



State of Wisconsin \ DEPARTMENT OF NATURAL RESOURCES

Jim Doyle, Governor
Scott Hassett, Secretary
Gloria L. McCutcheon, Regional Director

Waukesha Service Center
141 NW Barstow Street
Waukesha, Wisconsin 53188
Telephone 262-574-2100
FAX 262-574-2117

March 8, 2007

Mr. Tom Hafner, P.E.
Director of Public Works
City of Delafield
500 Genesee Street
Delafield, WI 53018

Subject: Chapter 30 Dredging Permit (IP-SE-07-0018)
Notice of Incomplete Application

Dear Mr. Hafner:

The Department of Natural Resources (Department) is in receipt of the City of Delafield's (City's) Chapter 30 permit application to dredge material from the bed of Nagawicka Lake. At this time, the permit application is considered to be incomplete. As discussed during the January 31st, 2007 meeting, in order to continue to process the application, additional information must be submitted to the Department. The purpose of this letter is to notify you of the additional items necessary to complete review of the Chapter 30 permit application as well as to inform you of modifications to proposed dredging locations necessary to approve the permit.

The Department has reviewed the areas proposed to be dredged with this permit application. For identification and review purposes, you categorized these areas into seven larger areas, (1) St. John's Bay (2) West Channels (3) Northwest Channels (4) Kettle (5) Northeast Channels (6) Bark River Inlet and (7) Zastrow's Bay. As stated to you both verbally and in previous written correspondences, due to detrimental impacts to public interest, the Department will not approve dredging of St. Johns Bay or the Kettle Areas. The Department's position was reflected in correspondences to you or to your consultants on November 3, 2003, February 23, 2004 and September 03, 2004.

During preliminary discussions, the Department advised the City to develop a dredge plan for the remaining areas which minimizes impacts to the resource by reducing dredge areas, reducing channel widths and maximizing wetland setbacks. In fact, the City's dredging application cover letter states that the project has been designed to avoid dredging areas that have water depth greater than three feet and to maintain shoreline integrity by going no closer than five feet to shoreline for any dredging activity. This cover letter statement conflicts with Figure 4 through Figure 11 of the application. These figures clearly show dredging proposed in areas with water depth greater than three feet and clearly show some dredging proposed within 5-feet of the shoreline.

The northwest channels are designated sensitive by the Department. Based upon the above recommendations, the Department feels that dredging proposed in the northwest channels can be minimized by eliminating dredging between parcels 0750058, 0750059 and 0750085, dredging west of parcel 0750029 and north of parcel 0750024, and dredging between the wetland "islands" which encompass parcel 0750999001 in order to decrease impacts to public interest. In addition, the width of the dredge channel along parcels 0751106 and 0751004 can be decreased in order to achieve a minimum five foot wetland buffer. Areas proposed to be dredged within the Lake Drive portion of the Bark River



inlet area as well as portions of Zastrow's Bay have existing water depths at or above the three foot mark. Based upon the above recommendations, these areas should be eliminated from the scope of the project. The application material suggests the possibility of dredging into native hard pan in order to construct the Bark River sediment trap. The Department will not approve dredging into native hardpan. Re-design the sediment trap to avoid the disturbance of native hard pan. Although not officially designated as sensitive, the northeast channels contain valuable wetland habitat. The area identified as NE4 also contains extremely valuable fish and wildlife habitat. As such, the Department will not approve dredging in area NE4. In order to maximize the wetland buffer and minimize public interest impacts, proposed dredged areas NE 1, NE 2, NE3, NE6 and NE5 shall be reduced and allow for a minimum wetland buffer of 5-feet.

