

2014 Turtle Lakes Lake Protection Project End of Year Summary

2014 Stakeholders Meetings

Stakeholder meetings were held in March, April, May, July, September, and November. Agendas and minutes from those meetings are included in this report.

2014 Farmer Contact

On May 1, 2014 letters from the Turtle Lake Stakeholders Group were sent to all the agricultural producers in the watershed. The letter informed farmers of the programs that were available through the Turtle Lakes Lake Protection Project in 2014. The letter went out to 22 local farmers. A copy of the letter is included in this report.

2014 No Till Incentive

In 2014, more than 630 acres of farmland was planted using no till. Since this project began in 2010 the number of acres where no till planting was implemented continually increased (Figure 1). Since this project started, 1,795 acres have been planted using no till.

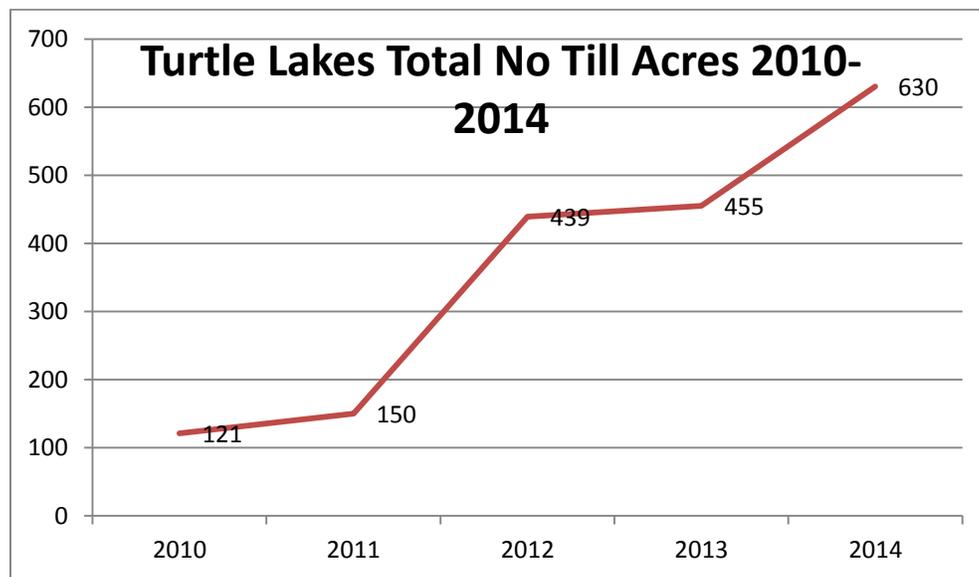


Figure 1: Total Acreage planted in No Till since 2010

Individual Farmers in 2014

Larry Hanson no till planted 24 acres of forage crop/hay using a no till planter rented from Joe Molls. Larry is a first time participant in the Turtle Lake Project.

No Till Incentive based on \$15/acre = \$360.00

No Till Planting Payment based on \$20/acre = \$480.00

Dale Scheps no till planted 73 acres of corn including the final year of the Side by Side Comparison. Dale planted this using his own equipment, so there are no contracted planting costs associated.

No Till Incentive based on \$17.50/acre = \$1,277.50

Side by Side Project Installation = \$266.25

Dean West no till planted 105.7 acres of corn and 18.5 acres of forage crop/hay. No till corn was planted by Brian Scheps and the forage was planted with a no till planted rented from United Ag. Coop.

No Till Incentive based on \$17.50/acre = \$2,173.85

No Till Planting Payment based on \$20/acre = \$2,184.58

Harland Becker no till planted 190 acres of corn, 33 acres of soybeans, and 26 acres of forage crop/hay. Harland planted this using his own equipment, so there are no contracted planting costs associated.

No Till Incentive based on \$17.50/acre = \$4,357.50

Vern Nelson no till planted 50 acres of corn using his own equipment, so there are no contracted planting costs associated.

No Till Incentive based on \$17.50/acre = \$875.00

Larry Lentz no till planted 110 acres of soybeans and is a first time participant in the Turtle Lake Project. Larry planted this using his own equipment so there are no contracted costs associated.

No Till Incentive based on \$15/acre = \$1,650.00

Agricultural Best Management Practices (BMPs)

Several additional BMP projects were discussed in 2014 including the installation of field borders and riparian buffers. After the letter was sent out, additional contacts were made with Larry Hanson, Dale Scheps, Harland Becker, Larry Michaelson, and Dean West to discuss projects that could be implemented. Only Harland Becker was interested in possibly installing a project. Further contact will be made with Harland to implement these field borders in the spring of 2015, provided the Lake Protection Project still has funding available. The restoration of a wetland on property owned by Harland Becker was also discussed. There was interest on the part of the property owner, and support from neighboring properties, but the project was put on holding pending available funding in 2015.

A barnyard improvement project on the Dean West home farm was discussed in 2014 and is planned for implementation in 2015. It would have been completed in 2014, but the property owner had difficulty lining up a contractor to perform the work. The improvement plan was developed by the Barron County Soil and Water Conservation Department and is included in this report.

Shoreland Improvement Projects

On May 31, 2014 a Shoreland Improvement Workshop was sponsored by the Stakeholders Board. The purpose of this workshop was to invite all property owners on both lakes who in the three years prior to 2014 had been recipients of some sort of shoreland improvement planning. Some properties received whole improvement plans, others just received property walk-throughs followed by a list of ideas to make improvements. Project ideas included shoreland restoration sites, installation of rain gardens, water diversion actions, native plantings, installation of rain barrels, and other projects to stabilize the property, channel runoff to more appropriate locations, or ways to handle roof runoff. Some of these projects had been implemented, most had not.

Twenty five property owners were personally invited to this workshop. About twenty of them showed up, which was a fantastic turnout. A quick review of why these property assessments were done, how they fit into the Lake Protection Project, and what options were available to get more of them implemented was done. Then each property owner met with Amanda Kostner (The Green Frog Consulting) and Dave Blumer (LEAPS) to review their individual projects, get a commitment from the property owner to implement all or some of what was included their original projects, set up a schedule whereby Amanda could provide assistance if needed, and put an estimated dollar figure on the cost. Once all the individual discussions were had, the Stakeholders Board decided how much of the total cost of these projects they could cover. Based on the number of projects, the Stakeholders Board decided to cover 70% of the cost for planning and materials. If a property owner wanted to hire someone else to actual install the project, that cost was the responsibility of the individual property owner.

Fifteen property owners committed to installing a shoreland improvement project in 2014. Eleven actually did, the last being installed in early November. A total of \$2,446.93 was paid out to install shoreland improvement projects in 2014.

A brochure is planned hi-lighting the shoreland improvement projects that have been done. Design is currently underway, with printing and distribution planned for spring 2015.

Tributary Sampling

Four tributary sites and the outlet of Upper Turtle have been sampled throughout this project. The official end date of the project was June 30, 2014 so a full suite of tests were completed on water sampled collected through that time. In late 2013 and early 2014, an additional tributary sampling survey was proposed by the Turtle Lake Stakeholders Board and approved by the WDNR. Three tributary sites (one on Upper Turtle and two on Lower Turtle) and the outlets of both Upper and Lower Turtle Lake were sampled for TP, SRP, and TSS. Ecological Integrity Services, LLC was contracted with to install water level data loggers at all five sites and to calculate the daily and seasonal loading from each site. A summary of his data is included with this report.

Water Quality

Through June 30, 2014 a full suite of water quality parameters were collected from two sites in Lower Turtle Lake and three sites in Upper Turtle Lake. After June lake sampling reverted back to one site on Lower Turtle and two sites on Upper Turtle. Data from these sampling efforts have been recorded in the SWIMS database and will be analyze more fully in the End of Project Report expected prior to June of 2015.

