# OTTER LAKE SHORELINE EROSION CONTROL PROJECT

## Financial Assistance Agreement 3190709 November 3, 2009



Prepared by: Otter Lake Water Commission Dennis Ross, General Manager PO Box 468, Virden, IL 62690 (217) 965-1566

Prepared for: Illinois Environmental Protection Agency Bureau of Water Watershed Management Section 1021 North Grand Ave. East, P.O. Box 19276 Springfield, Illinois 62794-9276

This report was prepared using U.S. Environmental Protection Agency funds under Section 319 of the Clean Water Act distributed through the Illinois Environmental Protection Agency. The findings and recommendations herein are not necessarily those of the funding agencies.

## **Project Partners:**

Owner:	Otter Lake Water Commission Dennis Ross, General Manager PO Box 468, Virden, IL 62690 (217) 965-1566
Contractor:	Otter Lake Water Commission Dennis Ross, General Manager PO Box 468, Virden, IL 62690 (217) 965-1566
Funding: 60%	Illinois Environmental Protection Agency Illinois Clean Lakes Program and Section 319 Program P.O. Box 19276 Springfield, Illinois 62794-9276
Funding: 40%	Otter Lake Water Commission PO Box 468 Virden, IL 62690 (217) 965-1566

Otter Lake is located in Macoupin County Illinois; and is owned and operated by the Otter Lake Water Commission. The lake was built as a water supply for the towns of Auburn, Divernon, Girard, Pawnee, Thayer and Virden. In recent years the towns of Nilwood and Tovey were added as well as two water districts.

Otter Lake Data				
Surface Area	765 acres			
Maximum Depth	54 feet			
Average Depth	21 feet			
Storage Capacity	16,065 acre feet			
Watershed	12,992 acres			
Lake Type	Damned Stream			
Year Constructed	1968			
Public Access	Yes			

Otter Lake has experienced significant amounts of sediment accumulation and degrading of its shoreline. This situation has contributed to increased levels of phosphorus and manganese. Phosphorus is a nutrient source for algae.

Otter Lake has seen high counts of blue green algae in recent years. Further testing for 2 methylisoborneal (MIB) and geosmin were conducted confirming high counts of these taste and odor causing compounds. The presence of these compounds have increased both treatment expense and customer complaints. Reduction of phosphorus from nonpoint source pollution should reduce algae blooms on the lake. This project is one of many efforts being undertaken by the Water Commission to reduce nonpoint source pollution and in turn improve the finished water quality to the towns it serves.

A Phase One: Diagnostic-Feasibility Study of Otter Lake was completed in October 1999. A number of management practices were identified for implementation to improve water quality. The Commission applied to Illinois EPA for financial assistance to help with the implementation of some of the recommendations in the Phase One study. The IEPA awarded the Commission a Section 319 Grant reference number 3190709 to be fulfilled between the dates of August 27, 2007 and December 31, 2009 for shoreline stabilization and tree planting.

### **PROJECT INTRODUCTION**

According to the Phase One: Diagnostic-Feasibility Study of Otter Lake (Oct. 1999. Shun Dar Lin, William C. Bogner & Ramank Raman) Otter Lake had 160,102 feet of shoreline identified as severely to minimally eroded. The project proposed to stabilize 16,000 feet of shoreline using placement of riprap and bald cypress seedlings. All stabilization work would be done by the Commission using their own equipment.

A construction permit was obtained from the US Army Corp of Engineers, following guidelines of the General Permit. Permit number MVS-2009-233 was issued on April 28, 2009, copy attached to this report.

### **<u>RIP-RAP METHODS</u>**

Two basic rip-rap designs were selected for this project. The first being "Lean Revetment, the second is known as the "Breakwater with Transitional Wetland". Both methods require filter fabric to be installed and pinned prior to the placement of the rip-rap. Design schematics are included in this report. Hank Sutton, President of Macoupin Boat Works supplied the design for the Breakwater with Transitional Wetland; this is a technique that was used on Kinkaid Lake in southern Illinois. Most of the areas of installation on Otter Lake were far by better suited for the Breakwater method. While this method requires more rip-rap, the performance in areas with higher banks is unsurpassed. This method is impractical when laying rip-rap by hand.

Over the project period the Commission installed 14,063 tons of RR# rip-rap, approximately 827 barge loads. This rip-rap provided protection to 14,567 feet of shoreline. The average rate of rip-rap placed was 1 ton per foot of shoreline.

On May 30, 2007 the Commission took delivery of a mechanical barge for placing riprap for shoreline erosion control. This barge was also used in conjunction with the In-Lake Sedimentation Control Project (3190212).



Mechanical Barge being loaded with John Deere 210 Backhoe.



Mechanical Barge being loaded with Cat 928F Front End Loader.

During the first year of this project the Commission loaded the Mechanical Barge with an existing John Deere 210 backhoe. This two wheel drive backhoe was equipped with a 1 yard bucket, loading of the barge took approximately 17 scoops. The hopper on the Mechanical Barge holds 17 tons of RR3 rip-rap. While this method did produce results, it became apparent that loading time was excessive.



Pictured on left is the Cat 928F Front End Loader and the John Deere 210 backhoe is on the right.

On April 22, 2009 the Commission purchased a 1994 Cat 928F rubber tired front end loader. This loader is four wheel drive with a 3 yard bucket. Loading the barge is completed with 5 scoops using this loader. This improvement in equipment increased our production significantly.



Three man crew laying rip-rap along shoreline.



Operators cab on mechanical barge.

A three man crew was utilized in the project. One employee operated the mechanical barge. Including loading, piloting barge to the rip-rap site and unloading the barge. A second employee operated the "push boat". This small jon boat was used to move the barge laterally along the shore as the rip-rap was placed.



The push boat is used to position the mechanical barge when unloading.

While the barge operator can control the speed of the belt and the height of the drop, the position of the belt laterally must be done by hand. The third employee controls the end of the conveyor belt on the mechanical barge. This is accomplished by having the employee stand in the water, with steel toed hip waders, moving the fixed conveyor back and forth to control the placement of the rip-rap. This employee also operates the barge used to bring the filter fabric to the jobsite, also known as the "paper barge".



The conveyor belt is controlled side to side by hand while placing the rock.

While the mechanical barge is returning to the loading site, the other two employees make final hand adjustments of the rip-rap, clear brush or place filter fabric for the next load of rip-rap.



Installing filter fabric from paper barge.

## TREE PLANTING



Planting bald cypress trees in tubex tree shelters at the edge of the shoreline.

In addition to the rip-rap, 1,200 trees were also planted in conjunction with this project. Survival rates of these trees are being tracked.

Approximately, 800 Bald Cypress trees were planted at the waters edge with Tubex shelters. Planting of these trees has been an ongoing effort by the Commission. Past experience has shown first year rates to be very good, over 75 percent, but rates decline through year five. A reasonable expectation in the fifth year would be 50 percent.



Established water willows.

Water willows were transplanted from Beaver Dam State Park south of Carlinville, Illinois eight years ago with very positive results. The water willows have spread to several shallow water shorelines that would not have been high priority rip-rap areas. The trees planted in 2008 were purchased through the Macoupin County Soil and Water Conservation District, trees for 2009 were donated to the project.

Approximately, 400 assorted hardwood trees were also planted as an ongoing reforesting project. These trees are planted in areas where adjoining landowners have cleared Commission property. Clearings were done without the Commissions approval. The Commissions active roll on the lake coupled with several letters has minimized additional clearings. This has proven to be an effective method to deter this type of encroachment. While measuring the reduction of sediment loading may be impossible, some areas have seen reduction in paths used by ATV's. Maps detailing the location of trees planted is included with this report.



