

Big Turkey Lake Sediment Trap Design Report

**STEUBEN COUNTY,
INDIANA**

May 18, 2004



Prepared for:

**Big Turkey Lake Improvement
Association**
P.O. Box 188
Stroh, Indiana 46789

Prepared by:



708 Roosevelt Road
Walkerton, Indiana 46574
574-586-3400

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BIG TURKEY LAKE SEDIMENT TRAP DESIGN REPORT

STEBEN COUNTY, INDIANA

1.0 PROJECT DESCRIPTION AND PURPOSE

Big Turkey Lake is located in southwest Steuben and southeast Lagrange Counties, Indiana (Figure 1). The sediment trap project area is located on the southern end of Big Turkey Lake where Turkey Creek enters the lake, southeast of the town of Stroh. Turkey Creek, the largest tributary to Big Turkey Lake, drains approximately 15,068 acres (6,103 ha) of primarily agricultural land. Turkey Creek delivers sediment and associated nutrients from its watershed to Big Turkey Lake where excess sediment is deposited. The depth of sediment deposits from Turkey Creek exceeds six feet within the project area.

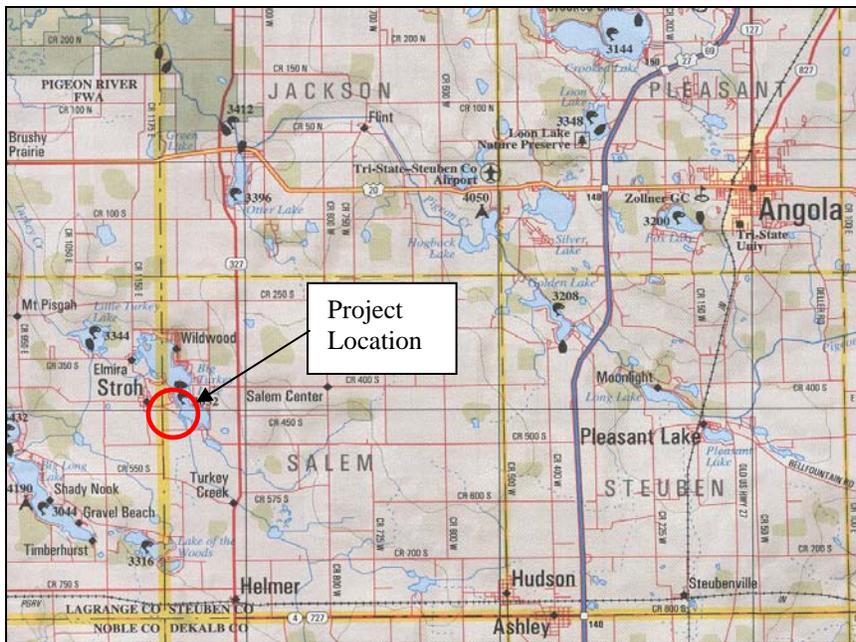


Figure 1. Big Turkey Lake general project location.

The Big Turkey Lake Improvement Association received funding from the Indiana Department of Natural Resources' (IDNR) Lake and River Enhancement (LARE) Program to design a project to address the problem noted above. Specifically, the purpose of the project is to reduce the delivery of sediment and associated nutrients to Big Turkey Lake by capturing sediment before it enters Big Turkey Lake. The project, a sediment trap, will be located where Turkey Creek enters Big Turkey Lake, north of County Road 475 South (Figure 2). This report describes the sediment trap design and outlines the tasks necessary for its construction.



Figure 2. Aerial view of Big Turkey Lake sediment trap project area.

2.0 DESIGN RATIONALE

Turkey Creek delivers a heavy load of sediment to Big Turkey Lake (123 mg/l suspended sediment, Harza¹). The sediment trap is designed to reduce the concentration of suspended sediment (silt and clay) and intercept the majority of the bed load (sand) carried by Turkey Creek. The location of the Big Turkey Lake sediment trap was chosen for several reasons. First, the site was historically used as a sediment trap (Rodney Parr and Betty Schuhler, personal communication). Secondly, the landowner approved the project. Thirdly, the land adjacent to the to the sediment trap was available for the construction of a dewatering/sediment disposal basin (dewatering basin). The dewatering basin is designed to utilize a depressional area thereby reducing the amount of excavation needed to contain the dredge spoils. Additionally, the proximity of the dewatering basin to the sediment trap reduces the need for auxiliary pumps to carry hydraulically dredged spoils over a great distance to the dewatering basin (Appendix A).

Like all functional sediment traps, the Big Turkey Lake sediment trap is designed to reduce water velocity over the trap, encouraging sediment to drop out of suspension. The sediment trap is sized to use as much of the existing channel as possible to maximize the sediment trap's efficiency in removing suspended sediments without increasing the risk of shoreline failure. To accomplish this, the sediment trap is approximately 800 feet in length, with a maximum width of 80 feet and depth of 8 feet. The walls of the sediment trap will have a 3:1 slope to prevent shoreline sloughing.

3.0 DESIGN AND CONSTRUCTION SPECIFICS

3.1 Permitting

A Lake Preservation Permit is required from the IDNR since excavation will occur “lakeward of the lake’s legal or average shoreline”. A permit is not required from the Steuben County Drainage Board since construction will occur within Big Turkey Lake and not Turkey Creek. Clean Water Act Section 401 Water Quality Certification from the Indiana Department of Environmental Management (IDEM) and a Section 404 permit from the U.S. Army Corps of Engineers (USACE) are required because Big Turkey Lake is considered a “water of the United States”. The IDNR, IDEM, and USACE permits authorizing the construction of the sediment trap are included in Appendix B. The contractor constructing the sediment-dewatering basin will be responsible for obtaining a Rule 5 Erosion Control Permit from IDEM prior to beginning work.

