



US Army Corps
of Engineers
St. Paul District

Public Notice

Project: Section 404 Public Notice, Small-Boat
Navigation Channel at Zippel Bay, Minnesota

Date: November 5, 1984
In Reply Refer to: Planning Division

1. Introduction - This is a revision to the November 8, 1983 Section 404 public notice for a small-boat navigation channel at Zippel Bay, Minnesota. This public notice describes the proposed construction of an access channel with accompanying jetties between Zippel Bay and Lake of the Woods. The only difference between this amendment and the earlier public notice is the placement of sand fill near the land end of both the east and west jetties and the possible placement of granular fill along the beach between the project and the State Park's swimming beach. This notice also offers the public an opportunity to request a public hearing. This amendment and our evaluation of the proposed project (enclosure 1) comply with Environmental Protection Agency guidelines prepared under the authority of Section 404 of the Clean Water Act.
2. Purpose of Work - Under present conditions, the channel between Zippel Bay and Lake of the Woods frequently drifts in with sand. Construction of a reliable access channel would enhance recreation-related development at Zippel Bay as well as provide a potential harbor of refuge.
3. Summary of Proposed Work - Federal authority for the proposed project is provided by Section 107 of the River and Harbor Act of 1960, as amended. The proposed work consists of dredging a 60-foot-wide access channel between Zippel Bay and Lake of the Woods. Two rock jetties, one on either side of the channel, would be constructed out into Lake of the Woods. Sand fill would be placed near the land end of both the east and west jetties to reinforce the connection between the beach and jetties. The construction contractor would be allowed to place a limited amount of granular fill on the beach between the project and the State Park swimming beach. This fill may be needed to provide access to the project for construction vehicles.
4. Construction Schedule - Construction is planned during the period from May 1985 through June 1986. This schedule is contingent upon funding.
5. Summary of Environmental Evaluation - The Corps of Engineers has prepared an environmental assessment of this project as required by the National Environmental Policy Act. On the basis of this assessment, it has been determined that the project would not significantly affect the quality of the human environment, and a Finding of No Significant Impact has been issued. A copy of the assessment is available for review in the St. Paul District Office of the Corps of Engineers. The following is a summary of the project's expected adverse and beneficial impacts (see also the Section 404(b)(1) Evaluation).

a. Adverse Impacts - A temporary, minor increase in turbidity and suspended solids would occur during jetty construction, placement of the sand fill near the jetties, and placement of the granular fill on the beach. In addition, effluent from the discharge of dredged material from the holding pond would contain low to moderate levels of suspendible materials, but these would be introduced into an area of the lake which has a moderate level of suspended solids.

b. Beneficial Impacts - Completion of this project would provide assured access to Lake of the Woods. The access would economically benefit the area. The presence of the rock jetty should increase the biological productivity of this area by improving the food supply for local fish populations.


6. Applicable Federal Laws and Regulations -

The National Parks and Recreation Act (Public Law 95-625)
Title VI of the Civil Rights Act of 1964 (Public Law 88-352)
Uniform Relocation Assistance and Real Property Acquisition Policies
Act of 1970 (Public Law 91-646)
Water Resources Development Act of 1974 (Public Law 93-251)
The 1977 Clean Water Act
National Environmental Policy Act of 1969 (Public Law 91-190)
Fish and Wildlife Coordination Act of 1958 (Public Law 85-624)
Endangered Species Act of 1973, as amended (Public Law 93-205)
40 CFR (Code of Federal Regulations) 230, Environmental Protection
Agency 404(b) Guidelines
Executive Order 11988, Floodplain Management, 24 May 1977
Executive Order 11990, Protection of Wetlands, 24 May 1977

7. Request for a Public Hearing - Any person may request a public hearing on the project. The request must be submitted in writing to the District Engineer within 30 days of the date of this notice. It must clearly set forth the interest which may be affected and the manner in which the interest may be affected by this activity.

Interested parties are invited to submit to this office written facts, arguments, or objections to this project. These statements should bear upon the suitability of the location and the adequacy of the plans and should, if appropriate, suggest any changes deemed desirable. All statements, oral or written, will become a part of the official project file and will be available for public examination. All replies should be addressed to the District Engineer, St. Paul District, Corps of Engineers, 1135 U.S. Post Office and Custom House, St. Paul, Minnesota 55101, ATTN: Planning Division.

Enclosure


Archie M. Doering
LTC, Corps of Engineers
Acting District Engineer

PRELIMINARY
REVISED
SECTION 404(b)(1) EVALUATION
FOR SECTION 107 SMALL-BOAT NAVIGATION STUDY
ZIPPEL BAY, MINNESOTA

I. PROJECT DESCRIPTION

a. Location - The proposed fill activity would take place at Zippel Bay, Minnesota, located on the south shore of Lake of the Woods, approximately 26 miles east of Warroad, Minnesota, and 10 miles west of the mouth of the Rainy River (enclosure 1).

b. General Distription - The following actions associated with the proposed project would be subject to section 404(b)(1) evaluation (location shown on enclosure 2):

(1) Placement of rock fill for construction of two jetties (500 feet and 550 feet in length) from the mouth of the Zippel River into Lake of the Woods.

(2) Two actions associated with disposal of sandy dredged material from construction of a channel into Zippel Bay; construction of containment dikes and disposal of the dredged material.

(3) Disposal of organic material from dredging operations inside Zippel Bay would require 404(b)(1) evaluation of the liquid effluent which might be discharged from an upland disposal site after being allowed to settle for two days.

(4) Fill material which may have to be placed in a few locations along the shoreline between the MDNR swimming beach and the proposed channel if the contractor needs to use this area as a haul road for construction activities.

c. Authority and Purpose - Federal authority for this project is contained in section 107 of the River and Harbor Act of 1960, as amended. Under existing conditions, the natural channel connecting Lake of the Woods and Zippel Bay is frequently blocked on the lakeward end by shifting sand moved by the lake currents. The purpose of the project is to establish a reliable channel for small-boat traffic between Zippel Bay and Lake of the Woods.

d. General Description of Dredged and Fill Material

(1) General Characteristics of the Material - The two jetties would consist of a layer of 15-inch to 44-inch rock riprap covering an inner core of 2-inch to 12-inch rock. The material used in dike construction and the dredged material discharged inside these dikes would be clean sand. Any liquid material discharged from the upland disposal site would contain low concentrations of fine organics and clays. Clean, granular fill would be used for the haul road along the shoreline.