Lower Turtle Lake Whole-lake, Point-intercept, Aquatic Plant Survey

One of the last projects included in the Turtle Lakes Lake Protection Project was a repeat of the whole-lake, point-intercept aquatic plant survey in 2014. The last survey on Lower Turtle was completed in 2008. When this project started, APM Plans were written for both Lower and Upper Turtle Lake. Curly-leaf pondweed (CLP) management recommendations were made for Lower Turtle Lake. Twice the Lower Turtle Lake Management District have prepared and thought about submitting a grant to start CLP management. Both times the grant was pulled before the due date because of concerns related to being able to make the match and future management costs, and no management was completed.

Regardless, the whole lake, point-intercept survey on Lower Turtle Lake was completed in 2014. Endangered Resource Services, LLC was contracted with to provide the 2014 survey work and to make comparisons to the 2008 survey which was completed by the same company. A full report of the survey results is complete and will be included in the materials gathered for the End of Project Report expected prior to June 2015.

Dave Blumer, Lake Educator

Lake Education and Planning Services, LLC

February 4, 2015

First Name	Alfred Becker	Harland Becker
Address	1344 4th Street	1491 2nd Street
City, State Zip	Almena, WI 54805	Turtle Lake, WI 54889
Thomas Becker	David Bryngelson	Jerry Emmert
424 10-1/2 Avenue	1455 2-1/2 Street	1881 140th Avenue
Turtle Lake, WI 54890	Turtle Lake, WI 54889	Baldwin, WI 54002
Stephen Gallagher	Larry Hansen	Ronald King
309 Warren Street	272 12-1/2 Ave	1418 1-1/2 Ave
Balsam Lake, WI 54810	Turtle Lake, WI 54889	Turtle Lake, WI 54889
Gary Kreckler	David Leisz	Larry Lentz
1312 2nd Street	261 12-1/2 Avenue	1322 1-1/2 Ave
Turtle Lake, WI 54889	Turtle Lake, WI 54889	Ridgeland, WI 54763
Larry Michaelson	Joe Molls	Vern Nelson
1063 185th Avenue	277 15-1/2 Ave	723 Cty Hwy F
Balsam Lake, WI 54810	Turtle Lake, WI 54889	Prairie Farm, WI 54762
Richard Ricci	Hoyt Rose	Dale Scheps
323 13th Avenue	1289 4th Street	1382 4th Street
Turtle Lake, WI 54889	Almena, WI 54805	Almena, WI 54805
Kenneth Scheps	Gary Solum	Dean West
1620 4th Street	236 14th Ave	1333 2nd Street
Almena, WI 54805	Turtle Lake, WI 54889	Turtle Lake, WI 54889
Daryl Wohlk	Keith Johnson	Ken Bonner
1544 5-1/2 Street	1198 3-3/4 Street	1208 4-1/4 Street
Almena, WI 54805	Turtle Lake, WI 54889	Almena, WI 54805
Corry Walbridge	Tyler Gruetzmacher	Mark Koegel
2439 Churchhill Street North	335 E. Monroe Ave, Rm 221	1462 3-3/8 Street
Roseville, MN 55113	Barron, WI 54812	Turtle Lake, WI 54889
Susan Rheingans	Tim Jergenson	
1272 3-3/8 Street	335 E. Monroe Ave, Rm 2206	
Turtle Lake, WI 54889	Barron, WI 54812	

May 1, 2014

From: Dave Blumer, Lake Educator
Lake Education and Planning Services, LLC
302 21 ¼ Street
Chetek, WI 54728
715-642-0635
dblumerleaps@gmail.com

Representing: Turtle Lakes – 2010-2014 Watershed and Lake Protection Project
Ken Bonner, Chair

Regarding: 2014 Turtle Lakes Protection Project Agricultural Best Management Practices Incentive Programs

Who: Agricultural Producers in the Lower and Upper Turtle Lakes Watershed

Dear Sirs,

In 2010, the Lower Turtle Lake Management District, the Lower Turtle Lake Association, and the Upper Turtle Lake Association combined efforts with local farmers in the watershed to protect and improve the water quality in Lower and Upper Turtle Lakes. 2014 marks the last year in a five year effort funded by a Wisconsin Department of Natural Resources Lake Protection grant to offer best management practice incentive programs for agricultural producers and shoreland property owners within the designated boundaries of the watershed.

As an owner and/or renter of active farmland in the watershed, you are eligible for several incentive and/or cost-sharing programs in this last year of the project, aimed at making changes in the land use in the watershed without harming your bottom line as a farmer. Attached is a list of the programs in place for 2014. Also included is a map of the watershed and several related documents for your consideration.

No Till Incentive Program

Please consider using no till planting for all or part of the corn, soybeans, or other grains you may be planting in 2014. If you have participated in this program in previous years please consider expanding your no till practices. To enroll again in the incentive program for 2014, please contact me and provide maps of the areas where you intend to incorporate no till planting.

If you have never participated in the no till incentive program, please consider it now. If you do not have access to no till planting equipment, this project has arranged for no till planting services to be provided by Dale Scheps (corn) or Harland Becker (soybeans or other grains). You would supply the seed and fertilizer, but the cost of planting would be covered by the lake protection project. Any ground put in no till would also be eligible for a per acre incentive payment. To enroll in this program for the first time, please contact me.

Related to this program, the lake protection project has set up a 3-yr. no till/standard planting practices side by side comparison on property farmed by Dale Scheps. First set up in 2012, 2014 is the last year of the comparison and offers a local opportunity to see what impacts no till planting may have on crop yields over time.

Field Border Strip Incentive Program

In 2014 an incentive payment program for incorporating field border strips in your best management practices has been added. For installing a field border along a waterway or wetland and maintaining it for 10 years, a one-time incentive payment will be made based on the following rates.

One-time Incentive Payments

35 – 70 foot field border at \$500/acre

71– 105 foot field border at \$600/acre

106 - 140 foot field border at \$700/acre

Forage crop harvest of the field border is allowed one time per year with cutting after July 15. An additional \$50/acre can be added to cover the cost of seed mix, if supplied by the Barron County Soil and Water Conservation Department.

A site map of the watershed has been included in this communication with possible projects for you to consider. The white lines on the map show possible locations for field border installation. The number next to the white line is an estimate of the total acreage if a 35-ft border was installed. If your crop plan for 2014 is already in place and you do not want to install field borders in the spring or early summer of 2014, but may still be interested in 2015, dormant seeding in the late fall of 2014 will be considered as an alternative. However, the funds available for this program are not unlimited, so get your request in early. If you are interested in this incentive program, please contact me.

Special Projects

Should you have a conservation “best management practice” that you may be considering for your property, I encourage you to submit it to the Stakeholders Board of the Lake Protection Project for review and consideration of possible cost-sharing or incentives. While we can’t guarantee payments for every project, we will give any project submitted appropriate consideration.

If you would like a personal visit to discuss in person how you might be able to benefit from one or more of the programs offered through this project, please contact me. You can also call or email me for more information. I look forward to hearing from you.

