

**Coon Creek Riparian Buffer and Nutrient Offset Mitigation Project
2014 Monitoring Report
Monitoring Year 1 of 5**

**Granville County, North Carolina
Tar-Pamlico River Basin
USGS Hydrologic Unit 03020101**

**NCEEP Project No. 95807
NCEEP Contract No. 5153**



Submitted to:

North Carolina Department of Environment and Natural Resources
Ecosystem Enhancement Program
1652 Mail Service Center
Raleigh, NC 27699-1652

FINAL – 2014 Monitoring Report – Year 1 of 5

Project Construction Completed: 2014
Data Collection for Monitoring Year 1 of 5
Report Submitted: December 2014



**Coon Creek Riparian Buffer and Nutrient Offset Mitigation Project
2014 Monitoring Report
Monitoring Year 1 of 5**

**Granville County, North Carolina
Tar-Pamlico River Basin**

Submitted to:

**NC Department of Environment and Natural Resources
Ecosystem Enhancement Program
1652 Mail Service Center
Raleigh, NC 27699-1652**

Prepared by:

**O'Brien & Gere Engineers, Inc.
3214 Charles B Root Wynd
Raleigh, NC 27612**

And:

**EEE Consulting, Inc.
601 Cascade Pointe Lane, Suite 101
Cary, NC 27513**

**Project Manager:
Michael Hall, PG
919-987-3060
Michael.hall@obg.com**

December 2014

FINAL



TABLE OF CONTENTS

1.0 Mitigation Project Summary	1
2.0 Annual Monitoring	2
2.1 Methods	2
2.2 Results and Discussion	2
2.3 Maintenance and Management.....	3
3.0 Regulatory Considerations.....	4
3.1 Project Components and Mitigation Credits.....	4
3.2 Summary.....	4
4.0 References	5

List of Figures

1. Vicinity Map
2. Project Components
3. Year 1 Monitoring Results

List of Tables

1. Project Activity and Reporting History
2. Monitoring Efforts
3. Maintenance Activities
4. Project Components and Mitigation Credits

List of Appendices

- A. Photo Documentation
- B. CVS Vegetation Monitoring Output Tables

1.0 MITIGATION PROJECT SUMMARY

The Coon Creek Riparian Buffer and Nutrient Offset Mitigation Project (the Project) site is located in Granville County in the Tar-Pamlico River Basin (Figure 1: Vicinity Map). Much of the Tar-Pamlico River Basin has a history of nutrient stressor issues. Coon Creek is located within the N.C. Ecosystem Enhancement Program's (EEP's) Fishing Creek Local Watershed Plan to address agricultural stressors and identify potential restoration opportunities. As part of the larger Tar-Pamlico River Basin, Coon Creek is located in U.S. Geological Survey (USGS) hydrologic unit code (HUC) 03020101020010, which is identified in the 2010 Tar-Pamlico River Basin Restoration Priorities Report as a Targeted Local Watershed (TLW) to promote nutrient and sediment reduction in agricultural areas by restoring and preserving wetlands, streams, and riparian buffers. Projects that reduce sediment impacts and re-establish riparian buffers are a top priority for the Fishing Creek Watershed.

The Project established 30.19 acres of buffer easement along four unnamed tributaries (UT1 through UT4) to Coon Creek, including along Crews Farm Lake, an in-line impoundment (Figure 2: Project Component), and will result in a maximum of 8.1 Riparian Mitigation Units (RMUs) and 14.5 Nutrient Mitigation Units (NMUs). Riparian mitigation activities begin at the top-of-bank and generally extend out to 100 ft, and nutrient offset mitigation activities begin at 100 ft and extend out to 200 ft.

Monitoring Year 1 has been completed for the Project, and 87 percent of the monitoring plots are meeting or exceeding success criteria. No remedial action is currently required. Overall, the Project is in excellent condition.

Table 1 below shows the timeline of completed and future project activities.

Table 1: Project Activity and Reporting History

Activity or Deliverable	Data Collection Complete	Completion or Delivery
Institution Date	Mar-13	N/A
Categorical Exclusion	Jul-13	Jul-13
Mitigation Plan	Sep-13	Nov-13
Final Design – Planting Plans	Nov-13	Nov-13
Planting	Jan -14	Feb -14
As-built (Year 0 Monitoring - baseline)	Feb-14	May-14
Year 1 Monitoring	Sept-14	Nov-14
Year 2 Monitoring	TBD	TBD
Year 3 Monitoring	TBD	TBD
Year 4 Monitoring	TBD	TBD
Year 5 Monitoring	TBD	TBD

2.0 ANNUAL MONITORING

2.1 METHODS

Annual monitoring of the parameters listed below were conducted and reported using the Riparian Buffer and Nutrient Offset Buffer Annual Monitoring Report Template (ver. 1.0; EEP, 2014).

