.
2. Recharge to the surficial sand aquifer is by direct infiltration from rainfall. If a cut-off key trench is constructed, the removal of 65 acres from the recharge area would not impact on the amount of recharge available to the aquifer unit in areas outside of the dike.
3. There are no known continuous sand and gravel deposits within the till. Recharge to those deposits which are present is through the extremely slow seepage of rainfall through the surrounding till. Since the sand and gravel deposits within the till are randomly distributed and discontinuous, the dredge disposal facility will have negligible effect upon recharge to those deposits which are located outside of the diked facility.
4. The upper portion of the Coldwater Formation cannot technically be considered to be an aquifer unit. Water which is present within joints and fractures is recharged through the slow infiltration from the overlying materials. This infiltration will continue in all areas outside the diked facility.

II. HYDROLOGIC CONDITIONS

The portion of lowland area (Plate 1) within the boundaries defined by Mr. Kociba's driveway on the north, the bluff on the west, the abandoned railroad embankment and Highway M-25 on the east, and Rapson Road on the south presently experiences temporary flooding and ponding of water during periods of high rainfall. Hydrologic studies were performed to assess the impact of the disposal facility on the level of the water which is temporarily ponded in this area during such storm period

The disposal facility will occupy 65 of the 120 acres in this area. The drainage from Stream D will be intercepted by the facility. Streams B and C will continue to discharge into the lowland area between the dike and Mr. Kociba's driveway. The net result during storm periods will be an increase in the level of ponded water. The postulated level of flooding is dependent in part upon the frequency of the storm analysed. The most probable storm would result in an additional increase in water level of only about 2.5 inches after construction of the facility. The existing highway culverts are designed to pass the 40-year event. After the disposal facility is constructed, such an event would result in an additional increase of approximately 1.5 feet in water elevation above what would be experienced prior to the construction of the facility. Highway M-25 would not be flooded during such an event either prior to or following construction of the disposal facility.

The area north of Mr. Kociba's driveway, into which Stream A flows, will be unaffected by the construction of the facility.

Water levels in the natural drainage channel east of Highway M-25 will remain essentially the same following construction of the facility as those which are presently experienced following rainstorms. This is because the flow rates from the western lowland area are controlled by the capacity of the channel for Stream B and the capacity of Culvert B. Therefore, the facility will have no adverse impact on the lowland area east of Highway M-25.

During construction, The Detroit Edison Company will clean Culvert B, and will improve the lowland portion of the drainage channel of Stream B from the culvert, upstream to the point of effluent discharge. These modifications will facilitate drainage and thereby improve the hydrological characteristics of the western lowland area. This will result in lower levels of ponded water during storm periods.

III. DISCHARGE FROM THE DISPOSAL AREA INTO LAKE HURON

The disposal facility for the dredged material is designed so that the quality of the discharged water will comply with present applicable state and federal water quality standards. The dredging slurry will be retained for that period of time necessary to permit settling of the solid material. The settling time within the pond can be controlled by raising or lowering the height of the weir boards.

To assess the probable chemistry of the discharge water from the disposal facility, laboratory analyses were made of the liquid portion of the settled slurry obtained from a mixture of tap water and samples of the proposed dredged material (sediment samples). The mixtures were designed to approximate the proportions expected during the dredging operation.

The analyses indicated that the chemical quality of the discharge water expected from the disposal facility would be within acceptable limits. The concentrations of inorganic chemicals would be less than the amounts specified by the Michigan Safe Drinking Water Act. Only ammonia was found in elevated concentrations (16 ppm and 24 ppm were measured in elutriate tests). This concentration should not be a problem, since ammonia is not detrimental to drinking water supplies. Further, that ammonia which does enter the groundwater from the disposal facility or the drain, will be greatly attentuated. Although ammonia is toxic to aquatic life, the concentration of ammonia in the discharge from a large aerobic disposal facility is expected to be considerably less than indicated by the elutriate test results, and the effect on the ammonia concentration in Lake Huron is expected to be negligible.

The quality of the water being discharged from the disposal facility will be monitored. Should the total suspended solids in the discharge water exceed the allowable limit, the weir would be raised to allow for a longer settling period. No adverse effects on the water quality in Lake Huron are anticipated.

