Received 1/3/05

INCIDENTAL TAKE AUTHORIZATION APPLICATION
Powderhorn Lake
Forest Preserve District of Cook County
Cook County, Illinois

December 2004

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Incidental Take Authorization for the Banded Killifish (*Fundulus diaphanus)*

EXECUTIVE SUMMARY

Purpose

This application is submitted by the Forest Preserve District of Cook County to the Illinois Department of Natural Resources (IDNR) pursuant to the requirements in the Illinois Administrative Code for Incidental Taking of Endangered or Threatened Species (17 Ill. Adm. Code 1080). As stated in Section 1080.10,

"Incidental taking of endangered and threatened species shall be authorized by the Department of Natural Resources (Department) only if the applicant submits to the Department a conservation plan that satisfies all criteria established in this Part."

To proceed with the project described below, the Forest Preserve District of Cook County requests approval to carry out shoreline stabilization work in a lake in which the State threatened species, the Banded Killifish (*Fundulus diaphanos*) is known to be present.

Project Description

Powderhorn Lake is a recreational fishing lake owned and managed by the Forest Preserve District of Cook County. Over the past twenty years, the shoreline of this lake has undergone extensive erosion due to the sandy soils present there. Wake and wash action has caused the original shoreline of the lake to be eroded back to the point of the water depth being 6 to 12 inches for approximately 30 feet into the lake. This shallow depth has resulted in extreme amounts of aquatic vegetation, both native and invasive to be present and reduces the ability of anglers to reach sufficient water depth for quality fishing experiences. These shallow shorelines encourage anglers to enter the water to get to deeper water. Entering the water is prohibited under Forest Preserve District of Cook County code.

The repair of existing, eroded shorelines using a combination of hard surface materials such as dolomite limestone and herbaceous native plantings will provide protection of the sandy soil shorelines and will allow anglers to reach deep water more readily, reducing the need for anglers to enter the water illegally which may be potentially hazardous.

Project Schedule

Shoreline construction work is estimated to take approximately 2 months and be completed within the time window of late July 2005 through February 2006.

1: DESCRIPTION of POTENTIAL IMPACTS

A) Legal Description

The north half of the fractional southeast quarter of Section five (5), Township thirty six (36) North, Range fifteen (15) East of the Third Principal Meridian in Cook County, Illinois, (except that part thereof conveyed by the Calumet and Chicago Canal and Dock Company to Patrick Joyce by warranty deed dated May 21, 1917 and recorded May 21, 1917, in book 14485, page 240, as document 6116525, and except those parts thereof conveyed to railroad companies, by deeds appearing of record). Appendix A contains site location maps.

B) Biological Data

Biological data on the Banded Killifish (*Fundulus diaphanous*) was taken from the Fishes of Illinois and via the internet from the Illinois Natural History Survey website, www.inhs.uius.edu. This information is located in Appendix B.

C) Site Activities

At present, the shoreline of Powderhorn Lake has eroded over 30 feet back from its original location. This erosion has created very shallow water areas which make angling difficult without entering the water. The Forest Preserve District of Cook County prohibits wading, swimming, etc. in any of its lakes and ponds.

This project will involve the dredging of substrate from the immediate shoreline of Powderhorn Lake in order to provide deeper water in close proximity to the shoreline. The dredged material will be utilized to extend the adjacent shoreline into the lake to allow anglers access to deeper water. Native vegetation and hard surface shoreline protection will be used in these areas. Appendix C contains proposed construction plans.

D) Adverse Affects

Possible adverse affects of this work may be the temporary displacement of banded killifish (BK) from the work areas or in a worse case scenario, the actual loss of BK. Habitat will be affected until new plantings of aquatic macrophytes take hold.

2: MINIMIZATION and MITIGATION of IMPACTS

A) Minimizing Affected Areas

Plans to minimize the affected areas will include:

- The type of work along the shoreline will be slow and deliberate, not a quick impact that could catch BK by surprise.
- The nature of the dredging and deposition of material work in several isolated areas allows for a separation between work areas. This separation will allow BK to move to areas along the shoreline that will not be affected.
- The timing of this project will be such that BK will not be spawning at the time. A late summer/fall start and completion or a winter start and completion schedule is anticipated.

The estimated number of BK that is anticipated to be taken is negligible if any.
The amount of shoreline habitat to be affected is approximately 1,000 linear feet which is approximately 1/6 of the total shoreline (6,500 ft.) of Powderhorn Lake.

