


**STALLINGS BUFFER RESTORATION SITE -- EEP #357**  
**Jones County NC -- Neuse River HUC# 03020204-010050**  
**MY-0 As-Built Baseline Monitoring Report (Final)**

**North Carolina Department of Environment & Natural Resources**  
**Ecosystem Enhancement Program (DENR-EEP) -- Contract # 5765**

**Data Collected: March 2014      Revised Report Submitted: July 2014**



 <p><b>Ecosystem Enhancement</b> PROGRAM</p>	<p><b>NC Ecosystem Enhancement Program</b> <b>1652 Mail Service Center</b> <b>Raleigh, NC 27699-1652</b></p> <hr/> <p><b>EEP Project Manager: Heather Smith</b></p>
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**Robert J. Goldstein & Associates, Inc.**  
1221 Corporation Parkway, suite 100  
Raleigh NC 27610 --- 919-872-1174  
Project Manager: Gerald Pottern  
gpottern@RJGacarolina.com

## 1.0. Project Summary

### 1.1. Goals & Objectives

The Stallings Buffer Restoration Project is located on a 146-acre parcel of former cropland in northern Jones County NC, in the Trent River sub-basin of the Neuse River Basin, USGS Cataloging Unit (CU) #03020204 (Figure 1A). The NC Department of Transportation (NCDOT) purchased this property east of Wyse Fork Rd (SR-1002) in 2003 for conservation use, and also acquired a conservation easement on 3 additional acres of farmed riparian land immediately upstream on the west side of Wyse Fork Rd.

The 2010 Neuse River Basin Restoration Priority Plan (RBRP) identifies agricultural impacts including stream channelization, wetland ditching, loss of forested riparian buffers, and nonpoint source runoff as causes of water quality degradation in the Trent River watershed. The Plan identifies “reestablishment of riparian buffers and corridors of substantial width to improve connectivity of protected areas” and “projects that address agricultural runoff” as priority goals for this watershed. Restoration Goals for CU #03020204 as identified in the 2010 plan include:

- Promote nutrient and sediment reduction in agricultural areas by restoring and preserving wetlands, streams and riparian buffers.
- Continue targeted implementation of Nutrient Offset and Riparian Buffer program projects, and focus NCDOT-sponsored restoration in areas where it will provide ecosystem functional improvement.
- Protect, augment and connect Natural Heritage Areas and other conservation lands.

The Stallings Buffer Restoration Project was identified as an opportunity to improve water quality and augment conservation lands within the Trent River watershed. The project goals include the following:

- Provide improved water quality by reducing nutrient and sediment loads to the receiving waters.
- Improve terrestrial and aquatic habitat and connectivity in the Flat Swamp Watershed.

These goals will be achieved through implementation of the following project objectives (Figure 1B):

- Restore 31.6 acres of riparian buffers by planting native tree species at a sufficient density to promote native forest succession, thus increasing riparian area root density and nutrient uptake.
- Preserve 19.1 acres of riparian riverine wetlands along Flat Swamp and its tributaries.

### 1.2. Project Success Criteria

Tree planting on 31.6 acres of riparian buffers along Streams A, B, and C was completed in early March 2014. Post-construction annual monitoring will be conducted from 2014 through 2018 using 25 permanent CVS vegetation plots all five years, and 25 temporary warranty plots during the first three years. The vegetative success of the buffer restoration site will be evaluated based on woody stem density and survival rates. The vegetation success criteria for riparian buffer mitigation units (BMUs) require a minimum of 320 planted native hardwood stems (trees only) per acre at the end of 5 years.

### **1.3. Project Setting & Pre-Restoration Conditions**

The Stallings Buffer Restoration Project is located on a 146-acre parcel of former cropland in the northern corner of Jones County NC, along the transition zone between the Inner Coastal Plain and Outer Coastal Plain, eight miles southeast of downtown Kinston NC. Traveling to the site from Kinston, drive east on US-70 into Jones County, turn right on Wyse Fork Rd (SR-1002) about 0.5 mile past the Lenoir/Jones County line, then travel south approximately 3.5 miles to Webb Farm Road (SR-1306). The Stallings site is located southeast of the intersection of Wyse Fork Road and Webb Farm Road (Figure 1A). The northern portion of the site can be accessed from Webb Farm Road, and the southern portion can be accessed from Wyse Fork Road near the intersection with Moore Rd (SR-1306).

The Stallings site is drained by several channelized streams and ditches flowing southeastward into Flat Swamp along the eastern boundary of the site. The NC Division of Water Resources (DWR) agent Chris Pullinger provided a letter and color-coded map in May 2011 indicating intermittent or perennial streams subject to Neuse River Buffer Rules (mapped in blue) and ephemeral channels or ditches not subject to Buffer Rules (mapped in red). Three drainage features mapped as A, B and C (where EEP seeks buffer credits) are intermittent or perennial as identified in DWR's letter (Appendix A). A fourth stream segment near the northeast corner of the site is also mapped in blue, but is neither labeled on the DWR map nor listed in the letter. Due to this discrepancy EEP is not seeking buffer credit along this reach, which is labeled Stream D in Figures 1 and 2 of this report. Flat Swamp flows into Beaver Creek in the Trent River sub-basin of the Neuse River basin, USGS Cataloging Unit #03020204-010050 and DWR sub-basin 03-04-11. An adjacent protected conservation area (non-EEP) lies across Flat Swamp to the east of the Stallings site, creating a combined conservation area of 307 acres. This site in turn connects with Great Dover Swamp, comprising several thousand acres of mostly undeveloped land to the east in the Beaver Creek and Trent River watershed, between Wyse Fork Rd and US-70.

The USDA Soil Survey of Jones County (Barnhill, 1981) shows Goldsboro fine sandy loam (GoA) mapped on the higher, well-drained areas on the northern part of the site, Meggett loam (Me) on the majority of the site including the planted areas, and Stockade fine sandy loam (Sx) along the Flat Swamp floodplain. Meggett loam and Stockade fine sandy loam are designated hydric soils, although much of the area mapped as Meggett has been drained and altered by agricultural activity and is not jurisdictional wetland in its current condition. The floodplain of Flat Swamp along the eastern edge of the site supports about 16 acres of mature bottomland hardwood and swamp forest wetlands, and the lower reaches of Streams A and C (north and south of the powerline) have about 3 acres of disturbed (previously farmed) scrub-dominated riparian wetlands. Wetland hydrology is maintained by a combination of slow drainage of rainfall and occasional overbank flooding (Stantec, 2011).

### **1.4. Project Design, Construction, and Mitigation Assets**

The 146-acre Stallings Buffer Restoration Site was purchased by NC Department of Transportation (NCDOT) in 2003 from a private owner and is protected for conservation use by a deed restriction. The 3-acre riparian buffer on the adjacent Lee property west of Wyse Fork Rd is protected by a conservation easement. The December 2011 version of the Mitigation Plan (Stantec Consulting Services, 2011) included 40.0 acres of Riparian Buffer Restoration (40.0 Mitigation Units), 27.2 acres of Nitrogen Nutrient Offset (27.2 Mitigation Units), 3.0 acres of Wetland Enhancement (1.5 Mitigation Units), 16.1

acres of Wetland Preservation (3.2 Mitigation Units), and 5,403 feet of Stream Enhancement (2,161 Mitigation Units), all on the 146-acre eastern tract. The 3-acre western tract has no mitigation credits.

During the interval between development of the 2011 Mitigation Plan and project implementation in Feb-Mar 2014, natural colonization and growth of tree saplings and shrubs continued in the fallow fields and proposed wetland enhancement areas. The Riparian Buffer Restoration area was subsequently reduced from 40.0 acres to 31.6 acres, with buffers extending 200 feet laterally from the DWR-verified stream-banks, except where limited by the powerline right-of-way, roads, or adequate existing native tree density. EEP and DWR determined that the proposed Wetland Enhancement areas along the lower reaches of Streams A and C would instead be categorized as Wetland Preservation, since supplemental tree planting was no longer needed. Stream channel reconstruction was determined to be unnecessary and was deleted from the plan based on the engineer's calculations of shear stress and stream power, and confirmation by DWR in May 2011 that the existing channels appear relatively stable. The proposed nutrient offset buffers along the non-stream ditches were deleted, as were the proposed stream enhancement mitigation credits along Streams A, B and C.

The proposed plan to clear, grub, and rip the soils in the riparian buffer planting areas was changed to bush-hogging only. A few areas that were too wet and soft to bush-hog effectively without causing severe soil rutting were not mowed prior to planting. The 2011 Mitigation Plan specified bare-root seedlings of seven tree species to be planted in the riparian buffers, of which five species were actually planted: Tulip poplar, Sycamore, Black gum, Water oak, and Red oak. After bush-hogging, the contractor planted 14,200 bare-root tree seedlings in the riparian buffer restoration areas (31.6 acres, including the non-mowed areas) using Dibble bars during late February to early March 2014. The non-mowed planted areas are dominated by *Baccharis*, *Morella*, *Rubus*, *Juncus*, *Solidago*, and grasses. Most of the planted seedlings were 10 to 18 inches tall, with a few seedlings 24 inches or taller, and average planting density was 449 stems/acre.

The final project (as surveyed in March 2014) includes 31.6 acres of Riparian Buffer Restoration, which may be applied as either 31.6 Riparian Buffer Mitigation Credits or 31.6 Nitrogen Nutrient Offset Credits, depending on mitigation need as per agreement with DWR. The other 19.1 acres of wetland preservation, 86 acres of non-buffer upland preservation, and 3-acre conservation easement west of Wyse Fork Rd do not provide any mitigation credits, but will help improve water quality and habitat along waterways that are not subject to Neuse River Buffer Rules but may be Section 404 jurisdictional waters (Figure 1B).

## 1.5. Monitoring Features and As-Built Survey

RJG&A together with Mogensen Mitigation Inc. (MMI) and EEP staff installed vegetation monitoring features and conducted the as-built survey during March 11-12, 2014. We installed 25 permanent CVS vegetation monitoring plots within the restored riparian buffer areas (Appendix B, Figure 2). Each 10 x 10 meter plot has an 18-inch long 0.5-inch diameter steel conduit pipe installed at each corner and tied with survey flagging, and a 3-foot tall orange fiberglass rod at the 0,0 corner. The side closest to the stream was designated as the x-axis, and a photo of each plot was taken facing diagonally from the 0,0 corner. For each plot the latitude and longitude coordinates of the 0,0 corner were recorded with a Trimble sub-meter GPS unit, and the x-axis angle (from 0,0 corner to 10,0 corner) was recorded with a

magnetic compass. The x,y coordinates of each planted tree within the plots was recorded using meter tapes laid along the plot edges, and survey flagging was tied loosely around each tree to facilitate subsequent measurements and to distinguish them from volunteer trees. Planted trees were identified using Radford et al. (1968) and Weakley (2012) to the extent practicable, but many stems had poorly developed buds and were not yet identifiable (Appendix C, Table 5).

## 2.0. Monitoring Methods

Baseline Monitoring and Annual Monitoring and reporting methods shall follow the current EEP-provided templates and guidelines (Lee *et al* 2008; NC-EEP 2012). The 25 permanent CVS vegetation plots (10 x 10 meters) installed will be evaluated and photographed in Sep-Oct each year from 2014 through 2018. For planted trees, the species, height, dbh, and qualitative vigor rating of each tree will be recorded (CVS Level 1 data). For volunteer trees and shrubs, the numbers of stems of each species within each height category will be recorded (CVS Level 2 data). Planted and volunteer species will be identified using Radford et al. (1968) and Weakley (2012).

For the first three years (2014 through 2016) an additional 25 temporary vegetation warranty plots (10 x 10 meters) randomly located in the restored buffer areas will be evaluated. Warranty plot locations will be recorded by GPS and will vary from year to year to maximize the cumulative sampling area covered. These plots will record the total number of living hardwood trees only; species and size data will not be recorded, unless a high prevalence of invasive exotic species is observed. Warranty plots will be mapped cumulatively on the CCPV figures, with the current year's plots shown in a contrasting color.