Sincerely,

Dave Blumer, Project Manager
Turtle Lakes Watershed and Lake Protection Program

Enclosures: Contact Letter, 2014 Turtle Lakes Protection Projects, Watershed Map, Field Borders Site Map

2014 Turtle Lakes Agricultural Lake Protection Programs

1. No Till Incentive Program

- a. Existing Program Participants
 - i. \$17.50/acre for crops planted in the watershed using no till methods
 - ii. Requires map of expected no till acres for 2014 and confirmation of no till planting
- b. New Program Participants
 - i. Single Year Agreement required
 - ii. \$15.00/acre for crops planted in the watershed using no till methods
 - iii. Requires map of no till acres, confirmation of no till planting, and signed agreement

2. No Till Corn Planting Services

- a. Free no till corn planting services to farmers in the watershed
 - i. Provided by Dale Scheps
 - 1. Seed and fertilizer responsibility of participant
 - ii. No till corn planted by Dale is still eligible for the No Till Incentive Program

3. No Till Grain Planting Services

- a. Free no till soybean/grain planting services to farmers in the watershed
 - i. Provided by Harland Becker
 - 1. Seed and fertilizer responsibility of participant
 - ii. No till grain or soybeans planted by Harland are still eligible for the No Till Incentive Payment

4. Field Border Strips Incentive Program (new in 2014)

- a. Field Border Strips Along Waterways
 - i. One-time Incentive Payment (2014 only)
 - 1. 35 – 70 foot field border at \$500/acre
 - 2. 71– 105 foot field border at \$600/acre
 - 3. 106 - 140 foot field border at \$700/acre 35-ft wide
 - ii. \$50/acre can be added to cover the cost of seed mix, if supplied by the Barron County Soil and Water Conservation Department
 - iii. Forage crop harvest of the field border after July 15 is allowed one time annually
 - iv. Requires 10 year operation and maintenance agreement to be recorded on the property deed
 - v. Incentive payment made in full upon proof of installation in 2014

5. Special BMP Projects

- i. Reviewed upon receipt/request
- ii. Incentive and requirements to be set upon review

Practices - Heavy Use Protection 561(Class I) Grassed Waterway 412 (Class I)
Diversion 362 (Class I) Waste Treatment Area 635 (Class I)

Landowner Dean West

Address 1333 2nd Street Turtle Lake WI 54889

County Barron Phone No. 715-986-4874 cell 715-641-1134

Township Turtle Lake

Section 28 Township 34 N Range 14 W

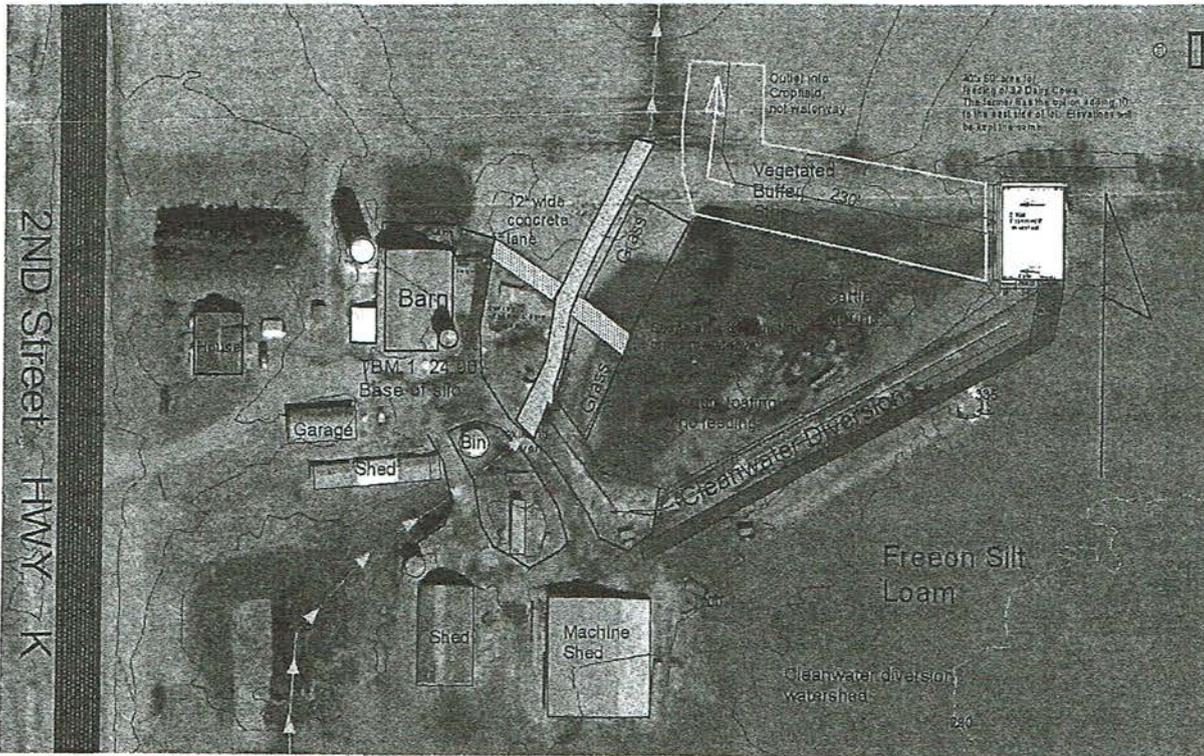
Field Office Barron Phone No. 715-537-6315

I/WE HAVE REVIEWED AND ACCEPT THE ATTACHED PLAN. I/WE AGREE TO HAVE THIS PROJECT CONSTRUCTED IN ACCORDANCE WITH THESE PLANS AND SPECIFICATIONS AND TO NOTIFY ALL AFFECTED UTILITY COMPANIES.
Call Diggers Hotline 1-800-242-8511 Ticket Number _____

SIGNATURE _____

DATE _____

LOCATION MAP



NOTICE TO LANDOWNERS AND CONTRACTORS REGARDING UTILITIES

NO REPRESENTATION IS MADE BY THE USDA NATURAL RESOURCES CONSERVATION SERVICE, THE WISCONSIN DEPARTMENT OF AGRICULTURE, TRADE, AND CONSUMER PROTECTION, OR THE BARRON COUNTY SOIL AND WATER CONSERVATION DEPARTMENT AS TO THE EXISTANCE OR NONEXISTENCE OF UNDERGROUND HAZARDS. PRIOR TO THE START OF CONSTRUCTION THE OWNERS OF THE UTILITIES MUST BE NOTIFIED OF THE PENDING CONSTRUCTION. YOU WILL BE LIABLE FOR DAMAGES RESULTING FROM CONSTRUCTION ACTIVITIES.

Designed : W. Van Dyke Date 4-24-12

Checked : DS Date 5-1-12

Approved: [Signature] Date 5-1-12

Construction Approval: _____ Date _____

Job Approval Class I Sheet 1 of 19

SEEDING DATES

CENTRAL ZONE

TIME PERIOD	DATES		TYPE OF SEEDING
Spring	April 15	through June 1	Permanent
Summer	June 2	through July 31	Temporary *
Late Summer	August 1	through August 21	Permanent
Fall	August 22	through October 15	Temporary *
Late Fall	November 1	through snow cover	Dormant
Winter	No snow cover	through April 14	Frost Seed

MATERIALS

Apply 80-85 lime at the rate of 2 tons per acre unless a soil test indicates otherwise.
 Apply 150 pounds per acre of 20-10-10 fertilizer unless a soil test indicates otherwise.
 Mulch with 1-1/2 tons per acre of straw or hay (60-70 bales) reasonably free from grain and weed seed. If other mulch materials are used, the rate of application shall meet the manufacturer's recommendations. (3 bushels/acre)

*Seed a temporary cover crop of Oats at a rate of 96 pounds/acre.
 A permanent seeding shall be completed during the next acceptable time period following a temporary seeding.

MINIMUM PURE LIVE SEED (PLS) RATE PER ACRE AND TOTAL POUNDS OF SEED NEEDED

SEEDING MIX (DESIGN)	LOCATION ACRES	Farmstead POUNDS
<u>3</u>	<u>2.00</u>	
SPECIES	RATE	POUNDS
Smooth Bromegrass	7.5	15.0
Creeping Red Fescue	3.0	6.0
Kentucky bluegrass	3.0	6.0
Birdsfoot trefoil	3.0	6.0

SEEDING MIX (AS-BUILT)	LOCATION ACRES	RATE	POUNDS

¹ PLS = (% Germination x % Purity)
 * Companion Crop

ADDITION SEED PERCENTAGE: 50 %

MAXIMUM ADDITIONAL SEED = 50%

SEEDBED PREPARATION

During the recommended seeding periods, seedbed preparation shall immediately follow construction activities. Prepare a fine, firm seedbed to a minimum depth of 3 inches.

SEEDING

Inoculate legumes with the specific inoculum for the species in accordance with the manufacturer's recommendations. When using a hydroseeder, five times the recommended rate of inoculant shall be added to the hydroseeder. Inoculant shall not be mixed with liquid fertilizer. Seed grasses and legumes no more than 1/4 inch deep. Seed may be broadcast or drilled as appropriate to the site. Seeding shall be done prior to mulching, except for dormant seedings.