B) Management of Affected Areas

The future management of the affected shoreline areas will include the re-introduction of native aquatic plants that the BK will utilize. These native plants will provide cover and habitat that may not be in place at this time. This shoreline work will remove invasive, non-native plant species which may inhibit the presence of the Banded Killifish. In essence, the shoreline areas may provide better habitat than prior to construction.

C) Measures to Minimize or Mitigate the Affects of Proposed Action

Construction will take place in late summer, fall or winter when the possibility of physically affecting the BK will be minimized and the affect upon the aquatic plant community will be reduced as well. Silt fencing will be used to reduce the amount of suspended solids entering the waters from runoff. There is an associated marsh that may provide refuge for fish during construction.

D) Monitoring Plans

A pre-construction fisheries inventory will be conducted on the lake which will include the proposed construction areas in order to develop a baseline of the Banded Killifish population in various portions of the lake. Upon completion of the project, another fisheries inventory will be conducted to determine the affects, if any, on the Banded Killifish population in the affected areas and throughout the lake.

E) Adaptive Management Practices

In regard to the establishment of native aquatic plants in the area, replacement of plants that die will take place to insure that there is adequate habitat for the Banded Killifish. Monitoring of inflowing waters to insure proper water quality will take place as well as any actions to improve proper water quality. Annual fisheries inventories may be conducted to monitor the Banded Killifish population.

F) Verification of Proper Funding

Funding for this project is through the State of Illinois' Illinois First Capital Improvement Fund. The District has been allocated a total of $21,000,000.00 for capital improvements to its holdings. The total cost of the shoreline work at Powderhorn Lake is $325,000.00. Additional work such as fisheries inventories, water quality analysis, site inspections, etc. will be performed in house by Forest Preserve District of Cook County staff.

3: ALTERNATIVE ACTIONS

In order to accomplish this project work must be done along the shoreline and in the water. The only action that would eliminate all possibility of an incidental take of a Banded Killifish would be "no action".

4: LIKELIHOOD of SURVIVAL of T & E SPECIES

Due to the limited affected shoreline area in comparison to unaffected shoreline areas, (approximately 1000 linear feet to 5,500 linear feet), the timing of the project (late summer, fall or winter), the methods of construction and the replacement of native aquatic vegetation, the likelihood that this threatened species will survive at this location through this project is anticipated. In addition, the lake is connected to a large marsh which will provide additional habitat for this species.

5: IMPLEMENTING AGREEMENT

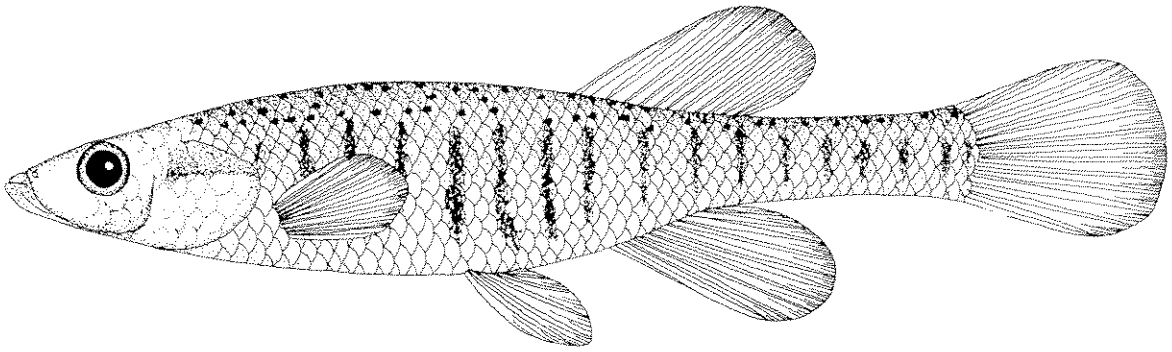
Application is hereby made for authorizations for the activities described herein. I certify that I am familiar with the information contained in the application and that I possess the authority to undertake the proposed activities. I further certify that to the best of my knowledge and belief, such information is true, complete and accurate and that the proposed actions, including those described in the conservation plan herein, will be executed in compliance with all other pertinent federal, State and local regulations. No other federal authorizations for a taking have been issued.