The Stallings site does not have a perimeter fence, but the monitoring team will check the "Conservation Area" signage along the boundary roads and look for evidence of encroachment by off-road vehicles, livestock, or other potential sources of damage. Areas of invasive exotic vegetation in or adjacent to the planted areas will be mapped in accordance with current EEP guidance. No stream monitoring or hydrology monitoring is included in the Stallings project monitoring scope. Yearly monitoring reports will be submitted to DWR for approval.

## 3.0. References

Barnhill, W.L. (1981). *Soil Survey of Jones County, North Carolina*. USDA Soil Conservation Service (Natural Resources Conservation Service), Raleigh, NC.

Lee, Michael T., Peet, Robert K., Roberts, Steven D., Wentworth, Thomas R. (2008). *CVS-EEP Protocol for Recording Vegetation version 4.2, October 2008*. Retrieved September 2011, from: <http://cvs.bio.unc.edu/methods.htm>

NC Ecosystem Enhancement Program. (2014). *NC-EEP Monitoring Report Template and Guidance version 1.0, February 2014*. <http://portal.ncdenr.org/web/EEP/dbb-resources>

NC Ecosystem Enhancement Program. (2010). *Neuse River Basin Restoration Priority Plan, Draft 2010*. [http://www.nceep.net/services/restplans/DRAFT\\_RBRP\\_Neuse\\_201007.pdf](http://www.nceep.net/services/restplans/DRAFT_RBRP_Neuse_201007.pdf)

Radford, A.E., H.E. Ahles, and C.R. Bell (1968). *Manual of the Vascular Flora of the Carolinas*. University of North Carolina Press. Chapel Hill, NC.

Stantec Consulting Services, Inc. (2011). *Mitigation Plan: Stallings Buffer Restoration, EEP Project # 357, December 2011*. Prepared for NC Ecosystem Enhancement Program, Raleigh, NC.

US Army Corps of Engineers (2003) *Stream Mitigation Guidelines*. US Army Corps of Engineers, US Environmental Protection Agency Region 4, USDA Natural Resources Conservation Service, NC Wildlife Resources Commission, and NC Dept. Environment & Natural Resources.

Weakley, Alan (2012). *Flora of the Carolinas, Virginia, Georgia, and Surrounding Areas*. <http://www.herbarium.unc.edu/flora.htm>.

## FIGURES

Figure 1A. Project Vicinity Map and Directions

Figure 1B. Pre-Restoration Site Conditions, Dec 2011

Figure 1C. Project Components & Mitigation Assets

## APPENDICES

### Appendix A. Project Background Tables

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NC-DWQ Stream Buffer Confirmation Letter and Map, May 2011

NC-DWQ Mitigation Plan Comments and emails, Sep-Dec 2013

### Appendix B. Visual Assessment Data

Figure 2. Current Conditions Plan View (CCPV)

Figure 3. Vegetation Monitoring Plot Photos

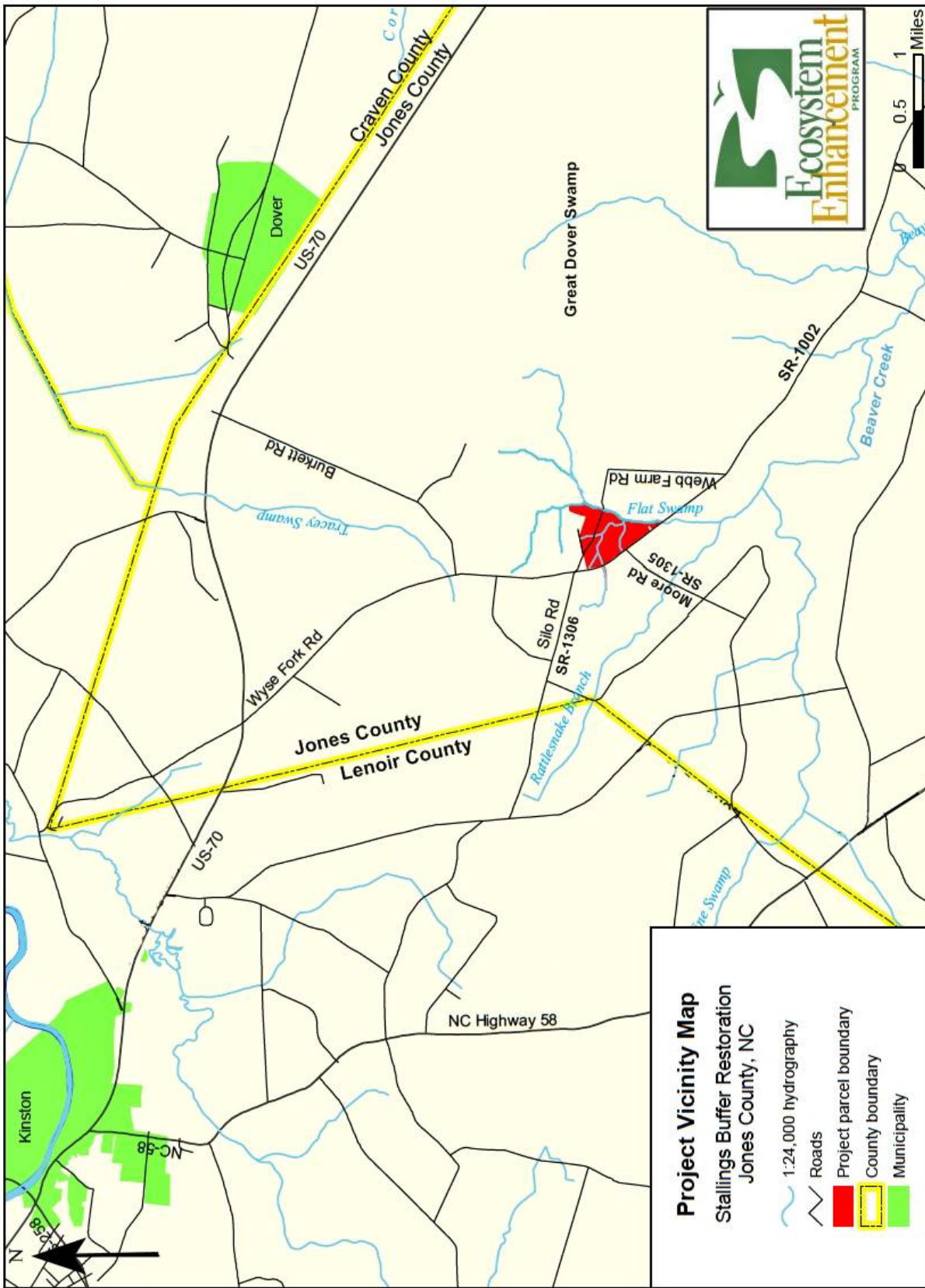
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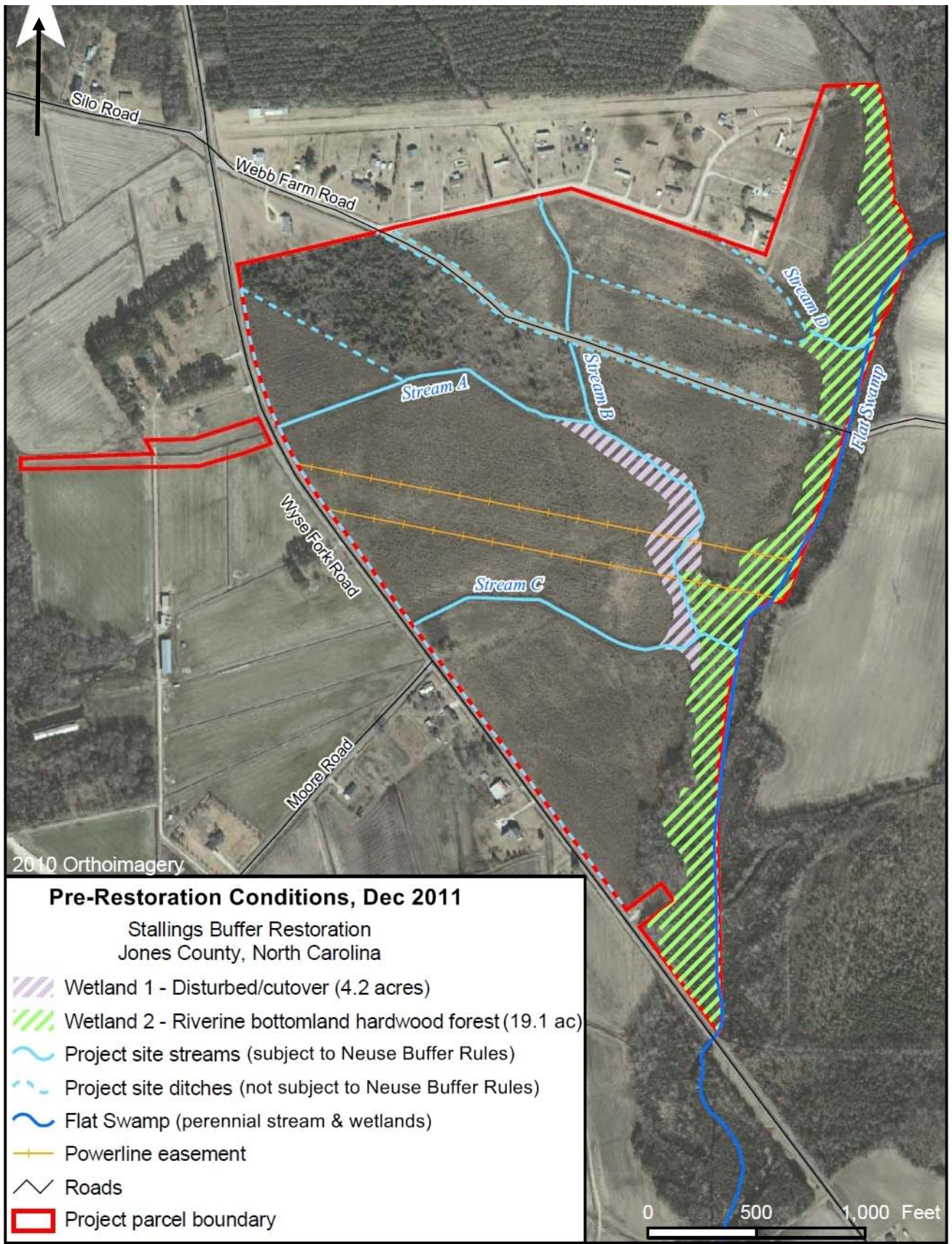
ArborGen Tree Nursery Order, Jan 2014