MULCHING

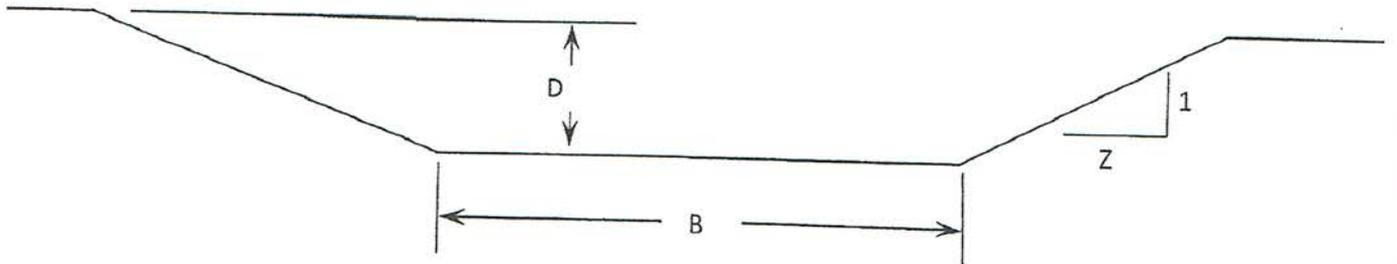
Mulching shall be done immediately after seed bed preparation and seeding. Spread mulch uniformly and at the rate indicated above. (6-7 strands thick) When dormant seeding, mulching shall be done prior to seeding and immediately after seedbed preparation. Spread mulch uniformly. Straw mulch materials shall be stabilized by the use of a disk, by a suitable non-asphaltic tackifier, or by netting. A disk shall have the disks set straight and shall be used to anchor the straw mulch into the soil. The tackifier shall be applied uniformly over the mulch material at the specified rate, or by injecting it into the mulch material as it is being applied. The netting shall be stapled per the manufacturer's recommendations.



INTRODUCED SPECIES SEEDING ESTABLISHMENT
 COOPERATOR Dean West
 COUNTY BARRON

Designed WTG 4/24/12
 Drawn _____
 Checked _____
 Approved DT 5/12

File Name _____
 Drawing Name WI-710SS 3/10
 Sheet 7 of 19



TRAPEZOIDAL CROSS SECTION

CONSTRUCTION DETAILS

WATERWAY NUMBER	REACH		CHANNEL SLOPE %	BOTTOM WIDTH (B) FEET	MINIMUM DEPTH (D) FEET	SIDE SLOPE (Z)	LENGTH FEET
	FROM	TO					
Main Waterway	0+00	2+00	2	12	1.0	6	200

NOTES AND SPECIFICATIONS:

1. TOPSOIL SHALL BE STOCKPILED AND RESPREAD ON THE WATERWAY WHEN NEEDED TO FACILITATE REVEGETATION.
2. PLACE SPOIL WHERE IT WILL NOT INTERFERE WITH SURFACE WATER FLOW INTO THE WATERWAY.
- 3.
- 4.
- 5.
- 6.
- 7.
- 8.
- 9.



TRAPEZOIDAL GRASSED WATERWAY

CLIENT: Dean West
 COUNTY: Barron

Designed: wtg	Date	4/9/12
Drawn:		1/1/11
Checked:	5/12	1/1/11
Approved:		1/1/11

File Name	Date
WI-402 A	9/11

Dean West

BARNYARD RUNOFF SYSTEM

CONSTRUCTION NOTES

1. The Diggers Hotline Ticket number must be recorded and returned to the field office prior to construction. The landowner is responsible for this.
2. All components of the system shall be in accordance with **Natural Resources Conservation Service Specifications** attached to the end of the plan.
3. A **preconstruction meeting** is required at least 3 business days before the start of the project.
4. The location of the concrete area can be adjusted North and or East to ensure even flow to the NW across the Buffer Area.
5. Grading of the Buffer Area must be level perpendicular to the flow.
6. It is critical that the base of the west spreader wall be as level north to south as possible.
7. The area must be stripped to mineral soil and a minimum of 6" of clean well graded sand and gravel be placed under area of all concrete areas.
8. The Conservation Technician must be called to **inspect the** steel reinforcement in the wall and floor before concrete is ordered.
9. ALL concrete shall have white pigmented curing compound applied as soon as it is possible to walk on without causing damage. This covering shall remain for 7 days and be reapplied if compromised. See Wis. Spec 4 "Concrete" attached to plan.
10. Seed all exposed areas with Barron County 2012 mix and mulch areas.

Dean West
Barron County SWCD
Barnyard Runoff System
Designed WKS Checked JD
Sheet 2 of 19

ESTIMATED QUANTITIES

ITEM	UNIT	QUANTITY	SHEET NUMBER	WI. CONSTRUCTION SPEC. OR JOB SHEET NUMBER
Grassed Waterway	Lin Ft	200	16	
Clean Water Diversion	Lin Ft	350	15	
Concrete				Wis Construction Spec #4
Feeding Area	Sq Ft	3000	6	Wis Construction Spec #4
	yd3	46.2		
Crossing/Lane	Sq Ft	1200	7	Wis Construction Spec #4
	yd3	22		
2' Spreader Wall	Lin Ft	60	9	Wis Construction Spec #4
	yd3	8		
2' Wall -North and South	Lin Ft	70	13	Wis Construction Spec #4
	yd3	8.5		
Total Yardage	yd3	84.7		
Concrete Bricks or Chairs	1	Job	6	
Steel #3	lbs	2243	6,7	
#4	lbs	1523.5	9,13	
Curing Compound	1	Job		Wis Construction Spec #4
Feeding Area Fencing on Walls	Lin Ft	130	11	
Cattle Fencing	Lin Ft	950	17	
Seeding	Ac	2	19	

Quantities are estimated to the neat lines and grades of in-place materials shown on the construction plan unless otherwise stated. Truck yardage, loose fill, shrinkage, etc., must be calculated and compensated for by the contractor preparing a bid or constructing the project.