Christopher T. Merenowicz 12-27-04

(Signature of Applicant or Authorized Agent) (Date)

Christopher T. Merenowicz – Asst. Director, Dept. of Resource Management
Forest Preserve District of Cook County

Banded killifish
Fundulus diaphanus (Lesueur)

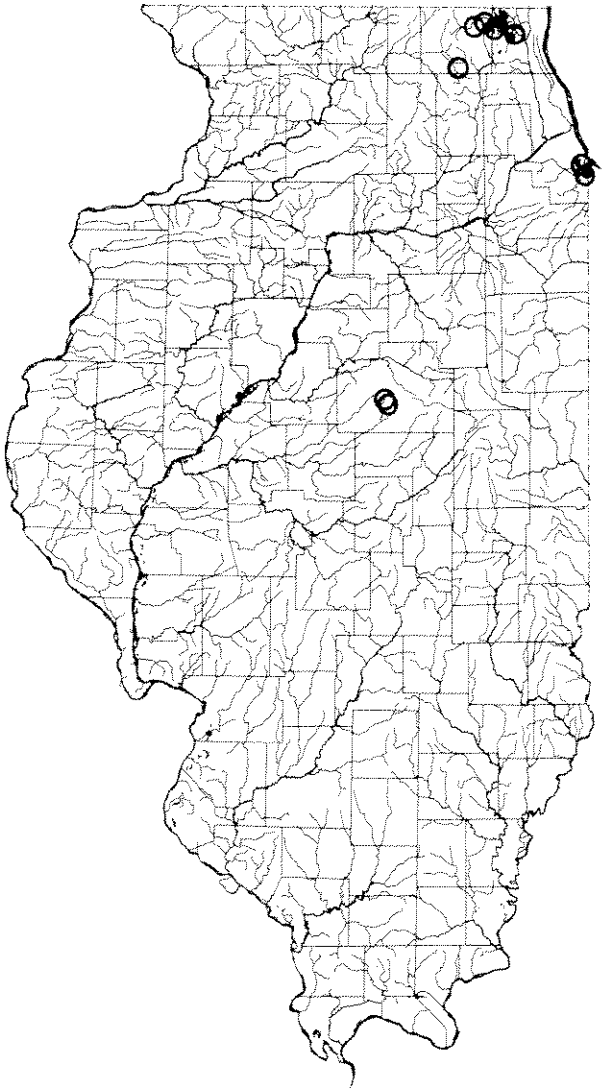


Hydrargira diaphana Lesueur 1817*c*:130 (type-locality: Saratoga Lake, New York).
Fundulus diaphanus: Nelson 1876:42 (recorded from Illinois); Jordan 1878:51; Forbes 1884:72.
Fundulus menona: Jordan 1878:52.
Fundulus diaphanus menona: Large 1903:21; Forbes & Richardson 1908:211–212; O'Donnell 1935: 485; Smith 1965:9.

Diagnosis.—The banded killifish is a slender and terete topminnow, light olivaceous above and silvery white below with the dorsum tesselated with brown, and with many thin, well-separated, dark vertical bars along the sides in both sexes; the dorsal fin originating in advance of the anal fin; 38 or more lateral-line scales; and a rather attenuate snout. The species attains a length of a little more than 75 mm (3 inches).

Variation.—The species consists of two rather well-marked subspecies: *F. d. diaphanus* along the Atlantic Coast and *F. d. menona* in the Great Lakes basin, the latter being the Illinois subspecies.

Ecology.—The banded killifish occurs in clear glacial lakes with much aquatic vegetation. It is usually in schools of a few to many individuals that cruise about the surface of weedy lakes. Keast & Webb (1966:1860–1861) confirmed the findings of Forbes & Richardson (1908:212) that this killifish feeds on a great variety of organisms and that it feeds as much in mid-water and on the bottom as at the surface. Spawning occurs in late spring and early summer. The small clusters of eggs adhere to aquatic vegetation. The best account of reproductive behavior in nature is that of Richardson (1939).