3.2 Landowner Agreements

Landowner agreements have been obtained and are included in Appendix C.

3.3 Sediment Characterization

Sediment samples, collected from three different locations within the proposed sediment trap construction area on October 7, 2003, were submitted to EIS Analytical Services for elutriate testing to determine nitrogen (ammonia) levels and Earth Exploration for particle size analysis. Site 1 was located near the road culvert; Site 3 was located nearest the lake; and Site 2 was located midway between these points. Nitrogen (ammonia) levels ranged from a low of 12.6 mg/L at Site 3 to a high of 20.7 mg/L at Site 1. Sand (4.75 to .075mm) accounted for the greatest percentage of material at Site 1, while silt (.075 to .005mm) comprised the greatest percentage of the material found at Site 3. Depth of sediment deposition over the lake’s parent bed material within the construction area ranged from 0.25 feet to 7 feet. Test results from EIS Analytical Services and Earth Exploration can be found in Appendix D. Sediment deposition depths can be found in Appendix A within the design plans.

3.4 Sediment Trap

Approximately 11,000 cubic yards of sediment will be hydraulically dredged from Big Turkey Lake to create a sediment trap. The sediment trap will have a maximum length of approximately 800 feet, width of 80 feet, and depth of 8 feet. The sediment trap walls will have a 3:1 slope to prevent shoreline sloughing. Sediment hydraulically dredged from the channel during construction will be piped to a dewatering basin to be constructed on the Schuhler property west of the outlet. Design plans for the sediment trap can be found in Appendix A.

3.5 Dewatering Basin

The dewatering basin will be constructed prior to any dredging activity. The dewatering basin will be constructed by excavating an earthen basin within a depressional area on the Schuhler property. The basin shall have a minimum depth of six feet. Earthen berms will be seeded with a temporary seed mix to control erosion. Additionally, silt fences or an erosion control equivalent will be installed down slope of the dewatering basin to capture any construction site

runoff, preventing the runoff from reaching a wooded wetland on the Schuhler parcel. The area within the dewatering basin will measure approximately 60,558 square feet. The earthen berm will have a minimum slope of 2(H):1(V) on both faces with a six-foot top width. The dewatering basin will be able to hold approximately 13,500 cubic yards of material and water.

Once the sediment has been dewatered within the basin, the spoils will be graded to match the surrounding landscape, reseeded with permanent grasses, and mulched with straw. Silt fences and any other temporary erosion control measures installed prior to dewatering basin construction will be removed after the final seeding has established growth.

3.6 Rock Outfall

Water from the dewatering basin will be piped to and filtered through a rock outfall structure before being returned to Big Turkey Lake. The outfall structure will be constructed by excavating a trench that is 20 feet long, is 5 feet wide at the pipe outlet, and tapers to 13 feet at the lake's shoreline. The trench will be 24 inches deep. The bottom 6 inches of the trench will be filled with #53 stone and the upper 18 inches will be filled with 12 to 24-inch diameter angular riprap. The outfall structure rocks will be removed once dewatering of the sediment basin is complete. The area containing the outfall structure will be returned to original grade, seeded, and stabilized with straw or erosion control blankets as necessary.

3.7 Turbidity Curtain

A turbidity curtain will be installed lakeward of the rock outfall structure. The turbidity curtain will follow the design and specifics outlined in the design drawings (Appendix A).

4.0 BIDDING REQUIREMENTS, FORMS, AND INFORMATION

The work will be divided into two parts and each part will be bid out separately. Part 1 includes silt fence (or equivalent) installation, outfall structure installation and removal and dewatering basin construction and removal. Part 2 includes dewatering pipe and sediment pumping pipe installation and removal, turbidity curtain installation and removal, and hydraulic dredging for sediment trap construction. An invitation to bidders will be issued via a letter similar to the example included in Appendix E. The invitation will include specifics regarding project design drawings (Appendix A), specifications (Appendix E), and bid return deadlines (to be determined at the time of bid solicitation). Design specifics, access to the project site, and any proposed design modification or potential construction issues will be discussed prior to bid submittal. Bid forms are not required; however, all bidders must agree to complete work in a timely manner as agreed upon prior to bid submittal, agree to follow all instructions as provided with bid solicitation, and complete the work for the agreed upon price in a suitable manner. All of the above, in addition to any other stipulations as determined by the engineering firm with project oversight, will be documented in a written and signed contract.

5.0 SPECIFICATIONS

Specifications for construction of the sediment trap and dewatering basin are included in Appendix E.

6.0 CONSTRUCTION SCHEDULE

The grant allocation and contractor scheduling will determine the project timing. Theoretically, the project could be scheduled to begin implementation in late summer or early-fall of 2004. Construction of the dewatering basin must be completed prior to piping any dredge spoils to the basin. Construction of the sediment trap will begin after the completion of the dewatering basin. The construction of the dewatering basin and sediment trap could be completed by November or December of 2004. Final grading of the dewatering basin should occur approximately 6-12 months after dredging is complete, depending on the dryness of the dredge spoils.

7.0 MONITORING AND MAINTENANCE SCHEDULE

A member of the Big Turkey Lake Improvement Association or their assigned agent should monitor the sediment trap on an annual basis. The individual conducting the monitoring should record the water depth at 10 to 15-foot intervals along the entire length of the sediment trap. These measurements should be compared with post-dredging depths provided by the contractor. Decreasing water depths within the sediment trap would indicate that the sediment trap is filling in with sediment assuming that there are no changes in lake water levels (droughts or floods). The person conducting the monitoring should place a permanent graduated stake at the edge of the sediment trap to record lake water level fluctuations. The depth measurements recorded during monitoring should be adjusted accordingly. Maintenance dredging of the sediment trap should be considered once it is greater than 70% full.