Table 2: Monitoring Efforts

Required	Parameter	Quantity	Frequency	Notes
X	Vegetation	23 Plots (2.5% of Planted Area)	Annual	Vegetation will be monitored using the CVS-EEP Level 1 and 2 protocols
X	Exotic and nuisance vegetation		Annual	Locations of exotic and nuisance vegetation will be identified
X	Project Boundary		Semi-annual	Locations of vegetation damage, boundary encroachments, etc. will be mapped

To assess whether the vegetation performance standards are achieved, the Carolina Vegetation Survey (CVS)-EEP Protocol for Recording Vegetation Version 4.2 (Lee *et al.*, 2008) was used to perform annual Level 2 monitoring of 23 plots distributed across the planted area (Figure 3: Year 1 Monitoring Results). These plots were placed throughout the re-established buffer to get a representative sample of planted vegetation. To prevent unreasonably short time spans between the collection of vegetation baseline data and the first collection of Year 1 Vegetation Monitoring Data, Year 1 data was collected in September. The second and all subsequent years of vegetation monitoring data will be collected between June 1 and September 31. Individual plot data will be provided to EEP and CVS following CVS-EEP guidance. Each corner of the vegetation plot was marked with steel electrical metallic tubing (EMT) driven into the ground and capped. Pink flagging was used to mark the counted stems, orange flagging was used to mark the southwest vegetation plot corner pins, and blue flagging was used to mark the other three corners. The four corners of each vegetation plot were recorded using a sub-meter accuracy Trimble Geo XH handheld GPS unit.

General visual vegetation monitoring was also performed. This inspection assessed any potential problems such as poor stem density areas, areas of poor growth rate/poor vigor, bare areas, and problematic invasive species.

Photographs of vegetation plots were taken at each photo station, which is located at the southwest corner of each plot, facing diagonal to the northeast corner. Photographs can be found in Appendix A.

Vegetation data output tables can be found in Appendix B. The measure of vegetative success for the site will be the survival of at least 320 planted hardwood stems per acre at the end of the fifth monitoring year.

2.2 RESULTS AND DISCUSSION

All monitoring activities were conducted successfully, and overall the site is in very good condition. Vegetation plot data was collected on September 17 to 18, 2014. Of the 23 plots sampled, 20 plots met or exceeded the success criteria (Figure 3: Year 1 Monitoring Results and Appendix B: CVS Vegetation Monitoring Output Tables). Vegetation plots 12, 14, and 15 did not meet success criteria. It appears that vegetation plot 12 did not meet success criteria because significant amounts of sediment eroded from the upland slope during storm events and either buried or washed away planted stems. Vegetation plots 14 and 15 also did not meet success criteria, and it appears that the soil in those locations was compacted from previous agricultural activities. It may be that

the planted stems have not established well in those conditions. During the Year 1 monitoring site visit with Heather Smith and Lindsay Fairchild of EEP on September 24, 2014, it was decided that O'Brien & Gere will not take remedial action in these areas because the volunteer stems are flourishing, and missing stems may be identified during Year 2 monitoring. Should these areas continue to demonstrate planted stem density that does not meet success criteria in Year 2 monitoring, O'Brien & Gere will take remedial action, which would likely include supplemental planting and hand fertilization.

An approximately 30-foot by 30-foot area of common reed (*Phragmites australis*) was identified within the conservation easement boundary on the east side of UT1 to Coon Creek, just north of the farm crossing north of Winding Oak Road. The area was treated on September 15, 2014 by River Works using an herbicide, and it will continue to be monitored in subsequent monitoring visits. Other than this area, problem areas of invasive species, low stem density, or bare soil that warrant remedial action were not identified within the conservation easement during Monitoring Year 1.

There were six conservation easement signs that were damaged by farming activities at the edge of the easement; these signs will be replaced by January 2015.

2.3 MAINTENANCE AND MANAGEMENT

The site is monitored annually, and physical inspection of the site will be conducted twice per year throughout the post-construction monitoring period, or until performance standards are met. During Year 1, vegetation monitoring was conducted September 18-19, 2014, and physical inspections were conducted on May 6, 2014 and September 19, 2014. Routine maintenance planned for the coming year includes the following:

Table 3: Maintenance Activities

Component/Feature	Maintenance Activities
Vegetation	Invasive plant species, areas of bare soil, and poor stem density will be monitored during annual monitoring efforts. An approximately 30-foot by 30-foot area of common reed (<i>Phragmites australis</i>) was treated in September 2014. This area will be monitored for re-sprouting during Year 2.
Site Boundary	Boundary markers disturbed, damaged, or destroyed will be repaired and/or replaced on an as needed basis. The six damaged signs observed in 2014 will be replaced in January 2015
Ford Crossing	The ford crossings within the site will be maintained by the landowner and only as allowed by the Conservation Easement.
Irrigation Access	The mobile irrigation equipment access point to Crews Farm Lake will be maintained by the landowner and only as allowed by the Conservation Easement.

No remedial activities are needed to address performance deficiencies at this time.

