Powell Property Stream and Wetland Mitigation Project
EEP ID (IMS#) 92548
FDP Contract Number D06065-B
USACE Action ID # SAW-2008-01863
DWQ Project# 08-0942

CLOSEOUT REPORT
WETLAND AND STREAM

Table 1a Project Site and Classifications	
Project County	Bertie County
General Location	SE of Powellsville
Basin	Chowan
Physiographic Region	Coastal Plain
Ecoregion	8.3.5 Southeastern Plains
USGS Hydro Unit	3010203
NCDWQ Sub-basin	03-01-01
Wetland Classification	Headwater
Thermal Regime	Warm
Trout Water	No
Project Performers	
Source Agency	EEP
Provider	Albemarle Restorations, LLC
Designer	Ecotone, Inc.
Monitoring Firm	Woods, Water and Wildlife, Inc.
Channel Remediation	Woods, Water and Wildlife, Inc.
Plant Remediation	Carolina Silvics, Inc.
Property Interest Holder	EEP

Table 1b Project Activities and Timeline	
Activity or Report	**Date of Delivery**
Restoration Plan	May 2008
Permitted	June 2008
Construction	Jan. 2009
Temporary S & E mix applied to entire project area	Jan. 2009
Permanent seed mix applied to entire project area	Jan. 2009
Containerized and Bare Root Planting	Jan. 2009
Mitigation Plan/As-built	Jun. 2009
Year 1 monitoring	Mar. 2010
Year 2 monitoring	Aug. 2010
Soil remediation (subsoiling)	Sept. 2010
Supplemental Planting	Jan. 2011
Year 3 monitoring	Dec. 2011
Year 4 monitoring	Dec. 2012
Year 5 monitoring	Dec. 2013

Project Setting and Background Summary

The Powell Property Wetland and Stream Mitigation Site is a headwater riverine wetland and stream mitigation project located southeast of Powellsville, in Bertie County, North Carolina. It was constructed by Albemarle Restorations, LLC, under contract with EEP to provide 48.4 acres of riverine wetland mitigation credits and 3,310 linear feet of stream mitigation credits in the Chowan River Basin. Construction activities, in accordance with the approved restoration plan, began in June of 2008, and were completed in January of 2009. Planting took place in January of 2009. All planting was done in accordance with the approved restoration plan. The mitigation plan provides for the **restoration** of 3,310 linear feet of headwater and the **restoration** of 48.4 acres of riverine wetland. Remedial soil work was done in 2010 on approximately eleven acres to improve hydrology. Replanting of those acres took place in January 2011.

Vegetation and water flow monitoring began in 2009 after construction and planting was completed. Twelve water level monitoring gauges are installed at strategic positions throughout the site to measure surface and subsurface water levels. Two additional gauges are installed in the adjacent reference area to act as reference gauges and to provide for a comparison of water levels and flow in a naturally occurring riparian headwater system. A rain gauge is installed on the site and checked against cooperator data from the Kinston area. In addition to the data gathered by the gauges, flow events were video and photo recorded during the monitoring period.

Goals and Objectives:

The goal of the Powell Property Mitigation Project was to create a riverine wetland system typically found in the middle to upper reaches of first or zero order tributary systems. The project is to serve as compensation for wetland loss in the Chowan River Basin. The restoration plan was developed and implemented to eliminate pattern drainage and restore topography and hydrology that more closely resembled that of similar undisturbed land. Construction resulted in the development of a broad, branched, frequently flooded headwater following a historical path as evidenced by archived aerial photographs and signature topography. Subsequent planting was designed to restore a wetland forest ecosystem that is typically found in the immediate area characteristic of similar soils, topography and hydrology.

The specific goals of the restored riparian headwater system and its associated riverine wetlands are the following:

1. Water quality improvements, including nutrient, toxicant and sediment retention and reduction.
2. Wildlife habitat enhancement
3. Flood flow attenuation
4. Passive outdoor recreation and educational opportunities for the landowner

Success Criteria

Vegetation: The vegetation success criterion was developed in accordance with the CVS-EEP protocol. The Powell project was planned to include a contiguous plant community consistent with those found naturally occurring along local headwaters. The species mix was based on the vegetation noted at the reference site and all species are classified from FAC to OBL. The site was originally planted at a density of 601 stems per acre in January of 2009. In 2010 part of the site was subsoiled and replanted in 2011. The site is meeting the success criterion of 260 stems/acre at year 5.

