

# Lake of the Woods Marshall County, Indiana Sediment Removal Plan

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Prepared for:  
**Lake of the Woods Property Owners Association**  
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**Sediment Removal Plan  
Lake of the Woods Property Owners Association  
Marshall County, Indiana**

**PROJECT LOCATION**

Lake of the Woods is located in German Township, Marshall County, Indiana specifically Township 34N Range 3E Sections 2, 6, 7 and a small portion of township 34N Range 2E section 12 (Figure 1). The nearest town is Bremen located about 5 miles to the northeast. The lake has a surface area of approximately 405 acres and is fed by 6 small inflows draining approximately 5,800 acres (Figure 2). The land use in the lake's watershed is primarily agricultural and the soils are classified as 65% loam, 20% muck and 15% sandy soils.

**PURPOSE**

The LOWPOA received a grant from the Indiana Department of Natural Resources (IDNR) through the Lake and River Enhancement (LARE) program to develop a sediment removal plan for several areas within Lake of the Woods. The primary purpose of the study and report is to document the areal extent and volume of sediments at the mouths of drainages that enter the lake. Additionally, documentation of sediment within anthropogenic (man-made) channels constructed into the lake is also included. The removal of sediment from the man-made channels does not qualify for LARE funding because the channels are outside the boundaries of the original water body. However, these areas may be dredged in conjunction with a LARE funded project; and thus benefit from the fact that equipment mobilization and spoils basin construction could be paid for by the LARE program when dredging approved areas of the lake.

**PUBLIC INVOLVEMENT**

The Lake of the Woods Property Owners Association (LOWPOA) has worked together with Cardno JFNew to sample the lake bottom and develop a sediment removal plan for the lake. A record of the sample results is contained in Appendix A and B. Representatives of the LOWPOA and the Bremen Conservation Club guided each sampling crew around the lake to the problem sites identified during public meetings and provided information on the lake's history (Figure 3).

Several meetings were held to address the sediment removal project. A preliminary meeting was held amongst the lake association committee members to decide on the project. Lowell Michaels presented the project to the Marshall County Community Foundation and the Bremen Conservation Club and subsequently received a grant to fund a portion of this study from the foundation and a commitment from the Bremen Conservation Club to match the Property Owners association out of pocket expenses. A meeting was held in early spring of 2011 between committee members of the lake association and Cardno JFNew staff, as well as Doug Nusbaum from the LARE program to discuss the sample results and set a date for the public meeting.

A public meeting was held on May 14, 2011, from 9:30-10:30am to present the issues and hold a formal question/answer session. Appendix C contains documentation of the attendance and the material presented at that meeting. It was suggested at the public meeting that a committee of interested members of the lake association or community be established as soon as possible to see this project through to its conclusion. This committee would be responsible for selecting the final areas to be dredged based on the study results and on available funding. The committee is needed to apply for the necessary grants and select the appropriate contractors needed to complete the project.

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**Figure 2. Lake of the Woods watershed in Marshall County, Indiana (shown in blue).**



**Figure 3. Potential Sediment Removal Areas in Lake of the Woods, Marshall County, Indiana, identified and sampled in fall of 2010, winter 2011, and spring of 2011. See Appendix A for details on each location.**

## **METHODS**

Lowell Michaels, Terry Byrne, Will Smaka, and Tim Ward met Cardno JFNew staff on four separate occasions for field sampling along with other committee members as their schedules allowed. Once in the fall with students from the local high school, twice to sample through the ice in areas that could not be accessed well by boats, and once again in spring of 2011 to check areas of uncertainty. The purpose of all these site visits was to collect sediment samples for testing and to record sediment deposit depths in the lake.

Sampling was conducted by probing the substrate with a 1.5-inch diameter PVC pipe to measure the depth of accumulated sediment and the existing depth of water. A Thales Mobile Mapper GPS (for November and January sampling) and a Garmin Dakota GPS receiver (for February) were used to mark approximate location of the samples. Sediment sampling was conducted on November 3, 2010, from a pontoon boat in conjunction with 11 Bremen High School students as part of a Natural Resources Class. Project areas 1, 3, and 4 were sampled on November 3, 2010. We were unable to obtain sediment core samples at this time because the core cap was not forming an air-tight seal. Project areas 1, 2, 5, 8, 9 and 10 were sampled on January 13, 2011 and sediment cores were obtained from all channels. Some channels were unable to be sampled due to thin ice. On February 17, 2011, project areas 6 and 7 were sampled. We revisited the lake on May 11, 2011, and were able to survey areas 1, 3, and 4 a second time and obtain good core samples. Aerial photographs of each proposed dredge area are contained in Appendix A. Representative photographs of sediment cores and laboratory results from contaminant testing are contained in Appendix B.

Due to the difficulty of accurately detecting the accumulated sediment from the original lake bottom in areas where the original bottom was muck, we believe that it is prudent to assume that sediment removal volumes and thus cost estimates are subject to error.

## **PROJECT AREA DESCRIPTIONS**

### **Project area 1**

Project area 1 is located in the north end of Lake of the Woods at the inlet of Walt Kimble Ditch and Martin Ditch (Appendix A). These two ditches drain approximately 4.5 square miles northwest of Lake of the Woods. The inlets of these two ditches are separated by approximately 150 feet and both contribute to one sediment plume. Local residents have noted a decrease in water depth and an increasing spatterdock (*Nuphar advena*) population in this area, limiting access for angling. The sediment profile at this site is composed of an average of 7 inches of fine silt and organic material over an historical deposition of peat which is over 14 feet deep. The thickness of the silt and organic material layer increases from approximately 5 inches thick near shore, to approximately 9 inches thick 250 feet off-shore in 5 feet of water. This layer of silt and organic matter is not surprising considering a study conducted in 1991 found that the sediment yield from these two ditches was the highest of all the lake inlets (Dynamic Corp. 1991). Recommended dredging at this site includes an area that is approximately 112,600 square feet with an average sediment thickness of 7 inches for a total volume of 2,300 cubic yards of sediment.

### **Project Area 2**

Project area 2 is located on north end of the Lake of the Woods at the inlet of Seltenright Ditch and is adjacent to Project area 1 (Appendix A). This ditch drains an area of approximately 1.0 square mile directly west of the inlet. During both the November and January sampling we were unable to detect a modern sediment deposition horizon. The area was resampled on May 11, 2011, finding an average of just over 5 feet of sediment. The difference was due to the fact that

2011, finding an average of just over 5 feet of sediment. The difference was due to the fact that there is a hardened surface layer of sand and fine gravel over the top of the soft silty material. Recommended dredging at this site includes an area that is 45,128 square feet with an average thickness four feet for a total volume of 6,685 cubic yards of sediment.

### **Project area 3**

Project area 3 is located on west side of the lake at the inlet of Albert Bohmer Ditch which drains an area of 0.33 square miles of land west of Lake of the Woods (Appendix A). The sediment profile at this site consisted of a very thin (less than 1 inch) silty layer on a firm sand base. We do not recommend dredging at this location because there is very little sedimentation occurring.

### **Project area 4**

Project area 4 is located in the southwest end of Lake of the Woods near the inlet of Emma Kuntz Ditch (Appendix A). This drainage includes 1.9 square miles of land west of Lake of the Woods and created a sediment plume that is 6,800 square feet. The average depth of the silt and organic layer is 2 feet, with the depth of sediment increasing with increasing distance from the ditch mouth. Recommended dredging at this site includes an area that is 68,000 square feet with an average sediment removal thickness of 2 feet for a total volume of 5,037 cubic yards of sediment.

### **Project area 5**

Project area 5 is the multiple-arm channel located in the northeast corner of Lake of the Woods (Appendix A). Water depth in the channel varied from 4 inches to 2 feet, but the majority of depths measured were just over 1 foot. The sediment profile at this site is composed of an average of 2 feet 10 inches of fine silt and organic material over a firm sand layer. The thickness of the silt and organic layer ranged from less than 2 feet near the channel mouth to almost 4 feet at the confluence of the last side-channel and the main channel. If this channel were to be dredged we recommend an average thickness of 3 feet be removed from the 61,650 square foot channel for a total volume of 6,850 cubic yards of sediment.

### **Project area 6**

Project area 6 is the linear channel located in the northeast end of Lake of the Woods at the outlet of an unnamed ditch (Appendix A). Water depth in the channel varied from 3 feet 2 inches near the middle of the channel to 2 feet 4 inches near the mouth of the channel. The accumulated sediment at this site averaged 5 feet of fine silt and organic material over a firm sand layer. If this channel were to be dredged it recommended that no more than an average of 3 feet of organic material be removed from the 24,400 square foot channel for a total volume of 2,711 cubic yards of sediment. The center line could be dredged to a depth of six feet and with the removal volumes tapered to zero near the shorelines to prevent shoreline collapse.

### **Project area 7**

Project area 7 is the "T" channel located in the southwest corner of Lake of the Woods (Appendix A). Water depth in the channel varied from less than 2 feet in a small off-shoot to approximately 2.5 feet in the middle of the channel. The sediment profile was several feet thick with the top portion consisting of silt and clay. We were unable to obtain a substantial core from this area. In one core we found a peaty layer with gastropod shells. It is likely that the silt layer is approximately 1.5 feet as was the case in the nearby channels (areas 8 and 10). We would recommend dredging this channel to achieve a 4 foot depth of water. To achieve this water depth, an average thickness of 2 feet of silt should be removed from the 44,200 square foot channel for a total volume of 3,274 cubic yards of sediment.

### **Project area 8**

Project area 8 is the "L" channel located in the southwest corner of Lake of the Woods (Appendix A). Water depth in the channel varied from less than 2 feet at the very end of the channel to 3.5 feet at the channel mouth and at the bend in the channel, but most depths were around 2.5 feet. The sediment profile was consistent throughout this site with 1.5 feet of fine silt and organic material over a layer of peat which also included abundant gastropod (snail) shells over a firm sand layer at approximately 8 feet. If this channel were to be dredged it would require an average thickness of 1.5 feet be removed from the 69,000 square foot channel for a total volume of 3,833 cubic yards of sediment.

### **Project area 9**

Project area 9 is the channel directly east of the "L" channel described in project area 8 in the southwest corner of the lake (Appendix A). Water depth varied little in the channel at approximately 3 feet. The sediment profile composed of an average of 2.5 feet of a silt-peat mixture over a firm sand layer. The mixing of the peat and the silt may be due to churning of the sediments by boat props. To achieve a minimum water depth of 4 feet, approximately 1 foot of sediment should be removed from the 57,000 square foot channel for a total volume of 1,900 cubic yards of sediment. Removing 2.5 feet of sediment would generate approximately 5,277 Cubic yards of spoils.