3.0 REGULATORY CONSIDERATIONS

3.1 PROJECT COMPONENTS AND MITIGATION CREDITS

Table 4: Project Components and Mitigation Credits

Component Summation		
Restoration Level	Buffer (square ft)	Nutrient Offset (square ft)
0 to 50 feet from TOB	187,308	N/A
50 to 100 feet from TOB	174,240	N/A
100 to 200 feet from TOB	N/A	631,620
Total Restoration	361,548	631,620

While 361,548 ft² of riparian buffer (8.3 acres) was planted for the Project, the Project can generate a maximum of 8.1 mitigation credits per Full-Delivery Contract No. 5153. Therefore, the mitigation credits and restoration acreages in the following tables reflect the allowable credits, as opposed to the planted riparian buffer acreage.

Mitigation Credits			
Type	Riparian Buffer Restoration	Nitrogen Nutrient Offset	Phosphorous Nutrient Offset
Totals	352,836 ft ² (8.1 acres)	631,620 ft ² (32,959.95 lbs)	631,620 ft ² (2,122.80 lbs)

Project Components					
Project Component or Reach ID	Stationing/ Location	Approach (PI, PII, etc.)	Restoration or Restoration Equivalent	Restoration Acreage	Mitigation Ratio
UT1 and UT2	North of Winding Oak Rd	Planting	Buffer Restoration	5.1*	1:1
		Planting	Nutrient Offset Restoration	7.3	1:1
UT1 and UT3	South of Winding Oak Rd	Planting	Buffer Restoration	0.8	1:1
		Planting	Nutrient Offset Restoration	1.0	1:1
UT4 and Crews Farm Lake	South of Winding Oak Rd	Planting	Buffer Restoration	2.2	1:1
		Planting	Nutrient Offset Restoration	6.2	1:1

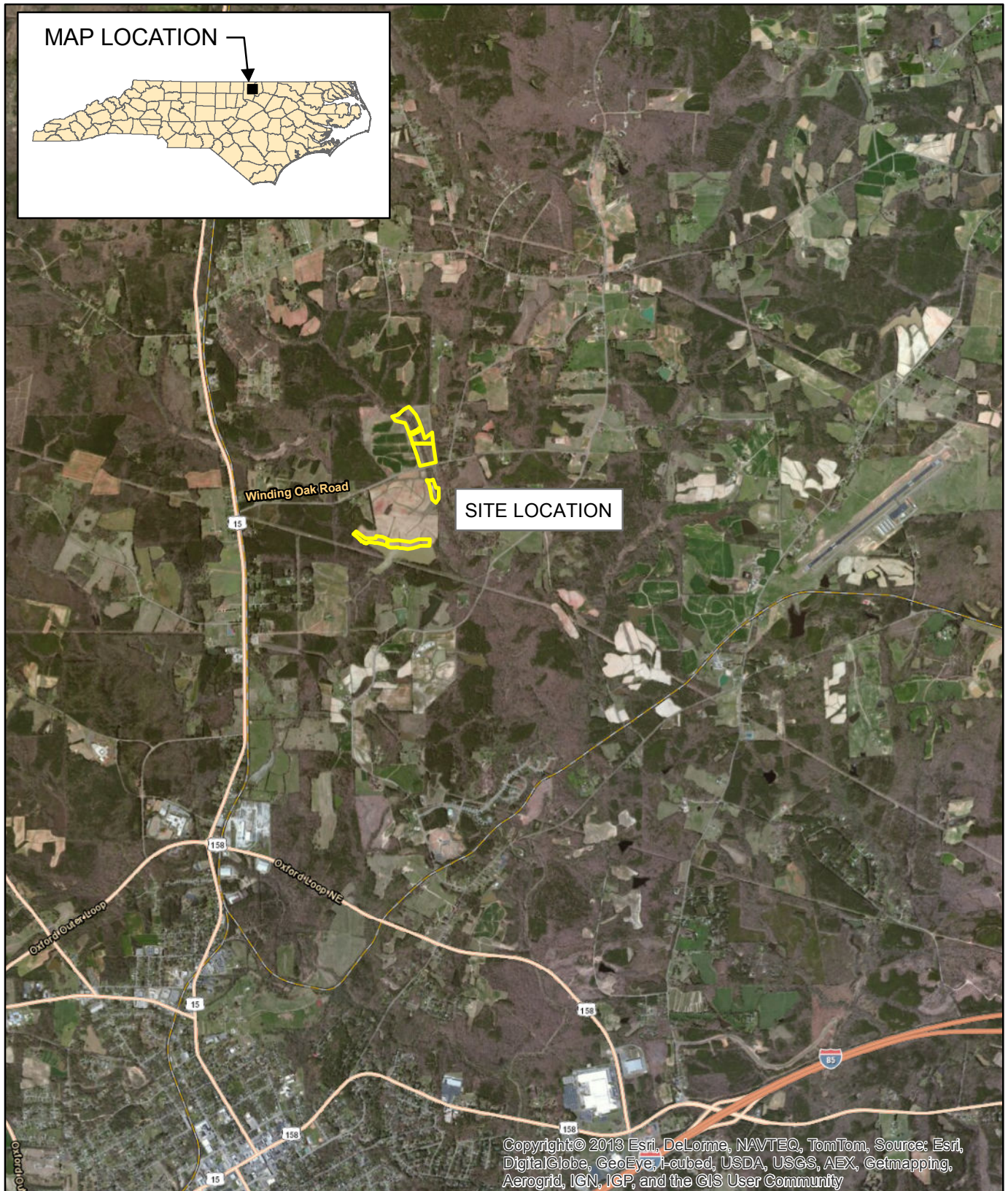
*Actual planted acreage was 5.2 acres. As described above, the Project can generate a maximum of 8.1 buffer credits.