IV. FISH AND WILDLIFE HABITAT

Land Usage

The lowland area (Plate 1) is herein defined as the area between the bluff on the west, Lake Huron on the east, approximately one-quarter mile south of Rapson Road on the south (this is the approximate northern limit of development associated with the city of Harbor Beach), and Rubicon Road on the north (this is the approximate southern limit of development associated with the city of Port Hope). The number of acres on a section-by-section basis for this lowland area is presented in Table 1 (on Sheet 2).

The proposed site for the disposal facility is located at the southern end of this lowland area. Of the approximately 1745 acres in the total lowland, the proposed facility will occupy only 65 acres or less than four percent of this lowland area. In addition, approximately 22 acres of upland area will be utilized to obtain borrow material for construction of the dikes.

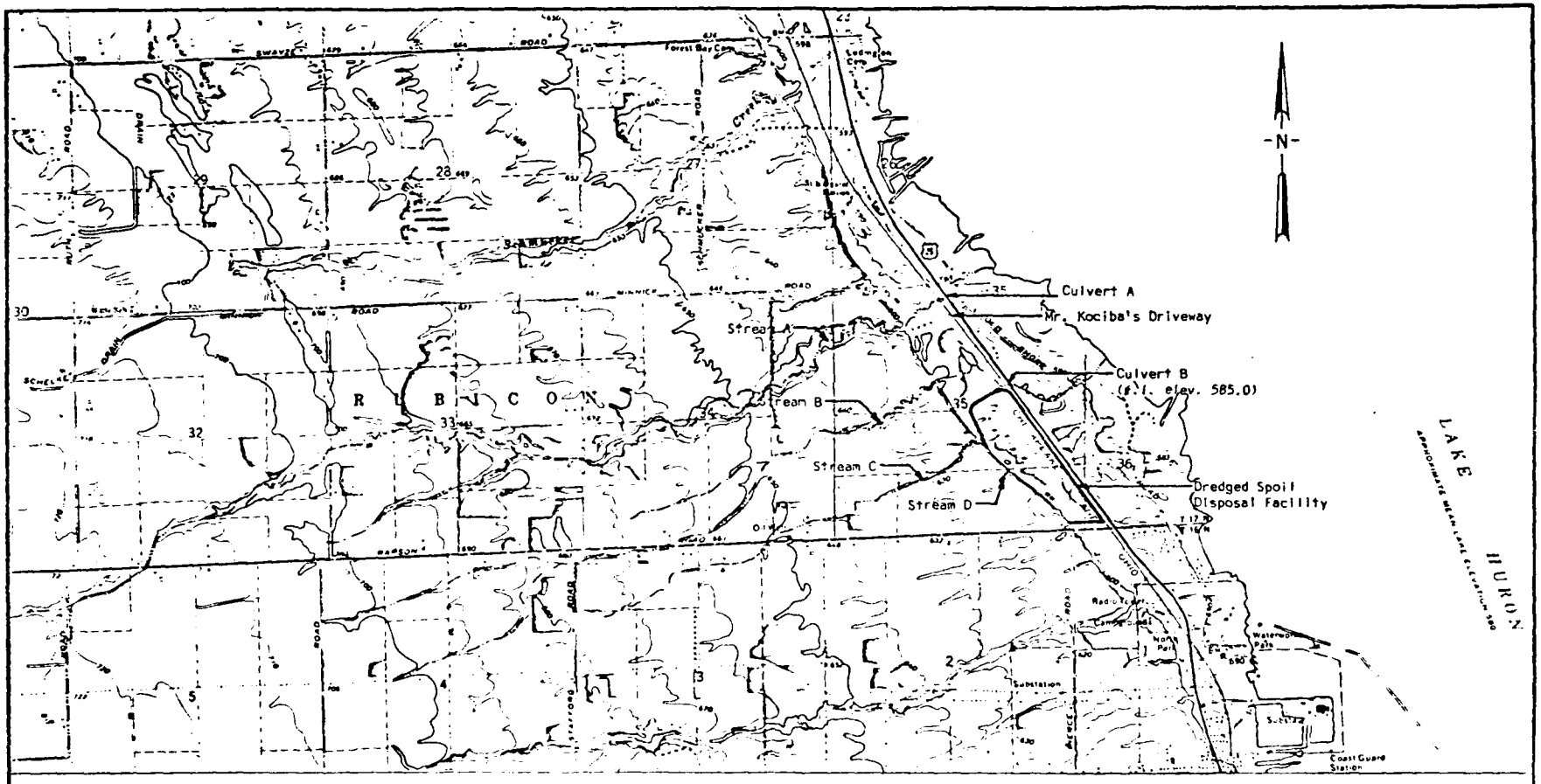
There is no habitat within the area of the proposed facility which is unique to the lowland area. Terrestrial baseline studies found no threatened or endangered plant or wildlife species in this portion of the lowland area.