ESTIMATED QUANTITIES

CLIENT: Dean West

COUNTY: Barron

Designed WTG Date 4-12

Drawn _____

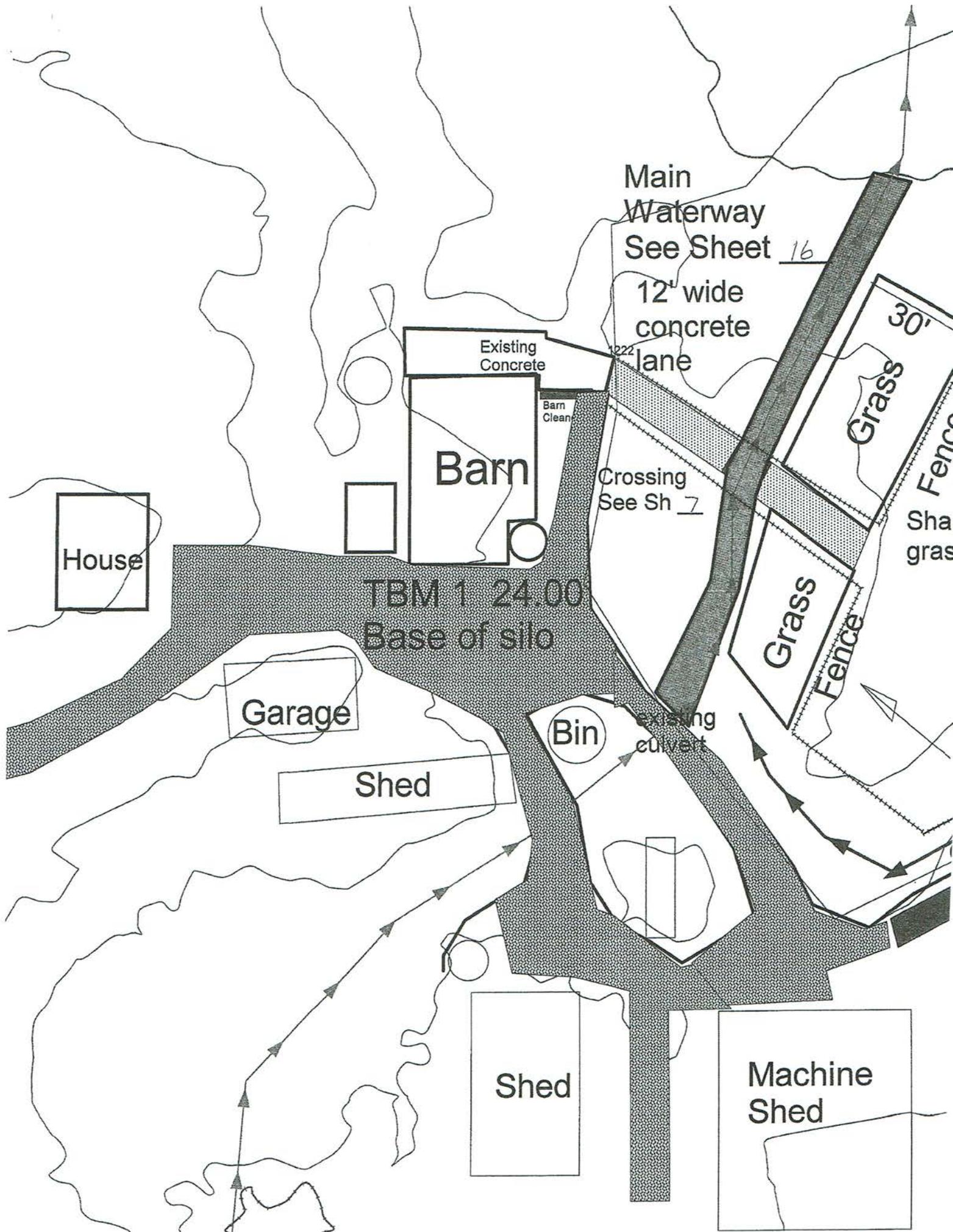
Checked DS 5/12

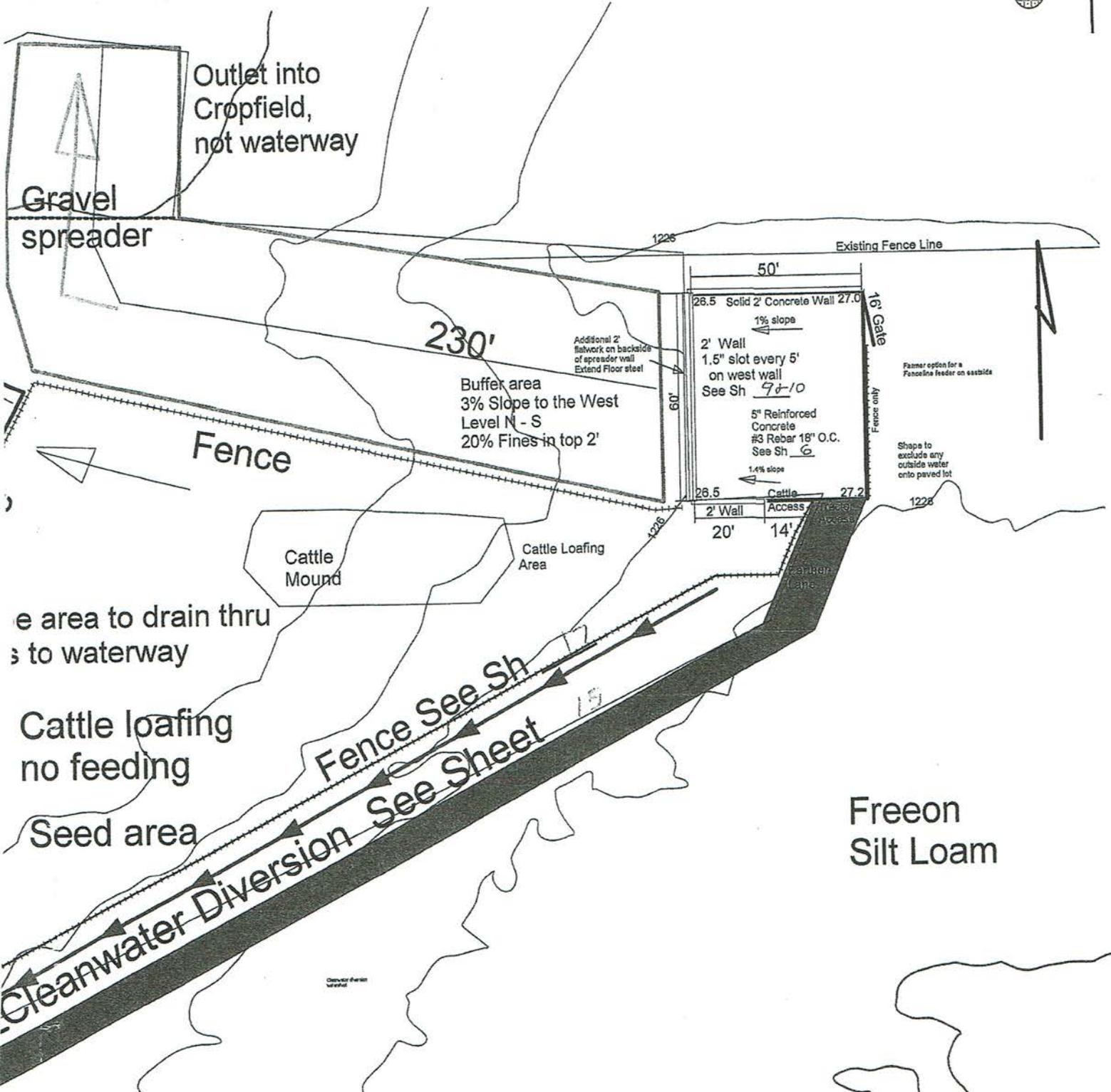
Approved _____

Drawing Name WI-005

Date 5/09

Sheet 3 of 19





Outlet into Cropfield,
not waterway

Gravel spreader

230'

Buffer area
3% Slope to the West
Level N - S
20% Fines in top 2'

Fence

Existing Fence Line

50'

26.5 Solid 2' Concrete Wall 27.0'

1% slope

2' Wall
1.5" slot every 5'
on west wall
See Sh 9+10

5" Reinforced Concrete
#3 Rebar 18" O.C.
See Sh 6

1.4% slope

16' Gate

Farmer option for a Fenceline feeder on eastside

Shops to exclude any outside water onto paved lot

26.5

27.2

2' Wall

Access

20'

14'

1228

Area to drain through
to waterway

Cattle loafing
no feeding

Seed area

Cattle Mound

Cattle Loafing Area

Fence See Sh

See Sheet

Freeon
Silt Loam

Cleanwater Diversion

100'

Dean West
Barnyard Runoff System
Designed WTG
Checked DT
Page 4 of 19



Professional Service Contract

This contract sets forth an agreement between the **Turtle Lake Stakeholders Board , Barron County, Wisconsin** (the Client) and Steve Schieffer-**Ecological Integrity Service, LLC** (the Consultant) for the provision of tributary water budget and phosphorus budget determination services. Services will be provided to complete an assessment of the water budget and phosphorus budget contributions of 3 tributaries and the outlets of Upper and Lower Turtle Lakes. The contact for Ecological Integrity Service is Steve Schieffer, 754 107th St., Amery, WI 54001. Telephone: 715-554-1168. email: ecointegservice@gmail.com. The primary contact for the Turtle Lake Stakeholders Board is Corry Walbridge, 2439 Churchill St. N, Roseville MN 55113.

