Lake Neshonoc Protection and Rehabilitation District

Status Report - Phase 1

SEH No. ALAKNE 9501

July 1995

SEH

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TASK 1.00-APPLICATIONS FOR GRANTS

Subtask 1.10-Lake Planning Grant
Prepare for submittal to the Wisconsin Department of Natural Resources an application for amendment(s) to the existing Lake Planning Grant (LPG).

The Lake Neshonoc Rehabilitation and Protection District received Lake Management Planning Grant Number 3009-02 (LPL-121) in January 1992 to perform a series of tasks leading toward the development of sediment trap(s). These tasks included sediment cores and analyses of the sediment samples. Little progress was made toward completion of the tasks and in 1994 the terms of grant were extended until June 30, 1995.

SEH was retained in January 1995 to, among other things, prepare a preliminary map of the area proposed to be dredged, collect sediment samples, and have the samples tested for levels of contamination to determine if there was any major obstacles to undertaking a dredging program, whether for a sediment trap or boat channels. SEH asked DNR to accept the work to be undertaken in Phase 1 of the contract with the Lake Neshonoc District as leading toward the same result anticipated in LMPG #3009-02 (LPL-121). This suggestion was accepted. A revised "Project Description" for LPL-121 is included in Appendix A.

Subtask 1.20-Recreational Boating Facilities Program Grant
Prepare for submittal to the Wisconsin Department of Natural Resources an application for a Feasibility Study Grant from the Recreational Boating Facilities Program (RBF).

An application was prepared for submittal to the Wisconsin Waterways Commission and the Department of Natural Resources for a grant under the Recreational Boating Facilities Program. A copy of the original application is included in Appendix B. The application was first entertained by the Waterway Commission at their January 1995 meeting in Madison. Questions regarding the focus of the project relative to the purpose of the program caused the Waterways Commission to defer action on the application until their May meeting. In the interim, the Lake District was afforded an opportunity to provide additional supporting information regarding their request.

The Wisconsin Waterways Commission approved funding for a portion of the project at the May meeting. The Waterways Commission agreed to provide financial support for those tasks not covered by the Lake Management Planning Program. A revised work plan detailing the tasks necessary to study the feasibility of dredging recreational boating channels is being prepared for submittal to the Department of Natural Resources.

TASK 2.00-PRELIMINARY DREDGE CUT EVALUATION

Subtask 2.10-Preliminary Map of Area to be Dredged (Dredge Cut)

Based on available soundings and existing lake map create a new bathymetric map of the bottom of Lake Neshonoc. Prepare initial plan for dredge cut and two alternatives. Present the three plans to the Lake District Board for review and comment and revise planned dredge cut layout based on Lake Districts input. Present proposed dredging plan to the Wisconsin Department of Natural Resources for determination of number and location of sediment samples to be obtained and number and type of analyses to be run on the sediment samples for contamination.

The most recent complete bathymetric map of Lake Neshonoc was created in 1966 by the Department of Natural Resources. Since then, soundings have been acquired in conjunction with sediment surveys in 1984 and 1989. The purpose of this task was to incorporate the more recent sounding data and the 1966 bathymetric map to create a more current map of the lake bottom. This updated map was then to be used to layout proposed dredging plans.

The 1984 and 1989 sounding data proved to be of limited usefulness in updating the bathymetric map. The reasons for the limitation of the data are not clear, but may be related to the lack of adequate horizontal and vertical control. Without adequate control it is not possible to accurately place the transects in their correct location.

Sketches were developed, based on the best available bottom contour information, and presented to the Lake District Board at a meeting in January 1995. In all, four preliminary layouts showing potential boat channel and sediment trap locations were presented for consideration. The four preliminary dredgding plans are included in Appendix C. The original "plan" developed by the Lake District would have required the dredging of more than 3 million cubic yards of sediment, well beyond the financial capabilities of the District. The four plans presented for consideration were less ambitious, but hopefully within financial reach.

The Lake District, on February 10, provided SEH with their preferred layout based on the four options presented. This preferred layout was then used to select locations for collection of sediment samples. The sediment sampling location map is also contained in Appendix C.

Subtask 2.20-Sediment Sampling and Analysis (Contaminants)

Determine best method of sediment sample collection based on quotes from responsible testing firms. Collect, or arrange for the collection of, sediment samples identified in Subtask 2.10. Arrange for analysis of the sediment samples through solicitation of quotes from responsible, licensed testing laboratories.

Quotes were solicited from several firms engaged in soil boring and laboratory testing. The firms solicited to provide estimates were American Engineering Testing, Davy Laboratories, GME Consultants, Inc., Braun Intertec, and Huntingdon. The most cost-effective estimates were received from American Engineering Testing, Inc to collect the samples and Davy

Laboratories to analyze the samples. Subcontracts were signed with both of these firms to perform their respective parts in early March. Copies of the responses from all five firms are contained in Appendix D.