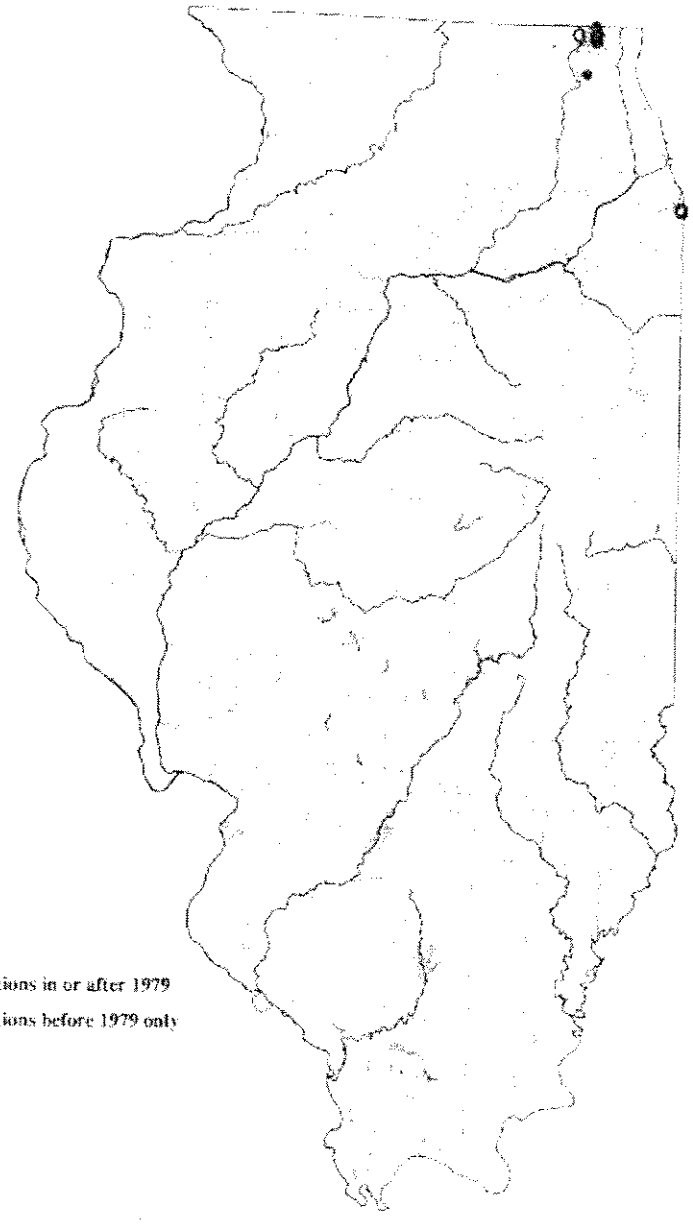


Distribution of the banded killifish in Illinois.

Distribution.—The banded killifish still occurs in a few glacial lakes (Greys, Cedar, Turner, Wolf, and Loon) in Lake and Cook counties and is common in some of them. It once occurred in McHenry County and, as isolated populations, in McLean County. The destruction and general deterioration of natural lakes must account for the decimation of the species in Illinois.