A. Scope of Work

The scope of work includes the installation, calibration and maintenance of 5 pressure transducers that will monitor the water depth (stage) in 3 tributaries and the 2 outlets on Upper Turtle Lake and Lower Turtle Lake every hour and log those values. The locations have been assigned by the Turtle Lake protection project scope. The depth of the flow channel and flow volume will be determined in cubic feet per second on 8 occasions to attempt to get represented flow ranging from high to low. This flow will then be correlated with the stage and used to determine the daily flow. Nutrient samples collected by the District will then be used to calculate the estimated water volume and mass of phosphorus entering and leaving the lakes. Water sample collection is the responsibility of the Turtle Lake District.

B. Deliverables

All stage, flow and nutrient data provided on CD, with a written summary of data. A photo ready color copy will also be provided.

C. Costs (amount invoiced will not exceed estimated cost)

<u>Activity</u>	<u>Estimated cost</u>
<i><u>Water stage dataloggers* (5) installed and calibrated at five locations.</u></i>	<u>\$2,050.00</u>
<i><u>Stage vs flow curve established during 8 dates, with minimum one occurring after large storm event and minimum one occurring during low flow*.</u></i>	<u>\$1,850.00</u>
<i><u>Data collection, calculations, graphing of daily stage, flow and loading (SRP, Total P and TSS). Mean daily loading as well as entire segment loading provided.</u></i>	<u>\$825.00</u>
<i><u>Travel (approx. 400 miles)</u></i>	<u>\$224.00</u>
<i><u>Total estimate</u></i>	<u>\$4,949.00</u>

D. Contract Terms

A summary will be developed according to a schedule agreed to by the Client and the Consultant. The timeline presented will be the estimated time of completion. The timeline is installation and calibration of stage transducers 5/10/14. Stage transducers deployed until 10/31/14 (or other date requested). Flow data will occur throughout the time of 5/2014 through 10/14. Data, calculations and deliverables by Dec. 31, 2014.

Consultant and Professional Scientists shall be compensated for services at the rate of \$75 per hour, and Assistant Scientists will bill at a rate of \$20 per hour. All shall be paid mileage at the federal IRS reimbursement rate. The rate is currently 56 cents per mile. Postage, duplication, and other expenses will be reimbursed at cost (included in estimate). All of these are part of the proposed cost. Invoices for services will be provided to the primary contact listed unless otherwise directed by that primary contact.

Any additional work with estimated associated cost will be identified in writing and submitted to the Client for written approval, prior to initiating any additional work. If approved by the Client, this additional work as the result of such delays will be billed at Consultant rate.

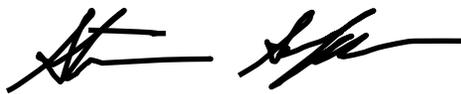
If Consultant should become unable to complete the Scope of Services, a mutually agreed sub contractor may be secured to finish the Scope. Illness, injury or family emergencies will qualify for reasons unable to complete Scope of Service.

The Consultant will submit invoice at summary completion, payable by the Client within 30 days after submission.

This contract initially only authorizes initiation of the scope of work.

The contract will be in effect when signed by both parties and will remain in effect through Completion of Scope of Services or Jan 15, 2015, whichever is later. This contract may be amended at any time by mutual agreement of the parties in writing.