(2) Quantity of Material - Approximately 6,400 cubic yards of the 2- to 12-inch rock and 4,000 yards of the 15- to 44-inch rock would be used in the construction of the two jetties. Approximately 6,400 cubic yards of sandy shoreline sediment would be used to construct the containment dikes near the landward end of the jetties (4,900 cubic yards next to the west jetty and 1,500 cubic yards next to the east jetty). A total of approximately 15,000 cubic yards of sandy dredged material would be discharged into these dikes (12,000 cubic yards in dikes next to the west jetty and 3,000 cubic yards next to the east jetty). Effluent to be discharged from the upland (organic) disposal site would total approximately 28 acre-feet, and construction of a haul road would require 700 cubic yards of fill material.

(3) Source of the Material - The rock for the jetties would be obtained from a quarry near the proposed fill site. Shoreline sand would be used to construct containment dikes, and the sandy dredged material would come from dredging a channel through the shoreline sand bar and out into the lake. The dredged organic material (and effluent associated with its disposal at the upland site) would be obtained from dredging sediments inside Zippel Bay. These sediments have been subjected to chemical evaluation and found to be free of contaminants (see enclosure 3). The clean granular fill required for a haul road would probably be obtained from a nearby gravel quarry.

e. Description of the Proposed Discharge Site

(1) Location - The locations of the subject actions are indicated on enclosure 2.

(2) Size - Approximately 1.5 acres of lake bottom would be covered by the rock jetties. An additional 1.4 acres of lake bottom would be covered by the disposal areas near the landward end of the jetties. The dredged material effluent would be discharged into and allowed to mix with water associated with the littoral drift. The relatively small amount of suspended material would quickly become mixed with the littoral drift material. The fill required for the optional haul road would cover less than 1/10 acre.

(3) Type of Site - The rock fill material for the jetties and gravel fill material for a haul road, would be placed in an unconfined lentic environment. The sandy dredged material would be released within the containment dikes, and the dikes would be constructed in an unconfined lentic environment. Effluent from the upland disposal site would be discharged into an area which has a moderate amount of littoral drift.

(4) Type of Habitat - The substrate in the proposed fill area is a shifting sand and gravel mixture. Because of the continual movement of the substrate, very little rooted vegetation is present.

(5) Timing and Duration of Discharge - The fill activities would take place during 1985 and 1986.

f. Description of Disposal Method - The rock material would be placed by means of dump trucks, a front-end loader and clamshell bucket. The dikes for containment of sandy dredged material would be constructed using machinery to

shape shoreline sand into dikes. The sandy dredged material would be placed using a clamshell or hydraulic dredge. Most of the excess water from the sandy dredged material would pass through the sandy substrate of the disposal site. Any water which does not infiltrate will be allowed to settle for at least two hours before being released into the lake. Fill material for a haul road would be placed with a dump truck and front-end loader. Clay/organic material to be dredged from Zippel Bay would be discharged into an existing upland disposal site. If necessary excess effluent would be released from this site into the lake. Any effluent to be released would be allowed to settle without addition of more dredge material for a minimum of two days.

II. FACTUAL DETERMINATIONS

a. Physical Substrate Determinations

(1) Substrate Elevation and Slope - The placement of the rock jetties would radically alter the existing slope and elevation. The relatively flat beach area would be changed to a steep-sloped elevated area. Construction of containment dikes and discharge of sandy dredged material would result in a somewhat steeper sloped shoreline near the landward end of the jetties. Effluent from the upland disposal site and the fill required for the optional haul road would not cause any appreciable changes in the area's slope or elevation.

(2) Sediment Type - The rock fill used in jetty construction would significantly alter the existing gravel/sand substrate. Containment dikes and sandy disposal material would be comprised of the same material as the sediments already in the disposal site. Fill required for the haul road may be somewhat more granular than sediments in the fill areas. Effluent from all disposal site would be similar to the water present in the littoral drift zone and should not appreciably alter existing conditions.

(3) Dredged/Fill Material Movement - The rock material would be sufficiently large to ensure it would experience no significant movement. The containment dikes and sandy dredged material should not move since they would be located in zones of accretion resulting from the jetties. Fill material required for the optional haul road would be subject to some erosion, however, the amount of material added to water surrounding fill areas would be insignificant. The effluent (i.e., water and suspended particles) from the disposal area would become part of the littoral drift and settle or move as other particles in the zone behave.

(4) Physical Effects on Benthos - All types of fill material would initially disrupt and displace the organisms present in the area to be covered. However, rock fill material should provide good to excellent habitat so the area would quickly develop a more diverse and abundant benthic assemblage than presently exists. The effluent would have no appreciable effect on the benthos.

(5) Actions Taken to Minimize Impacts - Because negative impacts associated with the fill activities would not be expected to be significant, no special actions to minimize these impacts would be taken.

b. Water Circulation Fluctuation, and Salinity Determinations

(1) Water

(a) Salinity - Not applicable.

(b) Water Chemistry, Clarity, Color, Odor, Taste, Dissolved Gas Levels, Nutrients, Eutrophication, and Temperature, - That portion of the fill material which would impact upon these parameters would be clean and would settle out of the water column, thereby precluding any significant impacts on the parameters.

(2) Current Patterns and Circulation - The proposed jetties would deflect the existing littoral drift lakeward and cause sedimentation along the outside of the jetties. This should have no significant impacts on the natural environment. The project in general should have no significant impacts on velocity, stratification or hydrologic regime.

(3) Normal Water Level Fluctuations - The proposed fill activities should have no significant impact on water level fluctuations.

(4) Salinity Gradients - Not applicable.

(5) Actions Taken to Minimize Impacts - No special action has been taken to minimize the impact of the project actions on these parameters because no significant impact is anticipated.

c. Suspended Particulate/Turbidity Determination - The fill material to be used on the two jetties would consist of 2- to 44-inch rock and contain no significant quantities of suspendible material. Sandy/granular material discharged during dredge operations and for haul road construction may contain minor amounts of suspended material, however, introduction of this material would not significantly increase the level of suspended material already in the littoral drift zone. The effluent from the organic disposal site would contain low to moderate levels of suspended material but again this would represent an insignificant increase in suspended solids in the littoral drift zone.

d. Contaminant Determinations - The clean nature of the rock, sandy, and granular fill materials would ensure that their placement would not release, relocate, or significantly increase amounts of contaminants in the aquatic system. Likewise, the contaminant-free nature of sediment material to be dredged would ensure that discharges would be free of significant quantities of contaminants that could be released into the environment.

e. Aquatic Ecosystem and Organism Determinations - The proposed fill areas presently support a poor benthic biota. The constantly shifting sand associated with the littoral drift greatly reduces the potential of the area to support flora or fauna. For this reason, the effluent discharge and

discharge or placement of sandy fill material should have little, if any, effect on the area's biota. The rock structure should act as a positive influence on area biota by providing a firm substrate.

f. Proposed Disposal Site Determinations - The rock fill would contain very little material which could be suspended in the water column and thus would have a minimal mixing zone. The effluent and sandy dredged/fill material would have a low level of suspendible material and would quickly be diluted by lake water which already carries a relatively high sediment level. For these reasons, no further analysis of the mixing zone was made.

