

Kaich

DEPARTMENT OF NATURAL RESOURCES

District or Bureau: WD
Docket Number: 3-WC-95-1055
Type List Designation(s): NR150.03(8)(f)1a
NR150.03(8)(d)1c
NR150.03(8)(i)2a

Contact Person
Robert Strand
Title
DNR Environmental Analyst

Address
1300 W. Clairemont Ave.
P.O. Box 4001
Eau Claire, WI 54702-4001
Telephone Number (715) 839-1609

NOTE TO REVIEWER:
Comments should address completeness, accuracy or the EIS decision. For your comments to be considered, they must be received by the contact person before 4:30 pm, Wednesday, January 17, 1996.

ENVIRONMENTAL ASSESSMENT

Applicant: Lake Altoona Protection and Rehab. District / Eau Claire County
Title of Proposal: Lake Altoona and Eau Claire River sediment trap dredging; County Forest Land withdrawal; Dredge Disposal Wastewater Discharges
Location: Township 27 North, Range 08 West, Sections 17, 18 & 19
County: Eau Claire
Town Name: Seymour and Washington

PROJECT SUMMARY

1. General Description (brief overview)

Lake Altoona is a reservoir created by a dam on the Eau Claire River in Eau Claire County in west central Wisconsin. The lake is east of the city of Eau Claire, and is bordered on the southeast by the city of Altoona. The Townships of Seymour (north side) and Washington (south side) surround the rest of the lake (see attachment A - general map). Lake Altoona is gradually being filled in by sediments being carried in by the Eau Claire River. The sedimentation rate is very high and has been estimated at 110,000 cubic yards per year.

The Lake Altoona Protection and Rehabilitation District proposes to dredge sediment from the bed of Lake Altoona and excavate a sediment trap on the bed of the Eau Claire River in order to slow down the rate of sediment deposition and improve the recreation values of the lake. The project consists of dredging a sediment trap in the Eau Claire River upstream from the lake, and dredging the upper portion of the lake basin. See attachment B (USGS Topographic map) for the general layout of the project.

The sediment trap will be dredged on an annual basis, or as needed to help prevent accelerated sedimentation in the lake basin. Maintenance of the sediment trap is expected to generate 50 - 60,000 cubic yards of sand every time the trap is dredged. The sandy material dredged from the lake bed and sediment trap will be stockpiled until it is used by Eau Claire County for cover material at the county landfill and also as an ice control material on county and town highways and local city streets during the winter months. Eau Claire County is also considering use of the material as fill to elevate flood prone properties around the lake as part of a flood hazard mitigation plan.

In order to allow for maximum flexibility and cost efficiency, the lake district proposes to design and bid the project such that the dredging could be accomplished by either of two different options. One option would require a nine foot drawdown of the lake, mechanical dredging of the upper lake basin, and hydraulic dredging of the upstream sediment trap (mechanical dredge spoils would be used to construct the containment dikes for the hydraulic phase). The second option would involve doing all of the dredging hydraulically, with containment dikes being constructed concurrent with the dredging. The preliminary plans for the project which include the locations and details for the lake basin dredging, boat channels and sediment trap are included as attachments C through F.

The mechanical dredging option would involve two separate phases. The first phase, to be conducted in the upper lake basin/river mouth area, involves a one-time removal of approximately 200,000 cubic yards of sand to deepen the upper lake basin and 100,000 cubic yards to establish 3 navigation channels. Two of the channels will extend from the main lake basin up the Eau Claire River for a distance of about 3300 feet, the third will extend from the main basin into McFaul Bay in the northeast corner of the lake. The second dredging area will involve creating a 1200 ft. long by 230 ft. wide, 6 ft. deep sediment trap in the river 1 1/4 miles upstream from the lake. It is estimated that the creation of the sediment trap will involve the removal of 60,000 cubic yards of sand from the river bed.

Dredging by mechanical means will require a 9 foot drawdown of Lake Altoona to sufficiently dewater the upper lake basin for earth moving operations. The drawdown, if necessary, would be started August 1, 1996. The lake would be drawn down at a rate of no more than 2 inches per day. At that rate, the drawdown would be completed in 54 days. The dredging operation would begin in December of 1996 or when the lake bottom is frozen and capable of supporting earthmoving equipment. Temporary haul roads will have to be constructed on the exposed bed of the lake to facilitate equipment operations. Mechanical dredging may require temporary rerouting of the river flow to facilitate dredging of the boat channels. Hydraulic dredging of the sediment trap would first occur in the summer of 1997 after mechanical dredging is complete and the lake is returned to normal levels. Subsequent annual maintenance dredging of the sediment trap would occur thereafter.

The hydraulic dredging option would not require a drawdown in order to be implemented. This scenario would take about four months to complete and would thus require initiation in June of 1996 to avoid freeze-up in the fall. This option would involve the use of a barge-mounted hydraulic cutterhead dredge to accomplish the same objective as outlined above. The hydraulic dredging plan would entail the same 300,000 cubic yards, one-time removal of material from the upper lake basin, as well as the same sediment trap configuration proposed for the mechanical option.

All dredged material will be conveyed to a stockpile/dewatering site. Mechanically dredged sand will be trucked to the site, while hydraulically dredged material will be transported as a slurry via a pipeline.

The stockpile site will be located on an 82 acre parcel of land owned by Eau Claire County in the S1/2, SW1/4, Sec. 17, T.27N. R.8W., Town of Seymour, Eau Claire County. The site is bordered by North Shore Drive on the south, a Northern States Power transmission line on the east, CTH "QQ" on the north,

and private property owned by the Eau Claire Rod and Gun Club on the west. See attachments G through I for proposed stockpile/dewatering site plans. The site is currently a part of the Eau Claire County Forest system. It will be withdrawn from the State County Forest program for this project. See attachment O - County Forest Withdrawal Application. The County has initiated the process for formal withdrawal, but will retain ownership of the site. A land-use lease agreement will be negotiated with the lake district at a later date. To mitigate the loss of public forest land base due to the withdrawal, an 80 acre parcel of forested land, located in the SE1/4 NW1/4 and NE1/4 SW1/4, Section 22, T.27N. R.5W., Town of Wilson, Eau Claire County, has been purchased for inclusion in the county forest system. See attachments M and N for maps showing the location and boundaries of the county forest replacement parcel.

Initially, the dredge spoils transported from the lake basin to the stockpile site will be used to construct a dike system for containment of the hydraulic dredging slurry (i.e. sediment and carriage water). The containment area will be sized to hold all of the dredged material and accompanying carriage water for each dredging event. Carriage water will be discharged from the site in two ways. It is anticipated that much of the water will infiltrate the ground within the confines of the dewatering area. Any carriage water that does not evaporate or infiltrate into the ground will be gradually released to the Eau Claire River through an outlet pipeline after the suspended solids settle out. A Wisconsin Pollution Discharge Elimination System (WPDES) permit will be issued for the groundwater and surface water discharges. The WPDES permit will set limits on the amount of suspended solids and other pollutants that may be present in the effluent. Periodic removal of the sand will be necessary to maintain adequate storage volume in the dewatering area for subsequent dredging events. Preliminary plans and details for the dewatering basin outlet and pipeline are included as attachments J through L.

2. Purpose and Need (include history and background as appropriate)

Lake Altoona was created in the late 1930s when a dam was constructed on the Eau Claire River east of the City of Eau Claire. The Eau Claire River has historically carried an extremely high sediment load of sand and, since the dam was completed, deposited it into Lake Altoona (sedimentation rate is estimated at approx. 110,000 cubic yards/year). The effects of this sediment deposition have become noticeable in the past two decades in the form of rapidly growing sandbars at the upstream end of the lake and reduced channel depth in the river leading to the lake. The Lake Altoona Protection and Rehabilitation District was formed in 1974 to address the problems created by continued sedimentation and water quality degradation in the lake.

Since its formation, the Lake District has funded or prompted many studies to quantify existing problems, identify their probable causes, and determine potential solutions and improvements. The initial effort on the sedimentation problem was a general feasibility study that addressed such items as sediment loading estimates, sediment grain size and deposition rate, stream gradients and velocities, streambank erosion and water quality parameters. Subsequent studies identified streambank erosion sites and suggested management alternatives for reducing the degradation of Lake Altoona. An initial management alternative recommended was streambank stabilization to reduce the sediment load to the lake. Some streambank rip-rapping and vegetation establishment projects have been done based on that recommendation.

Further studies concluded that streambank protection measures upstream of the lake would be ineffective in alleviating the sedimentation problem in Lake Altoona. The highly erodible, non-cohesive soils comprising the bed of the channel will provide an unlimited source of moveable material even if the sediment supply due to bank erosion were significantly reduced. Based on this conclusion, the Lake District decided to look into constructing a sediment trap and initiating a periodic dredging program to remove accumulated and incoming sediment before it reaches the lake. In December 1994, the Lake District also decided to pursue a one-time, large-scale dredging project in

the lake basin to create boat channels and deepen the mouth of the river at the east end of the lake.

After determining the scope of the project, the Lake District undertook further studies to collect and analyze the type and nature of the sediment, to model and design a sediment collection trap, and to collect deep soil borings in the proposed stockpile area. They also identified environmental concerns regarding both the dredging operation and stockpile site design and operation. These studies have found that the sediment in the river and lake is a clean, uniform sand that is of sufficient quality to use as daily cover material at the county landfill and as a winter ice control material for county and town roads. Detailed reports on the sediment sampling and analysis are available for review at the Western District DNR Headquarters office.

To determine the suitability of soils at the stockpile/dewatering site, deep soil borings were conducted to gain an understanding of the underlying soil properties relative to water infiltration capability and depth to limiting layers or apparent groundwater. Monitoring wells were installed at three of the soil borings sites to allow on-going assessment of groundwater conditions at the site.

The sediment trap was modeled using "HEC-6", a sediment transport program developed by the Corps of Engineers and "ACROBAT", a program developed at the University of Minnesota, to optimize the size, location and efficiency of the trap. The purpose of the sediment trap construction and annual maintenance dredging is to capture and remove approximately 50% of the incoming sediment load of the river before it gets to the lake. The net sediment load of the river has been estimated at 110,000 cubic yards annually, of which 50% is "bed load" and 50% is suspended or "wash load". The sediment trap will have a capacity for 50 - 60,000 cubic yards, and should effectively catch all of the estimated average yearly bed load, thus reducing net sediment loading to the lake by 50%. It is expected that the on-going maintenance of the sediment trap will double the life span of the lake. Also, this would help deepen the river between the trap and the lake by increasing the scouring/sediment transporting potential in that reach of river. The result of the project would be improved and prolonged navigability in the upper end of the lake and in the lower 1.5 miles of the river. The purpose of the boat channel dredging is to restore opportunities for safe navigation that have been lost as the upper lake and river delta have filled with sediment.

3. Authorities and Approvals (list local, state and federal permits or approvals required)

Federal Section 404 Clean Water Act (dredging)
Section 28.11, Wisconsin Statutes (county forest withdrawal)
Section 30.20, Wisconsin Statutes (lake dredging)
Section 30.12, Wisconsin Statutes (carriage water outfall structure)
Section 31.02, Wisconsin Statutes (lake drawdown)
Section 144.025 Wisconsin Statutes (water quality)
Section 147.02, Wisconsin Statutes (wastewater discharge permit)
Wisconsin Administrative Code NR 1.95 (wetland policy)
Wisconsin Administrative Code NR 140 (groundwater quality)
Wisconsin Administrative Code NR 150 (WEPA)
Wisconsin Administrative Code NR 216 (stormwater regs.)
Wisconsin Administrative Code NR 345 (dredging)
Wisconsin Administrative Code NR 347 (dredging)
Wisconsin Administrative Code NR 500 (solid waste)

4. Estimated Costs and Funding Sources

The cost estimates that follow have been used for budgeting purposes and for the application for grants. These estimates cover only the initial project and will be refined as plans to implement the project are finalized. It is anticipated that costs for subsequent sediment trap maintenance dredging will

There will be two pipelines associated with the stockpile/dewatering site. One pipeline will carry the hydraulically dredged slurry to the settling basin, while the second will carry excess discharge water (that has not percolated into the ground) back to the river. During sediment trap dredging, the slurry pipeline will follow the boat landing road/powerline right-of-way north and east from the river (sediment trap location), cross underneath North Shore Drive, and end at the containment site. If the main lake basin is hydraulically dredged, the slurry pipeline would likely be placed along the

measures for mitigating the aesthetic impacts of the disposal site. assistance in developing an acceptable planting plan and other possible mitigation as a condition of the dredging permit and will provide technical to fill in gaps in the natural vegetation. The Department will require this along North Shore Drive will be enhanced by additional tree plantings designed visually screen the site from GTH "00" and North Shore Drive. The buffer area 50 to 100 foot wide buffer of trees and natural vegetation will be left to topsoil on the site will be stripped and saved for placement on the dikes. A on the amount of fine material in the sediment and the rate of pumping. The capability and infiltration capacity of the settling basin system will depend allow the carriage water to infiltrate into the ground. The exact storage dredging of the sediment trap. The bottom of the basin will not be sealed to contain the slurry of sand and carriage water from the subsequent hydraulic during dike building. The planned permanent settling basins will be needed to temporary sediment basin will be needed to contain and treat carriage water constructed directly from the sandy slurry being pumped to the site. A lake dredging option is chosen, the containment dike system will be used to construct the dike system for the settling basin. If the hydraulic lake in the winter of 1996/97 will be hauled by truck to the cleared area and I and L. If the mechanical dredging option is chosen, sand dredged from the and dimensions of the containment dike system is illustrated in attachments H, 60 acres of the site will be cleared, grubbed, and graded. The configuration hold approximately 1/2 million cubic yards of dredged material. Approximately be conveyed to the stockpile/dewatering area described in Section 1 (Refer to Attachment B for location). The site encompasses 82 acres and would be able to

All of the dredged material, whether from the delta or the sediment trap, will be conveyed to the stockpile/dewatering area described in Section 1 (Refer to Attachment B for location). The site encompasses 82 acres and would be able to hold approximately 1/2 million cubic yards of dredged material. Approximately 60 acres of the site will be cleared, grubbed, and graded. The configuration and dimensions of the containment dike system is illustrated in attachments H, I and L. If the mechanical dredging option is chosen, sand dredged from the lake in the winter of 1996/97 will be hauled by truck to the cleared area and used to construct the dike system for the settling basin. If the hydraulic lake dredging option is chosen, the containment dike system will be constructed directly from the sandy slurry being pumped to the site. A temporary sediment basin will be needed to contain and treat carriage water during dike building. The planned permanent settling basins will be needed to contain the slurry of sand and carriage water from the subsequent hydraulic dredging of the sediment trap. The bottom of the basin will not be sealed to allow the carriage water to infiltrate into the ground. The exact storage capability and infiltration capacity of the settling basin system will depend on the amount of fine material in the sediment and the rate of pumping. The topsoil on the site will be stripped and saved for placement on the dikes. A 50 to 100 foot wide buffer of trees and natural vegetation will be left to visually screen the site from GTH "00" and North Shore Drive. The buffer area along North Shore Drive will be enhanced by additional tree plantings designed to fill in gaps in the natural vegetation. The Department will require this assistance in developing an acceptable planting plan and other possible measures for mitigating the aesthetic impacts of the disposal site.

5. Manipulation of Terrestrial Resources (include relevant quantities - sq. ft., cu. yd., etc.)

PROPOSED PHYSICAL CHANGES

Much of the money needed will come from special taxation of residents within the Lake District. The Lake District has been taking itself at the maximum rate allowed by law to generate a revenue base to undertake this lake improvement project. The Lake District has received Lake Management Grants administered through the State of Wisconsin which are being applied toward the costs of investigations and design of the sediment trap. The District has also recently received a grant through the Recreational Boating Facilities Program, administered by the Wisconsin Waterways Commission, to cost-share expenses for feasibility studies associated with dredging of the boat channels. Financial assistance for this project has also been approved by the Sau Claire County Board. Sau Claire County has authorized \$350,000 for the project, and may authorize more funds in the next fiscal year. In order to maintain funding for subsequent annual maintenance dredging of the sediment trap, the lake district will continue to generate revenue through the special tax levied on property owners in the district.

Delta Dredging-\$1,349,000 (including dewatering basin)	\$1,523,000
Sediment trap-\$ 174,000 (initial dredging only)	
Total	\$1,523,000

be similar to costs for the initial trap dredging (costs will likely increase to some degree over time due to inflation).

The navigation channels will all be approximately 6 feet deep and 50 feet wide. The sandy delta islands and associated vegetation will not be affected. The navigation channels will be approximately 4 feet in the upper end of the lake. The sandy delta islands and associated vegetation will not be affected. The navigation channels will be approximately 6 feet deep and 50 feet wide.

If the hydraulic lake dredging method is chosen, no drawdown or other manipulations of the waterway would be necessary. Excavation of material from the lake would be accomplished with a barge-mounted hydraulic cutterhead dredge.

Upon completion of the drawdown, dredging of the upper end of the lake bed would begin. The first operation would consist of building haul roads to facilitate equipment movement on the soft lakebed sediments. The haul roads would be constructed of sandy lakebed sediment material to the extent possible. Gravel or breaker rock may be needed to provide a stable operating surface at some locations. This material would be removed as dredging operations were completed. The thalweg of the river would need to be controlled in a single channel to allow thorough dewatering of the lake bed sediments. Based on existing topography and flow patterns, it is anticipated that the river would establish a channel by itself along the south shore of the upper lake during the drawdown. Temporary diversions could be necessary to train the channel in that direction. The specific location of and process for constructing the haul roads and temporary diversion channels would be determined as the drawdown progressed and site conditions could be accurately assessed. Other trenches or ditches may be necessary to dewater small "pool" areas that remain ponded after the majority of the drawdown has been completed.

If the mechanical lake dredging option is chosen, the most important manipulation of the waterways will be the lake drawdown. The drawdown would begin in August 1, 1996. The drawdown would be at a rate of 2 inches per day until the lake level is dropped 9 feet from elevation 804 MSL to elevation 795 MSL. This would take 54 days. See attachment P for a comparison between "normal" pool and "drawdown" pool stages for the lake. Lake Altona is currently lowered two feet each fall and returned to normal levels the subsequent spring. This practice has been in place since 1948 and was initiated to reduce the damage to shoreline property caused by spring ice breakup. Lowering the lake an additional seven feet would provide complete dewatering of the upper lake basin, thus enabling the six foot deep boat channels to be excavated with standard excavating and grading equipment such as bulldozers and backhoes.

The aquatic resources that will be manipulated are Lake Altona, the Eau Claire River and a one-tenth acre (approximate) wetland area on the dredge material disposal/dewatering site.

6. Manipulation of Aquatic Resources (include relevant quantities - cfs, acre feet, MGD, etc.)

The aquatic resources that will be manipulated are Lake Altona, the Eau Claire River and a one-tenth acre (approximate) wetland area on the dredge material disposal/dewatering site.

6. Manipulation of Aquatic Resources (include relevant quantities - cfs, acre feet, MGD, etc.)

The aquatic resources that will be manipulated are Lake Altona, the Eau Claire River and a one-tenth acre (approximate) wetland area on the dredge material disposal/dewatering site.

wide. The channel leading into McFaul Bay will be 520 feet long. The northern navigation channel leading into the Eau Claire River will be about 3300 feet long, and the southern navigation channel leading into the Eau Claire River will be about 3200 feet long. Side slopes on each of the navigation channels will be 5' horizontal (h) to 1' vertical (v). All of the mechanical lake dredging will be accomplished with standard excavating equipment such as backhoes and bulldozers. See attachment D for typical cross sections of the lake delta and boat channel dredge cuts.

The Eau Claire River, adjacent to the county boat landing in section 20, will be dredged to create the sediment trap. This section of river was selected for the sediment trap because it is relatively straight and does not have excessive flow velocities. The dredging will create a 6-foot deep, 220-foot wide longitudinal trench 1230 feet in length on the bed of the river. The upstream end of the sediment trap will have a 10h to 1v slope. The remaining slopes on the trap will be 3h to 1v. See attachments E and F for profile, cross sections and plan view of the sediment trap. The dredging operation will require floating dredging equipment including pipelines and cables which may be a temporary barrier to navigation. As referenced in section 1 of this document, dredging of the sediment trap is anticipated to occur annually or on an "as needed" basis. The sediment trap will, over time, increase depths in the reach of river between the trap and the delta by enhancing the natural scouring action of the river. The sediment scoured from the river will be subsequently deposited in the newly dredged delta area or in deeper lake sections further downstream.