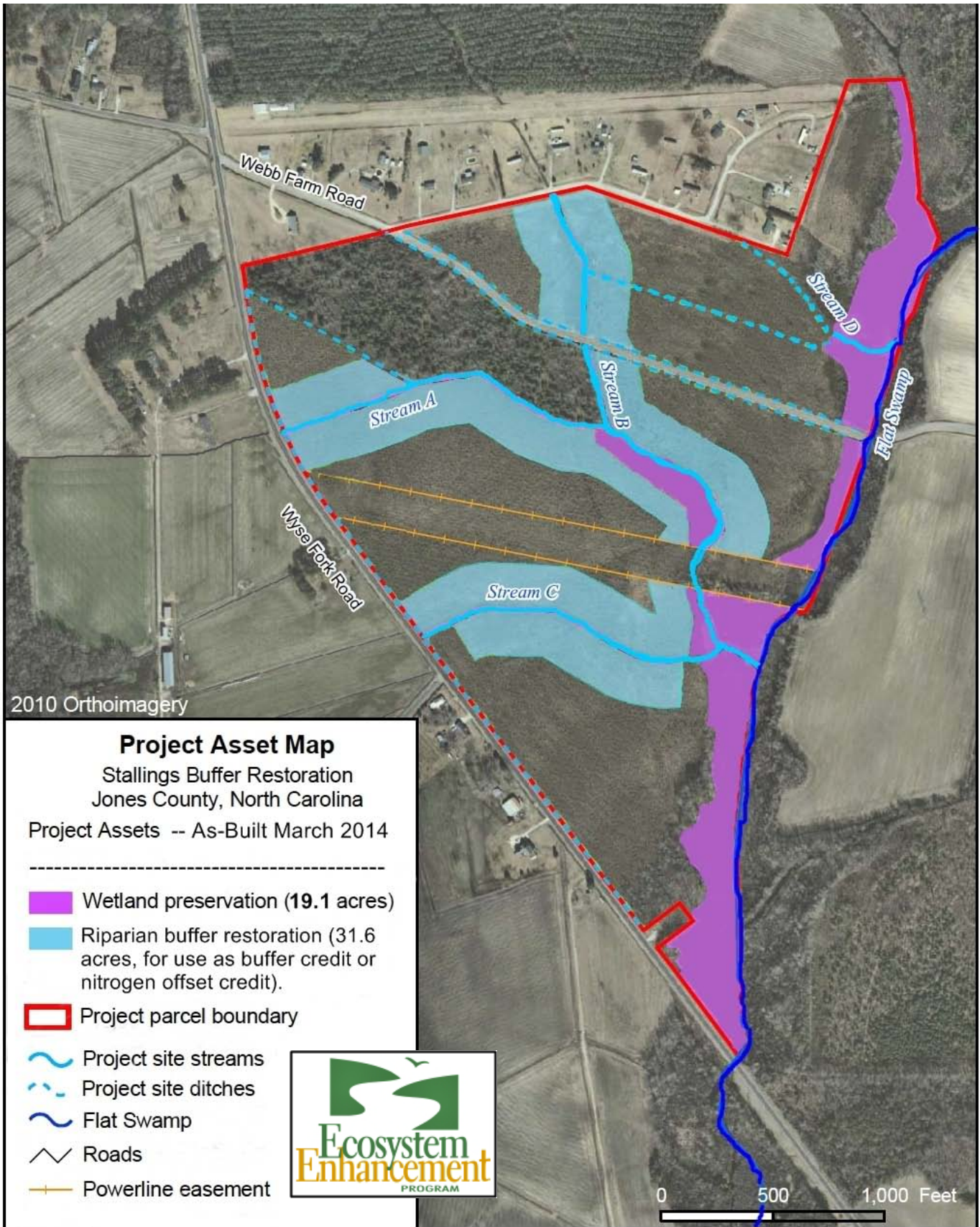
**Figure 1A. Project Vicinity Map, Stallings Buffer Restoration Site, EEP #357, Neuse River Basin HUC #03020204-010050, Jones County, NC.**

**Directions to Project Site:** From Kinston, drive east on US-70 into Jones County, turn right on Wyse Fork Rd (SR-1002) about 0.5 mile past the Lenoir/Jones County line, then drive south about 3.5 miles to Webb Farm Road (SR-1306). The Buffer Restoration site is located southeast of the Wyse Fork Road and Webb Farm Road intersection. The northern portion of the site can be accessed from Webb Farm Road, and the southern portion can be accessed from Wyse Fork Road near the Moore Rd intersection. An additional 3 acres of conservation easement is located on the adjacent Lee property west of Wvse Fork Road.





**Figure 1B. Stallings Buffer Restoration, Pre-Restoration Conditions and Easement Boundary Map.**



**Figure 1C. Stallings Buffer Restoration, As-Built Project Components and Mitigation Assets Map.**

## **Appendix A. Project Background Tables**

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Table 1. Project Components & Mitigation Credits

Table 2. Project Activity and Reporting History

Table 3. Project Contacts Table

Table 4. Project Attribute Table

NC-DWR Stream Buffer Confirmation Letter & Map, May 2011

NC-DWR Mitigation Plan Comments and emails, Sep-Dec 2013

NC-EEP Response to DWR Mitigation Plan Comments, July 2014

**Table 1. Project Components and Mitigation Credits  
Stallings Buffer Restoration, Flat Swamp, Jones County, EEP Project # 357**

<b>Mitigation Credits</b>									
	Stream		Riparian Wetland		Non-riparian Wetland		Buffer	Nitrogen Nutrient Offset	Phosphorous Nutrient Offset
Type	R	RE	R	RE	R	RE			
Totals							<b>31.6</b>	<b>(31.6) a</b>	
(a): Buffer restoration is applicable for Buffer Credit and/or Nutrient Offset Credit, but not both within the same footprint, up to a combined total of 31.6 units.									
<b>Project Components</b>									
Project Component or Reach ID	Stationing or Location	Existing Footage or Acreage	Approach (PI, PII etc.)	Restoration or Restoration Equivalent	Restoration Footage or Acreage	Mitigation Ratio	Mitigation Units		
<b>Stream Enhancement</b>									
<b>Riparian Buffer</b>	<b>Streams A,B,C</b>	<b>31.6 ac</b>	<b>Rest</b>	<b>R</b>	<b>31.6 ac</b>	<b>1:1</b>	<b>31.6</b>		
<b>Wetland Enhancement</b>									
<b>Wetland Preservation</b>	<b>Flat Swamp, streams A.C</b>	<b>19.1 ac</b>	<b>Pres</b>						<b>0</b>
<b>Nitrogen Nutrient Offset</b>									<b>(31.6) a</b>
(a): Combined total of 31.6 units of Buffer Credit and/or Nutrient Offset Credit, not applied within the same footprint.									
<b>Component Summation</b>									
Restoration Level	Stream (linear feet)	Riparian Wetland (acres)		Non-riparian Wetland (acres)	Buffer (square feet)	Upland (acres)			
		Riverine	Non-Riverine						
Restoration					<b>1,376,496</b>				
Enhancement									
Enhancement I									
Enhancement II									
Creation									
Preservation		<b>19.1 ac</b>							
High Quality Preservation									
<b>BMP Elements</b>									
Element	Location	Purpose/Function			Notes				

BMP Elements

BR = Bioretention Cell; SF = Sand Filter; SW = Stormwater Wetland; WDP = Wet Detention Pond; DDP = Dry Detention Pond;

**Table 2. Project Activity and Reporting History  
Stallings Buffer Restoration -- EEP #357 -- Jones County NC**

Elapsed Time Since Grading Complete: NA		
Elapsed Time Since Planting Complete: < 1 Month		
Number of Reporting Years: 0		
Activity or Deliverable	Data Collection Complete	Completion or Delivery
Restoration Plan	---	Dec 2011
Construction (Mowing)	---	Jan-Feb 2014
Bare root tree plantings	---	Feb 2014
MY-0: As-built Baseline Survey	Mar 2014	Jul 2014
MY-1: Plant Warranty Plot Data		
MY-1: 2014 Monitoring Report		
MY-2: Plant Warranty Plot Data		
MY-2: 2015 Monitoring Report		
MY-3 Plant Warranty Plot Data		
MY-3 2016 Monitoring Report		
MY-4 2017 Monitoring Report		
MY-5 2018 Monitoring Report		
Final Close-Our Report		

**Table 3. Project Contacts Table**

**Stallings Buffer Restoration -- EEP #357 -- Jones County NC**

<b>Designer</b>	Stantec Consulting Services, Inc. P.C. 801 Jones Franklin Rd, Suite 300 Raleigh, NC 27606 (919) 851-6866
<b>Construction Contractor</b>	None
<b>Survey Contractor</b>	McKim & Creed 200 MacKenan Court Cary, NC 27511 (919) 233-8091
<b>Planting Contractor</b>	Carolina Silvics 908 Indian Trail Rd Edenton, NC 27932 Mary-Margaret McKinney (252) 482-8491
<b>Nursery Stock Suppliers</b>	ArborGen South Carolina Supertree Nursery 5594 Highway 38 South Blenheim, SC 29516 (843) 528-3203
<b>Monitoring Performers</b>	Robert J. Goldstein & Associates, Inc. 1221 Corporation Parkway, Suite 100 Raleigh, NC 27610 Gerald Pottern, (919) 872-1174

<b>Table 4.0. Project Baseline Information and Attributes</b>			
<b>Stallings Buffer Restoration (EEP#357)</b>			
<b>Project Information</b>			
Project County	Jones		
Project Area (acres)	146 ac NCDOT + 3 ac Private = 149 ac		
Project Coordinates (latitude and longitude)	35.1718 -77.4841		
<b>Project Watershed Summary Information</b>			
Physiographic Region	Coastal Plain		
River Basin	Neuse		
USGS HUC for Project (14 digit)	03020204-010050		
NCDWQ Sub-basin for Project	03-04-11		
Project Drainage Area (sq mi)	0.72		
Project Drainage Area % Impervious	3.80%		
CGIA Landuse Classification	Forest Land, Cultivated Land, Herbaceous Cover and Shrubland,		
<b>Reach Summary Information</b>			
n/a			
<b>Wetland Summary Information</b>			
	Wetland 1	Wetland 2	
Size of wetland (acres)	3.0 ac	16.1 ac	
Wetland Type (non-riparian, riparian riverine or riparian non-riverine)	Riparian riverine	Riparian riverine	
Mapped Soil Series	Megget loam	Megget loam & Stockade fine sandy loam	
Drainage class	Poorly drained	Poorly drained & very poorly drained	
Soil hydric status	Yes	Yes	
Source of Hydrology	Overbank flooding	Overbank flooding	
Hydrologic Impairment	None	None	
Native vegetation community	Disturbed/cutover	Riverine bottomland hardwood	
Percent composition of exotic invasive vegetation	0%	0%	
<b>Regulatory Considerations</b>			
Regulation	Applicable?	Resolved?	Supporting Documentation
Waters of the United States - Section 404	No	n/a	n/a
Waters of the United States - Section 401	No	n/a	n/a
Endangered Species Act	No	n/a	n/a
Historic Preservation Act	Yes	Yes	Correspondence with NC Dept. Cultural Resources
Coastal Zone Management Act (CZMA)/Coastal Aream Management Act (CAMA)	No	n/a	n/a
FEMA Floodplain Compliance	No	n/a	n/a
Essential Fisheries Habitat	No	n/a	n/a



North Carolina Department of Environment and Natural Resources  
Division of Water Quality

Beverly Eaves Perdue  
Governor

Coleen H. Sullins  
Director

Dee Freeman  
Secretary

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May 24, 2011

DWQ Project # 2006-0413 v2  
Jones County

Heather Smith  
NCDENR-EEP  
1652 Mail Service Center  
Raleigh, NC 27699-1652

Subject Property: Stallings stream and wetland restoration project  
UTs to Flat Swamp, Neuse River Basin  
Class C, Sw, NSW; Index# 27-101-15-2-1; Sub-basin 030411

**On-Site Determination for Applicability to the Neuse River Riparian Area  
Protection Rules (15A NCAC 2B .0233)**

Dear Ms. Smith:

On May 18, 2011, at your request I conducted an on-site determination to review drainage features located on the subject property for applicability to the Neuse Buffer Rules (15A NCAC 2B .0233). The project area is labeled as "2006-0413 v2" on the attached map initialed by me on May 31, 2011. The project is located on the southeast corner of the intersection of Wyse Farm Road and

**The Division of Water Quality (DWQ) has determined that the surface waters circled, highlighted in blue, and labeled as "2006-0413 v2 (A, B, and C)" on the attached map are at least intermittent and are SUBJECT to the Neuse Buffer Rule.** The portions of the features that are highlighted in red are ephemeral and NOT SUBJECT to the Rule. Throughout the project area, it appears that the stream banks are stable. These features and any associated buffers should be identified on any future plans for this property. The owner (or future owners) should notify the DWQ (and other relevant agencies) of this decision in any future correspondences concerning this property. This on-site determination shall expire five (5) years from the date of this letter.

Landowners or affected parties that dispute a determination made by the DWQ or Delegated Local Authority that a surface water exists and that it is subject to the buffer

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North Carolina Division of Water Quality  
943 Washington Square Mall  
Washington, NC 27889

Internet: [www.ncwaterquality.org](http://www.ncwaterquality.org)  
Phone: 252-946-6481  
FAX 252-946-9215

One  
North Carolina  
*Naturally*



rule may request a determination by the Director. A request for a determination by the Director shall be referred to the Director in writing c/o Cyndi Karoly, DWQ, 401 Oversight/Express Review Permitting Unit, 2321 Crabtree Blvd., Suite 250, Raleigh, NC 27604-2260. Individuals that dispute a determination by the DWQ or Delegated Local Authority that "exempts" a surface water from the buffer rule may ask for an adjudicatory hearing. You must act within 60 days of the date that you receive this letter. Applicants are hereby notified that the 60-day statutory appeal time does not start until the affected party (including downstream and adjacent landowners) is notified of this decision. DWQ recommends that the applicant conduct this notification in order to be certain that third party appeals are made in a timely manner. To ask for a hearing, send a written petition, which conforms to Chapter 150B of the North Carolina General Statutes to the Office of Administrative Hearings, 6714 Mail Service Center, Raleigh, N.C. 27699-6714. This determination is final and binding unless you ask for a hearing within 60 days.