Attached is an appendix which outlines in detail the additional informational needed to continue review of the permit application. The following are the topics covered by each appendix:

- Appendix 1: Proposed Dredge Areas
- Appendix 2: Dredging Operation and Dewatering Locations
- Appendix 3: Re-Vegetation Plan
- Appendix 4: Solid Waste Management
- Appendix 5: Elutriate Testing
- Appendix 6: Environmental Analysis

Please submit to the Department the information outlined in the attached appendices as well as revised plans which reflect the changes in the dredge areas as discussed in the body of this letter by May 4, 2007. Appendix 7 summarizes additional discussion points from our January 31, 2007 meeting. The Department looks forward to meeting with you on Tuesday March 13th at 1:00 to further discuss the contents of this letter. If you have questions, please contact me directly at 262-574-2137.

Sincerely,



Geri Radermacher
Water Management Specialist

Cc: Gerald Berg, Foth & Van Dyke
Waukesha County Parks and Land Use
ACOE
DNR, McNelly

APPENDIX 1

PROPOSED DREDGE AREAS

- A. Provide a separate purpose and need for each of the seven areas proposed to be dredged. Explain how the purposes and needs for each specific area will be met by this project. Can these purposes and needs be met by methods other than dredging (i.e. navigational buoys, extended piers, move location of piers, etc).
- B. Decide on the method of dredge for each area, i.e. hydraulic or mechanical. Once determined, the Department will review potential public interest impacts of selected method of dredging.
- C. The Department will limit the time of year the dredging may occur based on resource issues. To limit potential impacts to fish spawning, no dredging may occur from mid-March through June 30th of the calendar year. To avoid potential impacts to reptiles and amphibians, dredging may not occur from October 16th -April 1st of the calendar year, except for Zastrow's Bay. This means that the majority of the dredging may only occur between July 1st and October 15th of the calendar year. Provide a new time line which reflects the time of year restrictions.
- D. Revise Figures 4-11 to remove dredging upland and wetland areas. For example, Figure 5 shows the proposed dredge channel going directly over upland area at 0786011-0786013.
- E. Provide a series of standard cross-sections and top views for the dredge areas. Identify the corresponding dredge areas represented in the details. Provide specific dimensions for each dredge area, including the existing banks, and the proposed channel dimensions, including bottom width, top width, side slope, buffer width, water depth etc.
- F. Discuss the impacts to riparians if piers are removed to facilitate dredging as well as any redesign of piers after dredging (to accommodate the new water depth).

APPENDIX 2

DREDGING OPERATION

- A. Determine how dredged material will be transported to the disposal location(s) (i.e. if hydraulic dredging show the location of pipes, hoses from the location of dredge machine all the way to the disposal site) from each of the seven areas proposed to be dredged. The in-lake locations of pipes, hoses will vary depending on what portion of lake is being dredged. Figures 12-14 of the application submittal provides an overview of the upland disposal routes but does not provide details for the in-lake routes.
- B. Provide a definition of and more details of the staging/mechanical loadout areas. What will occur at these areas? Who owns these parcels? Describe the existing site conditions (land cover, soils, groundwater, etc). Provide site specific plans for these areas. Will the proposed project impact the existing site conditions (soil compaction, erosion, sedimentation)? Will these areas need other Chapter 30 approvals such as structures below the ordinary high water mark, grading in excess of 10,000 square feet, etc. If mechanical dredging is selected, will barges be able to float to these locations? Will Bleeker Street Boat Ramp be closed while it is used as a staging/load out area? The staging/loadout areas located within St. John's Bay will be further examined by the Department once the requested information is received. These areas may have to be relocated.
- C. Will public or private navigation be impacted by the project? If so, for how long?
- D. How will the pipes, hoses, etc be located in order to avoid impact to public and private navigation? Will the pipes, hoses be submerged or floating? We will need sign off from landowners for pipeline placed in their riparian zone.
- E. Provide details on the construction of the pipes, hoses. Will they be pressure tested? How will you determine if there is a leak? What is the plan if there is a leak?
- F. Provide contingency plans for the equipment and operation of equipment. Spill plan for staging areas, dredge machine, booster pumps, etc. Refueling for barges and pumps.
- G. Provide details of marking of all in-water equipment. Must be properly marked to U.S Coast Guard Standards and Department standards to avoid navigation issues.
- H. Provide name and addresses of all riparian property owners affected by the project, including areas where hoses, pipes, pumps may be located.
- I. How will the dredging operator stay within the approved dredge channel?
- J. Once dredged, how will the as-built documentation be acquired? What if too much material was removed?
- K. Provide a cost estimate of the dredging operation. The Department will require a performance bond for the amount of the dredging operation, including hauling, dewatering and disposal costs.
- L. What will the hours of operation be for the dredge machinery, pumps and generators? Address the issue of noise? Are property owners prepared for the level of noise?
- M. The re-suspension of sediment will generate odors? Are the riparian property owners aware of the potential odor.