A small, highly degraded wetland area (Type Elk, area approximately 1/10 acre) in the stockpile/dewatering site will be filled during clearing and grading operations on the site. See Attachment Q for location of the wetland area.

7. Buildings, Treatment Units, Roads and Other Structures (include size of facilities, road miles, etc.)

The pipelines for carrying dredging slurry to, and discharge water away from, the dewatering basin are discussed above in section 6. An auxiliary portable pumping unit may be required near the midpoint of the dredge slurry pipeline to enhance pumping capability over the long distance from the river to the disposal site.

If the mechanical dredging option is used, a haul road leading from the lake dredging area to North Shore Drive will also need to be constructed. The road will extend straight off the west end of North Shore Drive to the lakebed, where it would connect to the dredging area. The portion of the haul road from North Shore Drive to the ordinary high water elevation of the lake would be on private property. The lake district will make an appropriate agreement with that property owner to construct the haul road.

If the mechanical dredging option is chosen, North Shore Drive, between the lake and the dewatering/stockpile site, will carry extensive truck traffic while the boat channel and delta dredging is in progress. The road will likely require repairs at the conclusion of this phase of the project and will also likely require periodic plowing or grading to remove material either spilled from trucks or tracked onto the road surface by truck tires. The lake district will be responsible for any repair work or road clean up work that is necessary to be done.

8. Emissions and Discharges (include relevant characteristics and quantities)

Some exhaust fumes will be discharged to the atmosphere by the dredging equipment and associated vehicles. There will be some exhaust fumes from earthmoving equipment used to construct and maintain the stockpile area.

Noise levels are expected to increase as a result of the construction and utilization of the stockpile/dewatering area. Future use of the stockpile/dewatering area and removal of sand for beneficial use purposes will also generate noise from excavating and hauling equipment.

Carriage water from the hydraulic dredging will be discharged to groundwater via infiltration in the dewatering basin and to surface water via a permanent underground pipeline to the river. The route of the line is described above in section 5. A plan sheet showing the outfall location and structure is included as attachment R. A Wisconsin Pollution Discharge Elimination System (WPDES) permit will be required for the discharge of the carriage water to groundwater and to the river. The permit will set limits on the rate of water discharged and set standards for the quality of the discharge water and monitoring requirements. Rate limits and quality standards will be set for both the groundwater and surface water discharges. The permit will be issued just prior to start-up of the project so that the time limits on the permit will not conflict with project scheduling.

The sandy river and lake sediment has been tested and found to be free of heavy metals, pesticides, organic compounds, or other hazardous substances that would inhibit its use as a construction material, as a cover material for the county landfill, or as a road ice control material. Tests on the sediments did show elevated levels of Iron and Nitrogen. After further analysis of sediment samples, it has been determined that these compounds may impact the groundwater at the dewatering/stockpile site. Close monitoring of groundwater elevations and quality down-gradient from the dewatering basin will be necessary during the operation of the site. Groundwater sampling will be initiated in early 1996 to obtain baseline data on the pre-existing levels of Iron and Nitrogen in the groundwater at the site. Groundwater monitoring will continue for the duration specified in the WPDES permit.

9. Other Changes

No other changes to resources or infrastructure are anticipated for the project.

10. Identify the Maps, Plans and Other Descriptive Material Attached

Attachment	<u>A</u>	County map showing the general area of the project
Attachment	<u>B</u>	USGS topographic map of project site
Attachment	<u>C</u>	Lake dredging area site development plan
Attachment	<u>D</u>	Lake dredging area typical cross sections
Attachment	<u>E</u>	Sediment trap plan and profile
Attachment	<u>F</u>	Sediment trap typical cross sections
Attachment	<u>G</u>	Disposal/dewatering site general map
Attachment	<u>H</u>	Disposal/dewatering site plan
Attachment	<u>I</u>	Disposal/dewatering site typical cross sections
Attachment	<u>J</u>	Pipeline route map and profile
Attachment	<u>K</u>	Pipeline road crossing detail
Attachment	<u>L</u>	Dewatering basin outlet detail
Attachment	<u>M</u>	Topographic map of replacement CFL parcel
Attachment	<u>N</u>	Aerial photo of replacement CFL parcel
Attachment	<u>O</u>	Forest Withdrawal Application
Attachment	<u>P</u>	Bathymetric map of Lake Altoona
Attachment	<u>Q</u>	Wetland Map - Stockpile site
Attachment	<u>R</u>	Plan and location map for surface discharge outfall
Attachment	<u>S</u>	DNR Field Investigation Report

AFFECTED ENVIRONMENT

Information in this report is based on the following literature/correspondence:

X. Literature/Correspondence

Eau Claire County (December 1994) Groundwater Assessment.

Eau Claire County. (January, 1986). Environmental Assessment for Eau Claire County Forest Ten Year Comprehensive Management Plan - 1986-1995.

Finley Engineering Co., Inc. (July 1, 1975). Feasibility Study: Lake Altoona, First Quarterly Report.

Finley Engineering Co., Inc. (October 3, 1975). Feasibility Study: Lake Altoona, Second Quarterly Report.

Finley Engineering Co., Inc. (December 1, 1975). Feasibility Study: Lake Altoona, Third Quarterly Report.

Finley Engineering Co., Inc. (March, 1976). Feasibility Study: Lake Altoona, Final Report.

Mead & Hunt, Inc. (August, 1981). Lake Altoona Management Plan.

Owen Ayres and Associates, Inc. (November 26-30, 1979). Bank Erosion Study, Eau Claire River: Highway 27 to Lake Altoona.

River Country Resource Conservation & Development, Inc. (May, 1980). Lake Altoona District Study of the Eau Claire River (#55-6004-035-034).

River Country Resource Conservation & Development, Inc. (July, 1987). Lake Altoona District Study of the Lower Eau Claire River Watershed Sediment(#55-6004-035-115).

Short Elliott Hendrickson, Inc. (July, 1992). Grant Application for Wisconsin Lake Management Planning Project.

Short Elliott Hendrickson, Inc. (May, 1993). Lake Altoona Sediment Reduction Plan: Feasibility Studies and Conceptual Plans Report.

Short Elliott Hendrickson, Inc. (July, 1993). Grant Application for Wisconsin Lake Management Planning Project.

Short Elliott Hendrickson, Inc. (August, 1994). Lake Altoona Sediment Reduction Plan: Application for Permits.

Simons, Li and Associates (December, 1988). The Effect of Riverbank Stabilization on Sedimentation in Lake Altoona.

West Central Wisconsin Regional Planning Commission (April 15, 1988). Lake Altoona Protection and Rehabilitation District: Implementation Plan.

Wisconsin Department of Natural Resources, Office of Inland Lake Renewal (August 26, 1980). Lake Altoona, Eau Claire County: Feasibility Study Results: Management Alternatives.

U.S. Geological Survey, 1988. Eau Claire East 7.5-minute quadrangle map.

U.S. Department of Transportation Federal Highway Administration and Wisconsin Department of Transportation. (January, 1992). Draft Environmental Impact Statement for U.S. Highway 53, IH94 to USH 53/STH 124 Interchange, Eau Claire and Chippewa Counties.

Wisconsin Conservation Department, 1964. Surface Water Resources of Eau Claire County.

Wisconsin Department of Natural Resources - Western District, 1990, Survey of Aquatic Macrophytes in Lake Altoona.

USDA Soil Conservation Service, 1974, Soil Survey of Eau Claire County, Wisconsin

X Personal Contacts (list in item 28)

Field Analysis By: X Author, X Other (list in item 28)

Past Experience With Site By: X Author X Other (list in item 28)

11. Physical (topographic - soils - water - air)

A. Lake

Lake Altoona and the Eau Claire river lie primarily within a narrow, sandy glacial outwash plain. Scattered sandstone capped hills occur on the relatively flat plain. The area is underlain by sandstone and granitic bedrock. In several locations the Eau Claire River has eroded completely through the overlaying glacial outwash and soft sandstone to expose the hard granite formations. Typical native upland vegetation communities in the area consist of Oak/Jack Pine forest. Scattered agricultural fields are present. Much former farmland in the river valley has been converted to pine plantations.

Lake Altoona is an impoundment of the Eau Claire River, located in Eau Claire County, Wisconsin. The lake was created in 1938 by the construction of a concrete dam for the purposes of recreation and flood control. The lake has a surface area of approximately 840 acres and the reservoir outlet is located approximately 4 miles east of the confluence of the Eau Claire and Chippewa Rivers. Maximum depth of the lake is about 25 feet near the dam. Lake Altoona currently undergoes an annual two foot winter drawdown as a measure for minimizing shoreline damage from spring ice break-up and associated high water levels.

The lake has been slowly filling with sediment since its creation. A 1975 study (Finley Engineering) estimated that 110,000 cubic yards of sediment are entering the lake annually. The "delta" is the upper part of the lake basin where the Eau Claire River widens under the influence of the impoundment. This area is where the lake basin dredging is proposed. This part of the lake is very shallow (water depths 2' or less) due to accumulation of sediment, and is largely devoid of aquatic vegetation. The sediment being deposited by the river is comprised mostly of medium to fine sands (particle sizes 2 to .074 millimeters) which lacks the ability to support significant aquatic vegetation. Several of the small sand islands in the delta area do support a combination of aquatic and upland vegetation, but there are no plans to dredge or otherwise modify these islands. Sediment analysis data for the lake and river is on file at the DNR Western District Office. McFaul Bay is a backwater inlet in the northeast corner of the lake. The bay contains finer bottom sediments (particle sizes .42 to .010 millimeters) and supports abundant aquatic vegetation. According to a 1990 DNR survey of aquatic macrophyte plants in the lake, McFaul Bay and other smaller bays serve as primary sites for the growth of aquatic vegetation in the lake. Aquatic plant

growth in the main body of the lake is limited to scattered shallow water areas near shorelines.

There are two small tributary streams that flow into Lake Altoona. Fivemile Creek is a perennial stream that empties into the main basin of the lake approximately 3/4ths of a mile upstream from the dam on the north shore. It is a deeply incised stream with an unconsolidated sand bed and banks. The second tributary, also perennial, is unnamed. It flows into McFaul Bay in the Northeast corner of the lake. The lower reach of this stream has a low gradient as it flows through a tag alder wetland. This stream has a shifting sand bottom and channel changes due to flooding are common.

Another water body associated with the lake is Bullhead Pond. The pond is a deep marsh wetland complex located approximately 1/4 mile east of McFaul Bay. It is bisected by County Highway QQ. The pond is located on property owned entirely by the Eau Claire Rod and Gun Club. This wetland is part of an old meander scar of the Eau Claire River. It was "enhanced" when Lake Altoona was created. The surface water levels of Lake Altoona and Bullhead Pond are at approximately the same elevation.

B. River

The Eau Claire River is a soft water stream with an average width of 90 feet and average depth of 1.2 feet. Natural fluctuations in the water level of the river can make boating and canoeing difficult at times. However, the river system receives heavy recreational use throughout the open water months. At the sediment trap location the river is 300 feet wide and has a sand bottom. The depth varies from 4' to less than 1' with in-stream flow velocity of less than .5 fps. This location is the upper reach of the impoundment created by the Altoona Dam. There are riparian wetlands and backwater sloughs associated with the lower end of the river and upper end of the lake. In particular, a large wetland complex exists just upstream from the county boat landing where Seven Mile Creek enters the river. Other small backwater sloughs are located just upstream from the "delta" area of the lake.

The south bank of the Eau Claire River, for a distance of 2000 feet upstream of the main body of the lake, is approximately 80 feet high. The bank is primarily sand and is exhibiting characteristics of accelerated bank erosion. There is a visible "fault line" approximately one-third of the distance up the bank which runs almost the entire length. This is the result of erosion at the toe of the slope and subsequent slumping of the bank. There are several new homes at the top of this bank which may be imperiled if the erosion is not addressed.

Sixmile Creek is a small tributary stream that flows into the Eau Claire River from the south. It enters the river approximately 1 mile upstream from the main body of Lake Altoona. Sixmile Creek is deeply incised in the surrounding sandy plain, and has an unconsolidated shifting sand bed and banks. This stream is very susceptible to bank erosion.

C. Dewatering/Stockpile Site

The proposed dredge material dewatering/stockpile site will be located on an 82 acre site. The tract is owned by Eau Claire County and is currently enrolled in the County Forest Land program. It is estimated that 60 acres of the site will actually be cleared for construction of the settling basin system. Topography of the site is gentle with a gradual slope to the south and west. Sandy soils of the Menagha series are most prevalent on the site. These soils consist of fine to medium sands and loamy sands underlain by stratified deposits of sand and gravel with lenses of silt and clay. According to soil borings performed on the site, depth to groundwater ranges from 20 to 40 feet. Depth to sandstone bedrock is estimated at 90 to 110 feet. This area was hit by a severe wind storm in 1980 which leveled much of the timber on the site. Salvage timber harvesting operations were carried out

on the tract between 1981 and 1986. A small (approximately one-tenth acre) wetland area exists in the interior of the tract. The wetland appears to have formed as a result of impeded drainage from the surrounding gentle slopes. The wetland is in a degraded condition, presumably from past timber sale operations or other manipulations. Vegetation consists of Reed Canary Grass, mosses and ferns. The approximate boundary of the wetland is shown on the map in Attachment Q.

D. Replacement County Forest Parcel

The proposed replacement county forest land parcel, located in the Town of Wilson, is a recently logged hardwood site. The replacement 80 acres of forested land was purchased in 1995 by the county to maintain the total forest acreage base, thereby offsetting the acreage loss created by withdrawal of the dewatering/stockpile site. This parcel is described as the southeast quarter of the northwest quarter, and the northeast quarter of the southwest quarter, Section 22, Township 27 North, Range 5 West, located in the Town of Wilson, Eau Claire County, Wisconsin. See Attachments M and N for the location of the replacement site. The 80 acres is landlocked from public road access and blocks in (consolidates) well with the other county forest property. This property was heavily forested (45 acres) with white oak sawtimber until a harvest operation shortly before the county bought the land. These acres now consist of a light stocking of 5 to 11 inch diameter oak, basswood and red maple along with many sugar maple saplings. Regeneration is expected to be very strong on this good quality hardwood site. The north forty contains about 20 acres of middle aged white birch and aspen, with the rest being in a brushy to open condition. There is 1 small wetland tag alder area about one acre in size. Soils consist of primarily Fallcreek sandy loam and loam. These soils are somewhat poorly to moderately well drained, nearly level topography on glacial till plains; well suited to woodland and wildlife habitat. This forested land will now be managed to provide multiple public benefits including timber production, wildlife habitat, outdoor recreation, soil and water protection, and more.

E. Groundwater

Groundwater quality in the project area is generally good. Elevated Iron concentrations are common in private water supply systems. This is due, presumably, to naturally high Iron concentrations in the soils of the area.

A known groundwater contamination plume is associated with an abandoned land fill approximately one mile southeast of the lake. Some homes downgradient from the landfill have had their private water supply systems contaminated by this plume. DNR hydrogeologists have been, and continue to be, involved in remedial efforts to address this situation.

12. Biological (dominant aquatic and terrestrial plant and animal species and habitats including threatened/endangered species; wetlands amounts, types and hydraulic value)

A. Aquatic Ecosystem

While no recent fishery surveys have been conducted, Lake Altoona and the Eau Claire River are known to support warm water fish populations dominated by walleye, smallmouth bass, muskellunge, perch, crappie, and redhorse. Other species known to inhabit the lake and river include northern pike, white suckers, carp and quillback. Numerous species of other rough fish and minnows are likely present as well.

According to a 1990 macrophyte survey conducted by DNR staff there are 19 species of aquatic plants found in the lake, but their distribution is limited primarily to the shallow backwater areas of the lake such as McFaul Bay. Aquatic plants in the main body of the lake are confined to shallow depth zones and occur only at a few scattered sites. Common species observed include coontail, elodea, small duckweed, small pondweed, long-leaf pondweed,

curly-leaf pondweed, great duckweed, and hybrid cattail. Other less common species observed include common watermeal, wild celery, slender naiad, and common arrowhead. Little to no plant growth was found in the river directly upstream from the lake.

Amphibian and reptilian species are abundant in and around the lake and river. Two turtle species presently listed as threatened in Wisconsin are known to inhabit the Eau Claire River and its riparian lands. The Blandings turtle and the Wood Turtle have been documented as occurring near the project area. The Blandings Turtle inhabits marshy sloughs and backwater areas of the river system, while the Wood Turtle prefers the clear water, sandy substrate, and riparian forests associated with the main stem of the river. Several common species of frogs (and the American Toad) also inhabit the aquatic and riparian upland habitats in the project area.

Bullhead Pond has no documented fishery, but does provide good quality habitat for waterfowl, furbearers, songbirds, reptiles and amphibians. It is probable that Blandings Turtles use the marsh complex as a hibernation site. The vegetation community of the wetland complex consists primarily of cattails, with tag alder and dogwood shrubs around the perimeter. This wetland complex has a history of excessive cattail growth which threatens to lessen its recreational use potential.

Two species of unionid mollusks listed as Threatened in Wisconsin, the Pistolgrip and Salamander mussels, are known to occur in the Eau Claire River. These species exist in reaches of the river where suitable stable gravel and rocky substrates occur. Other more common species of mussels are likely present in the river and lake where suitable substrates exist.

B. Upland Ecosystem

Avian species in the area include songbirds, shorebirds, raptors and waterfowl. Some of the common species include the eastern kingbird, belted kingfisher, redwing blackbird, great blue heron, mallard, teal and coot. Many furbearing mammals inhabit these waters and associated riparian lands including beaver, muskrat, raccoon, mink and ermine.

The dredge material stockpile/dewatering site is comprised of 82 acres of upland Oak and Jack Pine forest interspersed with small patches of dry grassland. The age of the forest is very young (about 12 to 15 years) due to the 1980 windstorm that blew down most of the older trees. This portion of the county forest provides habitat for a variety of mammals, birds and other organisms. Common inhabitants of this forested area are white-tail deer, cottontail rabbit, woodchucks, squirrels, ruffed grouse, woodcock, white footed mouse, short tailed shrew, blue spotted salamander, and numerous species of songbirds.

Areas near the stockpile site and dredge slurry pipeline routes also contain suitable habitat for several threatened and endangered upland species. The Karner Blue Butterfly, a federally endangered species (Special Concern species in Wisconsin) which is known to inhabit sandy areas with abundant Wild Lupine, does occur in and near the project area. Three other rare lepidopteran species may also occur in the same remnants of native barrens habitat that support the Karner Blue. The Phlox Moth (state endangered, proposed for federal listing), the Cobweb Skipper (state special concern), and Dusted Skipper (state special concern) have all been observed in or near the project site. The Bald Eagle, a federally threatened species, does inhabit Eau Claire County. However, no Bald Eagles are known to nest or winter in project area.

13. Cultural

a. Land use (dominant features and uses including zoning if applicable)

Land use in the immediate project area is a mixture of wild land (county forest lands and private forests) and rural residential. Lakeshore residential development around Lake Altoona is heavy, with most of the lake frontage developed as year-around residences. Lake Altoona County Park, a popular recreation facility, is located on the southern shore of the lake.

Eau Claire County owns the land being proposed for use as the stockpile/dewatering site, and the land along the route of the hydraulic dredging pipeline corridor. The land is currently part of the Eau Claire County Forest. An application to withdraw the stockpile/dewatering site lands from County Forest Land has been filed (See Attachment O). This tract of land has been used only for forestry and passive recreation purposes in the past. An 80 acre replacement parcel in the town of Wilson, Eau Claire County, has been purchased by the county and is being entered under the County Forest Law to offset disposal site withdrawal.

b. Social/economic (include ethnic and cultural groups)

Lake Altoona and the Eau Claire River are popular public recreation spots. They are used by the public for a variety of water based recreational activities. These activities include power boating, sailing, water skiing, swimming, fishing, canoeing, wildlife observation, and aesthetic enjoyment. Lake Altoona County Park, located on the south side of the lake, is a heavily used multi-purpose recreation facility that provides the closest designated swimming beach to the cities of Altoona and Eau Claire. Public boating access to the lake is via three boat ramps; one located on the south shore of the lake at the county park, another on the north shore of the lake approximately a quarter mile upstream from the dam, and the third located on the Eau Claire River approximately 1.5 miles upstream of the lake at the proposed sediment trap location.

