DEPARTMENT OF THE ARMY
DETROIT DISTRICT, CORPS OF ENGINEERS
BOX 1027
DETROIT, MICHIGAN 48231-1027

August 3, 1989

IN REPLY REFER TO

Environmental Analysis Branch
Planning Division

Statement of Findings and Finding of No Significant Impact

Dredging and Maintenance of the Breakwaters and Shoreline
Saxon Harbor, Iron County, Wisconsin
Lake Superior

Prepared By: Les Weigum, CENCE-PD-EA

1. Proposal Action: The actions described in the April 26, 1989 EA and 404(b)(1) Evaluation consisted of maintenance dredging with disposal of material at an upland site in the Iron County Forest, and periodic in-kind, in-place maintenance of the breakwaters and shoreline at Saxon Harbor. Dredging in 1989 is expected to total approximately 7,000 cubic yards. Maintenance work is currently unfunded.

2. Coordination: The public notice for these activities was distributed April 26, 1989. The EA and 404(b)(1) went out under the same cover. Letters and comments received on the proposed action are summarized as follows:

a. No objections were expressed via telephone from State Historical Society of Wisconsin and the U.S. Fish and Wildlife Service.

b. National Park Service - The NPS had no objections, but cautioned on impacts to properties acquired through the Land and Water Conservation Fund. The fund administration was contacted and no comments or objections were received.

c. EPA - No objections were expressed to the project.

d. Bureau of Indian Affairs - The BIA asked about testing the sediments for PCB's. A response was sent to the BIA noting that PCB were tested in 1984 and were not found. Tests for PCB's in 1988 were not deemed necessary due to the forested nature of the area.

e. Wisconsin Department of Natural Resources - The WDNR expressed concern over sediment criteria and construction timing. In response the Corps related back to the EPA sediment disposal guidelines and reached agreement as to the timing of construction to avoid major fish spawning runs.

3. Environmental Effects: The potential environmental effects associated with the proposed actions have been discussed in detail in the April 26, 1989 EA. Some minor, localized increases in noise, turbidity and general disruption of the area would occur during construction activities but no significant long term adverse impacts would be anticipated. The 30 day public review of the public notice, EA and 404(b)(1) along with waiver of 401 certification by the State of Wisconsin and this document completes compliance with the Clean Water Act and the National Environmental Policy Act. The Corps has determined the project is consistent with the Wisconsin Coastal Zone Management Plan and in compliance with the Fish and Wildlife Coordination Act, the Endangered Species Act, and the National Historic Preservation Act.

4. Determination: It has been determined through the preparation of the EA that implementation of the proposed plan would not have significant adverse impacts on the human environment. In order to minimize any potential impacts on fish stocks moving through the harbor during spawning migrations, the Corps has agreed during this dredge cycle to avoid dredging between September 20 and October 31 and April 1 through May 15. Future dredging dates would be coordinated with the Wisconsin DNR and U.S. Fish and Wildlife Service.

Alternatives considered during development of the plan included 'No Action' and the use of several other disposal sites. The proposed plan uses the most feasible and cost effective disposal site currently available. Cumulative impacts are not expected to result from continued use of this site since the dredge material is expected to be used for wildlife enhancement prior to the next dredging cycle. Other disposal options may become available for consideration in future years. Cumulative impacts associated with breakwater repairs are not expected to occur due to the minor and infrequent nature of these activities.

5. Findings and Conclusions: The Environmental Assessment and 404(b)(1) Evaluation indicate that the proposed activity does not constitute a major Federal action significantly affecting the quality of the human environment. Therefore, an Environmental Impact Statement (EIS) will not be prepared. It is my determination to proceed with the proposed activities at Saxon Harbor, Iron County, Wisconsin.

3 August 1989
Date

John D. Glass
Colonel, U.S. Army
District Engineer

DEPARTMENT OF THE ARMY
DETROIT DISTRICT, CORPS OF ENGINEERS
BOX 1027
DETROIT, MICHIGAN 48231-1027

APR 26 1989

IN REPLY REFER TO

Planning Division
Environmental Analysis Branch

PUBLIC NOTICE

DREDGING AND MAINTENANCE OF THE BREAKWATERS AND SHORELINE
SAXON HARBOR, IRON COUNTY, WISCONSIN

1. This Public Notice is being issued for the purpose of providing 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, Detroit District (COE), proposes to do maintenance dredging and repairs to the east and west breakwaters and shoreline at Saxon Harbor, Iron County, Wisconsin. Dredging is proposed for 1989 and will be done in subsequent years as needed and as future funding becomes available. Breakwater and shoreline maintenance will be done as needed and as funding becomes available.

3. The purpose of the Saxon Harbor maintenance dredging project is to remove materials from the Federally authorized harbor in order to restore navigable depths for safe and unrestricted movements of recreational and charter fishing vessels within the established project areas.

4. The purpose of the breakwater and shoreline repairs is to maintain the concrete cell caps, maintain the protection the stone revetment provides to the east and west breakwaters, protect the landward base of the west breakwater along the shoreline, and ensure continued protection of the harbor area for use as a small craft harbor-of-refuge.

5. The existing Saxon Harbor navigation project was authorized by the River and Harbor Act of July 3, 1958. The proposed dredging project is in response to the Energy and Water Development Appropriations Act of 1988 (Public Law 100-202) which directed the Secretary of the Army to dredge Saxon Harbor, Wisconsin. Maintenance of the breakwater structures and immediate shoreline at the base of the west breakwater is normal, periodic maintenance.

6. The proposed work has been reviewed and evaluated under the following Acts, as amended: Fish and Wildlife Act of 1956; Fish and Wildlife Coordination Act of 1958; National Historic Preservation Act of 1966; National Environmental Policy Act of 1969; Coastal Zone Management Act of 1972; Endangered Species Act of 1973; Water Resources Development Act of 1975; Clean Water Act of 1977; Clean Air Act; and Executive Orders 11988 and 11990, as well as various Congressional Acts authorizing the construction of Federal projects.

7. Saxon Harbor is located on the south shore of Lake Superior in the former mouth of Oronto Creek and functions exclusively as a recreational harbor-of-refuge for private recreational craft and charter trolling boats. The navigation project consists of two breakwaters, an outer channel, and an inner harbor basin. The west breakwater consists of 381 feet of steel sheet piling (SSP) that projects eight feet above the normal lake level. The lakeward end of the west breakwater consists of one 35-foot diameter steel cell. Stone riprap originally protected the base of this breakwater along the shoreline. The east breakwater consists of a 335-foot long stone mound on the land end connected to a 280-foot cellular breakwater on the lake end. The entire section projects eight feet above the normal lake level. Both breakwaters are equipped with U.S. Coast Guard navigational aid lights at the outer ends. The 10-foot deep outer channel narrows from 100 feet at its outer extremity to 80 feet at the entrance to the inner basin. The irregularly-shaped inner basin is approximately 95 feet wide, 350 feet long, and eight feet deep with a side channel 50 feet wide, 450 feet long, and eight feet deep.

8. The dredging of Saxon Harbor will be performed by a private contractor using mechanical or hydraulic equipment. Approximately 7,000 cubic yards of sand and silt with some organic matter, cobble, and gravel is expected to be dredged in 1989. Future amounts will depend upon shoaling rates. The proposed dredging project is anticipated to require approximately 45 days for completion during the summer.

9. Harbor sediments within the Federal channel were sampled in 1988. COE evaluation of sediment quality, with U.S. Environmental Protection Agency concurrence, determined that the material was suitable for unconfined upland disposal. The proposed disposal site for the dredged material is an Iron County owned upland site approximately 0.75 mile southwest of the harbor. The proposed two acre site is located adjacent to Harbor Road and is part of the Iron County Forest. A detailed description of this site and maps of the area are located in the attached Environmental Assessment.

10. The proposed breakwater repair involves periodic in-kind, in-place maintenance of the breakwaters to a design similar to the original design condition. The proposed shoreline maintenance consists of placing riprap along the existing shoreline near the west breakwater to replace shoreline revetments originally installed to protect the landward base of the breakwater. The placed riprap would prevent further scouring and erosion of the shoreline at the base of the breakwater. Repair of the concrete cell caps entails patching or replacing the concrete.

11. Receipt of a State of Wisconsin water quality certification under Section 401 of the Clean Water Act, or waiver thereof, will be obtained prior to the breakwater and shoreline maintenance project.

12. The enclosed Environmental Assessment (EA) is transmitted for your review. The EA contains an outline of the proposed work including design sketches and a description of materials and equipment to be used during dredging and construction. As indicated in the EA, coordination has taken place with a variety of state and Federal agencies regarding this project, and there appears to be no need for the preparation of an Environmental Impact Statement. This project is expected to have minimal effects on the coastal zone of Wisconsin and will be consistent to the maximum extent practicable with the state coastal zone management program. No significant impacts to historic resources or endangered/threatened species would be expected as the result of project implementation.

13. This notice is being published in conformance with 40 U.S. Code of Federal Regulations (CFR) Parts 1500-1508, under the authority of the National Environmental Policy Act (NEPA), and 33 CFR Part 337.1, under the authority of Section 404 of the Clean Water Act. Any interested parties desiring to express their views concerning the proposed work may do so by filing their comments in writing with this office not later than 30 days from the date of issuance of this notice to: U.S. Army Engineer District, Detroit, ATTN: CENCE-PD-EA, P.O. Box 1027, Detroit, Michigan 48231.

14. Any person who has an interest which may be affected by the proposed activities may request a public hearing. The request must be submitted in writing to the District Engineer, at the address listed above, within 30 days of the date of this notice and must clearly set forth the interest which may be affected and the manner in which the interest may be affected by this activity.

15. Copies of this notice are being sent to the U.S. Environmental Protection Agency, the U.S. Department of Interior, the State of Wisconsin, Iron County, and other Federal, State, and local agencies as well as known interested groups and individuals.

16. Additional information concerning this project may be obtained from Mr. Les Weigum, Chief, Environmental Analysis Branch, at the Corps of Engineers address listed above, or telephone number (313) 226-6752.

William W. Willis, P.E.
Chief, Planning Division

Enclosure

ENVIRONMENTAL ASSESSMENT

DREDGING AND MAINTENANCE OF THE BREAKWATERS AND SHORELINE
SAXON HARBOR, IRON COUNTY, WISCONSIN

Prepared by:

U.S. Army Engineer District, Detroit
April 1989

1.0 SUMMARY

1.1 This document addresses the environmental impacts associated with dredging, breakwater, and shoreline maintenance at Saxon Harbor, Iron County, Wisconsin. The need for channel maintenance by dredging arises from the periodic build-up of shoal areas in the navigational channel that decreases the available water depth to less than that needed for safe and efficient navigation. The purpose of the in-kind, in-place breakwater and riprap shoreline maintenance is to maintain the breakwater concrete cell caps and replace protection stone lost from the breakwaters and shoreline during storms.

1.2 This Environmental Assessment (EA) has been prepared in accordance with the National Environmental Policy Act (NEPA). An evaluation regarding the environmental effects of the discharge of fill materials into waters of the United States, pursuant to the Clean Water Act, is presented in Appendix D of this EA. Adverse environmental impacts of the proposed work would be local in scope and minor in nature. Beneficial impacts include safe unrestricted passage of vessels using Saxon Harbor, continued protection of the harbor entrance by the breakwaters, protection of the landward base of the west breakwater, decreased erosion and resultant turbidity along the western shoreline of the harbor, and continued safe use of Saxon Harbor as a small craft harbor-of-refuge.

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3.0 PURPOSE OF AND NEED FOR THE PROPOSED ACTION

3.1 The purpose of the Saxon Harbor maintenance dredging project is to remove materials from the Federally authorized harbor in order to restore navigable depths for safe and unrestricted movements of recreational and charter fishing vessels within the established project areas. The need for channel maintenance by dredging arises from the periodic build-up of shoal areas in the navigational channel that decreases the available water depth to less than that needed for safe and efficient navigation.

3.2 The purpose of the breakwater and shoreline maintenance is to maintain the concrete cell caps, maintain the protection the stone revetment provides to the east and west breakwaters, protect the landward base of the west breakwater along the shoreline, and ensure continued protection of the harbor area for use as a small craft harbor-of-refuge. If left unprotected, the possibility exists that the structures may fail and cause a threat to continued navigation by vessels using Saxon Harbor.

4.0 PROJECT AUTHORITY

4.1 The existing Saxon Harbor navigation project was authorized by the River and Harbor Act of July 3, 1958. The proposed dredging project is in response to the Energy and Water Development Appropriations Act of 1988 (Public Law 100-202) which states "The Secretary of the Army is directed to dredge Saxon Harbor, Wisconsin, and to construct wood cribs as a permanent solution to the damage being caused by the Federal navigation project under provisions of Section 111 of the 1968 River and Harbor Act, Public Law 90-483, as amended." The dredging of Saxon Harbor and the placement of shoreline protection are being treated by the U.S. Army Corps of Engineers (COE) as separate actions. Shoreline protection has already been addressed (1). Maintenance of the breakwater structures is normal, periodic maintenance.

5.0 AFFECTED ENVIRONMENT

5.1 General. Lake Superior borders three states (Michigan, Wisconsin, and Minnesota) and the Province of Ontario. The lake has a total surface area of 31,700 square miles of which 65% (20,600 square miles) lies within the United States (2). Eight percent (2,675 square miles) of Lake Superior lies within the border of Wisconsin (3). The lake is approximately 350 miles long and 160 miles wide and drains a land area of 49,300 square miles (2). The mean and maximum depths of Lake Superior are 487 and 1,333 feet, respectively (4). The low water datum (LWD) elevation, an arbitrary plane to which elevations of the lakes are referenced, is 600.0 feet above mean water level (MWL) at

Father Point, Quebec (International Great Lakes Datum [IGLD], 1955). The average surface elevation of Lake Superior between 1900 and 1981 was 600.6 feet (2).