3.2 SUMMARY

All mitigation activities to date have been successful. This Project is currently on track to provide the credits described in the table above.

4.0 REFERENCES

Lee, Michael T., R. K. Peet, S. D. Roberts, and T. R. Wentworth. 2008. CVS-EEP Protocol for Recording Vegetation, Version 4.2 Available URL: <http://cvs.bio.unc.edu/methods.htm>. [Date Accessed: 14 October 2013].

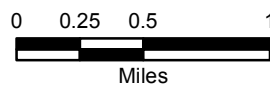


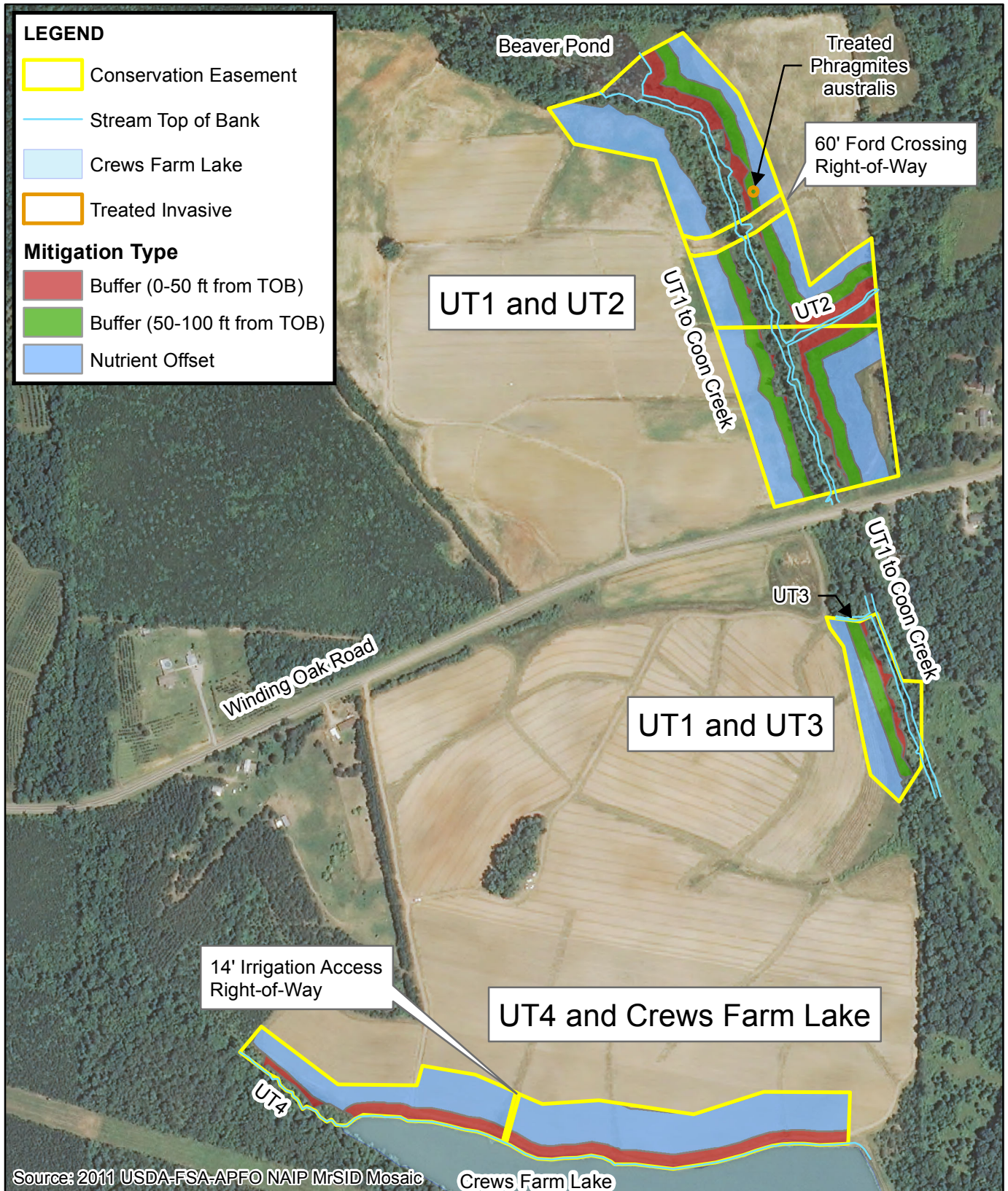
LEGEND

 Project Area

NCEP FULL DELIVERY PROJECT #95807
COON CREEK RIPARIAN BUFFER AND
NUTRIENT OFFSET MITIGATION PROJECT
GRANVILLE COUNTY, NC

VICINITY MAP



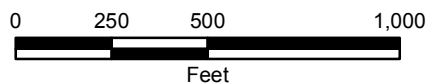