The quotes received for the collection of the sediment samples was predicated on being able to operate on the ice. With the early warming trend this spring the ice was getting too thin to be considered safe. In order to assure the safety of the personnel, an air boat and operator were hired to facilitate the collection of the sediment samples. Nineteen (19) discreet samples were collected from 6 locations on March 14, 1995. The Samples were delivered to Davy Laboratories the same day.

Based on a recommendation from Paul LaLiberte-DNR, Eau Claire the samples were initially tested for physical characteristics and organic content. These test results were received in April. The result of the physical and organic content analyses were used to select which samples should be tested for chemical contamination. The results of the chemical contamination analyses were completed on June 8, 1995. These test results are being reviewed to determine whether the levels of Iron, Nitrogen (Kjeldahl), or Arsenic pose any serious environmental concern, or will impact the decision to dredge mechanically or hydraulically. Copies of all test results are found in Appendix E.

Prior to the collection of sediment samples interviews of five (5) longtime residents of the Lake Neshonoc area, and the DNR Area Fish Manager, Ken Wright, were conducted to determine whether there was any known sources of potential contamination that could help focus the sampling activities. The results of the interviews indicate no known sources of contamination, particularly in the vicinity of the proposed dredging. The only known source of possible contamination was one storm sewer which discharges into the lake in the extreme southwest end where no dredging is anticipated. A copy of Willis Fernholz memo is included in Appendix E.

TASK 3.00-REPORT TO LAKE DISTRICT BOARD

Subtask 3.10-Report

Prepare written report documenting steps taken, findings and preliminary estimate of project costs

This report is the summary of the activities undertaken to date and the findings of those investigations. The total project cost will ultimately depend on the manner and method of dredging, the location of the disposal site, and the total volume of sediment dredged from the lake. Additional tests of the sediment will need to be conducted in order to determine the most cost-effective means of dredging and the most economical manner of dredge-spoil disposal. Those tests are proposed to be undertaken in Phase II.

SEH

MEMORANDUM

☐ ST. PAUL, MN ☐ MINNEAPOLIS, MN ☐ ST. CLOUD, MN ☒ CHIPPEWA FALLS, WI ☐ MADISON, WI

TO: Mark Riebau

FROM: Willie Fernholz, Biologist

DATE: January 24, 1995

RE: Interviews - History of Lake Neshonoc
SEH No. LAKNE9501.00

Interviews were held on January 23, 1995, with five elderly, long-time residents of West Salem all with a keen interest in the future of Lake Neshonoc and knowledge of the history of the Lake. These interviews were conducted in an effort to respond to the question asked in Paul LaLiberties' memo to me dated December 9, 1994 with specific reference to Item 4.

Individuals interviewed were as follows:

Ken Knutson - Village of West Salem Administrator
Tom Heffermen - Tom's Auto Repair
Bill Davis - Barber
Herb Knome - Bar and restaurant owner
Carl Fleishman, Sergeant - La Crosse County Sheriff Department

To determine the sediment sampling requirements in Item 4 of Paul's memo the following information was obtained from the interviews:

- One storm sewer enters the lake on the extreme southwest corner of the lake.

This storm sewer drains a residential area in the Village. There is a small drainage area on the northwest end of the lake from STH 16 runoff.

- There were no past or present industries with drainage to the project area.
- There were no past or present landfills adjacent to the project area.
- There is no history of chemical treatment for aquatic vegetation due to sedimentation into the lake and a large carp population.
- Prior to 1950 the La Crosse County Hospital located 1/2 mile from the lake, emptied overflow from their septic system into the southwest corner of the lake. This was discontinued in the early 1950s. This system was hooked up with the West Salem sewage plant about 20 years ago.
- Fish samples of all the major species were collected and analyzed for heavy metals and pesticides in 1990 and 1994. Results of these tests show no significant levels of contaminant in the fish collected .
- A report of the results of this sampling is on file in the La Crosse DNR office. this information was provided by Ken Wright, the area fish manager.

The results of this investigation should satisfy the needs of the Department of Natural Resources to determine the sampling requirements for the proposed dredging project on Lake Onalaska.