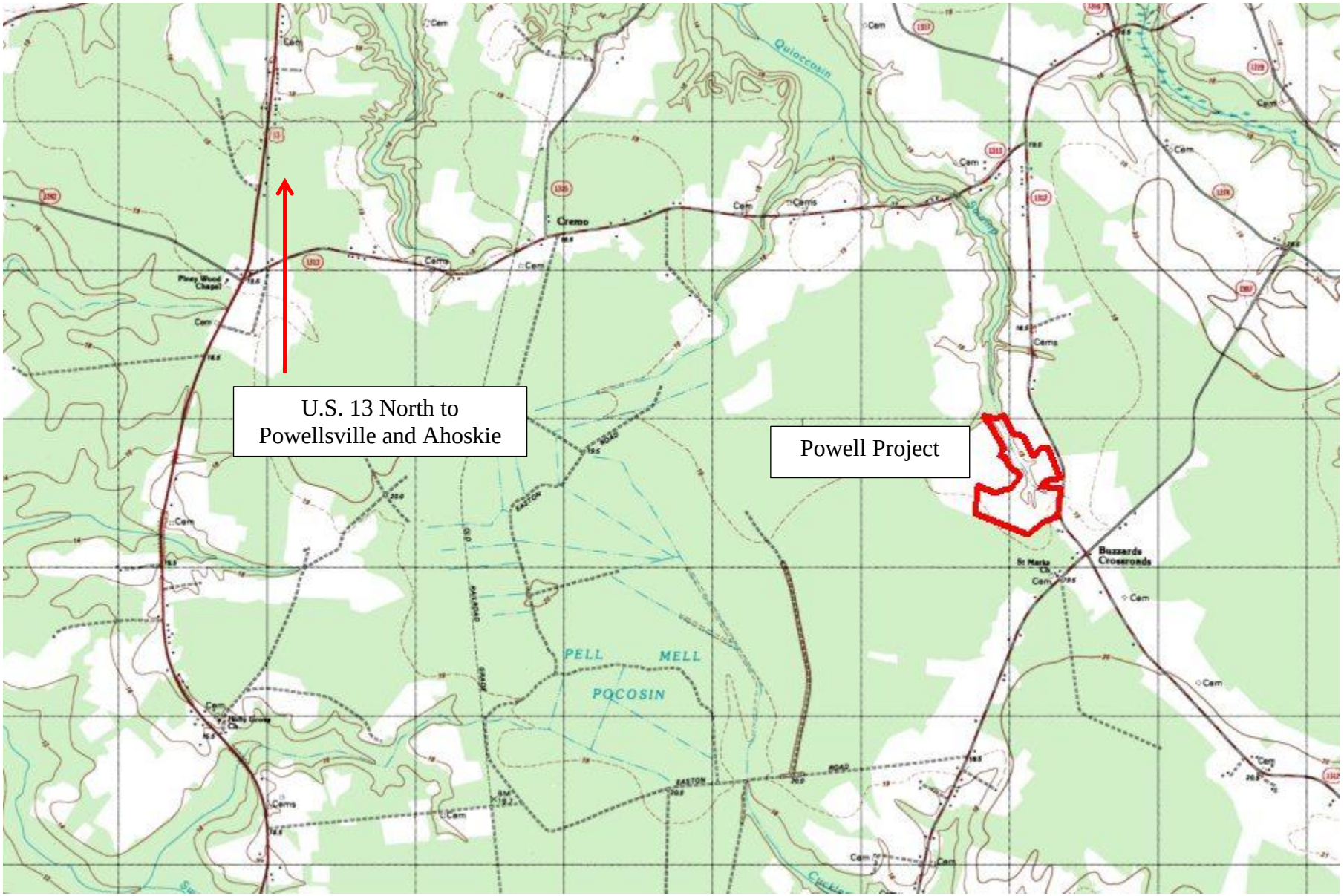
Hydrology: The hydrologic success criterion is a minimum of 21 consecutive days where the groundwater level is within 12 inches of the soil surface during the growing season. This represents 9% of the growing season which for this site runs from March 22 to November 8, a period of 231 days (WETS Table for Lewiston, NC). After the subsoiling in 2010, gauges 7A and 7B were added at the recommendation of EEP to better assess the effects of the treatment.