5.2 Region. Iron County is located in northwestern part of Wisconsin (Figures A-1 and A-2). The county has a land area of 751 square miles and a 1980 population of 5,730 people (5). The county seat is located at Hurley. The unincorporated village of Francis is located immediately west of Saxon Harbor along the south shore of Lake Superior in Saxon Township (Figure A-2). Saxon Harbor is located approximately one mile west of the Wisconsin-Michigan state line and is 25 miles east of Ashland, Wisconsin, and 60 miles west of Ontonagon, Michigan.

5.3 Project Area. Saxon Harbor is located on the south shore of Lake Superior in the former mouth of Oronto Creek and functions exclusively as a recreational harbor-of-refuge for private recreational craft and charter trolling boats. The navigation project consists of two breakwaters, an outer channel, and an inner harbor basin (Figures A-2 and A-3). The west breakwater consists of 381 feet of steel sheet piling (SSP) that projects eight feet above the normal lake level. The lakeward end of the west breakwater consists of one 35-foot diameter steel cell. The cell, constructed of SSP, is filled with sand dredged from the harbor and is capped with two feet of rock and concrete. Stone riprap originally protected the base of this breakwater along the shoreline (Figure A-4). The east breakwater consists of a 335-foot long stone mound on the land end connected to a 280-foot cellular breakwater on the lake end. The stone portion has a small rock core covered with larger stones and capped with a layer six feet thick of 3- to 5-ton boulders. The entire section projects eight feet above the normal lake level. The lakeward 280 feet of the east breakwater consists of seven steel cells of similar construction to the cell on the west breakwater. Both breakwaters are equipped with U.S. Coast Guard navigational aid lights at the outer ends. The 10-foot deep outer channel narrows from 100 feet at its outer extremity to 80 feet at the entrance to the inner basin. The irregularly-shaped inner basin is approximately 95 feet wide, 350 feet long, and eight feet deep with a side channel 50 feet wide, 450 feet long, and eight feet deep.

5.4 Disposal and Off-Loading Area. The proposed disposal site for the dredged material is an Iron County owned upland site approximately 0.75 mile southwest of the harbor (Figure A-5). The proposed two acre site is located adjacent to Harbor Road and is part of the Iron County Forest. The previously cleared site was an old pulpyard landing where logs were brought and stacked while awaiting transfer to trucks for shipment. The area was last utilized for this activity approximately nine years ago.

The proposed 0.57 acre off-loading and temporary storage area is the west side of the inner basin near the west boat ramp and parking area (Figure A-2).

5.5 Geology and Soils. Iron County lies within the Superior Upland physiographic province. The Lake Superior basin is characterized by rugged uplands with a rock escarpment bordering parts of the lakeshore. Bedrock exposures are common and are from the Keweenawan Period, Precambrian Era. Unconsolidated sediment at the surface is glacial lake deposit consisting of sand, silt, and clay (6). The shoreline in the Saxon Harbor area is classified generally as Non-erodible High Bluff, 30 feet or higher (7). However, erosion and bluff collapses do occur. A typical soil profile at the proposed disposal site consists of clay and loam 1 to 2 feet thick, a hard pan (a layer of hard soil cemented by almost insoluble materials that restrict the downward movement of water and roots) 4 to 5 inches thick, and then clay (8).

5.6 Vegetation and Wildlife. Iron County is one of the most extensively wooded counties in Wisconsin with greater than 80% of the county forested. The county has both maple-beech-birch and aspen-birch forest types (9). The area surrounding Saxon Harbor is wooded with second growth aspen, paper and yellow birch, and various maples which extend to the edges of the bluffs. Vegetation in the immediate harbor area consists of cut grass and some trees. The proposed disposal site is located within the Iron County Forest. The site was last used as a pulpyard landing nine years ago and is now overgrown with aspen, and some maple, birch, hemlock, pine, and assorted ground cover. The majority of the trees range from 4 to 10 inches in diameter (8). Approximately half of the off-loading site is grass with the other half as part of a parking lot. The shoreline area near the breakwaters consists of grass, sand, stone, and debris. Some shoreline erosion has occurred around the west breakwater. The breakwaters are barren of vegetation.

5.7 Common mammals expected to be in the Saxon Harbor area include white-tailed deer, black bear, coyote, fox, skunk, porcupine, squirrels, raccoons, and mice (10). Other forms of wildlife expected to be found in the area include snakes, turtles, frogs, toads, and salamanders. Many species of waterfowl, shorebirds, songbirds, birds of prey, and upland game birds may reside in the area. The disposal site is part of the Iron County Forest and is actively managed for wildlife. The harbor area is open and affords little cover and food for wildlife, although birds and small animals may occasionally use the site. Birds may occasionally use the breakwaters for resting.

5.8 Water Quality. Lake Superior is classified as oligotrophic (low in nutrients and living material) and has excellent water quality. The nearshore areas in general, like the main lake, are characteristically oligotrophic and have not changed much since the turn of the century (11). Lake Superior water quality near Saxon Harbor is expected to be good due to the lack of major industrial influences in the immediate vicinity of the project site.

5.9 Sediment Quality. Sampling of the sediment to be dredged was conducted on 24 June 1988 (Appendix B). The bottom consists primarily of sand with some silt within the western end of the innerbasin and degraded vegetation between the east and west breakwaters. Chemical analysis of the bottom material showed inconsequential levels of heavy metals. The elevated levels of organic carbon and total volatile solids between the breakwaters were believed to be due to the amount of degraded vegetation present. The sediment has therefore been determined to be suitable for unconfined upland disposal.

5.10 Benthos. Recent data on the types of aquatic bottom organisms (benthos) present in the area to be dredged are not available. Sampling conducted for the COE in 1984 in the harbor area (Figure A-6) revealed mostly aquatic worms and midges (65.8 and 16.4%, respectively, of the individuals found). Other taxa found, in decreasing relative abundance, were clams, snails, caddisflies, sowbugs, flatworms, roundworms, scuds, flies, leeches, beetles, and mayflies (12). Most of the organisms found are considered tolerant of organic pollution.

5.11 Fish. The Wisconsin waters of Lake Superior provide spawning and nursery habitat for a variety of fish including salmon, trout, lake herring, rainbow smelt, and yellow perch. Fish species known to use the nearshore area of Lake Superior near Saxon Harbor for spawning include rainbow smelt and possibly lake trout. Lake herring use the area for both spawning and nursery grounds and much of the Wisconsin fishery for this species is along the Wisconsin-Michigan boundary. Also, pink and coho salmon and rainbow trout use tributaries in the area for spawning runs (13, 14).

5.12 Threatened and Endangered Species. One endangered species (gray wolf) and one threatened species (bald eagle) are listed by the U.S. Fish and Wildlife Service (FWS) as occurring in Iron County. However, no critical habitat has been identified in the project areas (Appendix C). Wisconsin Department of Natural Resources (WDNR) indicated via telephone that no state endangered and/or threatened species were known to use the project area.

5.13 Cultural Resources. An inspection of cumulative listings of the National Register of Historic Places indicated no sites listed or eligible for listing to be within the project area.

The State Historical Society of Wisconsin (WSHPO) has identified no archaeological or cultural sites within the project area (Appendix C).

6.0 ALTERNATIVES AND THE PROPOSED ACTIONS

6.1 Dredging Alternatives. The dredging alternatives considered were: 1) No Action; 2) Alternative A - The Proposed Action; and 3) Alternative B - Other Disposal Options.

6.1.1 No Action. No Federal action would allow continued shoaling of the channel and harbor. Future use of the harbor by recreational and charter fishing vessels may become limited and Saxon Harbor's use as a small craft harbor-of-refuge would be impaired.

6.1.2 Alternative A - The Proposed Action. The proposed action would involve periodic maintenance dredging of the authorized channel at Saxon Harbor with disposal of the material at an upland site. Some supplemental dredging outside of the recognized Federal channel near the proposed off-loading site may be necessary to facilitate barges getting close enough to shore to be off-loaded. The material to be dredged consists primarily of sand with varying proportions of silt, organic matter, clay, and gravel. Quantities to be dredged would vary depending on shoaling rates within the harbor and the frequency of dredging. In 1989, approximately 7,000 cubic yards of material would be removed. Because of the harbor's small size and restricted space for maneuvering and the use of an upland disposal site, dredging would probably be conducted by mechanical means. However, hopper dredging will not be excluded although overflow would not be allowed. In the future, dredging methods would be based on the disposal method.

6.1.3 The proposed off-loading area is the west side of the inner basin near the west boat ramp and parking area (Figure A-2). Off-loading and any temporary storage would take place using precautions so that no re-entry of the dredged material into the water would occur. Transfer of the material would be by mechanical means into dump trucks with capacities ranging from about 5 to 20 cubic yards. Trucks used in hauling of materials would have water-tight compartments and would be loaded in such a manner as to prevent spillage during transport. The material would be hauled via Harbor Road to the disposal site located approximately 0.75 mile southwest of the harbor (Figure A-5).

6.1.4 The disposal site is expected to be prepared by Iron County. Berms would be built around the disposal area by pushing up existing soil at the site. Generally, this type of work would be done by a bulldozer. If necessary, dredged material moved to

the site would be used to supplement berm construction. Some preparation, most likely regrading, of an existing access road into the area may be done.

6.1.5 Alternative B - Other Disposal Options. Other options for the disposal of the dredged material were considered (Figure A-7). These options included: 1 and 2) previous disposal sites; 3) the disposal site for 1965 harbor construction; 4) along the shoreline next to the west breakwater; 5) use as base material for the Section 111 erosion control project along County Road A; 6) beach nourishment; 7) open-water disposal; and 8) disposal in a hay field. These options were rejected for various reasons, including: the presence of wetlands (site 1); development of the areas as a County park (sites 1, 2, and 3); the cost of armor stone to protect the deposited material from erosion (site 4); inappropriate timing (site 5); the amount of organic material present in the dredged material (sites 6 and 7); and site unavailability (site 8).

6.2 Breakwater and Shoreline Revetment Maintenance Alternatives. Alternatives considered for breakwater and shoreline maintenance were: 1) No Action and 2) Repair of the Existing Breakwaters and Shoreline Revetment (Alternative A).

6.2.1 No Action. No Federal action would allow gradual deterioration of the east and west breakwaters. The gradual deterioration of the structures would result in loss of the protection that the breakwaters provide and impaired use of the harbor as a small craft harbor-of-refuge.

6.2.2 Alternative A - Repair of the Existing Breakwaters and Shoreline Revetment - The Proposed Action. The proposed project involves periodic in-kind, in-place maintenance of the breakwaters to a design similar to the original design condition. Stone riprap originally protected the landward base of the west breakwater (Figure A-4), however, the shoreline around the west breakwater has been scoured and erosion has occurred. The proposed shoreline maintenance does not include reclaiming the area lost to erosion but consists of placing riprap along the existing shoreline near the breakwater to replace shoreline revetments originally installed to protect the landward base of the breakwater. The placed riprap would prevent further scouring and erosion of the shoreline at the base of the breakwater. Slight modification of the original design, such as a decrease in slope, may be made to better protect the breakwaters and shoreline. Repair work would consist primarily of reworking existing stone and replacing lost stone. The majority of the new stone would be placed upon existing stone scattered on the bottom. Some additional bottom area may be lost due to slope expansion. However, the area should be minimal in size. Repair of the concrete cell caps entails patching or replacing the concrete.

6.2.3 The work would be performed from a floating plant and/or land equipment. Equipment to be utilized may include cranebarges and/or derrickboats, scows, and associated vessels. Although water transport of construction material to the breakwater repair site is likely, fill material could also be transported overland by trucks prior to placement on a barge. The overland transport phase of the project would mainly require travel over U.S., state, and county highways. Dust and noise would be kept to a minimum. The Contractor and transport truck operators would be required to comply with all federal, state, and local road restrictions and acquire any necessary hauling permits. If waterborne transport is used, Lake Superior would be utilized and the Contractor and vessel operators would be required to comply with applicable Coast Guard regulations.

6.2.4 Fill material for the proposed work would be clean and free from hazardous/toxic substances. Stone is expected to be obtained from active or existing upland quarries or stockpiles. If the borrow source would be newly developed for the proposed work, or if the material proposed would be obtained from a site not previously used for borrow purposes, environmental review of the site would be required to assess the impacts of such an action. If any fill material is discolored or contains any indications that contaminants may be present, appropriate tests and/or evaluation procedures would be applied in determining potential environmental effects of transport and placement. Some existing stone may be salvaged and reused as revetment stone.

6.3 Miscellaneous Project Details. The proposed actions may also require the construction of one or more temporary structures at COE-approved locations. The temporary placement of clean construction material on upland or aquatic areas, outside of wetlands, may also be necessary. Any temporary fill placed on the lake bottom would cover an area not to exceed 0.5 acres. The type and location of such structures and/or fill and the kind and amount of material cannot be determined at this time, since they would be incidental to the work being performed. Examples are mooring facilities, dolphins, turnarounds, staging areas, and access roads. These structures and/or fill placements would be temporary and would include appropriate precautionary measures to prevent erosion, sedimentation, or other undesirable environmental impacts. These measures would be specifically identified in the Environmental Protection Plan required to be submitted by the Contractor prior to start of work. These construction aids would be within the project boundaries or rights-of-way. They would be removed when no longer needed and the site(s) restored to its original condition. Some variation from the project as described may also occur with respect to sequence of construction, method of construction, or design details because of unanticipated design improvements, site conditions, or cost-saving measures. They would not result in

significant changes in either the overall project design, or in its environmental impact. Changes in sequence of the operation which may interfere with spawning/nesting and migrating seasons would be fully coordinated with the Wisconsin Department of Natural Resources (WDNR) and the U.S. Fish and Wildlife Service (FWS).

6.4 Work Schedules. The proposed dredging project is anticipated to require approximately 45 days for completion. Dredging is expected to commence in the summer of 1989. Planned maintenance of the west breakwater and shoreline revetment was originally planned for the summer of 1989 but has been suspended pending funding. Periodic maintenance of the east and west breakwaters and shoreline revetment at the west breakwater would be performed during the summer as the work is needed and funding becomes available.