Access to the lake from the upstream boat ramp located on the Eau Claire River has become very difficult due to a reduction in river channel depth caused by sedimentation. The channel within this portion of the river offers borderline acceptable depths for motorboat navigation and the deepest part of the channel is difficult to find at times. As a result of the degraded condition of the upstream access, use of the upstream boat ramp has declined in past years.

The Eau Claire County Forest consists of approximately 52,000 acres representing about 30 percent of the commercial forest acreage in the county. The stockpile site is located on the western-most portion of the county forest, closest to the urban setting of Altoona and Eau Claire. The tract receives recreational use in the form of hiking, mountain biking and nature observation. Due to a township ordinance that prohibits the discharge of firearms in the area, hunting opportunities on the tract are limited to archery hunting for deer and small game.

The property surrounding Bullhead Pond is used by the Eau Claire Rod and Gun Club for dog training and trial competitions.

c. Archaeological/Historical

According to the State Historical Society, there are no archaeological/historical areas known to be present within the area of the proposed project.

14. Other Special Resources (e.g., archaeological, historical, endangered/threatened species, scientific areas, natural areas)

The endangered and threatened wildlife species known to occur in the area are listed in Item 12B-Wildlife.

Phillips Park, a county designated natural area and park occurs just east of the project location. The park consists of forested uplands and much of the Seven Mile Creek "delta" where the creek enters the Eau Claire River. This area is not expected to be directly affected by the proposed project other than by minor noise levels associated with operations at the stockpile site.

ENVIRONMENTAL CONSEQUENCES (probable adverse and beneficial impacts including indirect and secondary impacts)

15. Physical (include visual if applicable)

A. Lake

The sediment loading to Lake Altoona is relatively high and reservoir volume is continually being lost. The removal of 300,000 cubic yards of sediment that has accumulated in the lake will have a beneficial effect by restoring depth suitable for navigation to the upper end of the lake. This, coupled with ongoing operation of the proposed upstream sediment trap, is expected to double the life of the lake and improve recreation opportunities on a long term basis.

If the mechanical lake dredging option is implemented, a nine foot drawdown will be necessary to accommodate mechanical equipment for dredging of the lake bottom. This will dewater approximately half of the lake basin. At "normal pool," area of the lake is approximately 840 acres and volume is approximately 8100 acre feet. During the drawdown, the area will be reduced to approximately 400 acres and volume to approximately 2000 acre feet. There are several probable lake impacts associated with the drawdown.

The drawdown would likely cause "head-cutting" and scouring in the exposed river channel, with subsequent deposition in the lake basin as the river bed will be attempting to reach gradient equilibrium. The drawdown could also cause bank erosion along the river and lake shore which may result in increased sedimentation in the lake basin and loss of property adjacent to the lake and river. The consulting engineering firm has estimated that scouring and erosion during the drawdown could result in up to 50,000 cubic yards additional deposition of sediment in the lake basin. Some of this sediment would be retrievable during the lake dredging phase of the project, however the remainder would stay in the lake basin. If major streambank or shoreline erosion/slumping begins to occur during the drawdown process, remediation will be necessary to stabilize the affected areas. As a "worst case" scenario, serious erosion or slumping which imperils adjacent homes would necessitate discontinuation of the drawdown until appropriate remedial measures were taken. Failure of some old existing lake shoreline stabilization structures could also result from the drawdown due to changes in hydrostatic pressure and freeze/thaw action.

In addition to causing "head-cutting" in the Eau Claire River, a drawdown would likely cause "head-cutting" of the streambed in the lower reaches of Fivemile Creek. The effects of such "head-cutting" would be redeposition of sediment into the main basin of Lake Altoona. This could also result in bank instability and further erosion along the affected reaches of this stream. If major erosion problems develop, remediation of the problem sites may be necessary. The unnamed stream that flows into McFaul Bay is not expected to be affected by "head-cutting" due to its low gradient.

A drawdown of the lake is likely to result in lowering of the water levels in the Bullhead Pond wetland complex. This impact would exist for the duration of the drawdown. Any dewatering of this area may lead to further consolidation of bottom sediments which, in turn, could result in accelerated colonization of the basin by cattails and thus additional reduction of open water area suitable for dog training and trials.

If hydraulic dredging is utilized for the upper end of the lake, and the sediment trap, this operation could "re-suspend" fine sediment particles in the upper end of the lake, thereby causing temporary discoloration and an increase in turbidity of the lake water. The sediments that will be hydraulically dredged from the river also contain high concentrations of Iron (sediment analysis data is on file at DNR Western District office). Correspondingly, treated carriage water returned to the lake may have elevated Iron concentrations that could further contribute to discoloration of the water. Discoloration and increased turbidity in the lake water column, which will limit the amount of sunlight penetrating the water, may temporarily reduce the growth of submergent aquatic plants in small areas of the lake. No drawdown would be needed for hydraulic dredging of the upper lake basin.

B. River

Either the mechanical or the hydraulic lake basin dredging option will have the same impact on the river. The project will impact the river from the delta area upstream to the sediment trap location adjacent to the county boat landing. The sediment trap will consist of a 6 foot deep, 200 foot wide trench in the river bed with a length of 1,200 feet. This trench will not be apparent to the shoreline observer. A boater on the river may notice the trench because of a sudden increase in river depth. The increase in water depth and decrease in water velocity created by the sediment trap should make boat launching/docking operations at the boat ramp easier.

"Head-cutting" immediately upstream of the sediment trap may occur, resulting in subsequent deposition in the sediment trap.

The material caught by the sediment trap will not be available to replenish the bedload sediment in the river between the lake and the sediment trap. The scouring of the channel that occurs as a result of the "head-cutting" from the lake basin dredging will result in a deeper channel until gradient equilibrium is reached. This will improve the navigability of the river upstream of the lake making access to the county boat landing easier.

The lake drawdown could also accelerate naturally occurring bank erosion along the river and up Sixmile Creek. Some properties along the river between the delta and the sediment trap location are already experiencing bank erosion. This is evidenced by the undermining of the "fabriform" bank protection along the south bank of the river, and by recent slump failures on the south bank near the mouth of the river. If major erosion occurs, remediation may be necessary. As a Chapter 30 permit condition the Department will require that the Lake District formulate a plan to protect the properties along this reach of the riverbank. For example, this plan could consist of an insurance policy which pays for damages, and/or include the design of adequate riprap plans to stabilize the bank, and/or a waiver of liability from the affected landowners. The plan could also include cost sharing between the landowners, Lake District, and the County.

Water quality in the river downstream from the Altoona Dam may be adversely affected by increased turbidity during major erosion/scouring events that take place during the project. If there is a drawdown, flows in the river downstream from the dam will be elevated above normal levels. During the "refill" period for the lake, flows in the river downstream may be lower than usual for a short period of time. However, at no time would flow be less than 25 percent of the Q₇₋₁₀ flow in compliance with s.31.34, Wis. Stats. Impacts

from increased turbidity and flow changes are not expected to be significant to the river and its aquatic ecosystem.

C. Dewatering/Stockpile Area

The construction of the dredged material dewatering/stockpile area will eliminate an 82 acre parcel of land from the County Forest system. Construction of the site will involve clearing of all vegetation on approximately 60 acres. To offset the removal of 82 acres of county forest land, Eau Claire County has acquired an 80 acre replacement parcel in the town of Wilson. The replacement parcel blocks in well with the county forest boundary and consists of good quality hardwood timber on soils in the Fall Creek series. This parcel was logged in the winter of 1994-95 by the private landowner. Public ownership will insure multiple use management of this parcel in the future, including providing silviculture, wildlife habitat and recreational use opportunities.

A small wetland area, approximately one-tenth acre in size will be filled during clearing and grading operations at the stockpile site. Due to past disturbances, this wetland is highly degraded and its value for providing wetland functions is minimal. Loss of this small wetland is not considered significant.

There will be a visual impact for motorists and adjacent home owners on North Shore Dr. and CTH "QQ". The stands of young forest will be interrupted by a bermed area temporarily devoid of vegetation. A 50 to 100 foot wide buffer of trees and other natural vegetation will be left around the perimeter of the site to screen the site from the roads. As a permit condition, the Department will require that the lake district enhance the natural buffer with tree plantings upon the advice and recommendation of the county and DNR foresters. It is anticipated that planting of spruce trees will be the predominant and preferred species to effect this screening. In addition, the Department will require that the construction of the sediment disposal area be carried out with the minimum amount of disturbance possible to the land between the dike, North Shore Drive, and CTH "QQ".

Initial construction of and ongoing maintenance operations within the disposal area will generate machinery noise. Noise levels may be high during initial construction, however noise levels will decrease upon completion of the dikes. These levels are not expected to be significant to nearby receptors. The Department retains jurisdiction to modify the dredging permit as necessary to address any unforeseen noise problems if they become a nuisance.

D. Groundwater

When hydraulic dredge slurry is pumped into the dewatering/stockpile facility, the groundwater level below the site will raise as the carriage water infiltrates the ground. The extent of groundwater elevation increase will depend on the pumping rate of the hydraulic dredge used, the total hours of operation, and the infiltration capacity of the sand underlying the disposal area. A study of the loading to the groundwater using standard design procedures has indicated that infiltration of the carriage water should not impact the water levels of nearby wells if the pumping rate of the dredge and the groundwater levels below the disposal area are monitored and regulated. If the hydraulic dredging operation cannot be conducted in an efficient manner due to constraints imposed by excessive increases in groundwater elevations, dewatering wells will be installed and operated around the perimeter of the stockpile area. To comply with wastewater permit requirements, final project plans and dredging contract provisions will need to identify a detailed remediation procedure to be followed if groundwater elevation concerns become significant.

Specific details for a drawdown monitoring and fish rescue plan will be addressed by the Chapter 30 permit. The timing of a drawdown would also have an impact on the fishery. At any time of the year, a drawdown can impact fish reproduction and survival. In this case, with a fall/winter drawdown proposed, the stress placed on fish (primarily females) from such a drawdown may influence the strength of the next year-class of fish. It will be critical to develop a recovery plan to guide re-establishment of the fishery after the drawdown and dredging are complete. To further minimize fishery impacts if a drawdown is implemented, the Department will use regulatory means to close fishing on the lake for three years. The closed period would start at the beginning of the drawdown and remain in effect until 1999 or until the DNR fishery biologists are confident the fishery is recovering successfully.

Short term adverse impacts to the fishery due to hydraulic dredging of the lake basin would be minimal. If the hydraulic option is implemented, operation of the dredge may result in a "plume" of suspended fine sediments in the water column. Due to the sandy nature of the sediments being dredged, turbidity is not expected to impact the fishery. Unforeseen problems could easily be remediated by the use of a turbidity curtain around the dredging equipment.

Presently the aggradation of sediment in Lake Altoona, and in the lower reach of the Eau Claire River, is degrading fish habitat through the burial of stumps, ledges, cribs, and other underwater structures. These components are valuable as protective cover for fish and as attachment surfaces for aquatic macroinvertebrates. By reducing the sedimentation rate in the lake basin, the degradation of fish habitat will be slowed down. The boat channel to be created at the entrance to McFaul Bay will remove sediment that has accumulated at the mouth of the bay. This will help to keep the bay connected to the main body of the lake, reducing the chances for dissolved oxygen deficiency conditions to develop in the bay. McFaul Bay supports the best aquatic macrophyte community in the lake and is likely an important cover and feeding area for juvenile and mature fish.

B. Vegetation

Aquatic Vegetation - Based on the 1990 DNR survey of aquatic vegetation in the lake, it does not appear that a drawdown would harm the aquatic macrophyte community in the lake. Nearly all of the species found in the lake are considered drawdown tolerant. Because the macrophytes in Lake Altoona are limited to shallow depth zones, the annual winter drawdown that has been carried out for many years has probably already selected against drawdown intolerant species. As such, the majority of the species present in the lake overwinter by rhizomes and tubers.

Upland Vegetation - Approximately 60 acres of young oak/jack pine forest and brush will be removed from the dewatering/stockpile site during its development. As there is an abundance of similar vegetation in the general area, this impact is not considered significant.

C. Wildlife

A drawdown, if necessary, would impact wildlife in and around the lake. The timing and rate of the drawdown would be critical for other aquatic and semi-aquatic organisms as well. Turtles, frogs, benthic invertebrates and some furbearers (e.g. muskrat, beaver, etc.) depend on burrowing into upland/water interface areas and lake bottom substrates as a means of insulating themselves from cold and/or desiccation during their winter dormant periods. These burrowing sites are often partially or completely under water, depending on the species. Dewatering these areas (by means of the lake drawdown) too late in the fall, after the burrowing organisms have gone into dormancy, can result in freezing/desiccation for some and increased susceptibility to predation for others as they become displaced from their wintering sites. Of particular concern in this regard is the state threatened Blandings Turtle, mentioned

previously in section 12. The Blandings Turtle spends its winters burrowed into soft bottom sediments of marshy lacustrine habitats. Typically, Blandings turtles begin burrowing in mid/late-September and most are beginning dormancy in early October.

The McFaul Bay and Bullhead Pond areas have been identified as a prime wintering site for the Blandings Turtle. Timing the drawdown for completion in the month of September, when most aquatic and semi-aquatic animals (including Blandings Turtles) are still active, should allow them to sense the lowering water levels and leave the affected areas for other wintering sites nearby where water levels will remain constant.

The transmission line corridor near the stockpile area has been identified as a habitat site for several rare lepidopteran species: The Karner blue butterfly, a federally endangered and state special concern species; the Phlox Moth, a proposed federal endangered species (state endangered); and the Cobweb Skipper and Dusted Skipper, two species on the state special concern list. Surveys of the area were conducted during peak butterfly flight periods in 1994 to determine if rare lepidopterans were indeed present. Although suitable habitat was abundant in the powerline corridor, none was present at the stockpile site. No rare species were encountered during the surveys. The construction of the stockpile area would involve clearing the site of forest and brush. The cleared area may increase the habitat available for the rare lepidopteran species in the area by creating conditions suitable for natural colonization of native host plants such as Wild Lupine and Downy Phlox. The hydraulic dredge pipeline route along the access to the boat ramp (and previously mentioned transmission line) contains relatively high quality habitat for Karner Blue butterflies. Laying of the pipeline can be accomplished without disturbance to this habitat, but special provisions will need to be a part of the project contract to ensure this.

Two rare species of unionid mussels have been documented in the Eau Claire River well upstream from the project site. The river substrate in the project area, comprised of soft, shifting sand deposits, is not favorable for habitation by any rare mussels.

No Bald Eagle nests are located near the proposed project site, so it is unlikely that the construction of the stockpile area will impact bald eagles or their habitat.

There are no potential conflicts with any other rare or endangered/threatened species.

The removal of the forest cover at the site of the proposed dewatering/stockpile area will slightly reduce the habitat available for the amphibians, reptiles, small mammals, deer, songbirds, rodents, and other animals in the area. However, there is an abundance of forested land, both public and private, in the general project area. In this case the conversion of approximately 60 acres of forest habitat to a dredge material stockpile site is not considered a significant adverse impact. This impact will be at least partially offset by management activities on the 80 acre county forest land replacement parcel. The loss of approximately 1/10 acre of degraded wetland habitat at the stockpile site is not considered a significant impact.

17. Cultural

a. Land use (include direct and secondary impacts)

The project will result in the conversion of an undeveloped tract of county forest land to an industrial, dredge material dewatering/stockpile facility. This conversion is being mitigated by the acquisition, and enrollment into the county

The proposed haul route on North Shore Drive, between the lake delta area and the dewatering/stockpile site, would experience a substantial increase in truck traffic if mechanical dredging of the lake is implemented from December 1996 through March 1997. Damage to local and county roadways caused by the heavy truck traffic may need to be repaired after the mechanical dredging operations are finished. In addition, material spilled from trucks or tracked onto the road from the truck tires, will probably need to be cleaned from the road surface on occasion. Depending on the capacity of the trucks and the methods of operation, a truck could be expected to pass a given point on North Shore Drive every 1 to 5 minutes. If the truck traffic volume on North Shore Drive creates unsafe conditions for adjacent residents, an alternative haul route (e.g. using CTH "QQ") may need to be utilized. Once the delta dredging is completed, truck traffic on North Shore Drive should return to pre-existing levels. Truck traffic on CTH "QQ" will remain slightly

The hydraulic dredging equipment will be "connected" to the on-land disposal site by a floating slurry pipeline which could limit navigability to other watercraft in the upper end of the lake. It will be necessary to properly buoy and mark the floating pipeline to avoid accidents.

The lake drawdown could also result in some private wells being adversely affected. The affect may range from a reduction in pumping capacity to a complete loss of water. The Lake District will need to remediate any adverse impacts to private water supply wells that are caused by the drawdown. The Lake District has planned a meeting with potentially affected residents to be held during the winter of 1995-96 to formulate potential solutions to this issue.

A drawdown to facilitate mechanical dredging would result in a temporary loss of public recreation opportunities on the lake. In general, typical "summer" recreational use on the lake drops to negligible amounts after the labor day weekend. As the drawdown period would occur primarily during fall and winter months, the loss of "open water season" recreation opportunities would occur only in the latter part of the summer and early fall when the drawdown would be started. This period would include the labor day weekend, which is a peak public use time for the lake and adjacent county park. Winter recreation activities, such as ice fishing, would be essentially eliminated during the winter of 1996-97 drawdown period due to the closure of fishing, low water levels, and increased current in the remaining flowage which may create unsafe ice conditions. As a permit condition, the Department may require the Lake District to post warning signs to inform the general public about the potential unsafe ice conditions. Also, if the drawdown lowers water levels on Bullhead Pond, recreational use of the area for dog training and trials will be reduced.

Decreasing the sediment loading into Lake Altoona by 50 percent is expected to extend the usefulness of the lake as a viable recreational resource. Access to Lake Altoona via the boat ramp on the Kan Claire River would be improved. Improved access to the lake should encourage increased recreational uses of the lake. The improved recreational opportunities may serve to appreciate the value of properties around the lake.

b. Social/economic (include ethnic and cultural groups)

The recreation and navigation enhancements to the lake may increase its popularity as a recreation resource. This could increase the desirability of the Lake Altoona area as a place for people to build new homes. However, most of the buildable land around the lake is already developed or preserved as park land. It is not anticipated that the proposed project will spur a significant increase in land development and land use changes around the lake.

forest program, of 80 acres in the town of Wilson by the county. The creation of the sand stockpile at the stockpile site will be beneficial to the county considering the proximity of the county landfill to the stockpile area and the value of sand as cover material.

higher than existing levels due to removal of the stockpiled material for beneficial re-use.

Creation of a sand stockpile would provide the county and nearby municipalities with a convenient and inexpensive source of sand for cover material at the county landfill, for use as anti-skid material on roads, and for construction projects.

Any social/economic effects of withdrawing the disposal site from the county forest program will be offset by the replacement parcel.

c. Archaeological/Historical

Not applicable.

18. Other Special Resources (e.g., State Natural Areas, prime agricultural lands)

Phillips Park Natural Area, mentioned previously in section 14, is not expected to be impacted by the project.

19. Summary of Adverse Impacts That Cannot Be Avoided (more fully described in 15 through 18)

The lake dredging (and possible drawdown) operations may result in an increase in water turbidity in some parts of the lake and in the river downstream from the lake. Increased turbidity may temporarily degrade the aquatic habitat in localized areas and limit recreational opportunities in the lake. It is anticipated that the aquatic habitat values and recreational opportunities would be re-established soon after the dredging operations are complete.

There will be 60 acres of natural vegetation and wildlife habitat converted to use as a dewatering/stockpile area which will exhibit characteristics of an industrial facility.

Approximately one-tenth acre of wetland will be filled during construction of the dewatering/stockpile site.

There will be increased equipment operation and noise in the area during all phases of the dredging operation and when moving sand in the stockpile area.

A modest long-term increase in truck traffic on local roads will result from the removal of sand from the stockpile area by the County or other users.

A loss of public land base and recreation potential at the dewatering/stockpile site will occur due to its withdrawal from the county forest program. This impact will be mitigated to a large extent by the values of the replacement parcel that will be enrolled in the county forest land program.