Bald cypress trees approximately 6 years old.

## PROJECT REIMBURSEMENT

	Project Cost	<u>OLWC 40%</u>	<u>IEPA 60%</u>
Agreement	\$394,316.00	\$157,726.00	\$236,590.00
Invoice #	Total	Match	Invoiced
# 1	8,773.07	3,509.23	5,263.84
#2	24,694.02	9,877.61	14,816.41
# 3	25,090.01	10,036.00	15,054.01
# 4	26,245.50	10,498.20	15,747.30
# 5	25,848.49	10,339.40	15,509.09
2009-01	4,187.29	1,674.92	2,512.37
2009-02	12,370.68	4,948.27	7,422.41
2009-03	53,505.11	21,402.04	32,103.07
2009-04	39,231.00	15,692.40	23,538.60
2009-05	71,284.40	28,513.77	42,770.63
2009-06	28,912.39	11,564.96	17,347.43
2009-07	51,398.85	20,559.55	30,839.30
2009-08	27,424.21	13,758.67	13,665.54
ΤΟΤΑ	L \$398,965.02	\$162,375.02	\$236,590.00

## EXAMPLES OF WORK PERFORMED



Shoreline area # 11 before rip-rap was laid.



Stabilized shoreline from area # 11.



Shoreline area # 10 before rip-rap was laid.



Stabilized shoreline from area # 10.



Shoreline area #9 before rip-rap was laid.



Stabilized shoreline from area # 9.



Shoreline area # 15 before rip-rap was laid.



Stabilized shoreline from area # 15.



Shoreline area # 13 before rip-rap was laid.



Stabilized shoreline from area # 13.

## **BANK STABILIZATION**

Shoreline	Feet of	Sediment	Phosphorus	Nitrogen
	Shoreline	Load	Load Reduction	Load
	Stabilized	Reduction	(lb/year)	Reduction
		(ton/year)		(lb/year)
Proctor Cove – Bank #1	115'	5	5	9
North Proctor Cove – Bank # 1	600'	48	48	96
North Proctor Cove – Bank # 2	1140'	18	18	36
South Proctor Cove – Bank # 1	450'	36	36	72
South Proctor Cove – Bank # 2	1272'	20	20	41
02-2009 Report – Bank # 1	532'	13	13	26
Bank A Area 1 – Bank # 1	324'	1	1	3
Bank A Area 2 – Bank # 1	303'	2	2	4
Bank A Area 4 – Bank # 1	576'	3	3	7
Bank A Area 6 – Bank # 1	490'	2	2	4
Area 8 – Bank # 1	300'	1	1	2
Area 8 – Bank # 2	332'	20	20	40
Bank A Area 13 – Bank # 1	243'	1	1	3
Bank A Area 14 – Bank # 1	600'	4	4	7
Bank A Area 14 – Bank # 2	216'	1	1	2
Bank A Area 15 – Bank # 1	550'	3	3	7
Bank A Area 15 – Bank # 2	330'	1	1	3
10/20/2009 Report – Bank # 1	2316'	4	4	7
10/20/2009 Report – Bank # 2	2870'	172	172	344
Area 13 – Bank # 1	195'	3	3	6
Area 13 – Bank # 2	309'	12	12	25
TOTAL	14,063'	370	370	744

### **SUMMARY**

Total dollars spent on this project were \$398,965.02, in an effort to ensure all grant funds were utilized the Commission slightly overfunded the project. The goal was to protect 16,000 feet of shoreline with this grant. Final numbers show 14,657 feet of shoreline were protected with RR3 rip-rap or 91% of the goal. The remaining 1,433 feet of shoreline were protected by the planting of 800 bald cypress trees and 400 hardwood trees. Each cypress tree will stabilize several feet of shoreline. However, time to reach maturity and survival rates will be factors.



Rip-rap laid by volunteers at Otter Lake Campground.

Additional shoreline work was done during this project by volunteers at the campgrounds. Campers were excited to see this project take form. They in turn agreed to lay rip-rap around boat docks, by hand. These areas were much too small to access with the mechanical barge. An additional 560 feet of shoreline were protected using this volunteer hand placement method.

A highlight of this project is the use of multiple state and federal programs and grants for a common cause. During the same timeframe of this Section 319 grant two other projects were underway. One, a NRCS Wildlife Habitat Improvement Project (NRCS-WHIP) grant on the forested area owned by the Commission surrounding Proctor Cove. The other project was a C-2000 project (# BRPSPG-07) on adjoining landowners property which was completed in August 2008. The NRCS-WHIP grant was awarded to the Commission to manage 125 acres of oakhickory woodlands, surrounding Proctor Cove, in a manner that protects and increases critical Redheaded Woodpecker habitat, promotes native plant communities and reduces nonpoint pollution impacts to water quality. The project included heavy mechanical clearing of invasive bush honeysuckle in the area east of Proctor Cove and hand clearing of the remaining areas around Proctor Cove. The purpose of C-2000 project was to restore oak-hickory woodlands in the Otter Lake watershed for the targeted wildlife species Redheaded Woodpecker, promote native plant communities, minimize agricultural non-point pollution impacts to water quality, and work with local landowners as well as government organizations to accomplish necessary watershed management goals. Total cost of this project was reported to be \$108,120 with matching funds provided by USFWS-Partners for Fish and Wildlife \$20,000, NRCS-WHIP \$34,590 and Pheasants Forever \$3,530. C-2000 funds provided the remaining \$50,000.

Both of these projects will improve wildlife habitat and restore the understory of areas immediately adjacent to Otter Lake. The improved understory will serve as a filter strip to reduce runoff entering Otter Lake.

Additional plans for Otter Lake Water Commission include two current Section 319 applications. The first would implement best management practices in the watershed as identified in the Hodges Creek Watershed TMDL Report (November 2006). The second application would continue shoreline erosion control on Otter Lake. An inventory of the entire shoreline is proposed for 2010. This inventory will quantify shoreline protected, shoreline needing protection, shoreline needing maintenance, and shoreline needing no work. This inventory will be used for future projects on Otter Lake. A Forest Management Plan has recently been completed for all properties (approximately 750 acres) owned by the Commission surrounding Otter Lake. This plan provides a step by step plan to manage these lands. Again the methods are different than this current Section 319 project, but the goals and results are very much in step. Multiple funding options will be considered for the Forest Management project.





West Campground Rip-rap Laid By Volunteers.



South East Campground Rip-rap Laid By Volunteers.



North Campground Rip-rap Laid By Volunteers.



Deep water areas requiring more than normal amounts of rip-rap.

Please fill in the <u>gray</u> areas only. <u>If estimating for just one bank, put "0" in areas for Bank #2.</u> Once you have successfully estimated the sediment and nutrient load reductions, please print a copy of this worksheet and attach it to the "BMP Application Form" for submittal to the Illinois EPA.

If you have any questions, please contact the Illinois EPA's NPS Unit at (217/782-3362).