7.0 ENVIRONMENTAL CONSEQUENCES - DREDGING

7.1 This section attempts to identify and analyze the magnitude of anticipated environmental impacts associated with the proposed dredging project. Dredging of Saxon Harbor would have the beneficial effect of allowing continued safe use of the harbor as a harbor-of-refuge.

7.2 Dredging equipment is classified as either hydraulic or mechanical. Hydraulic dredges (hopper, pipeline-cutterhead, etc.) excavate shoal material from the channel by either hydraulically or mechanically disturbing the sediments. The sediments are transported in a moving stream of water that is discharged directly into the hopper dredge bins or conveyed through a floating pipeline from the pipeline-cutterhead dredge to a disposal site. Mechanical dredges (bucket, dipper, dragline, etc.) excavate bottom sediments by an arrangement of machinery located on the stern of a vessel that digs, pushes, or pulls material into a container, and removes it from the water to where it is placed or dumped into a separate vessel. The vessel (scow, tug, etc.) then transports the material to the selected transfer or disposal site.

7.3 The disadvantages of the hopper (hydraulic) dredge include limited maneuvering ability in narrow sections of channels and the need for about 15 feet of water depth. However, a great advantage of the hopper dredge is that it is self-propelled, needs no auxiliary tugs or vessels, and has minimal set-up time. Some types of hydraulic dredges can employ a technique wherein the slurry in the hopper bin is allowed to overflow after bin capacity is reached. This technique, known as overflow dredging, is used to maximize the amount of sediment material retained in the hopper bins after capacity is reached. Overflow dredging would not be allowed at Saxon Harbor. Also disposal of the great

amounts of water collected in the hopper bins would present a problem. Therefore, hydraulic dredging is not considered feasible for the Saxon Harbor project in conjunction with the proposed disposal site.

7.4 The disadvantages of mechanical dredges are that they are usually mounted on floating barges, and the rate of sediment removal is slow. For disposal, the sediments are placed on a vessel apart from the dredge, usually a scow alongside. Once the scow has been filled with an economical load, it is transported to the selected site for transfer or disposal. Increased barge traffic may interfere with navigation. The advantages of mechanical dredges are that they are good for small jobs in confined areas, can work close to navigational structures, and are best suited for the removal of compacted sediments. Mechanical dredging of Saxon Harbor appears more feasible and likely for these reasons.

7.5 Dredging activities would involve the use of heavy construction equipment and vehicles. Equipment/vehicle operation would produce noise, vibrations, and air emissions. The presence and operation of such equipment would also interfere with the aesthetic setting of the area. Operation of construction equipment would temporarily increase the noise level in the immediate project area. Noise output for the equipment anticipated to be used is in the range of 72-95 decibels (dB(A)) at 50 feet. Typical construction equipment noise ranges at 50 feet are: front loaders (72-85 dB(A)), backhoes (72-92), trucks (82-95), and derrick cranes (85-88). In contrast, average noise values for equipment encountered daily at 50 feet are: passenger car (76 dB(A)), school bus (85), light truck (85), snowmobile (86), sports car (87), outboard motor (90), and inboard motor (105) (15). Annoyance resulting from noise involves the subjective responses of individuals. There are no hospitals, schools, or other sensitive receptors in the immediate shoreline area.

7.6 The use of motorized equipment may affect air quality in the immediate project area due to machinery exhaust. However, equipment used would meet Federal and state air pollution guidelines and air quality impacts would be temporary and minimal. The aesthetic elements of the area would be affected by the presence and operation of the dredging equipment. The proposed work would create some temporary interference to navigational craft using the area. These impacts are expected to be minimal.

7.7 The west side of the inner basin near the west boat ramp and parking area is designated to be used for off-loading of the material into dump trucks, or, for temporary storage followed by loading into trucks. This transferring operation would temporarily conflict with recreational use of the launch area due

to loss of a portion of the parking facility. The impact would be dependent upon the timetable for the dredging operation and the amount it overlaps with the recreational boating season. The use of the boat ramp is not expected to be directly impacted by this operation except briefly during mobilization and demobilization of equipment by the dredging contractor.

7.8 Material transport impacts would occur during the immediate and any subsequent dredging but would be expected to be temporary and minor. Using Harbor Road, the distance from the off-loading site to the disposal area is approximately 0.75 mile. The hauling might cause road damage and temporal degradation of air quality in the vicinity due to exhaust emissions and would increase noise levels temporarily along the haul route. The Contractor would be responsible for keeping the roads clean if dust became a problem. The trucking also would temporarily increase traffic loads along the route. The slow truck speed caused by the inclining road might impact local vehicle traffic along Harbor Road. This problem may be exacerbated by recreational boaters driving to and from the boat launch. However, Harbor Road is not the main thoroughfare to and from Saxon Harbor. State Route 122 and County Road A is the primary route to the harbor and should not be adversely impacted. The Contractor would be required to acquire permits from local authorities governing trucking activities and comply with their criteria regarding transport routes. Major impacts or interference with sensitive area/items such as school zones, school buses, hospital zones, emergency vehicles, and police or fire vehicles, would not be expected or would be of a minor and/or temporary nature.

7.9 Dredging activities could result in temporary water quality degradation in the vicinity of the project site. The operation of dredging equipment may introduce petrochemical products into the water in localized areas. COE contractors would be required to exercise caution to prevent accidental spillage or indiscriminate discharge of such substances during project activities. Effluents expected from equipment or vessels during routine operations would be minimal, and the effect on water quality and associated aquatic life insignificant.

7.10 Dredging impacts to the water column, caused by temporary resuspension of sediments, at the dredging site include: increased turbidity, increased oxygen demand, and releases of contaminants and nutrients. These impacts vary widely with different types of dredging equipment and with the chemical nature of the sediments. Inasmuch as the material in Saxon Harbor is considered suitable for unrestricted disposal, the release of contaminants and nutrients is considered minimal. Turbidity would be short term, and would cease shortly after the dredging operation. Although a temporary increase in turbidity

would be expected, long-term turbidity may decrease by deepening the channel and thus decreasing the resuspension of sediments by boat traffic.

7.11 The impacts to the harbor bottom caused by dredging include the removal of benthic organisms within the harbor. Organisms living within the harbor are probably already impacted by the heavy shoaling in this channel which results in suspension of sediment during boat passage. After dredging, recolonization of disturbed areas is often rapid and original biomass is sometimes reached in 2 weeks to 4 months. However, recolonization may be by different species and in different densities. At present the benthic community in the project area is very diverse, however, the species seen are those typical of disturbed environments. Considering the small size of the area to be dredged and the comparable habitat in the vicinity of the harbor, disturbance of this community would not cause a significant adverse impact.

7.12 In general, dredging-induced sediment suspension, general mechanical disturbance, and noise and vibrations would result in temporary, adverse impacts on the local fishery. Free-swimming organisms would tend to leave the area during dredging activities and significant mortalities would not be expected to occur. Turbidity interferes with the growth of phytoplankton by decreasing the amount of sunlight filtering through the water. This loss would be expected to be insignificant due to the small area of the project in relation to the total lake ecosystem in the Saxon Harbor area. High levels of suspended solids may interfere with the respiration of fish by clogging their gills, and in conjunction with mechanical disturbance, temporarily displace the local fish populations. Construction-induced suspended solid levels would be similar to those occurring in the area during storm events and boat traffic. Adult fish would avoid the work area until such effects are eliminated or suspended solid conditions return to pre-project levels. Dredging operations would be coordinated with the Wisconsin Department of Natural Resources and the U.S. Fish and Wildlife Service to prevent interference with fish spawning. Therefore, resultant project aquatic effects would be small and not considered significant.

7.13 Berms would be built around the disposal area from on-site material and/or sandy sediment material from the dredging operation. The placement of berms around the disposal site should prevent any adverse impacts to lowland areas by containing the dredged material. Water contained within the dredged material would be allowed to evaporate or percolate into the soil and berm wall. No active removal of standing water is expected to be necessary. The water content of the sediment is not expected to be high, because the sediments would be mechanically off-loaded, which will leave the sediment in a somewhat consolidated state. Percolating water is not expected to be in

high volume or to contain significant amounts of contaminants. The percolation of water from the site is not expected to impact the groundwater regime because of the hard pan layer approximately two feet below the surface. The interaction of the percolating water with the sandy loam material and clay beneath the disposal area would also assist in removing any remaining particulate or dissolved substances.

7.14 Small mammals and birds which use the disposal site would be displaced by the construction. Iron County Forest is approximately 170,000 acres and other suitable wildlife habitat exists nearby. The forest is actively managed for wildlife and clearing of the site fits into the County's 10-year management plan of having 1% of the forest in small, open areas of 2-3 acres for wildlife (8). The County plans to use the dredged material as a top dressing for other wildlife clearings and for highway construction sites. In addition, the dredged material would be made available to residents for use as fill. The dredged material at the disposal site would be planted by the County with oats and then with clover and grasses within the first year if the County cannot utilize all of the material. Impacts to wildlife are considered minimal and beneficial.

7.15 The proposed project is not expected to interfere with either commercial or recreational navigation on the Great Lakes. Locally, project equipment/plant, while working at the actual dredging site may contribute to harbor congestion. However, as the dredging and attendant rigs move to and from mooring, dredging, or transfer sites, they may occasionally cause a minimal amount of channel blockage. This traffic could result in disruptions and inconveniences to recreational and charter craft. These impacts are unavoidable due to the nature of the work to be performed. The Contractor would be required to comply with U.S. Coast Guard regulations applicable to marine work. Recreational and charter vessel operators would be expected to practice routine navigational procedures which comply with U.S. Coast Guard regulations. Therefore, navigational impacts would be minor. Dredging of the harbor would ensure continuance of the harbor's navigational value to both recreational and commercial interests. This impact would be beneficial to recreational boaters, and charter and other local businesses which are dependent on continued harbor operations.

7.16 The Historic Preservation Division of the State Historical Society of Wisconsin (WSHPO) has determined that no sites listed on the National Register of Historic Places or other cultural resources would be affected by the proposed dredging project.

7.17 The Wisconsin Department of Natural Resources (WDNR) and U.S. Fish and Wildlife Service (FWS) have been consulted on endangered and threatened species in the area. There are no endangered or threatened species of plants or animals known to exist at the project site.

7.18 The COE has determined the dredging activity, as proposed, is consistent to the maximum extent practicable with the State of Wisconsin's Coastal Zone Management Program.

7.19 No long-term adverse impacts are anticipated to occur regarding the following: air quality, community cohesion, community growth, tax revenues, property values, public services or facilities, regional growth, displacement of farms, employment/labor force, business and industrial activity, man-made resources, wetland, municipal water supplies, commercial shellfish beds, or commercial fishing interests.

8.0 ENVIRONMENTAL CONSEQUENCES - BREAKWATER AND SHORELINE REVETMENT MAINTENANCE

8.1 This section attempts to identify and analyze the magnitude of anticipated environmental impacts associated with the proposed breakwater and shoreline revetment maintenance projects. An evaluation of the effects of the discharge of the repair material (stone) into waters of Lake Superior, as required by Section 404(b)(1) of the Clean Water Act, has been prepared and is presented in Appendix D. Maintenance of the breakwaters and shoreline revetments would have the long-term beneficial effect of maintaining the structural integrity of the breakwaters and ensuring continued protection of the harbor area.

8.2 Breakwater and shoreline revetment maintenance activities would involve the use of heavy construction equipment and vehicles with resultant impacts similar to those addressed in paragraph 7.5.

8.3 The use of motorized equipment may affect air quality in the immediate project area due to machinery exhaust. However, equipment used would meet Federal and state air pollution guidelines and air quality impacts would be temporary and minimal. The aesthetic elements of the area would be affected by the presence and operation of the construction equipment. Due to the temporary and localized nature of the construction activities, the aesthetic elements of the area would not be significantly impacted. The maintained structures would be more visually appealing than deteriorated structures. The proposed work would create some temporary interference to craft using the area. These impacts are expected to be minimal.

8.4 Material transport impacts would occur during repairs but would be expected to be temporary and minor. Material transport could occur via water or land, or a combination of both methods. Transport by water would largely involve navigational and water quality impacts as discussed in the following paragraphs. If trucking is used, the Contractor would be required to acquire permits from local authorities governing such activities and comply with their criteria regarding transport routes. Since the stone source has not been selected at this time, a specific transport route cannot be identified. However, transport of the material to the project site would be through a primarily rural setting over major and minor roads. Roads to and from commercial borrow sites, as well as interstate highways such as U.S. 2, would typically be traveled by transport trucks. Thus, the increase in the frequency of truck traffic over the routinely used routes and the resultant increase in noise level would not be significant for the duration of the hauling period and would constitute no more than a minor nuisance.

8.5 Some travel to the project site would be over roads not typically traveled by such construction vehicles. However, the noise would be intermittent and a single location would not experience a continual noise exposure. In addition, the Contractor would be responsible for compliance with material transport-related city, county, state, and Federal ordinance/laws, and acquisition of all required permits. Major impacts or interference with sensitive area/items such as school zones, school buses, hospital zones, emergency vehicles, and police or fire vehicles, would not be expected or would be of a minor and/or temporary nature.

8.6 The required stone fill for the project is expected to be obtained from an existing commercially active quarry or stockpile. If the Contractor utilizes a commercially active source, excavation for procurement of material would involve an extension of present land-uses, and little impact would be expected. If a new source is proposed for development, the significance of the action would depend on the environmental features at the site, and could vary from minor to major. An environmental review of the proposed source would be required to assess the type and magnitude of potential impacts. Thus, in most cases, further NEPA documentation would be required prior to usage of a previously undeveloped borrow source.

8.7 Fill material is most likely to be free from chemical, biological, or other pollutants where it is composed primarily of sand, gravel, or other naturally occurring inert material. The stone required for the maintenance project can be defined as a naturally occurring inert material. COE contract specifications also require the construction material to be uncontaminated. Therefore, purchased stone would not be expected to cause any contamination problems.