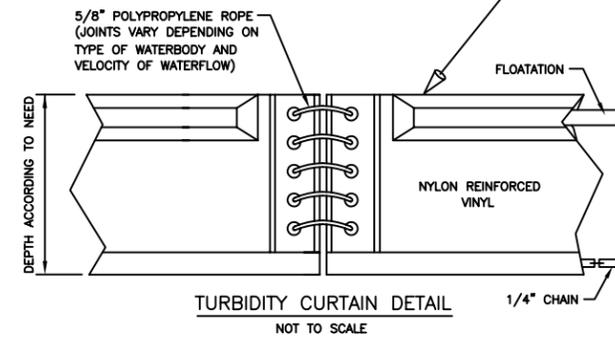
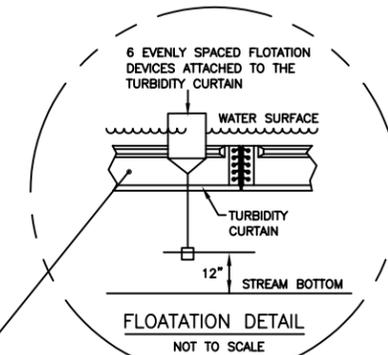
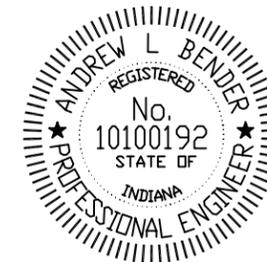
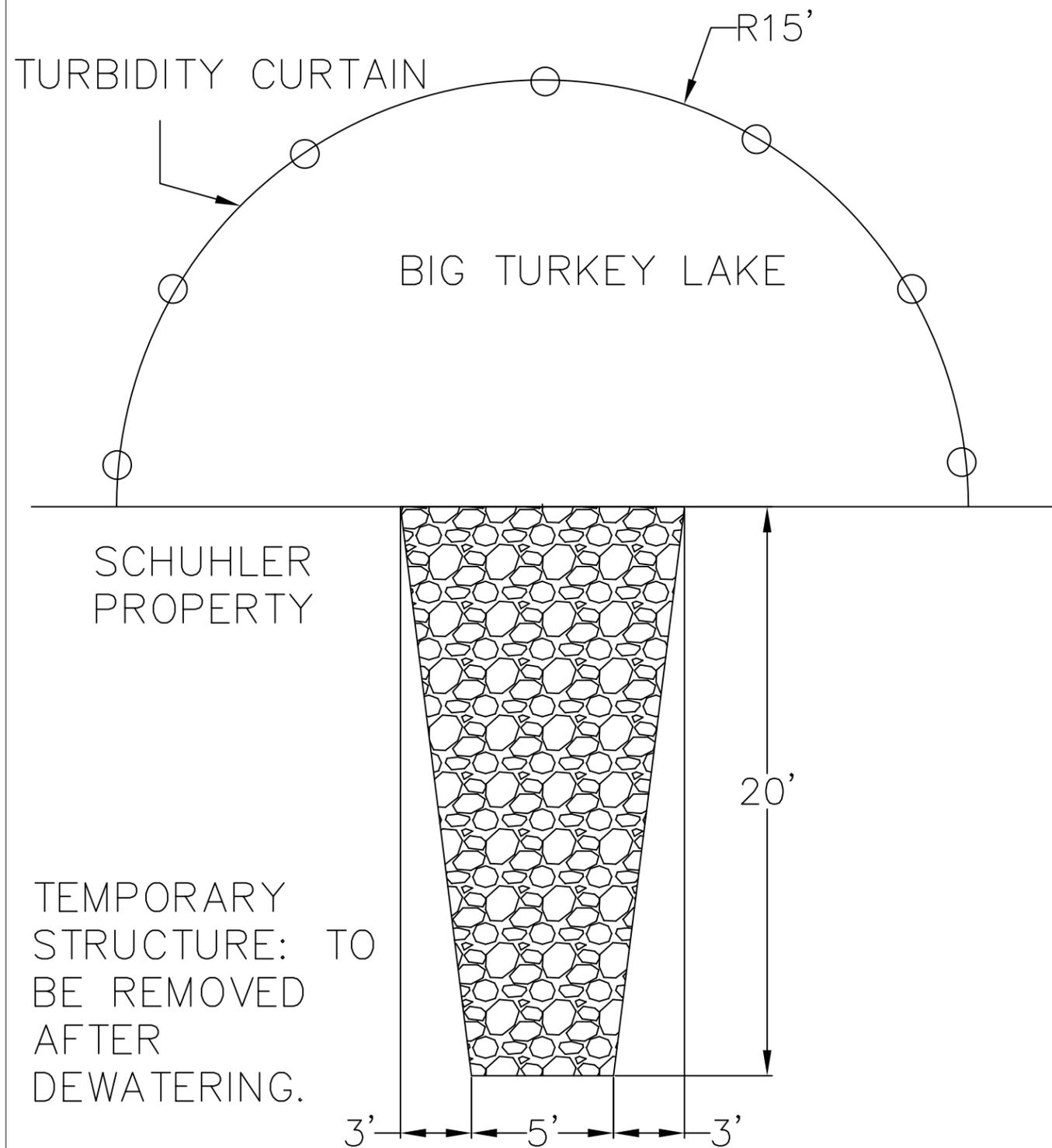
8.0 PROJECT SUMMARY

The Big Turkey Lake Sediment Trap Project will include the construction of a sediment trap in Big Turkey Lake at the outlet of Turkey Creek and a dewatering basin on the adjacent landowner's property to the west. Construction of the sediment trap will reduce suspended sediments from Turkey Creek and intercept the majority of bed load. Construction is expected to begin during the Fall 2004.