There are no extensive or unique wildlife feeding areas south of Rapson Road because of the land use development (commercial, residential, campground, and parklands) associated with Harbor Beach. Therefore, the proposed location of the facility will have a minimal impact on the wildlife in the area. The main impact being a shift of the southern limit

of the lowland area west of M-25, approximately 0.5 miles north of Rapson Road. Wildlife in the area will continue to have access to the adjacent upland area and to the lowland area east of M-25.

TABLE 1. Summary of Number of Acres of Lowland Area

LOCATION			DESCRIPTION	ACRES
T	R	SEC		
16N	15E	1	Radio Tower to Rapson Road	80.2
17N	15E	35,36	Rapson Road to Minnick Road	441.5
17N	15E	26,27	Minnick Road to Swayze Road	247.6
17N	15E	22,23	Swayze Road to Filion Road	293.0
17N	15E	15	Filion Road to Dobson Road	498.4
17N	15E	9,10	Dobson Road to Rubicon Road	183.9
			TOTAL LOWLAND ACRES	1744.6



Ref: Map is portion of
Port Hope and Harbor Beach
U.S.G.S. topographic quadrangles

SURFACE DRAINAGE IN AREA OF SITE
DREDGED SPOIL DISPOSAL FACILITY
HARBOR BEACH, MICHIGAN

PLATE 1

APPENDIX D

404 (b) (1) EVALUATION

Preliminary 404(b)(1) Evaluation

U.S. Army Corps of Engineers - Maintenance Dredging Activities - Harbor Beach Harbor, Michigan

INTRODUCTION:

Section 404 of the Clean Water Act requires an evaluation of the environmental effects of the disposal of dredged or fill materials into waters of the United States. It also requires that the public and pertinent governmental agencies be provided an opportunity for review and comment on projects to which the Act applies. Guidelines for evaluating environmental effects are set forth in 40 CFR 230, an Environmental Protection Agency Regulation. These guidelines call for an examination of the effects on wetlands, water quality, benthic organisms, fisheries (including fish spawning and breeding areas), shellfish beds, wildlife, recreation, municipal water supply intakes, and endangered species. Effects of project activities are addressed in the following paragraphs.

1. PROJECT DESCRIPTION:

a. Description of the Proposed Discharge of Dredged or Fill Materials

The location of the proposed project and project details are provided in the attached Environmental Impact Statement. This project involves the dredging of the Federal Project at Harbor Beach Harbor. Materials dredged from the harbor would be discharged into the open waters of Lake Huron approximately three miles from the harbor entrance.

(1) General Character of Material

The sediments in the harbor area are predominantly silts and clays with high amounts of organic matter. Recent sediment test data has been reviewed by the Environmental Protection Agency (EPA). EPA considers the harbor sediments to be chemically and physically suited for open water disposal.

(2) Quantity of Material

The Corps of Engineers proposes to dredge approximately 350,000 to 425,000 cubic yards during the initial dredging operations for the Federal Channels. This quantity may vary depending upon shoaling conditions detected in the harbor prior to the actual dredging. Dredging of the Federal Channels would also be performed in subsequent years when required. Shoaling throughout the Federal Navigation Channels averages 35,000 cubic yards annually. All of the dredged materials would be discharged at the designated open water disposal site.