8.8 Maintenance activities could result in temporary water quality degradation in the vicinity of the breakwaters. Floating plant and the operation of rock-handling and in-water equipment may introduce petrochemical products into the water in localized areas. COE contractors would be required to exercise caution to prevent accidental spillage or indiscriminate discharge of such substances during project activities. Effluents expected from equipment or vessels during routine operations would be minimal, and the effect on water quality and associated aquatic life insignificant.

8.9 Maintenance activities, including stone placement, temporary in-water stockpiling, and vessel operation/mooring, would cause temporary elevation of the suspended solid level at the site due to disturbance of submerged sediments. Such disturbances could cause increased turbidity in localized areas for a short time. This construction-induced increase in suspended materials would be very similar to that caused naturally by the action of wind and waves, particularly during storm events, and turbidity caused by vessel traffic. Since the sediments in the area are primarily sand with some silt, and have a rapid resettlement rate after suspension in water, construction-induced increases in suspended solids and turbidity would be short-term. Construction activities would not be expected to lead to suspended solid levels which are excessive or above those required for the protection of aquatic life. Adverse water quality impacts would be insignificant.

8.10 In general, construction-induced sediment suspension, general mechanical disturbance, and noise and vibrations would result in temporary, low-level, adverse impacts on the local fishery. Free-swimming organisms would tend to leave the area during construction activities and significant mortalities would not be expected to occur. Turbidity interferes with the growth of phytoplankton by decreasing the amount of sunlight filtering through the water. This loss would be expected to be insignificant due to the small area of the project in relation to the Saxon Harbor ecosystem. Elevated suspended solids, in conjunction with mechanical disturbance, may temporarily displace the local fish populations. Construction-induced suspended solid levels would be similar to those occurring in the area during storm events and boat traffic. Adult fish would avoid the work area until such effects are eliminated or suspended solid conditions return to pre-project levels. Therefore, resultant project aquatic effects would be small and not considered significant.

8.11 Various fish species utilize the Saxon Harbor area of Lake Superior. The loss of habitat during construction due to maintenance activities and temporary in-water stockpiling, would not be expected to be serious as Lake Superior provides habitat

of comparable quality in the area. Spawning habitat for those fish requiring a rocky surface would be restored and enhanced due to breakwater repairs. Breakwater and shoreline revetment maintenance activities would be coordinated with WDNR and FWS to minimize adverse impacts to fish spawning in the harbor area.

8.12 The proposed breakwater and shoreline revetment maintenance projects would permanently alter the bottom from sand and stone to stone depending on the amount of bottom exposed due to stone being lost from the breakwaters and shoreline area. The majority of the work would probably consist of reworking existing stone habitat and covering it with new stone. Modification of the slope design may entail some additional loss of bottom area. However, the amount lost cannot be determined at this time, but should be minimal in size. Existing benthic organisms would be smothered by the stone fill or sediment deposits from construction-induced suspended solids. It is not expected that construction effects would significantly damage the benthic resources within the project area since the project area to be disturbed is minimal in size and the repaired breakwater structures would be conducive to benthic colonization. Recolonization of any temporary in-water storage site, disturbed substrate, and replaced rubble should proceed rapidly following project completion through the reproduction of remaining organisms and recruitment from unaffected bottom areas. Since the majority of the repair of the structure is replacing and realigning dislodged stone, a minimal change in species composition and diversity is expected.

8.13 Short-term construction impacts on wildlife would be minimal due to the lack of available habitat. Adverse impacts which may occur would include temporary disruption of small mammals, reptiles, amphibians, and waterfowl, songbirds, and shorebirds which may use the shoreline or an upland storage area for resting, feeding, or nesting, and disruption of birds which may use the breakwaters for resting. These species would avoid the area during repair activities.

8.14 No vegetation would be lost at the breakwaters. Some vegetation may be destroyed along the shoreline and/or at an upland storage site. The Contractor would be responsible to minimize these losses and to assure compliance with all applicable environmental laws and regulations. These impacts would be expected to be minor and the vegetation would be expected to reappear following cessation of storage.

8.15 The proposed breakwater and shoreline revetment maintenance is not expected to interfere with either commercial or recreational navigation on the Great Lakes. Locally, project equipment/plant, while working at the actual repair site should not contribute to harbor congestion. However, as the construction rigs move to and from repair, mooring, or

loading/stockpile sites, they may occasionally cause a minimal amount of channel blockage. This traffic could result in disruptions and inconveniences to recreational and charter craft. These impacts are unavoidable due to the nature of the work to be performed. The Contractor would be required to comply with U.S. Coast Guard regulations applicable to marine work. Recreational and charter vessel operators would be expected to practice routine navigational procedures which comply with U.S. Coast Guard regulations. Therefore, navigational impacts would be minor. Maintenance of the breakwater would ensure continuance of the harbor's navigational value to both recreational and commercial interests. This impact would be beneficial to recreational boaters, and charter and other local businesses which are dependent on continued harbor operations.

8.16 In-kind, in-place maintenance activities would occur periodically with short-term adverse effects on the environment each time. However, significant cumulative impacts would not be expected.

8.17 The Historic Preservation Division of the State Historical Society of Wisconsin (WSHPO) has determined that no sites listed on the National Register of Historic Places or other cultural resources would be affected by the proposed project.

8.18 The Wisconsin Department of Natural Resources (WDNR) and U.S. Fish and Wildlife Service (FWS) have been consulted on endangered and threatened species in the area. There are no endangered or threatened species of plants or animals known to exist at the project site.

8.19 The COE has determined the breakwater maintenance activity, as proposed, is consistent to the maximum extent practicable with the State of Wisconsin's Coastal Zone Management Program.

8.20 No long-term adverse impacts are anticipated to occur on the following: air quality, community cohesion, community growth, tax revenues, property values, public services or facilities, regional growth, displacement of farms, employment/labor force, business and industrial activity, man-made resources, wetland, municipal water supplies, commercial shellfish beds, or commercial fishing interests.

9.0 PUBLIC INVOLVEMENT

9.1 Under the National Environmental Policy Act of 1969 (NEPA) most proposed Federal activities require the preparation of an environmental document to evaluate the type and significance of potential project impacts, and circulation of the document to the public and certain Federal and State agencies for review and comments. Following the preparation and review requirements for

an EA, a Finding of No Significant Impact (FONSI) or Notice of Intent would usually be prepared and signed by the District Engineer. A FONSI is a legal document which presents the reasons why the proposed action would not have a significant impact on the quality of the human environment and indicates that an Environmental Impact Statement (EIS) would therefore not be prepared. In cases where potential significant impacts have been identified, a Notice of Intent would be published stating an EIS would be prepared.

9.2 The EPA, FWS, WDNR, and the WSHPO, were notified by letter regarding the proposed dredging of Saxon Harbor and repair of the west breakwater. Repair of the east breakwater was not immediately planned but was included for future maintenance. Repair of the shoreline revetment around the west breakwater, which was not part of the original coordination letter, was added later to the breakwater plans to prevent further scouring and erosion of the landward end of the west breakwater. The Bad River Band of Lake Superior Chippewa Indians were notified by letter about the proposed dredging and periodic maintenance projects and future issuance of an Environmental Assessment. FWS and WSHPO provided letters indicating they had no objections to the projects as originally being considered (Appendix C). No objections were expressed via telephone by WDNR and EPA to the proposed project. During the course of writing this Environmental Assessment, funding for the breakwater and shoreline revetment maintenance has been suspended.

9.3 This EA will be made available for a 30 day public review period. Following this period and a review of comments received, a decision will be made by the District Engineer regarding the necessity of preparing an EIS for the proposed shoreline protection project. At the present time, it appears that an EIS is not required.

10.0 FINDINGS AND DETERMINATION

10.1 The proposed project has been reviewed and evaluated under the following Acts, as amended: Fish and Wildlife Act of 1956; Fish and Wildlife Coordination Act of 1958; National Historic Preservation Act of 1966; National Environmental Policy Act of 1969; Coastal Zone Management Act of 1972; Endangered Species Act of 1973; Water Resources Development Act of 1975; Clean Water Act of 1977; Clean Air Act; and Executive Orders 11988 and 11990.

10.2 The conclusions of this EA are:

A. Dredging and breakwater and shoreline revetment maintenance activities associated with the proposed Saxon Harbor projects would generate short-term and minor adverse impacts.

B. Long-term impacts of the projects would be minor in nature and have beneficial implications.

C. The proposed projects would not result in significant adverse effects on the resources of Lake Superior or the quality of the human environment in general.

D. The benefits of the dredging and maintenance projects outweigh the short-term and minor adverse environmental effects of the proposed projects expected to occur during the dredging and/or construction phases.

11.0 LIST OF PREPARERS

Name	Role	Expertise
William T. Kendall	Environmental Assessment Manager	Fisheries
Jim Galloway	Technical Assistance and Supervisory Review	Limnology

12.0 REFERENCES

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APPENDIX A

Figures

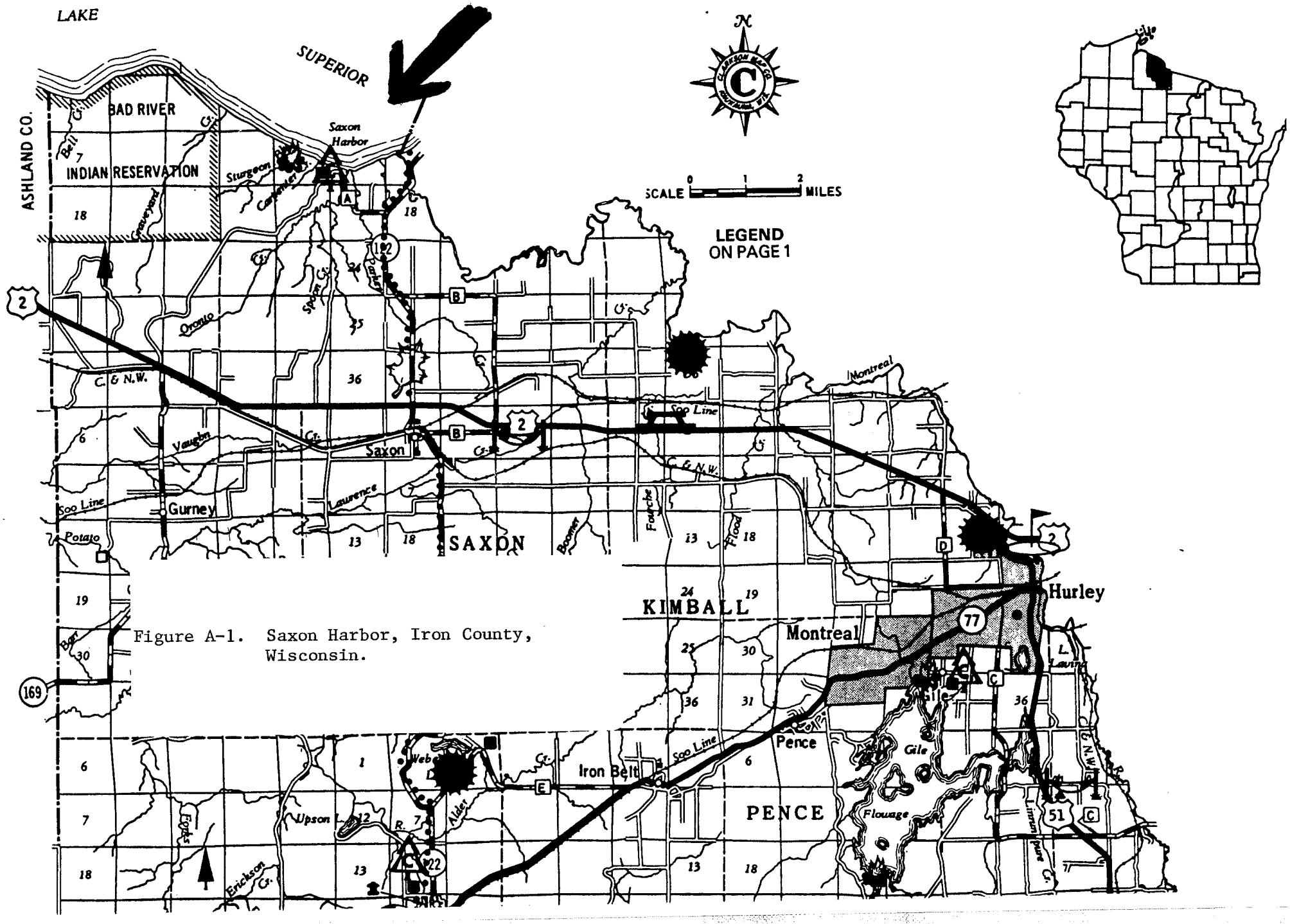


Figure A-1. Saxon Harbor, Iron County, Wisconsin.