If a drawdown is implemented to facilitate mechanical dredging, adverse impacts to the entire aquatic ecosystem of the lake (including Bullhead Pond wetland complex) will result. These impacts would be offset, in the long term, by the slowing of sedimentation and aquatic habitat loss in the upper lake basin. These impacts could be avoided by choosing the hydraulic lake dredging option which would not require a drawdown.

ALTERNATIVES (no action - enlarge - reduce - modify - other locations and/or methods)

20. Identify, describe and discuss feasible alternatives to the proposed action and their impacts. Give particular attention to alternatives which might avoid some or all adverse environmental effects.

As described previously, to facilitate maximum cost efficiency and flexibility, the proposed project will be bid such that 2 alternative methods could be employed to dredge the lake delta area. The alternatives include mechanical dredging of the lake basin, with a lake drawdown, or hydraulic dredging of the lake basin. In either case, hydraulic dredging will be necessary for excavation of the sediment trap in the river. While the Department is supportive of this flexible approach, the preferred alternative is the hydraulic lake dredging option as this would avoid the need for a drawdown with the associated potential impacts. Other alternatives which have been considered are presented below:

- No Action - This action is not anticipated nor desired by the Lake District. If no action were taken, the lake would continue to fill with sediment at a high rate, with rapid expansion of the shallow delta area and associated expansion of sand bars and islands at the upstream end of the lake. Recreational use of the lake would continue to decline due to shallower depths and aesthetically displeasing conditions. Ultimately, the lake would become so shallow that its present use values would be severely reduced or lost. Additionally, the fish habitat in the lake would continue to degrade in quality as more sand was deposited in the lake. If no action was taken on the dredging project, there would be no need for withdrawal of the stockpile site from the County Forest program. The land parcel would remain a part of the county forest system, continuing to provide forestry, wildlife and recreational values.
- Enlarge - Enlargement of the project, in the sense of removing more material from the lake, is not considered a cost effective alternative even though this would further increase the long term values and usefulness of the lake. This is due to the length of time required for drawdown and dredging, and prohibitively higher costs associated with treatment and disposal of the dredge spoils. As such, withdrawing a larger stockpile site parcel from the county forest program is also not considered an effective alternative since such an action would remove more land than necessary from the public land base (along with increased impacts to wildlife habitat, silviculture opportunities, etc.). As proposed, the withdrawal parcel is of adequate size for storing several years worth of generated dredge material. The size of the parcel will also allow for a suitable perimeter buffer.
- Reduce - A reduction of the project scope, with less dredging, is not considered a viable option as the net improvements to the lake would not be worth the costs associated with material removal and disposal. Reducing the acreage of the county forest withdrawal parcel, however, would result in the lessening of the negative impacts to the public land base. A smaller stockpile site could ultimately become incapable of handling the volume of dredge material generated, if the dredged material is not promptly used as anticipated. This would create the need for additional disposal lands (public or private) at other locations which may be less economically or environmentally desirable.
- Modify - Earlier studies addressed streambank erosion protection measures as a means for reducing sediment loading to the lake. Although streambank protection measures were implemented at some sites, a later study of the Eau Claire River by Simmons, Li and Associates found this approach to be an ineffective method for reducing sediment loading because much of the sediment being deposited in Lake Altoona was being derived from downward cutting of the stream channel.

Other - Throughout the process of project development, other parcels of land were considered for locating the dewatering/stockpile site. These parcels included other county forest lands on the north side of the river as well as private lands primarily on the south side of the river. Ultimately floodplain issues, physical size/distance constraints, and multiple ownership patterns discounted these parcels from being feasible disposal sites.

EVALUATION OF PROJECT SIGNIFICANCE (Complete each item)

21. Significance of Environmental Effects

a. Would the proposed project or related activities substantially change the quality of the environment (physical, biological, socio-economic)? Explain.

The project as proposed would remove 300,000 cubic yards of sediment already accumulated, and reduce the future sediment loading to Lake Altoona by approximately 50 percent. This substantial sedimentation reduction would improve the physical characteristics of the lake and slow down the degradation of its aquatic habitat. With improved access to the lake from the county-owned Eau Claire River boat landing, and restored water depths aiding navigation in the upper end of the lake, the recreational use of the lake is expected to increase.

The overall environmental effects associated with the county forest withdrawal proposal, and conversion of the site for dredge material disposal, will be minimal due to the acquisition and enrollment of the replacement county forest land parcel in the Town of Wilson. This action will serve to maintain the overall public land base and the associated recreation opportunities in Eau Claire County. The loss of forest resources and wildlife habitat on the disposal site is not viewed as significant due to the abundance of similar forested lands in the general project area. The new wastewater discharges to surface and ground water from the dewatering/stockpile site are not expected to substantially impact groundwater or surface water quality so long as WPDES permit conditions are met. However, plans for remediation of potential adverse impacts will be developed for implementation should adverse impacts be detected.

b. Discuss the significance of short-term and long-term environmental effects of the proposed project including secondary effects; particularly to geographically scarce resources such as historic or cultural resources, scenic and recreational resources, prime agricultural lands, threatened or endangered species or ecologically sensitive areas. (The reversibility of an action affects the extent or degree of impact)

There will be short-term adverse impacts to the aquatic ecosystem of the lake (including the fishery) and to water-based recreation opportunities due to the project. These impacts will be greater if a lake drawdown is necessary to facilitate mechanical dredging. If a drawdown is utilized, measures such as closure of fishing on the lake and implementation of a recovery plan will be put in place to speed up the recovery of the aquatic ecosystem. It is expected the complete recovery of the fishery would take 5 to 10 years. Recreation opportunities will be restored and enhanced immediately after completion of the project.

Other potential negative short term impacts will be offset by mitigative measures already proposed (such as the purchase of the replacement county forest land tract, erosion control practices to stabilize areas disturbed during disposal site construction, etc.) and by measures that will be developed in anticipation of other problems that may arise during the course of the project (such as remediation of drawdown related shoreline instability problems or private well impacts, etc.).

This project should have no significant negative long-term effects on any threatened or endangered species, prime agricultural lands, scenic and recreational resources, or other ecologically sensitive areas. With wastewater discharge limits imposed by permit conditions, there should be no long term impact on surface and/or ground water quality in the project area. At the stockpile site there would be a permanent loss of 1/10 acre of wetland as a result of the construction of the stockpile area. However, as this small isolated wetland area is considered highly degraded, this impact is considered insignificant. The acreage base and recreation opportunities on the county forest land will be maintained in the long term through the acquisition of the replacement forest land parcel.

While it is known that the conversion of the undeveloped, county forest land to a more industrial sand stockpile site is a major long-term impact, it is considered to be necessary to achieve the long-term benefits associated with reducing sedimentation of the lake.

Secondary adverse impacts due to the project are not expected to be significant. The improvement of the lake may serve to increase property values and promote a minor increase in residential development around its shores. However, as most of the lake shore property is already developed, this should not be an issue. If a lake drawdown is conducted for mechanical dredging, it is likely that some lake shore property owners will want to clean unwanted trees, brush, and aquatic vegetation away from the shallow water zones bordering their lakeshore frontage. A large amount of such "clean up" could pose a negative impact to the fishery in the lake as it would remove valuable cover for fish. It will be important to inform lake shore residents of this concern. Surveillance may also be necessary to enforce state laws regarding unauthorized shoreline/lakebed alterations. A drawdown would provide an opportunity for riparian landowners to install properly authorized shoreline erosion control measures or replace older, failing measures. There will be a positive secondary impact in that beneficial re-use of the dredge material (as land fill cover, and for winter road ice control) will reduce the need for other upland dredge spoil disposal sites and sand borrow sites.

22. Significance of Cumulative Affects

Discuss the significance of reasonably anticipated cumulative effects on the environment. Consider cumulative effects from repeated projects of the same type. What is the likelihood that similar projects would be repeated? Would the cumulative effects be more severe or substantially change the quality of the environment? Include other activities planned or proposed in the area that would compound effects on the environment.

Dredging projects occur with regularity around the state and, with proper planning and permit conditions, pose few significant environmental problems.

The annual maintenance of the sediment trap will have few cumulative effects as long as the arrangements for Eau Claire County to use the sand remain intact. Eau Claire County has identified "demand" for 50,000 to 60,000 cubic yards each year for daily cover material and for winter ice control. The annual maintenance dredging is expected to supply 50,000 to 60,000 cubic yards each year.

The withdrawal of land from county forest programs is not an uncommon practice around the state. Generally, it is desirable to offset the loss of the withdrawn parcel by concurrently enrolling a replacement parcel of land in the program as in this case. This serves to maintain the overall acreage of county forest land and the associated benefits thereof. Cumulative impacts of this type of action are minimal.

The cumulative impact of the ongoing wastewater discharges from the yearly maintenance dredging of the sediment trap is not expected to have a significant impact to the water quality of Lake Altoona or the groundwater quality of the area as long as discharge pollutant limits are consistently met.

Due to the nature of this project, it is not anticipated that issuance of a WPDES permit for this proposal will lead to other proposals for new waste water discharges to Lake Altoona or the immediate area.

23. Significance of Risk

a. Explain the significance of any unknowns which create substantial uncertainty in predicting effects on the quality of the environment. What additional studies or analyses would eliminate or reduce these unknowns? Explain why these studies were not done.

The lake sediments have been analyzed for potential contaminants. The levels of iron and nitrogen in the sediments were found to be elevated. Additional analysis was done to evaluate the potential risk posed to the environment if the material is used to construct the berms for the dewatering basin. It has been determined that the elevated levels of iron and nitrogen (nitrate and nitrite) may initially result in these elements migrating into the groundwater at the dewatering/stockpile site. The duration and extent to which these elements may affect the groundwater can not be accurately determined. The lake district will need to rely on monitoring on-site test wells and adjacent down-gradient private wells during the project to determine if impacts are occurring. If the impacts are significant, the lake district will need to provide appropriate remediation or compensation measures as required by conditions of the WPDES permit.

Other unknowns relate to the lake drawdown if the mechanical lake dredging alternative is chosen. Given the sandy nature of the soils around the lake, the drawdown would likely lower the local groundwater table temporarily. The exact zone of influence for this effect can not be accurately determined. It is likely that some shallow private wells near the lake may be dewatered. It is also possible that the rate and/or direction of groundwater flow in the immediate area may be temporarily altered due to the drawdown. The lake district has committed to doing additional studies and monitoring of groundwater levels and quality around the project area. The studies will include a model to estimate the lateral zone of drawdown influence on the groundwater table, and a compilation of available well logs and other data to estimate how many wells might be affected. The lake district has also committed to working with potentially affected property owners to have plans for remediation measures developed before the drawdown is started.

A known contamination plume is associated with an abandoned landfill approximately 1 mile southeast of the lake. It is conceivable that a change in groundwater flows could result in a very slight shift to the north of the plume as it is presently defined. Very expensive and detailed hydrologic studies would be needed to more accurately determine the exact effect a drawdown may have on the contaminant plume. However, the potential for such an occurrence is perceived as slight, and the chances for it affecting additional private wells is minimal, so further studies are not warranted at this time.

Further, even with implementation of all possible measures to minimize harm, it is not known exactly how the aquatic ecosystem in the lake would respond to a drawdown, and how long the recovery of the system will take after refilling of the lake. DNR Fisheries Management will be conducting additional studies to evaluate the recovery of the fishery.

Increased bank erosion and shoreline property damage may result from the drawdown as well. To better define the extent of potential for failures, geotechnical evaluations will be conducted at several sites where shoreline stabilization structures and high sand banks appear to be susceptible to drawdown damage. As a condition of the Chapter 30 permit for the project, plans will be developed to address erosion-prone sites where the threat of property damage is imminent.

At this time, there are no unknowns associated with the action of withdrawing the county forest land parcel.

b. Explain the environmental effects of reasonably anticipated operating problems such as malfunctions, spills, fires or other hazards (particularly those relating to health or safety). Consider reasonable detection and emergency response, and discuss the potential for these hazards.

While there are no potential effects of this sort associated with the withdrawal of dewatering/stockpile site from the county forest program, there is the potential for effects while the site is being constructed and operated. The anticipated operating problems relating to this project involve oil and fuel spills from machinery operating in the stockpile area. Since a dewatering basin will operate through infiltration into the underlying soils, there exists the potential that spilled fuel or oil would be washed into the ground. Once the oil or fuel had soaked into the soil, it is likely that the spill would begin to migrate toward the groundwater with the repeated downward washing action from the percolation of the carriage water. If the groundwater becomes contaminated, there could be problems with the water quality in private wells of homes nearest the site.

There also exists the possibility of oil or fuel spills from the dredge machinery into the Eau Claire River or upper lake basin. The contractor will be required to have an emergency spill kit on site and to report any spills to proper authorities immediately.

24. Significance of Precedent

a. Would a decision on this proposal influence future decisions or foreclose future options that may additionally affect the quality of the environment? Explain the significance.

Dredging projects are commonly proposed and approved in Wisconsin. Each proposal must be evaluated on a case by case basis. In this case, if a sediment reduction plan is not implemented the quality of the lake will continue to degrade. As long as actions to improve the quality of the lake and surrounding area are delayed, the basic problem of volume loss due to heavy sediment loading will become more severe, resulting in a more difficult and expensive remedial action if one were ever undertaken. This action would help make other future lake management options more viable.

County forest withdrawal proposals are also commonly proposed in Wisconsin. Section 28.11 of the State Statutes lays out the exact procedure for such cases. In this case, with a replacement parcel of land already purchased by the county, there will be no net loss of the acreage base or associated public values on the Eau Claire County forest. This is consistent with S. 28.11 of the State Statutes and should not adversely affect any future management decisions or options on the county forest.

In the same manner, issuance of a Wisconsin Pollution Discharge Elimination System permit for the new waste water discharges will not be a precedent setting action. Each permit application is reviewed on a case by case basis, with monitoring requirements and discharge limits set to protect surface and groundwater quality.

b. Describe any conflicts the proposal has with plans or policies of local, state, or federal agencies that provide for the protection of the environment. Explain the significance.

Overall, the proposed project is a part of the Lake Altoona Protection and Rehabilitation District Implementation plan developed in 1988 as a culmination of many previous studies. The Lake District must apply for and obtain permits for dredging from the Department of Natural Resources and the U.S. Army Corps of Engineers for this project.

Evaluated strictly on its own merits, the potential drawdown component of the project is not consistent with the policy of the DNR Fish management program. It is the position of the Fish Management program that all lake drawdowns, regardless of the reasons for doing so, negatively impact aquatic biota and habitat. However, in this particular case, the potential drawdown, coupled with the other components of the project as a whole, would provide a long-term benefit to Lake Altoona.

The County forest land withdrawal proposal has been considered and approved by the Eau Claire County Board. In accordance with the County Forest Ten Year Management Plan, withdrawal of lands from the county forest program will only be considered if, in the opinion of the County Board, the subject land will be put to better and higher use and will benefit all people of the county. The county forest withdrawal is also subject to approval by the Department of Natural Resources under the provisions of S. 28.11 of the Wisconsin Statutes discussed previously.

The wastewater discharge limits to groundwater and surface water, as set forth in the WPDES permit, will be consistent with state and federal water quality management plans and policies.

25. Discuss the effects on the quality of the environment, including socio-economic effects, that are (or are likely to be) highly controversial, and summarize the controversy.

Several potential controversial impacts are associated with the lake drawdown/mechanical dredging option:

1. Potential for adverse impact on private wells - the lake drawdown may cause a number of wells to go dry until lake water level is restored (a duration of 4 to 6 months).
2. Drawdown may adversely affect the stability of several existing shoreline protection structures.
3. Accelerated slumping or erosion of high sand banks along the river and upper end of lake may result.
4. Drawdown impacts to the fishery resource and the entire biotic community of the lake, and provisions for protection and re-establishment of the fishery.

The hydraulic lake dredging option would not involve any of the potentially controversial impacts listed above.

Construction and ongoing operation of the dewatering/stockpile site also has the potential for resulting in controversial environmental impacts.

1. The raising of groundwater elevations as a result of excessive hydraulic loading could, if not controlled, lead to:
 - failure of nearby private waste disposal systems
 - negative impacts to nearby private wells
 - leaking and damage to nearby residential basements
2. The new wastewater discharges associated with the dewatering system could also have the potential to become controversial if discharge limits for surface and ground water are exceeded and pollution of surface water or private water supplies results.
3. The withdrawal of the disposal/dewatering site from the county forest program would also have the potential to be a controversial issue. However, the potential for controversy has been minimized with purchase of the replacement county forest land parcel.
4. The aesthetics of the dewatering/stockpile site, even with measures implemented to screen views of the site from the roadway, may constitute a visual intrusion for adjacent property owners.

26. Explain other factors that should be considered in determining the significance of the proposal.

No other factors are known.

SUMMARY OF ISSUE IDENTIFICATION ACTIVITIES

27. Summarize citizen and agency involvement activities (completed and proposed)

The Lake District, since its creation in 1974, has sponsored several studies to assess various lake management alternatives. These studies are referenced in the "Affected Environment" section of this document. There have been numerous Lake District Board meetings that have included public involvement and at least one meeting each year open to all residents of the Lake District.

The Eau Claire County Board, Committee on Parks and Forest, and Land Conservation Committee have been kept informed of the developments and studies relating to the project to date.

The Department of Natural Resources, Western District Office, have been apprised of the proposed project. Extensive pre- and post-application consultation with various DNR program staff has been on-going for several months. Coordination with DNR and county staff will continue throughout the remainder of the planning process, the implementation stages, and life of the project.

28. List agencies, groups and individuals contacted regarding the project (include DNR personnel and title)

<u>Date</u>	<u>Contact</u>	<u>Comments</u>
Annually	Lake District Annual Mtg	Project status, authorization to proceed.
Various dates	Lake District Board	Grant Applications, Project Reports.
Various dates	DNR-Western District staff	Discussed project scope, (WZ, WW, SW, CA, WR, EA, FR FM & WM) environmental issues and permit application.
5/94, 8/95	DNR-Bureau of Endangered Resources	Endangered resources review
8/95	Scott Thiel, Terry Balding	Endangered turtle information
6/24/94	U.S. Fish and Wildlife Service	Endangered resources consultation
Various dates	John Staszczuk, Director E.C. County Parks & Forest Dept.	Removal of disposal area land from county forest system, drawdown approval
Various dates	Eau Claire County staff	Sand appears usable as daily cover and for ice control
Various dates	Peg Scherlin - representing concerned landowners	concerns about aesthetic impacts of disposal site
12/27/95	Jean Schomisch, Director E.C. County LCD	Analysis of riverbank erosion site
Various dates	Mark Riebau, consultant, SEH, Inc.	Coordination of all aspects of the project

Lake Altoona dredging and Eau Claire River sediment trap dredging;
County Forest Land Withdrawal;
Dredge Disposal Wastewater Discharges
Eau Claire County

DECISION (This decision is not final until certified by the appropriate authority)

In accordance with s. 1.11, Stats., and Ch. NR 150, Wis. Adm. Code, the Department is authorized and required to determine whether it has complied with s. 1.11, Stats., and Ch. NR 150, Wis. Adm. Code.

29. Complete either A or B below.

A. EIS Process Not Required

Analysis of the expected impacts of this proposal is of sufficient scope and detail to conclude that this is not a major action which would significantly affect the quality of the human environment. In my opinion therefore, an environmental impact statement is not required prior to final action by the Department on this project.

B. Major Action Requiring the Full EIS Process.

The proposal is of such magnitude and complexity with such considerable and important impacts on the quality of the human environment that it constitutes a major action significantly affecting the quality of the human environment.

Signature of Evaluator	Date Signed
<u>Robert Straub</u>	<u>1/18/96</u>
Noted: Area Director or Bureau Director	Date Signed

Copy of news release or other notice attached? Yes No
Number of responses to public notice 10 requests for EA, 6 comments rec'd.
Public response log attached? Yes No

CERTIFIED TO BE IN COMPLIANCE WITH WEPA
District Director or Director of BEAR (or designee)

<u>Tom Long</u>	<u>1/18/96</u>
District Director or Director of BEAR (or designee)	Date Signed

Department of Natural Resources
Western District Headquarters
1300 West Clairemont Avenue
Eau Claire, WI 54701-4001

Eau Claire, WI -- The Lake Altoona Protection and Rehabilitation District and Eau Claire County have requested the necessary permits and authorization from the Department of Natural Resources to conduct a one-time dredging of the upper end of Lake Altoona, to excavate and periodically maintain a sediment trap in the Eau Claire River upstream from the lake, and to develop a dredge spoil dewatering/stockpiling facility on uplands near the Eau Claire River in the Town of Seymour. Dredging of the upper end of the lake will restore navigation and recreation opportunities in the upper end of the lake. Operation of the proposed sediment trap is expected to reduce further sedimentation in the lake to one-half of the current average rate.