### **Project area 10**

Project area 10 is the channel directly east of the outlet channel at the south end of the lake (Appendix A). Water depth in the channel varied from just over 1 foot at the end of the channel to over 2 feet at the mouth of the channel. The sediment profile was composed of an average of 1.5 feet of silt and organic material over a 3.5 foot layer of peat and then firm sand at approximately 5 feet. If this channel were to be dredged it is recommended that an average of 3 feet of sediment be removed from the 13,600 square foot channel generating 1,511 cubic yards of sediment.

## **SEDIMENT CHARACTERIZATION**

Sediment samples were collected from two locations within Lake of the Woods on January 13, 2011 (analytical results in Appendix B and Table 1). Samples were collected using a 1.5-inch PVC pipe and placed in plastic containers. Samples were stored on ice and transported to Sherry Laboratories in South Bend, Indiana for analysis. Analytical results and Indiana Department of Environmental Management (IDEM) ceiling concentrations for the land application of solids are listed in Table 1. All of the samples collected from the two locations within Lake of the Woods are below the IDEM ceiling concentration for the application of solid materials to adjacent land.

**Table 1. Analytical results from composite sediment samples collected May 11, 2011, with upper limits for land application from IDEM. Units are in mg/kg equivalent to ppm.**

Parameter	Ceiling concentration limit	Southern Soil Sample	Northern Soil Sample
Total Arsenic	75	1.7	<0.10
Total Barium	--	13	22
Total Cadmium	85	1.5	2.1
Total Chromium	--	0.69	2.8
Total Copper	4300		
Total Lead	840	2.6	3.9
Total Mercury	57		
Total Nickel	420		
Total Selenium	100	<0.10	<0.10
Total Silver	--	<0.20	<0.20
Total Zinc	7500		
Ammonia-Nitrogen	--		

### **SEDIMENT REMOVAL METHODS**

There are two basic ways of removing sediment from lakes: excavation or hydraulic dredging. Excavation occurring from land is generally limited to 50 feet from shore by a dragline or backhoe. However, excavation requires space adjacent to the waterway being excavated to temporarily place the excavated material (spoils) and allow drying before the spoils can be hauled away. Several contractors have barge mounted excavators that can excavate small areas and move the material to the land after temporary placement on the barge; however, the barge mounted excavators are typically limited to removal of sediments in shallower water. Hydraulic dredging consists of grinding and vacuuming of the sediment off the lake bottom and pumping the slurry of water and sediment landward with a boat or shore mounted diesel pumps. Generally, the sediment removed from the lake by hydraulic dredging is a slurry containing 90% water, therefore, hydraulic dredging is only used where water is plentiful, there is an available open area to construct a dewatering basin, and the dewatering basin can discharge return water to the lake or stream.

The method chosen depends upon several factors including access, cost, the total area to be dredged, and the amount of sediment to be removed. Where there is continuous access along the shore, and the area to be dredged is less than 50 feet from shore, it is usually less expensive to use a land based excavator or dragline with temporary or permanent storage of the excavated sediments on land adjacent to the shore. Where larger, open areas of lake need to be dredged or there is limited access and space on the shoreline, a hydraulic dredge is often used. A hydraulic dredge typically used in Indiana Lakes can remove sediments to a water depth of 12 to 20 feet. A barge mounted hydraulic dredge is often used in areas where the sediments are in difficult to reach waterways or contain large debris or dense vegetation that would clog a hydraulic dredge. A majority of the sediment removal projects conducted in public freshwater lakes over the last decade have been by hydraulic dredging due to the reduced impact to shoreline residents and their availability; however, as barge mounted excavators become more available they may become more popular because of their flexibility in channels and debris filled areas.

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Every private channel that was sampled could be dredged due to the depths of accumulated sediment we documented. Each channel has unique challenges for dredging due to the density of homes, access to a potential spoils basin, and the amount of material to be removed. Therefore, one recommendation that fits all channels is not possible. If residents of a particular channel are interested in having their channel dredged they need to consider first whether they are willing to have spoils placed in their yards for drying before removal in return for a lower cost, or whether their budget will allow for the expense of a barge mounted excavator or hydraulic dredge.

There are three open water locations within Lake of the Woods where we have recommended dredging, all of which can be feasibly accessed by a hydraulic dredge or barge mounted excavator. Hydraulic dredging requires the construction of a sediment dewatering basin, laying sediment slurry pipes to the basin, and return water (outlet) pipes back to an existing waterway. Thee hydraulic dredging of any portion of the lake is a major undertaking which will require a significant amount of cooperation amongst adjacent landowners, recreational users of the lake, funding source, and permitting agencies. The decision to dredge any part of the lake, obtaining funding, and following through with the contracting and construction oversight of the selected contractor requires the attention of several individuals that can represent the entire lake community.

### **DEWATERING BASINS**

A dewatering basin is constructed by excavating an earthen basin and using the spoils to construct a berm around the excavation. The earthen berm should have a minimum slope of 2(H):1(V) on both faces with a minimum six-foot width at the top. Brush and other woody debris should not be a part of the berm and can result in catastrophic failure of the basin if allowed. Earthen berms should be seeded with a temporary seed mix to control erosion as they are usually kept in place for a minimum of six months after dredging until the spoils have dried and are able to be spread. Additionally, silt fences or an erosion control equivalent should be installed around the outside base of the berms to capture any construction site runoff, preventing the runoff from reaching Lake of the Woods. Return water pipes should be laid to empty into a waterway with silt curtains installed to trap sediments at the outlet.

Two potential dewatering basins have been identified. Negotiations with the individual landowners were initiated by the lake association and both have agreed to allow the use of their respective properties (Appendix C). The basin sizes are dependent upon how many of the open water area at the lake inlets and private channels will be dredged and how deep these areas are ultimately dredged. Using the sediment volumes estimated in the site descriptions the contractor should construct a basin or basins large enough to hold approximately twice the estimated volume of sediment to be removed. This will allow room for decanting the sediments from the slurry that is usually 90% water as it is pumped to the basin.

Typically, the basin will need to dry for a minimum of three months and as much as two years after dredging has been completed. The drying time is dependent on the composition of the dredged material and the weather. Sandy material drains and dries much faster than peat or silt, while cold wet weather increase the drying time significantly. Once the sediment has been dewatered within the basins, the spoils can be graded to match the surrounding landscape, then farmed or seeded with permanent grasses, and mulched with straw. Care should be taken during final grading operations so that the grading does not shed water onto structures or roads

or result in areas of ponding. Silt fences and any other temporary erosion control measures installed prior to dewatering basin construction may have to be moved and installed again around the entire area of disturbance and should be left in place until the vegetation is established or a crop is planted.

### **PERMITTING**

A Lake Preservation Permit is required from the IDNR since excavation will occur “lakeward of the lake’s legal or average shoreline”. Clean Water Act Section 401 Water Quality Certification from the IDEM and a Section 404 permit from the U.S. Army Corps of Engineers (Corps) are required if water from the dredged material will be returned from the sediment dewatering basin to the lake or a stream. The lake association should apply for and obtain the permits for this work once the areas to be dredged have been identified and funding has been secured. Additionally, the contractor constructing the sediment-dewatering basin will be responsible for obtaining a Rule 5 Erosion Control Permit from IDEM prior to beginning work, if the area of disturbance exceeds 1.0 acre.

### **BIDDING REQUIREMENTS, FORMS, AND INFORMATION**

LOWPOA can handle the hiring and oversight of a dredge contractor in one of two ways. A volunteer or paid member of the community can act as an agent on behalf of the lake association (several volunteers can work together) or the association can contract with an engineering firm to administer the bidding process, monitor project progress, ensure timely completion of dredging, and map post-dredging contours. Upon completion of dredging, this report should be modified to include documentation of the post dredge contours. The same method used to document accumulated sediment for this report can be used to measure the new depths after dredging is completed.

Prior to a grant application for dredging funds, this document should be used to select those areas that the lake association feels are critical for sediment removal. It is suggested that a dredge committee be formed to select the areas for dredging. Using a formula of \$1.25 per square foot of desired dredging (2011 dollars) the committee can then estimate the approximate funding that will be required to complete the project. The committee can then fill out and submit the application to the LARE program for the desired funding level realizing that the local match will be 20 percent of the total project cost. At the same time or upon indication by LARE staff that the project will be funded, the committee shall apply for the permits necessary to perform the dredging. Once permits and funding have been secured the committee can then work with LARE staff to bid out the project.

Typically an invitation to bidders will be issued (Appendix D). The invitation will include specifics regarding the dredging locations and volumes, sediment disposal basin locations, permits, and bid return deadlines (to be determined at the time of bid solicitation). Once a contractor has been selected they should be required to sign a written contract stipulating an expected schedule of work, progress milestones, and payment schedules as well as provide proof of insurance and be made to sign a use and restoration agreement directly with a landowner or landowners if a spoils basin will be utilized.

**CONSTRUCTION SCHEDULE**

LARE grants for dredging projects are typically announced in March. Permits may take six months to obtain from the IDNR, Corps of Engineers, and IDEM. Therefore, the earliest dredging is likely to occur is the fall season following the release of funds, which makes interference from boat traffic less likely. Typically dredging may continue into December but generally is shut down once ice forms on the lake. Some early spring dredging may be possible in March, but the IDNR permits usually restrict any work in the lake during the fish spawning season from April 1 to June 30. Therefore, it is relatively important to proceed quickly with obtaining permits and selecting a contractor as soon as possible after grants have been awarded, so that a dredger can begin work in early fall and be completed by winter. Private channel dredging added onto the contractors work load may delay schedules significantly.

The lake association should be prepared to deal with the final grading of the disposal basin any time from 6 to 24 months after dredging is complete, as discussed above. This may affect any rental payments or use of the property for other activities. The contract with the engineering firm overseeing the work, the dredging company, or with a separate earth moving contractor should reflect this issue.

**COST ESTIMATES**

The following cost estimates assume that the dredger uses a \$1.25 square foot cost for dredging that has been the maximum in northern Indiana as of 2011. This per foot cost includes the cost of constructing the sediment spoils basin but does not include any engineering or project management costs. These estimates can fluctuate greatly with fuel prices. If the lake association chooses to hire an outside firm to manage and oversee the project it will likely cost an additional 20 percent beyond the \$1.25 per square foot.