Corry Walbridge
Turtle Lake Stakeholders' Board



Steve Schieffer
Ecological Integrity Service, LLC

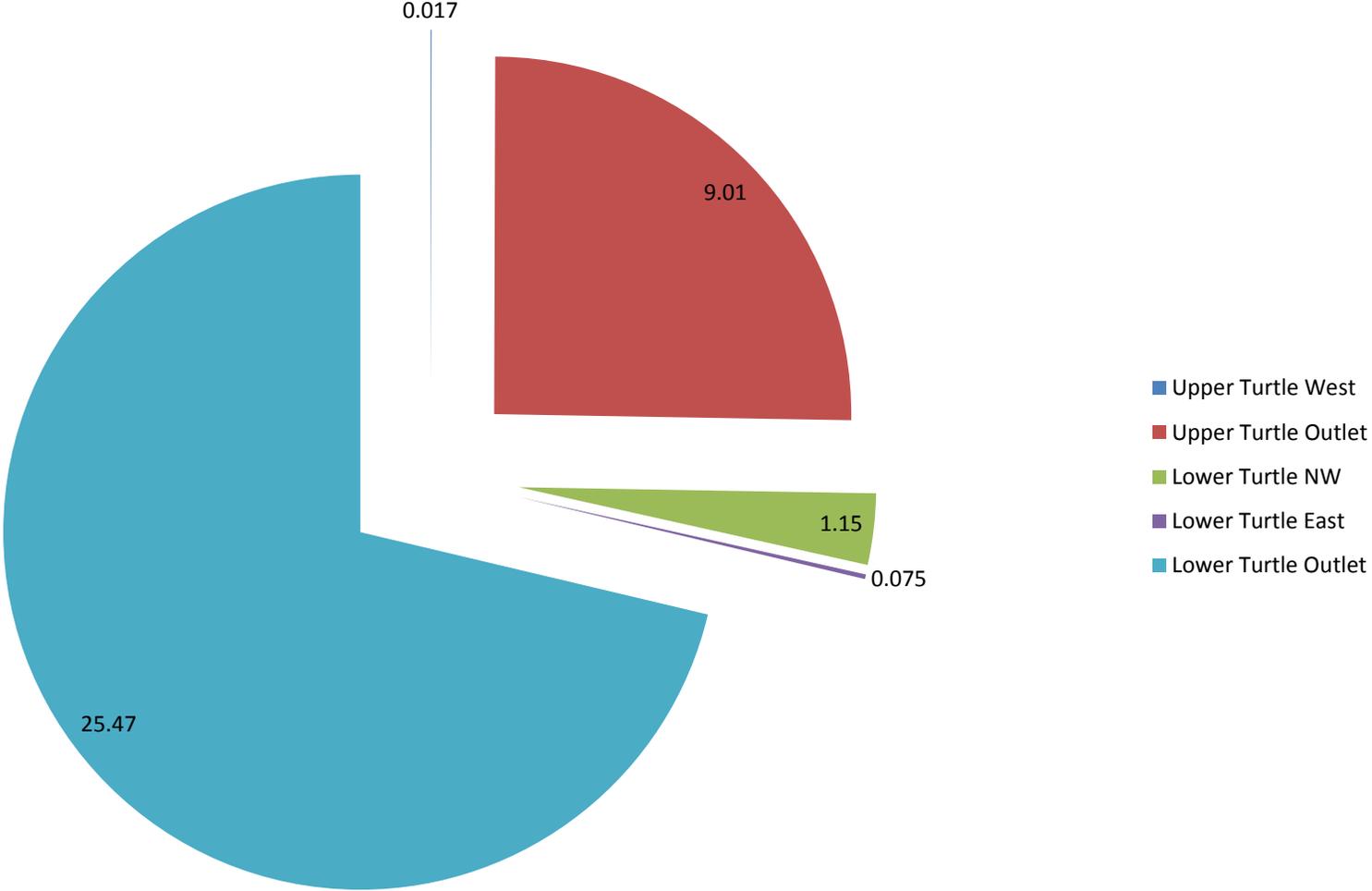
Date

Date

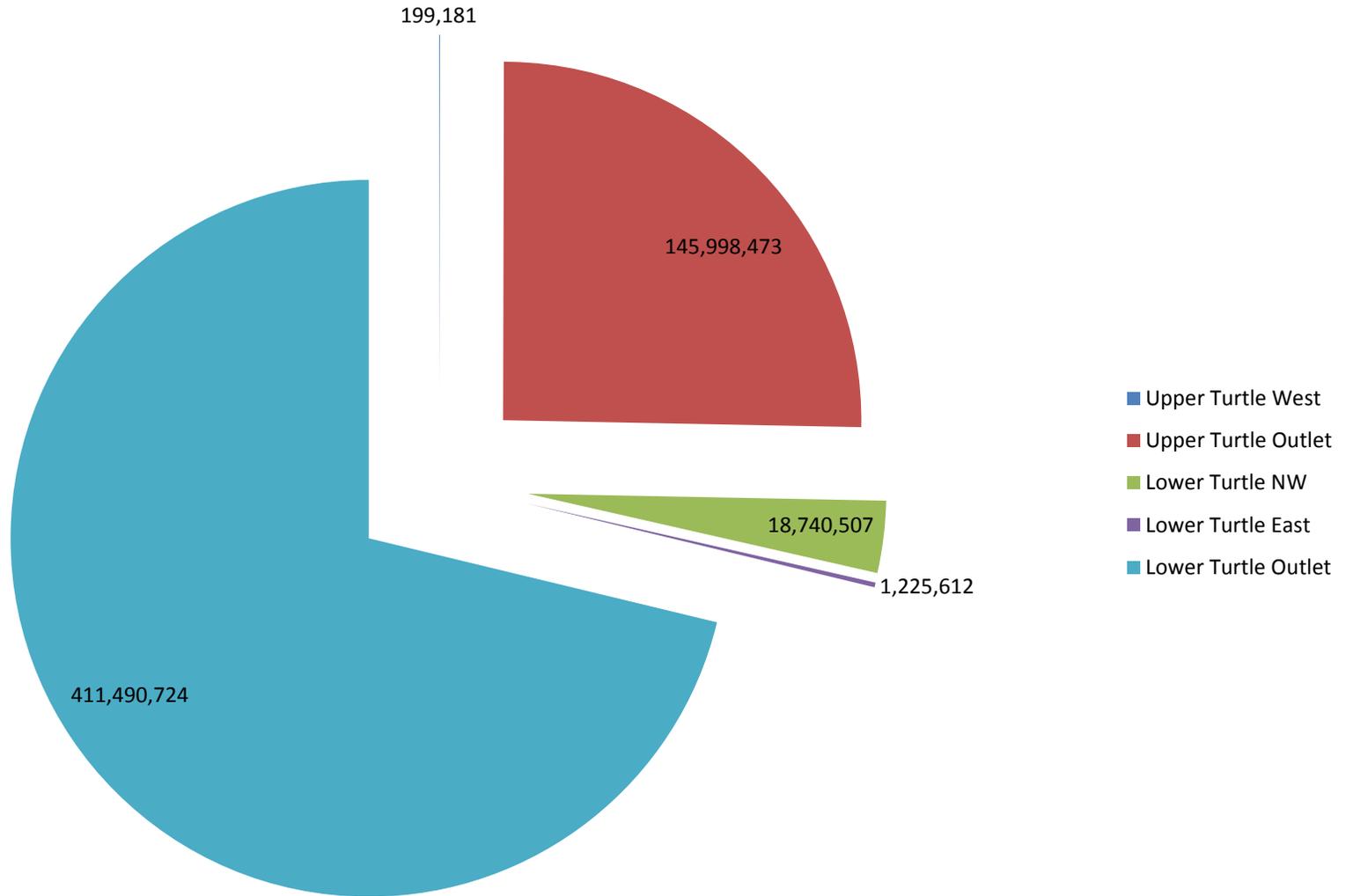
2014 Turtle Lake Tributary Sampling Results

Site	Mean Daily Flow (cubic feet/second)	Mean TP (mg/L)	Est Total Load TP (kg/187 days)	Est Total Load SRP (kg/187/days)	Est Total Load TSS (kg/187 days)	Total Volume of Flow (gallons/187 days)
Upper Turtle West	0.017	0.156	0.88	0.234	184.66	199,181
Upper Turtle Outlet	9.01	0.053	219.11	30.18	25921	145,998,473
Lower Turtle NW	1.15	0.407	215.98	103.43	22893	18,740,507
Lower Turtle East	0.075	0.522	18.12	13.07	906.7	1,225,612
Lower Turtle Outlet	25.47	0.064	745.73	90.89	137727	411,490,724

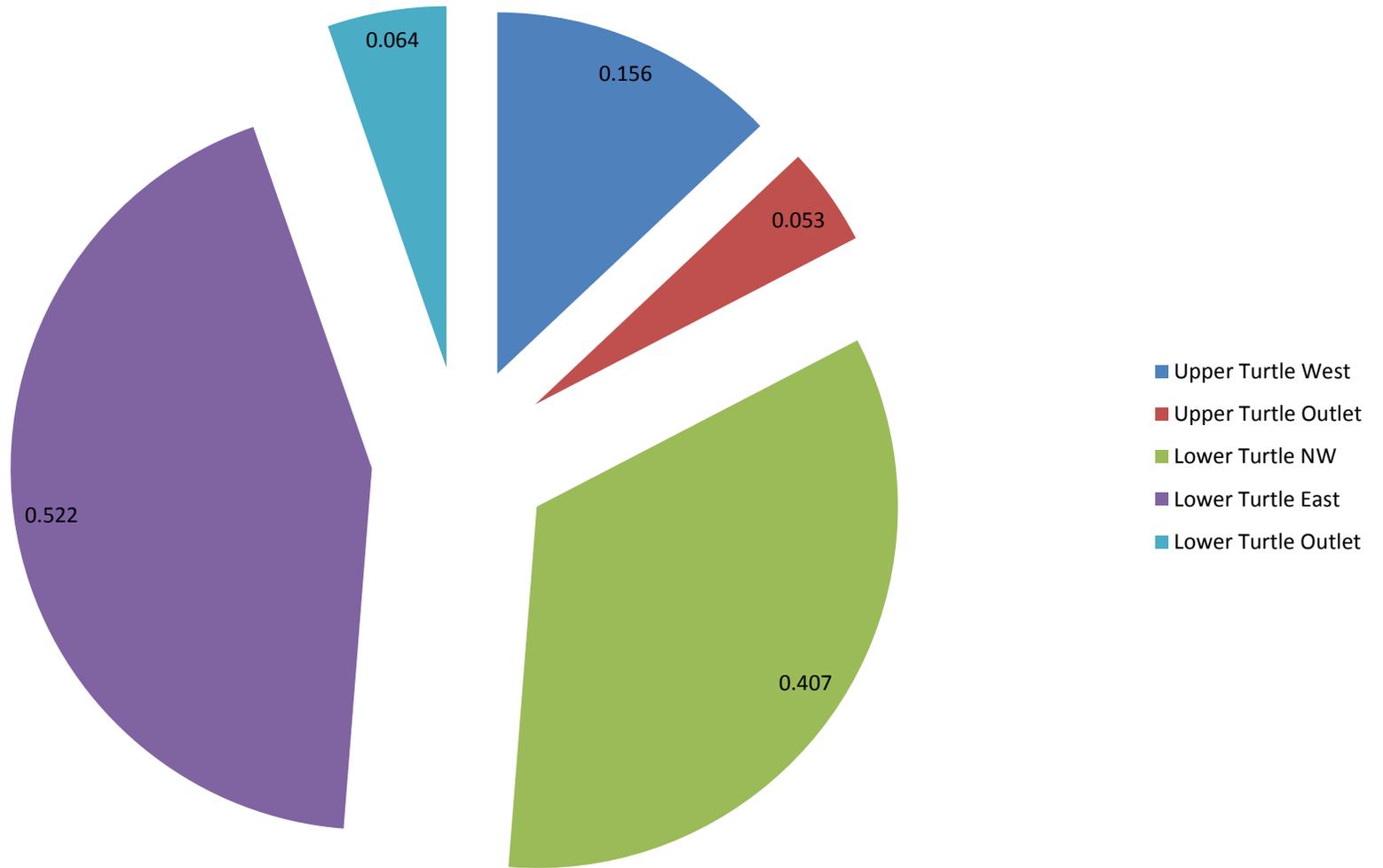
2014 Turtle Lake Tributary Sampling Results Mean Daily Flow (cubic feet/second)