¹Harza. 1990. Big Turkey and Little Turkey Lake Enhancement Feasibility Study. IDNR – Division of Soil Conservation, Indianapolis, Indiana.

APPENDIX A.
Sediment Trap and Dewatering Basin Design Drawings

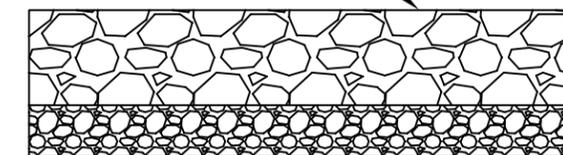
REVISIONS:		
1	5/18/04	CONSTRUCTION SET
		DJL



TURBIDITY CURTAIN NOTES:

1. A QUALIFIED ENGINEER OR CERTIFIED PROFESSIONAL IN EROSION AND SEDIMENT CONTROL (CPESC) SHOULD ASSESS THE SITE CONDITIONS TO ENSURE THE PROPER TYPE OF TURBIDITY CURTAIN IS SELECTED AND INSTALLED.
 2. THE CURTAIN WILL BE ANCHORED TO THE BANK AND ANCHORS PLACED AT JOINTS WHERE NECESSARY.
 3. THE LOWER EDGE OF THE BARRIER SHOULD BE 12" ABOVE THE STREAM BOTTOM. FLOTATION DEVICES ARE USED TO KEEP THE CURTAIN SUSPENDED IN THE WATER.
 4. THE CURTAIN CAN BE USED IN SHALLOW WATERS WITHOUT FLOTATION DEVICES, HELD BY STAKES NOT MORE THAN 6 FEET APART.
 5. TURBIDITY CURTAIN SHOULD BE INSTALLED PARALLEL, NOT PERPENDICULAR TO STREAM FLOW.
- MAINTENANCE:**
- A. REMOVE SEDIMENT BUILDUP AS NECESSARY.
 - B. FREQUENTLY CHECK THE ANCHORS AND JOINTS TO ENSURE THEY ARE FUNCTIONING PROPERLY.

ANGULAR RIPRAP 6-12" DIA., 18" DEPTH



Corporate Office
708 Roosevelt Road
Walkerton, Indiana 46574
574-586-3400 fax 574-586-3446

Cincinnati Office
8080 Beckwith Center Dr., Suite 226
West Chester, Ohio 45069
513-942-3446 fax 513-942-3447

Brook Office
722 West Exchange, Suite 4
Crest, Illinois 60417
708-357-1130 fax 708-357-1132

Indianapolis Office
6640 Parkside Place, Suite 5
Indianapolis, Indiana 46254
317-388-1982 fax 317-388-1986

Michigan Office
600 South Beacon
Grand Haven, Michigan 49417
616-847-1680 fax 616-847-6970



BIG TURKEY LAKE SEDIMENT TRAP
STUBEN COUNTY, INDIANA
PROPOSED SEDIMENT TRAP- OUTFALL DETAIL

DRAWN BY: JAE
DESIGNED BY: JR
CHECKED BY: DJL
DATE: 19 FEB 2004
JOB NO: 000803
SCALE: AS NOTED

01-SITE 000803.DWG

DRAWING NO.

2

OF 2

APPENDIX B.
Permits

Permits are not included with the electronic version of this report. Copies of the project permits can be obtained from the Indiana Department of Natural Resources Division of Fish & Wildlife Lake and River Enhancement Section.

APPENDIX C.
Landowner Agreement

**AGREEMENT FOR THE PURPOSE OF ACCESS
FOR CONSTRUCTION AND MAINTENANCE OF
THE TURKEY CREEK SEDIMENT TRAP**

This Agreement, made and entered into on this _____ day of November 2004, by and between Richard and Betty Schuhler (THE OWNER) and the Big Turkey Lake Improvement 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 Salem Township, Steuben County, Indiana in the N1/2, S1/2 of Section 18, Township 36 North, Range 12 East and more particularly described on the attached plan sheet, attached as Exhibit AA≡ (hereinafter after referred to as the AProperty≡) and does grant to THE ASSOCIATION access to said Property for construction and maintenance of Turkey Creek.

WHEREAS, THE ASSOCIATION is a not-for-profit Indiana Corporation which is dedicated to improving the water quality of Big and Little Turkey Lakes, located in Steuben and LaGrange 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 Big Turkey Lake, located in Steuben and LaGrange County, Indiana; and

WHEREAS, THE OWNER is in agreement with THE ASSOCIATION=s desire to improve the water quality of Big Turkey Lake.

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 Ten Dollars (\$10.00) 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 10 years (10). 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, if needed, to Turkey Creek as defined on the engineering drawings for the Turkey Creek bank stabilization project.

C. THE OWNER grants to THE ASSOCIATION access, as delineated specifically on the attachment marked AExhibit 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 sediment trap and disposal area. 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 the recreational 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 sediment trap and disposal basin and the eventual leveling and revegetation of the disposal area. 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 sediment trap 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 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 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 guard rails 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, agrees 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:

Richard and Betty Schuhler
10410 W 475 S
Hudson, IN 46747

President – Big Turkey lake Improvement Association
P.O. Box 186
Stroh, IN 46789

11. AGENTS. Where in this instrument rights are given to the Big Turkey Lake Improvement 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 Big Turkey Lake, Kosciusko or LaGrange County(s), Indiana.