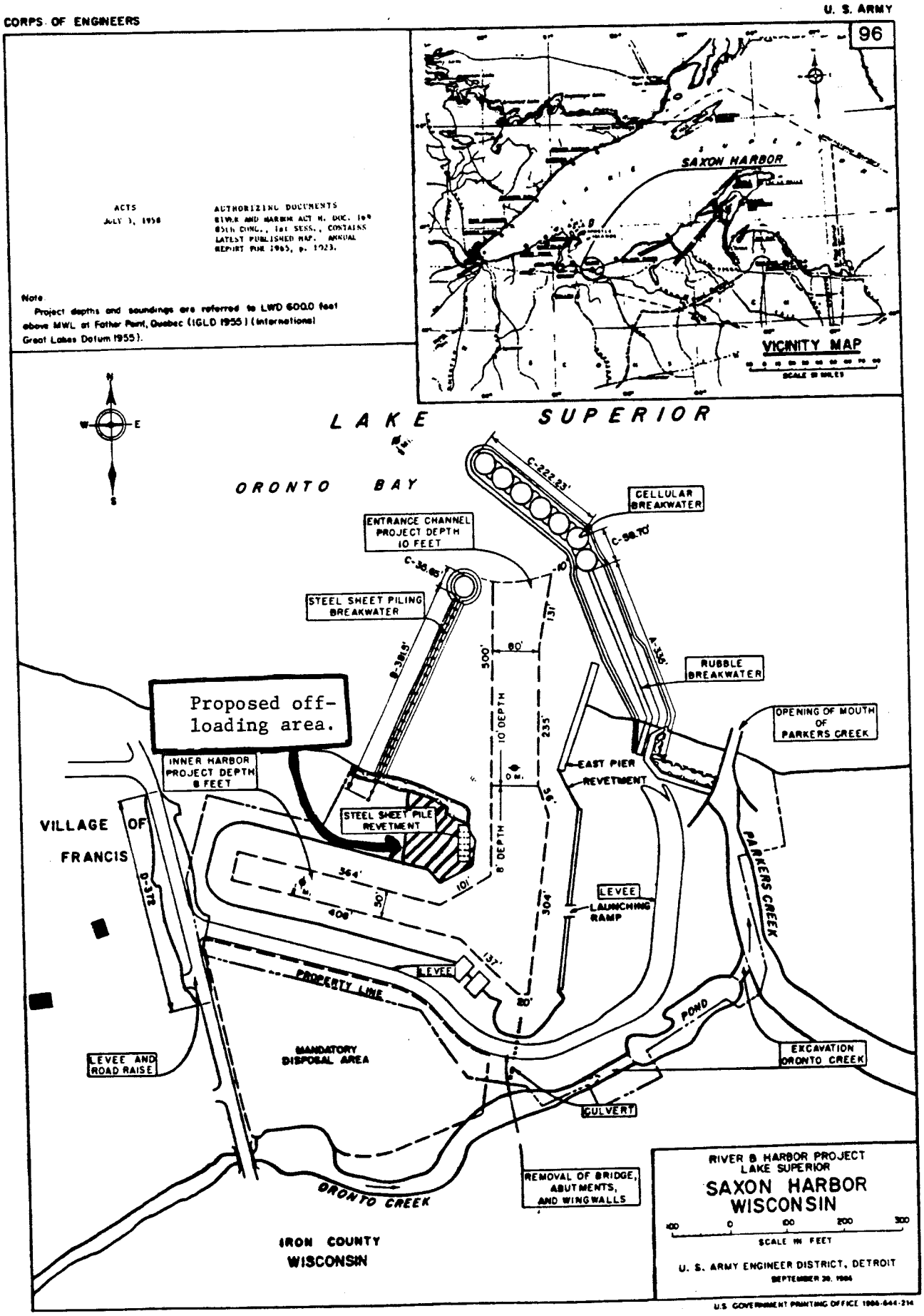


Figure A-2. Saxon Harbor, Iron County, Wisconsin

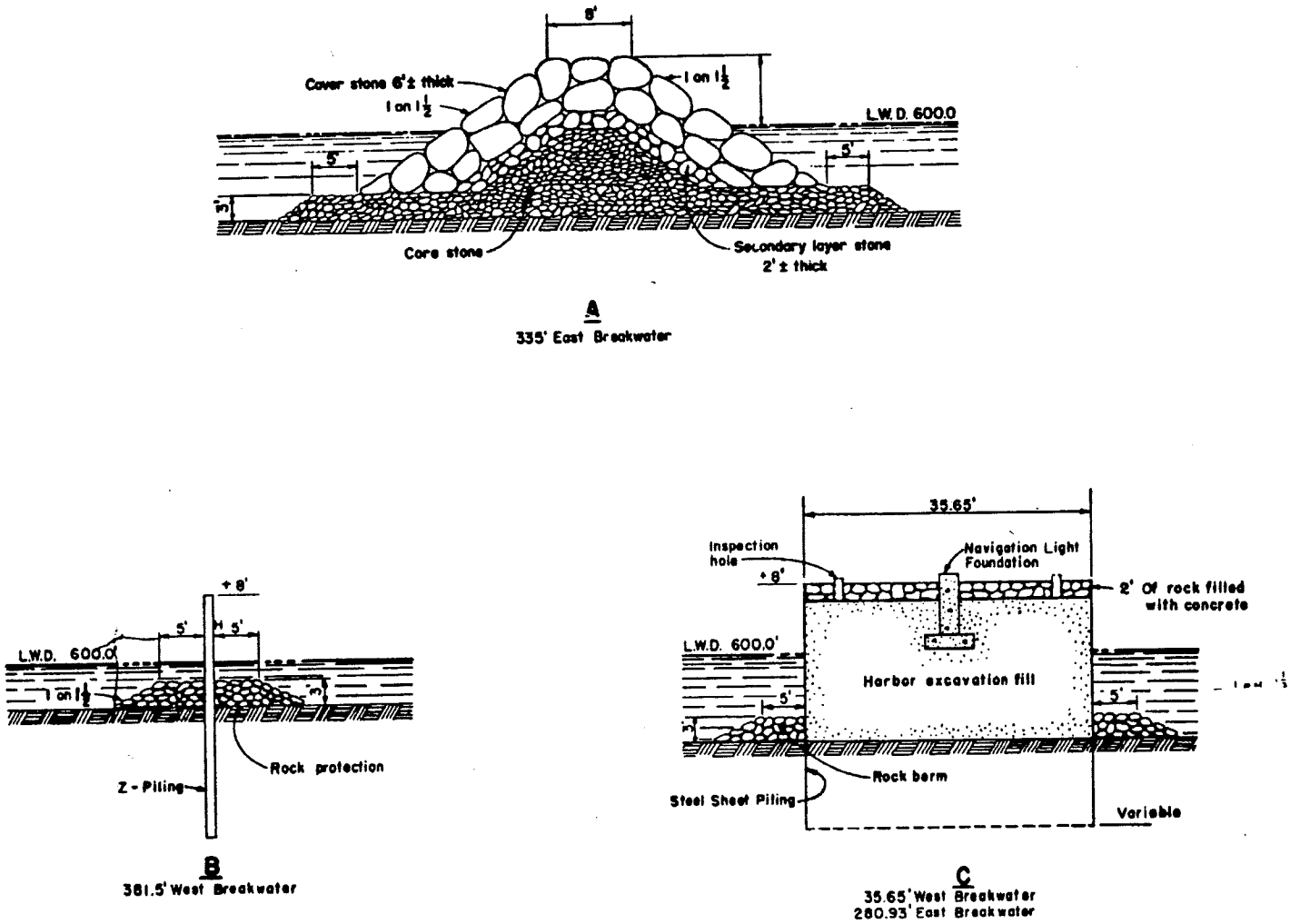


Figure A-3. Original Construction of the East and West Breakwaters and Cells, Saxon Harbor, Iron County, Wisconsin.

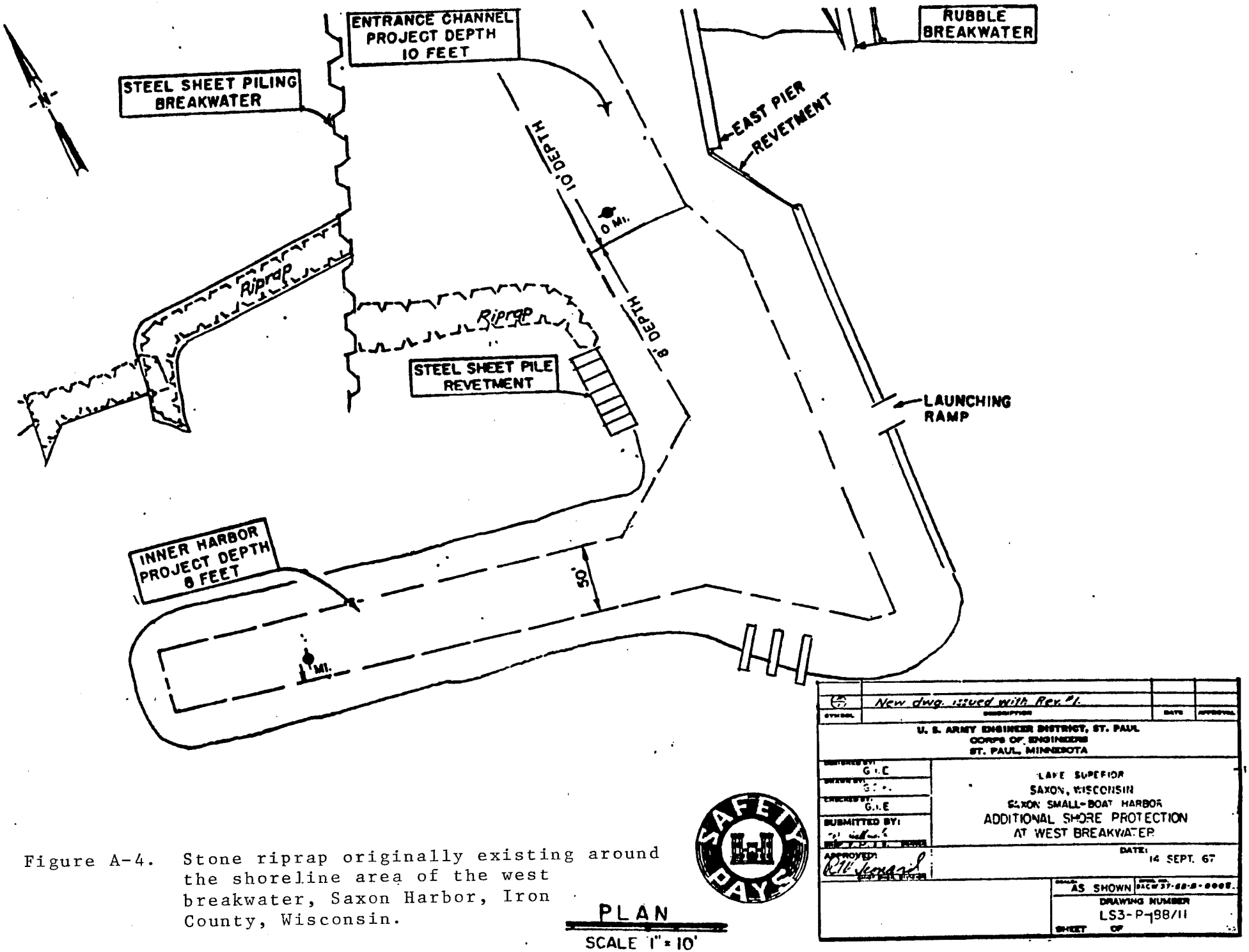


Figure A-4. Stone riprap originally existing around the shoreline area of the west breakwater, Saxon Harbor, Iron County, Wisconsin.

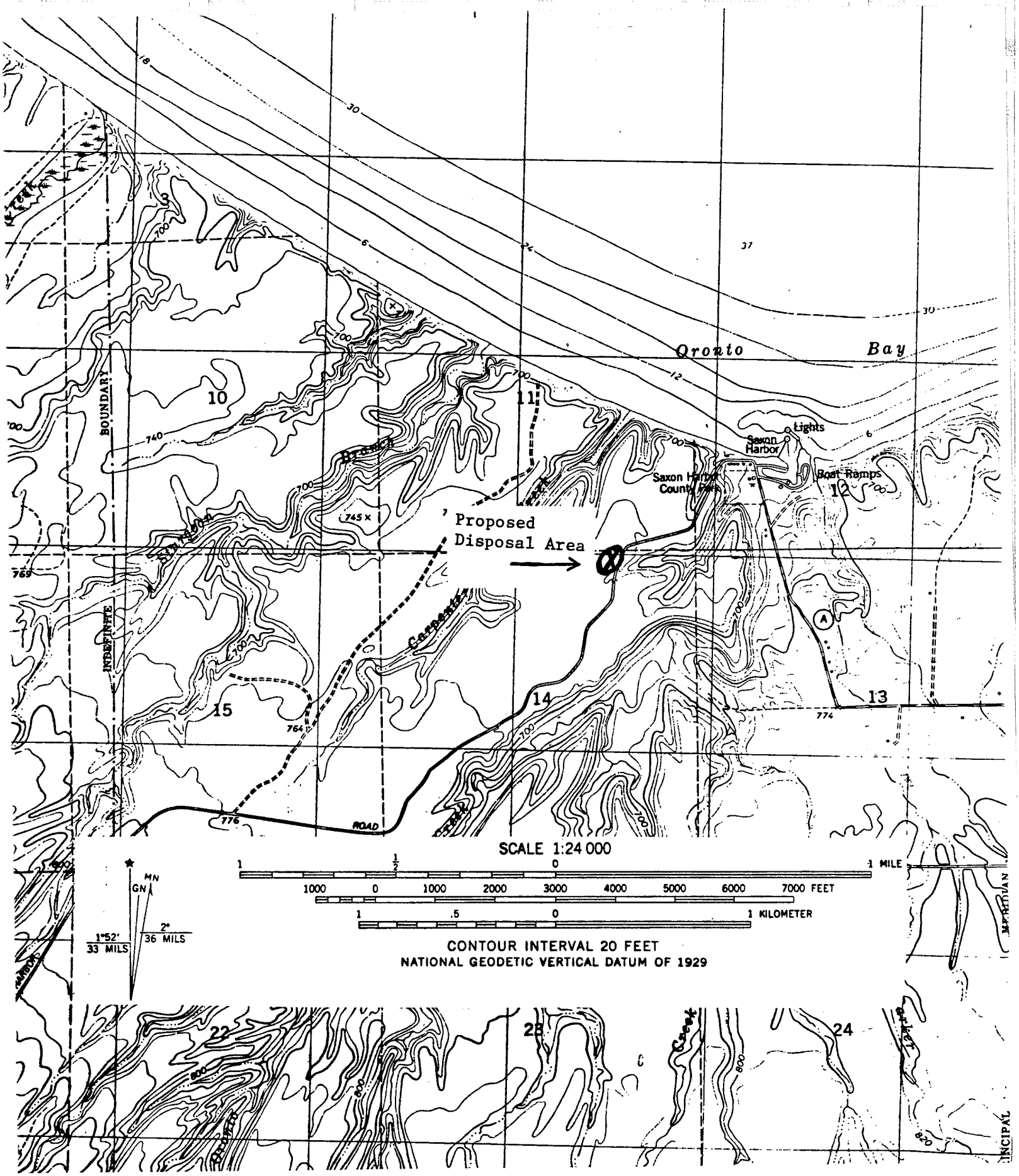


Figure A-5. Proposed Disposal Area, Saxon Harbor, Iron County, Wisconsin. (USGS 7.5 minute Oronto Bay, Wis.-Mich. topographic map)