Area 1: Approximately 112,600 square feet (2,300 cubic yards).....	\$140,750
Area 2: Approximately 45,128 square feet (6,680 cubic yards).....	\$56,410
Area 3: No dredging recommended	
Area 4: Approximately 68,000 square feet (5,000 cubic yards).....	\$85,000
Area 5: Approximately 61,650 square feet (6,850 cubic yards).....	\$77,062
Area 6: Approximately 24,400 square feet (2,711 cubic yards).....	\$30,500
Area 7: Approximately 44,200 square feet (3,274 cubic yards).....	\$55,250
Area 8: Approximately 69,000 square feet (3,833 cubic yards).....	\$86,250
Area 9: Approximately 57,000 square feet (5,277 cubic yards).....	\$71,250
Area 10: Approximately 13,600 square feet (1,511 cubic yards).....	\$17,000

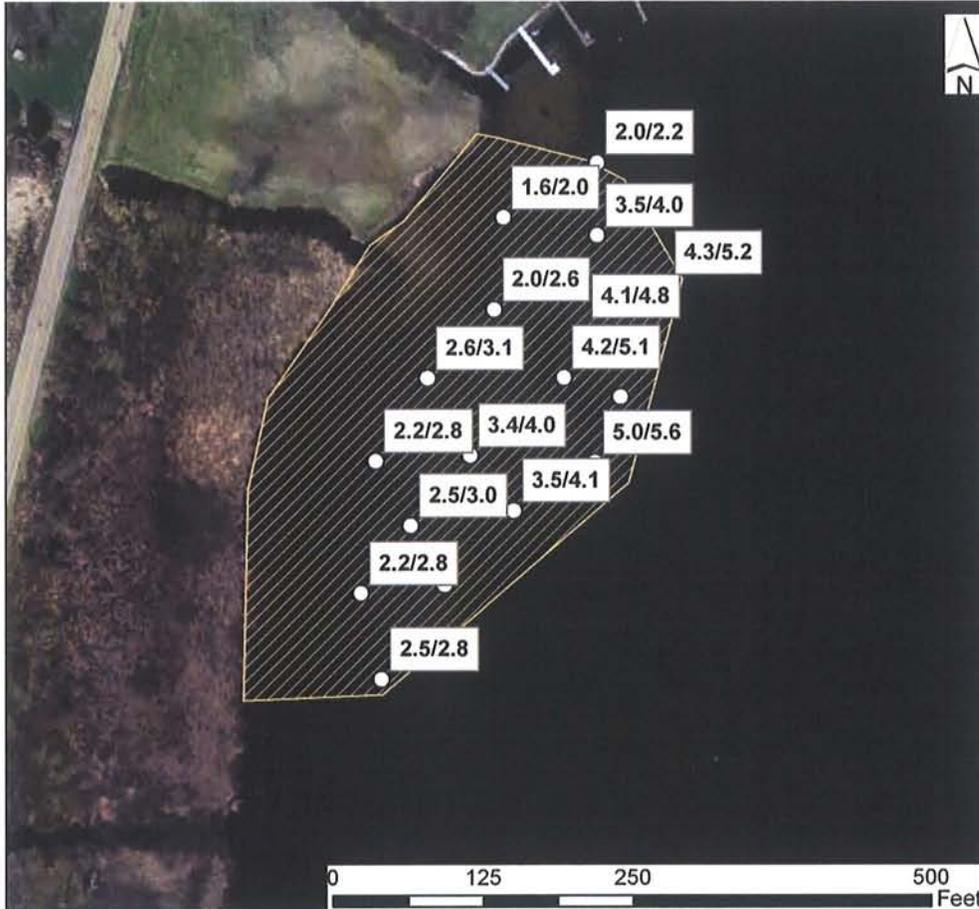
**RESULTS**

Ten project areas were identified and sampled for potential removal of accumulated sediments between fall 2010 and spring of 2011. Six of the sampled sites are considered private channels on the lake, all of which could be dredged but are not eligible for IDNR Lake and River Enhancement funds. Three of the four sites sampled that are within the lake proper are eligible for IDNR Lake and River Enhancement sediment removal funds. The areas we recommend for sediment removal are located at the mouths of incoming tributary ditches at the northwest corner of the lake and in the southwestern corner of the lake near the outlet of multiple channels. These three inlets have significant amounts of sediment deposited into the non-channel areas of the open lake. These areas are also feasible due to their proximity to the proposed disposal sites. The total surface area for recommended sediment removal at these

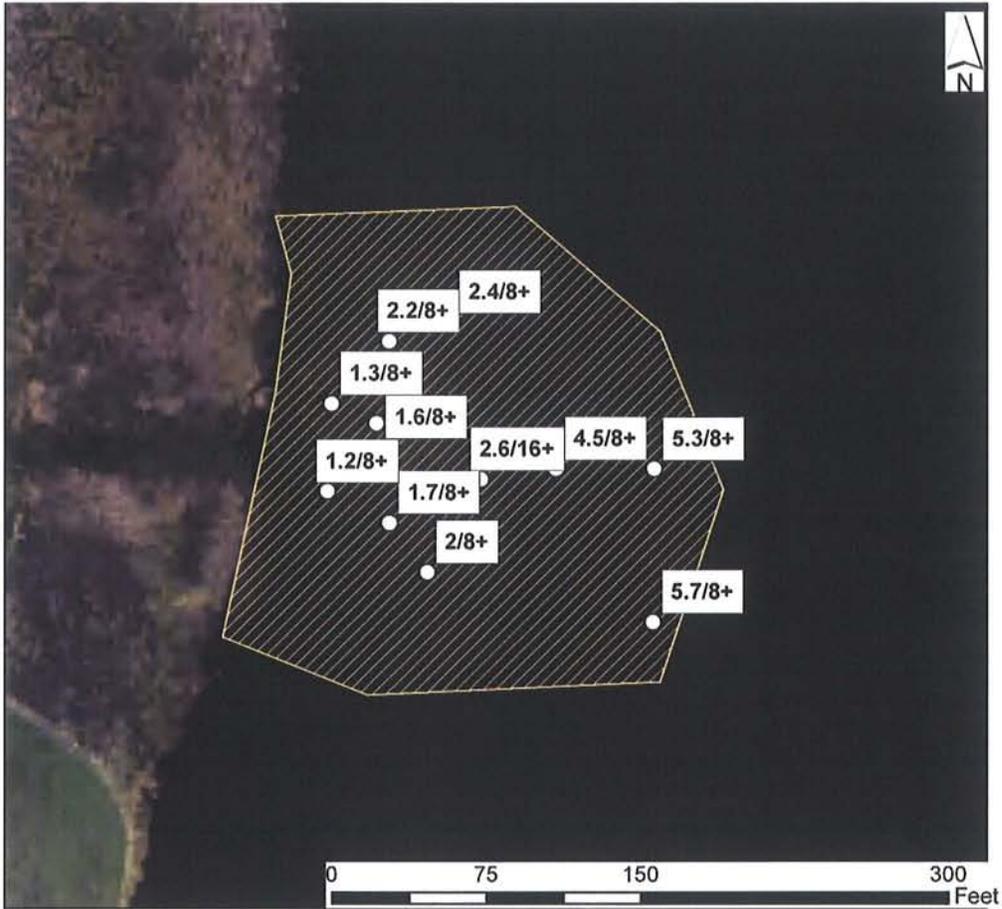
three locations is 225,728 square feet. Dredging all three of these areas to the recommended depths would result in the removal of approximately 15,835 cubic yards of sediment. The approximate cost to dredge these three areas as recommended would be \$282,160.00. We also recommend that adjacent private channels be dredged at the same time as these public lake areas, reducing the cost of those private channel projects by up to one third. A committee that represents all the interests on the lake should be formed to make a final decision on what areas, and how much of these areas should be pursued before proceeding further with a sediment removal project. Once this committee has decided upon the areas to be dredged and the depth of sediment removal desired, grant applications and permit applications need to be submitted to the appropriate agencies.

## Appendix A

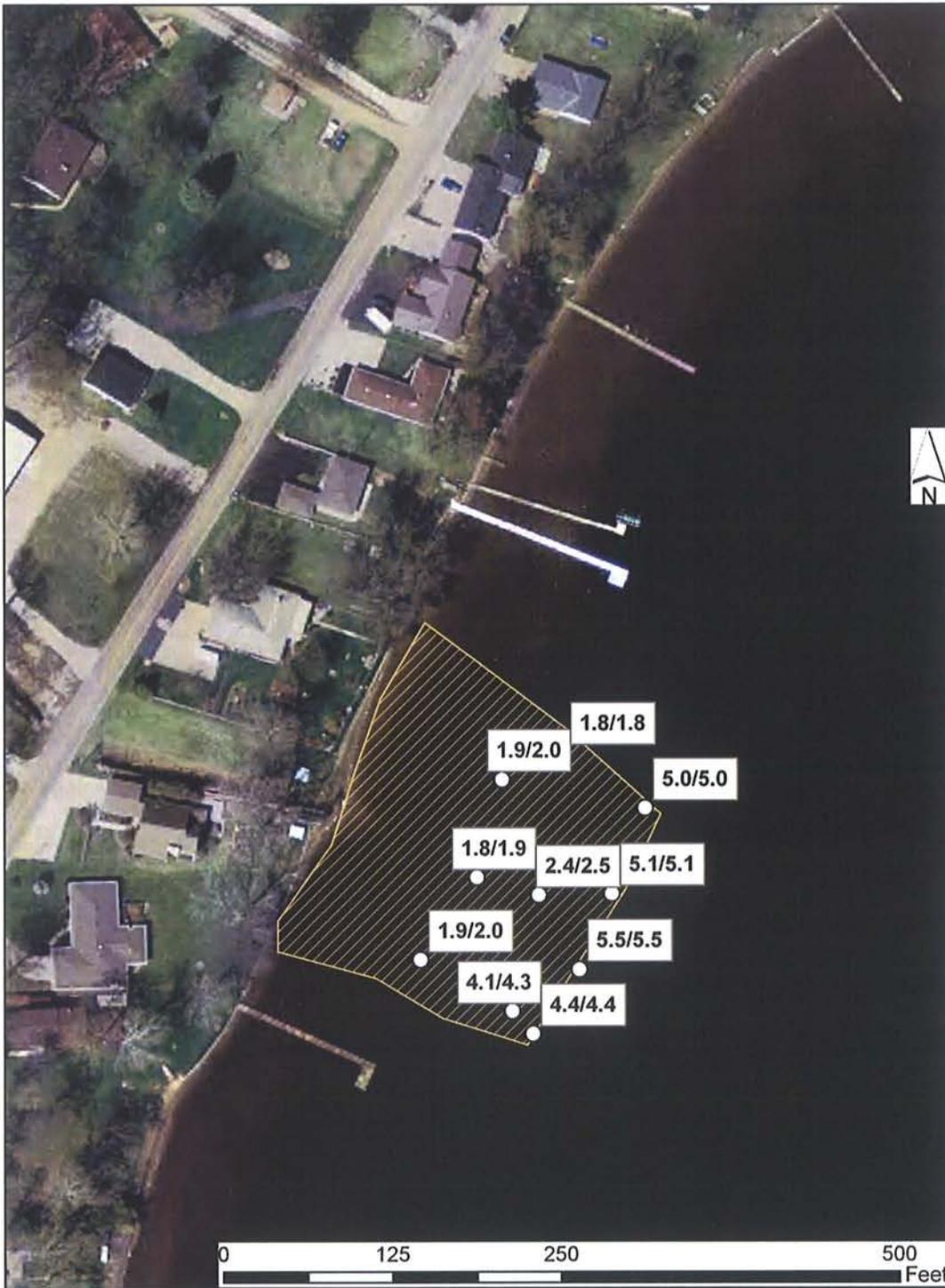
# Potential Sediment Removal Locations and Data within Lake of the Woods



Project Area 1. The inlet of Walt Kimble and Martin ditches into Lake of the Woods with sediment sampling points. The data points and corresponding numbers represent the water depth at the time of sampling (1<sup>st</sup> number) and the depth that the sampling probe encountered stiff resistance or could be pushed no further (2<sup>nd</sup> number). The difference between the first and second number is the thickness of accumulated silt or organic matter that could be reasonably removed by hydraulic (vacuum) dredging.