This letter only addresses the applicability to the buffer rules and does not approve any activity within the buffers. Nor does this letter approve any activity within Waters of the United States or Waters of the State. If you have any additional questions or require additional information please call me at (252) 948-3920.

Sincerely,

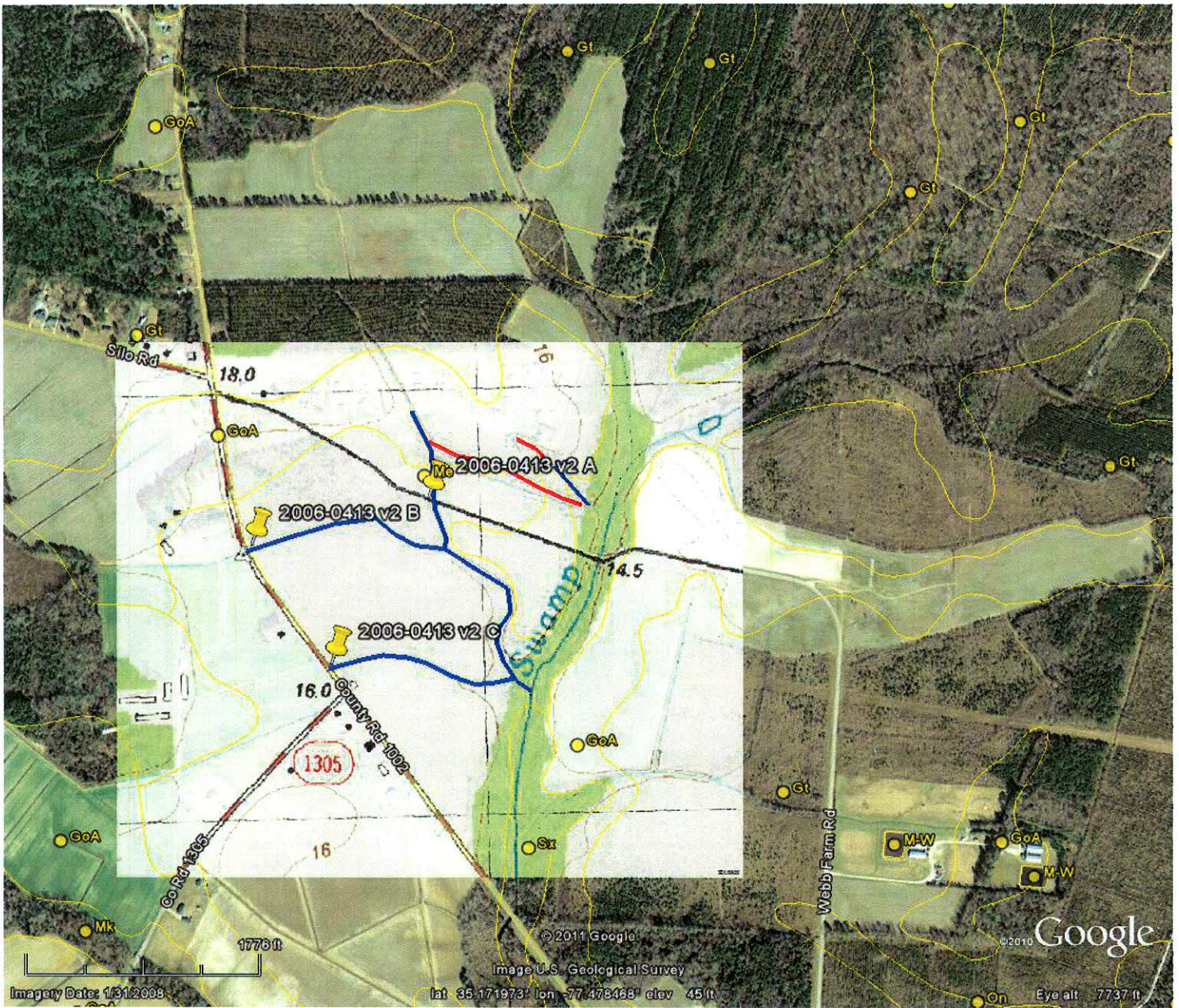


Chris Pullinger  
Division of Water Quality  
Surface Water Protection  
Washington Regional Office

Enclosures: copy of Google Earth map with 1:24,000 scale USGS topographic map  
(Dover quadrangle) and NRCS soils ped overlays

cc: DWQ 401 Oversight/Express WeBSCaPe Unit - Attn: Eric Kulz  
WaRO File Copy

Filename: 2006-0413 v2



**North Carolina Environmental  
Management Commission  
Division Of Water Quality**

For: NEUSE Basin Buffer

Date May 31 2011

Reviewed by Robert Christopher Pullinger  
2006-0413 v2



North Carolina Department of Environment and Natural Resources

Division of Water Resources

Water Quality Programs

Pat McCrory  
Governor

Thomas A. Reeder  
Director

John E. Skvarla, III  
Secretary

December 4, 2013

DWR Project # 2006-0413

Ms. Heather Smith  
N.C. Ecosystem Enhancement Program  
1652 Mail Service Center  
Raleigh, NC 27699-1652

Re: Approval of NCEEP Stallings Buffer Mitigation Plan  
Jones County

**RECEIVED**

DEC 5 - 2013

NC ECOSYSTEM  
ENHANCEMENT PROGRAM

Dear Ms. Smith,

On August 23, 2013, the Division of Water Resources (DWR) received the Stallings Buffer Restoration Mitigation Plan from the North Carolina Ecosystem Enhancement Program (NCEEP) for review and approval for riparian buffer mitigation. The plan was prepared by Stantec Consulting Services, Inc on behalf of NCEEP. This site is located in Dover off Webb Farm Road in Jones County, North Carolina and is located within the 8-digit Hydrologic Unit Code 03020204. On May 24, 2011, Chris Pullinger, with DWR, issued a Neuse Riparian Buffer determination letter noting that three surface water features on the site were subject to the Neuse River Riparian Buffer Protection Rules.

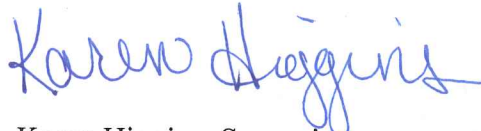
On September 16, 2013, Katie Merritt, with DWR, requested additional information as part of the review of the subject mitigation plan. Most of the comments and recommendations provided to NCEEP were incorporated into the mitigation plan and submitted to Ms. Merritt on September 17, 2013. It was agreed upon, that the remaining comments will be incorporated in an As-Built Report at a later date. Based on the information above, DWR hereby approves the subject mitigation plan.

Riparian Buffer mitigation generated at this site may be provided for buffer impacts within the Neuse River Basin according to 15A NCAC 02B .0242.

Upon completion of the Stallings Buffer Restoration project, please submit an as-built report for review and approval.

For any questions regarding this correspondence, please contact Katie Merritt at (919) 807-6371 or [katie.merritt@ncdenr.gov](mailto:katie.merritt@ncdenr.gov).

Sincerely,



Karen Higgins, Supervisor  
401 and Buffer Permitting Unit

KAH/km

Attachments: DWR & NCEEP Email Correspondence

Cc: File Copy (Katie Merritt)

2006-0413

**Merritt, Katie**

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**From:** Merritt, Katie  
**Sent:** Monday, September 16, 2013 4:03 PM  
**To:** Smith, Heather  
**Cc:** Baumgartner, Tim  
**Subject:** RE: Stallings Riparian Buffer Project

Heather,

Per our conversation, all comments/recommendations provided in the email from me below can be incorporated into the As-Built Report and submitted to DWR for review rather than editing the mitigation plan. As agreed upon, DWR and EEP feel that this is the best way to move forward on this project. Please make sure that the streams identified in the On-Site Determination letter submitted by Chris Pullinger, are the only streams that EEP is mitigating for Neuse Riparian Buffer credits. Chris's letter states that 3 streams (Stream A, Stream B, and Stream C) are subject to the Neuse Buffer Rule. However, there is a fourth stream (labeled Stream D) shown on the EEP Asset Map as being proposed for Neuse Riparian Buffer mitigation credits. If there are any questions regarding the letter submitted by Chris on May 24, 2011, please contact Anthony Scarbraugh with the DWR Washington Regional Office.

Thanks,  
Katie

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**From:** Merritt, Katie  
**Sent:** Monday, September 16, 2013 3:33 PM  
**To:** Smith, Heather  
**Subject:** RE: Stallings Riparian Buffer Project

Hi Heather,

Per your request to have DWR input on the EEP Stallings Buffer Restoration Project Mitigation Plan, I have provided some comments for your consideration. Please see the comments/recommendations below:

- Modify the Mitigation Plan to exclude all mitigation types, credits determinations, and mitigation efforts that are not intended as part of this mitigation plan. If EEP does not expect to use this site as Wetland or Nutrient Offset mitigation, please remove this information from all asset maps and text that describe the mitigation work and the assets that will result from the mitigation work.
- According to the mitigation plan, the site is located in the Neuse. However, Section 8.0 cites the Tar-Pamlico Buffer Rules. Please correct where applicable.
- On page "i" at the bottom, the mitigation plan references the Federal Rule and the EEP In-Lieu Fee instrument. neither of these documents apply to EEP & DWR or the DWR riparian buffer rules. Please remove from the mitigation plan.
- Please remove all references to the USACE and IRT and replace with Division of Water Resources (example: Section 10.0 states IRT will close out the project).
- Riparian Buffer Mitigation credits throughout mit plan state there are 40 acres. However, the letter from you in August states there are only 32.5 acres of riparian buffer. Please correct throughout.
- Is the Jones County Flat Swamp cite also an EEP site? If so, please provide clarity in Section 2.2 and 2.2.3
- has the conservation easement boundary changed from what was originally recorded? if so, please provide that information
- Figure 2.6 ( do not change) – I like this map because it shows what is Existing.

When the comments above have been incorporated, please resubmit the Mitigation Plan to DWR for record keeping. If DWR will be performing the close out of this site at the end of monitoring, we will need to have annual monitoring reports submitted to us for review/tracking. Please send all hard copies (along with a CD) of future documents regarding this site to my attention at the following address with the DWR Project # 2006-0413:

Division of Water Resources  
Attn: Katie Merritt  
1650 Mail Service Center  
Raleigh, NC 27699

Please don't hesitate to contact me if you have any questions regarding this correspondence.

Thanks,  
Katie

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**From:** Smith, Heather  
**Sent:** Monday, September 16, 2013 12:19 PM  
**To:** Merritt, Katie; Kulz, Eric  
**Subject:** RE: Stallings Riparian Buffer Project

There is no more nutrient offset or wetland enhancement. There is only 32.5 acres of riparian buffer planting.

Sincerely,

**Heather Smith**  
**Eastern Project Manager**  
**Ecosystem Enhancement Program**  
**919-707-8496**  
**[heather.c.smith@ncdenr.gov](mailto:heather.c.smith@ncdenr.gov)**

**Physical Address:**  
**217 West Jones St., 3rd Floor, Suite 3000A, Raleigh, N.C. 27603**

**Mailing address:**  
**1652 Mail Service Center, Raleigh, N.C. 27699-1652.**

Parking and visitor access information is available on the EEP website.

Email correspondence to and from this address may be subject to the North Carolina Public Records Law and may be disclosed to third parties.

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**From:** Merritt, Katie  
**Sent:** Monday, September 16, 2013 11:38 AM  
**To:** Kulz, Eric  
**Cc:** Smith, Heather  
**Subject:** RE: Stallings Riparian Buffer Project

Eric,  
Thanks for sending me this. I'll take a look at the Mitigation Plan for the nutrient offset and riparian buffer mitigation. When I'm done, I'll hand it over to you for the wetland mitigation portion.