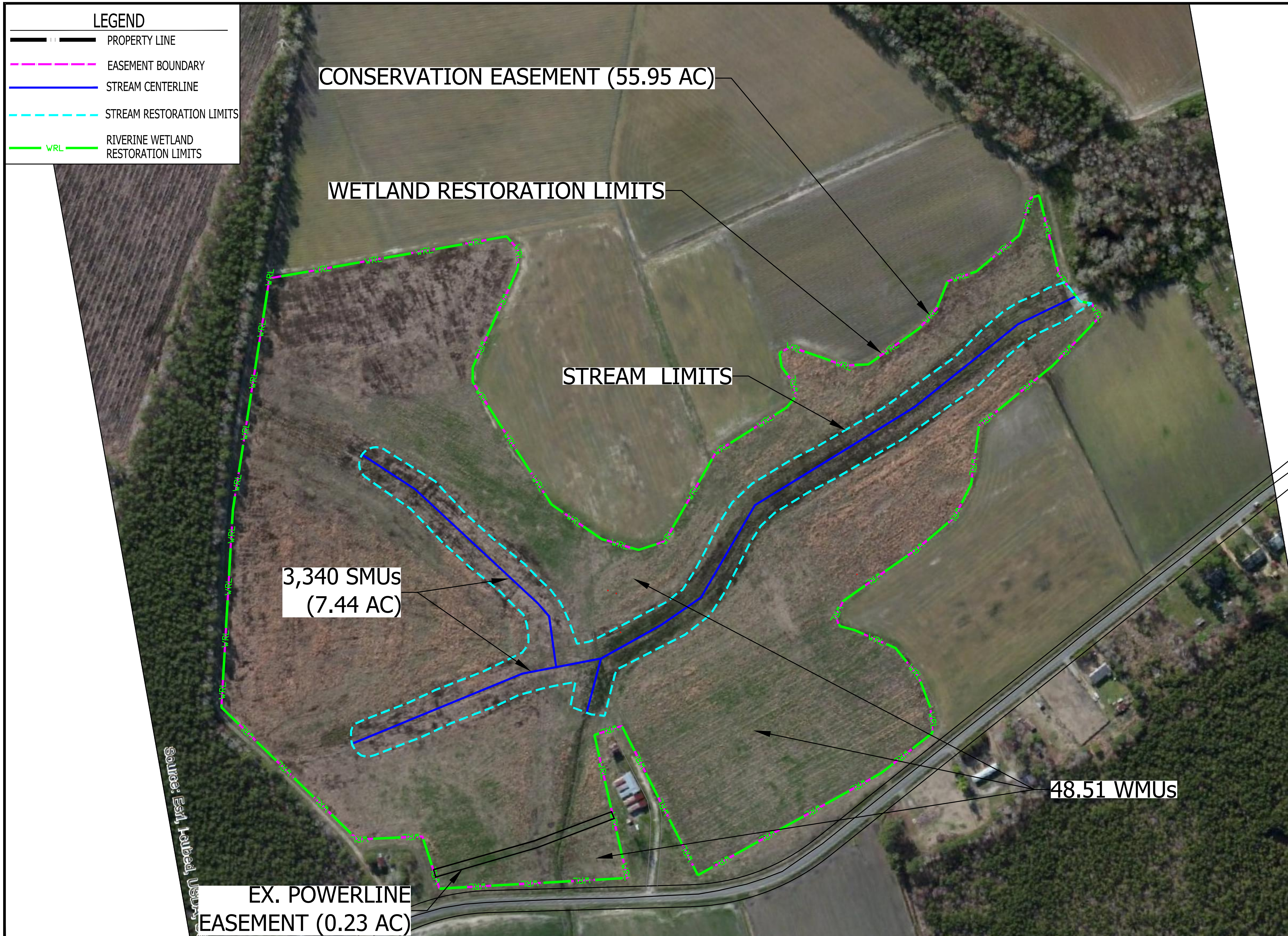
Flow: The primary success criteria for the Riparian Headwater/Zero Order Stream system is the documentation of 2 flow events within a normal rainfall year in 3 of the 5 years of monitoring. Groundwater monitoring gauges were installed at key locations in the project to gather evidence of rising and falling water levels in the runs which would prove water was flowing through the project. These gauges have recorded numerous flow events during the monitoring period, many of which have been video documented. Flow patterns have developed over the course of monitoring. The lower end of the project shows a close similarity to the adjacent reference area in terms of flow patterns. Gauge 9 in the project area is approximately as far downstream as Gauge 11 in the reference area and the two gauges correspond during flow events.

Table 3 Project Components						
Restoration Type	**Pre-Construction Acres/Linear Feet**	**Mitigation Approach**	**Watershed Acreage**	**As Built Acres/ Linear Feet**	**Mitigation Ratio**	**Mitigation Units SMU/WMU**
Stream Restoration	0.0 linear feet	R	871	3,340	1:1	3,340 SMU's
Wetland Restoration	0.0 Acres	R	N/A	48.51	1:1	48.51 WMU's

Table 4 Mitigation Unit Totals		
Stream Mitigation Units (SMU)	**Riverine Wetland Units**	**Total Wetland (WMU)**
3,340	48.51	48.51

Figure 1 Vicinity Map





REVISIONS

DATE:	REVISION:	INITIALS:

ASSET MAP

POWELL PROPERTY
WETLAND MITIGATION UNITS: 48.4 WMU'S
STREAM MITIGATION UNITS: 3,310 SMU'S
BERTIE COUNTY, NORTH CAROLINA
EEP CONTRACT #: D06065-B

Ecosystem Enhancement PROGRAM

PREPARED BY:
ALBEMARLE RESTORATIONS, LLC
WETLAND RESTORATION,
STREAM RESTORATION,
& WILDLIFE HABITAT CREATION
404 COURT STREET • GATESVILLE, NC 279938
(252) 333-0249 • FAX (252) 357-4892