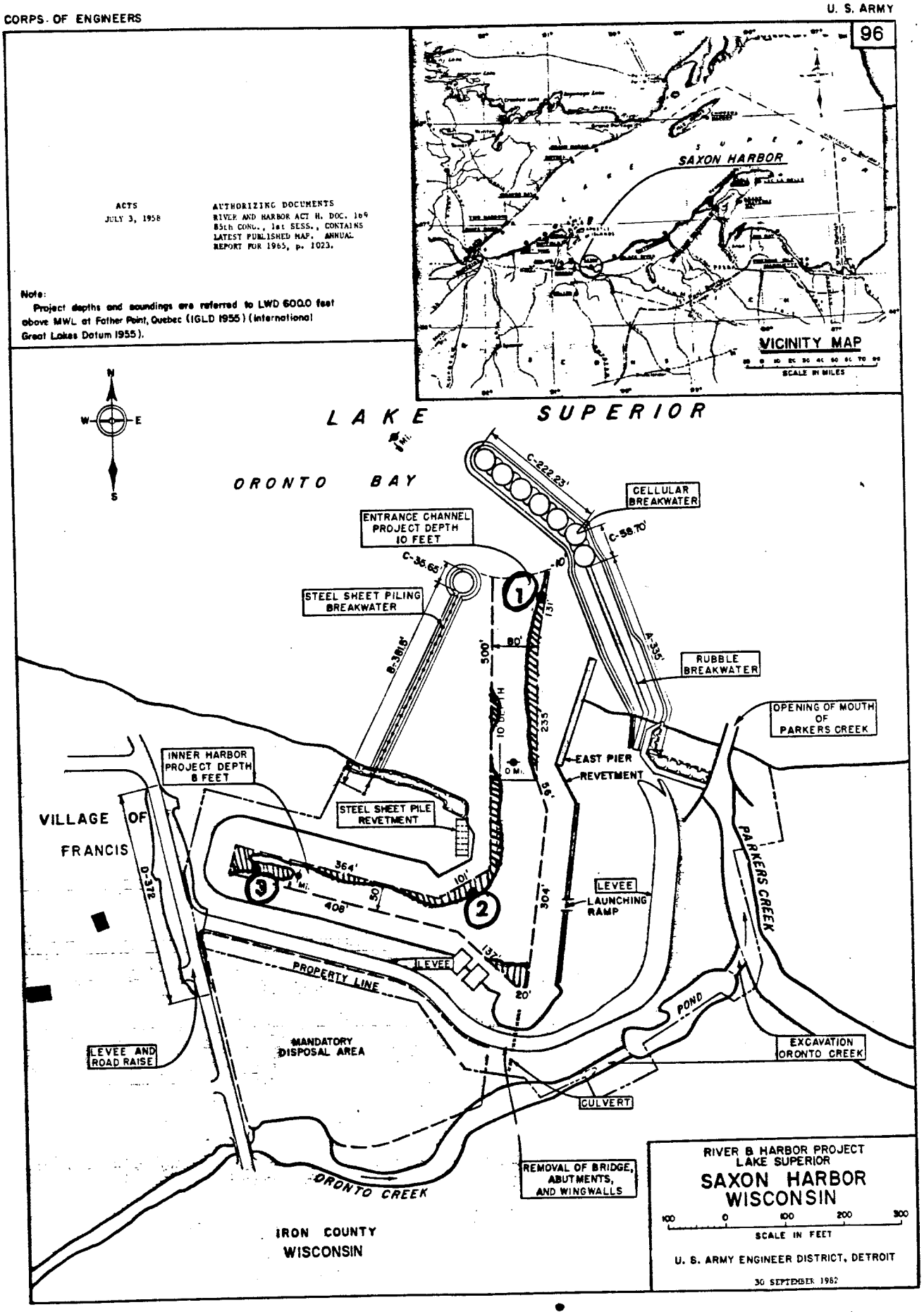


Figure A-6. 1984 Benthic Sampling Locations (1-3), Saxon Harbor, Wisconsin.

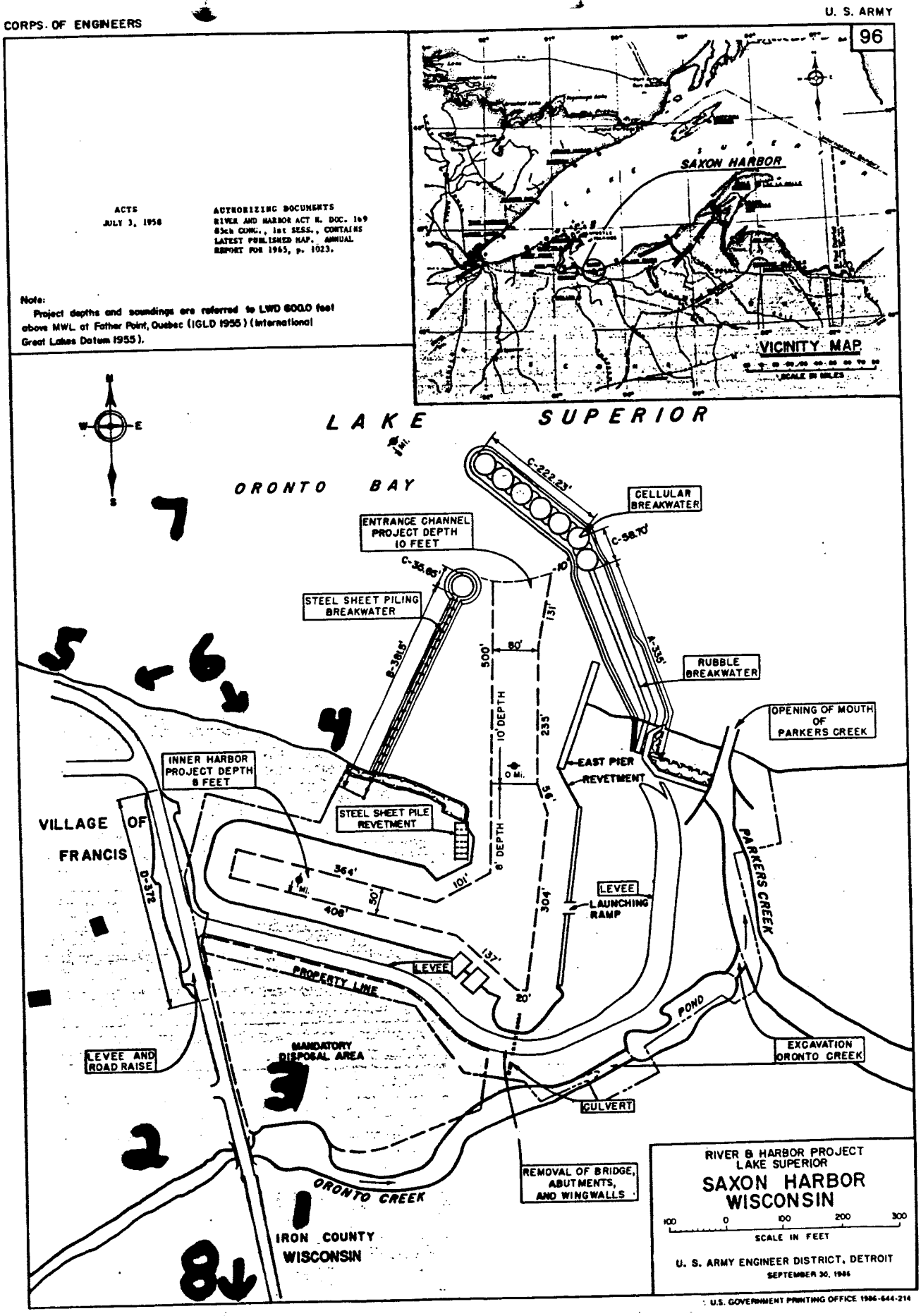


Figure A-7. Alternative Dredge Disposal Sites Considered, Saxon Harbor, Iron County, Wisconsin.

APPENDIX B

Sediment Data

OCT 27 1988

Saxon Harbor Dredged Material
Environmental Evaluation

Saxon Harbor, Wisconsin sediment samples were collected by a COE diving crew on 24 June 1988. The divers collected samples from 7 stations within the harbor via trowel and bucket.

The dive survey report describes the physical character of the material. Hard packed sand was observed in the vicinity of the breakwater entrance. The character of material in the vicinity of the East Pier is fine sand and abundant amounts of decomposed wood chips and detritus.

The majority of the balance of shoal material along the innermost east-west leg of the harbor can be described as silty sand.

The bulk chemistry data shows inconsequential levels of heavy metals. The general organic parameters, organic carbon, total volatile solids (TVS) are above normal levels at stations 3 and 4 reflecting the detrital material present. The O & G levels are a very low fraction of the organic carbon, a characteristic of degraded vegetation.

Chlorinated organics, PCB's and pesticides were not analyzed since there is no reason to believe these products were manufactured or applied in this north Wisconsin harbor which is in an isolated area along the coast of Lake Superior.

This material is suitably placed in an unconfined upland setting given its silty degraded vegetation character along with a practical absence of contaminants.

Frank Snitz

FRANK SNITZ
Physical Scientist
Environmental Analysis Branch

I Concur with this evaluation.

for LES WEIGUM
Chief, Environmental
Analysis Branch
Planning Division

Saxon Harbor

Sediment Physical Descriptions

Delivery Order No. 0005

Station No. 1

Very fine reddish-brown beach sand, very compact when allowed to settle, clean earthy odor, gritty texture, no oil.

Station No. 2

Identical to Station No. 1

Station No. 3

A 50:50 mixture of dark, reddish-brown fine sand and decomposed wood chips with vegetation roots (fibrous). The texture is primarily gritty, clean earthy odor, no oil.

Station No. 4

Approximately 70% decomposed wood chips and leaves mixed with very fine reddish-brown silty sand (50:50). The texture is light gritty and the odor is clean earthy.

Station No. 5

Very fine compact reddish-brown beach sand, clean earthy odor, gritty texture, no oil.

Station No. 6

Dark reddish-brown (brick color) thick, silty sand (80% silts; 20% fine sand). The texture is smooth to very light gritty, odor clean earthy, no oil.

Station No. 7

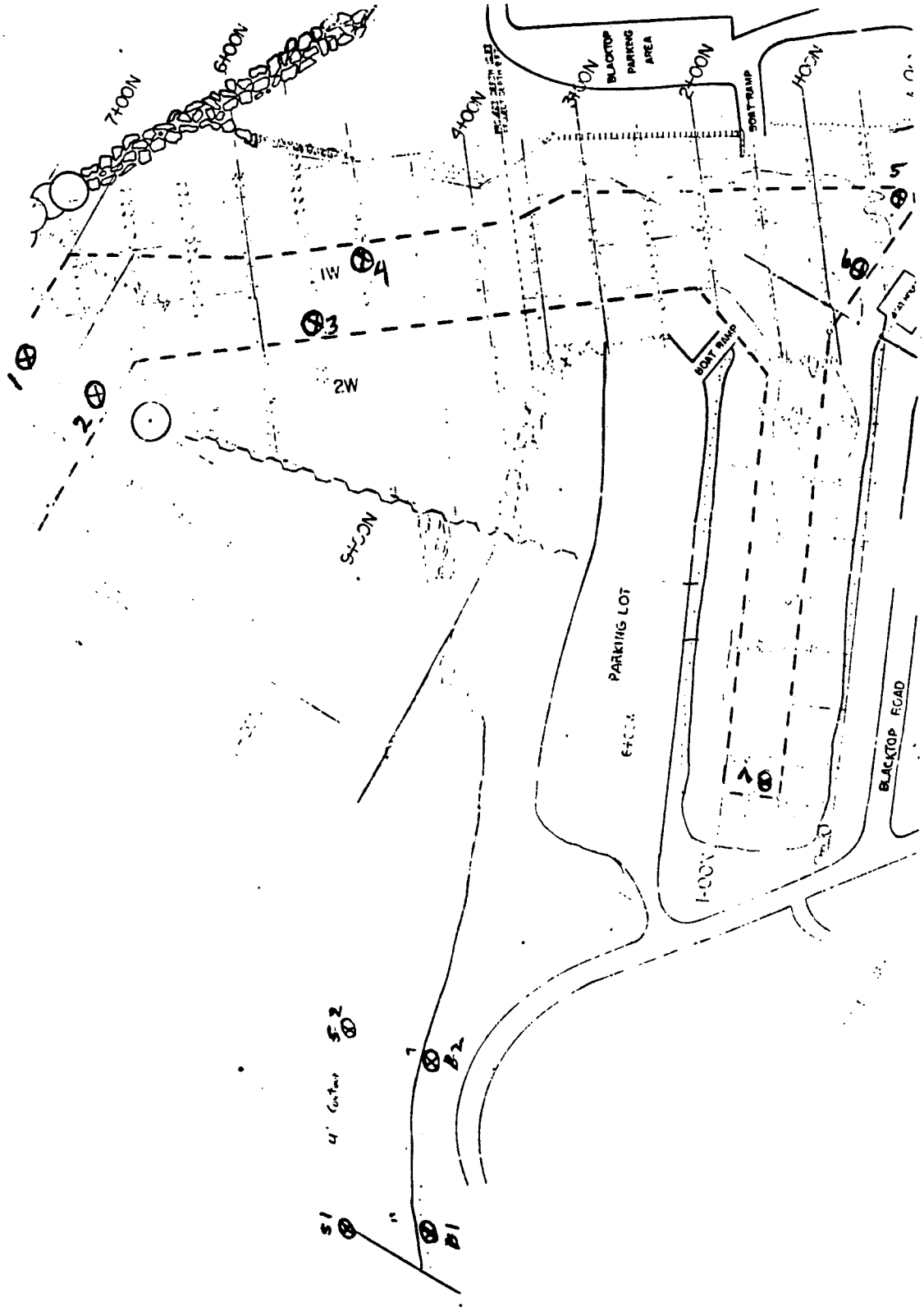
Same as Station No. 6 with some light detrital material mixed throughout.