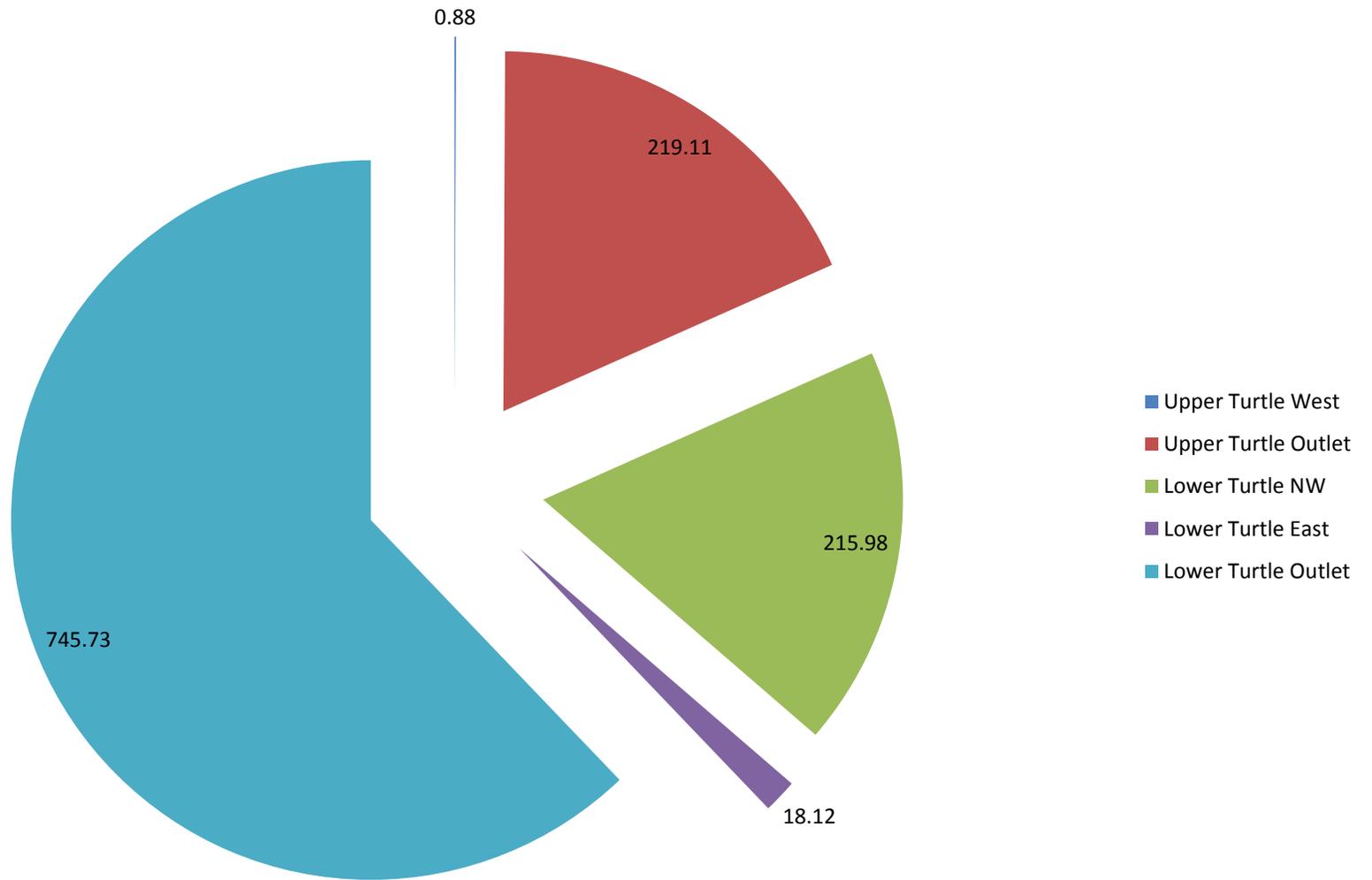
Total Volume of Flow (cubic feet/187 days)



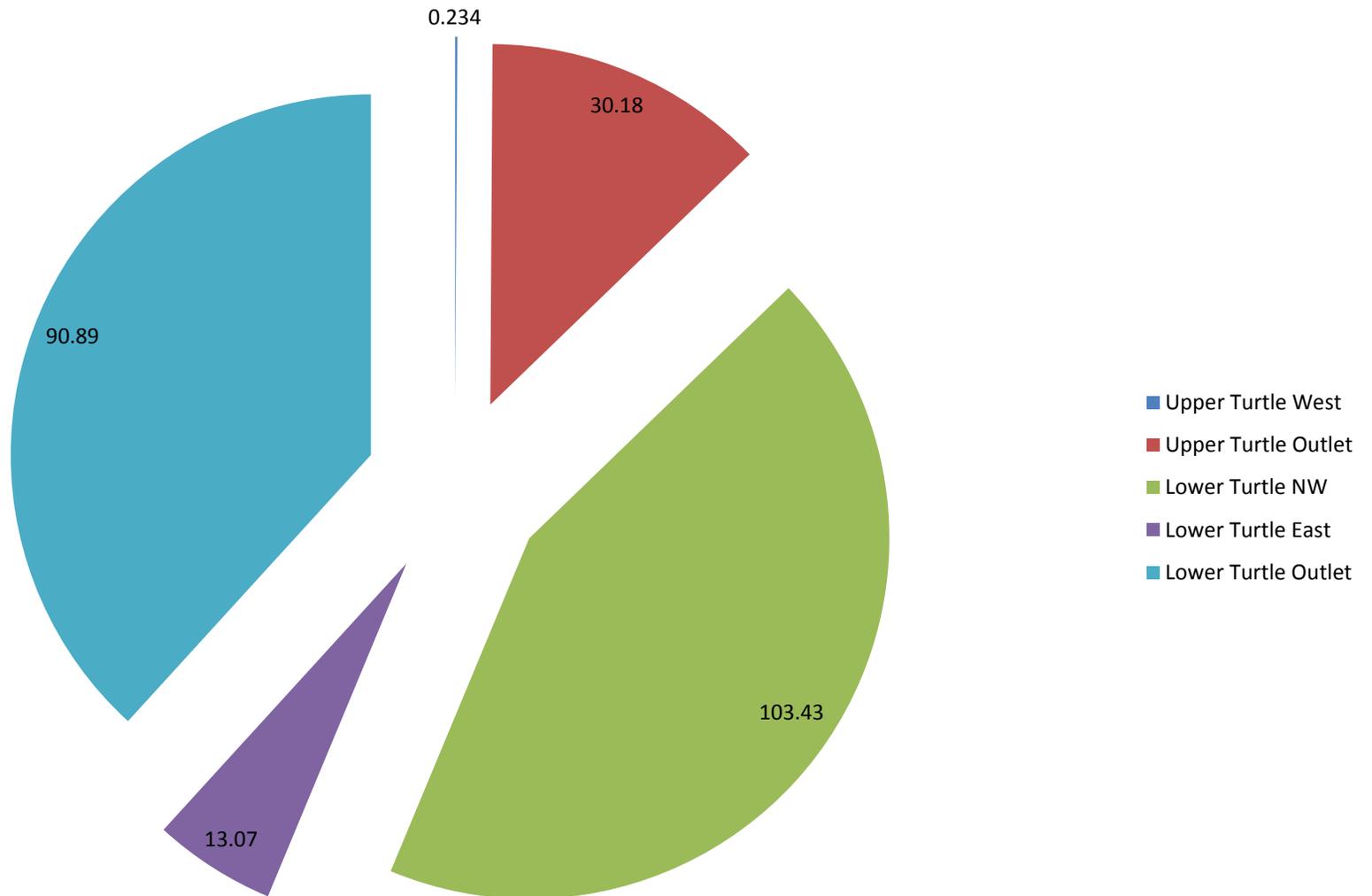
Mean Total Phosphorus (mg/L)



Est Total Load Total Phosphorus (kg/187 days)



Est Total Load Soluable Reactive Phosphorus (kg/187/days)



Est Total Load Total Suspended Solids (kg/187 days)