Thanks,  
Katie

Katie Merritt  
Nutrient Offset Banking Coordinator



## North Carolina Department of Environment and Natural Resources

Pat McCrory  
Governor

Michael Ellison, Director  
Ecosystem Enhancement Program

John E. Skvarla, III  
Secretary

**To:** Katie Merritt, DWR

**From:** Heather Smith, EEP Eastern Project Manger

**Subject:** **Stallings Mitigation Plan Comments**  
Stallings Buffer Site  
Neuse 03020204, Jones County

**Date:** July 2, 2014

Below are the concerns DWR raised during the Mitigation Plan review for the Stallings Riparian Buffer site. It was agreed that the concerns could be addressed during the As-Built.

- Modify the Mitigation Plan to exclude all mitigation types, credits determinations, and mitigation efforts that are not intended as part of this mitigation plan. If EEP does not expect to use this site as Wetland or Nutrient Offset mitigation, please remove this information from all asset maps and text that describe the mitigation work and the assets that will result from the mitigation work.
  - EEP has removed all reference to assets not being sought. EEP is only seeking riparian buffer and nutrient offset credit
- According to the mitigation plan, the site is located in the Neuse. However, Section 8.0 cites the Tar-Pamlico Buffer Rules. Please correct where applicable.
  - Page 3 contains reference to the “Neuse River Buffer Rules”, not Tar-Pamlico
- On page “i” at the bottom, the mitigation plan references the Federal Rule and the EEP In-Lieu Fee instrument. Neither of these documents apply to EEP & DWR or the DWR riparian buffer rules. Please remove from the mitigation plan.
  - There is no reference to the Federal Rule or the EEP In-Lieu Fee in the As-built
- Please remove all references to the USACE and IRT and replace with Division of Water Resources (example: Section 10.0 states IRT will close out the project).
  - There is no reference to USACE or the IRT in the As-built. Page 7 includes “Reports will be submitted to DWR for approval”
- Riparian Buffer Mitigation credits throughout mit plan state there are 40 acres. However, the letter from you in August states there are only 32.5 acres of riparian buffer. Please correct throughout.
  - Due to on-site conditions at the time of site prep the acreage for buffer restoration was decreased to 31.6 acres. This is noted in the As-built
- Is the Jones County Flat Swamp site also an EEP site? If so, please provide clarity in Section 2.2 and 2.2.3
  - No it is not an EEP project but is a separate conservation parcel.
- Has the conservation easement boundary changed from what was originally recorded? if so, please provide that information
  - No, DOT owns the site and there is a small area with a conservation easement across Wyse Fork Rd. That area is not included in assets.
- Figure 2.6 ( do not change) – I like this map because it shows what is Existing.
  - This map is included in the As-built.

1652 Mail Service Center, Raleigh, North Carolina 27699-1652  
Phone: 919-707-8976 \ Internet: [www.ncdenr.gov](http://www.ncdenr.gov)

## **Appendix B. Visual Assessment Data**

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**Figure 2.** Current Conditions Plan View (CCPV), March 2014.

**2A.** Key Map to CCPV Inset Maps

**2B.** Stallings Buffer Restoration Site, North of Powerline

**2C.** Stallings Buffer Restoration Site, South of Powerline

**Figure 3.** Vegetation Monitoring Plot Photos

**Figure 4.** Problem Areas and Other Photos



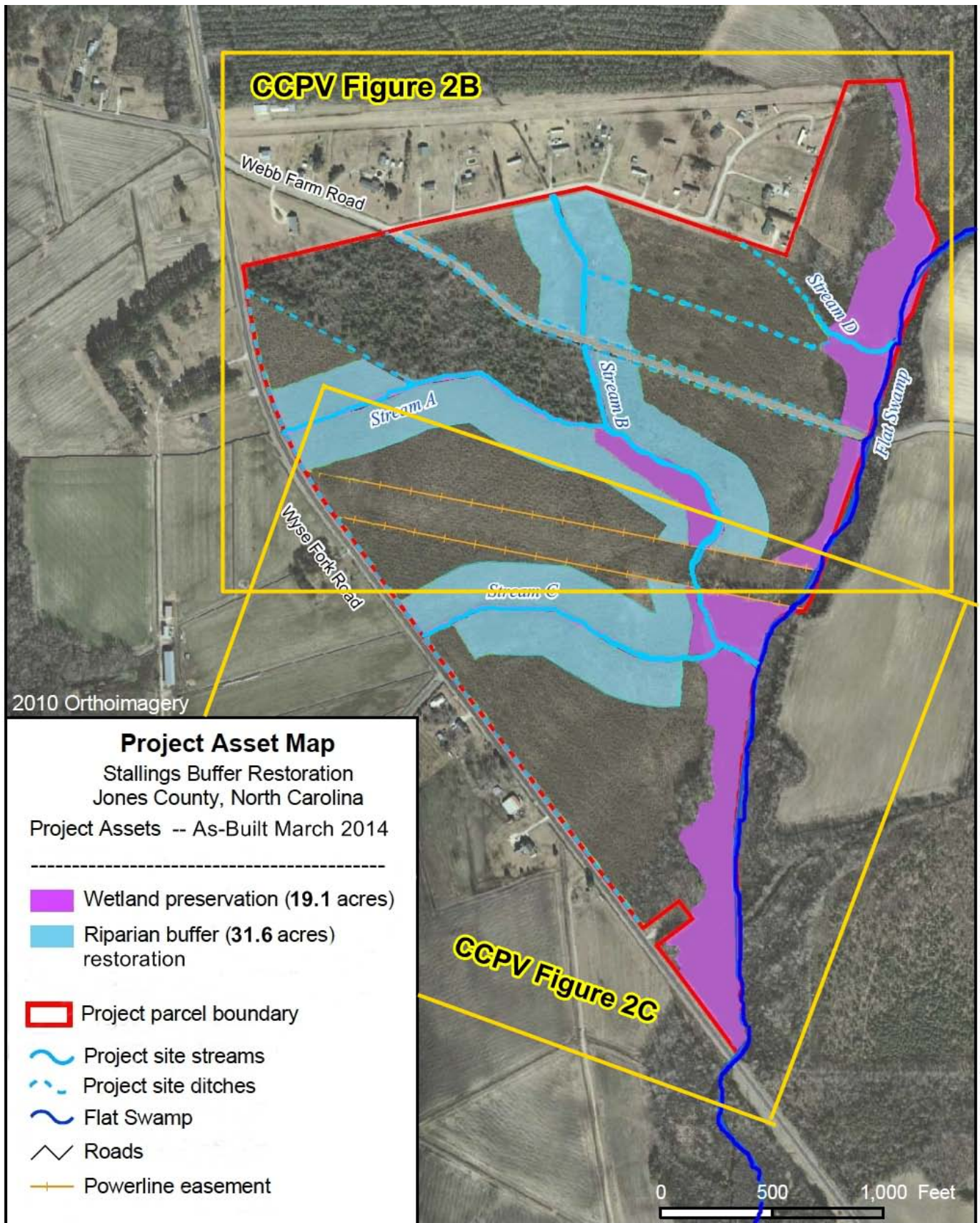


Figure 2A. Key to Current Conditions Plan View CCPV Inset Maps, Stallings Buffer Restoration.

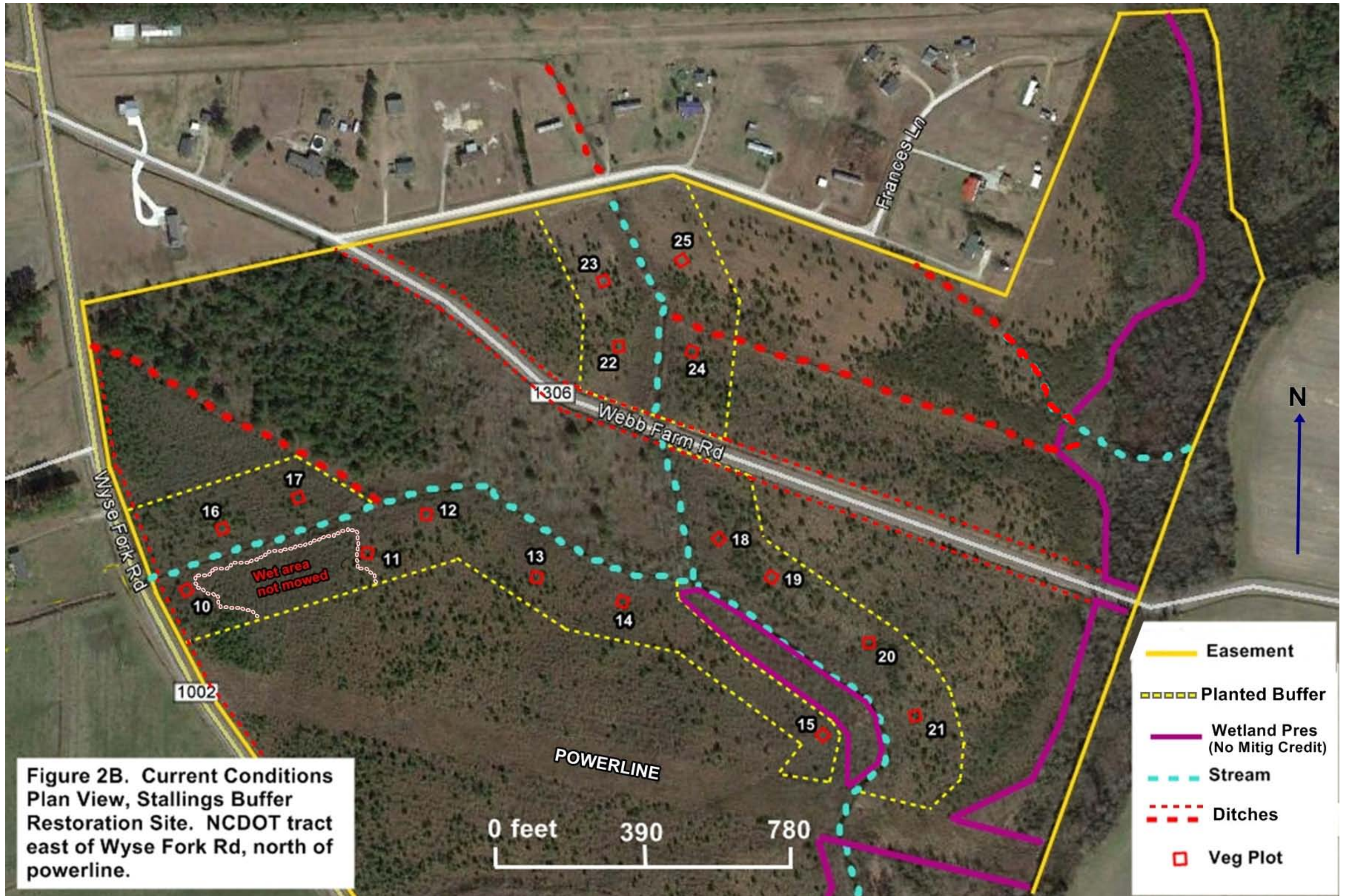
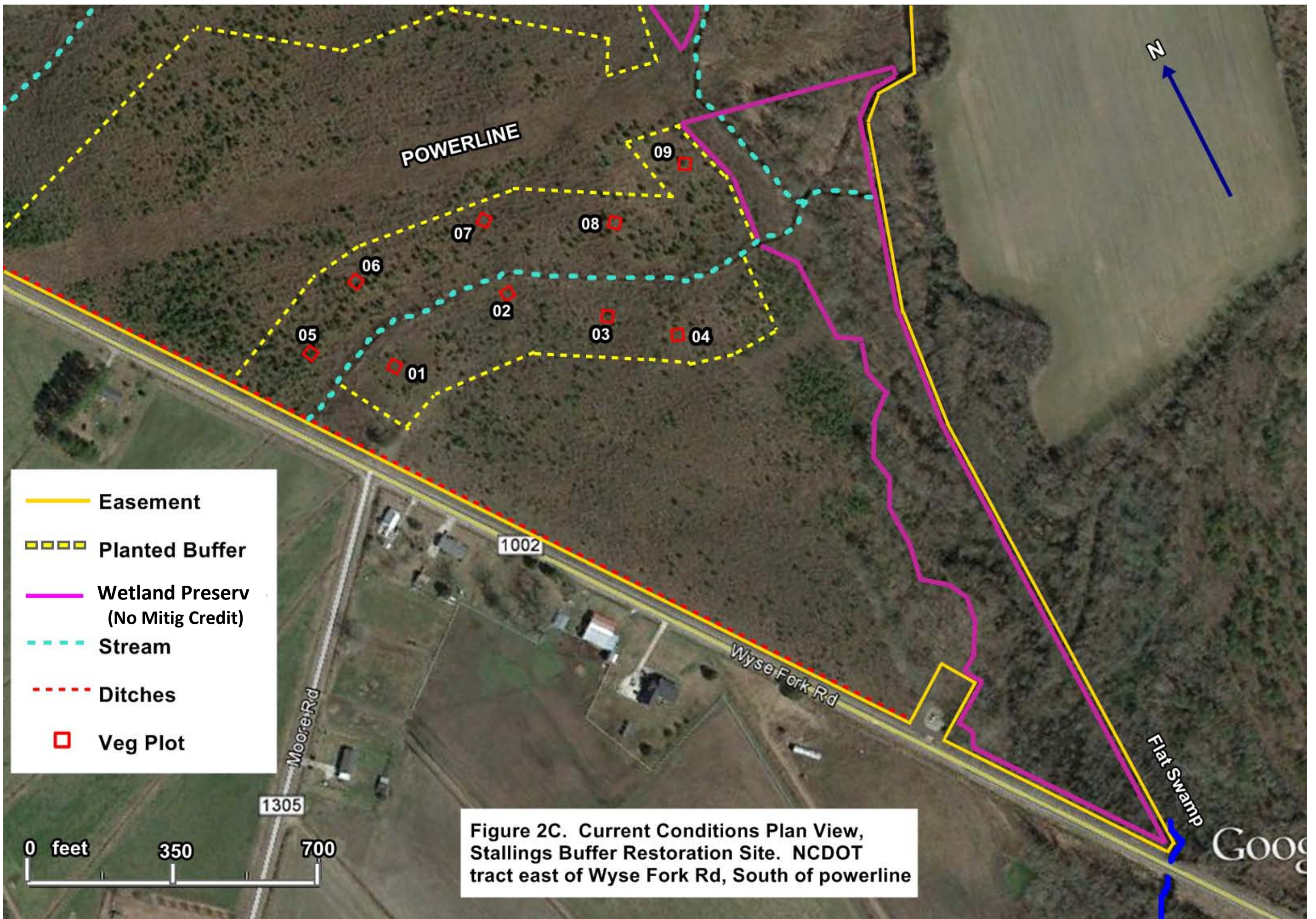