DE-WATERING LOCATIONS

- A. Provide either a letter of permission, easement or legal agreement from the owners of the dewatering sites.
- B. Soil evaluation indicates a moderate to high infiltration rate at the dewatering sites but the design calculations assume no infiltration. If the infiltration rates are moderate to high, will the dewatering activities adversely impact groundwater, i.e. contamination.
- C. The hydraulics of the proposed dewatering/infiltration berm should be evaluated to verify that the entire treatment flow rate will pass through the berm without overtopping.

- D. The dewatering/infiltration berm must be designed in accordance with the applicable criteria found in Dewatering Technical Standard 1061(i.e. geotextile fabric specifications, 50% clogging factor, etc).
- E. One section of the application states that polymer will be added while another section states polymers will not be used. Due to the significant clay content, polymers should be added prior to filtration. Only polymer products with a Department approved use restriction can be used in accordance with Water Application of Polymers Technical Standard 1051. Please state which polymer will be used and how it will be applied and monitored.
- F. Filtration systems require routine maintenance to re-establish filtration rates and to prevent filter bypassing. It is recommended that filter "cells" in parallel are established so that an individual cell can be taken off line for maintenance.
- G. Supply a revised grading, erosion control and final stabilization plan for the dewatering location. Include a construction sequence for the development of the dewatering facility as well as instruction for use of facility.

APPENDIX 3

RE-VEGETATION PLAN

- A. As part of this project, the Department will require a re-vegetation plan for the dredged areas. The application material states that the plan will be filed under separate cover. The re-vegetation plan must be reviewed and approved as part of this application. Without the re-vegetation plan, the Department cannot approve the permit application.
- B. Provide a cost estimate for the implementation of the re-vegetation plan and a separate cost estimate for five years of maintenance and monitoring of the re-vegetation plan. The Department will require performance bonds to ensure that the re-vegetation plan is properly implemented and maintained.
- C. The newly planted areas may not be mechanically harvested during the five years of maintenance and monitoring and as such the Department will not issue a NR 109 permit to mechanically harvest these areas. The Aquatic Plant Management Plan will need to be amended to reflect the restoration areas and the proper management of said areas.
- D. Each riparian property owner must be made aware that they will not be able to harvest the newly vegetated areas (either manually, mechanically, or chemically). What provisions will be made to educate riparians about the re-vegetation plan and the possible implications to their shoreline?
- E. Remove the statement "availability dependent" from species list. Remove coontail, northern water milfoil, whorled milfoil and wigeon grass from the species list. Add sweet blue flag iris, soft stem bulrush, pickerel weed and slender naiad to the list.
- F. Identify how plants will be anchored.
- G. Develop a maintenance and monitoring plan which includes measurable performance standards that include percent cover and percent native species. Include measures to counter goose and swan predation. Include measures to counter eurasion water milfoil invasion. Include measures which will be taken if performance standards are not met. If not met, maintenance and monitoring may have to be extended.

APPENDIX 4

SOLID WASTE MANAGEMENT

The dredge material from this project is regulated under s. NR 500.08(3)(c) because the lake has been treated with arsenicals and other chemicals in the past.