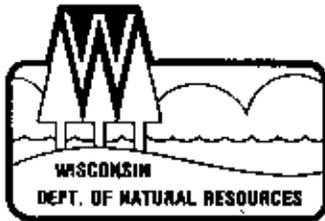
The proposed project will involve physical manipulation of the waters and bed of Lake Altoona and the Eau Claire River. The dredging operation may be completely hydraulic or a combination of mechanical and hydraulic. A nine foot lake drawdown, six months in duration, would be necessary to facilitate mechanical dredging of the upper lake basin. The project will involve the withdrawal of an 82 acre parcel of land from the Eau Claire County Forest for creation of a dredge spoil dewatering/stockpiling facility. Operation of the dewatering/stockpiling facility will involve waste water discharges to Lake Altoona and the groundwater beneath the site. The sandy dredge spoils are proposed to be beneficially re-used as landfill cover and for winter ice control on local highways and streets.

In accordance with Wisconsin Administrative Code NR 150, the Department has made a preliminary determination that an Environmental Impact Statement will not be required for these actions.

More information on the proposed project and copies of the Department's Environmental Assessment that led to this preliminary determination can be obtained from:

Rob Strand, Environmental Analyst
DNR Western District Headquarters
1300 West Clairemont Avenue
Eau Claire, WI 54701-4001
Telephone: (715) 839-1609

Public comments on the proposed project are welcomed and should be received at the above address by 4:30 PM, Wednesday, January 17th, 1996. These comments can take the form of either written or verbal communication.



State of Wisconsin \ DEPARTMENT OF NATURAL RESOURCES

Tommy G. Thompson, Governor
George E. Meyer, Secretary
Donald R. Winter, District Director

Western District Headquarters
1300 W. Clairemont Avenue
PO Box 4001
Eau Claire, WI 54702-4001
TELEPHONE 715-839-3700
FAX 715-839-6076/1605
TTY 715-839-2786

January 18, 1996

SUBJECT: Lake Altoona Dredging Project Proposal

Dear :

On December 29, 1995, the Department of Natural Resources completed an Environmental Assessment (EA) of the proposal by the Lake Altoona Protection and Rehabilitation District and Eau Claire County for the dredging of Lake Altoona, creation and operation of a sediment trap in the Eau Claire River, and withdrawal of land from the county forest system for operation of a dredge spoil disposal site.

On January 2, 1996, a news release was distributed to area newspapers, radio and television stations announcing the availability of this environmental document for public review and comment.

The closing date for public comment was January 17, 1996. Ten individuals requested a copy of the EA. Six people, including yourself, subsequently provided oral or written comments. Copies of the comment record are available at the DNR Western District Headquarters.

All comments received were considered. Based on some of the comments, changes were made to the EA. For your information, those changes are listed below.

Changes in Final Environmental Assessment

Page 2, paragraph 2.

Add to end of paragraph: "New cost estimates prepared after the initial drafting of the Environmental Assessment indicate that the costs of the hydraulic lake dredging option would be very similar to the estimate for the mechanical dredging option. Therefore, given the apparent similarity in costs, it is anticipated that the lake district will chose the hydraulic lake dredging option to avoid the adverse impacts associated

with the drawdown/mechanical dredging option."

Page 2, paragraph 4.

Add after seventh sentence: "The Lake District and Eau Claire County must submit a separate application to the Department for authorization to draw down the lake. At this time the Eau Claire County Board has not yet finalized a resolution to do so. The permit for the drawdown will address issues such as timing, rate and duration of drawdown and lake refilling and any other conditions deemed necessary by the Department to protect the public interest."

Page 5, paragraph 1.

Change paragraph as follows to reflect revised cost estimates:

"The cost estimates that follow have been used for budgeting purposes and submittal for additional grants. It is anticipated that costs for subsequent annual sediment trap maintenance dredging will be similar to costs for the initial trap dredging (costs will likely increase to some degree over time due to inflation)."

Mechanical Lake Dredging -
\$1,699,345.31

Hydraulic Lake Dredging -
\$1,640,177.81

Sediment Trap Dredging -
\$171,000.00

"The lake district is applying to the Wisconsin Waterway Commission for a \$289,313.90 grant to cover 50 percent of estimated costs of dredging the navigation channels."

Page 6, paragraph 1.

"Court Road" in the discussion of outfall pipeline route is changed to "Lake Drive."

Page 11, paragraph 5.

Add to front of existing paragraph:
"Along the entire length of the Eau Claire River, its banks are sandy and prone to erosion during high water events. Where the river enters Lake Altoona both the north and south banks

of the river are experiencing erosion. The most serious erosion is occurring along the south bank. This bank, for a distance of ...".

Page 21, paragraph 3.

Third sentence, change to: Improved access to the lake and river will encourage increased recreational uses of these areas. This may lead to inherent conflicts between different users and/or riparian land owners. It is also possible that violations of boating safety regulations may increase somewhat. However, the improved navigation conditions will also give law enforcement officials improved ability to monitor the area.

Page 16, paragraph 7.

Add after 3rd sentence: "It is anticipated that the lake would be refilled during the spring runoff period in 1997. These conditions will provide sufficient water to maintain adequate river flows below the lake while supplying excess water to refill the lake basin. In the event that "excess" spring runoff conditions would not materialize in 1997, the lake would be refilled at a slower rate to allow adequate "normal" flows to continue in the river below the lake. At no time would flow in the river be less than 25 percent of the Q₇₋₁₀ flow in compliance ..."

With these revisions, and having received no evidence that the Environmental Assessment was inadequate, we have certified the document to be in compliance with state law (Section 1.11, Wis. Statutes).

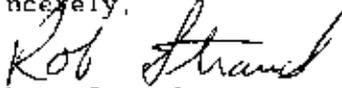
This certification means that the Department has fulfilled the legally established procedural requirements for environmental review and public disclosure. Should you disagree with that conclusion, you may appeal this certification.

If you believe you have a right to challenge this decision, you should know that Wisconsin Statutes and Administrative Codes establish time periods within which requests to review Department decisions must be filed. For judicial review of a decision pursuant to Sections 227.15 and 227.16 Stats. you have 30 days after service of the decision (same date this notification is mailed) to file your petition for review. The respondent in an action for judicial review is the Department of Natural Resources. You may wish to seek legal

counsel to determine your specific legal rights to challenge a decision. This notice is provided pursuant to Section 227.11(2), Stats.

Thank you for submitting your comments to us. Your interest and concern in the proposed project is appreciated. If you have any questions on the above information, please call this office at (715) 839-1609.

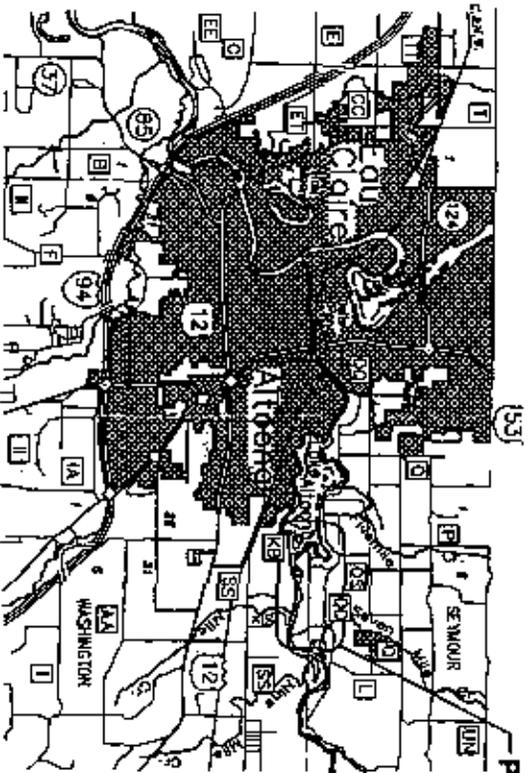
Sincerely,



Robert Strand
Environmental Analyst

- c. Tom Lovejoy, WD
- Steve Edge, WD
- John Paddock, WD
- Dan Koich, WD
- Jim Pardee, EA/6

LAKE ALTOONA PROTECTION AND REHABILITATION DISTRICT SEDIMENT REDUCTION PLAN



PROJECT LOCATION

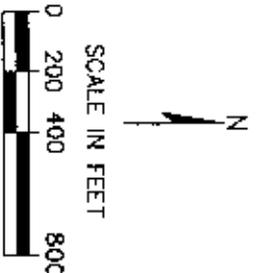
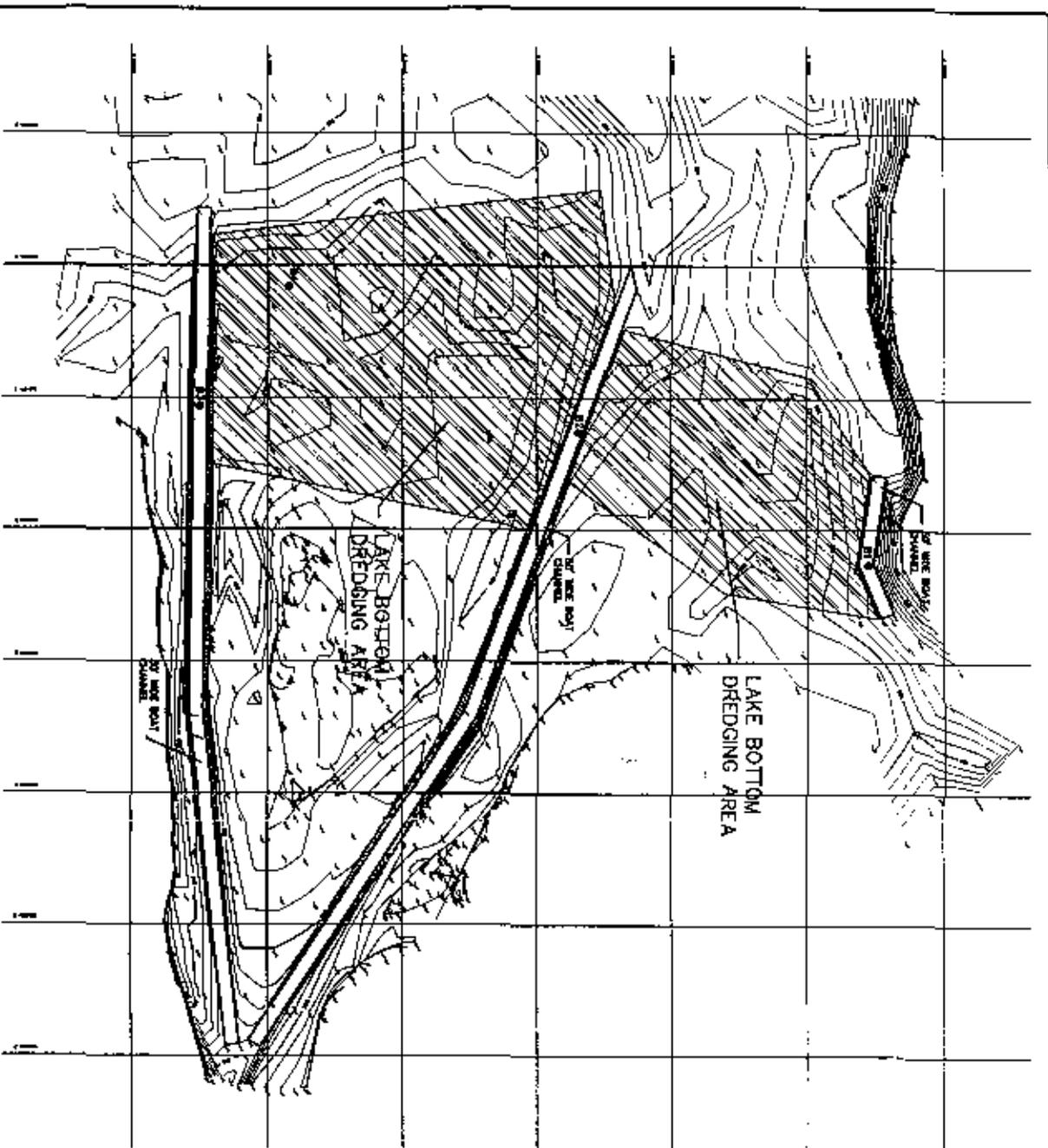


SHEET INDEX	
01	TITLE SHEET
02	SITE PLAN
03	BOTTOM BREEDING AND BOAT CHANNELS
04	LAKE DREDGING TYPICAL SECTIONS
05	SEDIMENT TRAP PLAN
06	PERMANENT PROPLE
07	SEDIMENT TRAP
08	SEDIMENT TRAP CROSS SECTIONS
09	DEWATERING BASIN PLAN
10	DEWATERING BASIN TYPICAL CROSS-SECTION
11	PIPELINE ROAD CROSSING
12	OUTLET STRUCTURE DETAILS

ATTACHMENT A

DESIGNED BY: J.M. BROWN 7/88	DATE: 7/88	SCALE: AS SHOWN	PROJECT: LAKE ALTOONA	TITLE: LAKE ALTOONA SEDIMENT REDUCTION PLAN	SHEET: 01
CHECKED BY: J.M. BROWN 7/88	DATE: 7/88	SCALE: AS SHOWN	PROJECT: LAKE ALTOONA	TITLE: LAKE ALTOONA SEDIMENT REDUCTION PLAN	SHEET: 01
APPROVED BY: J.M. BROWN 7/88	DATE: 7/88	SCALE: AS SHOWN	PROJECT: LAKE ALTOONA	TITLE: LAKE ALTOONA SEDIMENT REDUCTION PLAN	SHEET: 01





ATTACHMENT C
preliminary

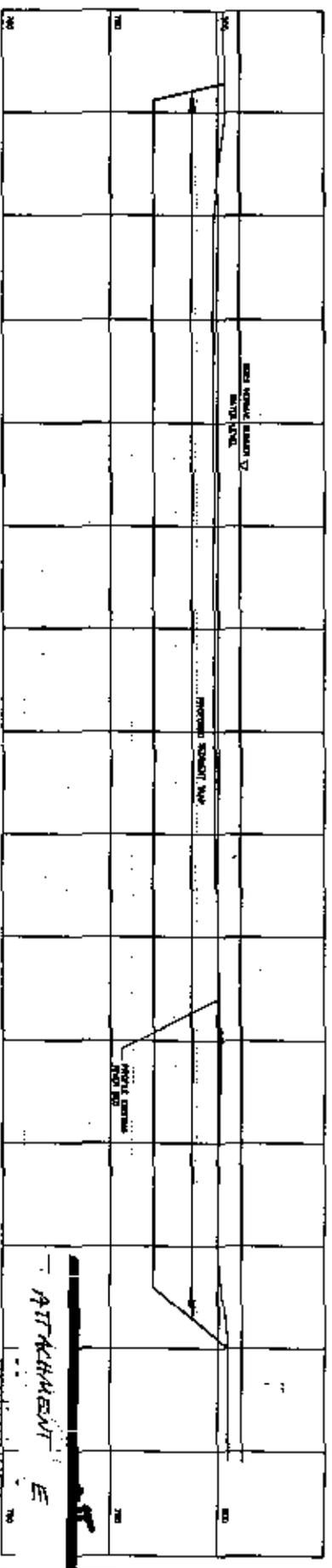
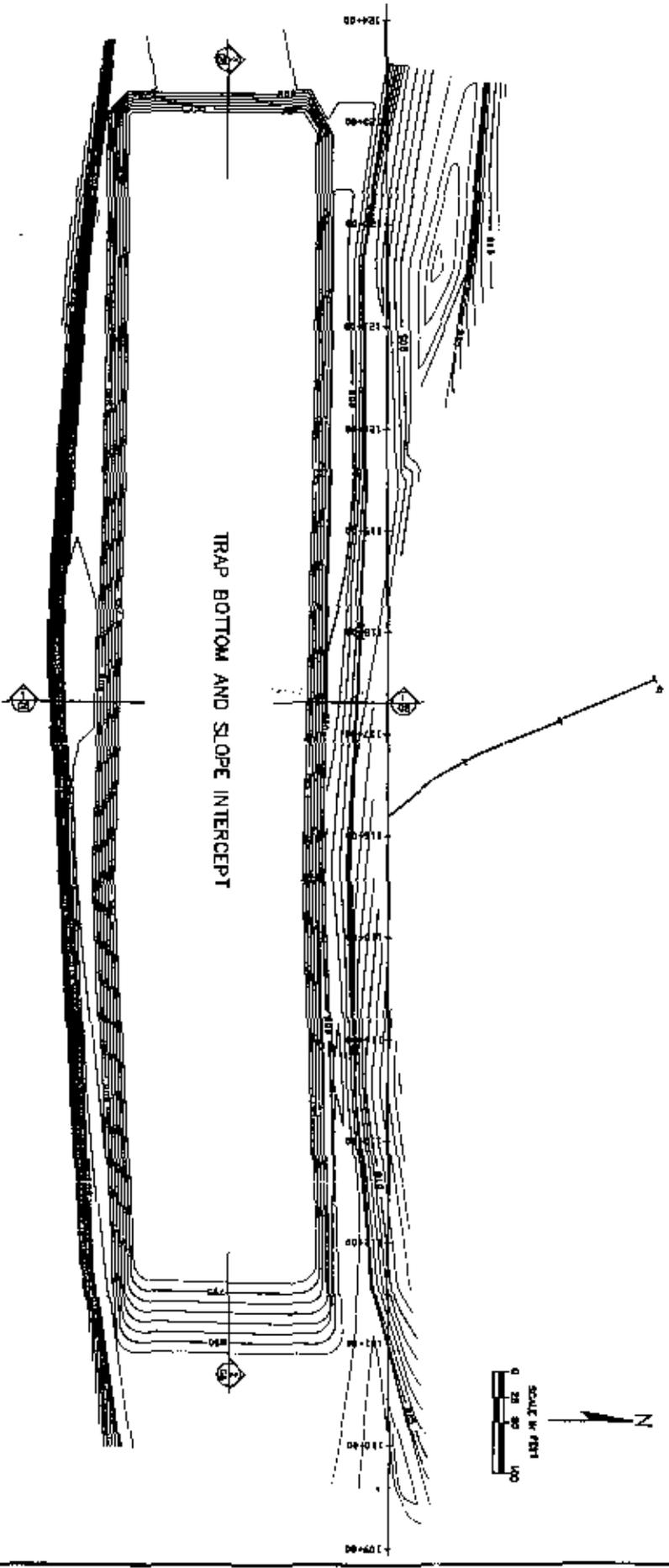
DATE OF JOB	08-27-84	NO. OF SHEETS	1	OF	1
PROJECT	LAKE ALTOONA	DATE		BY	
DESIGNED BY		CHECKED BY		DATE	
REVISIONS		NO.	REASON	DATE	
DREDGED					