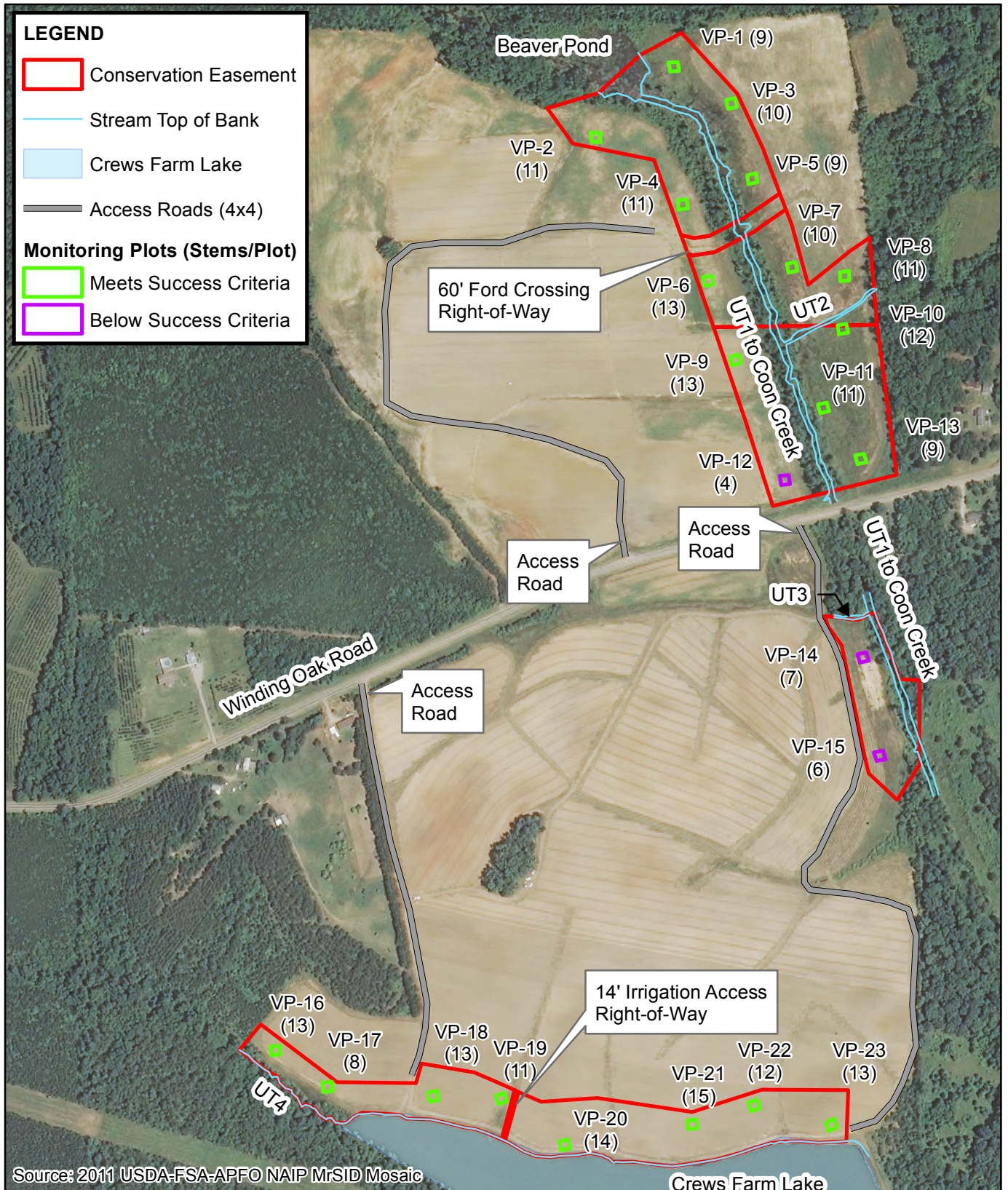
NCEP FULL DELIVERY PROJECT #95807
 COON CREEK RIPARIAN BUFFER AND
 NUTRIENT OFFSET MITIGATION PROJECT
 GRANVILLE COUNTY, NC

PROJECT COMPONENTS



12/11/2014
 50349



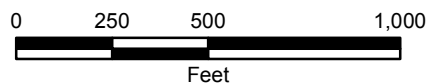


NCEP FULL DELIVERY PROJECT #95807
 COON CREEK RIPARIAN BUFFER AND
 NUTRIENT OFFSET MITIGATION PROJECT
 GRANVILLE COUNTY, NC

YEAR 1 MONITORING RESULTS




10/31/14
 50349




BASELINE MONITORING PHOTOGRAPHS

Client Name NCEEP		Site Location Granville County	Project No. 95807
Photo No. 1	Date 9/18/14		
DESCRIPTION Vegetation Monitoring Plot and Photo Point 1, view northwest from southwest corner.			