Stations S-1 and S-2

Identical samples. Fine brownish-red sand, no silts, gritty texture, clean earthy odor, no oil.

Stations B-1 and B-2

Identical samples. Fine to medium coarse multi-colored beach sand (browns, yellows and whites). Some small pebbles and stones mixed throughout, clean earthy odor, gritty texture, no oil.



SAXON Hbr., WI.

INCL. #1

Analytical Report

Project: A9040

Report Date: 09/06/88

Results by Sample

Prepared for:
U.S. ARMY ENGINEER DISTRICT -DETROIT,
BOX 1027
DETROIT, MI 48231
Attention: FRANK SNITZ

Client P.O.: DACW35-88-D-0007
Report #: 599
Samples Rec'd: 07-12-88

Approved:
Refer Questions to:
LINDA DUNLAP

**
Residual Samples Will Be Held
For Two Weeks
**

DELIVERY ORDER #0005

Client ID	STATION 1	STATION 2	STATION 3	STATION 4	STATION 5	STATION 6
TMA Sample Number	07/192174	07/192175	07/192176	07/192177	07/192178	07/192179
Matrix	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID
Parameter						
ARSENIC mg/Kg	<1.3	<2.3	<2.5	<5.7	1.4	<3.9
BARIUM, TOTAL mg/Kg	14	15	53	74	11	80
CADMIUM mg/Kg	0.81	0.65	2.0	0.91	0.43	2.3
ORGANIC CARBON, TOTAL mg/Kg	750	78	18,000	110,000	550	10,000
CHROMIUM mg/Kg	3.4	2.6	14	<3.9	1.1	21
COPPER mg/Kg	5.8	5.7	18	21	2.8	27
IN PLACE DENSITY gm/cm3	1.8	1.8	1.8	1.1	1.9	1.5
IRON mg/Kg	4900	5700	14000	12000	3100	18000
LEAD mg/Kg	18	17	45	30	9.6	83
MERCURY mg/Kg	<0.01	<0.02	<0.02	<0.07	<0.01	<0.02
NICKEL mg/Kg	5.6	6.7	13	8.9	3.3	18
OIL AND GREASE mg/Kg	140	59	750	5200	170	340
PARTICLE SIZING, COE (5 PT)						
PARTICLE SIZE > 2.0 mm %	<0.1	<0.1	0.1	7.0	0.3	0.2
PARTICLE SIZE > 0.43 mm %	2.6	5.8	0.9	8.1	19.8	2.8
PARTICLE SIZE > 0.17 mm %	88.4	89.1	17.9	6.2	74.7	19.2
PARTICLE SIZE > 0.074 mm %	6.8	3.8	46.4	12.0	4.8	7.1
PARTICLE SIZE < 0.074 mm %	2.2	1.3	34.7	66.7	0.4	70.7
SELENIUM mg/Kg	<0.64	<1.2	<1.2	<2.8	<0.65	<1.9
SOLIDS, PERCENT %	67	64	52	15	72	53
VOLATILE SOLIDS %	<1	<1	9.9	30	<1	2.0
ZINC mg/Kg	14	16	39	43	9.0	54
BENTHIC ORGANISM IDENTIFICATION						
BENTHICS IDENTIFICATION mg/Kg	-	-	-	-	-	-
BENTHICS ENUMERATION mg/Kg	-	-	-	-	-	-

Client ID	STATION 7	STATION B1	STATION B2	STATION S1	STATION S2
TMA Sample Number	07/192180	07/192181	07/192182	07/192183	07/192184
Matrix	SOLID	SOLID	SOLID	SOLID	SOLID
Parameter					
ARSENIC mg/Kg	1.5	-	-	<7.1	<7.9
BARIUM, TOTAL mg/Kg	53	-	-	23	22
CADMIUM mg/Kg	1.7	-	-	0.71	0.61
ORGANIC CARBON, TOTAL mg/Kg	8200	420	610	380	420
CHROMIUM mg/Kg	18	-	-	1.7	3.4
COPPER mg/Kg	15	-	-	8.2	7.6
IN PLACE DENSITY gm/cm3	1.5	2.2	2.4	1.8	1.9
IRON mg/Kg	12000	-	-	6300	6800
LEAD mg/Kg	49	-	-	22	24
MERCURY mg/Kg	<0.02	-	-	<0.02	<0.02
NICKEL mg/Kg	13	-	-	7.8	9.1
OIL AND GREASE mg/Kg	230	<50	84	120	120

 See last page for explanation of symbols

Project:

Report Date: 06 SEP 1988

Client ID TMA Sample Number Matrix Parameter	STATION 7 07/192180 SOLID	STATION B1 07/192181 SOLID	STATION B2 07/192182 SOLID	STATION S1 07/192183 SOLID	STATION S2 07/192184 SOLID
PARTICLE SIZING, COE (5 PT)					
PARTICLE SIZE > 2.0 mm %	<0.1	11.9	44.0	0.1	<0.1
PARTICLE SIZE > 0.43 mm %	0.1	69.2	27.0	5.2	12.0
PARTICLE SIZE > 0.17 mm %	3.5	16.8	25.8	92.2	83.6
PARTICLE SIZE > 0.074 mm %	19.2	0.2	0.1	1.3	1.0
PARTICLE SIZE < 0.074 mm %	77.2	1.9	3.1	1.2	3.4
SELENIUM mg/Kg	<0.91	-	-	<3.6	<4.5
SOLIDS, PERCENT %	60	95	98	53	47
VOLATILE SOLIDS %	1	<1	<1	1	<1
ZINC mg/Kg	36	-	-	26	20
BENTHIC ORGANISM IDENTIFICATION					
BENTHICS IDENTIFICATION	-	-	-	SR	SR
mg/Kg	-	-	-	SR	SR
BENTHICS ENUMERATION mg/Kg	-				

Project Comments:

Comments about sample 07/192174
TOTAL ORGANIC CARBON - AVERAGE OF DUPLICATE RUNS
Comments about sample 07/192175
PARTICLE SIZING, COE (5 PT) - AVERAGE OF DUPLICATE RUNS
Comments about sample 07/192178
ARSENIC - AVERAGE OF DUPLICATE RUNS
CADMIUM - AVERAGE OF DUPLICATE RUNS
COPPER - AVERAGE OF DUPLICATE RUNS
CHROMIUM - AVERAGE OF DUPLICATE RUNS
IRON - AVERAGE OF DUPLICATE RUNS
LEAD - AVERAGE OF DUPLICATE RUNS
ZINC - AVERAGE OF DUPLICATE RUNS
NICKEL - AVERAGE OF DUPLICATE RUNS
SELENIUM - AVERAGE OF DUPLICATE RUNS
TOTAL BARIUM - AVERAGE OF DUPLICATE RUNS
Comments about sample 07/192180
SOLIDS, PERCENT - AVERAGE OF DUPLICATE RUNS
Comments about sample 07/192182
SOLIDS, PERCENT - AVERAGE OF DUPLICATE RUNS
VOLATILE SOLIDS - AVERAGE OF DUPLICATE RUNS

Note Results indicated by '#' are in mg/L instead of mg/Kg
FR = See field report for result
NA = Not applicable to test requested
ND = Nondetected, detection limit in ()
SD = Sample damaged

SR = See attached report for result
< = Positive result but at unquantifiable concentration below inicated level
- = Test not requested for this sample

Quality Control

TMA ERG
Thermo Analytical Inc.

Analytical Report

Project: A9040
Report Date: 09-07-88

117 N. FIRST
ANN ARBOR, MICHIGAN 48104-1399 (313) 662-3104

QUALITY CONTROL REPORT
DUPLICATE & MATRIX SPIKE ANALYSIS

Client: COE-SAXON HARBOR

Samples Recvd: 07-12-88
Sample Nos.: 192174-192184

Approved: Mark B. Rowe
QC COORDINATOR

Attn: FRANK SNITZ

PARAMETER	SAMPLE NUMBER	DUPLICATES SAMPLE A	DUPLICATES SAMPLE B	RELATIVE % DIFFERENCE	MATRIX SPIKE SPIKE ADDED	MATRIX SPIKE SPIKED SAMPLE	MATRIX SPIKE PERCENT RECOVERY
		MG/KG	MG/KG		MG/KG	MG/KG	
[illegible]IUM	192178	9.0	13	36%	150	150	93%
CADMIUM	192178	0.35	0.50	35%	3.8	4.1	97%
CHROMIUM	192383*	<1.3	<1.3	----------	23	19	78%
COPPER	192178	2.9	2.7	7.1%	15	19	108%
IRON	192178	2600	3600	32%	SPIKE DILUTED OUT.		
LEAD	192178	8.4	10.7	24%	38	51	109%
MERCURY	192177	0.010	0.010	0%	0.10	0.11	100%
NICKEL	192178	2.9	3.8	27	38	31	73%
SELENIUM	192178	<0.65	<0.65	----------	10	6.7	67%
ZINC	192178	14	24	53	38	65	121%
OIL AND GREASE	192387*	850	1100	26	83800	63000	74%
TOTAL SOLIDS	192177	14	16	13%			
VOLATILE SOLIDS	192177	30	31	3.3%			
TOC:							
Organic Carbon	192174	800	200	110%			97%
Inorganic Carbon	192174	<1	<1	----------			111%
VOLATILE SOLIDS	192177	30	31	3.3%			
PARTICLE SIZING:							
>2mm	192175	<0.1%	<0.1%	----------			
>0.43mm	192175	5.0%	6.6%	28%			
>0.15mm	192175	90%	89%	1.1%			
>0.075mm	192175	3.8%	4.0%	5.1%			
<0.075mm	192175	1.6%	0.80%	67%			

COMMENTS:

$$\text{RELATIVE \% DIFFERENCE} = \frac{|\text{SAMPLE A} - \text{SAMPLE B}|}{(\text{SAMPLE A} + \text{SAMPLE B})/2} * 100\%$$

$$\text{MATRIX SPIKE RECOVERY} = \frac{\text{SPIKED SAMPLE} - (\text{SAMPLE A} + \text{SAMPLE B})/2}{\text{SPIKE ADDED}} * 100\%$$

* SAMPLE NOT PART OF CLIENT SET BUT INCLUDED IN QC SUBSET.

APPENDIX C

Correspondence

United States Department of the Interior

FISH AND WILDLIFE SERVICE

GREEN BAY FIELD OFFICE (ES)
Univ. of Wisconsin–Green Bay
Green Bay, Wisconsin 54311–7001

IN REPLY REFER TO:

March 27, 1989

Mr. William W. Willis, P.E.
Chief, Planning Division
Detroit District, Corps of Engineers
P. O. Box 1027
Detroit, Michigan 48231-1027

re: Maintenance Dredging of
Saxon Harbor, Iron Co., WI

Dear Mr. Willis:

Your letter of February 28, 1989, requested U. S. Fish and Wildlife Service (Service) review of the subject project for possible impacts to fish and wildlife resources and federally listed threatened and endangered species. We offer the following comments for your consideration.

Our review indicates that the project, as planned, will have minimal impacts to fish and wildlife resources. We do not object to your continuing with the project as currently planned.

Federal Threatened and Endangered Species

A review of our files indicates that the following federally listed species may be present in Iron County, Wisconsin.

Classification	Common Name	Scientific Name	Habitat
threatened	bald eagle	*Haliaeetus leucocephalus*	breeding
endangered	gray wolf	*Canis lupus*	northern forested areas

Due to the nature of your proposed action, namely the dredging of a portion of Saxon Harbor, we conclude the above listed species will not be affected. This precludes the need for further action on this project as required by the 1973 Endangered Species Act, as amended. Should the project be modified or new information become available that indicates listed or proposed species may be affected, consultation should be initiated.

We appreciate the opportunity to respond. Should you have any questions, please contact Larry Oborny of my staff at 414-465-2682.

Sincerely,

Janet M. Smith
Field Supervisor

cc: Jack Donatell Wisconsin DNR, Spooner, WI
U.S. EPA, Chicago, IL

THE STATE HISTORICAL SOCIETY OF WISCONSIN

H. Nicholas Muller III, Director

816 State Street
Madison, Wisconsin 53706
608/262-3266

HISTORIC PRESERVATION DIVISION

March 29, 1989

Mr. William W. Willis
Detroit District, Corps of Engineers
Box 1027
Detroit, Michigan 48231-1027

SHSW: #89-0409
RE: Dredge Saxon Harbor and Replace Protection Stone Along West Breakwater

Dear Mr. Willis:

We have reviewed the above-referenced project as required for compliance with Section 106 of the National Historic Preservation Act and 36 CFR Part 800: Protection of Historic Properties, the regulations of the Advisory Council on Historic Preservation governing the Section 106 review process.

There are no properties listed in the National Register of Historic Places located within the area of potential effect of the proposed undertaking. Furthermore, we are not aware of any properties that may be eligible for the National Register in this area.

We remind you that 36 CFR 800.4 includes the requirement that you seek information, as appropriate to the undertaking, from Indian tribes, local governments, public and private organizations and other parties likely to have knowledge of or concerns with historic properties in the project area.

If there are any questions concerning this matter, please contact Judy Patton of my staff at (608) 262-2732.

Sincerely,

Richard W. Dexter
Chief, Compliance and Archaeology Section

RWD:lkr

0581a

1665a

APPENDIX D

Section 404(b)(1) Evaluation

EVALUATION PURSUANT TO SECTION 404(b)(1) GUIDELINES

Breakwater and Shoreline Maintenance
Saxon Harbor, Iron County, Wisconsin

I. PROJECT DESCRIPTION.

A. Location and General Description. The proposed project involves the maintenance of the breakwaters and shoreline at Saxon Harbor, Iron County, Wisconsin. In-kind, in-place repair of the east and west breakwaters would be performed. Shoreline maintenance entails placing riprap along the existing shoreline around the base of the west breakwater to replace lost shoreline revetment protection.