**BMP Number:** 

	Example
3190709	3199802001
Proctor (	Cove 2007

C Silty clay loam, silty clay

C (Clay loam

C C Organic

C ( Clay

#### Please select a soil textural class:

C (	Sands	. loamv	sands
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C (Sandy loam

- C C Fine sandy loam
- C < Loams, sandy clay loams, sandy clay
- C C Silt loam

Parameter Length (ft) Height (ft) Lateral Recession Rate (ft/yr)*		Bank #1	Bank #2	Example	٦
		115 2 0.5	0 0 0	500 15 0.5	
					1
Soil P Conc (lb/lb soil)**	DEFAULT -	0.0005	0.0005	0.0005	]••
Soil N Conc (lb/lb soil)**	DEFAULT -	0.001	0.001	0.001	7

\*Lateral Recession Rate (LRR) is the rate at which bank deterioration has taken place and is measured in feet per year. This rate may not be easily determined by direct measurement. Therefore best professional judgement may be required to estimate the LRR. Please refer to the narrative descriptions in Table 1.

\*\* indicates default values for P and N soil concentrations

Table 1

LRR (ft/yr	Category	Description
0.01 - 0.05	Slight	Some bare bank but active erosion not readily apparent. Some rills but no vegetative overhang.
0.06 - 0.2	Moderate	Bank is predominantly bare with some rills and vegetative overhang.
0.3 - 0.5	Severe	Bank is bare with rills and severe vegetative overhang. Many exposed tree roots and
		some fallen trees and slumps or slips. Some changes in cultural features such as
		fence corners missing and realignment of roads or trails. Channel cross-section
		becomes more U-shaped as opposed to V-shaped.
0.5+	Very Severe	Bank is bare with gullies and severe vegetative overhang. Many fallen trees, drains
	-	and culverts eroding out and changes in cultural features as above. Massive slips or
		washouts common. Channel cross-section is U-shaped and streamcourse or gully
		may be meandering.

Source: Steffen, L.J. 1982. Channel Erosion (personal communication), as printed in "Pollutants Controlled Calculation and Documentation for Section 319 Watersheds Training Manual," June 1999 Revision; Michigan Department of Environmental Quality - Surface Water Quality Division - Nonpoint Source Unit. EQP 5841 (6/99).

	Bank #1	Bank #2	Total
Sediment Load Reduction (ton/year)	5	1	6
Phosphorus Load Reduction (Ib/year)	5	1	6
Nitrogen Load Reduction (lb/yr)	9	1	10

Please fill in the <u>grav</u> areas only. If <u>estimating for just one bank</u>, <u>put "0" in areas for Bank #2.</u> Once you have successfully estimated the sediment and nutrient load reductions, please print a copy of this worksheet and attach it to the "BMP Application Form" for submittal to the Illinois EPA.

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BMP Number:

	Example
319 07 09	3199802001
Proctor	Cove
north of North	n Campgrnd

G C Silty clay loam, silty clay

C ( Clay loam

C (Clay C (Organic

#### Please select a soil textural class:

<ul> <li>Coands, Ioanny Sands</li> </ul>	C (	Sands	loamv	sands
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- C C Sandy loam
- C < Fine sandy loam
- C + Loams, sandy clay loams, sandy clay
- C (Silt loam

Parameter		Bank #1	Bank #2	Example	T
Length (ft) Height (ft) Lateral Recession Rate (ft/vr)*		600	1140 2 0.2	500 15 0.5	
		4			7
		0.5			
Soil P Conc (ib/ib soil)**	DEFAULT -	0.0005	0.0005	0.0005	<b>-</b>  ••
Soil N Conc (lb/lb soil)**		0.001	0.001	0.001	<b>-</b> ••

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		fence corners missing and realignment of roads or trails. Channel cross-section
		becomes more U-shaped as opposed to V-shaped.
0.5+	Very Severe	Bank is bare with guillies and severe vegetative overhang. Many fallen trees, drains
	-	and culverts eroding out and changes in cultural features as above. Massive slips or
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	Bank #1	Bank #2	Totai
Sediment Load Reduction (ton/year)	48	18	66
Phosphorus Load Reduction (lb/year)	48	18	66
Nitrogen Load Reduction (Ib/yr)	96	36	132

Please fill in the gray areas only. If estimating for just one bank, out "0" in areas for Bank #2... Once you have successfully estimated the sediment and nutrient load reductions, please print a copy of this worksheet and attach it to the "BMP Application Form" for submittat to the Illinois EPA.

If you have any questions, please contact the Illinois EPA's NPS Unit at (217/782-3382).

**BMP Number:** 

#### Example 319 07 09 3199802001 Proctor Cove South side of cove

( Silty clay loam, silty clay

C (Clay loam C (Clay

C ( Organic

#### Please select a soil textural class:

- C ( Sands, loamy sands
- C (Sandy loam
- C < Fine sandy loam
- C Loams, sandy clay loams, sandy clay
- C ⊂ Silt loam

Parameter		Bank #1	Bank #2	Example	
Length (ft)		450 4	1272 2	500 15	1
Height (ft)					
Lateral Recession Rate (ft	/yr)*	0.5	0.2	0.5	1
Soil P Conc (lb/lb soil)**	DEFAULT -	0.0005	0.0005	0.0005	7
Soil N Conc (lb/lb soil)**	DEFAULT -	0.001	0.001	0.001	7++

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	Bank #1	Bank #2	Total
Sediment Load Reduction (ton/year)	36	20	56
Phosphorus Load Reduction (lb/year)	36	20	56
Nitrogen Load Reduction (ib/yr)	72	41	113

Please fill in the gray areas only. If estimating for just one bank, put "0" in areas for Bank #2.\_\_\_ Once you have successfully estimated the sediment and nutrient load reductions, please print a copy of this worksheet and attach it to the "BMP Application Form" for submittal to the Illinois EPA.

If you have any questions, please contact the Illinois EPA's NPS Unit at (217/782-3362).

**BMP Number:** 

3190212	3199602001
Report da	ited 02-09

Evennie

G C Sitty clay loam, sitty clay

C Clay loam C ( Clay

C ( Organic

#### Please select a soil textural class:

$\cap$	Sands,	loamy	sands
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C C Sandy loam

○ Fine sandy loam

C ( Loams, sandy clay loams, sandy clay

C ← Silt loam

Parameter		Bank #1	Bank #2	Example	٦.
Length (ft)		532	0	500	7
Height (ft)		2	0	15	
Lateral Recession Rate (ft	/yr)*	0.3	0	0.5	٦
Soil P Conc (lb/lb soil)**	DEFAULT	0.0005	0.0005	0.0005	٦.
Soil N Conc (lb/lb soil)**	DEFAULT -	0.001	0.001	0.001	٦.

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Steffen, L.J. 1982. Channel Erosion (personal communication), as printed in \*Pollutants Controlled Source. Calculation and Documentation for Section 319 Watersheds Training Manual," June 1999 Revision; Michigan Department of Environmental Quality - Surface Water Quality Division - Nonpoint Source Unit. EQP 5841 (6/99).

	Bank #1	Bank #2	Total
Sodiment Load Reduction (tonhear)	13	4	14
Seument Load Reduction (willyear)	13		14
Phosphorus Load Reduction (lb/year)	13	1	14
Nitrogen Load Reduction (Ib/yr)	26	1	27

Please fill in the <u>grav</u> areas only. If <u>estimating for lust one bank</u>, <u>put "0" in areas for Bank #2.</u> Once you have successfully estimated the sediment and nutrient load reductions, please print a copy of this worksheet and attach it to the "BMP Application Form" for submittal to the Illinois EPA.

If you have any questiona, please contact the Illinois EPA's NPS Unit at (217/782-3362).