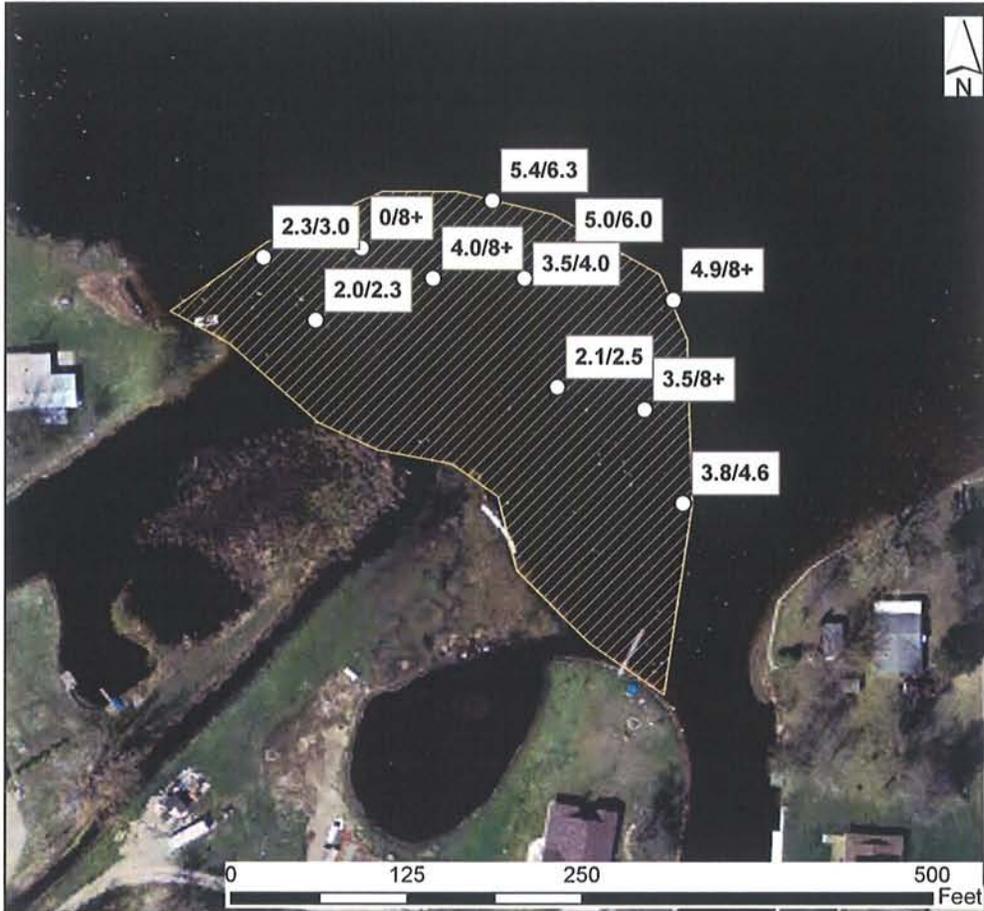
Project Area 2. The inlet of Seltwright ditch into Lake of the Woods with sediment sampling points. The data points and corresponding numbers represent the water depth at the time of sampling (1<sup>st</sup> number) and the depth that the sampling probe encountered stiff resistance or could be pushed no further (2<sup>nd</sup> number). The difference between the first and second number is the thickness of accumulated silt or organic matter that could be reasonably removed by hydraulic (vacuum) dredging.



Project Area 3. The inlet of unnamed ditch into Lake of the Woods with sediment sampling points. The data points and corresponding numbers represent the water depth at the time of sampling (1<sup>st</sup> number) and the depth that the sampling probe encountered stiff resistance or could be pushed no further (2<sup>nd</sup> number). The difference between the first and second number is the thickness of accumulated silt or organic matter that could be reasonably removed by hydraulic (vacuum) dredging.

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Project Area 4. The inlet of Emma Kuntz ditch into Lake of the Woods with sediment sampling points. The data points and corresponding numbers represent the water depth at the time of sampling (1<sup>st</sup> number) and the depth that the sampling probe encountered stiff resistance or could be pushed no further (2<sup>nd</sup> number). The difference between the first and second number is the thickness of accumulated silt or organic matter that could be reasonably removed by hydraulic (vacuum) dredging.



Project Area 5. The southern of the two channels in the northeast corner of Lake of the Woods with sediment sampling points. The data points and corresponding numbers represent the water depth at the time of sampling (1<sup>st</sup> number) and the depth that the sampling probe encountered stiff resistance or could be pushed no further (2<sup>nd</sup> number). The difference between the first and second number is the thickness of accumulated silt or organic matter that could be reasonably removed by hydraulic (vacuum) dredging.

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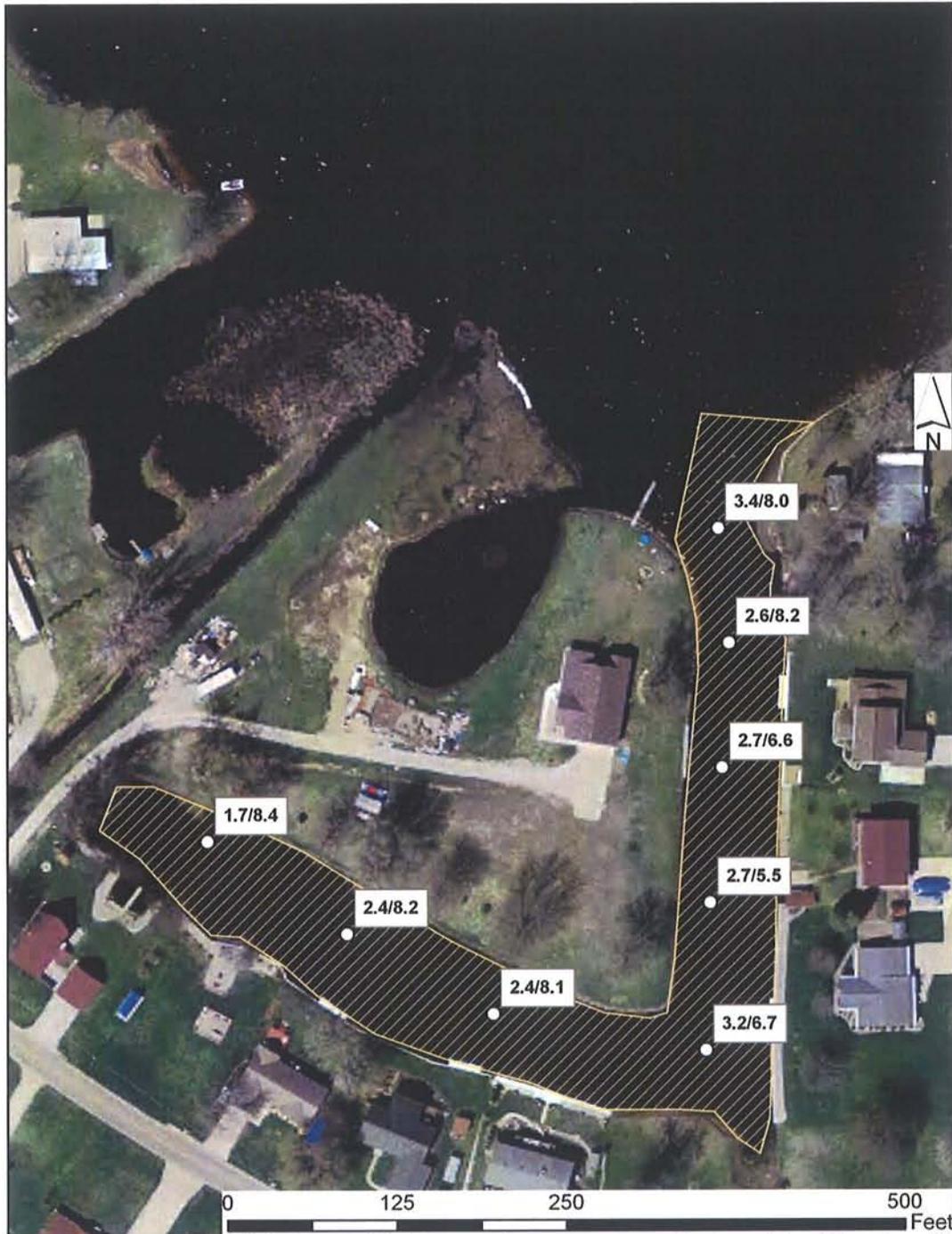


Project Area 6. The channel in the northeast corner of Lake of the Woods with sediment sampling points. The data points and corresponding numbers represent the water depth at the time of sampling (1<sup>st</sup> number) and the depth that the sampling probe encountered stiff resistance or could be pushed no further (2<sup>nd</sup> number). The difference between the first and second number is the thickness of accumulated silt or organic matter that could be reasonably removed by hydraulic (vacuum) dredging.

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Project Area 7. The “T” channel in the southwest corner of Lake of the Woods with sediment sampling points. The data points and corresponding numbers represent the water depth at the time of sampling (1<sup>st</sup> number) and the depth that the sampling probe encountered stiff resistance or could be pushed no further (2<sup>nd</sup> number). The difference between the first and second number is the thickness of accumulated silt or organic matter that could be reasonably removed by hydraulic (vacuum) dredging.



Project Area 8. The "L" channel in the southwest corner of Lake of the Woods with sediment sampling points. The data points and corresponding numbers represent the water depth at the time of sampling (1<sup>st</sup> number) and the depth that the sampling probe encountered stiff resistance or could be pushed no further (2<sup>nd</sup> number). The difference between the first and second number is the thickness of accumulated silt or organic matter that could be reasonably removed by hydraulic (vacuum) dredging.