(3) Source of Material

Sediments would be dredged from the Federal Project at Harbor Beach Harbor. Some of the substances in the sediments of Harbor Beach are likely derived

from agricultural runoff in the area. Zinc, phosphorus, and nitrogen are commonly applied to agricultural lands to improve crop yields. Storm water runoff from streets and paved areas as well as pollution from boat traffic also have an effect on the sediment quality. The degree to which past effluent discharges from the Hercules Powder Company may have affected present sediment quality is not known. This company was formerly engaged in the production of starch and gluten from wheat. It is believed that current sediment conditions have mostly resulted from a natural buildup of decayed vegetation and shoaled materials. The levels of nutrients, heavy metals, and synthetic organic chemicals are below levels of concern.

b. Description of the Proposed Discharge Site

(1) Location and Areal Extent

The open water site for the discharge of the dredged material is located in an area of Lake Huron approximately three miles east from the harbor entrance. The discharge area is approximately 160 acres. The center of the disposal area is located at the intersection of 43° 50.81' Latitude and 82° 33.73' Longitude.

(2) Types of Discharge Site

The dredged material would be discharged into the open waters of Lake Huron.

(3) Method of Discharge

The method of discharge would depend upon the types of dredging equipment used for dredging the harbor. Dredged materials would most likely be discharged from bottom-dumping barges. If a hopper dredge is utilized for the dredging, material could be discharged at the open water site from the dredging vessel itself.

(4) Time of Discharge

Dredging and disposal activities would take place during times approved by the Michigan Department of Natural Resources to avoid interference with fish spawning and/or migration periods. Ice conditions would preclude dredging during the winter months.

(5) Projected Life of the Discharge Site

After the initial dredging and disposal operations, it is expected that the harbor would be dredged one or two times over the next ten years. Shoaling throughout the Federal Navigation Channels averages 35,000 cubic yards annually. All of the dredged materials would be discharged at the designated open water disposal site, unless new information regarding environmental effects causes a change in disposal plans.

2. PHYSICAL EFFECTS

a. Wetlands

There would be no effects on wetlands.

b. Impact on Water Column

(1) Reduction in Light Transmission

Suspension of sediments in the water column and reduction of light penetration from dredging and disposal operations would have a temporary, adverse effect on the water quality in the area. However, the water would return to its normal condition after project activities have ceased.

(2) Aesthetic Values

Drifting turbid water could have a temporary, adverse impact on the appearance of the harbor area.

(3) Direct Effects on Nektonic and Planktonic Populations

Phytoplankton and zooplankton populations would be temporarily displaced and/or destroyed as a result of the turbidity caused by dredging and open water disposal operations.

c. Covering of Benthos

(1) The disposal operations would cause some smothering of benthic organisms at the disposal site. The lake bottom at the disposal site has been investigated, and it was found that the density of benthic organisms ranges from moderate to low. Impacts on benthic organisms are not considered to be significant.

(2) Time Required for Repopulation

Recolonization of the lake bottom with benthos is expected to occur soon after completion of disposal operations. This probability is partially substantiated by research that has been conducted for the U.S. Army Corps Waterways Experiment Station as part of the Dredged Material Research Program (Technical Report D-77-45).

(3) Change in Benthic Community

Benthic organisms from adjacent areas should repopulate the bottom area affected by the project activities. At the open water discharge site, the bottom may be enhanced for certain benthic organisms due to the organic content of the discharged sediments.

3. CHEMICAL-BIOLOGICAL INTERACTIVE EFFECTS

a. Does the Material Meet the Exclusion Criteria?

Materials excluded from evaluation under Chemical and Biological Interactive Effects (40 CFR 230.4-1) are sand, gravel, or other sedimentary material with particle sizes larger than silt. The sediments to be dredged would not meet the exclusion criteria.

b. Are Contaminants Released?

The water quality effects anticipated in an open water disposal operation would be a pulse of ammonia and manganese several times the background levels in the immediate vicinity of the disposal site. The pulse would only be of a few minutes duration per discharge load, following which, water concentrations would return to normal. Elutricate test results indicated little release of any constitutents found in the sediments. Overall, the adverse effects of open water disposal on water quality would not be significant.

c. Effects of Chemical Constituents on Benthos

Benthic organisms are not expected to be affected by any chemical constitutent of the discharged sediments.