Example
319 07 09 3199802001
Bank "A"
Area #1

#### Please select a soil textural class:

**BMP Number:** 

<ul> <li>Sands, loamy sands</li> <li>Sandy loam</li> <li>Fine sandy loam</li> <li>Loams, sandy clay loams, sandy clay</li> <li>Silt loam</li> </ul>	<ul> <li>✓ Clay loam, silty clay</li> <li>✓ Clay loam</li> <li>✓ Clay</li> <li>✓ Clay</li> <li>✓ Clay</li> <li>✓ Crganic</li> </ul>
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Parameter		Bank #1	Bank #2	Example	٦.
Length (ft)		324	0	500	1
Height (ft)		2	0	15	1
Lateral Recession Rate (fl	/yr)*	0.05	0	0.5	1
Soit P Conc (lb/lb soil)**	DEFAULT -	0.0005	0.0005	0.0005	7
Soil N Conc (lb/lb soil)**	DEFAULT -	0.001	0.001	0.001	

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0.5+	Very Severe	Bank is bare with gullies and severe vegetative overhang. Many fallen trees, drains and culverts eroding out and changes in cultural features as above. Massive slips or washouts common. Channel cross-section is U-shaped and streamcourse or gully may be meandering.

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·····	Bank #1	Bank #2	Total
Sediment Load Reduction (ton/year)	1	1	2
Phosphorus Load Reduction (lb/year)	1	1	2
Nitrogen Load Reduction (lb/yr)	3	1	4

Please fill in the <u>grav</u> areas only. If <u>estimating for just one bank</u>, <u>put "0" in areas for Bank #2</u>. Once you have successfully estimated the sediment and nutrient load reductions, please print a copy of this worksheet and attach it to the "BMP Application Form" for submittal to the Illinois EPA.

If you have any questions, please contact the Illinois EPA's NPS Unit at (217/782-3382).

BMP Number:

<u>ः ः ः ः</u>

07 09 319980200 Bank "A"
Bank "A"

#### Please select a soil textural class:

Cands, loamy sands	Silty clay loam, silty clay
< Sandy loam	C ( Clay loam
Fine sandy loam	C ( Clay
<ul> <li>Loams, sandy clay loams, sandy clay</li> </ul>	C C Organic
<ul> <li>Silt loam</li> </ul>	-

Parameter		Bank #1	Bank #2	Example	٦
Length (ft)		303	0	500	
Height (ft)		3	0	15	1
Lateral Recession Rate (ft	/yr)*	0.05	0	0.5	1
Soil P Conc (lb/lb soil)**	DEFAULT -	0.0005	0.0005	0.0005	7
Soil N Conc (lb/b soil)**	DEFAULT -	0.001	0.001	0.001	7

"Lateral Recession Rate (LRR) is the rate at which bank deterioration has taken place and is measured

in feet per year. This rate may not be easily determined by direct measurement. Therefore best professional

judgement may be required to estimate the LRR. Please refer to the narrative descriptions in Table 1.

\*\* indicates default values for P and N soli concentrations

#### Table 1

	T]Category	Description
<u>0.01 - 0.0</u>	5 Slight	Some bare bank but active erosion not readily apparent. Some rills but no vegetative overhand
0.06 - 0.2	Moderate	Bank is predominantly bare with some rills and vegetative overhand.
0.3 - 0.5	Severe	Bank is bare with rills and severe vegetative overhang. Many exposed tree roots and some failen trees and slumps or slips. Some changes in cultural features such as fence corners missing and realignment of roads or trails. Channel cross-section becomes more U-shaped as opposed to V-shaped.
0.5+	Very Severe	Bank is bare with gullies and severe vegetative overhang. Many fallen trees, drains and culverts eroding out and changes in cultural features as above. Massive slips or washouts common. Channel cross-section is U-shaped and streamcourse or gully may be meandering.

Source: Steffen, L.J. 1982. Channel Erosion (personal communication), as printed in "Pollutants Controlled Calculation and Documentation for Section 319 Watersheds Training Manual," June 1999 Revision; Michigan Department of Environmental Quality - Surface Water Quality Division - Nonpoint Source Unit. EQP 5841 (6/99).

	Bank #1	Bank #2	Total
Sediment Load Reduction (ton/year)	2	1	3
Phosphorus Load Reduction (Ib/year)	2	1	3
Nitrogen Load Reduction (ib/yr)	4	1	5

Please fill in the <u>grav</u> areas only. If <u>estimating for just one bank</u>, <u>put "0" in areas for Bank #2.</u> Once you have successfully estimated the sediment and nutrient load reductions, please print a copy of this worksheet and attach it to the "BMP Application Form" for submittal to the Illinois EPA.

If you have any questions, please contact the Illinois EPA's NPS Unit at (217/782-3362).

BMP Number:

	Example
319 07 09	3199602001
Bank	"A"
Area	#4

#### Please select a soil textural class:

	<ul> <li>Sands, loamy sands</li> <li>Sandy loam</li> <li>Fine sandy loam</li> <li>Loams, sandy clay loams, sandy clay</li> <li>Silt loam</li> </ul>	<ul> <li></li></ul>
<b></b>		

Parameter		Bank #1	Bank #2	Example	٦
Length (ft)		576	0	500	1
Height (ft)		3	0	15	
Lateral Recession Rate (ft	/yr)*	0.05	0	0.5	1
Soil P Conc (lb/lb soil)**	DEFAULT -	0.0005	0.0005	0.0005	<b>-</b>
Soil N Conc (lb/lb soil)**	DEFAULT -	0.001	0.001	0.001	<b>-</b>

"Lateral Recession Rate (LRR) is the rate at which bank deterioration has taken place and is measured

in feet per year. This rate may not be easily determined by direct measurement. Therefore best professional

judgement may be required to estimate the LRR. Please refer to the narrative descriptions in Table 1.

\*\* indicates default values for P and N soil concentrations

Table 1

LRR (ft/yr]C	ategory	Description
0.01 - 0.05 SI	light	Some bare bank but active erosion not readily apparent. Some rills but no vegetative overhand
0.06 - 0.2 M	loderate	Bank is predominantly bare with some rills and vecetative overhand.
0.3 - 0.5 Se	evere	Bank is bare with rills and severe vegetative overhang. Many exposed tree roots and some failen trees and slumps or slips. Some changes in cultural features such as fence corners missing and realignment of roads or trails. Channel cross-section becomes more U-shaped as opposed to V-shaped.
0.5+ Ve	ery Severe	Bank is bare with gullies and severe vegetative overhang. Many fallen trees, drains and culverts eroding out and changes in cultural features as above. Massive slips or washouts common. Channel cross-section is U-shaped and streamcourse or guily may be meandering.

Source: Steffen, L.J. 1982. Channel Erosion (personal communication), as printed in "Pollutants Controlled Calculation and Documentation for Section 319 Watersheds Training Manual," June 1999 Revision; Michigan Department of Environmental Quality - Surface Water Quality Division - Nonpoint Source Unit. EQP 5841 (6/99).

	Bank #1	Bank #2	Total
Sediment Load Reduction (ton/year)	3	1	4
Phosphorus Load Reduction (lb/year)	3	1	4
Nitrogen Load Reduction (Ib/yr)	7	1	8

Please fill in the <u>arav</u> areas only. <u>If estimation for lust one bank, put "0" in areas for Bank #2.</u> Once you have successfully estimated the sediment and nutrient load reductions, please print a copy of this worksheet and ettach it to the "BMP Application Form" for submittal to the Illinois EPA.