Client Name NCEEP		Site Location Granville County	Project No. 95807
Photo No. 2	Date 9/18/14		
Description Vegetation Monitoring Plot and Photo Point 2, view northwest from southwest corner.			

Client Name NCEEP		Site Location Granville County	Project No. 95807
Photo No. 3	Date 9/18/14		
Description Vegetation Monitoring Plot and Photo Point 3, view northwest from southwest corner.			

Client Name NCEEP		Site Location Granville County	Project No. 95807
Photo No. 4	Date 9/18/14		
Description Vegetation Monitoring Plot and Photo Point 4, view northwest from southwest corner.			


Client Name NCEEP		Site Location Granville County	Project No. 95807
Photo No. 5	Date 9/18/14		
Description Vegetation Monitoring Plot and Photo Point 5, view northwest from southwest corner.			


Client Name NCEEP		Site Location Granville County	Project No. 95807
Photo No. 6	Date 9/18/14		
Description Vegetation Monitoring Plot and Photo Point 6, view northwest from southwest corner.			

Client Name NCEEP		Site Location Granville County	Project No. 95807
Photo No. 7	Date 9/18/14		
Description Vegetation Monitoring Plot and Photo Point 7, view northwest from southwest corner.			


Client Name NCEEP		Site Location Granville County	Project No. 95807
Photo No. 8	Date 9/18/14		
Description Vegetation Monitoring Plot and Photo Point 8, view northwest from southwest corner.			


Client Name NCEEP		Site Location Granville County	Project No. 95807
Photo No. 9	Date 9/18/14		
Description Vegetation Monitoring Plot and Photo Point 9, view northwest from southwest corner.			


Client Name NCEEP		Site Location Granville County	Project No. 95807
Photo No. 10	Date 9/18/14		
Description Vegetation Monitoring Plot and Photo Point 10, view northwest from southwest corner.			

Client Name NCEEP		Site Location Granville County	Project No. 95807
Photo No. 11	Date 9/18/14		
Description Vegetation Monitoring Plot and Photo Point 11, view northwest from southwest corner.			

Client Name NCEEP		Site Location Granville County	Project No. 95807
Photo No. 12	Date 9/18/14		
Description Vegetation Monitoring Plot and Photo Point 12, view northwest from southwest corner.			

Client Name NCEEP		Site Location Granville County	Project No. 95807
Photo No. 13	Date 9/18/14	 <p>VP 13 sw</p>	
Description Vegetation Monitoring Plot and Photo Point 13, view northwest from southwest corner.			


Client Name NCEEP		Site Location Granville County	Project No. 95807
Photo No. 14	Date 9/17/14	 <p>VP 14 sw</p>	
Description Vegetation Monitoring Plot and Photo Point 14, view northwest from southwest corner.			

Client Name NCEEP		Site Location Granville County	Project No. 95807
Photo No. 15	Date 9/17/14	 <p>VP 15 sw</p>	
Description Vegetation Monitoring Plot and Photo Point 15, view northwest from southwest corner.			

Client Name NCEEP		Site Location Granville County	Project No. 95807
Photo No. 16	Date 9/17/14	 <p>VP 16 sw</p>	
Description Vegetation Monitoring Plot and Photo Point 16, view northwest from southwest corner.			

Client Name NCEEP		Site Location Granville County	Project No. 95807
Photo No. 17	Date 9/17/14		
Description Vegetation Monitoring Plot and Photo Point 17, view northwest from southwest corner.			


Client Name NCEEP		Site Location Granville County	Project No. 95807
Photo No. 18	Date 9/17/14		
Description Vegetation Monitoring Plot and Photo Point 18, view northwest from southwest corner.			

Client Name NCEEP		Site Location Granville County	Project No. 95807
Photo No. 19	Date 9/17/14		
Description Vegetation Monitoring Plot and Photo Point 19, view northwest from southwest corner.			

Client Name NCEEP		Site Location Granville County	Project No. 95807
Photo No. 20	Date 9/17/14		
Description Vegetation Monitoring Plot and Photo Point 20, view northwest from southwest corner.			

Client Name NCEEP		Site Location Granville County	Project No. 95807
Photo No. 21	Date 9/17/14	 <p>WP 21 sw</p>	
Description Vegetation Monitoring Plot and Photo Point 21, view northwest from southwest corner.			

Client Name NCEEP		Site Location Granville County	Project No. 95807
Photo No. 22	Date 9/17/14	 <p>WP 22 sw</p>	
Description Vegetation Monitoring Plot and Photo Point 22, view northwest from southwest corner.			