DAVY LABORATORIES
315 South 6th Street
P.O. Box 2076
La Crosse WI 54602-2076
(608) 782-3130
FAX: (608) 784-6611

DAVY LABORATORIES
Division of Davy Engineering Co

CHEMICAL ANALYSIS REPORT FORM

SEH
421 Frenette Drive
Chippewa Falls, WI 54729
Attn.: Mr. Mark Riebau

June 8, 1995

Client No. 21810

Sampling Location: Neshonoc
Collected By: Greg Owens - AET
Delivered By: Client
Date Collected: 3-13/14-95
Date Received: 3-14-95

Sample No. # 46344
Sample Site B6-1

Parameter:	Analysis Method	Extraction Method	MDL	Date Analyzed	Date Extracted	RESULT:	Units:
PCB Scan	EPA 8080	EPA 3540	0.002	5-4-95	5-1-95	<0.002	mg/Kg

MDL = Minimum Detection Level < - means 'less than'

The laboratory analyses reported above were determined in accordance with EPA Methodology and the latest edition of STANDARD METHODS. The results are representative of this sample only; conditions can be expected to vary at different times and under different sampling conditions.

We are a WISCONSIN DNR CERTIFIED TESTING LABORATORY. Our Wisconsin ID Number is '632021390.' Use this number when submitting data to the Wisconsin DNR.

Submitted by:

DAVY LABORATORIES

Paul A. Harris, Director

DAVY LABORATORIES
15 South 6th Street
P.O. Box 2076
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Attn.: Mr. Mark Riebau

June 8, 1995

Client No. 21810

Sampling Location: Neshonoc
Collected By: Greg Owens - AET
Delivered By: Client
Date Collected: 3-13/14-95
Date Received: 3-14-95

Sample No. # 46350
Sample Site B4-1

Parameter:	Analysis Method	Extraction Method	MDL	Date Analyzed	Date Extracted	RESULT:	Units:
PCB Scan	EPA 8080	EPA 3540	0.002	5-4-95	5-1-95	<0.002	mg/Kg

MDL = Minimum Detection Level < - means 'less than'

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Chippewa Falls, WI 54729
Attn.: Mr. Mark Riebau

May 18, 1995

Client No. 21810

Sampling Location: Neshonoc
Collected By: Greg Owens - AET
Delivered By: Client
Date Collected: 3-13/14-95
Date Received: 3-14-95

PARAMETER:	METHOD:	MDL:	Sample No. # 46347 Sample Site B-3-1 **RESULTS:**		UNITS:
Arsenic-Total	EPA 7060	0.13 ppm	**10.1**		mg/kg
Cadmium-Total	EPA 7130	0.03 ppm	**0.21**		mg/kg
Chromium-Total	EPA 7190	0.06 ppm	**9.36**		mg/kg
Copper-Total	EPA 7210	0.07 ppm	**6.84**		mg/kg
Iron-Total	EPA 7380	135 ppm	**9,380**		mg/kg
Lead-Total	EPA 7420	0.3 ppm	**9.0**		mg/kg
Mercury-Total	EPA 7471	0.018 ppm	**<0.018**		mg/kg
Nickel-Total	EPA 7520	0.19 ppm	**11.7**		mg/kg
Zinc-Total	EPA 7950	0.4 ppm	**123**		mg/kg
Nitrogen Ammonia as NH_3-N	EPA 350.2	0.35	**18.3**	*	mg/kg
Nitrogen Kjeldahl as NH_3-N	EPA 351.2	70	**860**	*	mg/kg

MDL = Minimum Detection Level * Wet weight

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CHEMICAL ANALYSIS REPORT FORM

SEH
421 Frenette Drive
Chippewa Falls, WI 54729
Attn.: Mr Mark Riebau

May 18, 1995

Client No. 21810

Sampling Location: Neshonoc
Collected By: Greg Owens - AET
Delivered By: Client
Date Collected: 3-13/14-95
Date Received: 3-14-95

Sample No. # 46350
Sample Site B-4-1

PARAMETER:	METHOD:	MDL:	RESULTS:		UNITS:
Arsenic-Total	EPA 7060	0.13 ppm	**12.8**		mg/kg
Cadmium-Total	EPA 7130	0.03 ppm	**0.60**		mg/kg
Chromium-Total	EPA 7190	0.06 ppm	**14.7**		mg/kg
Copper-Total	EPA 7210	0.07 ppm	**11.9**		mg/kg
Iron-Total	EPA 7380	135 ppm	**14,500**		mg/kg
Lead-Total	EPA 7420	0.3 ppm	**17.9**		mg/kg
Mercury-Total	EPA 7471	0.018 ppm	**0.040**		mg/kg
Nickel-Total	EPA 7520	0.19 ppm	**21.2**		mg/kg
Zinc-Total	EPA 7950	0.4 ppm	**68.2**		mg/kg
Nitrogen Ammonia as NH_3-N	EPA 350.2	0.35	**40.7**	*	mg/kg
Nitrogen Kjeldahl as NH_3-N	EPA 351.2	70	**1,240**	*	mg/kg