If you have any questions, please contact the Illinois EPA's NPS Unit at (217/782-3362).

		example	
3	19 07 09	3199802001	
	Bank	: "A"	
	Area	#6	

#### Please select a soil textural class:

**BMP Number:** 

Sands, loamy sands	Silty clay loam, silty clay
Sandy loam	Clay loam
Fine sandy loam	( Clay
<ul> <li>Loams, sandy clay loams, sandy clay</li> <li>Sitt loam</li> </ul>	( Organic

Parameter		Bank #1	Bank #2	Example	٦.
Length (ft)		490	0	500	1
Height (ft)		2	0	15	
Lateral Recession Rate (ft	/yr)*	0.05	0	0.5	1
Soil P Conc (lb/lb soil)**	DEFAULT -	0.0005	0.0005	0.0005	<b>-</b>
Soil N Conc (lb/lb soil)**	DEFAULT -	0.001	0.001	0.001	-•

"Lateral Recession Rate (LRR) is the rate at which bank deterioration has taken place and is measured

in feet per year. This rate may not be easily determined by direct measurement. Therefore best professional

judgement may be required to estimate the LRR. Please refer to the narrative descriptions in Table 1.

\*\* indicates default values for P and N soil concentrations

Table 1

LRR (ft/y	r]Category	Description
0.01 - 0.0	5 Slight	Some bare bank but active erosion not readily apparent. Some rills but no vegetative overhand
0.06 - 0.2	Moderate	Bank is predominantly bare with some rills and vegetative overhand.
0.3 - 0.5	Severe	Bank is bare with rills and severe vegetative overhang. Many exposed tree roots and some fallen trees and slumps or slips. Some changes in cultural features such as fence corners missing and realignment of roads or trails. Channel cross-section becomes more U-shaped as opposed to V-shaped.
0.5+	Very Severe	Bank is bare with guilles and severe vegetative overhang. Many fallen trees, drains and culverts eroding out and changes in cultural features as above. Massive slips or washouts common. Channel cross-section is U-shaped and streamcourse or guily may be meandering.

Source: Steffen, L.J. 1982. Channel Eroston (personal communication), as printed in "Pollutants Controlled Calculation and Documentation for Section 319 Watersheds Training Manual," June 1999 Revision; Michigan Department of Environmental Quality - Surface Water Quality Division - Nonpoint Source Unit. EQP 5841 (6/99).

r	Bank #1	Bank #2	Total
Sediment Load Reduction (ton/year)	2	1	3
Phosphorus Load Reduction (lb/year)	2	1	3
Nitrogen Load Reduction (lb/yr)	4	1	5

Please fill in the gray areas only. If estimating for just one bank, put "0" in areas for Bank #2. Once you have successfully estimated the sediment and nutrient load reductions, please print a copy of this worksheet and attach it to the "BMP Application Form" for submittal to the Illinois EPA.

If you have any questions, please contact the Illinois EPA's NPS Unit at (217/782-3362).

BMP Number:

#### Example 3190709 3199802001 7/14/09 Area #8 revised

• Silty clay loam, silty clay

C Clay loam

C ( Organic

C ( Clay

#### Please select a soli textural class:

	-	Sands.	loamv	sands
--	---	--------	-------	-------

C ← Sandy loam

C ( Fine sandy loam

C Loams, sandy clay loams, sandy clay

C ∈ Silt loam

Parameter		Bank #1	Bank #2	Example
Length (ft)	300	332	500	
Height (ft)		2	3	15
Lateral Recession Rate (fi	/yr)*	0.05	0.5	0.5
Soil P Conc (lb/lb soil)**	DEFAULT -	0.0005	0.0005	0.0005
Soil N Conc (lb/lb soil)**	DEFAULT -	0.001	0.001	0.001

"Lateral Recession Rate (LRR) is the rate at which bank deterioration has taken place and is measured in feet per year. This rate may not be easily determined by direct measurement. Therefore best professional judgement may be required to estimate the LRR. Please refer to the narrative descriptions in Table 1.

\*\* indicates default values for P and N soil concentrations

Table 1

LRR (ft/yr	Category	Description
0.01 - 0.05	Slight	Some bare bank but active erosion not readily apparent. Some rills but no vegetative overhang.
0.06 - 0.2	Moderate	Bank is predominantly bare with some rills and vegetative overhang.
0.3-0.5	Severe	Bank is bare with rills and severe vegetative overhang. Many exposed tree roots and
		some fallen trees and slumps or slips. Some changes in cultural features such as
		fence corners missing and realignment of roads or trails. Channel cross-section
		becomes more U-shaped as opposed to V-shaped.
0.5+	Very Severe	Bank is bare with gullies and severe vegetative overhang. Many fallen trees, drains
		and culverts eroding out and changes in cultural features as above. Massive slips or
		washouts common. Channel cross-section is U-shaped and streamcourse or gully
		may be meandering.

Source: Steffen, L.J. 1982. Channel Erosion (personal communication), as printed in "Pollutants Controlled Calculation and Documentation for Section 319 Watersheds Training Manual,\* June 1999 Revision; Michigan Department of Environmental Quality - Surface Water Quality Division - Nonpoint Source Unit. EQP 5841 (6/99).

Estimated Load F	Reductions
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	Bank #1	Bank #2	Total
Sediment Load Reduction (ton/year)	1	20	21
Phosphorus Load Reduction (Ib/year)	1	20	21
Nitrogen Load Reduction (lb/yr)	2	40	42

Please fill in the <u>grav</u> areas only. <u>If estimating for just one bank, put "0" in areas for Bank #2.</u> Once you have successfully estimated the sediment and nutrient load reductions, please print a copy of this worksheet and attach it to the "BMP Application Form" for submittal to the Illinois EPA.

If you have any questions, please contact the Illinois EPA's NPS Unit at (217/782-3362).

**BMP Number:** 

	Example
319 07 09	3199602001
Bank	("A"
Area	#13

#### Please select a soil textural class:

C C Sands, loamy sands	
( Sandy loam	C ( Clay loam
Fine sandy loam	Clay
Loams, sandy clay loams	sandy clay C (Organic
C Silt loam	

Parameter		Bank #1	Bank #2	Example	ר
Length (ft)		243	0	500	1
Height (ft)		3	0	15	1
Lateral Recession Rate (ft	/yr)*	0.05	0	0.5	1
Soil P Conc (lb/ib soil)**	DEFAULT -	0.0005	0.0005	0.0005	-ا-
Soil N Conc (lb/lb soil)**	DEFAULT -	0.001	0.001	0.001	

"Lateral Recession Rate (LRR) is the rate at which bank deterioration has taken place and is measured

In feet per year. This rate may not be easily determined by direct measurement. Therefore best professional

judgement may be required to estimate the LRR. Please refer to the narrative descriptions in Table 1.

\*\* indicates default values for P and N soil concentrations

#### Table 1

<u> LKK (MY</u>	ricategory	Description
0.01 - 0.0	5 Slight	Some bare bank but active erosion not readily apparent. Some rills but no versetative overhand
0.06 - 0.2	Moderate	Bank is predominantly bare with some rills and vegetative overhand
0.3 - 0.5	Severe	Bank is bare with rills and severe vegetative overhang. Many exposed tree roots and some fallen trees and slumps or slips. Some changes in cultural features such as fence corners missing and realignment of roads or trails. Channel cross-section becomes more U-shaped as opposed to V-shaped
0.5+	Very Severe	Bank is bare with gullies and severe vegetative overhang. Many fallen trees, drains and culverts eroding out and changes in cultural features as above. Massive slips or washouts common. Channel cross-section is U-shaped and streamcourse or gully may be meandering

. . . . .