- A. Identify the final disposal location and management of the dredge material. The Environmental Assessment generated as part of the Chapter 30 permit process must indicate the final disposal location based on current data. Therefore, it may be most beneficial to you to have a plan "A" and plan "B" for disposal based. Plan "A" would be based on the current information which would not allow for re-use and may include taking the material to a licensed landfill or proper disposal in an upland area. Plan "B" could be based on further testing after de-watering (if further testing shows that material can be beneficially used). These two scenarios must be included in the EA.
- B. Submit a request for exemption under NR 500.08(4) to the Waste and Materials Management Section to the Waukesha Service Center attn. Bizhan Sheikholeslami. As part of this application, you **must decide how the material will be disposed** or re-used. Currently, some of the proposed uses may not be approvable under current regulation. It is likely that after dewatering and other handling the chemical and physical characteristics of the solid may change that would allow for beneficial use of the materials.
- C. The disposal locations must be assessed for potential adverse groundwater impacts.
- D. The disposal location(s) may also require a public meeting as required under ss 289.54(2), Wis. Stats.
- E. We strongly recommend that you work closely with the Waste and Material Management staff during the dewatering process so the most cost effective disposal is achieved without any delay in the project.

APPENDIX 5

ELUTRIATE TESTING

The elutriate testing conducted by your consultant composited six samples taken from the Bark River Inlet, the Northwest Channels and the West Channels. All six samples were composited and one test was conducted on each parameter. As discussed at our January 31, 2007 meeting, the elutriate sampling you conducted allowed the screening out of the majority of the parameters from concern from a WPDES permit standpoint. The levels of copper, arsenic, ammonia, and suspended solids detected from your one sample point were too high to allow the issuance of a General Permit (for wastewater discharge). In addition, the detection limit for mercury in your lab results was too high. A lower detection limit for mercury is needed. Additional elutriate testing is needed for two reasons: 1) The results of the additional testing may allow the Department to issue a GP for the WPDES permit; 2) The results are needed in order to calculate limits for the IP if the Department determines that an IP is needed for the WPDES permit.

The field work for the elutriate sampling should be conducted as follows:

- Mercury – please take a single sample from each of the following areas: Bark River Inlet, Northeast Channels, Northwest channels and West Channels. Composite equal portions from each sampling location and conduct one lab test for mercury.
- Arsenic, copper, suspended solids, total kjeldahl nitrogen and ammonia – please take multiple samples (3 for each area) from the Bark River Inlet, the Northeast Channels, the Northwest channels and the West Channels. Composite equal portions of the samples within each area, but do not composite the samples from different areas. You will end up with 4 sets of composited samples.
- Let each of the 4 sets of the now composited samples settle out to 40 mg/L (or less) suspended solids. Record the time it takes to reach 40 mg/L (or less) in each sample.
- Once the settled sample reaches 40 mg/L of suspended solids, test the elutriate water for total recoverable arsenic, dissolved arsenic, copper, total kjeldahl nitrogen and ammonia. Proceed to the laboratory analysis listed below.

The laboratory analysis for the elutriate sampling should be conducted as follows:

- Total Suspended Solids: It is recommended that the production of the elutriate be done such that the total suspended solids concentrated is 40 mg/l or less. This level of total suspended solids is likely to be the most stringent limit that would be required in a WPDES permit. Also, since the levels of other constituents may correlate with the level of total suspended solids, the treatment of elutriate so that total suspended solids are no greater than 40 mg/l will help to determine whether other toxicants are removed in the solids removal process. The previous elutriate test taken reported a total suspended solids level of 170 mg/L after centrifuging rather than settling. Analysis of total suspended solids shall be conducted for each composited sample.
- Arsenic: A sample and analysis for total recoverable and for dissolved arsenic is recommended for each of the four composited sample points. The dissolved samples are grab samples that are filtered through a 0.45 micron filter for analysis. These analyses are to determine if arsenic is a pollutant of concern for a groundwater discharge.
- Copper: A sample and analysis for total recoverable copper is recommended for each of the four composited sample points.
- Mercury: a single composite sample as noted above is recommended for total recoverable mercury. The analysis shall be done by EPA Method 1631, which is capable of a method

detection limit of 1 ng/l or less. A list of commercial laboratories recognized for low level analysis is included. Since the sample is a composite of elutriates, a representative field blank is difficult to obtain, so is not required.