Client Name NCEEP		Site Location Granville County	Project No. 95807
Photo No. 23	Date 9/17/14		
Description Vegetation Monitoring Plot and Photo Point 23, view northwest from southwest corner.			

Appendix B

EPP Project Code 95807. Project Name: Coon Creek Riparian Buffer and Nutrient Offset Mitigation Project
 "Table 7" - Current Plot Data and Annual Means (MY1 2014)

		Current Plot Data (MY1 2014)																								
Scientific Name	Common Name	Species Type	95807-01-0001			95807-01-0002			95807-01-0003			95807-01-0004			95807-01-0005			95807-01-0006			95807-01-0007			95807-01-0008		
			PnoLS	P-all	T	PnoLS	P-all	T	PnoLS	P-all	T	PnoLS	P-all	T	PnoLS	P-all	T	PnoLS	P-all	T	PnoLS	P-all	T	PnoLS	P-all	T
Acer rubrum	red maple	Tree						1						1												
Asimina triloba	pawpaw	Tree	1	1	1																		1	1	1	
Carpinus caroliniana	American hornbeam	Tree	1	1	1									1	1	1					1	1	1			
Carya alba	mockernut hickory	Tree												1												
Cercis canadensis	eastern redbud	Tree							1	1	1	1	1	1				1	1	1						
Cornus florida	flowering dogwood	Tree				2	2	2	1	1	1	4	4	4									2	2	2	
Diospyros virginiana	common persimmon	Tree				3	3	3				3	3	3				2	2	2	2	2	2	1	1	1
Fraxinus pennsylvanica	green ash	Tree			4			1						5		50						2				
Juglans nigra	black walnut	Tree																								
Liquidambar styraciflua	sweetgum	Tree			20			2								3						1			1	
Liriodendron tulipifera	tuliptree	Tree							1	1	1			1									2	2	3	
Nyssa sylvatica	blackgum	Tree				3	3	3				2	2	2				4	4	4				1	1	1
Platanus occidentalis	American sycamore	Tree	4	4	12									1	1	3					1	1	1	2		
Quercus falcata	southern red oak	Tree							2	2	2	1	1	1				3	3	3	2	2	2	1	1	1
Quercus michauxii	swamp chestnut oak	Tree	1	1	1				2	2	2				5	5	5							1	1	1
Quercus nigra	water oak	Tree	2	2	2	3	3	3	3	3	3				2	2	2	3	3	3	5	5	5	1	1	1
Salix nigra	black willow	Tree																								
Ulmus alata	winged elm	Tree			4											5						1			1	
Stem count			9	9	45	11	11	15	10	10	10	11	11	19	9	9	69	13	13	13	10	10	15	11	11	15
size (ares)			1			1			1			1			1			1			1			1		
size (ACRES)			0.02			0.02			0.02			0.02			0.02			0.02			0.02			0.02		
Species count			5	5	8	4	4	7	6	6	6	5	5	9	4	4	7	5	5	5	4	4	8	9	9	11
Stems per ACRE			364.2	364.2	1821	445.2	445.2	607	404.7	404.7	404.7	445.2	445.2	768.9	364.2	364.2	2792	526.1	526.1	526.1	404.7	404.7	607	445.2	445.2	607

Appendix B

EPP Project Code 95807. Project Name: Coon Creek Riparian Buffer and Nutrient Offset Mitigation Project
 "Table 7" - Current Plot Data and Annual Means (MY1 2014)

		Current Plot Data (MY1 2014)																								
Scientific Name	Common Name	Species Type	95807-01-0009			95807-01-0010			95807-01-0011			95807-01-0012			95807-01-0013			95807-01-0014			95807-01-0015			95807-01-0016		
			PnoLS	P-all	T	PnoLS	P-all	T	PnoLS	P-all	T	PnoLS	P-all	T	PnoLS	P-all	T	PnoLS	P-all	T	PnoLS	P-all	T	PnoLS	P-all	T
Acer rubrum	red maple	Tree																								
Asimina triloba	pawpaw	Tree				3	3	3	1	1	1															
Carpinus caroliniana	American hornbeam	Tree				3	3	3	1	1	1							1	1	1	1	1	1			
Carya alba	mockernut hickory	Tree						1																		
Cercis canadensis	eastern redbud	Tree	1	1	1									1	1	1							2	2	2	
Cornus florida	flowering dogwood	Tree	2	2	2									2	2	2							3	3	3	
Diospyros virginiana	common persimmon	Tree	4	4	4				1	1	1						1	1	1	1	1	1	2	2	2	
Fraxinus pennsylvanica	green ash	Tree									5								1							
Juglans nigra	black walnut	Tree																								
Liquidambar styraciflua	sweetgum	Tree						5			1															
Liriodendron tulipifera	tuliptree	Tree				2	2	2	3	3	3			1	1	1					1	1	1	2	2	2
Nyssa sylvatica	blackgum	Tree	3	3	3																	1	1	1		
Platanus occidentalis	American sycamore	Tree				1	1	3	4	4	9						1	1	22							
Quercus falcata	southern red oak	Tree	1	1	1									3	3	3							2	2	2	
Quercus michauxii	swamp chestnut oak	Tree				2	2	2					3	3	3			4	4	4	2	2	2			
Quercus nigra	water oak	Tree	2	2	2	1	1	1	1	1	1	1	1	2	2	2							2	2	2	
Salix nigra	black willow	Tree																							36	
Ulmus alata	winged elm	Tree									3														1	
		Stem count	13	13	13	12	12	20	11	11	25	4	4	4	9	9	13	7	7	73	6	6	6	13	13	13
		size (ares)	1			1			1			1			1			1			1			1		
		size (ACRES)	0.02			0.02			0.02			0.02			0.02			0.02			0.02			0.02		
		Species count	6	6	6	6	6	8	6	6	9	2	2	2	5	5	6	4	4	8	5	5	5	6	6	6
		Stems per ACRE	526.1	526.1	526.1	485.6	485.6	809.4	445.2	445.2	1012	161.9	161.9	161.9	364.2	364.2	526.1	283.3	283.3	2954	242.8	242.8	242.8	526.1	526.1	526.1