Figure 3 Watershed Map

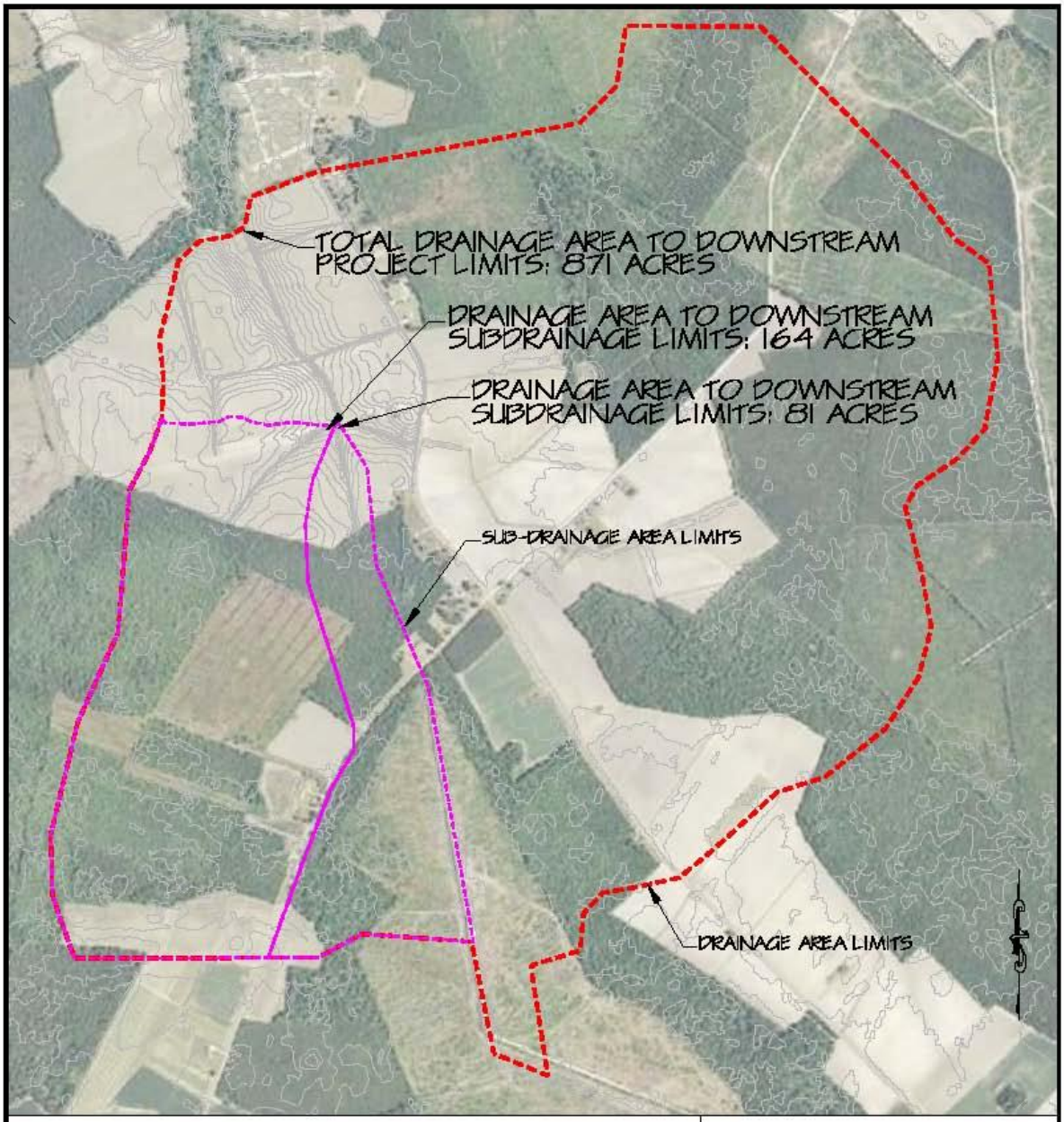
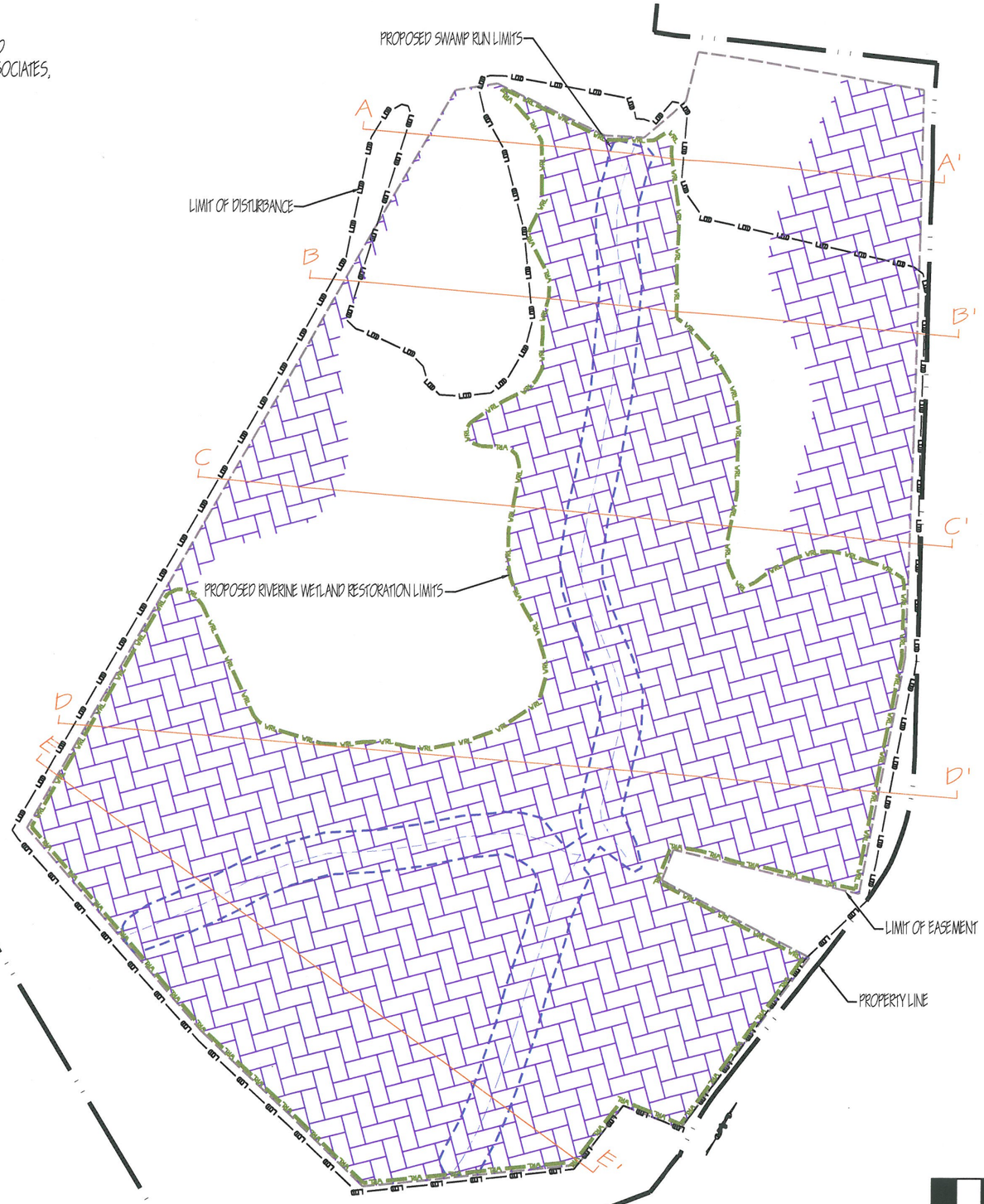