- Ammonia-Nitrogen and Total Kjeldahl Nitrogen: Samples and analysis for ammonia nitrogen and total kjeldahl nitrogen is recommended for each of the four composited sample points.
- Manganese: Although the possibility of additional analyses for manganese was discussed at the meeting, we have done additional review, and have determined that additional testing is not needed.

APPENDIX 6

ENVIRONMENTAL ANALYSIS

- A. Update the entire Environmental Analysis to reflect the revisions and decisions required by this letter.
- B. Section 1- revise information on dewatering sites, timing, disposal, etc. Update estimate funding to include overall project costs, including planning, engineering, construction, dewatering, disposal of material, revegetation and maintenance and monitoring.
- C. Section 2. Breakdown the purpose and need for each of the seven proposed dredge areas. Provide evidence of project need (i.e. police boat response times, Bleeker Street launch not being utilized, etc).
- D. Section 3. Add all local, county and federal permits.
- E. Section 4. Include staging areas, final dewatering locations as well as final disposal locations. Move the discussion regarding the 30 sediment samples to the existing aquatic section.
- F. Section 5. Breakdown of cubic yards in each of the seven locations. What will the channel dimensions look like in each location, distance from shore, buffer, etc. How will the aquatic plants (i.e. re-vegetation plan), fish, reptiles and amphibians be manipulated? Describe if the water level will be manipulated. Include the discussion on type of dredge method selected.
- G. Section 6. Finalize based on the method of dredge you select. Provide details of proposed staging areas. Move the dredging discussion to number 5.
- H. Section 7. Add discussion regarding odors generated by actual dredge operation as well as dewatering location. Add discussion regarding noise from dredge operation, generators, pumps, etc. Include discussion on potential hose leaks, fuel spills, refueling, etc.
- I. Section 9. Add USGS maps, soils, lake map, revised plans, etc.
- J. Section 11. Describe lake as whole, i.e. dam on lake, surrounding topography and drainage area. Break each of the seven areas and describe existing conditions separately, include info on water depth, sediment depth and type, water clarity, dissolved oxygen, typical shoreline, describe the channels (i.e. man-made, etc.) and how these features may be affected by this proposal. Describe the existing features of the dewatering locations, staging/loadout areas, disposal locations and how these features may be affected by the project.
- K. Section 12. Separately, describe the biological environment of each of the seven areas proposed to be dredged. Include vegetation information which includes site specific aquatic, wetland and terrestrial vegetation. Include in narrative form (do not just reference the attachment) the notes from the August 8, 2006 field survey. Also include fish and wildlife information. How will these features be affected by this project.
- L. Section 13. a.) Describe the existing land use features of each of the seven proposed dredge areas. Include the launches, large wetland complexes, etc. b.) Describe the existing social and economic features and describe how they be impacted by the project. Summarize the survey of residence regarding dredging and provide a copy of survey and survey results as an attachment. Discuss how this project may improve the riparians access to the main body of water and how this allegedly may affect property values. Discuss the Lake Welfare Group and any other group associated with the lake. C) Provide documentation from the State Historical Society of any existing archeological or historic values and how they may be impacted by the project (include disposal, dewatering and staging areas).
- M. Section 15. Describe probable adverse and beneficial physical impacts the project may cause, including indirect and secondary impacts on both the lake, disposal site, loading/staging areas and dewatering site. Example impacts include the change in the lake bottom (substrate, depth, etc), re-suspension of sediment during project, release of sediment constituents(i.e. nutrients, metals, etc), impacts of project on both public and private watercraft navigation and public and private vehicular traffic, impacts on the navigational channels due to increased traffic and size of boats,

potential impacts on lake water level issues, visual impacts of the dredge operation and markings (hoses, barge, pipes, booster pumps, etc), noise from project (including all aspects), dust, changes in the loading/staging areas due to soil compaction, runoff, etc, change in the disposal area and dewatering area as well as cumulative impacts of future projects.