Project Area 9. The channel south of the “L” channel in the southwest corner of Lake of the Woods with sediment sampling points. The data points and corresponding numbers represent the water depth at the time of sampling (1<sup>st</sup> number) and the depth that the sampling probe encountered stiff resistance or could be pushed no further (2<sup>nd</sup> number). The difference between the first and second number is the thickness of accumulated silt or organic matter that could be reasonably removed by hydraulic (vacuum) dredging.



Project Area 1. The channel at the south end of Lake of the Woods (outlet channel is on the left) with sediment sampling points. The data points and corresponding numbers represent the water depth at the time of sampling (1<sup>st</sup> number) and the depth that the sampling probe encountered stiff resistance or could be pushed no further (2<sup>nd</sup> number). The difference between the first and second number is the thickness of accumulated silt or organic matter that could be reasonably removed by hydraulic (vacuum) dredging.

# Appendix B

## Example Photographs of Sediment core's and results of Laboratory Analysis



**Figure B1. Silt/Peat sediment horizon from the Walt Kimble/Martin ditch plume (Project Area 1)**



**Figure B2. Peaty sediment from Seltenright Ditch plume (Project Area 2).**



Sherry Laboratories - Daleville  
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Daleville, IN 47334  
TEL: 765-378-4103 FAX: 765-378-4109  
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May 18, 2011

Mr. John Richardson  
J.F. New & Associates  
708 Roosevelt Road  
Walkerton, IN 46574  
TEL: (574) 586-3400  
FAX: (574) 586-3446

RE: Lake of the Woods

Order No.: 11051387

Dear Mr. John Richardson:

Sherry Laboratories received 2 sample(s) on 5/11/2011 for the analyses presented in the following report.

In accordance with your instructions, Sherry Laboratories conducted the analysis shown on the following pages on samples submitted by your company. The results relate only to the items tested. Unless otherwise noted, all analysis was conducted using approved methodologies from EPA, SM, or other client-specified methods. All relevant sampling information is on the attached chain-of-custody form. The initials SUB as the analyst designate any testing sub-contracted by Sherry Laboratories.

Certifications/Accreditation: IN# C-18-02 IN# M-18-5 IN# M-71-02 IN# C-02-03. A scope of Certified/Accredited parameters is available upon request.

This report shall not be reproduced except in full, without the written approval of the laboratory.

If you have any questions regarding these test results, please feel free to call.

Sincerely,

Serena Shane  
Assistant Director, South Bend  
9301 Innovation Drive  
Daleville, IN 47334

Page 1 of 4



Sherry Laboratories - Daleville  
 9301 Innovation Drive  
 Daleville, IN 47334  
 TEL: 765-378-4103 FAX: 765-378-4109  
 Website: [www.Sherrylabs.com](http://www.Sherrylabs.com)

## Analytical Report

(continuous)

WO#: 11051387

Date Reported: 5/18/2011

CLIENT: J.F. New & Associates

Lab Order: 11051387

Project: Lake of the Woods

Lab ID: 11051387-001

Collection Date: 5/11/2011 10:30:00 AM

Client Sample ID: Lake of the Woods - South

Matrix: SOIL

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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**METALS IN SOIL OR SLUDGE BY ICP**

SW6010B

Analyst: FJR

Arsenic	1.7	0.10		mg/Kg	1	5/17/2011
Barium	13	0.40		mg/Kg	1	5/17/2011
Cadmium	1.5	0.10		mg/Kg	1	5/17/2011
Chromium	0.69	0.40		mg/Kg	1	5/17/2011
Lead	2.6	1.0		mg/Kg	1	5/17/2011
Selenium	< 0.10	0.10		mg/Kg	1	5/17/2011
Silver	< 0.20	0.20		mg/Kg	1	5/17/2011

Lab ID: 11051387-002

Collection Date: 5/11/2011 11:00:00 AM

Client Sample ID: Lake of the Woods - North

Matrix: SOIL

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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**METALS IN SOIL OR SLUDGE BY ICP**

SW6010B

Analyst: FJR

Arsenic	< 0.10	0.10		mg/Kg	1	5/17/2011
Barium	22	0.40		mg/Kg	1	5/17/2011
Cadmium	2.1	0.10		mg/Kg	1	5/17/2011
Chromium	2.8	0.40		mg/Kg	1	5/17/2011
Lead	3.9	1.0		mg/Kg	1	5/17/2011
Selenium	< 0.10	0.10		mg/Kg	1	5/17/2011
Silver	< 0.20	0.20		mg/Kg	1	5/17/2011

Qualifiers:	%	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E		Value above quantitation range	H	Holding time for preparation or analysis exceeded
J		Analyte detected below quantitation limits	M	Manual integration used to determine user response
ND		Not Detected at the Reporting Limit	PL	Perm. L Limit
RL		Reporting Detection Limit	S	Spike Recovery outside accepted recovery limits



Sherry Laboratories - Daleville  
 9301 Innovation Drive  
 Daleville, IN 47334  
 TEL: 765-378-4103 FAX: 765-378-4109  
 Website: www.Sherrylabs.com

### Sample Log-In Check List

Client Name:	<b>SB_JF_NEW</b>	Work Order Number:	<b>11061387</b>
Logged by:	<b>Serena Shane</b>	<b>6/11/2011 3:50:00 PM</b>	<i>Serena Shane</i>
Completed By:	<b>Serena Shane</b>	<b>6/18/2011 10:31:23 AM</b>	<i>Serena Shane</i>
Reviewed By:	<b>Serena Shane</b>	<b>6/18/2011 10:31:25 AM</b>	<i>Serena Shane</i>

**Chain of Custody**

- 1. Were seals intact? Yes  No  Not Present
- 2. Is Chain of Custody complete? Yes  No  Not Present
- 3. How was the sample delivered? Client

**Log In**

- 4. Coolers are present? Yes  No  NA
- 5. Was an attempt made to cool the samples? Yes  No  NA
- 6. Were all samples received at a temperature of >0° C to 6.0°C? Yes  No  NA
- 7. Sample(s) in proper container(s)? Yes  No
- 8. Sufficient sample volume for indicated test(s)? Yes  No
- 9. Are samples (except VOA and ONG) properly preserved? Yes  No
- 10. Was preservative added to bottles? Yes  No  NA
- 11. Is the headspace in the VOA vials less than 1/4 inch or 6 mm? Yes  No  No VOA Vials
- 12. Were any sample containers received broken? Yes  No
- 13. Does paperwork match bottle labels?  
(Note discrepancies on chain of custody) Yes  No
- 14. Are matrices correctly identified on Chain of Custody? Yes  No
- 15. Is it clear what analyses were requested? Yes  No
- 16. Were all holding times able to be met?  
(If no, notify customer for authorization.) Yes  No

**Special Handling (if applicable)**

- 17. Was client notified of all discrepancies with this order? Yes  No  NA

Person Notified:	_____	Date:	_____
By Whom:	_____	Via	<input type="checkbox"/> eMail <input type="checkbox"/> Phone <input type="checkbox"/> Fax <input type="checkbox"/> In Person
Regarding:	_____		
Client Instructions:	_____		

18. Additional remarks:

**Cooler Information**





# Appendix C

## Forms and Letters

**Minutes of Public Meeting for Sediment Removal  
Study for  
Lake of the Woods - Bremen, Indiana  
May 14, 2011 - 9:30 a.m.**

Meeting was opened by Lowell Michaels with the introduction of John Richardson of J.F. New & Associates and Doug Nusbaum of the Indiana Department of Natural Resources. Lowell briefly outlined project activity that began with a lake tour with J.F. New personnel, Doug Nusbaum and an INDNR permitting biologist, and LOWPOA Committee members. J.F. New returned four times, two by boat and two on the ice, to take data and Doug Nusbaum visited the area several times to talk with possible disposal site landowners and to meet with LOWPOA and J.F. New personnel.

John Richardson began by outlining the meeting agenda. He then turned to DNR Lake & River Enhancement (LARE) Specialist Doug Nusbaum. Doug covered the following:

- The evolution of the LARE program to its current practice of performing sediment studies, sediment removal, and invasive weed control.
- Dredging is done to remove sediment that, when agitated by wind or boat wake, can release nutrients into the water column; not to enhance private property shoreline.
- Areas near incoming streams are those most likely studied and permitted for sediment removal.
- If dredging takes place, Doug will monitor project to make sure it is completed as contracted.
- Projects now require a 20% match. Half of this 20% can be in the form of "in kind service" agreed to by dredging contractor.
- Dredging is not to be performed in a manner that alters original lake bottom.
- There are normally more grant applications than funds available. Grants may not be awarded on first application.
- LARE usually limits its funding to \$100,000 per year, per lake. Larger projects often require multiple years to complete.
- LARE covers cost of constructing disposal site, but does not cover cost of land use. This would be between LOWPOA and landowner.

John continued by presenting an aerial photo of the lake showing the following:

- Areas 1 & 2, see attached, consisting of approximately 5 acres would be eligible and beneficial to dredge. The numbers shown are water depth when checked and the depth of original lake bottom.
- Area 3 has a stream inlet but no major buildup of sediment. There is a small sand dam where the stream enters lake that could be removed.
- Area 4 has 1.56 acres that could be dredged.
- All channels could be dredged. LARE does not pay for this.
- Dredging costs including set up and break down of equipment is approximately \$1.25 per sq. ft.
- Channel dredging costs could be reduced to \$.95 per sq. ft. if done at the same time as lake dredging by eliminating set up and breakdown of equipment costs.
- One property owner questioned whether an individual could apply for a grant for sand removal in front of his seawall. John answered that it is possible but proving the need is sometimes difficult but not impossible.

To move forward, John suggested the following:

- Create a small committee with chair person who has the ability and willingness to deal with people who will have diverse opinions and desires.
- Channel owners will have to decide if they want to proceed.
- Committee members must decide whether and how to proceed. If "yes" decide where and how much to include in the project. J. F. New will make some priority recommendations.
- If community decides to proceed, committee will have to file LARE and other grant applications. J. F. New will assist.
- Committee members must be prepared to monitor and address issues on a regular basis during a dredging project.

The official meeting was adjourned at 10:40 a.m. John did have some informal conversations with property owners and some possible site disposal landowners after the meeting to address some additional concerns.

**AGREEMENT FOR THE PURPOSE OF ACCESS  
FOR CONSTRUCTION AND MAINTENANCE OF  
A TEMPORARY SEDIMENT HOLDING BASIN**

This Agreement, made and entered into on this \_\_\_\_\_ day of \_\_\_\_\_, 2011 by and between David and Diana Shrock (THE OWNER) and the Lake of the Woods Property Owners Association (THE ASSOCIATION), a not-for-profit corporation organized under the laws of the State of Indiana.