Figure 4 NRCS Soil Series

*NOTE:
HYDRIC SOILS SHOWN HEREIN ARE BASED ON SOILS REPORT PREPARED BY KCI ASSOCIATES, NOVEMBER 2007.



HYDRIC SOILS EXHIBIT
SCALE: 1" = 300'

LEGEND

- PROPERTY LINE
- EASEMENT BOUNDARY
- LOD — LIMITS OF DISTURBANCE
- APPROXIMATE "SWAMP RUN" LIMIT
- PROPOSED "SWAMP RUN" CENTERLINE
- HYDRIC SOILS; MAPPED BY KCI ASSOCIATES NOVEMBER 2007
- WRL — PROPOSED RIVERINE WETLAND RESTORATION LIMITS

PROPOSED WETLAND MITIGATION CREDIT SUMMARY

WETLAND RESTORATION AREAS	(1:1)	ACREAGE	WMU's
RIVERINE WETLAND RESTORATION		48.4	48.4
Total		48.4	48.4
"SWAMP RUN" RESTORATION		LINEAR FEET	SMU's
"SWAMP RUN" (7.5 ACRES)		3,310	3,310

300 0 300 600

HYDRIC SOILS EXHIBIT
APRIL 16, 2008

REVISIONS: INITIALS
REVISIONS DATE:

POWELL PROPERTY
WETLAND MITIGATION UNITS: 48.4 WMU'S
STREAM MITIGATION UNITS: 3,310 SMU'S
BERTIE COUNTY, NORTH CAROLINA
EEP CONTRACT #: D06065-B

Ecosystem Enhancement Program

PREPARED BY:
ALBEMARLE RESTORATIONS, LLC
WETLAND RESTORATION, STREAM RESTORATION, & WILDLIFE HABITAT CREATION
404 COURT STREET • GATESVILLE, NC 27938
(252) 333-0249 • FAX (252) 357-4892