Fundulus diaphanus Collection Sites in Illinois

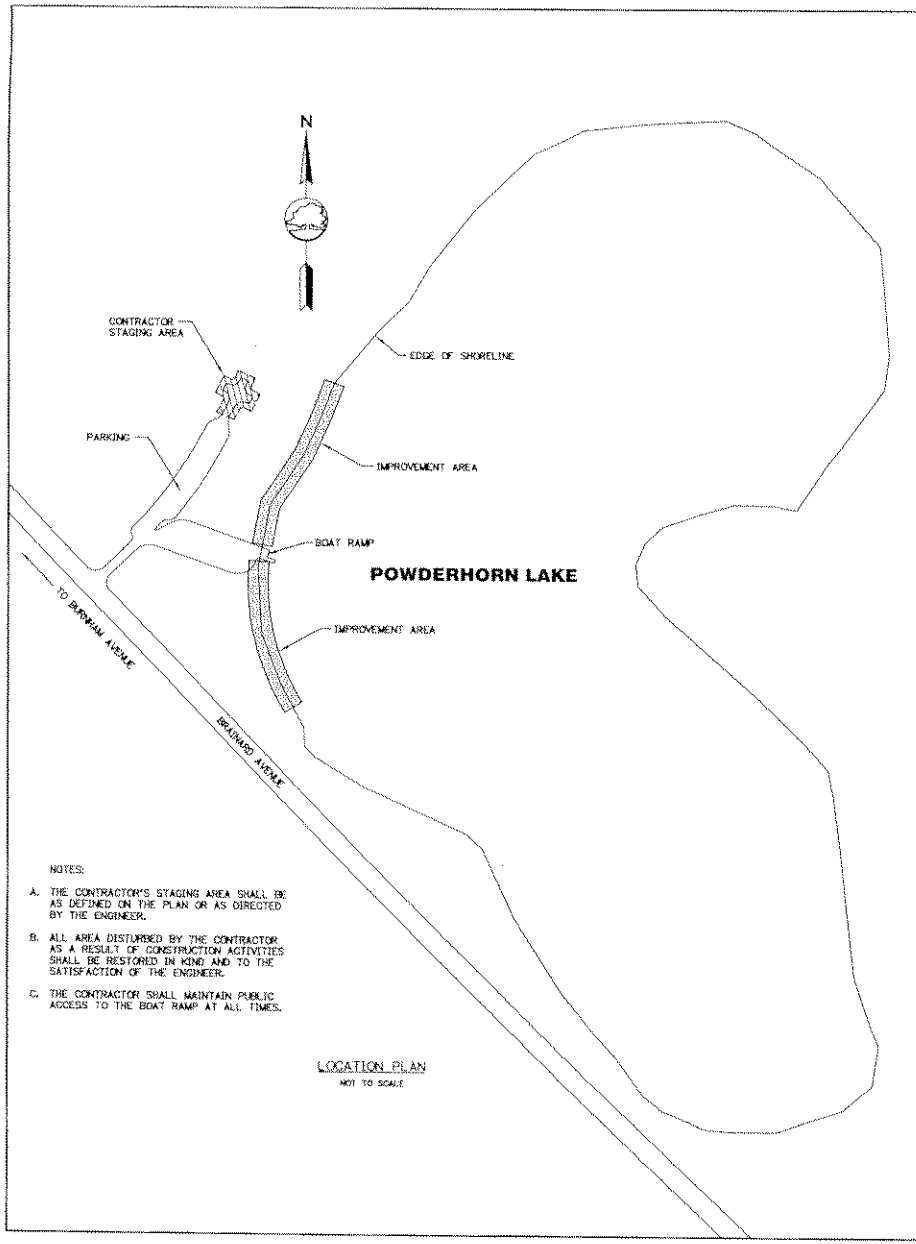
Before and After 1979



● Sites with collections in or after 1979

○ Sites with collections before 1979 only

Illinois Natural History Survey and Illinois Department of Natural Resources, INHS Collections Data



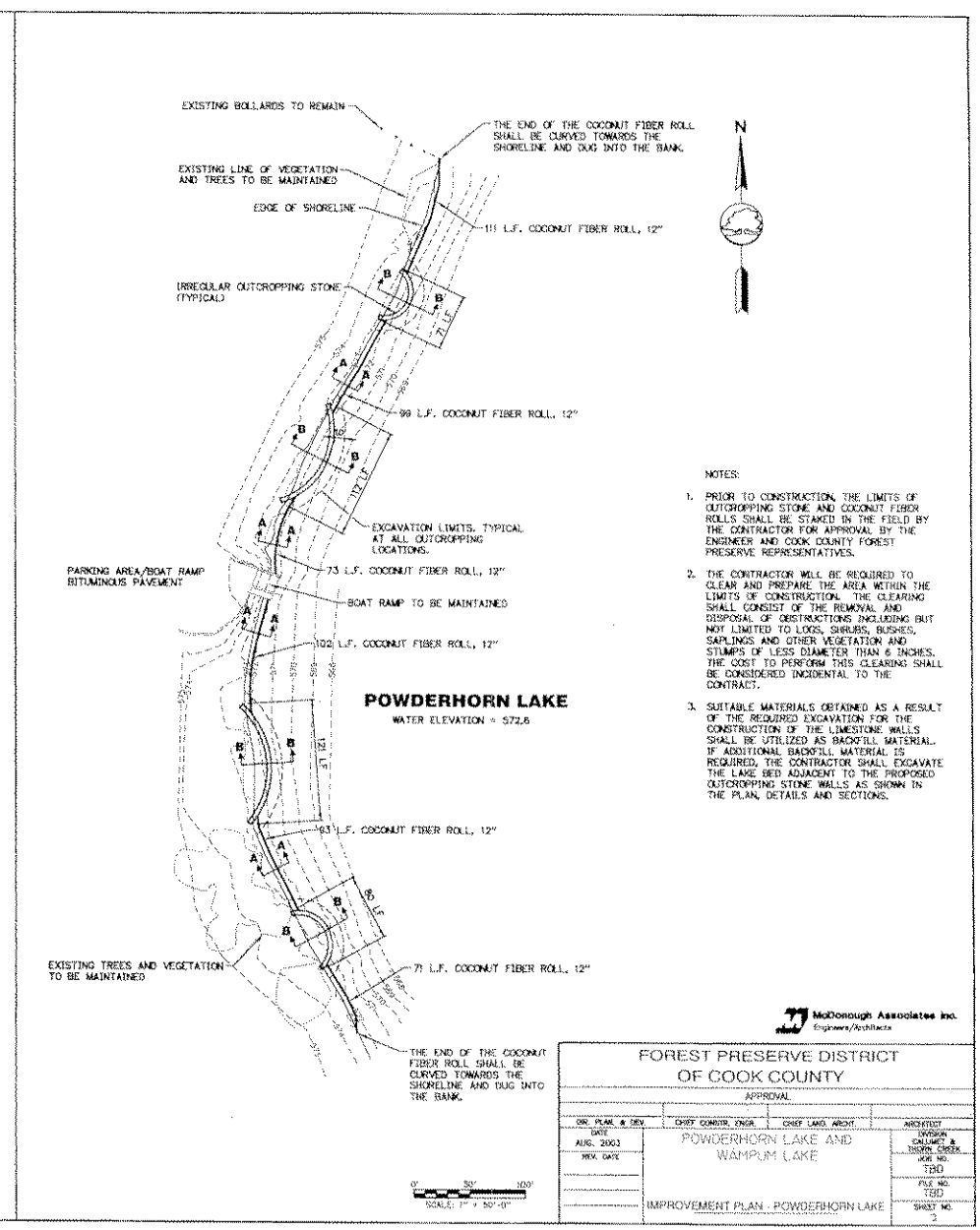
NOTES:

A. THE CONTRACTOR'S STAGING AREA SHALL BE AS DEFINED ON THE PLAN OR AS DIRECTED BY THE ENGINEER.

B. ALL AREA DISTURBED BY THE CONTRACTOR AS A RESULT OF CONSTRUCTION ACTIVITIES SHALL BE RESTORED IN KIND AND TO THE SATISFACTION OF THE ENGINEER.

C. THE CONTRACTOR SHALL MAINTAIN PUBLIC ACCESS TO THE BOAT RAMP AT ALL TIMES.

LOCATION PLAN
NOT TO SCALE



NOTES:

1. PRIOR TO CONSTRUCTION, THE LIMITS OF OUTCROPPING STONE AND COCONUT FIBER ROLLS SHALL BE STAKED IN THE FIELD BY THE CONTRACTOR FOR APPROVAL BY THE ENGINEER AND COOK COUNTY FOREST PRESERVE REPRESENTATIVES.

2. THE CONTRACTOR WILL BE REQUIRED TO CLEAR AND PREPARE THE AREA WITHIN THE LIMITS OF CONSTRUCTION. THE CLEARING SHALL CONSIST OF THE REMOVAL AND DISPOSAL OF OBSTRUCTIONS INCLUDING BUT NOT LIMITED TO LOGS, SHRUBS, BUSHES, SAPLINGS AND OTHER VEGETATION AND STUMPS OF LESS DIAMETER THAN 6 INCHES. THE COST TO PERFORM THIS CLEARING SHALL BE CONSIDERED INCIDENTAL TO THE CONTRACT.

3. SUITABLE MATERIALS OBTAINED AS A RESULT OF THE REQUIRED EXCAVATION FOR THE CONSTRUCTION OF THE LIMESTONE WALLS SHALL BE UTILIZED AS BACKFILL MATERIAL. IF ADDITIONAL BACKFILL MATERIAL IS REQUIRED, THE CONTRACTOR SHALL EXCAVATE THE LAKE BED ADJACENT TO THE PROPOSED OUTCROPPING STONE WALLS AS SHOWN IN THE PLAN, DETAILS AND SECTIONS.

McDonough Associates Inc.
Engineers/Architects

FOREST PRESERVE DISTRICT
OF COOK COUNTY

APPROVAL

DIR. PLAN. & DEV.	CHIEF CONSTR. ENGR.	CHIEF LAND. ARCHT.	ARCHITECT
DATE: AUG. 2003	POWDERHORN LAKE AND WAMPUM LAKE		DIVISION: CALUMET & THORN CREEK
REV. DATE:			JOB NO.: 7350
	IMPROVEMENT PLAN - POWDERHORN LAKE		PLS NO.: 7350
			SHEET NO.: 2