B. Authority and Purpose. The existing Saxon Harbor navigation project was authorized by the River and Harbor Act of July 3, 1958. Maintenance of the breakwater and shoreline structures is normal, periodic maintenance. The purpose of the breakwater and shore revetment maintenance is to maintain the concrete cell caps, maintain the protection the stone revetment provides to the east and west breakwaters, protect the landward base of the west breakwater along the shoreline, and ensure continued protection of the harbor area. If left unprotected, the possibility exists that the structures may fail and cause a threat to continued navigation by vessels using Saxon Harbor.

C. Description of Fill Material.

1. Characteristics and Quantity of Material. The amount of stone needed for repair of the breakwaters and for use as shoreline riprap would depend on the amount of original stone lost from the structures. The stone quantities and sizes needed would be determined at the time funding becomes available. Current stone at Saxon Harbor ranges up to 5-ton. Only uncontaminated, naturally occurring, inert material would be used. The rock types which may be used include an iron-rich quartzite or a granite quartzite. The iron-rich quartzite is from lean ore piles. The rock has little commercial grade ore and was considered waste when mined. Rock from this area is known to contain little or no amounts of pyrite or other potentially acidic substances. The granite quartzite rock is the predominate rock of the area obtained from gravel borrow pits. The rock to be used would probably be from the local area, is stable, resists weathering, and has been used for similar structures in the past.

2. Source of Material. All purchased fill material would be obtained from clean sources. The fill material is expected to be obtained from active or existing upland quarries or stockpiles. If the borrow source would be newly developed for the proposed work, or if the material proposed would be obtained

from a site not previously used for borrow purposes, environmental review of the site would be required to assess the impacts of such an action. Some existing stone may be salvaged and reused as revetment stone.

D. Fill Site.

1. Location and Size. Saxon Harbor is located on the south shore of Lake Superior in the former mouth of Oronto Creek and functions exclusively as a recreational harbor-of-refuge for private recreational craft and charter trolling boats. The west breakwater consists of 381 feet of steel sheet piling (SSP) that projects eight feet above the normal lake level. The west breakwater ends in one 35-foot steel cell. The cell, constructed of SSP, is filled with sand dredged from the harbor and is capped with two feet of rock and concrete. The east breakwater consists of a 335-foot long stone mound on the land end connected to a 280-foot cellular breakwater on the lake end. The stone portion has a small rock core covered with larger stones and capped with a layer six feet thick of 3- to 5-ton boulders. The entire section projects eight feet above the normal lake level. The end 280 feet of the east breakwater consists of seven steel cells of similar construction to the cell on the west breakwater. Stone riprap originally protected the base of the west breakwater approximately 300 feet to the west and 200 feet to the east along the shoreline.

2. Habitat Types. The shoreline fill site would encompass both terrestrial and aquatic habitats. The terrestrial site is sparsely vegetated sand and debris and is not expected to support a wide variety of wildlife species. Birds may occasionally utilize the beach area for resting. Benthic and fishery habitat along the shoreline is sparse and limited due to the high energy, wave-washed nature of the environment. Both terrestrial and aquatic habitats are present at the breakwater sites. The terrestrial aspect consists of stone and concrete and does not support a wide variety of wildlife species since the breakwaters have a minimal amount of natural cover and are exposed to the elements. Some birds may use the breakwaters for resting. The bottom habitat adjacent to the breakwaters is comprised primarily of sand and dislodged revetment stone. Sand is generally not conducive to a wide variety of benthic organisms. Displaced stone, which may be recovered and reused as revetment stone, may provide some habitat for benthic organisms. A large variety of fish species utilize the Saxon Harbor area, however, the breakwaters have not been identified as critical habitat.

3. Timing and Duration of Discharge. Periodic maintenance of the breakwaters and shoreline revetment would be performed during the summer as funding becomes available.

E. Description of Disposal Methods. Construction work on the breakwaters would require a floating plant. The stone fill would be mechanically offloaded from barges. Equipment to be utilized may include cranebarges and/or derrickboats, scows, and associated vessels. Transport and placement of the shoreline riprap would be expected to be performed from land. Equipment to be utilized may include trucks, front-end loaders, bulldozers, or other similar construction equipment.

II. FACTUAL DETERMINATION.

A. Physical Substrate Determinations. The bottom substrate at the breakwater sites is comprised largely of sand with some silt, gravel, and rubble. The proposed construction on the existing breakwaters would consist of arranging the displaced stone and adding cover stone, maintaining the same, although possibly expanded, geometric configuration. The bottom substrate would be altered from sand, silt, gravel, and stone to stone. No movement of the placed fill would be anticipated in the short-term. Long-term movement of the stone would be controlled by periodic maintenance operations. The existing shoreline substrate is composed of sand, gravel, cobblestone, and debris. The proposed shoreline construction would consist of arranging displaced stone and adding riprap cover stone to the shoreline. No significant movement of the revetment stone is expected once it is in place and is periodically maintained.

B. Water Quality, Circulation, Fluctuation, and Salinity Determinations. During construction activities, short-term changes in water clarity, and dissolved gas and nutrient levels may occur. These changes would be local in nature due to the anticipated rapid resettlement rate of the existing substrate when disturbed. No significant degradation of water quality would be expected to result since the amount and duration of such changes would not be greatly increased above the amount occurring naturally due to waves, particularly during storm events, and turbidity caused by vessel traffic. Floating plant equipment may introduce petrochemical products into the water in localized areas, but the amounts would be minimal and the effect on water quality insignificant. No significant changes in salinity, chemistry, color, odor, or taste would be expected to occur. No eutrophication of the waters at the project site would be expected. No measurable changes in current patterns, flows, water velocities, stratification, or hydrologic regime would be expected. Water level fluctuations would remain unchanged. No specific actions would be required to minimize impacts.

C. Suspended Particulate/Turbidity Determinations. Increases in suspended solids and turbidity would be anticipated during construction activities. Due to the nature of the substrate in the area, most of the disturbed material would

quickly resettle and any impacts would be short-term and local in nature. During this period, light penetration would decrease and dissolved oxygen levels may fluctuate. No changes in any background levels of toxic metals, organics, or pathogenic organisms would be anticipated. Increased turbidity may result in negative aesthetic impacts during the repair activities. Impacts to the biota from changes in suspended solids over the short and long term would not be expected to be significant.

D. Contaminant Determinations. Construction at the proposed site would have no significant impact on contaminant levels in the water, bottom substrate, or area shoreline. Fill material is most likely to be free from chemical, biological, or other pollutants where it is composed primarily of sand, gravel, or other naturally occurring inert material. The stone material required for the proposed project can be defined as naturally occurring inert material. U.S. Army Corps of Engineers' (COE) contract specifications also require the construction material to be uncontaminated with hazardous/toxic substances. Therefore, the use of purchased stone or stone recovered on-site would not be expected to cause any contamination problems.

E. Aquatic Ecosystem and Organism Determinations. The proposed stone repair would have no significant impact on the plankton of the area. Free-swimming organisms would tend to leave the area during construction activities and significant mortalities would not be expected to occur. The proposed project would permanently alter bottom habitat existing within the design limits due to a loss of bottom substrate. Existing benthic organisms would be displaced or smothered by stone recovery and stone placement. It is not anticipated that the fill activity would significantly damage the benthic resources within the project area since the stone revetment would be conducive to benthic colonization after repairs. Following project completion, colonization of the revetment would likely proceed rapidly through the reproduction of remaining organisms and recruitment from unaffected adjacent bottom areas. Attached algae would also be expected to become re-established on the breakwaters after repairs are completed. Primary consumers adaptive to rocky substrates would also colonize the area to take advantage of this food source. Productivity would be expected to equal or exceed pre-project levels. With re-establishment of a stable food source, fish would be expected to be attracted to the site. Spawning habitat for those fish requiring a rocky surface would be restored and enhanced due to the revetment repair. Overall impacts to the aquatic food web would be expected to be insignificant due to the small area of the project in relation to the entire lake ecosystem. No impacts would be expected to occur on special aquatic sites such as sanctuaries, refuges, wetlands, mud flats, vegetated shallows, coral reefs, or riffle and pool complexes, as none exist in the project area. No threatened and/or endangered species are known to be in the project

vicinity. Impacts to wildlife, in general, would be negligible. No special actions are required to minimize impacts to the aquatic ecosystem during the construction phase beyond the use of clean material for fill and construction.

F. Proposed Disposal Site Determination. Due to the coarse nature and rapid settling properties of the predominate materials at the site (sand, silt, gravel, and stone), the mixing zone would be largely limited to the immediate work site. Since all fill material, whether purchased or recovered on-site, would be uncontaminated, all applicable water quality standards would be met. No significant adverse impacts on municipal or private water supplies, recreational or commercial fisheries, water-related recreation, aesthetics, parks, national and historic monuments, national seashore, wilderness areas, research sites, or similar preserves, would be expected.

G. Determination of Cumulative Effects on the Aquatic Ecosystem. Since this type of repair on the subject structure would not occur frequently, cumulative effects would not be significant. Since periodic maintenance activities would be in-kind, in-place, impacts would be short-term and minor. Should a major repair project be required in the future, the impacts of such an activity would be assessed in accordance with the National Environmental Policy Act (NEPA) to determine their significance.

H. Determination of Secondary Effects on the Aquatic Ecosystem. The only secondary effects on the aquatic ecosystem expected would be a reduction in both shoreline erosion and the erosion-induced turbidity along the shoreline. These potential secondary impacts would be minor and positive in nature.

III. FINDINGS OF COMPLIANCE WITH THE RESTRICTIONS ON DISCHARGE.

A. Adaptation of the Section 404(b)(1) Guidelines to this Evaluation. No significant adaptations of the guidelines were made relative to this Evaluation.

B. Evaluation of Alternatives. The alternatives considered for breakwater and shoreline maintenance were: 1) No Action; and 2) Repair of the Existing Breakwaters and Shoreline Revetments. Section 6 of the attached Environmental Assessment (EA) provides a discussion of the alternatives.

C. Compliance with State Water Quality Standards. Placement of uncontaminated material at the project site would not violate any applicable water quality standards. A Section 401 State Water Quality Certification, or waiver thereof, would be obtained from the Wisconsin Department of Natural Resources (WDNR) prior to construction.

D. Compliance with Applicable Toxic Effluent Standard or Prohibition Under Section 307 of the Clean Water Act. Since the material to be used as fill (stone) would be clean and of inert material, the fill operation would not violate the Toxic Effluent Standards of Section 307 of the Clean Water Act.

E. Compliance with Endangered Species Act of 1973. Coordination with the U.S. Fish and Wildlife Service (FWS) and WDNR have been conducted regarding the Endangered Species Act. Based on this coordination, it has been determined that use of the selected fill site would not harm any State or Federally-listed endangered and/or threatened species, or their critical habitat.

F. Compliance with Specified Protection Measures for Marine Sanctuaries Designated by the Marine Protection, Restoration, and Sanctuary Act of 1972. The proposed project would be in compliance with the subject act as no designated sanctuaries exist within the project vicinity.

G. Evaluation of Extent of Degradation of Waters of the United States. The placement of material at the fill site would result in no significant adverse effects on human health and welfare, including municipal and private water supplies, recreational and commercial fishing, plankton, fish, shellfish, wildlife, benthos, vegetation, or special aquatic sites. The life stages of aquatic and other wildlife would not suffer long-term and/or significant adverse impacts. Significant adverse effects on aquatic ecosystem diversity, productivity and stability, and recreational, aesthetic, and economic values would not occur.

H. Appropriate and Practicable Steps Taken to Minimize Potential Adverse Impacts of the Discharge on the Aquatic Ecosystem. Appropriate steps taken to minimize the adverse effects of stone fill placement on the aquatic ecosystem include the use of clean stone material, project coordination with the WDNR and the FWS regarding fish and wildlife resources, and restrictions on indiscriminate in-water temporary stockpiling.

I. Compliance with Section 404(b)(1) Guidelines. On the basis of the "Guidelines for Specification of Disposal Sites for Dredged or Fill Material" (40 CFR part 230), it has been determined that the proposed fill activity is in compliance with Section 404 of the 1977 Clean Water Act.

APPENDIX E

Preliminary Finding of No Significant Impact

Planning Division
Environmental Analysis Branch

PRELIMINARY FINDING OF NO SIGNIFICANT IMPACT

Dredging and Maintenance of the Breakwaters and Shoreline
Saxon Harbor, Iron County, Wisconsin

In accordance with the National Environmental Policy Act of 1969 (NEPA), and Section 404 of the Clean Water Act of 1977, the Detroit District, Corps of Engineers, has assessed the environmental impacts associated with dredging, breakwater, and shoreline maintenance at Saxon Harbor, Iron County, Wisconsin.

An Environmental Assessment of the proposed dredging, in-kind, in-place repairs of the east and west breakwaters, and riprap shoreline protection around the landward base of the west breakwater has been completed. A 404(b)(1) Evaluation has also been completed for the breakwater and shoreline maintenance projects. Adverse impacts would be minor and include temporary and localized air quality, water quality, and aesthetic impacts; temporary and minor elevation of the ambient noise level along transport routes and construction sites; temporary and minor localized disruption of aquatic organisms and their habitat; and temporary and minor disruption of terrestrial wildlife and their habitat. Additional dredging adverse impacts include temporary loss of part of a parking lot; possible temporary disruption of boat launching; increase in truck traffic; and harbor congestion with dredging equipment. An additional shoreline maintenance adverse impact is alteration of the shoreline to a coarser material than currently exists. Beneficial impacts derived from the proposed projects include safe unrestricted passage of vessels using Saxon Harbor, continued protection of the harbor entrance by the breakwaters, protection of the landward base of the west breakwater, decreased erosion and resultant turbidity along the western shoreline of the harbor, and continued safe use of Saxon Harbor as a small craft harbor-of-refuge.

A review of the proposed activity indicates that it does not constitute a major Federal action significantly affecting the quality of the human environment. Therefore, an Environmental Impact Statement (EIS) will not be prepared.