SHEET H-1

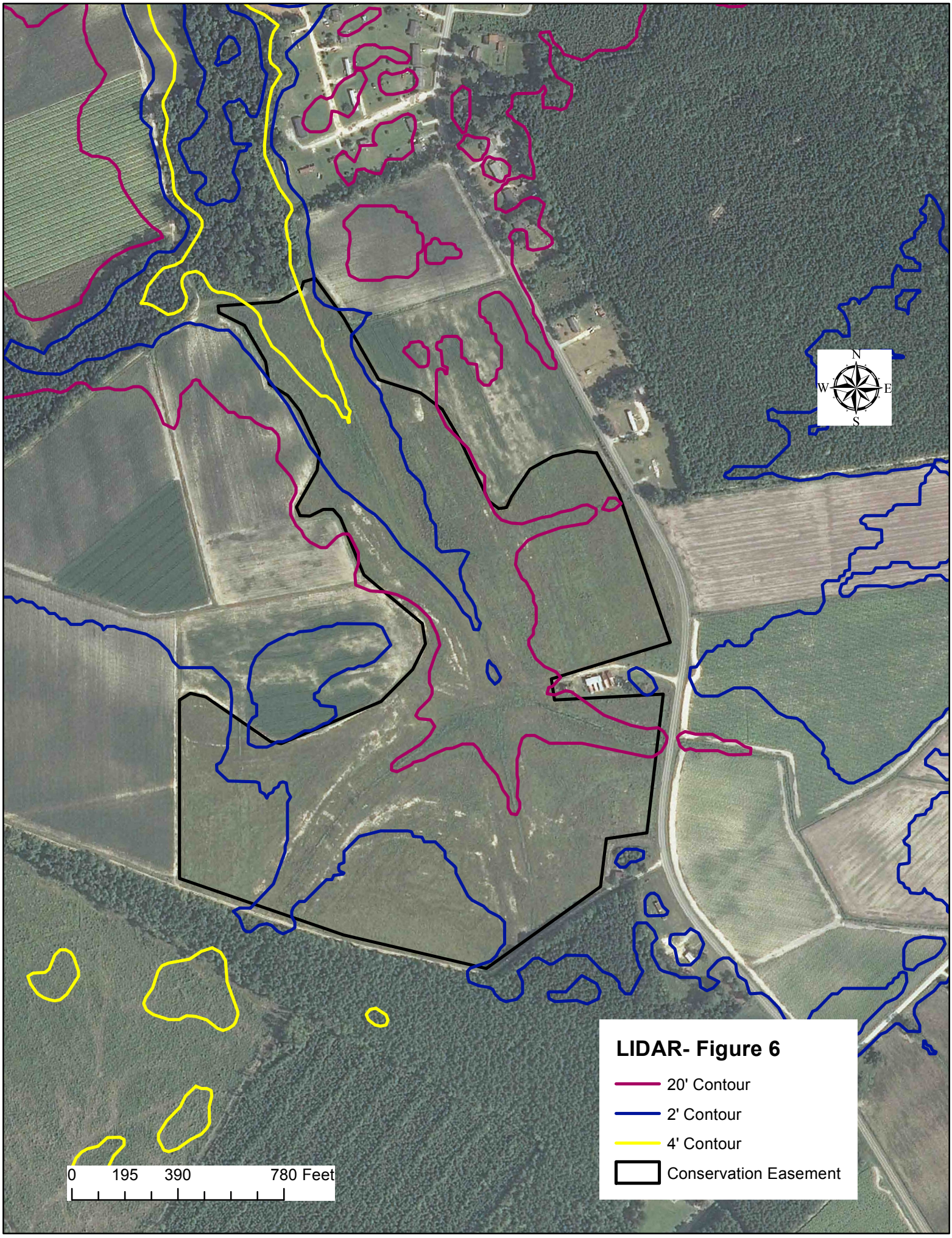

N
W
E
S
0
195
390
780 Feet
LIDAR- Figure 6
20' Contour
2' Contour
4' Contour
Conservation Easement