WITNESSETH:

THE OWNER, in consideration of the rents and covenants herein contained, does hereby enter in this Agreement for the use and maintenance of real property located in **German Township, Marshall County, Indiana, Township 34 North, Range 2 East Section 1** and more particularly described on the attached plan sheet, attached as Exhibit A (hereinafter after referred to as the Property) and does grant to THE ASSOCIATION access to said Property for construction and maintenance of a temporary sediment holding basin.

WHEREAS, THE ASSOCIATION is a not-for-profit Indiana Corporation which is dedicated to improving the water quality of Lake of the Woods, located in Marshall County, Indiana; and

WHEREAS, THE ASSOCIATION wishes to undertake activities, including, construction and maintenance on the Property as part of its Lake Enhancement project to improve the water quality of Lake of the Woods, located in Marshall County, Indiana; and

WHEREAS, THE OWNER is in agreement with THE ASSOCIATION's desire to improve the water quality of Lake of the Woods.

NOW, THEREFORE, THE OWNER, for themselves, their successors and assigns, and their administrators, in consideration of the covenants, undertakings and agreements hereinafter set forth, and in consideration of the sum of \_\_\_\_\_ and other valuable consideration, the receipt of which is hereby acknowledged, hereby grants **reasonable** access to THE ASSOCIATION to Property described hereinabove under the following terms and conditions:

AGREEMENT PART I - ACCESS

1. REFERENCE. Agreement Part I shall refer to the access unto the Property as designated on the Attachment A.

2. TERM. The term shall commence on the day this agreement is signed by the parties hereto and shall continue for a term of 5 years (5). It is further agreed that this agreement, or as modified at that time by the parties, shall be renewable by either party upon mutual agreement Sixty Days (60) prior to the expiration of said agreement.

Cardno JFNew File #1007020.00



3. USE.

A. THE OWNER grants to THE ASSOCIATION, their agents and assigns, the right to do specific acts on the Property as set out herein and THE OWNER retains all rights to the Property, with consideration of those rights granted to the THE ASSOCIATION.

B. THE OWNER grants THE ASSOCIATION reasonable right of access for the purpose of construction, maintenance, inspection, and reconstruction of a temporary sediment holding basin

C. THE OWNER grants to THE ASSOCIATION access, as delineated specifically on the Attachment A, for ingress and egress from the property as well as reasonable access on, over and along the said access easements for the purpose of the construction, inspection, maintenance and repair of the sediment trap and disposal basin, provided, that THE ASSOCIATION shall give prior notice of their intentions before entering upon the Property. THE OWNER, for themselves, their heirs, assigns and administrators agree that reasonable access shall be maintained and in the event of construction or building upon the existing access during the term of this agreement, THE ASSOCIATION shall be so advised of changes and setting out of the alternate access to the Property.

AGREEMENT PART II - GENERAL PROVISIONS

1. MANAGEMENT.

A. THE OWNER agrees that THE ASSOCIATION and its agents shall be permitted to enter onto the Property with such machinery, materials and equipment and the personnel and workers to operate said machinery and equipment to carry out the intended use of the Property by THE ASSOCIATION, including, the construction, inspection of, maintenance and repair of the temporary sediment holding basin. It is agreed that all improvements shall stay with the land.

B. THE OWNER agrees that THE ASSOCIATION shall have the right to take such tests and borings on the Property as THE ASSOCIATION deems necessary to carry out its intended use, and to take photographs of the Property, provided, THE OWNER is advised of such borings, tests, and photographs, and the necessity of such.

C. THE OWNER limits the rights granted to THE ASSOCIATION as contained herein, and that THE ASSOCIATION may enter onto the Property for the intended use as described, and not for any other use by THE ASSOCIATION and/or its agents, or the general public.

D. Rights to the Property shall be retained by THE OWNER. Further, THE OWNER agrees that those activities agreed between the parties will not be interfered with, provided, that THE ASSOCIATION has not deviated from said agreement of intended use without first securing the permission or agreement from THE OWNER.

E. THE ASSOCIATION shall give notice to THE OWNER of its intention to enter onto the Property for purpose of inspection, maintenance and repair of the temporary sediment holding basin and the eventual leveling and revegetation of the basin. THE ASSOCIATION shall not enter Property without permission from THE OWNER, which permission will not be unreasonably withheld.

*Cardno JFNew File #1007020.00*

F. Upon completion of the project, THE ASSOCIATION will retain maintenance rights to the temporary sediment holding basin area for the period of the agreement, although THE OWNER may manage and control plant and animal life on the Property.

2. TAXES. Shall be borne by THE OWNER, or their successors and/or assigns of the said real estate, and any assessments, shall also be born by the same.

3. CONDEMNATION. THE OWNER agrees that if the Property, or any part thereof, shall be taken or condemned for public or quasi-public use or purpose by any competent authority, THE ASSOCIATION shall have the right to defend against such attempted condemnation of the Property or any part thereof. If, in the opinion of THE ASSOCIATION, the Property becomes unmanageable or unsuitable for its Intended Use and Purpose as a result of such condemnation, this Agreement may be terminated by THE ASSOCIATION upon sixty (60) days written notice to THE OWNER.

4. LIABILITY/INSURANCE.

A. Nothing in this Agreement shall be construed as imposing any additional liability on THE OWNER. THE ASSOCIATION and any contractor employed to complete the work shall name THE OWNER as additional insured on THE ASSOCIATION's liability policy. Prior to the start of construction and throughout the term of the Agreement thereafter, THE ASSOCIATION shall carry a policy of public liability insurance covering all of its activities on the Property. At the request of THE OWNER, THE ASSOCIATION and the contractor shall provide THE OWNER with a certificate or other evidence that such insurance is in effect.

B. THE ASSOCIATION shall be responsible for and shall indemnify and hold THE OWNER harmless from any and all costs, including the expense of defending any claim of legal action related to any injury or damage to the project area, caused by or resulting from THE ASSOCIATION's activities on the Property.

5. DAMAGES.

A. THE ASSOCIATION shall restore all road surfaces owned by THE OWNER to their original condition if said surfaces are damaged by equipment and/or machinery used by THE ASSOCIATION and its agents during ingress and egress from the Property.

B. Before final completion of the work on said premises, THE ASSOCIATION and its agents shall adequately clean up, replace fences and replant the construction site to the original condition or the satisfaction of THE OWNER whichever is less.

C. This commitment pertains to construction, repair and maintenance completed by THE ASSOCIATION and its agents on the Property.

6. EXPENSE. THE ASSOCIATION shall be responsible for all expenses incurred in the construction, repair, inspection and maintenance of the Intended Use of the Property by THE ASSOCIATION as set out in Part I of this Agreement.

7. NO LIEN AGREEMENT. In consideration of the rents and covenants herein contained, THE ASSOCIATION, for itself and for all contractors, subcontractors, laborers, or persons performing  
*Cardno JFNew File #1007020.00*

labor upon or furnishing materials or machinery for the Intended Use of the Property as set out herein, agree that:

A. No lien shall attach to the Property or to THE OWNER's property, or to any structure or other improvement to be constructed on the Property; and

B. Any recording of this Agreement is intended solely for the purpose of giving proper notice as provided under IC 32-8-3-1 et seq.; and no lien whatsoever is created against the real estate as the result of the execution or recordation of this Agreement.

8. TRESPASS. THE OWNER grants to THE ASSOCIATION and its contractor(s) permission to enter onto the Property during normal working hours (7am to 7pm), **with proper notice**, to carry out its Intended Use as set out herein. All others shall be considered trespassers on the Property unless the party has permission of THE OWNER to be on the Property.

9. DEFAULT.

A. Breach of any covenant herein shall constitute a default under this Agreement. In the event of a default, the defaulting party shall be entitled to thirty (30) days written notice specifying the nature of the default and giving the defaulting party an opportunity to cure the default. If the default is not corrected within thirty (30) days after written notice is received, the injured party may elect to terminate this Agreement.

B. If the use intended for the Property is not approved by any governmental agency having jurisdiction over the reconstruction project, THE ASSOCIATION and THE OWNER shall each have the right to terminate the Agreement by giving written notice to the other party. Within sixty (60) days from the date the notice is received by THE OWNER, the Agreement shall be null and void.

10. NOTICE. Any notice required by this Agreement shall be served upon the other party by mail at the address set forth below or at such other address as the parties may hereinafter designate:

_____	President – Lake of the Woods Property Owners
_____	Association
_____	4243 Lake Shore Dr
	Bremen, IN 46506

11. AGENTS. Where in this instrument rights are given to the Lake of the Woods Property Owners Association, THE ASSOCIATION or THE OWNER, such rights shall also extend to the agents, officers or employees of the parties.

12. BINDING EFFECT. This Agreement shall become effective at the time construction on the Property begins and shall be binding upon THE OWNER, their heirs, personal representatives, successors and assigns and upon THE ASSOCIATION and any successor organizations.

13. TITLE. THE OWNER hereby represent and warrant that they are owners of the Property covered by this Agreement and that they have the right to enter into this Agreement and to bind themselves and their heirs, successors, assigns, and personal representatives.

14. This Agreement shall be interpreted under the laws of the State of Indiana.  
Cardno JFNew File #1007020.00



- 15. Headings are for reference only and do not affect the provisions of this Agreement.
- 16. Where appropriate, the singular shall include the plural.
- 17. This Agreement contains all of the agreements of the parties, all prior negotiations, understandings and agreements having been merged into it. Amendments of this Agreement shall not be effective unless made in writing and signed by the parties.
- 18. In the event THE ASSOCIATION should cease to exist, the Agreement shall be binding upon the organization that succeeds the said association, provided that the succeeding organizations' membership consists of property owners of real estate on Lake of the Woods, Marshall County, Indiana.
- 19. This Agreement or a Memorandum thereof shall be recorded in the Office of the Recorder of Marshall County, Indiana. THE ASSOCIATION shall pay the recording fee.
- 20. Any person signing this Agreement in a representative capacity for a party affirms under the penalties for perjury that he or she has the actual authority to so sign.

IN WITNESS WHEREOF, \_\_\_\_\_, THE OWNER(s), and \_\_\_\_\_, current President of THE ASSOCIATION, have caused this Agreement to be executed on the day and year above first written with the following signatures.