Figure 2B. Current Conditions Plan View, Stallings Buffer Restoration Site. NCDOT tract east of Wyse Fork Rd, north of powerline.

- Easement
- - - - Planted Buffer
- Wetland Pres (No Mitig Credit)
- - - - Stream
- - - - Ditches
- Veg Plot



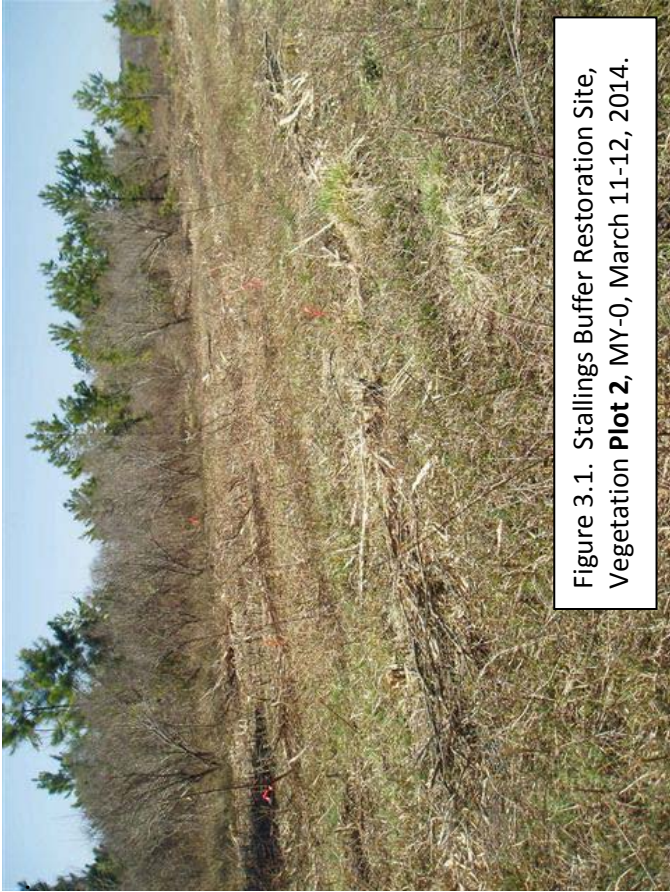


Figure 3.1. Stallings Buffer Restoration Site, Vegetation **Plot 2**, MY-0, March 11-12, 2014.



Figure 3.2. Stallings Buffer Restoration Site, Vegetation **Plot 7**, MY-0, March 11-12, 2014.

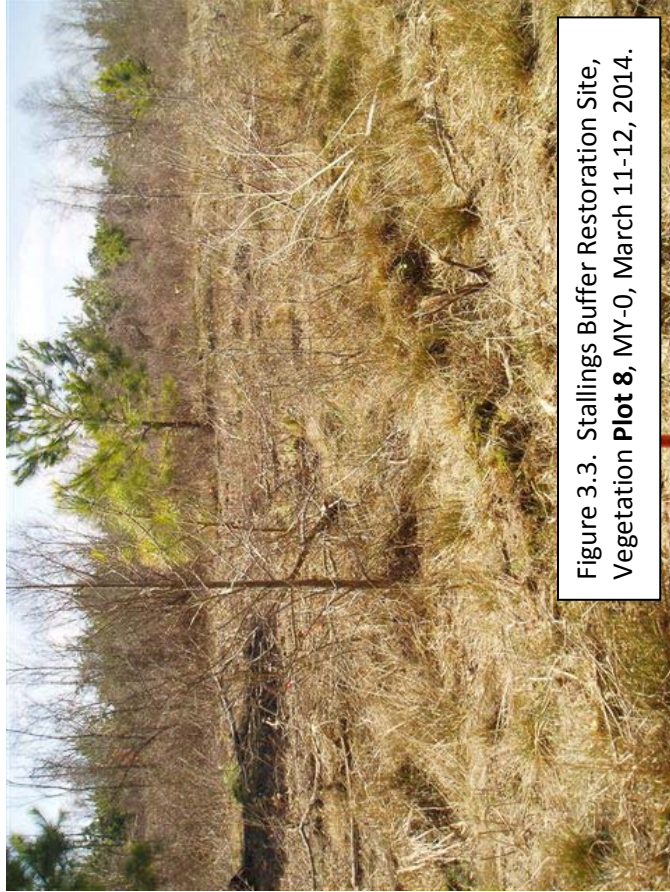


Figure 3.3. Stallings Buffer Restoration Site, Vegetation **Plot 8**, MY-0, March 11-12, 2014.



Figure 3.4. Stallings Buffer Restoration Site, Vegetation **Plot 9**, MY-0, March 11-12, 2014.



Figure 3.5. Stallings Buffer Restoration Site, Vegetation **Plot 10**, MY-0, March 11-12, 2014.



Figure 3.6. Stallings Buffer Restoration Site, Vegetation **Plot 11**, MY-0, March 11-12, 2014.

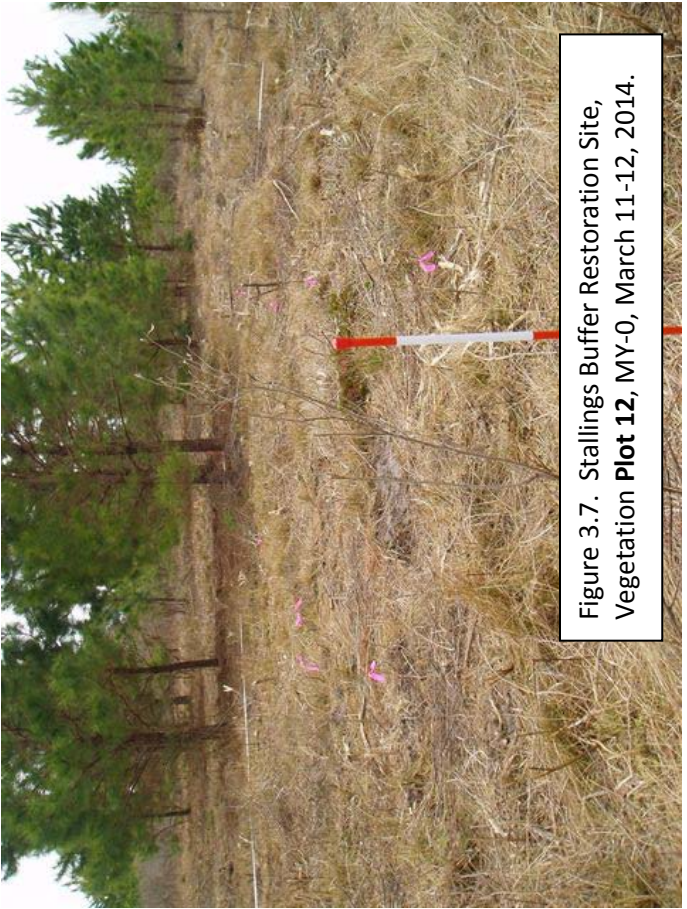


Figure 3.7. Stallings Buffer Restoration Site, Vegetation **Plot 12**, MY-0, March 11-12, 2014.

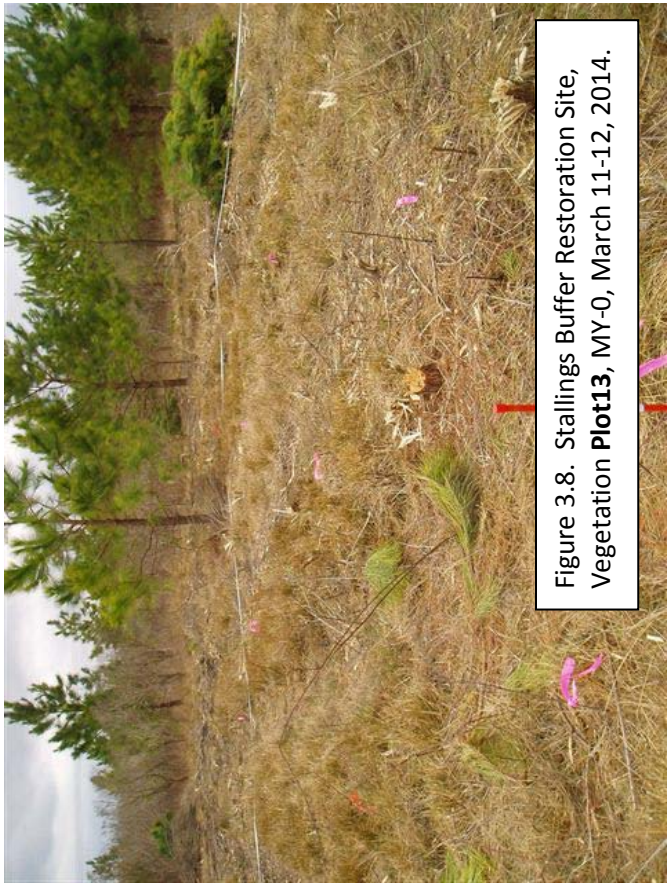


Figure 3.8. Stallings Buffer Restoration Site, Vegetation **Plot 13**, MY-0, March 11-12, 2014.



Figure 3.9. Stallings Buffer Restoration Site, Vegetation **Plot 14**, MY-0, March 11-12, 2014.



Figure 3.10. Stallings Buffer Restoration Site, Vegetation **Plot 15**, MY-0, March 11-12, 2014.