(2) Determination of Compliance with Applicable Water Quality Standards - Lake of the Woods is classified as a class 1B, 2B, and 3A water body by the State of Minnesota. Any fill activity must maintain water quality equal to or above the State standards for these classifications. Use of rock fill material obtained from an improved quarry and mechanical placement techniques should ensure that these standards would not be violated by jetty construction. The use of diked disposal areas, the two-day settling requirement for clay/organic dredged material, and the sandy nature of other dredged material should ensure these standards would not be violated by any project-related activities.

(3) Potential Effects on Human Use Characteristics - Based on present and projected human use characteristics, existing physical conditions, proposed construction methods, and the clean nature of the fill material, it has been determined that there would be no significant effects on human use characteristics.

g. Determination of Cumulative Effects on the Aquatic Ecosystem - Implementation of the proposed action would cause no significant cumulative impact on the aquatic ecosystem.

h. Determination of Secondary Effects on the Aquatic Ecosystem - The proposed action would produce a more diverse and productive aquatic ecosystem, relative to existing conditions. This could eventually lead to improved recreational fishing in the project area.

III. FINDING OF COMPLIANCE OR NONCOMPLIANCE WITH THE RESTRICTIONS OF DISCHARGE

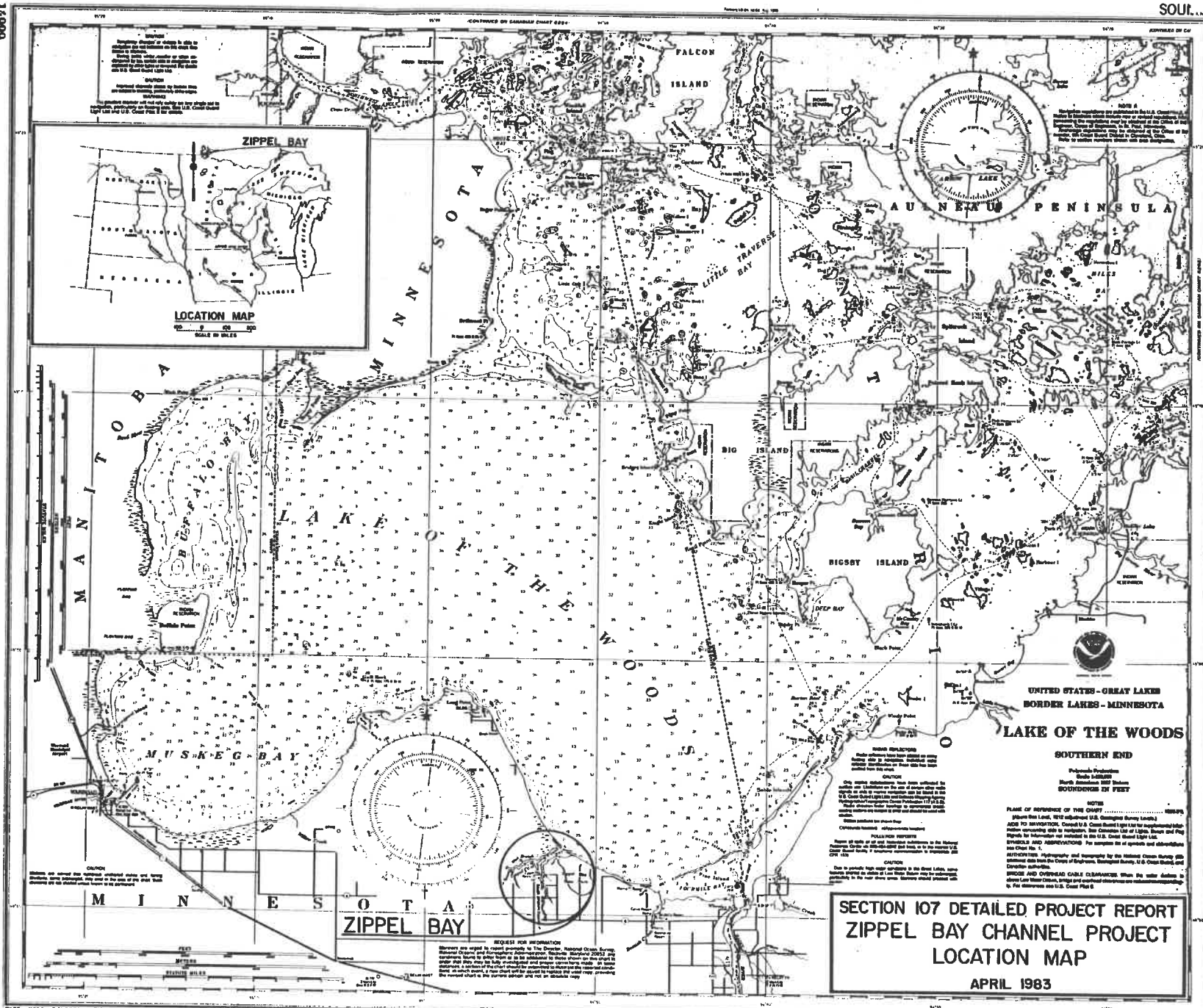
The proposed fill activities would comply with Section 404(b)(1) guidelines of the Clean Water Act. The proposed action was chosen because it offered a solution to the problem that is engineeringly and economically feasible and that has minor environmental impacts.

The proposed fill activities would comply with all State of Minnesota water quality standards, section 307 of the Clean Water Act, and the Endangered Species Act of 1973, as amended. The proposed activity would have no adverse impacts on human health or welfare. The rock fill could provide better