19. This Agreement or a Memorandum thereof shall be recorded in the Office of the Recorder of Kosciusko 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, Betty and Richard Schuler, THE OWNER(s), and Stanley Poeppel, current President of THE ASSOCIATION, have caused this Agreement to be executed on the day and year above first written with the following signatures.

Notary:

County of:
My commission expires on:

THE OWNER

THE OWNER

ATHE OWNER≡

BIG TURKEY LAKE IMPROVEMENT
ASSOCIATION ATHE ASSOCIATION≡

BY:

President – Stanley Poeppel

Witness:

APPENDIX D.
Sediment Characterization

Sediment characterization information is not included with the electronic version of this report. Copies of the sediment characterization can be obtained from the Indiana Department of Natural Resources Division of Fish & Wildlife's Lake and River Enhancement Section.

APPENDIX E.
Bid Documents and Specifications

Bid Documents and Specifications: Section 1

INVITING BIDS FOR BIG TURKEY LAKE SEDIMENT TRAP PROJECT AT BIG TURKEY LAKE, STROH, INDIANA

Pursuant to I.C. 5-3-1 the Big Turkey Lake Improvement Association (Owner), Lagrange and Steuben Counties, Indiana, will receive bid proposals until 4:00 pm on June 30, **2004** at the location stated below for the construction of the: **“BIG TURKEY LAKE SEDIMENT TRAP PROJECT”**.

Bids shall be submitted on the enclosed documents. After a satisfactory bid is received the Big Turkey Lake Improvement Association shall award a contract to the lowest responsible and responsive bidders.

Pursuant to I.C. 36-1-12-4(10), in determining whether a bidder is responsive the Big Turkey Lake Improvement Association 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) Whether the bidder has complied with all applicable statutes, ordinances, resolutions, or rules pertaining to the award of a public contract.

Pursuant to I.C. 36-1-12-4(11), in determining whether a bidder is a responsible bidder, the Big Turkey Lake Improvement Association may consider the following factors:

- (1) The ability and capacity of the bidder to perform the work.
- (2) The integrity, character, and reputation of the bidder.
- (3) The competency and experience of the bidder.

Bids shall be submitted to:

**The BIG TURKEY LAKE IMPROVEMENT ASSOCIATION
C/o Stanley Poeppel, President
240 Turkey Lake Lane 201
Hudson, IN 46747**

Bid Documents and Specifications: Section 2

INSTRUCTIONS TO BIDDERS

TITLE AND LOCATION OF THE WORK: The work on this contract is identified as: **Big Turkey Lake Sediment Trap Project**, located on the north side of County Road 475 South in Stroh, Indiana.

SPECIFICATIONS: Specifications to be used in the construction of this project are contained herein.

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 contract documents.

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.

AWARD OF THE CONTRACT: After a satisfactory bid is received the Big Turkey Lake Improvement Association shall award a contract to the lowest responsible and responsive bidders on or before August 30, 2004.

Bid Documents and Specifications: Section 3

BIDDERS LUMP SUM PROPOSAL

Stroh, 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: **BIG TURKEY LAKE SEDIMENT TRAP PROJECT**

Date: _____

To: **BIG TURKEY LAKE IMPROVEMENT ASSOCIATION**
C/O Stanley Poeppel
240 Turkey Lake Lane 201
Hudson, IN 46747

PART 1
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. _____

Bid - 1

PART 2
PROPOSAL (BID)

2.1 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 incident thereto in strict accordance with and within the time(s) provided by the terms and conditions of the Contract Documents for the work described on page 3 of this bid, including any and all addenda thereto, for the total sum of: _____

Dollars (\$ _____).

Signed the _____ day of _____, 2004

Bidder/Contractor - Signature

Name - Printed

Bid -2

PART 3
BID WORKSHEET

Item Number	Description	Quantity	Unit Price*	Amount
1	Hydraulic excavation of sediment trap including mobilization and demobilization, installation and removal of all required pipes and silt curtains to complete the project.	1 each		
2	Sediment dewatering basin construction, temporary seeding, outfall structure, silt fence, final grading and permanent seeding	1 each		

*Bid only on those items upon which you are qualified to bid.

PART 4
CONTRACT DOCUMENTS AND ADDENDA

- 4.1 The bidder agrees to be bound by the terms and provisions of all Contract Documents and incorporates such Contract Documents herein by reference.
- 4.2 The Bidder acknowledges receipt of the following addenda:

<u>Addendum Number</u>	<u>Date</u>
_____	_____
_____	_____

Bid Documents and Specifications: Section 4

CONTRACT

THIS AGREEMENT, made and entered into by and between the Big Turkey Lake Improvement Association, as party of the first part, hereinafter called the "Owner and _____", as party of the second party, hereinafter called the "Contractor"

WITNESSTH

That for and in consideration of the mutual covenants herewith enumerated, the Owner does hereby hire and employ the Contractor to furnish all materials, equipment and labor necessary to fully construct the work designated as follows:

BIG TURKEY LAKE SEDIMENT TRAP PROJECT STROH, INDIANA

According to the plans, standard specifications, supplemental specifications, profiles and drawings therefrom, and any supplemental or special provisions set out or referred to in the Contractor's attached Proposal, and hereby agrees to pay the Contractor therefor, for the actual amount of work done and materials in place, as measured and approved by the Engineer or duly authorized representative, for the lump sum price as stated in the Contractor's attached Lump Sum Bid Proposal dated _____, which sum the Contractor agrees to accept as full payment for such construction work; and

IT IS FUTHER MUTALLY AGREED:

That the accompanying Proposal together with the plans, standard and supplemental specifications and special provisions herein designated and referred to, are hereby made a part of the Contract the same as if herein fully set forth; and