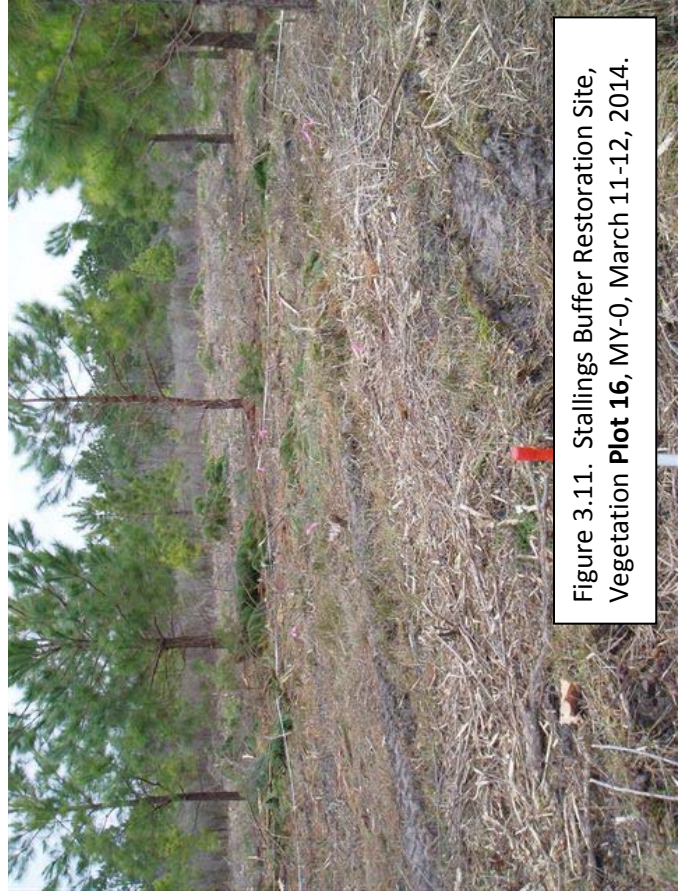


Figure 3.11. Stallings Buffer Restoration Site, Vegetation **Plot 16**, MY-0, March 11-12, 2014.



Figure 3.12. Stallings Buffer Restoration Site, Vegetation **Plot 17**, MY-0, March 11-12, 2014.

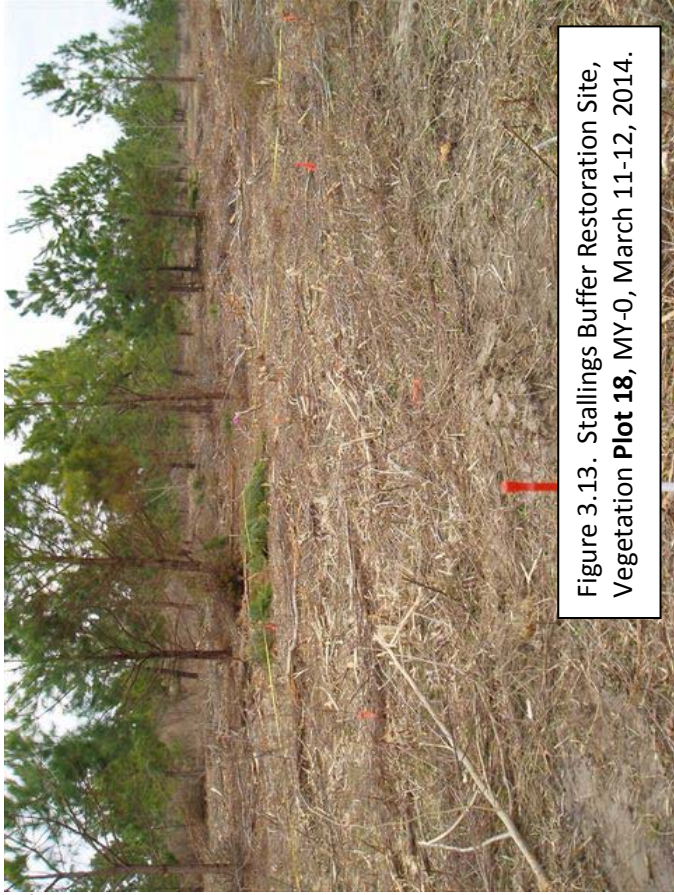


Figure 3.13. Stallings Buffer Restoration Site, Vegetation Plot 18, MY-0, March 11-12, 2014.



Figure 3.14. Stallings Buffer Restoration Site, Vegetation Plot 19, MY-0, March 11-12, 2014.

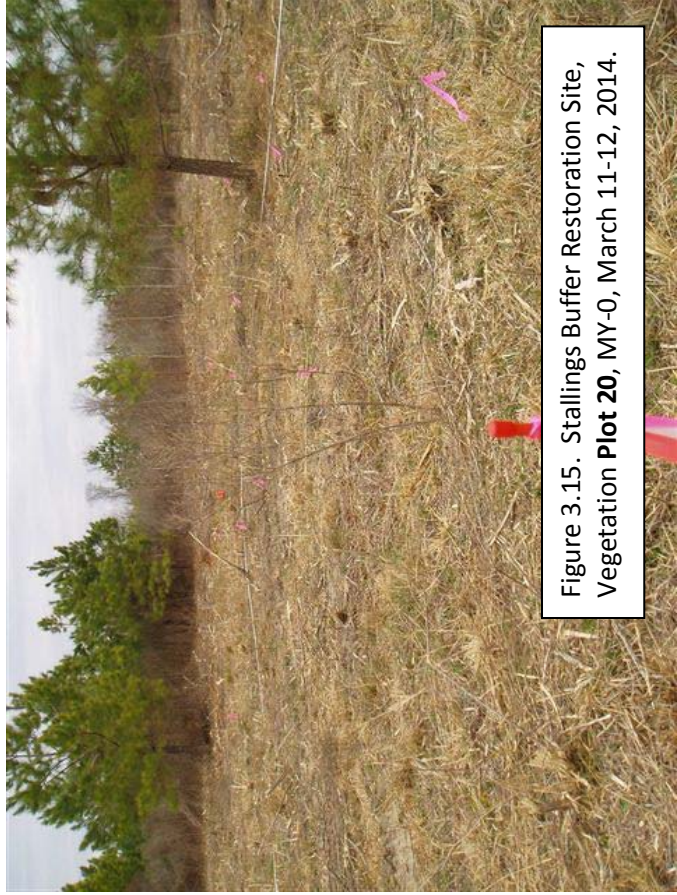


Figure 3.15. Stallings Buffer Restoration Site, Vegetation Plot 20, MY-0, March 11-12, 2014.



Figure 3.16. Stallings Buffer Restoration Site, Vegetation Plot 21, MY-0, March 11-12, 2014.

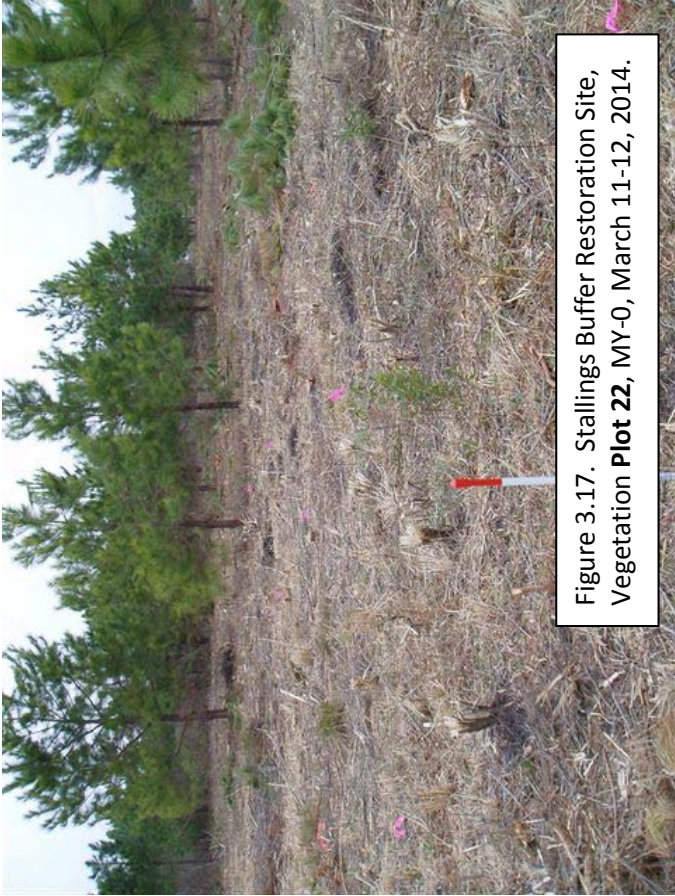


Figure 3.17. Stallings Buffer Restoration Site, Vegetation **Plot 22**, MY-0, March 11-12, 2014.

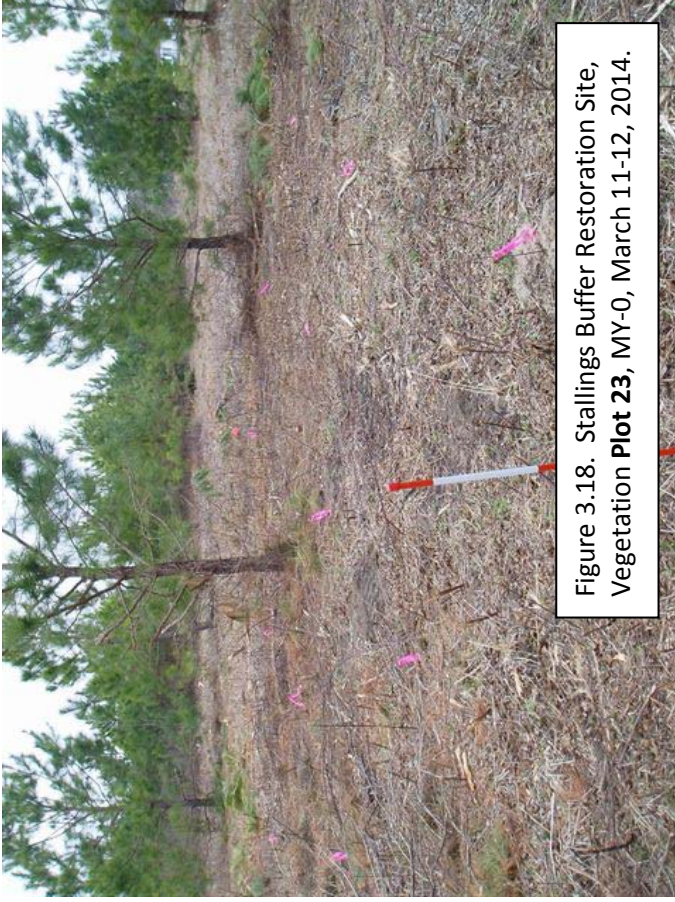


Figure 3.18. Stallings Buffer Restoration Site, Vegetation **Plot 23**, MY-0, March 11-12, 2014.

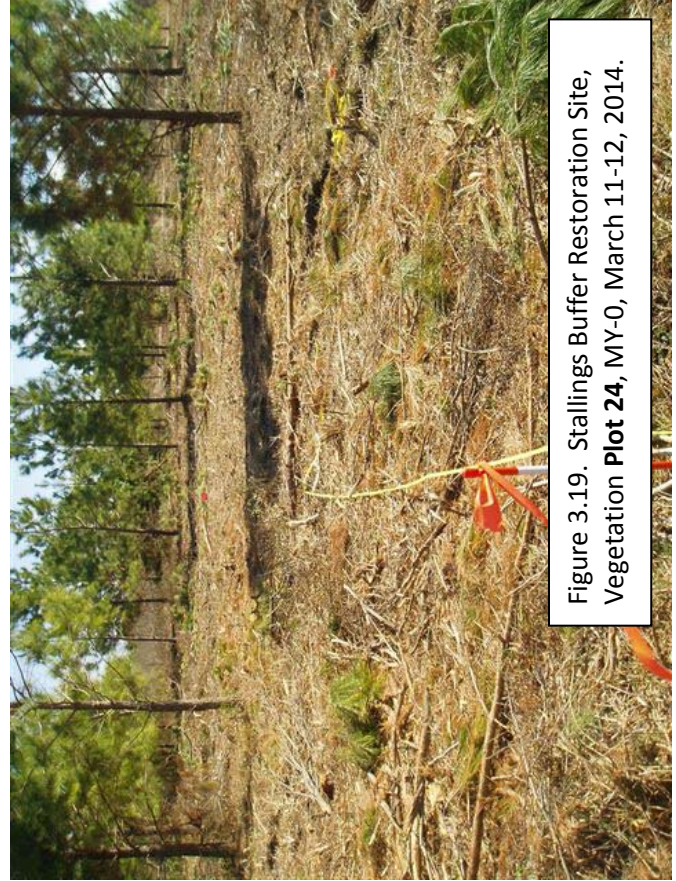


Figure 3.19. Stallings Buffer Restoration Site, Vegetation **Plot 24**, MY-0, March 11-12, 2014.