Appendix B

EEP Project Code 95807. Project Name: Coon Creek Riparian Buffer and Nutrient Offset Mitigation Project
 "Table 7" - Current Plot Data and Annual Means (MY1 2014)

Scientific Name	Common Name	Species Type	Annual Means					
			MY1 (2014)			MY0 (2014)		
			PnoLS	P-all	T	PnoLS	P-all	T
Acer rubrum	red maple	Tree			2			
Asimina triloba	pawpaw	Tree	6	6	6	24	24	24
Carpinus caroliniana	American hornbeam	Tree	9	9	9	10	10	10
Carya alba	mockernut hickory	Tree			2			
Cercis canadensis	eastern redbud	Tree	8	8	8	13	13	13
Cornus florida	flowering dogwood	Tree	17	17	17	25	25	25
Diospyros virginiana	common persimmon	Tree	31	31	31	40	40	40
Fraxinus pennsylvanica	green ash	Tree			72			
Juglans nigra	black walnut	Tree	1	1	1	4	4	4
Liquidambar styraciflua	sweetgum	Tree			40			
Liriodendron tulipifera	tuliptree	Tree	30	30	33	49	49	49
Nyssa sylvatica	blackgum	Tree	35	35	35	27	27	27
Platanus occidentalis	American sycamore	Tree	12	12	52	16	16	16
Quercus falcata	southern red oak	Tree	25	25	25	23	23	23
Quercus michauxii	swamp chestnut oak	Tree	20	20	20	24	24	24
Quercus nigra	water oak	Tree	53	53	53	63	63	63
Salix nigra	black willow	Tree			36			
Ulmus alata	winged elm	Tree			19			
Stem count			247	247	461	318	318	318
size (ares)			23			23		
size (ACRES)			0.57			0.57		
Species count			12	12	18	12	12	12
Stems per ACRE			434.6	434.6	811.1	559.5	559.5	559.5

Appendix B
Coon Creek Riparian Buffer and Nutrient Offset Mitigation Project (#95807)
Year 1 (17-Sep-2014 to 18-Sep-2014)
"Table 8" - Vegetation Plot Summary Information

Plot #	Riparian Buffer Stems¹	Invasives	Volunteers	Total	Unknown Growth Form
1	9	0	36	45	0
2	11	0	4	15	0
3	10	0	0	10	0
4	11	0	8	19	0
5	9	0	60	69	0
6	13	0	0	13	0
7	10	0	5	15	0
8	11	0	4	15	0
9	13	0	0	13	0
10	12	0	8	20	0
11	11	0	14	25	0
12	4	0	0	4	0
13	9	0	4	13	0
14	7	0	66	73	0
15	6	0	0	6	0
16	13	0	0	13	0
17	8	0	4	12	0
18	13	0	0	13	0
19	12	0	0	12	0
20	14	0	0	14	0
21	15	0	0	15	0
22	13	0	0	13	0
23	13	0	1	14	0

Appendix B
Coon Creek Riparian Buffer and Nutrient Offset Mitigation Project (#95807)
Year 1 (17-Sep-2014 to 18-Sep-2014)

"Table 8" - Vegetation Plot Summary Information
Riparian Buffer Vegetation Totals
(per acre)

Plot #	Riparian Buffer Stems ¹	Success Criteria Met?
1	364	Yes
2	445	Yes
3	405	Yes
4	445	Yes
5	364	Yes
6	526	Yes
7	405	Yes
8	445	Yes
9	526	Yes
10	486	Yes
11	445	Yes
12	162	No
13	364	Yes
14	283	No
15	243	No
16	526	Yes
17	324	Yes
18	526	Yes
19	486	Yes
20	567	Yes
21	607	Yes
22	526	Yes
23	526	Yes
Project Avg	435	Yes

Stem Class Characteristics

¹Buffer Native planted hardwood trees. Does NOT include shrubs. No pines.
Stems No vines.