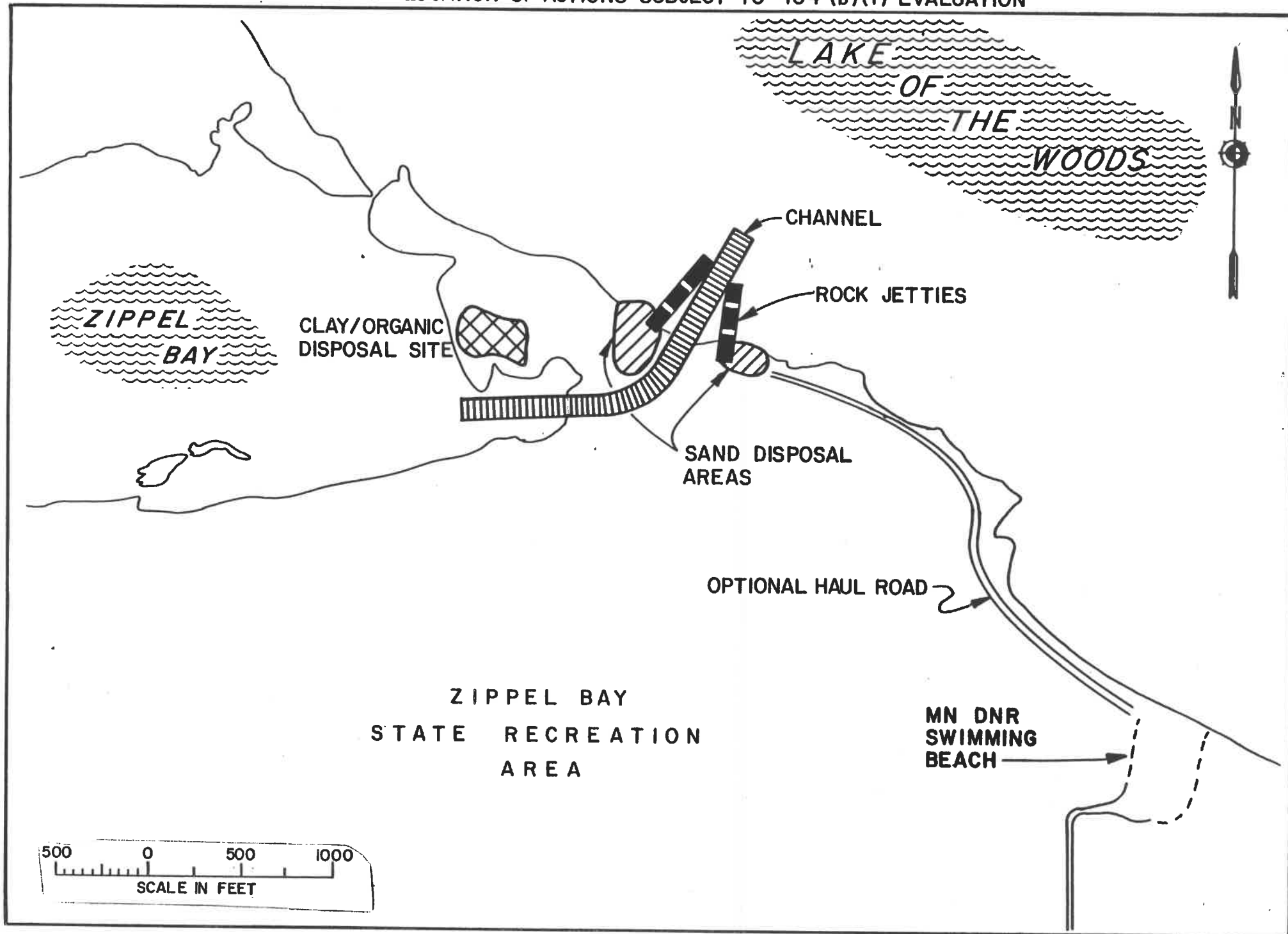
benthic habitat than now exists. On the basis of this evaluation, the proposed disposal sites are specified as complying with requirements of the guidelines for the discharge of fill material.

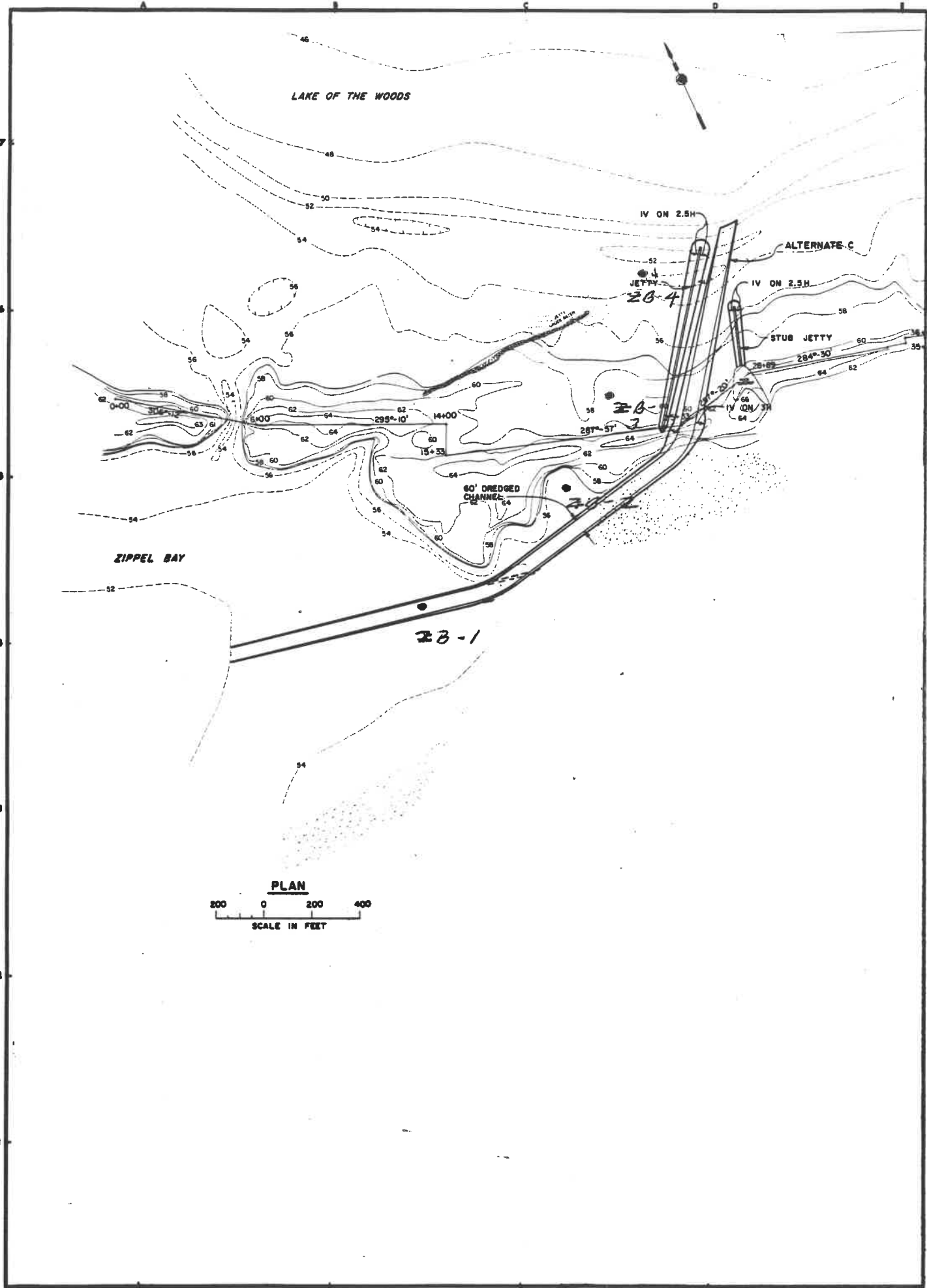
9 Nov 84
Date

Archie M. Doering
ARCHIE M. DOERING
LTC, Corps of Engineers
Acting District Engineer



ENCLOSURE 2: LOCATION OF ACTIONS SUBJECT TO 404 (b)(1) EVALUATION





PLAN
 200 0 200 400
 SCALE IN FEET

Table . Chemical Analysis of Zippel Bay and Lake of the Woods Sediments (Samples Taken October 1981).