Figure 3.20. Stallings Buffer Restoration Site, Vegetation **Plot 25**, MY-0, March 11-12, 2014.



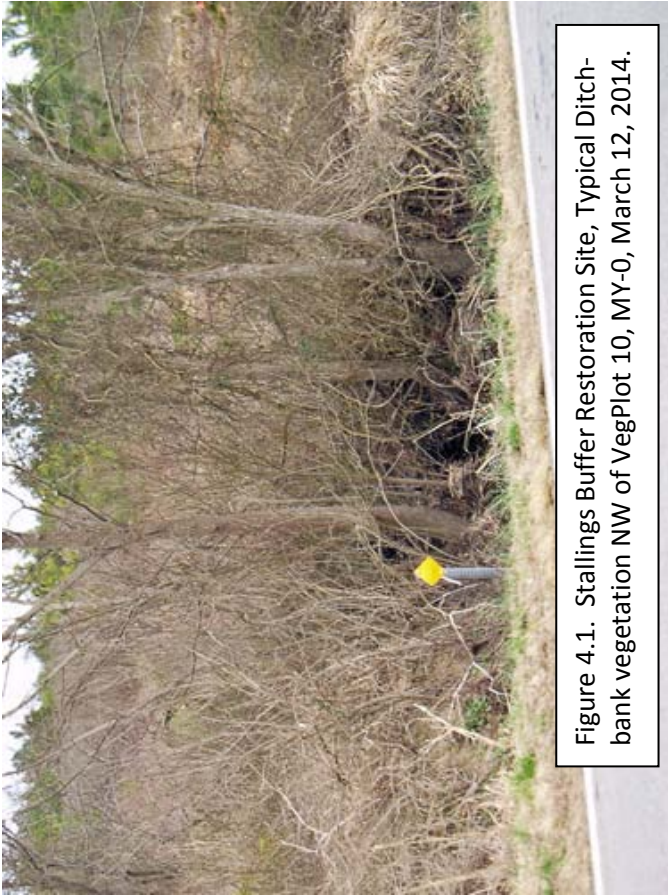


Figure 4.1. Stallings Buffer Restoration Site, Typical Ditch-bank vegetation NW of VegPlot 10, MY-0, March 12, 2014.



Figure 4.2. Stallings Buffer Restoration Site, Cattle pasture upstream, west of Wyse Fork Rd. MY-0, March 12, 2014.



Figure 4.3. Stallings Buffer Restoration Site, Unmowed wet soil area east of VegPlot 10, MY-0, March 12, 2014.

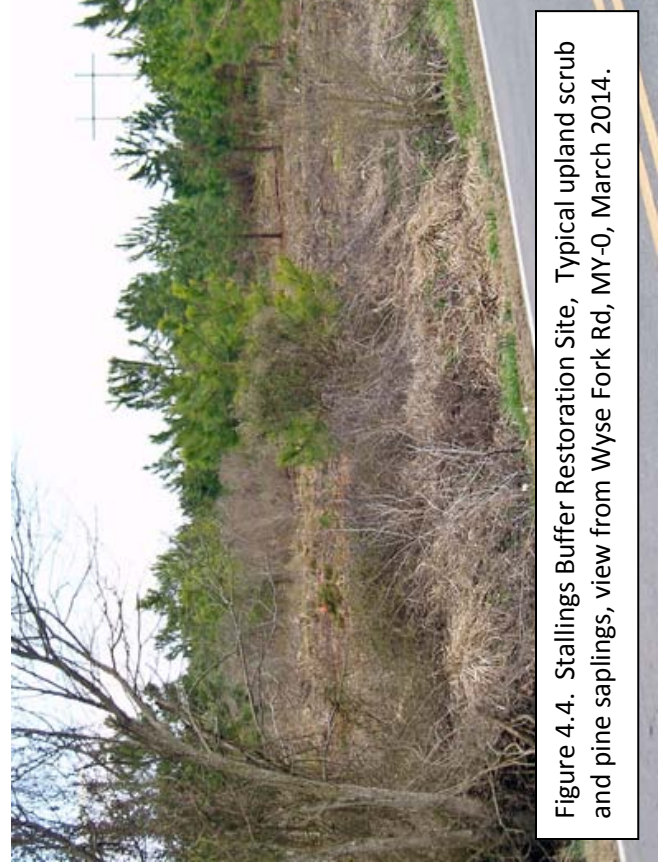


Figure 4.4. Stallings Buffer Restoration Site, Typical upland scrub and pine saplings, view from Wyse Fork Rd, MY-0, March 2014.

## **Appendix C. Vegetation Plot Monitoring Data**

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Table 5. Baseline Stem Counts by Plot and Species

Table 6. CVS Veg Plot Coordinates and As-Built Data

ArborGen Tree Nursery Order, Jan 2014

**Table 5. Stallings Buffer Restoration Site (EEP #357) -- Flat Swamp, Jones County NC**

		Current Plot Data -- As-Built (MY0 2014)											
Scientific Name	Common Name	Species Type	357-01-0001		357-01-0002		357-01-0003		357-01-0004		357-01-0005		
			P-noLS	T	P-noLS	T	P-noLS	T	P-noLS	T	P-noLS	T	
Liriodendron tulipifera	Tulip Poplar	Tree	2	2			1	1				2	2
Nyssa sylvatica	Blackgum	Tree	5	5					2	2		4	4
Platanus occidentalis	American Sycamore	Tree	1	1			4	4		2		2	2
Quercus species	Water Oak, Red Oak	Tree					6	6					
Unidentified	Unidentified	Tree	4	4	10	10			1	1	1	1	1
<b>Stem count</b>			12	12	12	10	11	11	11	5	5	9	9
<b>size (ares)</b>			1		1		1		1		1		1
<b>size (ACRES)</b>			0.0247		0.0247		0.0247		0.0247		0.0247		0.0247
<b>Species count</b>			4	4	4	1	3	3	3	3	3	4	4
<b>Stems per ACRE</b>			485.6	485.6	485.6	404.7	445.2	445.2	445.2	202.3	202.3	364.2	364.2

**Stallings Buffer Restoration Site (EEP #357) -- Flat Swamp, Jones County NC**

**Current Plot Data -- As-Built (MY0 2014)**

357-01-0006		357-01-0007		357-01-0008		357-01-0009		357-01-0010		357-01-0011		357-01-0012	
P-noLS	T	P-noLS	T	P-noLS	T	P-noLS	T	P-noLS	T	P-noLS	T	P-noLS	T
4	4	1	1	2	2	2	2	3	3			1	1
4	4	1	1	1	1					2	2		
1	1	2	2			1	1	1	1	1	1	2	2
		2	2	1	1	2	2	5	5	3	3		
		5	5	7	7	6	6	3	3	4	4	5	5
9	9	11	11	11	11	11	11	12	12	10	10	11	11
1		1		1		1		1		1		1	
0.0247		0.0247		0.0247		0.0247		0.0247		0.0247		0.0247	
3	3	5	5	4	4	4	4	4	4	4	4	4	4
364.2	364.2	445.2	445.2	445.2	445.2	445.2	445.2	485.6	485.6	404.7	404.7	445.2	445.2

**Stallings Buffer Restoration Site (EEP #357) -- Flat Swamp, Jones County NC**

**Current Plot Data -- As-Built (MY0 2014)**

357-01-0013		357-01-0014		357-01-0015		357-01-0016		357-01-0017		357-01-0018		357-01-0019	
P-noLS	T	P-noLS	T	P-noLS	T	P-noLS	T	P-noLS	T	P-noLS	T	P-noLS	T
1	1	1	1	1	1	1	1	2	2	2	2	3	3
1	1					1	1	2	2	1	1	2	2
2	2	2	2	3	3	2	2	2	4	4	4	1	1
7	7	5	5	5	5	7	7	5	5	5	5	6	6
11	11	8	8	9	9	13	13	12	12	10	10	12	12
1		1		1		1		1		1		1	
0.0247		0.0247		0.0247		0.0247		0.0247		0.0247		0.0247	
4	4	3	3	3	3	5	5	4	4	4	4	4	4
445.2	445.2	323.7	323.7	364.2	364.2	526.1	526.1	485.6	485.6	404.7	404.7	485.6	485.6

**Stallings Buffer Restoration Site (EEP #357) -- Flat Swamp, Jones County NC**

Current Plot Data -- As-Built (MY0 2014)												Annual Means	
357-01-0020		357-01-0021		357-01-0022		357-01-0023		357-01-0024		357-01-0025		MY0 (2014)	
PnOLS	T	PnOLS	T	PnOLS	T	PnOLS	T	PnOLS	T	PnOLS	T	PnOLS	T
2	2	2	2									33	33
		1	1									22	22
1	1	3	3									28	28
3	3	3	3									42	42
4	4	5	5	12	12	12	12	12	12	12	12	143	143
10	10	14	14	12	12	12	12	12	12	12	12	268	268
1		1		1		1		1		1		25	
0.0247		0.0247		0.0247		0.0247		0.0247		0.0247		0.6175	
4	4	5	5	1	1	1	1	1	1	1	1	5	5
404.7	404.7	566.6	566.6	485.6	485.6	485.6	485.6	485.6	485.6	485.6	485.6	434	434

Table 6. CVS vegetation monitoring plots installed in March 2014, with plot location data and baseline planted stem counts by species. Many stems were not yet identifiable, one week after planting.

PLOT	Plot Origin = 0,0 corner		GPS	x-axis angle	Planted Trees in 10 x 10 m Plots, Mar 2014					total
	Latitude	Longitude			Spp unk	Nyss sylv	Plat occi	Lirio tuli	Quer spp	
1	35.16873	-77.48420	gbp	256	4	5	1	2		12
2	35.16883	-77.48308	gbp	285	10					10
3	35.16832	-77.48243	hcs	306			4	1	6	11
4	35.16792	-77.48195	hcs	314	1	2	2			5
5	35.16882	-77.48467	hcs	92	1	4	2	2		9
6	35.16919	-77.48416	hcs	140		4	1	4		9
7	35.16920	-77.48322	gbp	120	5	1	2	1	2	11
8	35.16873	-77.48216	gbp	120	7	1		2	1	11
9	35.16893	-77.48111	gbp	10	6		1	2	2	11
10	35.17111	-77.48663	gbp	260	3		1	3	5	12
11	35.17129	-77.48509	gbp	280	4	2	1		3	10
12	35.17155	-77.48449	gbp	280	5		2	1	3	11
13	35.17101	-77.48329	gbp	290	7		1	1	2	11
14	35.17081	-77.48249	gbp	300	5			1	2	8
15	35.17002	-77.48111	gbp	320	5			1	3	9
16	35.17146	-77.48638	gbp	75	7	1	2	1	2	13
17	35.17167	-77.48581	gbp	80	5		1	2	4	12
18	35.17138	-77.48199	gbp	140	6		1	2	1	10
19	35.17116	-77.48161	gbp	130	6	1	2	3		12
20	35.17069	-77.48085	gbp	90	4		1	2	3	10
21	35.17007	-77.48028	gbp	170	5	1	3	2	3	14
22	35.17273	-77.48272	gbp	355	12					12
23	35.17318	-77.48279	gbp	345	12					12
24	35.17279	-77.48215	gbp	200	12					12
25	35.17330	-77.48227	gbp	155	11					11

Total planted trees found in all 25 plots = 268 stems = average 434 trees per acre. Some plots may have additional planted trees that were not yet found.