MDL = Minimum Detection Level * Wet weight

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CHEMICAL ANALYSIS REPORT FORM

RECEIVED
MAY 2 5 1995
HORT, ELLIOTT, HENDRICKSON
CHIPPEWA FALLS, WI

SEH
421 Frenette Drive
Chippewa Falls, WI 54729
Attn.: Mr. Mark Riebau

May 18, 1995

Client No. 21810

Sampling Location: Neshonoc
Collected By: Greg Owens - AET
Delivered By: Client
Date Collected: 3-13/14-95
Date Received: 3-14-95

Sample No.			# 46341		
Sample Site			B-5-I		
PARAMETER:	METHOD:	MDL:	**RESULTS:**		UNITS:
Arsenic-Total	EPA 7060	0.26 ppm	**15.1**		mg/kg
Cadmium-Total	EPA 7130	0.03 ppm	**0.52**		mg/kg
Chromium-Total	EPA 7190	0.06 ppm	**16.8**		mg/kg
Copper-Total	EPA 7210	0.07 ppm	**16.7**		mg/kg
Iron-Total	EPA 7380	135 ppm	**16,200**		mg/kg
Lead-Total	EPA 7420	0.3 ppm	**23.7**		mg/kg
Mercury-Total	EPA 7471	0.018 ppm	**0.035**		mg/kg
Nickel-Total	EPA 7520	0.19 ppm	**23.0**		mg/kg
Zinc-Total	EPA 7950	0.4 ppm	**79.5**		mg/kg
Nitrogen Ammonia as NH_3-N	EPA 350.2	0.35	**43.8**	*	mg/kg
Nitrogen Kjeldahl as NH_3-N	EPA 351.2	70	**1,680**	*	mg/kg

MDL = Minimum Detection Level * Wet weight

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Attn.: Mr. Mark Riebau

May 18, 1995

Client No. 21810

Sampling Location: Neshonoc
Collected By: Greg Owens - AET
Delivered By: Client
Date Collected: 3-13/14-95
Date Received: 3-14-95

Sample No.			# 46342		
Sample Site			B-5-2		
PARAMETER:	METHOD:	MDL:	**RESULTS:**		UNITS:
Arsenic-Total	EPA 7060	0.26 ppm	**13.0**		mg/kg
Cadmium-Total	EPA 7130	0.03 ppm	**0.36**		mg/kg
Chromium-Total	EPA 7190	0.06 ppm	**13.4**		mg/kg
Copper-Total	EPA 7210	0.07 ppm	**12.2**		mg/kg
Iron-Total	EPA 7380	135 ppm	**16,500**		mg/kg
Lead-Total	EPA 7420	0.3 ppm	**14.6**		mg/kg
Mercury-Total	EPA 7471	0.018 ppm	**<0.018**		mg/kg
Nickel-Total	EPA 7520	0.19 ppm	**18.8**		mg/kg
Zinc-Total	EPA 7950	0.4 ppm	**47.5**		mg/kg
Nitrogen Ammonia as NH_3-N	EPA 350.2	0.35	**40.7**	*	mg/kg
Nitrogen Kjeldahhl as NH_3-N	EPA 351.2	70	**89**	*	mg/kg

MDL = Minimum Detection Level * Wet weight

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Chippewa Falls, WI 54729
Attn.: Mr. Mark Riebau

May 18, 1995

Client No. 21810

Sampling Location:	Neshonoc
Collected By:	Greg Owens - AET
Delivered By:	Client
Date Collected:	3-13/14-95
Date Received:	3-14-95

PARAMETER:	METHOD:	MDL:	Sample No. # 46344 Sample Site B-6-1 **RESULTS:**		UNITS:
Arsenic-Total	EPA 7060	0.26 ppm	**17.6**		mg/kg
Cadmium-Total	EPA 7130	0.03 ppm	**0.62**		mg/kg
Chromium-Total	EPA 7190	0.06 ppm	**16.7**		mg/kg
Copper-Total	EPA 7210	0.07 ppm	**15.8**		mg/kg
Iron-Total	EPA 7380	135 ppm	**18,800**		mg/kg
Lead-Total	EPA 7420	0.3 ppm	**17.8**		mg/kg
Mercury-Total	EPA 7471	0.018 ppm	**0.035**		mg/kg
Nickel-Total	EPA 7520	0.19 ppm	**24.0**		mg/kg
Zinc-Total	EPA 7950	0.4 ppm	**69.9**		mg/kg
Nitrogen Ammonia as NH_3-N	EPA 350.2	0.35	**30.5**	*	mg/kg
Nitrogen Kjeldahl as NH_3-N	EPA 351.2	70	**1,450**	*	mg/kg

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