Concentration in ppb.		Aldrin	Arsenic ug/g	Barium ug/g	Cadmium ug/g	Chlordane	Chromium ug/g	COD mg/kg	Copper ug/g	Cyanide ug/g	DDD	DDE	DDT	Dieldrin	Endosulfan	Endrin	Gross PCB	Gross PCN	Hept Epox
ZB-1	T	<.1	0	39	<1	<1	3	31,000	4	0	<.1	<.1	<.1	<.1	<.1	<.1	<1	<1	<.1
	B	<.1	1	12	<1	<1	1	16,000	<1	0	<.1	<.1	<.1	<.1	<.1	<.1	<1	<1	<.1
ZB-2	T	<.1	0	12	<1	<1	1	56,000	1	0	<.1	<.1	<.1	<.1	<.1	<.1	<1	<1	<.1
	B	<.1	0	14	<1	<1	2	74,000	1	0	<.1	<.1	<.1	<.1	<.1	<.1	<1	<1	<.1
ZB-3	T	<.1	1	9	<1	<1	<1	10,000	<1	0	<.1	1.0	<.1	<.1	<.1	<.1	<1	<1	<.1
	B														No Sample				
ZB-4	T	<.1	1	10	<1	<1	2	75,000	5	0	<.1	<.1	<.1	<.1	<.1	<.1	3	<1	<.1
	B														No Sample				

NOTE: Locations ZB-1, ZB-2, ZB-3, and ZB-4 are shown on the attached map.

Table . Chemical Analysis of Zippel Bay and Lake of the Woods Sediments (Samples Taken October 1981). (Cont)

Concentration in ppb.		Heptachlor	Iron ug/g	Lead ug/g	Lindane	Manganese ug/g	Mercury ug/g	Mirex	Moisture Cont. %	Mthoxychlor	Nickel ug/g	Nitrogen, NH ₄ +Org. mg/kg	Nitrogen, NH ₄ as N mg/kg	Oil and Grease mg/kg	Perthane	Phosphorus as P mg/kg	Prep. FCR	Solids, Vol. ug/g	Toxaphene	Zinc ug/g
ZB-1	T	<.1	260	<10	<.1	59	<.01	<.1		<.1	<10	1,140	61	0	<.1	350	2	70,600	<1	2
	B	<.1	10	<10	<.1	67	<.01	<.1		<.1	<10	47	50	2,100	<.1	560	2	513,000	<1	<1
ZB-2	T	<.1	26	<10	<.1	45	<.01	<.1	32.5	<.1	<10	692	103	3,500	<.1	460	2	80,200	<1	2
	B	<.1	160	<10	<.1	15	.02	<.1	27.1	<.1	<10	44,700	28	50,000	<.1	330	2	42,000	<1	<1
ZB-3	T	<.1	89	<10	<.1	30	<.01	<.1	22.4	<.1	<10	778	18	1,000	<.1	130	2	9,800	<1	2
	B																			
ZB-4	T	<.1	370	<10	<.1	50	<.01	<.1	47.8	<.1	<10	1,380	114	1,000	<.1	340	2	81,900	<1	6
	B																			

NOTE: Locations ZB-1, ZB-2, ZB-3, and ZB-4 are shown on the attached map.



**US Army Corps
of Engineers**
St. Paul District

Public Notice

Applicant:

Mr. Nick Painovich

Date: 14 March 1983

Exp. Date: 13 April 1983

In Reply Refer to:

NCSCO-RF (83-163-38)

Section:

10

1. APPLICATION FOR PERMIT TO perform dredging to provide an access channel for the applicant's resort between Zippel Bay and Lake of the Woods. The existing channel was sanded in due to prevailing wind conditions.

APPLICANT'S ADDRESS: Zippel Bay Resort
Lake of the Woods
Williams, Minnesota 56686

PHONE NUMBER: 218-783-6235

Project Location. The project site is located in Section 2, Township 162 N., Range 33 W., Lake of the Woods County, Minnesota.

SURROUNDING LAND USES: Recreational

QUANTITY AND TYPE OF MATERIAL TO BE DREDGED OR EXCAVATED: Approximately 6,600 cubic yards of sand and peat.

METHOD OF DREDGING OR EXCAVATION: Backhoe

DIMENSIONS OF DREDGED OR EXCAVATION AREA: An area 300 feet long, 100 feet wide, to a depth of 6 feet.

METHODS OF DISPOSAL FOR MATERIAL: The dredged material would be placed in a non-wetland site.

VEGETATION AT DISPOSAL SITE: The applicant stated that scrub brush was the only vegetation present in the disposal site.

Corps employee to be contacted. If you have questions about the project, the person to contact is Donna Kell at (612) 725-7712.

Plans and drawings submitted by the applicant are attached to this notice.

Corps of Engineers Evaluation. The application will be reviewed according to the provision of Section 10 of the River and Harbor Act of 1899 (33 USC 403).

JURISDICTION: Lake of the Woods is a navigable water of the United States.

2. THREATENED OR ENDANGERED WILDLIFE OR PLANTS OR THEIR CRITICAL HABITAT: None were listed by the applicant or are known to exist in the permit area. However, Lake of the Woods is within the known or historic range of the following threatened species:

Species

Habitat

Gray Wolf Canis Lupus

Northern Forested Areas

SUBJECT: Notice of Application for Permit

This application is being coordinated with the U.S. Fish and Wildlife Service and the National Marine Fisheries Service. Any comments they may have concerning endangered or threatened wildlife or plants or their critical habitat will be considered in our final assessment of the described work.

3. THE APPLICANT HAS STATED THAT THE FOLLOWING STATE, COUNTY, AND/OR LOCAL, PERMIT HAS BEEN APPLIED FOR: The Minnesota Department of Natural Resources.

4. HISTORICAL/ARCHAEOLOGICAL

This public notice is being sent to the National Park Service, the State Archaeologist, and the State Historic Preservation Officer to determine if there are known cultural resources which may be affected by the described work. Any unknown archaeological, scientific, or historical data could be lost or destroyed by the work described in the permit application. However, the latest version of the National Register of Historic Places has been consulted and no listed properties (known to be eligible for inclusion, or included in the Register) are located in the project area.