Source: Steffen, L.J. 1982. Channel Erosicn (personal communication), as printed in "Pollutants Controlled Calculation and Documentation for Section 319 Watersheds Training Manual," June 1999 Revision; Michigan Department of Environmental Quality - Surface Water Quality Division - Nonpoint Source Unit. EQP 5841 (6/99).

·····	Bank #1	Bank #2	Total
Sediment Load Reduction (ton/year)	1	1	2
Phosphorus Load Reduction (lb/year)	1	1	2
Nitrogen Load Reduction (lb/yr)	3	1	4

Please fill in the <u>gray</u> areas only. <u>If estimating for just one bank, put "0" in areas for Bank #2.</u> Once you have successfully estimated the sediment and nutrient load reductions, please print a copy of this worksheet and attach it to the "BMP Application Form" for submittal to the Illinois EPA.

If you have any questions, please contact the Illinois EPA's NPS Unit at (217/782-3382).

Example
319 07 09 3199802001
Bank "A"
Area #14

#### Please select a soil textural class:

BMP Number:

.

C Sands, loamy sands	C Silty clay loam, silty clay
Sandy loam	C ( Clay loam
Fine sandy loam	C ( Clay
C Loams, sandy clay loams, sandy clay	C Organic
C C Silt Ioam	

Parameter Length (ft)		Bank #1	Bank #2	Example	٦
		600	216	500	
Height (ft)		3	2	15	1
Lateral Recession Rate (ft/yr)*		0.05	0.05	0.5	
Soil P Conc (lb/lb soil)**	DEFAULT -	0.0005	0.0005	0.0005	7-
Soil N Conc (lb/lb soil)**	DEFAULT -	0.001	0.001	0.001	7-

"Lateral Recession Rate (LRR) is the rate at which bank deterioration has taken place and is measured

in feet per year. This rate may not be easily determined by direct measurement. Therefore best professional

udgement may be required to estimate the LRR. Please refer to the narrative descriptions in Table 1.

\*\* indicates default values for P and N soil concentrations

#### Table 1

LRR (ft/y	Category	Description
0.01 - 0.0	Slight	Some bare bank but active erosion not readily apparent. Some rills but no vegetative overhappa
0.06 - 0.2	Moderate	Bank is predominantly bare with some rills and vegetative overhand.
0.3 - 0.5	Severe	Bank is bare with rills and severe vegetative overhang. Many exposed tree rocts and some fallen trees and slumps or slips. Some changes in cultural features such as fence corners missing and realignment of roads or traits. Channel cross-section becomes more U-shaped as opposed to V-shaped.
0.5+	Very Severe	Bank is bare with gullies and severe vegetative overhang. Many fallen trees, drains and culverts eroding out and changes in cultural features as above. Massive slips or washouts common. Channel cross-section is U-shaped and streamcourse or gully may be meandering.

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	Bank #1	Bank #2	Total
Sediment Load Reduction (ton/year)	4	1	5
Phosphorus Load Reduction (Ib/year)	4	1	5
Nitrogen Load Reduction (lb/yr)	7	2	9

Please fill in the gray areas only. If estimating for just one bank, put "0" in areas for Bank #2. Once you have successfully estimated the sediment and nutrient load reductions, please print a copy of this worksheet and attach it to the "BMP Application Form" for submittal to the Illinois EPA.

If you have any questions, please contact the Illinois EPA's NPS Unit at (217/782-3362).

	Example
319 07 09	3199802001
Bank	"A"
Area	#15
	319 07 09 Bank Area

#### Please select a soil textural class:

🗇 🤇 Sands, loarny sands	👻 🤇 Silty clay loam, silty clay
🗧 🗇 🕻 Sandy Ioam	C Clay loam
🗧 🤇 Fine sandy loam	C Clay
Coams, sandy clay loams, sandy clay	C < Organic
C Silt loam	-

Parameter		Bank #1	Bank #2	Example	٦
Length (ft)		550	330	500	
Height (ft)		3	2	15	1
Lateral Recession Rate (fi	v/yr)*	0.05	0.05	0.5	1
Soil P Conc (lb/lb soil)**	DEFAULT -	0.0005	0.0005	0.0005	7-
Soil N Conc (lb/lb soil)**	DEFAULT -	0.001	0.001	0.001	٦.

"Lateral Recession Rate (LRR) is the rate at which bank deterioration has taken place and is measured in feet per year. This rate may not be easily determined by direct measurement. Therefore best professional judgement may be required to estimate the LRR. Please refer to the narrative descriptions in Table 1.

\*\* indicates default values for P and N soil concentrations

LRR (ft/v	riCategory	Description
0.01 - 0.0	5 Slight	Some bare bank but active erosion not readily annarent. Some tills but no vegetative overbang
0.06 - 0.2	Moderate	Bank is predominantly bare with some nils and vegetative overhang.
0.3 - 0.5	Severe	Bank is bare with rills and severe vegetative overhang. Many exposed tree roots and some fallen trees and slumps or slips. Some changes in cultural features such as fence corners missing and realignment of roads or trails. Channel cross-section becomes more U-shaped as opposed to V-shaped.
0.5+	Very Severe	Bank is bare with gullies and severe vegetative overhang. Many fallen trees, drains and cutverts eroding out and changes in cultural features as above. Massive slips or washouts common. Channel cross-section is U-shaped and streamcourse or gully may be meandering.

Table 1

Source: Steffen, L.J. 1982. Channel Erosion (personal communication), as printed in "Pollutants Controlled Calculation and Documentation for Section 319 Watersheds Training Manual," June 1999 Revision; Michigan Department of Environmental Quality - Surface Water Quality Division - Nonpoint Source Unit. EQP 5841 (6/99).

	Bank #1	Bank #2	Total
Sediment Load Reduction (ton/year)	3	1	5
Phosphorus Load Reduction (Ib/year)	3	1	5
Nitrogen Load Reduction (ib/yr)	7	3	9

Please fill in the <u>grav</u> areas only. <u>If estimating for just one bank, put "0" in areas for Bank #2...</u> Once you have successfully estimated the sediment and nutrient load reductions, please print a copy of this worksheet and attach it to the "BMP Application Form" for submittal to the Illinois EPA.

If you have any questions, please contact the Illinois EPA's NPS Unit at (217/782-3382).

**BMP Number:** 

3190212	3199802001
20-0	ct-09

C Clay loam

C ( Organic

C ( Clay

Example

• Silty clay loam, silty clay

#### Please select a soil textural class:

C C	Sands,	loamy	sands
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C (Sandy loam

C C Fine sandy loam

C Loams, sandy clay loams, sandy clay

C ⊂ Silt loam

Parameter		Bank #1	Bank #2	Example	ר
Length (ft)		2316	2870	500	
Height (ft)		2	3	15	1
Lateral Recession Rate (ft/y	nr)*	0.02	0.5	0.5	1
Soil P Conc (lb/lb soil)**	DEFAULT -	0.0005	0.0005	0.0005	7
Soil N Conc (ib/ib soil)**	DEFAULT -	0.001	0.001	0.001	7

"Lateral Recession Rate (LRR) is the rate at which bank deterioration has taken place and is measured in feet per year. This rate may not be easily determined by direct measurement. Therefore best professional judgement may be required to estimate the LRR. Please refer to the narrative descriptions in Table 1.