Figure 7 Maintenance Map

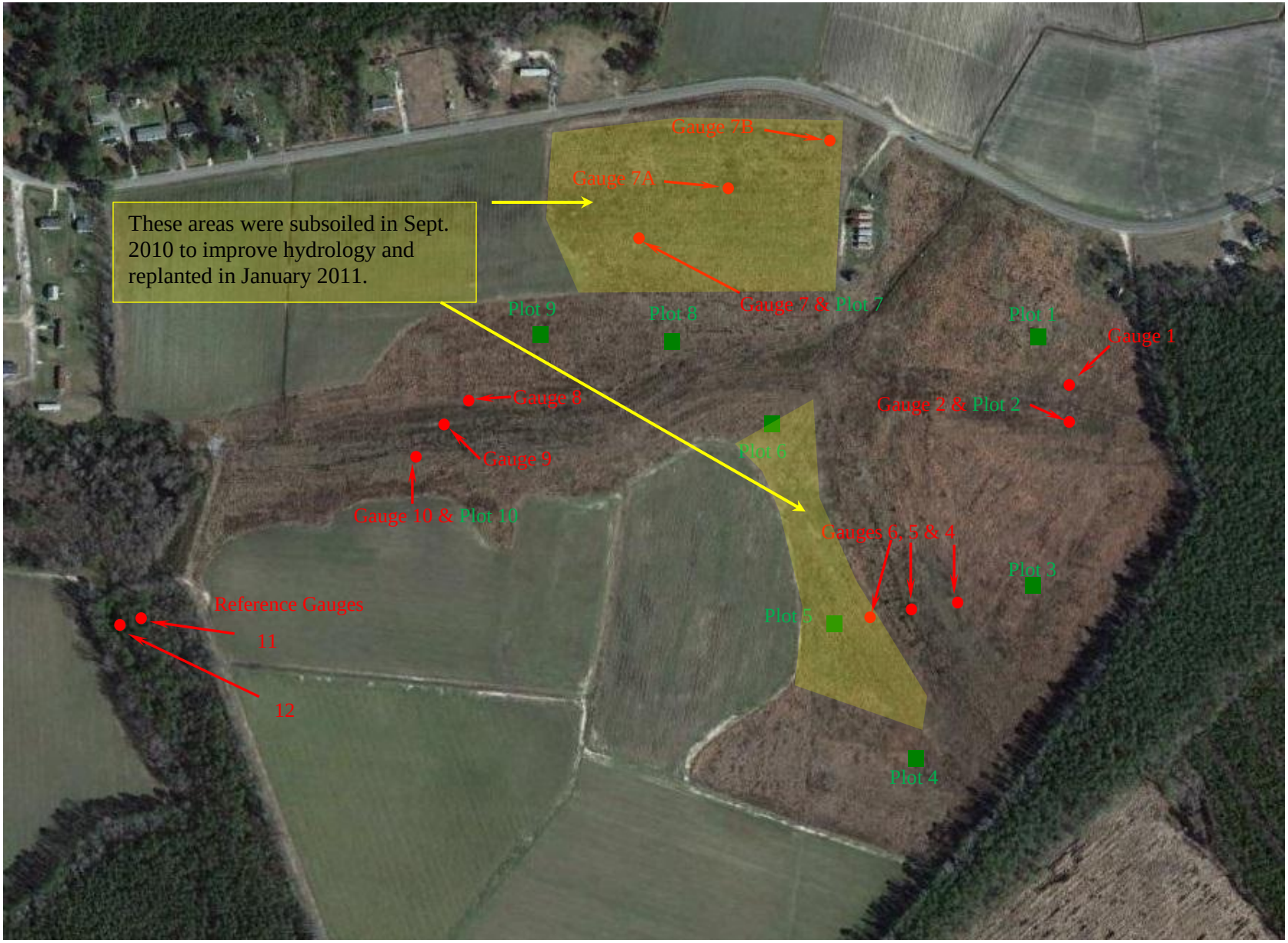


Table 5 Summary of Hydrologic Data																				
Gauge (Plot)	2009				2010				2011				2012				2013			
	Days	%	5%	9%	Days	%	5%	9%	Days	%	5%	9%	Days	%	5%	9%	Days	%	5%	9%
1	14	6	Y	N	18	8	Y	N	30	13	Y	Y	18	8	Y	N	51	22	Y	Y
2	34	15	Y	Y	25	11	Y	Y	59	26	Y	Y	27	12	Y	Y	56	24	Y	Y
3	15	6	Y	N	17	7	Y	N	59	26	Y	Y	27	12	Y	Y	56	24	Y	Y
4	4	2	N	N	15	6	Y	N	21	9	Y	Y	16	7	Y	N	52	23	Y	Y
5	35	15	Y	Y	34	15	Y	Y	59	26	Y	Y	28	12	Y	Y	56	24	Y	Y
6	4	2	N	N	7	3	N	N	59	26	Y	Y	18	8	Y	N	87	38	Y	Y
7	7	3	N	N	4	2	N	N	19	8	Y	N	13	6	Y	N	50	22	Y	Y
7A									13	6	Y	N	6	3	N	N	22	10	Y	Y
7B									18	8	Y	N	6	3	N	N	21	9	Y	Y
8	39	17	Y	Y	38	16	Y	Y	59	26	Y	Y	85	37	Y	Y	101	44	Y	Y
9	24	10	Y	Y	39	17	Y	Y	59	26	Y	Y	87	38	Y	Y	103	45	Y	Y
10	14	6	Y	N	28	12	Y	Y	48	21	Y	Y	30	13	Y	Y	54	23	Y	Y
11 (Ref)	53	23	Y	Y	38	16	Y	Y	59	26	Y	Y	89	39	Y	Y	176	76	Y	Y
12 (Ref)	39	17	Y	Y	36	16	Y	Y	59	26	Y	Y	25	11	Y	Y	137	59	Y	Y

Table 6 Original Planting Schedule

Quantity	Common Name	Scientific Name	Percent of Total
Trees			
6000	Bald Cypress	Taxodium distichum	17.9%
900	Water tupelo	Nyssa aquatica	2.7%
6600	Swamp Black Gum	Nyssa biflora	19.6%
8100	Willow Oak	Quercus phellos	24.1%
975	Swamp White Oak	Quercus bicolor	2.9%
400	Pin Oak	Quercus palustris	1.2%
500	Water Oak	Quercus nigra	1.5%
3000	Swamp Chestnut Oak	Quercus michauxii	8.9%
26475	Total Tree Stems		78.8%
Shrubs			
237	Staggerbush	Lyonia mariana	0.7%
160	Tag Alder	Alnus serrulata	0.5%
352	Highbush Blueberry	Vaccinium corymbosum	1.0%
600	Sweet Pepperbush	Clethra alnifolia	1.8%
550	Virginia Sweetspire	Itea virginica	1.6%
1300	Button Bush	Cephalanthus occidentalis	3.9%
723	Swamp Bay	Persea palustris	2.2%
900	Inkberry	Ilex glabra	2.7%
1100	Wax Myrtle	Myrica cerifera	3.3%
900	Black Willow	Salix nigra	2.7%
300	Sweetbay Magnolia	Magnolia virginiana	0.9%
7122	Total Shrub Stems		21.2%
33597	Total All Stems		

Table 7 Tree Survival

	Stems per acre for these years:				
Plot	2009	2010	2011	2012	2013
1	557	526	495	454	495
2	412	364	330	371	371
3	495	405	330	289	289
4	454	455	371	371	371
5	412	405	495	454	455
6	371	405	371	371	371
7	371	324	330	371	289
8	701	647	577	577	577
9	454	364	371	371	371
10	454	405	454	412	412

Table 8. Verification of Flow Events

Year	Number of flow events documented	Events that were video documented also	Time of Year
2009	2	2	April, May
2010	2	3	Jan, Feb, March, May, Oct.
2011	1	2	April, August
2012	2	2	March, October
2013	1	1	February