5. PUBLIC INTEREST REVIEW

The decision whether to issue a permit will be based on an evaluation of the probable impact, including cumulative impacts, of the proposed activity on the public interest. That decision will reflect the national concern 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, including the cumulative effects. Among those are conservation, economics, aesthetics, general environmental concerns, wetlands, cultural values, fish and wildlife values, flood hazards, floodplain values, land use, navigation, shoreline erosion and accretion, recreation, water supply and conservation, water quality, energy needs, safety production and, in general, the needs and welfare of the people.

6. REPLIES/COMMENTS

Interested parties are invited to submit to this office written facts, arguments, or objections within 30 days of the date of this notice. These statements should bear upon the suitability of the location and the adequacy of the project and should, if appropriate, suggest any changes believed to be desirable. Comments received may be forwarded to the applicant.

7. PUBLIC HEARING REQUESTS

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, in detail, the reasons for holding a public hearing. A request may be denied if substantive reasons for holding a hearing are not provided or if there is otherwise no valid interest to be served.

NCSCO-RF (83-163-38)

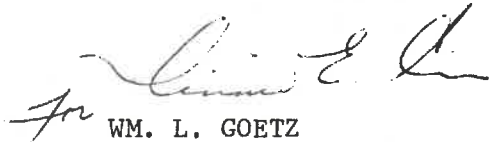
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14 March 1983

All replies should be addressed to the District Engineer, St. Paul District, Corps of Engineers, 1135 U.S. Post Office and Custom House, St. Paul, Minnesota 55101, ATTENTION: Regulatory Functions Branch.

FOR THE DISTRICT ENGINEER:

1 Incl


WM. L. GOETZ
Chief, Construction-Operations
Division

33

34

1975

LAKE OF THE WOODS

NEF 76

PHOTO

(scale adjusted)

4

3

channel +
dredging area
(disposal site)

83-163-38

ZIPPEL
CREEK

9

WEST
BRANCH

11

10

SOUTH
BRANCH

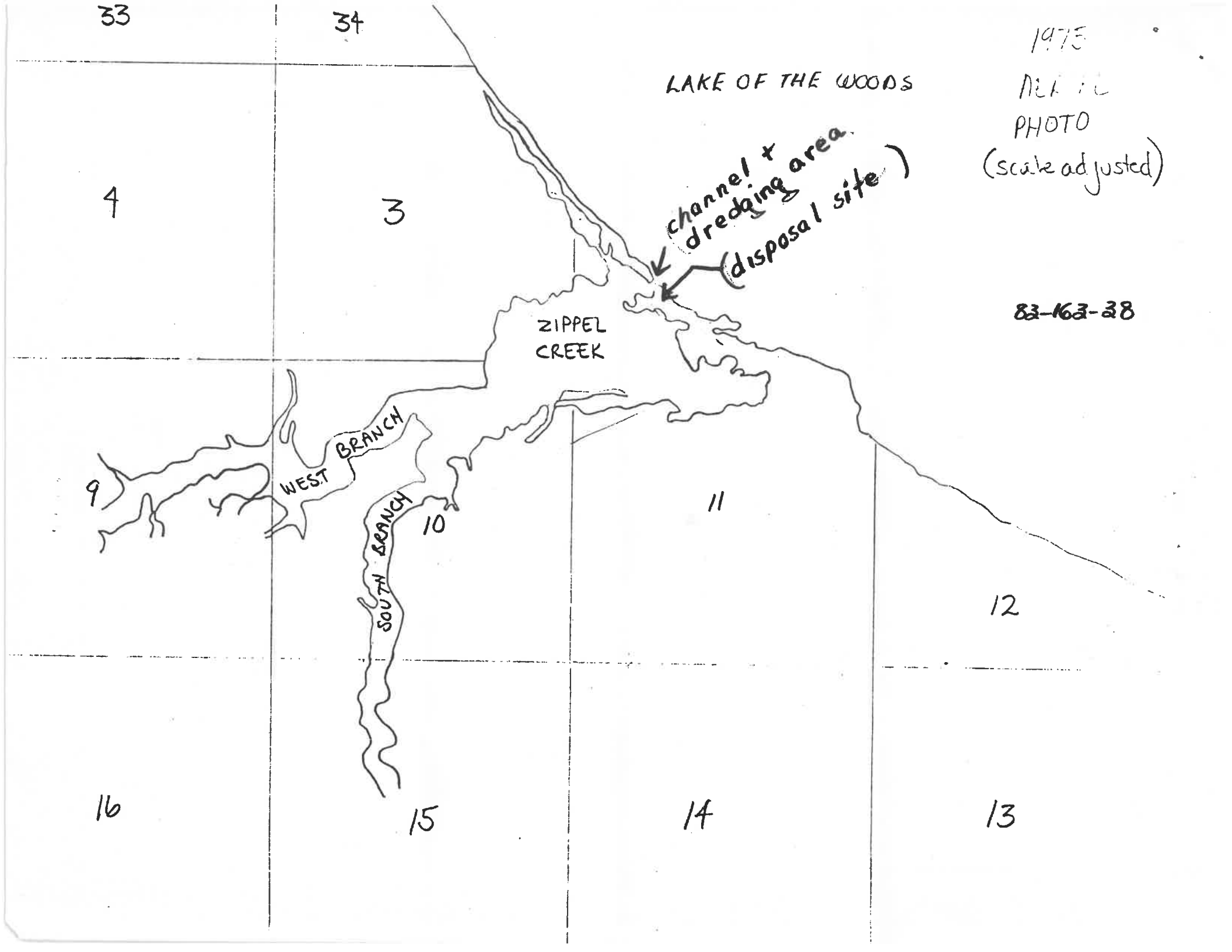
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16

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14

13



781 N NW
(WILLIAMS NW)

83-163-38

94°52'30"
48°52'30"
5415000m.N.