4. DESCRIPTION OF SITE COMPARISON

The designated open water disposal site is a sufficient distance into the lake to be in relatively deep water, yet it is near enough to the harbor for the economic hauling of dredged material on barges, on a hopper dredge, or on other vessels. This disposal site was selected after reviewing National Oceanic and Atmospheric Administration charts for Lake Huron in the vicinity of Harbor Beach. The indicated depth at the proposed site is greater than 90 feet. The lake bottom is charted as sandy. These sandy conditions have been confirmed by physical sampling conducted by divers. The disposal area is not believed to be a fish spawning area because the sediments found were fine grained (lacking rocks, boulders, or significant amounts of gravel), there is an absence of clay ridges or ledges, and the area lacks high benthos densities.

5. REVIEW APPLICABLE WATER QUALITY STANDARDS

a. The applicable water quality standards are those approved by the Michigan Department of Natural Resources.

b. For the purpose of making water quality evaluations, an approximately 100 meter radius mixing zone has been calculated.

c. Based on a. and b. Above, Will Disposal Operations be in Conformance with Applicable Standards?

Preliminary review of the data indicates that the disposal operations would be in conformance with both short term or mixing zone standards and the long term safe water quality standards. A State of Michigan 401 water quality certificate has been received for the proposed discharge. The 401 certificate is the mechanism used by the State to substantiate that projects comply with the State's Water Quality Standards. Disposal activities would also adhere to Federal and local requirements.

6. SELECTION OF DISPOSAL SITES FOR DREDGED OR FILL MATERIAL

a. Need for the Proposed Activity

Sediments have accumulated in the Federal Navigation Channels at Harbor Beach Harbor. As a result of this accumulation, vessels delivering coal to the Harbor Beach Power Plant have been forced to carry reduced loads and to make more frequent deliveries under adverse safety conditions. The Corps of Engineers proposes to dredge the Federal Channels and to dispose of the dredgings outside of the harbor area to facilitate use of the harbor for commercial vessels delivering coal. The Corps also seeks to maintain suitable depths so that the harbor may better serve its purpose as a harbor of refuge for commercial and recreational craft.

b. Alternative Sites and Methods of Discharge Considered

Section 2 of the attached Final Environmental Impact Statement addresses the alternatives to the open water disposal plan. The following alternatives have been considered: 1) Confined disposal of dredged material (diked disposal), 2) Artificial habitat creation with dredged material, and 3) Placement of dredged material on agricultural lands for soil improvement. The open water disposal plan is considered to be the least environmentally damaging alternative and the most feasible.

c. Additional Objectives to be Considered in Discharge Determinations

(1) Methods to Minimize Turbidity

Turbidity curtains may be utilized for the dredging operation if turbidity is determined to be a significant problem. Also, the disposal operation could be halted if unfavorable wind conditions develop.

(2) Methods to Minimize Degradation of Aesthetic, Recreational, and Economic Values

The discharge activity would be coordinated with the Michigan Department of Natural Resources to avoid as much interference with the fishery and recreational use of the harbor area as possible. Aesthetic impacts would result from turbidity and from the operation of dredging equipment in the harbor. These conditions would be temporary. Overall, the dredging and disposal actions would contribute to the local economy by continuing the viability of the power plant operations and by making coal deliveries less costly.

(3) Threatened and Endangered Species

No threatened or endangered species of plants or animals on the Federal or State lists would be negatively affected by this project. There are no critical wildlife habitats that would be impacted.

(4) Other Objectives

Adverse impacts on the chemical, physical, and biological integrity of the aquatic ecosystem would not be significant. Effects on the food chain, plant and animal diversity, and wildlife movement would be negligible.

d. Impacts on Water Uses at the Proposed Disposal Site

(1) Municipal Water Supply Intakes

The proposed dredging and disposal activities should not have any significant impact on the municipal water intake. The intake point is located approximately 1,500 feet north of the north harbor breakwater. It is anticipated that the initial dredging action would last from one to three months. During the time of dredging, the operators of the municipal water system would be notified to closely monitor water quality conditions. If adverse quality occurs, the dredging operations would be modified or halted until sat sfactory water quality is restored. Since the open water disposal area is located approximately three miles from the intake, no effects on the intake from disposal activities are expected.