- N. Section 16. Describe probable adverse and beneficial biological impacts the project may cause, including indirect and secondary impacts on both the lake, disposal site, dewatering site and loading/staging areas. Example impacts include the mortality of reptiles, amphibians and fish, temporary loss of aquatic vegetation which may impact fish and wildlife (cover, nursery, food, etc), channels more susceptible to erosion and slumping until vegetation is established, shift of native plant beds to more non-native species, impacts to wildlife, including migration, potential algal blooms due to nitrogen and phosphorus release, impacts on the resource by allowing larger watercraft to access areas as well as cumulative impacts of future projects.
- O. Section 17. a) Describe probable adverse and beneficial impacts to land use (both public and private) the project may cause. Example impacts include an impact to the land use to the dewatering sites (how long will the material sit there, aesthetics), loading/staging areas. b) describe probable adverse and beneficial impacts to social/economics. Include funding for project and long term maintenance, increase in property values (property assessment study), recreational impacts. Discussion on funding shall include information on how the project will be funded (how revenue will be generated) including planning, construction, re-vegetation, and maintenance and monitoring.

APPENDIX 7

JANUARY 31ST, 2007 MEETING SUMMARY

- A. Pursuant to s. 30.208(2), the City and the Department agreed to allow an “open dialog” to facilitate the most efficient permit review. This open dialog includes the Department’s ability to request additional information on more than one occasion.
- B. The parties agreed to hold future project status meetings to discuss the project status. The Department is able to meet next on Tuesday March 13th at 1:00 at the Waukesha DNR office.
- C. The parties discussed the potential to approve a permit contingent upon additional submittals (i.e. disposal location information, dewatering location information, etc). The Department, however, has decided that it cannot approve a permit until all of the required information has been received and approved. The Department cannot issue a permit with any significant outstanding public interest issues.

Commercial Laboratories Recognized for Low-Level Mercury under s. NR 149.12(2), Wis. Adm. Code

Note: Inclusion on this list is no guarantee of data quality. Method detection limits listed are those provided in application materials and may change without notice.

Laboratory	Method	Matrix	MDL (ng/L)
721026460 Northern Lake Service 400 North Lake Avenue Crandon, WI 54520 (715) 478-2777	1631	Reagent Water	0.13
		Wastewater	0.21
	245.7 mod.	Reagent Water	2.0
		Wastewater	2.1
241249360 S-F Analytical Laboratories 6125 West National Avenue Milwaukee, WI 53214-3255 (414) 474-6700	245.1	Reagent Water	16.1
		Wastewater	19.4
445134030 En Chem, Inc. 1090 Kennedy Ave. Kimberly, WI 54136 (920) 469-2436	1631	Reagent Water	0.17
		Wastewater	0.39
998348230 Frontier Geoscience 414 Pontius Avenue N Suite B Seattle, WA 98109 (206) 622-6960	1631	Reagent Water	0.06
		Wastewater	0.13
998087420 Battelle Marine Sciences 1529 West Sequim Road Sequim, WA 98382 (360) 681-3650	1631	Reagent Water	0.2
		Wastewater	0.2
998364070 Brooks Rand LTD 3950 Sixth Avenue NW Seattle, WA 98107 (206) 632-6206	1631	Reagent Water	0.2
		Wastewater	0.2
399017190 North Shore Analytical, Inc. 5612 Miller Trunk Hwy, Suite 1 Duluth, MN 55811 (218) 729-4658	1631	Reagent Water	0.05
		Wastewater	0.1

**Commercial Laboratories Recognized for Low-Level Mercury
under s. NR 149.12(2), Wis. Adm. Code**

Note: Inclusion on this list is no guarantee of data quality. Method detection limits listed are those provided in application materials and may change without notice.

Laboratory	Method	Matrix	MDL (ng/L)
999518190	1631	Reagent Water	0.1
STL - North Canton 4101 Shuffel Drive NW North Canton, OH 44720 (330) 966-9281		Wastewater	0.34