That the Contract amount may be paid to the Contractor upon progress estimates of completed and approved work prepared by the Engineer, in an amount not exceed Eighty Five Percent (85%) of such estimates, Fifteen Percent (15%) shall be withheld by the Big Turkey Lake Improvement Association for a period sixty (60) days after the completion of the work, for the purpose of securing payment of all properly prepared and certified statements of indebtedness which shall have been filed against the Contractor for labor performed and materials furnished or other services rendered in carrying forward, performing and the completing of this contract, and such estimates shall also be subject to the provisions of the Standard Specifications on file in the office of the Owner and made a part hereof; and that before any estimate is paid to the Contractor, he shall furnish receipts for all debts incurred in the prosecution of such work or satisfactory evidence and assurance that the same have been paid; or shall consent to the withholding by Owner from his final estimate of sums sufficient to cover such indebtedness, which sums may be held until such indebtedness is settled, or until conclusion of any litigation in the relation thereto filed within such period; and that no monies due on this final estimate shall be paid until the work is fully completed and accepted as provided in the Specifications.

CONTRACT 1 OF 2

IN TESTIMONY WHEREOF, the Bidder has hereunto set his hand this _____ day of _____, 2004.

Contractor

By

IN TESTIMONY WHEREOF, the Big Turkey Lake Improvement Association does hereby accept the foregoing agreement and has herewith set their hands this day _____ of _____, 2004.

Big Turkey Lake Improvement Association
Stroh, Indiana

Stanley Poeppel, President

CONTRACT 2 of 2

Bid Documents and Specifications: Section 5

SECTION 5.1 DEFINITION OF BID ITEMS

GENERAL INFORMATION

DESCRIPTION

The intent of this section is to explain, in general, what is and what is not included in a bid item, and the limits or cut-off points where one bid item ends and another begins.

If no bid item exists for a portion of the work, include the costs in a related bid item.

BID ITEM NO. 1 – Hydraulic Dredging of Sediment Trap.

This bid item includes mobilization and demobilization of equipment and personnel, as well as performance of the work, including installing all required discharge and dewatering pipes, silt curtains, pumps, and dredging the area shown on the Drawings. The bid also includes removal of all such structures and equipment upon the completion of the work.

BID ITEM NO. 2 – Sediment Dewatering Basin.

This bid item consists of supplying and installing silt fence or approved equal erosion control measures and constructing and leveling the sediment dewatering basin and rock outfall structure as shown on the Drawings. The bid also includes all necessary mobilizations and demobilizations necessary to complete the work in a manner approved by the Owner.

SECTION 5.2
SUMMARY OF THE WORK

PART I - GENERAL

1.1 WORK COVERED BY CONTRACT DOCUMENTS

- A. The work includes all labor, equipment, and operators required to construct and/or install the sediment trap, sediment-dewatering basin, and rock outfall structure. Project work includes clearing and grubbing, excavating and grading, installation of rock, hydraulic dredging, and seeding and erosion control work.

- B. Contractor's Duties:
 - 1. Except as specifically noted, provide and pay for:
 - a. Labor and equipment.
 - b. Tools, construction equipment and machinery.
 - c. Water, restroom facilities, and utilities required for construction.
 - d. Other facilities and services necessary for proper execution and completion of work.

 - 2. Additional duties that will be required include:
 - a. Notification to Owner of construction activity.
 - d. Safety of employees on job site.
 - c. Local work permits.

1.2 CONTRACTS:

- A. Construct work under single lump sum contract.

1.3 CONTRACTORS USE OF PREMISES:

- A. Confine access and operations at site to areas designated by the Owner.

- B. Do not unreasonably encumber neighbors with noise, materials or equipment.

- C. Assume full responsibility for protection and safekeeping of your equipment stored on premises.

1.4 PERMITS

- A. Owner is responsible for State and Federal permits.

- B. The Contractor shall obtain any local permits that relate to construction.

1.5 UTILITIES

- A. The Contractor is responsible for locating utilities prior to construction activities.
- B. Any existing utility systems that conflict with the construction of the work herein shall not be relocated. The Contractor shall work with the owner or his designated agent on site to resolve any conflicts regarding existing utilities. The Contractor shall not charge additional fees for work affected by existing utilities.

1.6 ACCESS BY OWNER

- A. The owner may access all work areas for the purposes of construction observation and compliance checks.
- B. Contractor shall provide:
 - 1. Access for owner.
 - 2. Access for all local, State, and Federal agency employees while performing inspections under the authority of permits granted.
 - 3. Access for other contractors, if required.

1.7 SECURITY

- A. The Contractor is responsible for the security of his equipment and workers.

1.8 CONSTRUCTION SITE ACCESS

- A. The Contractor shall be responsible for maintaining access roads used by Contractor's equipment or employees. The Contractor shall be responsible for leaving access roads in their pre-construction condition or better when work is completed.
- B. The Contractor shall be responsible for repairing all access staging and work areas to their pre-construction condition unless otherwise directed by owner or his representative in writing.

PART 2 - PAYMENT

2.1 BASIS OF PAYMENT

- A. There will be no separate payment work addressed in this section. The cost of this work is to be included by the Contractor in the total cost of the project.

**SECTION 5.3
CLEARING AND GRUBBING**

PART I - GENERAL INFORMATION

1.1 DESCRIPTION

- A. This work shall consist of clearing, grubbing, removing, and disposing of all vegetation and debris within the limits of construction as designated by the owner (Big Turkey Lake Improvement Association). This work shall include the prevention of injury or defacement of all vegetation or other objects designated to remain within the project area.