\_\_\_\_\_  
THE OWNER

\_\_\_\_\_  
Witness:

BY:

\_\_\_\_\_  
President –  
LAKE OF THE WOODS PROPERTY OWNERS ASSOCIATION

\_\_\_\_\_  
Witness:



**Exhibit A: Shrock Property. Potential sediment disposal basin location, on west side of Lake of the Woods, Bremen, Marshall County, Indiana.**

**AGREEMENT FOR THE PURPOSE OF ACCESS  
FOR CONSTRUCTION AND MAINTENANCE OF  
A TEMPORARY SEDIMENT HOLDING BASIN**

This Agreement, made and entered into on this 28 day of SEPTEMBER, 2011 by and between DENNIS + JUDY REDMAN (THE OWNER) and the Lake of the Woods Property Owners Association (THE ASSOCIATION), a not-for-profit corporation organized under the laws of the State of Indiana.

WITNESSETH:

THE OWNER, in consideration of the rents and covenants herein contained, does hereby enter in this Agreement for the use and maintenance of real property located in **German Township, Marshall County, Indiana, Township 35 North, Range 2 East Section 36** and more particularly described on the attached plan sheet, attached as Exhibit AA (hereinafter after referred to as the Property) and does grant to THE ASSOCIATION access to said Property for construction and maintenance of a temporary sediment holding basin.

WHEREAS, THE ASSOCIATION is a not-for-profit Indiana Corporation which is dedicated to improving the water quality of Lake of the Woods, located in Marshall County, Indiana; and

WHEREAS, THE ASSOCIATION wishes to undertake activities, including, construction and maintenance on the Property as part of its Lake Enhancement project to improve the water quality of Lake of the Woods, located in Marshall County, Indiana; and

WHEREAS, THE OWNER is in agreement with THE ASSOCIATION's desire to improve the water quality of Lake of the Woods.

NOW, THEREFORE, THE OWNER, for themselves, their successors and assigns, and their administrators, in consideration of the covenants, undertakings and agreements hereinafter set forth, and in consideration of the sum of TWENTY and other valuable consideration, the receipt of which is hereby acknowledged, hereby grants *reasonable* access to THE ASSOCIATION to Property described hereinabove under the following terms and conditions:

AGREEMENT PART I - ACCESS

1. REFERENCE. Agreement Part I shall refer to the access unto the Property as designated on the attachment marked AExhibit A.
2. TERM. The term shall commence on the day this agreement is signed by the parties hereto and shall continue for a term of 5 years (5). It is further agreed that this agreement, or as modified at that time by the parties, shall be renewable by either party upon mutual agreement Sixty Days (60) prior to the expiration of said agreement.

3. USE.

A. THE OWNER grants to THE ASSOCIATION, their agents and assigns, the right to do specific acts on the Property as set out herein and THE OWNER retains all rights to the Property, with consideration of those rights granted to the THE ASSOCIATION.

B. THE OWNER grants THE ASSOCIATION reasonable right of access for the purpose of construction, maintenance, inspection, and reconstruction of a temporary sediment holding basin

C. THE OWNER grants to THE ASSOCIATION access, as delineated specifically on the attachment marked **Area A** and designated as "limits of construction" owner grants the right to ingress and egress from the property as well as reasonable access on, over and along the said access easements for the purpose of the construction, inspection, maintenance and repair of the sediment trap and disposal basin, provided, that THE ASSOCIATION shall give prior notice of their intentions before entering upon the Property. THE OWNER, for themselves, their heirs, assigns and administrators agree that reasonable access shall be maintained and in the event of construction or building upon the existing access during the term of this agreement, THE ASSOCIATION shall be so advised of changes and setting out of the alternate access to the Property.

AGREEMENT PART II - GENERAL PROVISIONS

1. MANAGEMENT.

A. THE OWNER agrees that THE ASSOCIATION and its agents shall be permitted to enter onto the Property with such machinery, materials and equipment and the personnel and workers to operate said machinery and equipment to carry out the intended use of the Property by THE ASSOCIATION, including, the construction, inspection of, maintenance and repair of the temporary sediment holding basin. It is agreed that all improvements shall stay with the land.

B. THE OWNER agrees that THE ASSOCIATION shall have the right to take such tests and borings on the Property as THE ASSOCIATION deems necessary to carry out its intended use, and to take photographs of the Property, provided, THE OWNER is advised of such borings, tests, and photographs, and the necessity of such.

C. THE OWNER limits the rights granted to THE ASSOCIATION as contained herein, and that THE ASSOCIATION may enter onto the Property for the intended use as described, and not for any other use by THE ASSOCIATION and/or its agents, or the general public.

D. Rights to the Property shall be retained by THE OWNER. Further, THE OWNER agrees that those activities agreed between the parties will not be interfered with, provided, that THE ASSOCIATION has not deviated from said agreement of intended use without first securing the permission or agreement from THE OWNER.

E. THE ASSOCIATION shall give notice to THE OWNER of its intention to enter onto the Property for purpose of inspection, maintenance and repair of the temporary sediment holding basin and the eventual leveling and revegetation of the basin. THE ASSOCIATION shall not enter Property without permission from THE OWNER, which permission will not be unreasonably withheld.

F. Upon completion of the project, THE ASSOCIATION will retain maintenance rights to the temporary sediment holding basin area for the period of the agreement, although THE OWNER may manage and control plant and animal life on the Property.

2. TAXES. Shall be borne by THE OWNER, or their successors and/or assigns of the said real estate, and any assessments, shall also be born by the same.

3. CONDEMNATION. THE OWNER agrees that if the Property, or any part thereof, shall be taken or condemned for public or quasi-public use or purpose by any competent authority, THE ASSOCIATION shall have the right to defend against such attempted condemnation of the Property or any part thereof. If, in the opinion of THE ASSOCIATION, the Property becomes unmanageable or unsuitable for its Intended Use and Purpose as a result of such condemnation, this Agreement may be terminated by THE ASSOCIATION upon sixty (60) days written notice to THE OWNER.

4. LIABILITY/INSURANCE.

A. Nothing in this Agreement shall be construed as imposing any additional liability on THE OWNER. THE ASSOCIATION and any contractor employed to complete the work shall name THE OWNER as additional insured on THE ASSOCIATION's liability policy. Prior to the start of construction and throughout the term of the Agreement thereafter, THE ASSOCIATION shall carry a policy of public liability insurance covering all of its activities on the Property. At the request of THE OWNER, THE ASSOCIATION and the contractor shall provide THE OWNER with a certificate or other evidence that such insurance is in effect.

B. THE ASSOCIATION shall be responsible for and shall indemnify and hold THE OWNER harmless from any and all costs, including the expense of defending any claim of legal action related to any injury or damage to the project area, caused by or resulting from THE ASSOCIATION's activities on the Property.

5. DAMAGES.

A. THE ASSOCIATION shall restore all road surfaces owned by THE OWNER to their original condition if said surfaces are damaged by equipment and/or machinery used by THE ASSOCIATION and its agents during ingress and egress from the Property.

B. Before final completion of the work on said premises, THE ASSOCIATION and its agents shall adequately clean up, replace fences and replant the construction site to the original condition or the satisfaction of THE OWNER whichever is less.

C. This commitment pertains to construction, repair and maintenance completed by THE ASSOCIATION and its agents on the Property.

6. EXPENSE. THE ASSOCIATION shall be responsible for all expenses incurred in the construction, repair, inspection and maintenance of the Intended Use of the Property by THE ASSOCIATION as set out in Part I of this Agreement.

7. NO LIEN AGREEMENT. In consideration of the rents and covenants herein contained, THE ASSOCIATION, for itself and for all contractors, subcontractors, laborers, or persons performing labor upon or furnishing materials or machinery for the Intended Use of the Property as set out herein, agree that:

A. No lien shall attach to the Property or to THE OWNER's property, or to any structure or other

improvement to be constructed on the Property; and

B. Any recording of this Agreement is intended solely for the purpose of giving proper notice as provided under IC 32-8-3-1 et seq.; and no lien whatsoever is created against the real estate as the result of the execution or recordation of this Agreement.

8. TRESPASS. THE OWNER grants to THE ASSOCIATION and its contractor(s) permission to enter onto the Property during normal working hours (7am to 7pm), *with proper notice*, to carry out its Intended Use as set out herein. All others shall be considered trespassers on the Property unless the party has permission of THE OWNER to be on the Property.

9. DEFAULT.

A. Breach of any covenant herein shall constitute a default under this Agreement. In the event of a default, the defaulting party shall be entitled to thirty (30) days written notice specifying the nature of the default and giving the defaulting party an opportunity to cure the default. If the default is not corrected within thirty (30) days after written notice is received, the injured party may elect to terminate this Agreement.

B. If the use intended for the Property is not approved by any governmental agency having jurisdiction over the reconstruction project, THE ASSOCIATION and THE OWNER shall each have the right to terminate the Agreement by giving written notice to the other party. Within sixty (60) days from the date the notice is received by THE OWNER, the Agreement shall be null and void.

10. NOTICE. Any notice required by this Agreement shall be served upon the other party by mail at the address set forth below or at such other address as the parties may hereinafter designate:

DENNIS + JUDY REDMAN

President – Lake of the Woods Property Owners Association

9032 N. SHORE DR

4243 Lake Shore Dr

BREMEN, IN. 46506

Bremen, IN 46506

11. AGENTS. Where in this instrument rights are given to the Lake of the Woods Property Owners Association, THE ASSOCIATION or THE OWNER, such rights shall also extend to the agents, officers or employees of the parties.

12. BINDING EFFECT. This Agreement shall become effective at the time construction on the Property begins and shall be binding upon THE OWNER, their heirs, personal representatives, successors and assigns and upon THE ASSOCIATION and any successor organizations.

13. TITLE. THE OWNER hereby represent and warrant that they are owners of the Property covered by this Agreement and that they have the right to enter into this Agreement and to bind themselves and their heirs, successors, assigns, and personal representatives.

14. This Agreement shall be interpreted under the laws of the State of Indiana.

15. Headings are for reference only and do not affect the provisions of this Agreement.

16. Where appropriate, the singular shall include the plural.

17. This Agreement contains all of the agreements of the parties, all prior negotiations, understandings and agreements having been merged into it. Amendments of this Agreement shall not be effective unless made in writing and signed by the parties.

18. In the event THE ASSOCIATION should cease to exist, the Agreement shall be binding upon the organization that succeeds the said association, provided that the succeeding organizations' membership consists of property owners of real estate on Lake of the Woods, Marshall(s), Indiana.

19. This Agreement or a Memorandum thereof shall be recorded in the Office of the Recorder of Marshall County, Indiana. THE ASSOCIATION shall pay the recording fee.

20. Any person signing this Agreement in a representative capacity for a party affirms under the penalties for perjury that he or she has the actual authority to so sign.

IN WITNESS WHEREOF, \_\_\_\_\_, THE OWNER(s), and \_\_\_\_\_, current President of THE ASSOCIATION, have caused this Agreement to be executed on the day and year above first written with the following signatures.