(2) Shellfish

There are no known commercial shellfish beds in the vicinity.

(3) Fisheries

In order to minimize any adverse impact on fisheries; the time schedule for disposal operations would be coordinated with the Michigan Department of Natural Resources (MDNR) prior to the start of work. Currently, the MDNR has designated 15 October to 1 July as the approved period.

(4) Wildlife

The proposed open water discharge would have no effect upon water related mammals, waterfowl, or other forms of wildlife.

(5) Recreation Activities

Turbidity caused by dreding and disposal activities may cause swimming at a beach located within the harbor to be temporarily suspended. The dredging vessels and associated equipment in the harbor could temporarily hinder the movement of recreational craft in the harbor.

(6) Submerged Vegetation

The lake bottom at the disposal site does not support any vegetation.

(7) Size of Disposal Sites

The area designated for the discharge of dredged material is 160 acres.

(8) Coastal Zone Management Programs

It has been determined that the project is consistent with the Michigan Coastal Zone Management Program since it would not significantly alter the shoreline of Lake Huron.

e. Consideration to Minimize Harmful Effects

(1) Water Quality Criteria

The proposed discharge would adhere to standards set forth by the Michigan Department of Natural Resources.

(2) Investigate Alternatives to Open Water Disposal

Alternatives to open water disposal have been investigated. These alternatives are discussed in paragraph 6.b of this 404 Evaluation. No action has also been considered.

(3) Investigate Physical Characteristics of Alternative Disposal Sites

Lake bottom conditions have been investigated by scuba divers and by sediment sampling, and it has been determined that the selected site is the most appropriate for the disposal of dredged material designated as suitable for open water disposal.

7. STATEMENT AS TO CONTAMINATION OF FILL MATERIAL IF FROM A LAND SOURCE

Only dredged material from the harbor would be discharged at the open water disposal site. No upland fill would be placed into the waterway.

8. DETERMINATIONS

a. The foregoing ecological evaluation had been made following the guidance of Title 40, Code of Federal Regulations 230.

b. Appropriate measures have been identified and incorporated in the proposed plan to minimize adverse effects on the aquatic environment as a result of the discharge of dredged material.

c. Consideration has been given, to the need for the proposed activity, the availability of alternative sites and methods of disposal that are less

damaging to the environment, and such water quality standards as are appropriate and applicable by law.

d. No wetlands would be affected by the proposed discharge of dredged material.

9. FINDINGS

The designated site for the discharge of dredged material into the open waters of Lake Huron for the U.S. Army Corps of Engineers' Maintenance Dredging Project at Harbor Beach, Michigan has been specified through the application of Section 404 (b)(1) guidelines of the Clean Water Act.

SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

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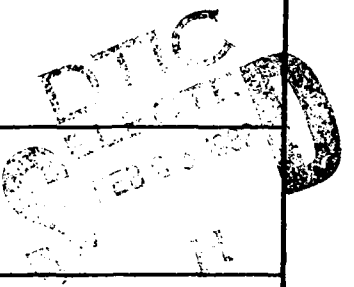

17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report)

18. SUPPLEMENTARY NOTES

19. KEY WORDS (Continue on reverse side if necessary and identify by block number)

Dredged Material	Sediment Quality	Water Quality
Confined Disposal Facility	Federal Project	Elutriate Tests
Benthic Organisms	Open Water Disposal	

20. ABSTRACT (Continue on reverse side if necessary and identify by block number)

Environmental impacts are examined for dredging and dredged material disposal operations at Harbor Beach Harbor, Michigan. The document was prepared to address a Federal permit request from the Detroit Edison Company concerning dredging offshore of the Harbor Beach Power Plant wharf in Lake Huron and disposing of dredged material into the open waters of Lake Huron. Dredging is required to restore adequate navigational depths for vessels delivery coal to the power plant. Maintenance

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