363000m.E

364

365

50'

366

Zippel Bay

Lake of
the Woods

5414

10

11

12

ZIPPEL BAY STATE PARK

5413

Gravel Pits

Gravel Pits

15

14

RED LAKE
INDIAN
RESERVATION

13

5412

1074

1084

1096

1096

1094

Gravel Pit

5411

22

23

24

Gravel Pit

50'

BM

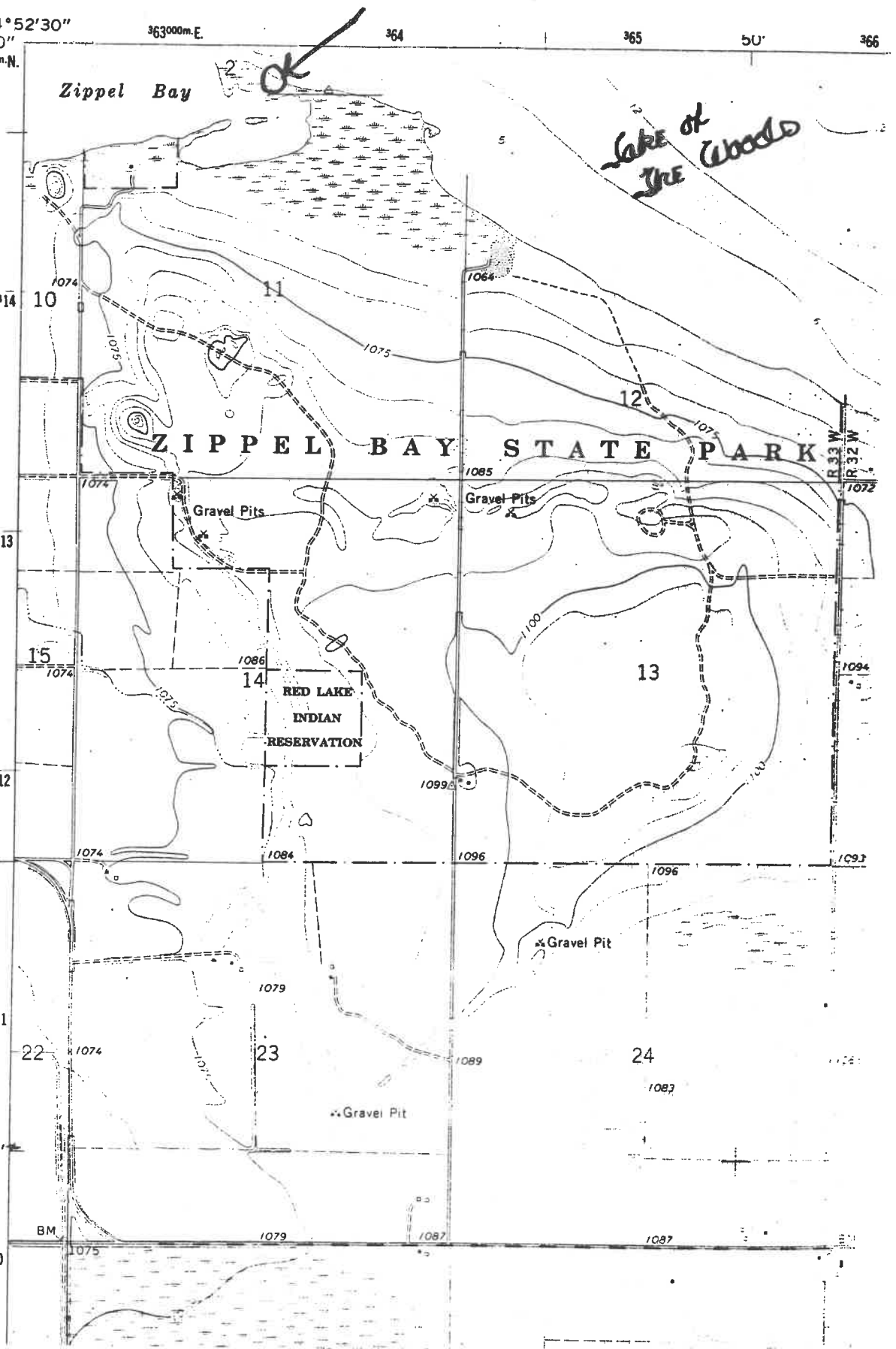
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US Army Corps
of Engineers
St. Paul District

Public Notice

Project: Section 404 Public Notice, Small-Boat
Navigation Channel at Zippel Bay, Minnesota

Date:

November 8, 1983

In Reply Refer to:

Planning Division

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4. Construction Schedule - Construction is planned during the periods of January through March 1985 and September through December 1985. This schedule is contingent upon funding.

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Executive Order 11988, Floodplain Management, 24 May 1977
Executive Order 11990, Protection of Wetlands, 24 May 1977

7. Request for a Public Hearing - Any person may request a public hearing on the project. The request must be submitted in writing to the District Engineer within 30 days of the date of this notice. It must clearly set forth the interest which may be affected and the manner in which the interest may be affected by this activity.

Interested parties are invited to submit to this office written facts, arguments, or objections to this project. These statements should bear upon the suitability of the location and the adequacy of the plans and should, if appropriate, suggest any changes deemed desirable. All statements, oral or written, will become a part of the official project file and will be available for public examination. All replies should be addressed to the District Engineer, St. Paul District, Corps of Engineers, 1135 U.S. Post Office and Custom House, St. Paul, Minnesota 55101, ATTN: Planning Division.

Enclosure


Archie M. Doering
Lieutenant Colonel, CE
Acting District Engineer

PRELIMINARY

SECTION 404(b)(1) EVALUATION
FOR SECTION 107 SMALL-BOAT NAVIGATION STUDY
ZIPPEL BAY, MINNESOTA

I. PROJECT DESCRIPTION

a. Location - The proposed fill activity would take place at Zippel Bay, Minnesota, located on the south shore of Lake of the Woods, approximately 26 miles east of Warroad, Minnesota, and 10 miles west of the mouth of the Rainy River (enclosure 1).

b. General Description - Two fill actions associated with the proposed project would be subject to section 404(b)(1) evaluation. The first action would consist of two rock jetties, approximately 550 feet and 500 feet, respectively, being constructed out from the mouth of the Zippel River into Lake of the Woods. The second action involves the discharge of dredged material effluent which has been allowed to settle for 2 days. This effluent would be discharged via a floating tube into the littoral drift zone of Lake of the Woods (enclosure 2).

c. Authority and Purpose - Federal authority for this project is contained in Section 107 of the River and Harbor Act of 1960, as amended. Under existing conditions, the natural channel connecting Lake of the Woods and Zippel Bay is frequently blocked on the lakeward end by shifting sand moved by the lake currents. The purpose of the project is to establish a reliable channel for small-boat traffic between Zippel Bay and Lake of the Woods.

d. General Description of Dredged and Fill Material

(1) General Characteristics of Material - The two jetties would consist of a layer of 15-inch to 44-inch rock riprap covering an inner core of 2-inch to 12-inch rock. The liquid material discharged from the holding pond would contain low concentrations of fine organics and clays.

(2) Quantity of Material - Approximately 10,000 cubic yards of the 2- to 12-inch rock and 5,000 cubic yards of the 15- to 44-inch rock would be used in the construction of the two jetties. A total volume of 27.8 acre-feet of effluent would be discharged into the lake.