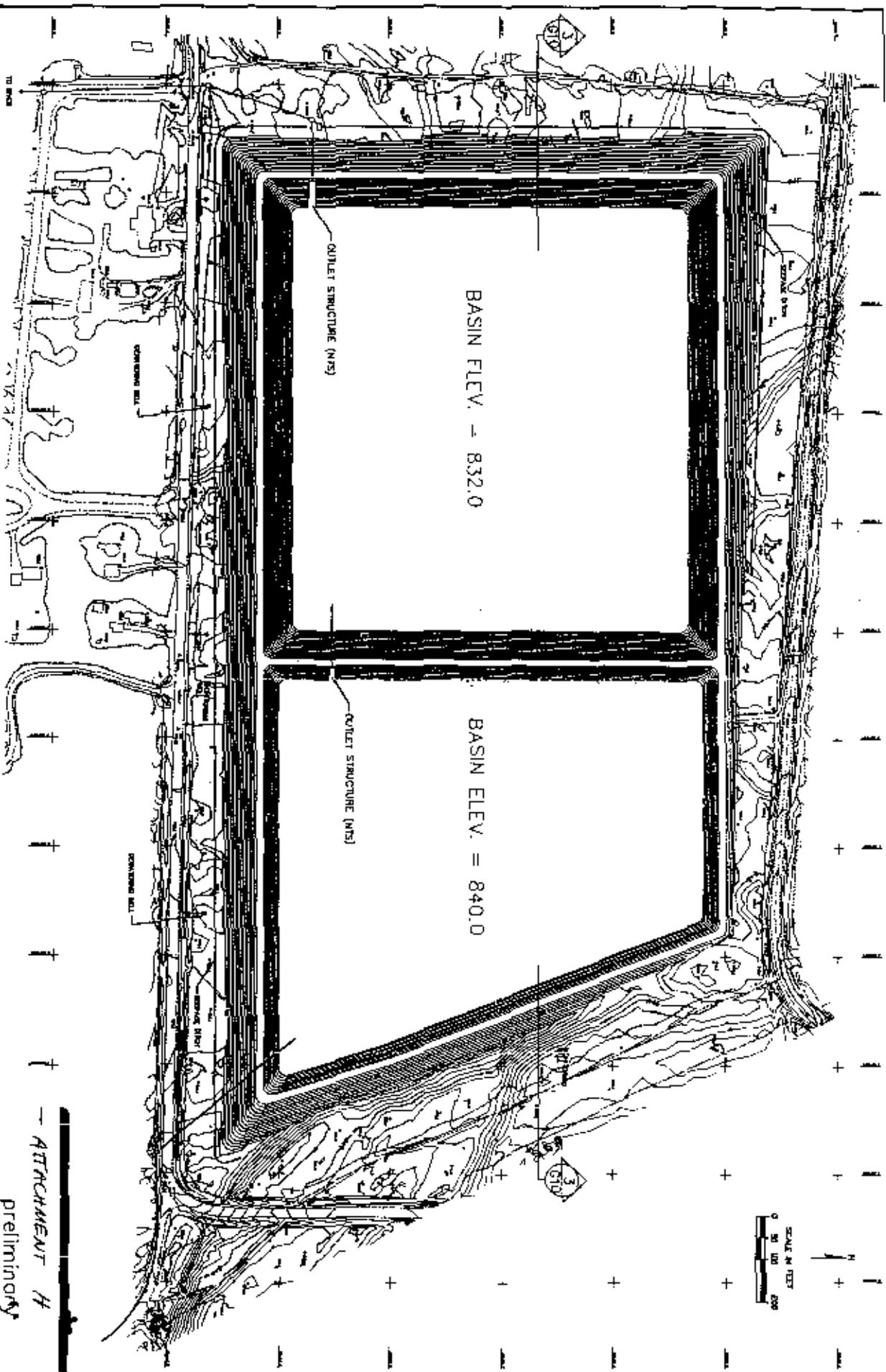
LAKE ALTOONA
SEDIMENT REDUCTION PLAN

BOTTOM DREDGING &
BOAT CHANNELS

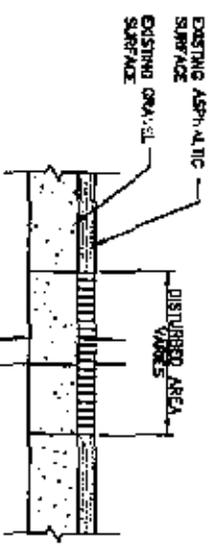
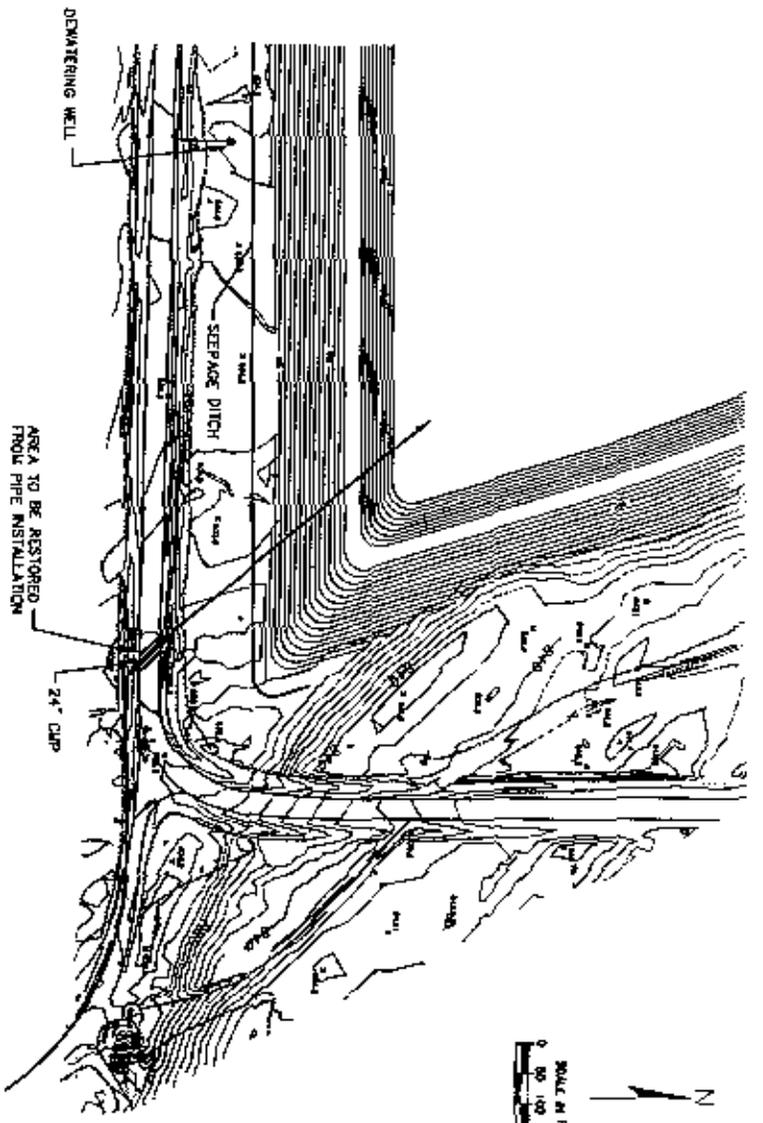
DATE
1/85



DATE: 11/20/00	DRAWN BY: [Signature]	SCALE: 1" = 100'	PROJECT: LAKE ALTOONA SEDIMENT TRAP
DESIGNED BY: [Signature]	CHECKED BY: [Signature]	DATE: 11/20/00	PROJECT: LAKE ALTOONA SEDIMENT TRAP
		LAKE ALTOONA SEDIMENT REDUCTION PLAN	
ATTACHMENT E PRELIMINARY		SEDIMENT TRAP	
TOTAL NO. SHEETS: 10 SHEET NO.: 5		DATE: 11/20/00	

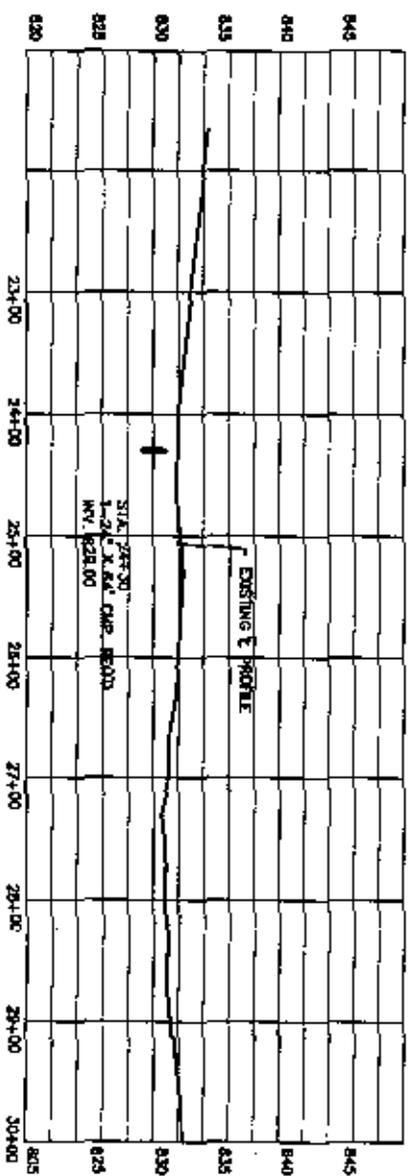


DESIGN NO. 20-001-200	NO. 01	DATE	REVISED	DATE	BY
PROJECT NO. 20-001-200	NO. 01	DATE	REVISED	DATE	BY
			LAKE ALTOONA SEDIMENT REDUCTION PLAN		
DEWATERING BASIN PLAN			PRELIMINARY		
ATTACHMENT H			SCALE IN FEET 0 50 100 200		



6" CRUSHED AGGREGATE BASE COURSE W/ 2" TEMPORARY BASE TO BE REMOVED PRIOR TO PAVING

TYPICAL PAVEMENT RESTORATION
N.T.S.



ATTACHMENT K
preliminary

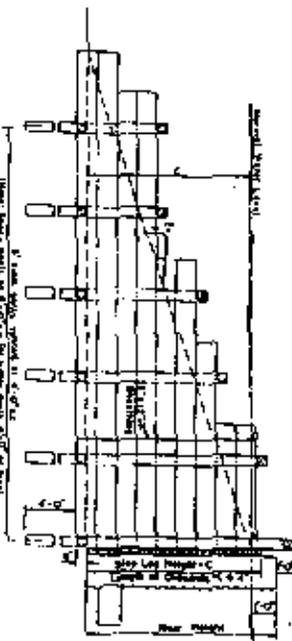
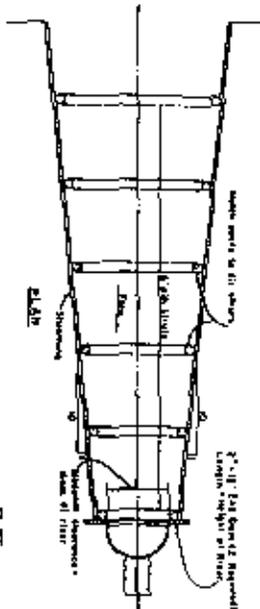
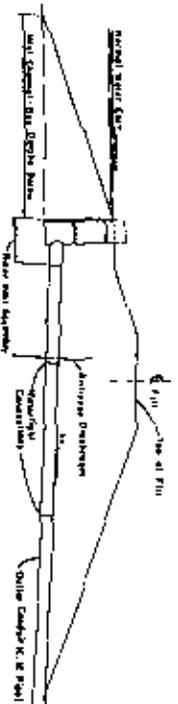
DATE	BY	CHKD	APP'D	SCALE	NO.

ES&I
ENGINEERING & SURVEYING, INC.

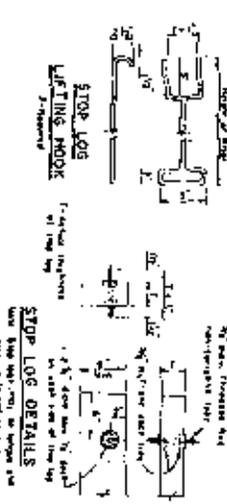
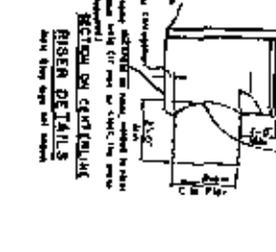
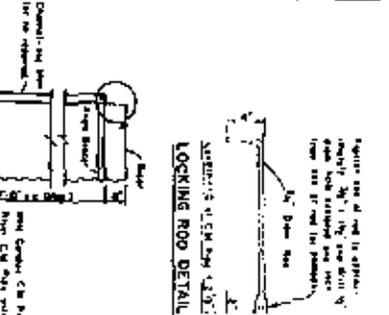
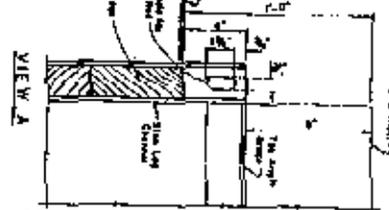
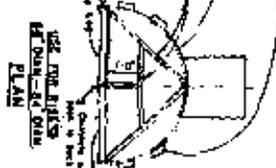
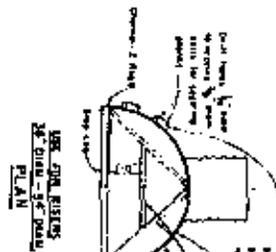
LAKE ALTOONA
SEDIMENT REDUCTION PLAN

PIPELINE ROAD CROSSING

DATE: 01/21/2011
SCALE: AS SHOWN
NO.: 2



TYPICAL SECTION ON CENTERLINE
(Showing 8' depth of water)



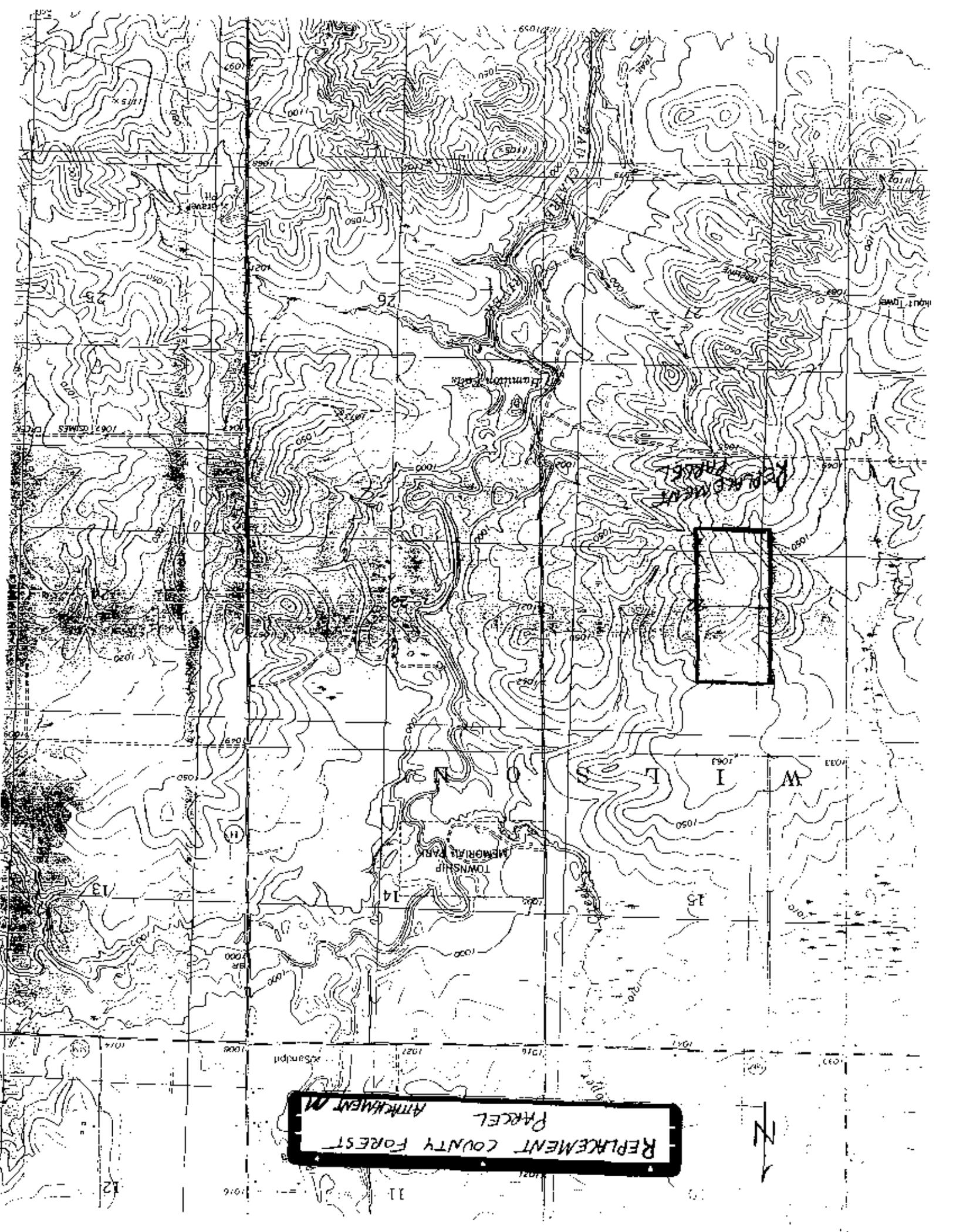
STOP LOG (RECOMMENDATIONS)

Year	Length of Stop Log (ft)	Width of Stop Log (ft)	Height of Stop Log (ft)	Weight of Stop Log (lb)
10	25	2	2	2
11	25	2	2	2
12	25	2	2	2
13	25	2	2	2
14	25	2	2	2
15	25	2	2	2
16	25	2	2	2
17	25	2	2	2
18	25	2	2	2
19	25	2	2	2
20	25	2	2	2
21	25	2	2	2
22	25	2	2	2
23	25	2	2	2
24	25	2	2	2
25	25	2	2	2
26	25	2	2	2
27	25	2	2	2
28	25	2	2	2
29	25	2	2	2
30	25	2	2	2

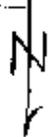
CONCRETE-STEEL GIRL REINFORCEMENT

Item	Quantity	Unit	Notes
1	18	ft	
2	18	ft	
3	18	ft	
4	18	ft	
5	18	ft	
6	18	ft	
7	18	ft	
8	18	ft	
9	18	ft	
10	18	ft	
11	18	ft	
12	18	ft	
13	18	ft	
14	18	ft	
15	18	ft	
16	18	ft	
17	18	ft	
18	18	ft	
19	18	ft	
20	18	ft	
21	18	ft	
22	18	ft	
23	18	ft	
24	18	ft	
25	18	ft	
26	18	ft	
27	18	ft	
28	18	ft	
29	18	ft	
30	18	ft	

1. All stop logs shall be fabricated in accordance with the specifications and shall be fabricated in accordance with the specifications and shall be fabricated in accordance with the specifications.
2. All stop logs shall be fabricated in accordance with the specifications and shall be fabricated in accordance with the specifications.
3. All stop logs shall be fabricated in accordance with the specifications and shall be fabricated in accordance with the specifications.
4. All stop logs shall be fabricated in accordance with the specifications and shall be fabricated in accordance with the specifications.
5. All stop logs shall be fabricated in accordance with the specifications and shall be fabricated in accordance with the specifications.
6. All stop logs shall be fabricated in accordance with the specifications and shall be fabricated in accordance with the specifications.
7. All stop logs shall be fabricated in accordance with the specifications and shall be fabricated in accordance with the specifications.
8. All stop logs shall be fabricated in accordance with the specifications and shall be fabricated in accordance with the specifications.
9. All stop logs shall be fabricated in accordance with the specifications and shall be fabricated in accordance with the specifications.
10. All stop logs shall be fabricated in accordance with the specifications and shall be fabricated in accordance with the specifications.



REPLACEMENT COUNTY FOREST
PARCEL
ATTACHMENT M



REPLACEMENT

TOWNSHIP
MEMORIAL PARK

SANDSPIT

13

14

15

12

31

32

33

34

35

36

37

38

39

40

41

42

43

44

45

46

47

48

49

50

51

52

53

54

55

56

57

58

59

60

61

62

63

64

65

66

67

68

69

70

71

72

73

74

75

76

77

78

79

80

81

82

83

84

85

86

Eau Claire Co.

Not to
scale

86 L3 S22 T27N R5W

ATTACHMENT N



Existing County Files

STATE OF WISCONSIN
DEPARTMENT OF NATURAL RESOURCES
BOX 7921
MADISON, WISCONSIN 53707

COUNTY FOREST LAW WITHDRAWAL APPLICATION
FORM 2453-3
REV. 2-83

I hereby certify:

That the Board of Supervisors of EAU CLAIRE County in a meeting
duly called and assembled on APRIL 6, 19 94, through passage of Resolution
No. 93-94/373 of even date have authorized and directed this application to be made

for the purpose of withdrawal of the hereinafter described lands from entry as county forest pursuant to Section 28.11 (11)

Wisconsin Statutes:

That at the time of said meeting the total membership of said County Board was 29 members
and that said resolution passed by a vote of 25 for and 0 against with
4 absent and 0 abstaining:

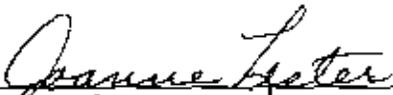
That the following are the legal descriptions of said lands:

All lands lying South of County Highway "QQ" and all lands lying
North and West of Northshore Drive in the Southwest 1/4 of Section 17,
Township 27 North, Range 8 West, containing approximately 82 acres.