\*\* indicates default values for P and N soil concentrations

Table 1

LRR (ft/yr)	Category	Description
0.01 - 0.05	Slight	Some bare bank but active erosion not readily apparent. Some rills but no vegetative overhang.
0.06 - 0.2	Moderate	Bank is predominantly bare with some rills and vegetative overhang.
0.3 - 0.5	Severe	Bank is bare with rills and severe vegetative overhang. Many exposed tree roots and
		some fallen trees and slumps or slips. Some changes in cultural features such as
		fence corners missing and realignment of roads or trails. Channel cross-section
		becomes more U-shaped as opposed to V-shaped.
0.5+	Very Severe	Bank is bare with gullies and severe vegetative overhang. Many fallen trees, drains
		and culverts eroding out and changes in cultural features as above. Massive slips or
		washouts common. Channel cross-section is U-shaped and streamcourse or gully
		may be meandering.

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	Bank #1	Bank #2	Total
Sediment Load Reduction (ton/year)	4	172	176
Phosphorus Load Reduction (lb/year)	4	172	176
Nitrogen Load Reduction (Ib/yr)	7	344	352

Please fill in the gray areas only. If estimating for just one bank, put "0" in areas for Bank #2.\_\_\_ Once you have successfully estimated the sediment and nutrient load reductions, please print a copy of this worksheet and attach it to the "BMP Application Form" for submittal to the Illinois EPA.

If you have any questions, please contact the illinois EPA's NPS Unit at (217/782-3362).

BMP	Number:
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	example			
3190709	3199802001			
23-Oct-09				
area #13				

C C Silty clay loam, silty clay

C Clay loam

C ( Organic

C ( Clay

#### Please select a soil textural class:

C (	Sands,	loamy	sands
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C Sandy loam

C < Fine sandy loam

C Loams, sandy clay loams, sandy clay

C C Silt loam

Parameter		Bank #1	Bank #2	Example	
Length (ft)		195	309	500	
Height (ft)		2	2	15	7
Lateral Recession Rate (ft	/yr)*	0.2	0.5	0.5	1
Soil P Conc (ib/ib soil)**	DEFAULT -	0.0005	0.0005	0.0005	7*
Soil N Conc (lb/lb soil)**	DEFAULT -	0.001	0.001	0.001	٦.

"Lateral Recession Rate (LRR) is the rate at which bank deterioration has taken place and is measured in feet per year. This rate may not be easily determined by direct measurement. Therefore best professional judgement may be required to estimate the LRR. Please refer to the narrative descriptions in Table 1.

\*\* indicates default values for P and N soil concentrations

Table 1

LRR (ft/yr)	Category	Description		
0.01 - 0.05	Slight	Some bare bank but active erosion not readily apparent. Some rills but no vegetative overhang.		
0.06 - 0.2	Moderate	Bank is predominantly bare with some rills and vegetative overhang.		
0.3 - 0.5	Severe	Bank is bare with rills and severe vegetative overhang. Many exposed tree roots and		
		some fallen trees and slumps or slips. Some changes in cultural features such as		
		fence corners missing and realignment of roads or trails. Channel cross-section		
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0.5+	Very Severe	Bank is bare with gullies and severe vegetative overhang. Many fallen trees, drains		
		and culverts eroding out and changes in cultural features as above. Massive slips or		
		washouts common. Channel cross-section is U-shaped and streamcourse or gully		
		may be meandering.		

Steffen, L.J. 1982. Channel Erosion (personal communication), as printed in "Pollutants Controlled Source: Calculation and Documentation for Section 319 Watersheds Training Manual," June 1999 Revision; Michigan Department of Environmental Quality - Surface Water Quality Division - Nonpoint Source Unit. EQP 5841 (6/99).

Estimated	Load	Redu	ctions
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	Bank #1	Bank #2	Total
Sediment Load Reduction (ton/year)	3	12	15
Phosphorus Load Reduction (Ib/year)	3	12	15
Nitrogen Load Reduction (lb/yr)	6	25	31



**Emmerson Airline Road** 

C = Cypress Trees

# 2008 Tree Planting Emmerson Airline Road





(300 Cypress and 200 Hardwood)



**Emmerson Airline Road** 

C = Cypress Trees

## 2009 Tree Planting

**Emmerson Airline Road** 



C = Cypress Trees



1222 SPRUCE STREET ST. LOUIS, MISSOURI 63103-2833

April 28, 2009

DEPARTMENT OF THE ARMY ST. LOUIS DISTRICT CORPS OF ENGINEERS

Regulatory Branch File Number: MVS-2009-233

Mr. Dennis Ross Otter Lake Water Commission 6475 W. Montgomery Rd. Virden, Illinois 62690

Dear Mr. Ross:

We are in receipt of your April 15, 2009, application, requesting authorization to stabilize a series of banks within the North Basin of Otter Lake. The intent of the activity is to use A-3 riprap at a rate of 1.25 tons per foot, placed from a barge, over sixteen sites not exceeding onethousand linear feet. A map has been attached to this authorization letter to reference the site number with its location. The applicant will be placing rip-rap along a one-thousand linear foot section at site 1, one-thousand linear feet along site 2, nine-hundred linear feet along site 3, eight-hundred linear feet along site 4, eight-hundred linear feet along site 5, four-hundred linear feet along site 6, seven-hundred and twenty linear feet along site 7, four-hundred and eighty linear feet along site 8, eight-hundred linear feet along site 9, eight-hundred linear feet along site 10, six-hundred linear feet along site 11, five-hundred linear feet along site 12, nine-hundred and sixty linear feet along site 13, four-hundred linear feet along site 14, one-thousand linear foot along site 15 and four-hundred and fifty linear foot along site 16. The proposed activity qualifies for authorization conveyed by General Permit SLD-IRP-16/173. Enclosed is a copy of the Regional Permit 16 and conditions and management practices with which you must comply. The activity site is located in Sections 31 and 32, Township 12 North, Range 07 West, in Macoupin County, Illinois. Otter Lake is an impoundment of Otter Creek a secondary tributary of Macoupin Creek, a primary tributary of the Illinois River.

In accordance with Title 33 CFR 323.3(a) and Title 33 CFR 325.5(c), the District Engineer reissued a General Permit (SLD-IRP-16) on March 13, 2009. This General Permit authorizes bank stabilization activities in waters of the United States in the state of Illinois under the authority of Section 10 of the Rivers and Harbors Act of 1899 (33 USC 403) and Section 404 of the Clean Water Act (33 USC 1344). It is necessary that you notify the Regulatory Branch, in writing, prior to commencement of work and, within 30 days of completion complete and return <u>ATTACHMENT A</u> (enclosed) or this permit will be considered null and void.

Please sign both copies of the enclosed permit. One copy should be retained for your records and <u>one copy of the general permit must be mailed back to the Regulatory Branch for our</u> <u>files</u>.

APR 3 0 2009

The St. Louis District Regulatory Branch is committed to providing quality and timely service to our customers. In an effort to improve customer service, please take a moment to complete the enclosed postage paid card or go to our Customer Service Survey found on our web site at http://per2.nwp.usace.army.mil/survey.html.

If you have any questions regarding this general permit, feel free to contact Tyson Zobrist at (314) 331-8578. Any further correspondence concerning this project should state the file number: MVS-2009-233.