PART 2 - CONSTRUCTION REQUIREMENTS

2.1 GENERAL

- A. Right-of-way lines and construction lines will be established. Trees, shrubs, buildings, and fences to remain are shown on the plans and shall be preserved by the Contractor.
- B. Any damage to existing trees, shrubs, and fences designated to remain shall be repaired or replaced with no additional payment.

2.2 CLEARING AND GRUBBING

- A. Stumps, railroad ties, metal, concrete structures, wooden debris and other protruding debris not designated to remain within necessary travel lanes and stockpile areas shall be cleared and grubbed. Undisturbed concrete and other solid objects may be left provided that they are a minimum of one (1) foot below the final grade. The Contractor shall not be permitted to bury or burn cleared materials on the project site.
- B. The contractor shall not burn any materials on the construction site.
- C. Excavated materials and debris described above shall be removed from the project site and disposed of at locations off site. Written permission shall be obtained from the property owner on whose property the materials and debris are to be placed. Materials and debris shall not be disposed of in wetlands.

**SECTION 5.4
EXCAVATION AND GRADING**

PART 1 - GENERAL

1.1 DESCRIPTION

- A. This section includes excavation and earthmoving associated with the sediment dewatering basin and rock outfall structure not covered by other sections. The construction shall be in accordance with these Specifications and in reasonably close conformance with the lines, grades, and thickness shown in the Plans.

1.2 QUALITY ASSURANCE

- A. Contractor shall use materials designated by the design engineer or approved equals.
- B. The contractor shall use skilled operators and workman.

PART 2 - MATERIALS

2.1 SOIL

- A. Soil used for the construction of the dewatering basin berms shall conform to the following:
 - 1. Available on site.
 - 2. Contains no particles larger than four (4) inches in diameter except naturally occurring rock.
 - 3. Shall be compacted to 87-95% density.

2.2 RETURN WATER PIPES

- A. The return water pipe(s) will be sized such that water does not back up within the basin during dredge material discharge, thus causing the basin to overflow.
- B. Contractor shall work with the dredging operator to install the dewatering pipes as needed.

2.3 SEED

- A. Temporary Seed shall be a mixture of 50 pounds of seed oats and 25 pounds annual rye per acre of disturbance.
- B. Permanent Seed shall be 50 pounds of seed oats, 25 pounds of annual rye and 50 pounds of perennial rye per acre of disturbance.

PART 3 - EXECUTION

3.1 SEDIMENT BASIN CONSTRUCTION

- A. The dewatering basin shall be finished to reasonably smooth and uniform surfaces. Excavation operations shall be conducted so that material outside the limits of slopes will not be disturbed.
- B. All spongy and yielding material, which will not readily compact, shall be removed from the dewatering basin berm and stockpiled outside of the basin.
- C. The earthen berm shall be free of stumps, roots, brush, weeds, or other perishable materials that would compromise the integrity of the dewatering basin.
- D. All areas disturbed for the construction of the dewatering basin shall be protected from erosion at the end of each workday with temporary seed as specified.

3.3 RETURN WATER PIPES

- A. Return water pipes shall be installed in a manner that prevents leakage that would cause large standing pools of return water or erosion on the property. The owner and the dredging contractor shall determine installation method and placement.

3.4 PROTECTION AND MAINTENANCE

- A. General: Protect newly graded areas from erosion with temporary seeding. Any settlement or washing that occurs prior to finishing the slope protection shall be repaired and grades reestablished to the required elevations and slopes.
- B. It shall be the Contractor's responsibility to comply with all state and local erosion control ordinances and the requirements set out in these specifications.
- C. No less than six months after dredging has been completed, return water pipes will be removed, the basin will be leveled, graded to match the surrounding topography, and all disturbed areas seeded with permanent seed. Additionally all areas outside the work limits disturbed by the Contractor during the execution of his work shall be returned to as near its original condition as possible.

PART 4 - PAYMENT

4.1 METHOD OF MEASUREMENT

- A. There will be no measurement of excavation and grading.

4.2 BASIS OF PAYMENT

- A. There will be no separate payment for excavation and grading. The cost of topsoil stripping, excavating, transporting, placing and compacting embankment material and any seeding or maintenance of eroded areas shall be included in the lump sum Contract Items and no separate payment will be made thereof.

SECTION 5.5 STONE

PART I - GENERAL INFORMATION

1.1 DESCRIPTION

- A. This work shall include installation of rock in accordance with these specifications and in conformance with the plans and cross sections, unless otherwise directed by the owner.

1.2 QUALITY ASSURANCE

- A. Use equipment adequate in size, capacity, and number to accomplish the work of this Section in a timely manner. Comply with requirements of all governmental agencies having jurisdiction.
- B. Rock shall be generally free of soil, organic debris, and other foreign matter.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Material requirements for this section include rock for outfall construction as indicated on the Drawings.
- B. Stone shall be sized as indicated on plans.

PART 3 - CONSTRUCTION REQUIREMENTS

3.1 CONSTRUCTION REQUIREMENTS

- A. The rock shall be placed at locations shown on the plans or as directed by the Owner. It shall be placed to produce a surface of approximate regularity but need not necessarily be hand placed. The thickness shall be as shown on the plans for each rock type.
- B. Rock shall be compacted in place using the bucket of the backhoe so that voids are reduced to less than five percent of the rock volume.

PART 4 - PAYMENT

4.1 METHOD OF MEASUREMENT

- A. Stone or rock will not be measured.

4.2 BASIS OF PAYMENT

- A. There will be no separate payment for providing and placing rock. The cost of this work is to be included in the total cost of the contract.

SECTION 5.6 SEEDING

PART I - GENERAL INFORMATION

1.1 DESCRIPTION

- A. This work shall include temporary seeding of the sediment dewatering basin berm side slopes and permanent seeding and straw mulching of all disturbed areas after construction is complete.