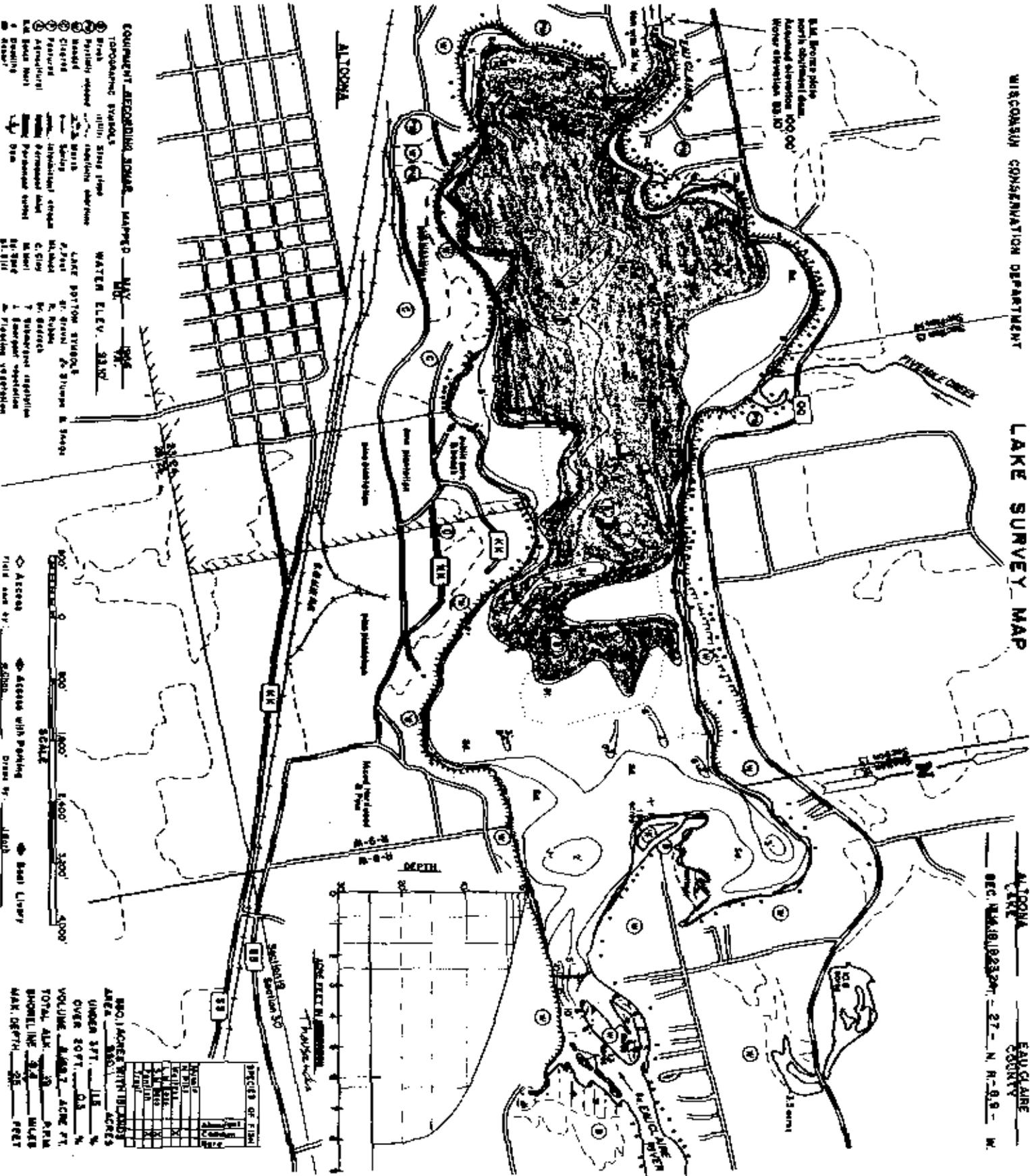
<p>COUNTY PROCEDURE</p> <p>REFER TO SEC. 28.11 (11) WIS. STATS. FOR PROVISIONS APPLYING TO COUNTY BOARD AND FORESTRY COMMITTEE ACTIONS ON COUNTY FOREST WITHDRAWALS.</p> <p>COMPLETE BOTH SIDES OF THIS FORM.</p> <p>ATTACH CERTIFIED COPY OF ABOVE REFERENCED BOARD RESOLUTION AND RESOLUTION, OR REPORT, INDICATING FORESTRY COMMITTEE ACTION.</p> <p>ATTACH CURRENT PLAT BOOK PAGE OR PAGES WITH SUBJECT LANDS DELINEATED.</p> <p>TRANSMIT TWO SETS OF ITEMS 2, 3, & 4 TO:</p> <p>DNR DISTRICT DIRECTOR C/O APPROPRIATE DISTRICT OFFICE</p>	<p>SIGNATURE</p> <p>_____ /P/WRITTEN NAME <u>Joanne Lester</u></p> <p>CLERK OF <u>Eau Claire</u> County</p> <p>_____ DATE SIGNED</p>
---	---

STATE OF WISCONSIN)
) ss.
COUNTY OF EAU CLAIRE)

I, Joanne Lester, County Clerk of Eau Claire County, Eau Claire, Wisconsin, do hereby certify that the attached is a true and correct copy of Resolution #93-94/373, adopted at the April 6, 1994 session of the County Board of Supervisors at the County Courthouse in the City of Eau Claire.



Joanne Lester
County Clerk



EQUIPMENT ACCORDING TO MAP - MAPED - MAY - 1946

TOPOGRAPHIC SYMBOLS

Water ELEV. 2330'

LAKE BOTTOM SYMBOLS

WATER ELEV. 2330'

1. Break
 2. Partially covered
 3. Cleared
 4. Pasture
 5. Agricultural
 6. Road
 7. Stream
 8. Marsh
 9. Shrub
 10. Orchard
 11. Pasture
 12. Agricultural
 13. Road
 14. Stream
 15. Marsh
 16. Shrub
 17. Orchard
 18. Pasture
 19. Agricultural
 20. Road
 21. Stream
 22. Marsh
 23. Shrub
 24. Orchard
 25. Pasture
 26. Agricultural
 27. Road
 28. Stream
 29. Marsh
 30. Shrub
 31. Orchard
 32. Pasture
 33. Agricultural
 34. Road
 35. Stream
 36. Marsh
 37. Shrub
 38. Orchard
 39. Pasture
 40. Agricultural
 41. Road
 42. Stream
 43. Marsh
 44. Shrub
 45. Orchard
 46. Pasture
 47. Agricultural
 48. Road
 49. Stream
 50. Marsh
 51. Shrub
 52. Orchard
 53. Pasture
 54. Agricultural
 55. Road
 56. Stream
 57. Marsh
 58. Shrub
 59. Orchard
 60. Pasture
 61. Agricultural
 62. Road
 63. Stream
 64. Marsh
 65. Shrub
 66. Orchard
 67. Pasture
 68. Agricultural
 69. Road
 70. Stream
 71. Marsh
 72. Shrub
 73. Orchard
 74. Pasture
 75. Agricultural
 76. Road
 77. Stream
 78. Marsh
 79. Shrub
 80. Orchard
 81. Pasture
 82. Agricultural
 83. Road
 84. Stream
 85. Marsh
 86. Shrub
 87. Orchard
 88. Pasture
 89. Agricultural
 90. Road
 91. Stream
 92. Marsh
 93. Shrub
 94. Orchard
 95. Pasture
 96. Agricultural
 97. Road
 98. Stream
 99. Marsh
 100. Shrub
 101. Orchard
 102. Pasture
 103. Agricultural
 104. Road
 105. Stream
 106. Marsh
 107. Shrub
 108. Orchard
 109. Pasture
 110. Agricultural
 111. Road
 112. Stream
 113. Marsh
 114. Shrub
 115. Orchard
 116. Pasture
 117. Agricultural
 118. Road
 119. Stream
 120. Marsh
 121. Shrub
 122. Orchard
 123. Pasture
 124. Agricultural
 125. Road
 126. Stream
 127. Marsh
 128. Shrub
 129. Orchard
 130. Pasture
 131. Agricultural
 132. Road
 133. Stream
 134. Marsh
 135. Shrub
 136. Orchard
 137. Pasture
 138. Agricultural
 139. Road
 140. Stream
 141. Marsh
 142. Shrub
 143. Orchard
 144. Pasture
 145. Agricultural
 146. Road
 147. Stream
 148. Marsh
 149. Shrub
 150. Orchard
 151. Pasture
 152. Agricultural
 153. Road
 154. Stream
 155. Marsh
 156. Shrub
 157. Orchard
 158. Pasture
 159. Agricultural
 160. Road
 161. Stream
 162. Marsh
 163. Shrub
 164. Orchard
 165. Pasture
 166. Agricultural
 167. Road
 168. Stream
 169. Marsh
 170. Shrub
 171. Orchard
 172. Pasture
 173. Agricultural
 174. Road
 175. Stream
 176. Marsh
 177. Shrub
 178. Orchard
 179. Pasture
 180. Agricultural
 181. Road
 182. Stream
 183. Marsh
 184. Shrub
 185. Orchard
 186. Pasture
 187. Agricultural
 188. Road
 189. Stream
 190. Marsh
 191. Shrub
 192. Orchard
 193. Pasture
 194. Agricultural
 195. Road
 196. Stream
 197. Marsh
 198. Shrub
 199. Orchard
 200. Pasture
 201. Agricultural
 202. Road
 203. Stream
 204. Marsh
 205. Shrub
 206. Orchard
 207. Pasture
 208. Agricultural
 209. Road
 210. Stream
 211. Marsh
 212. Shrub
 213. Orchard
 214. Pasture
 215. Agricultural
 216. Road
 217. Stream
 218. Marsh
 219. Shrub
 220. Orchard
 221. Pasture
 222. Agricultural
 223. Road
 224. Stream
 225. Marsh
 226. Shrub
 227. Orchard
 228. Pasture
 229. Agricultural
 230. Road
 231. Stream
 232. Marsh
 233. Shrub
 234. Orchard
 235. Pasture
 236. Agricultural
 237. Road
 238. Stream
 239. Marsh
 240. Shrub
 241. Orchard
 242. Pasture
 243. Agricultural
 244. Road
 245. Stream
 246. Marsh
 247. Shrub
 248. Orchard
 249. Pasture
 250. Agricultural
 251. Road
 252. Stream
 253. Marsh
 254. Shrub
 255. Orchard
 256. Pasture
 257. Agricultural
 258. Road
 259. Stream
 260. Marsh
 261. Shrub
 262. Orchard
 263. Pasture
 264. Agricultural
 265. Road
 266. Stream
 267. Marsh
 268. Shrub
 269. Orchard
 270. Pasture
 271. Agricultural
 272. Road
 273. Stream
 274. Marsh
 275. Shrub
 276. Orchard
 277. Pasture
 278. Agricultural
 279. Road
 280. Stream
 281. Marsh
 282. Shrub
 283. Orchard
 284. Pasture
 285. Agricultural
 286. Road
 287. Stream
 288. Marsh
 289. Shrub
 290. Orchard
 291. Pasture
 292. Agricultural
 293. Road
 294. Stream
 295. Marsh
 296. Shrub
 297. Orchard
 298. Pasture
 299. Agricultural
 300. Road
 301. Stream
 302. Marsh
 303. Shrub
 304. Orchard
 305. Pasture
 306. Agricultural
 307. Road
 308. Stream
 309. Marsh
 310. Shrub
 311. Orchard
 312. Pasture
 313. Agricultural
 314. Road
 315. Stream
 316. Marsh
 317. Shrub
 318. Orchard
 319. Pasture
 320. Agricultural
 321. Road
 322. Stream
 323. Marsh
 324. Shrub
 325. Orchard
 326. Pasture
 327. Agricultural
 328. Road
 329. Stream
 330. Marsh
 331. Shrub
 332. Orchard
 333. Pasture
 334. Agricultural
 335. Road
 336. Stream
 337. Marsh
 338. Shrub
 339. Orchard
 340. Pasture
 341. Agricultural
 342. Road
 343. Stream
 344. Marsh
 345. Shrub
 346. Orchard
 347. Pasture
 348. Agricultural
 349. Road
 350. Stream
 351. Marsh
 352. Shrub
 353. Orchard
 354. Pasture
 355. Agricultural
 356. Road
 357. Stream
 358. Marsh
 359. Shrub
 360. Orchard
 361. Pasture
 362. Agricultural
 363. Road
 364. Stream
 365. Marsh
 366. Shrub
 367. Orchard
 368. Pasture
 369. Agricultural
 370. Road
 371. Stream
 372. Marsh
 373. Shrub
 374. Orchard
 375. Pasture
 376. Agricultural
 377. Road
 378. Stream
 379. Marsh
 380. Shrub
 381. Orchard
 382. Pasture
 383. Agricultural
 384. Road
 385. Stream
 386. Marsh
 387. Shrub
 388. Orchard
 389. Pasture
 390. Agricultural
 391. Road
 392. Stream
 393. Marsh
 394. Shrub
 395. Orchard
 396. Pasture
 397. Agricultural
 398. Road
 399. Stream
 400. Marsh
 401. Shrub
 402. Orchard
 403. Pasture
 404. Agricultural
 405. Road
 406. Stream
 407. Marsh
 408. Shrub
 409. Orchard
 410. Pasture
 411. Agricultural
 412. Road
 413. Stream
 414. Marsh
 415. Shrub
 416. Orchard
 417. Pasture
 418. Agricultural
 419. Road
 420. Stream
 421. Marsh
 422. Shrub
 423. Orchard
 424. Pasture
 425. Agricultural
 426. Road
 427. Stream
 428. Marsh
 429. Shrub
 430. Orchard
 431. Pasture
 432. Agricultural
 433. Road
 434. Stream
 435. Marsh
 436. Shrub
 437. Orchard
 438. Pasture
 439. Agricultural
 440. Road
 441. Stream
 442. Marsh
 443. Shrub
 444. Orchard
 445. Pasture
 446. Agricultural
 447. Road
 448. Stream
 449. Marsh
 450. Shrub
 451. Orchard
 452. Pasture
 453. Agricultural
 454. Road
 455. Stream
 456. Marsh
 457. Shrub
 458. Orchard
 459. Pasture
 460. Agricultural
 461. Road
 462. Stream
 463. Marsh
 464. Shrub
 465. Orchard
 466. Pasture
 467. Agricultural
 468. Road
 469. Stream
 470. Marsh
 471. Shrub
 472. Orchard
 473. Pasture
 474. Agricultural
 475. Road
 476. Stream
 477. Marsh
 478. Shrub
 479. Orchard
 480. Pasture
 481. Agricultural
 482. Road
 483. Stream
 484. Marsh
 485. Shrub
 486. Orchard
 487. Pasture
 488. Agricultural
 489. Road
 490. Stream
 491. Marsh
 492. Shrub
 493. Orchard
 494. Pasture
 495. Agricultural
 496. Road
 497. Stream
 498. Marsh
 499. Shrub
 500. Orchard
 501. Pasture
 502. Agricultural
 503. Road
 504. Stream
 505. Marsh
 506. Shrub
 507. Orchard
 508. Pasture
 509. Agricultural
 510. Road
 511. Stream
 512. Marsh
 513. Shrub
 514. Orchard
 515. Pasture
 516. Agricultural
 517. Road
 518. Stream
 519. Marsh
 520. Shrub
 521. Orchard
 522. Pasture
 523. Agricultural
 524. Road
 525. Stream
 526. Marsh
 527. Shrub
 528. Orchard
 529. Pasture
 530. Agricultural
 531. Road
 532. Stream
 533. Marsh
 534. Shrub
 535. Orchard
 536. Pasture
 537. Agricultural
 538. Road
 539. Stream
 540. Marsh
 541. Shrub
 542. Orchard
 543. Pasture
 544. Agricultural
 545. Road
 546. Stream
 547. Marsh
 548. Shrub
 549. Orchard
 550. Pasture
 551. Agricultural
 552. Road
 553. Stream
 554. Marsh
 555. Shrub
 556. Orchard
 557. Pasture
 558. Agricultural
 559. Road
 560. Stream
 561. Marsh
 562. Shrub
 563. Orchard
 564. Pasture
 565. Agricultural
 566. Road
 567. Stream
 568. Marsh
 569. Shrub
 570. Orchard
 571. Pasture
 572. Agricultural
 573. Road
 574. Stream
 575. Marsh
 576. Shrub
 577. Orchard
 578. Pasture
 579. Agricultural
 580. Road
 581. Stream
 582. Marsh
 583. Shrub
 584. Orchard
 585. Pasture
 586. Agricultural
 587. Road
 588. Stream
 589. Marsh
 590. Shrub
 591. Orchard
 592. Pasture
 593. Agricultural
 594. Road
 595. Stream
 596. Marsh
 597. Shrub
 598. Orchard
 599. Pasture
 600. Agricultural
 601. Road
 602. Stream
 603. Marsh
 604. Shrub
 605. Orchard
 606. Pasture
 607. Agricultural
 608. Road
 609. Stream
 610. Marsh
 611. Shrub
 612. Orchard
 613. Pasture
 614. Agricultural
 615. Road
 616. Stream
 617. Marsh
 618. Shrub
 619. Orchard
 620. Pasture
 621. Agricultural
 622. Road
 623. Stream
 624. Marsh
 625. Shrub
 626. Orchard
 627. Pasture
 628. Agricultural
 629. Road
 630. Stream
 631. Marsh
 632. Shrub
 633. Orchard
 634. Pasture
 635. Agricultural
 636. Road
 637. Stream
 638. Marsh
 639. Shrub
 640. Orchard
 641. Pasture
 642. Agricultural
 643. Road
 644. Stream
 645. Marsh
 646. Shrub
 647. Orchard
 648. Pasture
 649. Agricultural
 650. Road
 651. Stream
 652. Marsh
 653. Shrub
 654. Orchard
 655. Pasture
 656. Agricultural
 657. Road
 658. Stream
 659. Marsh
 660. Shrub
 661. Orchard
 662. Pasture
 663. Agricultural
 664. Road
 665. Stream
 666. Marsh
 667. Shrub
 668. Orchard
 669. Pasture
 670. Agricultural
 671. Road
 672. Stream
 673. Marsh
 674. Shrub
 675. Orchard
 676. Pasture
 677. Agricultural
 678. Road
 679. Stream
 680. Marsh
 681. Shrub
 682. Orchard
 683. Pasture
 684. Agricultural
 685. Road
 686. Stream
 687. Marsh
 688. Shrub
 689. Orchard
 690. Pasture
 691. Agricultural
 692. Road
 693. Stream
 694. Marsh
 695. Shrub
 696. Orchard
 697. Pasture
 698. Agricultural
 699. Road
 700. Stream
 701. Marsh
 702. Shrub
 703. Orchard
 704. Pasture
 705. Agricultural
 706. Road
 707. Stream
 708. Marsh
 709. Shrub
 710. Orchard
 711. Pasture
 712. Agricultural
 713. Road
 714. Stream
 715. Marsh
 716. Shrub
 717. Orchard
 718. Pasture
 719. Agricultural
 720. Road
 721. Stream
 722. Marsh
 723. Shrub
 724. Orchard
 725. Pasture
 726. Agricultural
 727. Road
 728. Stream
 729. Marsh
 730. Shrub
 731. Orchard
 732. Pasture
 733. Agricultural
 734. Road
 735. Stream
 736. Marsh
 737. Shrub
 738. Orchard
 739. Pasture
 740. Agricultural
 741. Road
 742. Stream
 743. Marsh
 744. Shrub
 745. Orchard
 746. Pasture
 747. Agricultural
 748. Road
 749. Stream
 750. Marsh
 751. Shrub
 752. Orchard
 753. Pasture
 754. Agricultural
 755. Road
 756. Stream
 757. Marsh
 758. Shrub
 759. Orchard
 760. Pasture
 761. Agricultural
 762. Road
 763. Stream
 764. Marsh
 765. Shrub
 766. Orchard
 767. Pasture
 768. Agricultural
 769. Road
 770. Stream
 771. Marsh
 772. Shrub
 773. Orchard
 774. Pasture
 775. Agricultural
 776. Road
 777. Stream
 778. Marsh
 779. Shrub
 780. Orchard
 781. Pasture
 782. Agricultural
 783. Road
 784. Stream
 785. Marsh
 786. Shrub
 787. Orchard
 788. Pasture
 789. Agricultural
 790. Road
 791. Stream
 792. Marsh
 793. Shrub
 794. Orchard
 795. Pasture
 796. Agricultural
 797. Road
 798. Stream
 799. Marsh
 800. Shrub
 801. Orchard
 802. Pasture
 803. Agricultural
 804. Road
 805. Stream
 806. Marsh
 807. Shrub
 808. Orchard
 809. Pasture
 810. Agricultural
 811. Road
 812. Stream
 813. Marsh
 814. Shrub
 815. Orchard
 816. Pasture
 817. Agricultural
 818. Road
 819. Stream
 820. Marsh
 821. Shrub
 822. Orchard
 823. Pasture
 824. Agricultural
 825. Road
 826. Stream
 827. Marsh
 828. Shrub
 829. Orchard
 830. Pasture
 831. Agricultural
 832. Road
 833. Stream
 834. Marsh
 835. Shrub
 836. Orchard
 837. Pasture
 838. Agricultural
 839. Road
 840. Stream
 841. Marsh
 842. Shrub
 843. Orchard
 844. Pasture
 845. Agricultural
 846. Road
 847. Stream
 848. Marsh
 849. Shrub
 850. Orchard
 851. Pasture
 852. Agricultural
 853. Road
 854. Stream
 855. Marsh
 856. Shrub
 857. Orchard
 858. Pasture
 859. Agricultural
 860. Road
 861. Stream
 862. Marsh
 863. Shrub
 864. Orchard
 865. Pasture
 866. Agricultural
 867. Road
 868. Stream
 869. Marsh
 870. Shrub
 871. Orchard
 872. Pasture
 873. Agricultural
 874. Road
 875. Stream
 876. Marsh
 877. Shrub
 878. Orchard
 879. Pasture
 880. Agricultural
 881. Road
 882. Stream
 883. Marsh
 884. Shrub
 885. Orchard
 886. Pasture
 887. Agricultural
 888. Road
 889. Stream
 890. Marsh
 891. Shrub
 892. Orchard
 893. Pasture
 894. Agricultural
 895. Road
 896. Stream
 897. Marsh
 898. Shrub
 899. Orchard
 900. Pasture
 901. Agricultural
 902. Road
 903. Stream
 904. Marsh
 905. Shrub
 906. Orchard
 907. Pasture
 908. Agricultural
 909. Road
 910. Stream
 911. Marsh
 912. Shrub
 913. Orchard
 914. Pasture
 915. Agricultural
 916. Road
 917. Stream
 918. Marsh
 919. Shrub
 920. Orchard
 921. Pasture
 922. Agricultural
 923. Road
 924. Stream
 925. Marsh
 926. Shrub
 927. Orchard
 928. Pasture
 929. Agricultural
 930. Road
 931. Stream
 932. Marsh
 933. Shrub
 934. Orchard
 935. Pasture
 936. Agricultural
 937. Road
 938. Stream
 939. Marsh
 940. Shrub
 941. Orchard
 942. Pasture
 943. Agricultural
 944. Road
 945. Stream
 946. Marsh
 947. Shrub
 948. Orchard
 949. Pasture
 950. Agricultural
 951. Road
 952. Stream
 953. Marsh
 954. Shrub
 955. Orchard
 956. Pasture
 957. Agricultural
 958. Road
 959. Stream
 960. Marsh
 961. Shrub
 962. Orchard
 963. Pasture
 964. Agricultural
 965. Road
 966. Stream
 967. Marsh
 968. Shrub
 969. Orchard
 970. Pasture
 971. Agricultural
 972. Road
 973. Stream
 974. Marsh
 975. Shrub
 976. Orchard
 977. Pasture
 978. Agricultural
 979. Road
 980. Stream
 981. Marsh
 982. Shrub
 983. Orchard
 984. Pasture
 985. Agricultural
 986. Road
 987. Stream
 988. Marsh
 989. Shrub
 990. Orchard
 991. Pasture
 992. Agricultural
 993. Road
 994. Stream
 995. Marsh
 996. Shrub
 997. Orchard
 998. Pasture
 999. Agricultural
 1000. Road
 1001. Stream
 1002. Marsh
 1003. Shrub
 1004. Orchard
 1005. Pasture
 1006. Agricultural
 1007. Road
 1008. Stream
 1009. Marsh
 1010. Shrub
 1011. Orchard
 1012. Pasture
 1013. Agricultural
 1014. Road
 1015. Stream
 1016. Marsh
 1017. Shrub
 1018. Orchard
 1019. Pasture
 1020. Agricultural
 1021. Road
 1022. Stream
 1023. Marsh
 1024. Shrub
 1025. Orchard
 1026. Pasture
 1027. Agricultural
 1028. Road
 1029. Stream
 1030. Marsh
 1031. Shrub
 1032. Orchard
 1033. Pasture
 1034. Agricultural
 1035. Road
 1036. Stream
 1037. Marsh
 1038. Shrub
 1039. Orchard
 1040. Pasture
 1041. Agricultural
 1042. Road
 1043. Stream
 1044. Marsh
 1045. Shrub
 1046. Orchard
 1047. Pasture
 1048. Agricultural
 1049. Road
 1050. Stream
 1051. Marsh
 1052. Shrub
 1053. Orchard
 1054. Pasture
 1055. Agricultural
 1056. Road
 1057. Stream
 1058. Marsh
 1059. Shrub
 1060. Orchard
 1061. Pasture
 1062. Agricultural
 1063. Road
 1064. Stream
 1065. Marsh
 1066. Shrub
 1067. Orchard
 1068. Pasture
 1069. Agricultural
 1070. Road
 1071. Stream
 1072. Marsh
 1073. Shrub
 1074. Orchard
 1075. Pasture
 1076. Agricultural
 1077. Road
 1078. Stream
 1079. Marsh
 1080. Shrub
 1081. Orchard
 1082. Pasture
 1083. Agricultural
 1084. Road
 1085. Stream
 1086. Marsh
 1087. Shrub
 1088. Orchard
 1089. Pasture
 1090. Agricultural
 1091. Road
 1092. Stream
 1093. Marsh
 1094. Shrub
 1095. Orchard
 1096. Pasture
 1097. Agricultural
 1098. Road
 1099. Stream
 1100. Marsh
 1101. Shrub
 1102. Orchard
 1103. Pasture