*Dennis Redman*  
*Judy Redman*  
\_\_\_\_\_  
THE OWNER  
*Luella Michaels*  
\_\_\_\_\_  
Witness:

LAKE OF THE WOODS PROPERTY OWNERS  
ASSOCIATION

BY:

*Wil Smalik*  
\_\_\_\_\_  
President -  
*Luella Michaels*  
\_\_\_\_\_  
Witness:

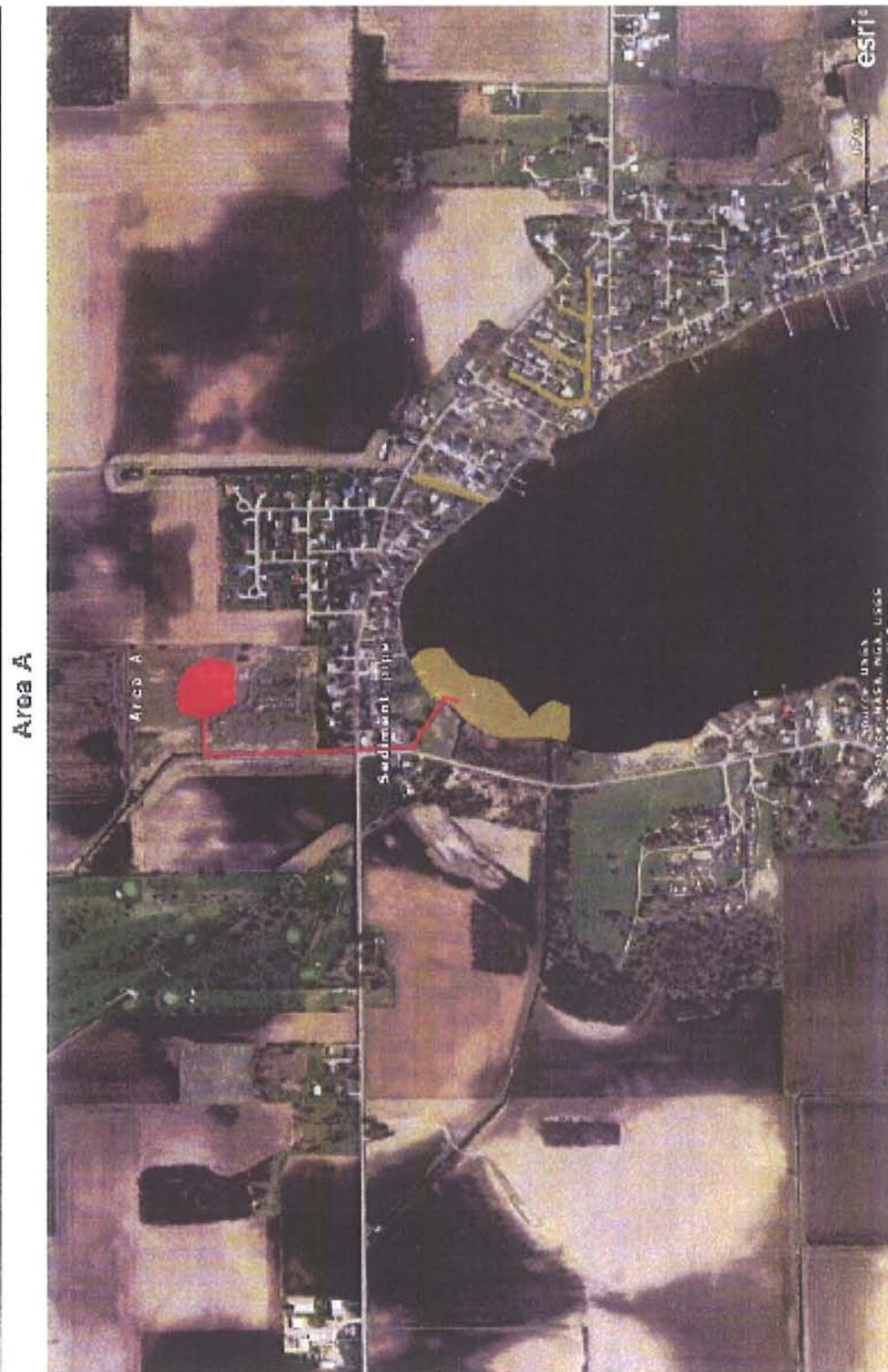


Exhibit A – Redman Parcel, potential sediment disposal basin at north end of Lake of the Woods, Bremen, Marshall County, Indiana.

Cardno JFNew File #1007020.00



# Appendix D

## Example Bid Documents

**INVITING BIDS FOR:  
Lake of the Woods Sediment Removal  
MARSHALL COUNTY, INDIANA**

\_\_\_\_\_ (Owner), will receive bid proposals until \_\_\_ am/pm on \_\_\_\_\_ (Date) at the location stated below for the Lake of the Woods Sediment Removal, described herein.

Bids shall be submitted on the enclosed documents. After the above date, the bids will be opened and reviewed by Owner who shall award a contract to the lowest responsible and responsive bidder.

To determine whether a bidder is responsible and responsive the Owner may consider the following factors:

- (1) Whether the bidder has submitted a bid or quote that conforms in all material respects to the specifications.
- (2) Whether the bidder has submitted a bid that complies specifically with the invitation to bid and the instructions to the bidder.
- (3) The ability and capacity of the bidder to perform the work.
- (4) The integrity, character, and reputation of the bidder.
- (5) The competency and experience of the bidder.

**RESERVATIONS**

- 1) OWNER reserves the right to reject any or all bids.
- 2) OWNER reserves the right to waive any formalities or irregularities in the bid process and the selection process.
- 3) OWNER reserves the right to make an award to any firm, which in their sole discretion will provide the best professional services required herein regardless of costs. However, the cost of services will likely be a significant factor in any decision.

All questions related to the project and all bids shall be submitted to the Bid Administrator by email, fax, mail, or hand delivery. Bids will remain unopened until the deadline.

# INSTRUCTIONS TO BIDDERS

## Lake of the Woods Sediment Removal

### MARSHALL COUNTY, INDIANA

#### WORK DESCRIPTION

**PLANS and SPECIFICATIONS:** The plans and specifications to be used in this project are included with this bid document. The Owner does not warrant any material estimates provided. Contractors are responsible for visiting the site as necessary to determine material estimates, machinery, and labor needed to complete the job in a timely manner for a firm bid price.

**PROPOSALS:** Bid proposals shall be submitted on the forms provided herein.

**INTERPRETATION OF THE PLANS AND SPECIFICATIONS:** If any person contemplating submitting a bid for this work is in doubt as to the true meaning of any part of the plans, specifications or other proposed contract documents, he or she may submit a written request to the Owner for interpretation thereof. The Owner will not be responsible for any other explanations or interpretations of the plans or contract documents.

**QUESTIONS:** Any questions regarding the scope of work shall be submitted in writing by fax or email and will be answered in the form of an addendum to be shared with all bidders. Questions must be submitted no later than: \_\_\_\_\_.

**ADDENDA:** Any addenda issued during the time of bidding, or forming a part of the contract documents given to the bidder for preparation of his or her proposal, shall be covered in the proposal and shall be made a part of the proposal. Receipt of each addendum shall be acknowledged and attached to the proposal. No Addenda will be issued after \_\_\_\_\_.

**AWARD OF THE CONTRACT:** After a satisfactory bid is received, The Owner shall notify all bidders of the project award prior to \_\_\_\_\_.

**TIMING OF THE WORK:** After execution of a valid contract the contractor shall be expected to begin work within 60 days of contract signing unless inclement weather prevails. The contractor shall complete the project as weather allows \_\_\_\_\_.

#### INSURANCE

The selected contractor(s) shall be required to provide a certificate of insurance to the Owner specifically naming Owner. The amount of the insurance shall not be for less than \$1,000,000 (\$1 million) per occurrence.

**Bid Instructions Page 1 of 1**  
**BIDDERS LUMP SUM PROPOSAL**  
**Lake of the Woods Sediment Removal**  
**MARSHALL COUNTY, INDIANA**

*Instructions to Bidders:*

*All Bidders shall utilize this form. Except as otherwise specifically provided, all parts shall be fully and accurately filled in and completed.*

Project: **Lake of the Woods Sediment Removal**  
**MARSHALL COUNTY, INDIANA**

Mail, email, or fax completed bid forms to:

**BIDDER INFORMATION**

(Print or Type)

1.1 Bidder Name: \_\_\_\_\_

1.2 Bidders Address: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_

Phone: ( \_\_\_\_\_ ) \_\_\_\_\_ Fax: \_\_\_\_\_

1.3 Bidder is a/an [mark one]:

\_\_\_\_\_ Individual                      \_\_\_\_\_ Partnership                      \_\_\_\_\_ Indiana Corporation

\_\_\_\_\_ Foreign (Out of State) Corporation

\_\_\_\_\_ Joint Venture                      \_\_\_\_\_ Other: \_\_\_\_\_

1.4 Bidders Federal ID No. \_\_\_\_\_

REQUIRED BID PROPOSAL - Page 1 of 3

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## Lake of the Woods Sediment Removal MARSHALL COUNTY, INDIANA

### 2.1 BASE BID

The undersigned Bidder proposes to furnish all necessary labor, equipment, tools, apparatus, materials, equipment, service and other necessary supplies, and to perform and fulfill all obligations in strict accordance with and within the time(s) provided by the terms and conditions of the Contract Documents for the work described on the plans and specifications for the Sediment removal Project including any and all addenda issued for the total sum of:

\$ \_\_\_\_\_

The Bidder acknowledges receipt of the following addenda (if any):

Addendum Number

Date

\_\_\_\_\_

\_\_\_\_\_

Signed this \_\_\_\_\_ day of \_\_\_\_\_, 2010.

\_\_\_\_\_  
Bidder/Contractor - Signature

\_\_\_\_\_  
Name – Printed

REQUIRED BID PROPOSAL – Page 2 of 3

**Lake of the Woods Sediment Removal  
MARSHALL COUNTY, INDIANA  
BID WORKSHEET AND SPECIFICATIONS**

<b>Project Task</b>	<b>Description</b>	<b>Amount</b>
Mobilization/ Demobilization Rule 5 Submittal and erosion control	This item includes all labor, machinery, and expenses associated with delivery and pickup of machinery necessary to complete the project, including project meetings, pre-project utility locate coordination, construction, seeding and erosion control.	
Sediment Basin Construction		
Area 1 – Sediment removal		
Area 2 – Sediment removal		
Area 3 – Sediment removal		
Removal or restoration of temporary sediment storage basin		
	<b>TOTAL</b>	