(3) Source of Material - The rock would be obtained from a quarry near the proposed fill site. The dredged material effluent would be confined in a holding pond and allowed to settle for at least 2 days. This sediment material which would be dredged has been subjected to chemical evaluation and found to be relatively free of contaminants (see inclosure 3).

e. Description of the Proposed Discharge Site

(1) Location - The locations of the subject actions are indicated on enclosure 2.

(2) Size - Approximately 1.52 acres of lake bottom would be covered by the rock jetties. The dredged material effluent would be discharged into and allowed to mix with water associated with the littoral drift. The relatively small amount of suspended material would quickly become mixed with the littoral drift material.

(3) Type of Site - The rock fill material would be placed in an unconfined lentic environment. The effluent would be discharged into an area which has a moderate amount of littoral drift.

(4) Type of Habitat - The substrate in the proposed project area is a shifting sand and gravel mixture. Because of the continual movement of the substrate, very little rooted vegetation is present.

(5) Timing and Duration of Discharge - The fill activities would take place during the period August 1985 to November 1985. If additional time was needed, the remainder of the work would be accomplished during the fall of 1986.

f. Description of Disposal Method - The rock material would be placed by means of a front-end loader and clamshell bucket. The effluent would be pumped from the holding pond to the zone of littoral drift through a 12-inch floating tube.

II. FACTUAL DETERMINATIONS

a. Physical Substrate Determinations

(1) Substrate Elevation and Slope - The placement of the rock jetties would radically alter the existing slope and elevation. The relatively flat bench area would be changed to a steep-sloped elevated area. The effluent would not cause any appreciable changes to the area's slope or elevation.

(2) Sediment Type - The rock fill used in the jetty construction would significantly alter the existing gravel/sand substrate. The effluent would be similar to the water present in the littoral drift zone and should not appreciably alter existing conditions.

(3) Dredged/Fill Material Movement - The rock material would be sufficiently large to ensure it would experience no significant movement. The effluent (i.e., water and suspended particles) would become part of the littoral drift and settle or move as other particles in the zone behave.

(4) Physical Effects on Benthos - The rock fill material would initially disrupt and displace the organisms present in the area to be covered. The rock should provide good to excellent habitat itself, however, so the area would quickly develop a more diverse and abundant benthic assemblage than presently exists. The effluent would have no appreciable effect on the benthos.

(5) Actions Taken to Minimize Impacts - Because negative impacts associated with the fill activities would not be expected to be significant, no special actions to minimize these impacts would be taken.

b. Water Circulation, Fluctuation, and Salinity Determinations

(1) Water

(a) Salinity - Not applicable.

(b) Water Chemistry, Clarity, Color, Odor, Taste, Dissolved Gas Levels, Nutrients, Eutrophication, and Temperature - Use of clean fill material which would settle out of the water column would preclude any significant impacts on these parameters.

(2) Current Patterns and Circulation - The proposed jetties would deflect the existing littoral drift slightly lakeward. This should have no significant impacts on the natural environment. The project should have no significant impacts on velocity, stratification or hydrologic regime.

(3) Normal Water Level Fluctuations - The proposed fill activities should have no significant impact on water level fluctuations.

(4) Salinity Gradient - Not applicable.

(5) Actions Taken to Minimize Impacts - No special action has been taken to minimize the impact of the project actions on these parameters because no significant impact would be anticipated.

c. Suspended Particulate/Turbidity Determinations - The fill material to be used on the two jetties would consist of 2- to 44-inch rock and contain no significant quantities of suspendible material. The effluent would contain low to moderate levels of suspendible material but would be introduced into an area (the littoral drift zone) which has a moderate level of suspended solids.

d. Contaminant Determinations - The clean nature of the rock fill material would ensure that its placement would not release, relocate, or increase significant amounts of contaminants into the aquatic system. Likewise, the contaminant-free nature of sediment material to be dredged would ensure that the effluent would be free of significant quantities of contaminants that could be released into the environment.

e. Aquatic Ecosystem and Organism Determinations - The proposed fill areas presently support a poor benthic biota. The constantly shifting sand associated with the littoral drift greatly reduces the potential of the area to support flora or fauna. For this reason, the effluent discharge should have little, if any, effect on the biota present, and the rock structure should act as a positive influence by providing a firm substrate.

f. Proposed Disposal Site Determinations - The rock fill would contain very little material which could be suspended in the water column and thus would have a minimal mixing zone. The effluent would have a low level of

suspendible material and would quickly be diluted by lake water which already carries a relatively high sediment level. For these reasons, no further analysis of the mixing zone was made.

(2) Determination of Compliance with Applicable Water Quality Standards - Lake of the Woods is classified as a Class 1B, 2B, and 3A water body by the State of Minnesota. Any fill activity must maintain water quality equal to or above the State standards for these classifications. Use of rock fill material obtained from an approved quarry and mechanical placement techniques should ensure that these standards would not be violated by project-related activities.

(3) Potential Effects on Human Use Characteristics - Based on present and projected human use characteristics, existing physical conditions, proposed construction methods, and the clean nature of the fill material, it has been determined that there would be no significant effects on human use characteristics.

g. Determination of Cumulative Effects on the Aquatic Ecosystem - Implementation of the proposed action would cause no significant cumulative impact on the aquatic ecosystem.

h. Determination of Secondary Effects on the Aquatic Ecosystem - The proposed action would produce a more diverse and productive aquatic ecosystem, relative to existing conditions. This could eventually lead to improved recreational fishing in the project area.

III. FINDING OF COMPLIANCE OR NONCOMPLIANCE WITH THE RESTRICTIONS ON DISCHARGE

The proposed fill activities would comply with Section 404(b)(1) guidelines of the Clean Water Act. The proposed action was chosen because it offered a solution to the problem that is engineeringly and economically feasible and that has minor environmental impacts.

The proposed fill activities would comply with all State of Minnesota water quality standards, Section 307 of the Clean Water Act, and the Endangered Species Act of 1973, as amended. The proposed activity would have no adverse impacts on human health or welfare. The rock fill could provide better benthic habitat than now exists. On the basis of this evaluation, the proposed disposal sites are specified as complying with requirements of the guidelines for the discharge of fill material.

Date

ARCHIE M. DOERING
Lieutenant Colonel, CE
Acting District Engineer

ZIPPEL BAY
RECREATION
AREA

LAKE
OF
THE
WOODS

DISCHARGE

ZIPPEL
BAY

MN DNR
HARBOR

MN DNR
SWIMMING BEACH

RIVER

ZIPPEL BAY
STATE RECREATION
AREA

ZIPPEL

SOUTH BRANCH

SECTION 107 DETAILED PROJECT REPORT
ZIPPEL BAY CHANNEL PROJECT
STUDY AREA

500 0 500 1000
SCALE IN FEET

NOVEMBER 1981