ATTACHMENT Q

WETLAND MAP - STOCKPILE SITE



LAKE ALTOONA
SEDIMENT REDUCTION PLAN
WETLAND LOCATION



Docket Number

3-WC-95-1055

FACT FINDING

1. Name of Applicant Lake Altoona District Street or Route PO Box 975 City, State, Zip Code Eau Claire, WI 54702 Telephone Number (include area code) [Ap_Phone]	2. Name of Agent, Contractor, Consultant Mark Riebau, SEH Street or Route Frenette Drive City, State, Zip Code Chippewa Falls, WI 54729 Telephone Number (include area code)
3. Location Address SE¼, SE¼, Section 17, T27N, R8W Govt. Lot Town, Village or City in the Town of Seymour County Eau Claire	4. Name of Involving Waterway Altoona Lake <input type="checkbox"/> Natural Lake <input type="checkbox"/> Raised Lake <input checked="" type="checkbox"/> Flowage <input type="checkbox"/> Stream Navigable? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Explain

5. Description of Proposed Project

The Lake Altoona Protection and Rehabilitation District proposes to excavate sediment from the bed of Lake Altoona and the Eau Claire River in order to lengthen the useable life of the lake and restore the recreation values of the lake. The project consists of dredging a sediment trap in the Eau Claire River upstream from the lake and dredging the upper end of the lake basin. The dredging of the sediment trap will be done by hydraulic cutterhead dredge and dredging of the lake area will be accomplished by either mechanical means after a 9 foot drawdown or by hydraulic dredging. The method will be determined after bids and comparative cost analysis are received and analyzed.

The sediment trap will be dredged on an annual basis or as needed, to help prevent sedimentation in the lake basin. The sandy material dredged from the lake bed and sediment trap will be stockpiled until it is used by Eau Claire County for cover material at the county landfill and also as an ice control material on county and town highways and local city streets during the winter months. Eau Claire County is also considering use of the material for fill to implement a hazard mitigation plan to reduce the potential for future flooding for properties inundated in 1993.

The dredging operation will involve two separate areas. The first area, located at the mouth of the river, involves removing approximately 200,000 cubic yards of sand to deepen the lake basin 6 feet, and 100,000 cubic yards to establish 3 navigation channels. Two of the navigation channels will extend up the Eau Claire River and the third channel will establish access to McFaul Bay. The second dredging area will involve creating a 1200 foot long by 230 foot wide, 6 foot deep sediment trap in the river 1.5 miles upstream from the lake. It is estimated that the creation of the sediment trap will involve the removal of 60,000 cubic yards of sand from the river bed.

Dredging by mechanical means will require a 9 foot drawdown of Lake Altoona in August 1996. The lake would be drawn down at a rate of ⁸² inches per day. The dredging operation would begin in December 1996 when the lake bottom is frozen and will support earthmoving equipment. Temporary haul roads will have to be constructed on the exposed bed of the lake to facilitate equipment operations. Mechanical dredging will require routing of the river flow while the boat channels are dredged along the south shore.

Hydraulic dredging of the sediment trap would occur in the summer of 1997 after mechanical dredging is complete and the lake is returned to normal levels.

All dredged materials will be conveyed to a stockpile/dewatering site. Mechanically dredged sand will be trucked to the site while hydraulically dredged material will be transported as a slurry via a pipeline.

The stockpile site is located on an 82-acre parcel of land owned by Eau Claire County in the S¼, SW¼, Sec. 17, T27N, R8W, Town of Seymour, Eau Claire County. The site is bordered by North Shore Drive on the south, a Northern States Power transmission line on the east, CTH "QQ" on the north, and private property owned by the Eau Claire Rod & Gun Club on the west. The stockpile site is currently a part of the Eau Claire County forest system. The site will need to be withdrawn from the State County Forest program for this project. The county has initiated the process for formal withdrawal, but will retain ownership of the site. To comply with requirements for withdrawal from the forestry program, a replacement parcel of forested land, located in the SE¼, NW¼ and NE¼ SW¼, Sec. 22, T27N, R5W, Town of Wilson, Eau Claire County, has been purchased for inclusion in the county forest system.

Initially, the sand mechanically dredged from the lake basin will be trucked to the stockpile site and used to construct a dike system for containment of the hydraulic dredging slurry (i.e., sediment and carriage water). The containment area will be sized to hold all dredged material and the accompanying carriage water. The carriage water that does not evaporate or infiltrate into the ground will be gradually released to the Eau Claire River through an outlet pipeline after the suspended solids settle out.

19. If Project Involves Dredging, Describe Proposed Disposal Site

The disposal site is an 82-acre parcel in the county forest. It is totally undeveloped and entirely wooded. It is approximately 1/2 mile north of the lake. It is a "relatively" flat sandy area where the carriage water from the hydraulic dredging is expected to seep into the soil. It will be cleared & containment dikes constructed. Its character will change extensively from unused woodland to appear like a sand mine. It will receive extensive use as a work site for years in the future.

- 20. Does Project Involve Dredging or Discharge of Any Liquid or Material? [x] Yes [] No
If Yes, Have the Disposal Facilities and/or Discharge Been Approved by the Solid Waste and/or Wastewater Programs? [] Yes [] No

EVALUATION AND CONCLUSION OF LAW

21. The Department has authority pursuant to the following statute(s) and/or administrative code(s) to issue or deny a permit for the project: (list all applicable)

Section 30.20, Wis. Stats and NR 345, Wis. Admin. Code

Table with 2 columns and 4 rows of questions regarding environmental impacts and compliance with local zoning and wetland policies.

28. State What Impacts this Proposed Project Will Have on Fisheries Resource and Aquatic Environment

The construction and maintenance of a sediment trap in the upper end of Lake Altoona will reduce the level of sedimentation in the lake. The in-lake dredging will provide deeper areas in the lake for improved navigation but will not necessarily improve habitat conditions for fish.

The proposed drawdown of the lake will have serious negative impacts to the aquatic community of Lake Altoona which could last for a period of five years or more. The aquatic plant community of the lake consists of drawdown tolerant species.

The greatest negative impact will be to the fish population in the lake. Even with a slow drawdown, fish stranding may occur in aquatic plant beds and in pools of water which become isolated from the rest of the lake.

A 9-foot drawdown will reduce water volume in the lake to one-third of its normal volume and surface area to one-half of its normal area. This will cause drastic changes to the normal distribution of fish, their behavior, and their mobility.

During the drawdown, lakeshore property owners may look at the drawdown as an opportunity to "clean up" their shoreline of debris. This type of activity will result in a loss of habitat to fish and other aquatic life once the lake is refilled.

29. State What Impacts this Proposed Project Will Have on Wildlife Resources

The drawdown starting in August will cause the Blanding & wood turtles to seek alternate sites for their winter hibernation. It is believed that the drawdown completion by October 1 will provide them with adequate opportunity to find suitable sites that will not freeze during winter.

Waterfowl on the lake will like the exposed lakebed, but will concentrate in the main body of open water or leave the lake. Furbearers should re-locate similar to the turtles. Shorebirds & wading birds will find new, temporary habitat during the drawdown.

30. If Project is Permitted, are Other Similar Projects Likely to be Attempted in General Area?

- [] Yes [x] No [] Uncertain

31. Investigator's Opinion as to the Expected Impacts this Project Will Have on the Environment, Adjacent Property Owners and Public Interests

Fish populations and the population of aquatic invertebrates will be reduced in the lake. It may take up to five years or more for the fishery to recover to current levels.

Recreational use of the lake, especially angling, will be significantly reduced during the drawdown period. Once the lake is refilled, angling opportunities will be temporarily lost as fish populations recover from the drawdown.

The dredging of Lake Altoona will cost the lake riparian owners and taxpayers an estimated \$2.5 million and a great deal of personal time of numerous volunteers to see the project through. The efforts of these people should result in a restored lake. The dredging of the sediment trap on a recurring basis will help restore and enhance the lakes useable life and recreational capabilities. There will be issues to be concerned with. A drawdown will severely hurt the fishery and reduce the recreational use of the lake by fishermen, boaters, swimmers. Ice safety will be a concern. Drying up of wells, groundwater transport of contaminants and accelerated erosion of the banks of the Eau Claire River are all areas of concern caused by a drawdown. Hydraulic dredging would substantially eliminate the first 2 of these 3 concerns and has potential to create a groundwater mounding problem in the vicinity of the sediment dewatering basin. Overall the project goal of improving and restoring the recreational capacity and lake longevity are felt to be beneficial if the concerns identified above are properly addressed.

32. Special Conditions to be Incorporated in Permit if Granted

1. If the project can be done without a drawdown, this would be the preferred method.
2. The Lake District must formulate a plan to address bank slumping of the Eau Claire River.
3. Any drawdown must be completed prior to October 1 to protect the endangered Blanding and wood turtle.
4. The applicant shall work cooperatively with the Department in the restoration of the fishery upon completion of this project. This may include, but not be limited to restocking of the lake and temporary closure of the fishery. Closing fishing will protect gamefish concentrated by the drawdown from fishing mortality. The closure will extend up to three years after the drawdown to protect spawning gamefish. However, actual closure will be determined by fishery surveys conducted after water levels have been restored.
5. The applicant shall ensure that lakeshore property owners do not remove or reduce the available habitat from the bed of the lake during the drawdown period.
6. The applicant shall be responsible for monitoring for the occurrences of fish stranding during the drawdown. If fish stranding does occur, the applicant shall take all necessary measures to minimize the problem and provide fish rescue if necessary.

33. Objections to Proposal

(Original signatures in file)

	Initials	Date			Initials	Date		
Warden	<i>MSB</i>	12/22/95	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	Fish Manager	<i>JHA</i>	12/22/95	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Wildlife Manager	<i>MJS</i>	12/22/95	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	Water Manager	<i>DK</i>	12/22/95	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
								<input type="checkbox"/> Yes <input type="checkbox"/> No

(Other-Specify)

Explain Reason(s) for Objection

A drawdown with its subsequent impacts to fisheries and surface recreation in a water "poor" area, in my opinion, outweighs most long- or short-term benefits gained from this project. I support the hydraulic dredging method. (conservation warden)

34. Date of Investigation

35. Name of Investigator(s)

Title of Investigator(s)

Dan Koich	Water Regulation & Zoning Specialist
Rob Strand	Environmental Analyst
Joe Kurz	Fish Manager
Mike Gappa	Wildlife Manager
Mark Bram	Conservation Warden
Sue Borman	Aquatic Plant Specialist
Buzz Sorgo	Water Resources Specialist

36. Area Recommendation:

Opposed Not Opposed

Area Water Management Specialist's Signature
Daniel S. Koich

Daniel Koich

Date Signed 12/26/95

37. District Recommendation (if applicable)

Opposed Not Opposed

District Director's Signature

Date Signed

31. Investigator's Opinion as to the Expected Impacts this Project Will Have on the Environment, Adjacent Property Owners and Public Interests

Fish populations and the population of aquatic invertebrates will be reduced in the lake. It may take up to five years or more for the fishery to recover to current levels.

Recreational use of the lake, especially angling, will be significantly reduced during the drawdown period. Once the lake is refilled, angling opportunities will be temporarily lost as fish populations recover from the drawdown.

The dredging of Lake Altoona will cost the lake riparian owners and taxpayers an estimated \$2.5 million and a great deal of personal time of numerous volunteers to see the project through. The efforts of these people should result in a restored lake. The dredging of the sediment trap on a recurring basis will help restore and enhance the lakes useable life and recreational capabilities. There will be issues to be concerned with. A drawdown will severely hurt the fishery and reduce the recreational use of the lake by fishermen, boaters, swimmers. Ice safety will be a concern. Drying up of wells, groundwater transport of contaminants and accelerated erosion of the banks of the Eau Claire River are all areas of concern caused by a drawdown. Hydraulic dredging would substantially eliminate the first 2 of these 3 concerns and has potential to create a groundwater mounding problem in the vicinity of the sediment dewatering basin. Overall the project goal of improving and restoring the recreational capacity and lake longevity are felt to be beneficial if the concerns identified above are properly addressed.

32. Special Conditions to be Incorporated in Permit if Granted

1. If the project can be done without a drawdown, this would be the preferred method.
2. The Lake District must formulate a plan to address bank slumping of the Eau Claire River.
3. Any drawdown must be completed prior to October 1 to protect the endangered Blanding and wood turtle.
4. The applicant shall work cooperatively with the Department in the restoration of the fishery upon completion of this project. This may include, but not be limited to restocking of the lake and temporary closure of the fishery. Closing fishing will protect gamefish concentrated by the drawdown from fishing mortality. The closure will extend up to three years after the drawdown to protect spawning gamefish. However, actual closure will be determined by fishery surveys conducted after water levels have been restored.
5. The applicant shall ensure that lakeshore property owners do not remove or reduce the available habitat from the bed of the lake during the drawdown period.
6. The applicant shall be responsible for monitoring for the occurrences of fish stranding during the drawdown. If fish stranding does occur, the applicant shall take all necessary measures to minimize the problem and provide fish rescue if necessary.

33. Objections to Proposal

(Original signatures in file)

	Initials	Date		Initials	Date		
Warden	<i>MSB</i>	12/22/95	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Fish Manager	<i>JHA</i>	12/22/95	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Wildlife Manager	<i>MJS</i>	12/22/95	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Water Manager	<i>DK</i>	12/22/95	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
							<input type="checkbox"/> Yes <input type="checkbox"/> No

(Other-Specify)

Explain Reason(s) for Objection

A drawdown with its subsequent impacts to fisheries and surface recreation in a water "poor" area, in my opinion, outweighs most long- or short-term benefits gained from this project. I support the hydraulic dredging method. (conservation warden)

34. Date of Investigation

35. Name of Investigator(s)

Title of Investigator(s)

Dan Koich	Water Regulation & Zoning Specialist
Rob Strand	Environmental Analyst
Joe Kurz	Fish Manager
Mike Gappa	Wildlife Manager
Mark Brann	Conservation Warden
Sue Bornman	Aquatic Plant Specialist
Buzz Sorge	Water Resources Specialist

36. Area Recommendation:

Opposed Not Opposed

Area Water Management Specialist's Signature

Date Signed 12/26/95

Daniel S. Koich

37. District Recommendation (if applicable)

Opposed Not Opposed

District Director's Signature

Date Signed