Sincerely,

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Keith McMullen Fillinois Section Chief Regulatory Branch

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CC:

Mr. James Allison Illinois Environmental Protection Agency

Mr. Paul Mauer Illinois Department of Natural Resources

# **ATTACHMENT A**

# **COMPLETED WORK CERTIFICATION**

## Permit Number: MVS-2009-233 (SLD-IRP-16/173)

Name of Permittee: Mr. Dennis Ross, Otter Lake Water Commission

Date of Issuance: April 28, 2009

Upon completion of the activities authorized by this general permit, sign this certification and return it to the following address:

Mr. Keith McMullen U.S. Army Corps of Engineers Attn: Regulatory Branch (CO-F) 1222 Spruce Street St. Louis, Missouri 63103-2833

Please note that your permitted activities are subject to a compliance inspection by an U.S. Army Corps of Engineers representative. If you fail to comply with the permit you are subject to permit suspension, modification or revocation.

I hereby certify that the work authorized by the above referenced permit has been completed in accordance with the terms and conditions of the said permit and conditions.

Signature of Permittee

Date



	NOTION CANDING AND	NO, CHRISSI (INIX VIII) FRANCHII VISHILIQI VI I FAN HALQARARAYAN MOXEMI	(ID)/~	
Appli	cant: Mr. Dennis Ross	File Number: MVS-2009-233	Date: 04/28/2009	
Attacl	ned is:		See Section below	
	INITIAL PROFFERED PERMIT (Standard Pe	ermit or Letter of permission)	А	
	PROFFERED PERMIT (Standard Permit or La	etter of permission)	В	
	PERMIT DENIAL		C	
	APPROVED JURISDICTIONAL DETERMIN	IATION	D	
X	PRELIMINARY JURISDICTIONAL DETER	MINATION	E	
(SEC) (decis) (Comps	ION SILE III A HOILO MINE A COMMENSION ON SUBJECT ON SUBJECT OF SU	lopitons, regarding an administrative (//thace)abidy.in//incl/inconons/cw/	appeal of the above ceoworliggor	
A: IN	ITIAL PROFFERED PERMIT: You may accept	pt or object to the permit.		
• AC au sig to	CCEPT: If you received a Standard Permit, you may sign horization. If you received a Letter of Permission (LOP), nature on the Standard Permit or acceptance of the LOP m appeal the permit, including its terms and conditions, and	the permit document and return it to the dist you may accept the LOP and your work is a neans that you accept the permit in its entire approved jurisdictional determinations asso	trict engineer for final authorized. Your ty, and waive all rights ciated with the permit.	
OF the Yc to mc the dis	• OBJECT: If you object to the permit (Standard or LOP) because of certain terms and conditions therein, you may request that the permit be modified accordingly. You must complete Section II of this form and return the form to the district engineer. Your objections must be received by the district engineer within 60 days of the date of this notice, or you will forfeit your right to appeal the permit in the future. Upon receipt of your letter, the district engineer will evaluate your objections and may: (a) modify the permit to address all of your concerns, (b) modify the permit to address some of your objections, or (c) not modify the permit having determined that the permit should be issued as previously written. After evaluating your objections, the district engineer will send you a proffered permit for your reconsideration, as indicated in Section B below.			
B: PF	OFFERED PERMIT: You may accept or appea	I the permit		
• AC aut sig to	• ACCEPT: If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your-signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.			
• AF ma for dat	PEAL: If you choose to decline the proffered permit (Sta y appeal the declined permit under the Corps of Engineers m and sending the form to the division engineer. This for e of this notice.	ndard or LOP) because of certain terms and s Administrative Appeal Process by complet m must be received by the division engineer	conditions therein, you ting Section II of this within 60 days of the	
C: PERMIT DENIAL: You may appeal the denial of a permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.				
D: Al	PROVED JURISDICTIONAL DETERMINAT	ION: You may accept or appeal the	approved JD or	
PIOVIC				
• AC dai	CCEPT: You do not need to notify the Corps to accept an e of this notice, means that you accept the approved JD in	approved JD. Failure to notify the Corps we is a structure of the second struc	ithin 60 days of the he approved JD.	
<ul> <li>AF Ap by</li> </ul>	PEAL: If you disagree with the approved JD, you may appeal Process by completing Section II of this form and ser the division engineer within 60 days of the date of this not	opeal the approved JD under the Corps of Ending the form to the division engineer. This tice.	ngineers Administrative s form must be received	
E: PR regard appro provid	ELIMINARY JURISDICTIONAL DETERMIN ing the preliminary JD. The Preliminary JD is n ved JD (which may be appealed), by contacting t le new information for further consideration by t	IATION: You do not need to respon tot appealable. If you wish, you may the Corps district for further instructi the Corps to reevaluate the JD.	d to the Corps request an on. Also you may	

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# SECRETORIES REQUESTITOR APPEAL & COBLECTIONS TO AN UNITED ADDRESS DIPERMENT

REASONS FOR APPEAL OR OBJECTIONS: (Describe your reasons for appealing the decision or your objections to an initial proffered permit in clear concise statements. You may attach additional information to this form to clarify where your reasons or objections are addressed in the administrative record.)

ADDITIONAL INFORMATION: The appeal is limited to a review of the administrative record, the Corps memorandum for the record of the appeal conference or meeting, and any supplemental information that the review officer has determined is needed to clarify the administrative record. Neither the appellant nor the Corps may add new information or analyses to the record. However, you may provide additional information to clarify the location of information that is already in the administrative record.

An and the construction of the part of the state of the s				
If you have questions regarding this decision and/or the appeal process you may contact: Tyson Zobrist, PM U.S. Army Corps of Engineers 1222 Spruce Street St. Louis, Missouri 63103-2833 Phone: (314) 331-8587 Fax: (314) 331-8741	If you only have questions regarding the appeal process you n also contact: James B. Wiseman, Jr. Administrative Appeals Officer CEMVD-PD-KM (Mississippi Valley Division) P.O. Box 80 (1400 Walnut Street) Vicksburg, MS 39181-0080 Phone: (601) 634-5820 Fax: (601) 634-5816			
RIGHT OF ENTRY: Your signature below grants the right of entry to Corps of Engineers personnel, and any government consultants, to conduct investigations of the project site during the course of the appeal process. You will be provided a 15 day notice of any site investigation, and will have the opportunity to participate in all site investigations.				
	Date:	Telephone number:		
Signature of appellant or agent.				

## **COMPLIANCE CERTIFICATION**

Special conditions "a" of this permit document requires that you submit a certification regarding the completed work and any required mitigation. This certification page satisfies this condition if it is provided to the St. Louis District at the address shown at the bottom of this page upon completion of the project.

APPLICATION NUMBER: MVS-2009-233

APPLICANT: Dennis Ross, Otter Lake Water Commission

**PROJECT LOCATION:** Otter Lake, North Basin, Section 31 and 32, Township 12 North, Range 07 West, Macoupin County, Illinois

a. I certify that the authorized work was done in accordance with the Corps authorization, including any general or specific conditions.

b. I certify that any required mitigation was completed in accordance with the permit conditions.

c. Your signature below, as permittee, indicates that you have completed the authorized project as certified in paragraphs a and b above.

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**TPERMITTEE** 

11/17/09 (DATE)

Return this certification to:

U.S. Army Corps of Engineers ATTN: CEMVS-OD-F (MVS-2009-233) 1222 Spruce Street St. Louis, MO 63103



Otter Lake Water Commission





Note: This design is recommended for use where the littoral slope is steeper than 8h:1v

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