1.2 QUALITY ASSURANCE

- A. The finished product shall be judged based upon the minimum percentage of cover achieved after two weeks. The contractor will be required to obtain a minimum of 75% coverage during the first growing season after construction.

PART 2 - PRODUCTS

2.1 SEED MIXTURE

- A. The following seed shall be used for all sediment dewatering berm side slopes and disturbed areas. It is intended to provide temporary erosion control during and immediately following construction. The seed mixture shall consist of 50 pounds seed oats and 25 pounds annual rye per acre of disturbance for temporary seeding and shall consist of the same mix plus 50 pounds per acre of perennial rye for all disturbed areas following construction.
- B. Straw mulch shall be clean wheat or oat straw.

PART 3 - CONSTRUCTION REQUIREMENTS

3.1 PREPARATION OF GROUND BEFORE SEEDING

- A. The area to be seeded should be made smooth and uniform and shall conform to the existing grade. No soil preparation shall commence when the soil is in a wet or muddy condition.

3.2 SEEDING AND MULCHING

- A. Seed may be hand broadcast, hydro-seeded, or installed with a no-till drill.
- B. Straw shall be blown or hand broadcast at a rate of 50 bales per acre. Mulching is only required after permanent seeding has been completed.

3.3 SEASONAL LIMITATIONS

- A. Temporary seeding should be performed immediately following sediment dewatering basin construction. Permanent seeding shall occur immediately following restoration of disturbed areas to original conditions and only during the period of September 15 to July.

PART 4 - PAYMENT

4.1 METHOD OF MEASUREMENT

- A. Area of seeding will not be measured.

4.2 BASIS OF PAYMENT

- A. There will be no separate payment for seeding. The cost of this work is to be included by the Contractor in the total cost of the contract.

SECTION 5.7 EROSION CONTROL

1.1 DESCRIPTION

A. Erosion control is required for all work. Soil erosion control consists of mechanical and vegetative type measures taken by the Contractor to prevent erosion of soil during the construction process. It shall be the responsibility of the Contractor during construction to prevent such detrimental soil erosion from occurring during the prosecution of the work. This section includes temporary and permanent erosion control practices to be implemented on the project site. The Contractor shall be responsible to comply with all aspects of 327 IAC 15-5, Rule 5, "Storm Water Run-Off Associated with Construction Activity". The Contractor shall submit all necessary fees and documents to the Indiana Department of environmental Management (IDEM) prior to any construction activity. The Contractor shall be responsible for compliance with this Law throughout the construction period and shall pay any and all fines resulting from any violation, suit or penalty for non-compliance.

2.1 MATERIALS

- A. Silt fence material shall be a woven geotextile that is a minimum of 2.0 feet in height.
- B. Mulch shall be dry oat or wheat straw, generally free of weeds and mold

3.1 CONSTRUCTION

- A. Silt fence shall be installed between the sediment dewatering basin and existing wetlands located on-site. Silt fence protection is only intended to be temporary and shall be removed upon project completion. A two-foot high earthen berm shall be an acceptable substitute for silt fence; however, it must be seeded or mulched.
- B. Erosion control materials consisting of straw mulch, if required, shall be applied at a rate of 50 bales/acre.

PART 4 - PAYMENT

4.1 BASIS OF PAYMENT

- A. No measurement will be made for erosion control measures required in this specification. There will be no payment for soil erosion control measures taken by the Contractor. Payment for erosion control is considered incidental and the Contractor shall include such costs in the lump sum contract.

SECTION 5.8 DREDGING

PART I - GENERAL INFORMATION

1.1 DESCRIPTION

- A. Hydraulic dredging will be used to construct the sediment trap. The sediment trap will match all grades and dimensions specified in the plans.

PART 2 - MATERIALS

- 2.1 The contractor will supply materials needed to complete all aspects of dredging and delivery of discharge materials to the dewatering basin
- 2.2 All piping shall be correctly sized and be conditioned to support the size of the dredging cutterhead and the speed of dredging.

PART 3 - CONSTRUCTION REQUIREMENTS

3.1 DREDGING

- A. The sediment trap will be constructed by hydraulic dredging. Sediment will be pumped into the basin as shown in the plans. Dredging will be to grades and dimensions as shown in the plans.
- B. Siltmaster Turbidity Curtain Type I or equivalent shall be installed in length and locations as indicated on the design drawings.

PART 4 - PAYMENT

4.1 BASIS OF MEASUREMENT

- A. The contractor shall submit as-built depth measurements of the channel to the owner after completion of the project. As-built measurements shall include a minimum of three cross section measurements every 50 feet along the designated area of the sediment trap (16 cross sections: 48 measurements). Measurements will be checked of the sediment basin for compliance with the design plans.

4.2 BASIS OF PAYMENT

- A. Payment for dredging will be made upon acceptance by owner that the work performed is in reasonable compliance with the design plans. Dredging payment is part of the lump sum contract.

Bid Documents and Specifications: Section 6

NOTICE TO PROCEED

Date: _____, 2004

To Contractor:

PROJECT: Big Turkey Lake Sediment Trap Project

You are hereby notified to proceed with the above referenced project and that Contract Time for the above contract will commence to run on _____, 20__. No later than that date, you are to start performing your obligations under the Contract Documents. In accordance with Article 3 of the Agreement (Contract), the dates of Substantial Completion and Final Completion are _____, 20__, and _____, 20__, respectively.

Before you may start any Work at the site, a copy of your Certificates of Insurance must be delivered to the Owner per the Contract Documents.

(OWNER)

By

Title