Figure 5. Historic vs. observed rainfall

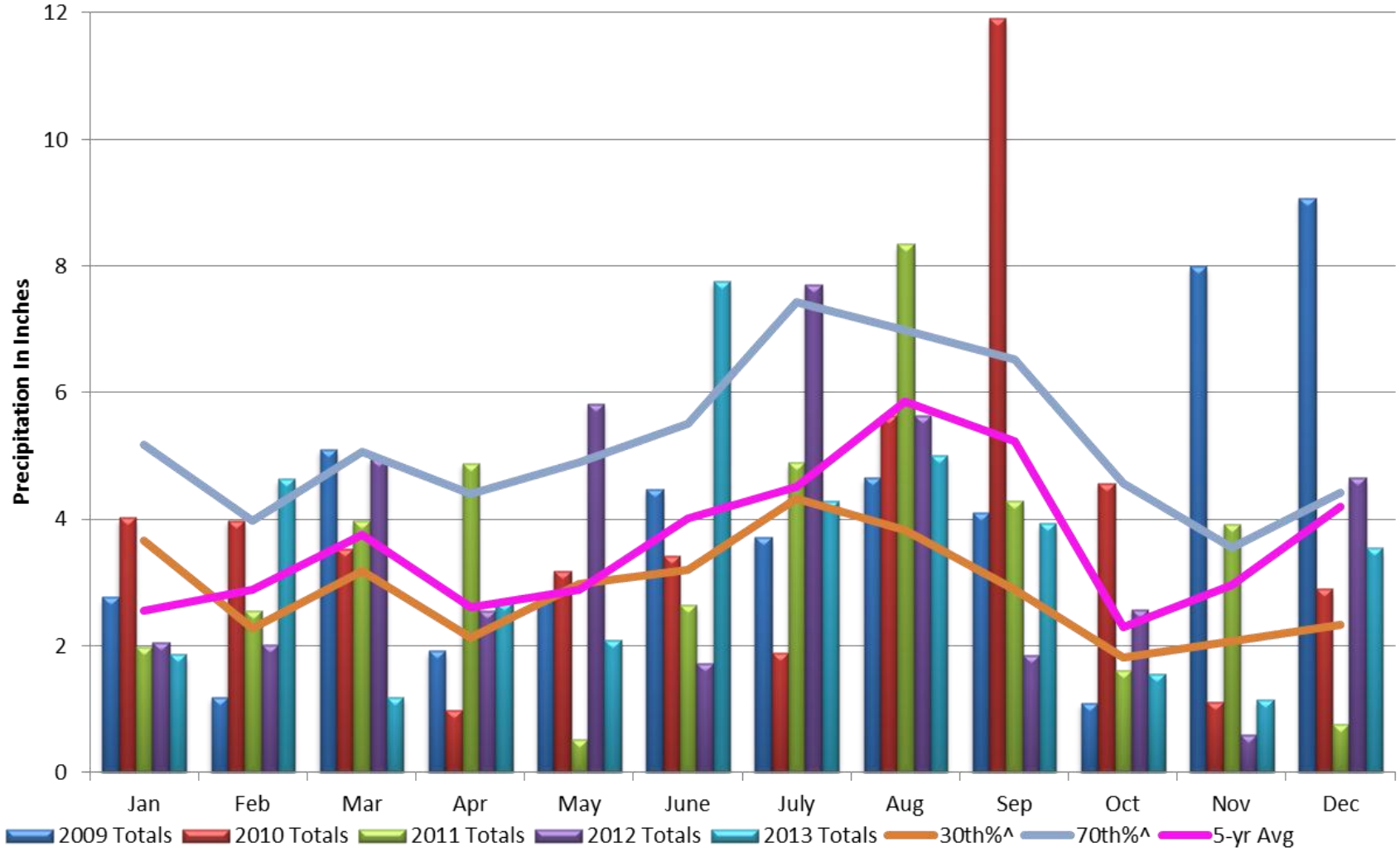


Table 9

Monthly Precipitation Totals									
	2009	2010	2011	2012	2013	5-yr avg	hist avg	30%	70%
Jan	2.53	5.18	2.77	2.53	2.24	3.05	4.11	3.07	4.90
Feb	1.34	4.38	2.17	3.53	4.35	3.15	3.37	2.38	4.07
Mar	7.29	6.99	5.32	5.25	2.23	5.42	3.98	2.96	4.70
Apr	1.81	0.97	3.69	2.16	3.30	2.39	3.00	2.12	3.82
May	3.97	5.58	2.23	7.31	2.81	4.38	3.99	2.53	4.98
June	4.11	2.66	1.89	4.60	11.20	4.89	3.87	2.78	4.53
July	11.50	1.18	6.87	3.93	4.19	5.53	5.37	3.39	6.59
Aug	4.85	4.65	15.50	6.75	2.97	6.94	4.86	2.74	6.04
Sep	3.96	15.82	7.17	1.16	2.32	6.09	5.10	2.50	6.24
Oct	1.22	3.56	1.39	6.14	2.52	2.97	3.23	2.02	4.63
Nov	10.56	0.62	3.12	0.65	2.48	3.49	2.71	1.63	3.28
Dec	7.75	3.05	0.82	4.32	3.30	3.85	3.30	2.24	3.97

EEP Recommendations and Conclusions

The Powell site has completed 5 years of vegetative, wetland hydrology and headwater stream monitoring. Vegetative growth and headwater stream monitoring have met the success criteria.

Wetland hydrology has met the success criteria (9%) in 3 or more out of 5 years for all of the gauges except 6,7, 7A and 7B. These gauges met the minimum wetland hydrology (5%) in greater than 50% of the years measured.

The coastal stream portion of the site has shown appropriate flow in the upper, middle and lower sections of the stream valley. The majority of the wetland portion of the site is meeting success and the remaining portion is trending toward success. EEP is recommending the Powell site for closeout with the assets listed, 3,340 SMUs and 48.51 Riverine WMUs.

Contingencies

None

Pre-Construction Photos – 2007

Looking down the main ditch that would become the lower end of the restored headwater.

The same ditch looking upstream from the outfall point.

Looking up the main ditch from near the midpoint of the project toward the project boundary.

The midpoint of the project became the confluence of the 3 headwaters. View is looking downstream. This area was highly eroded and degraded and prone to sedimentation prior to construction.

Post-Construction Photos

Channels beginning to form after rain events.

Main channel beginning to form. This view is looking across the area shown in the last pre-construction photo.

Lateral channels also beginning to form.

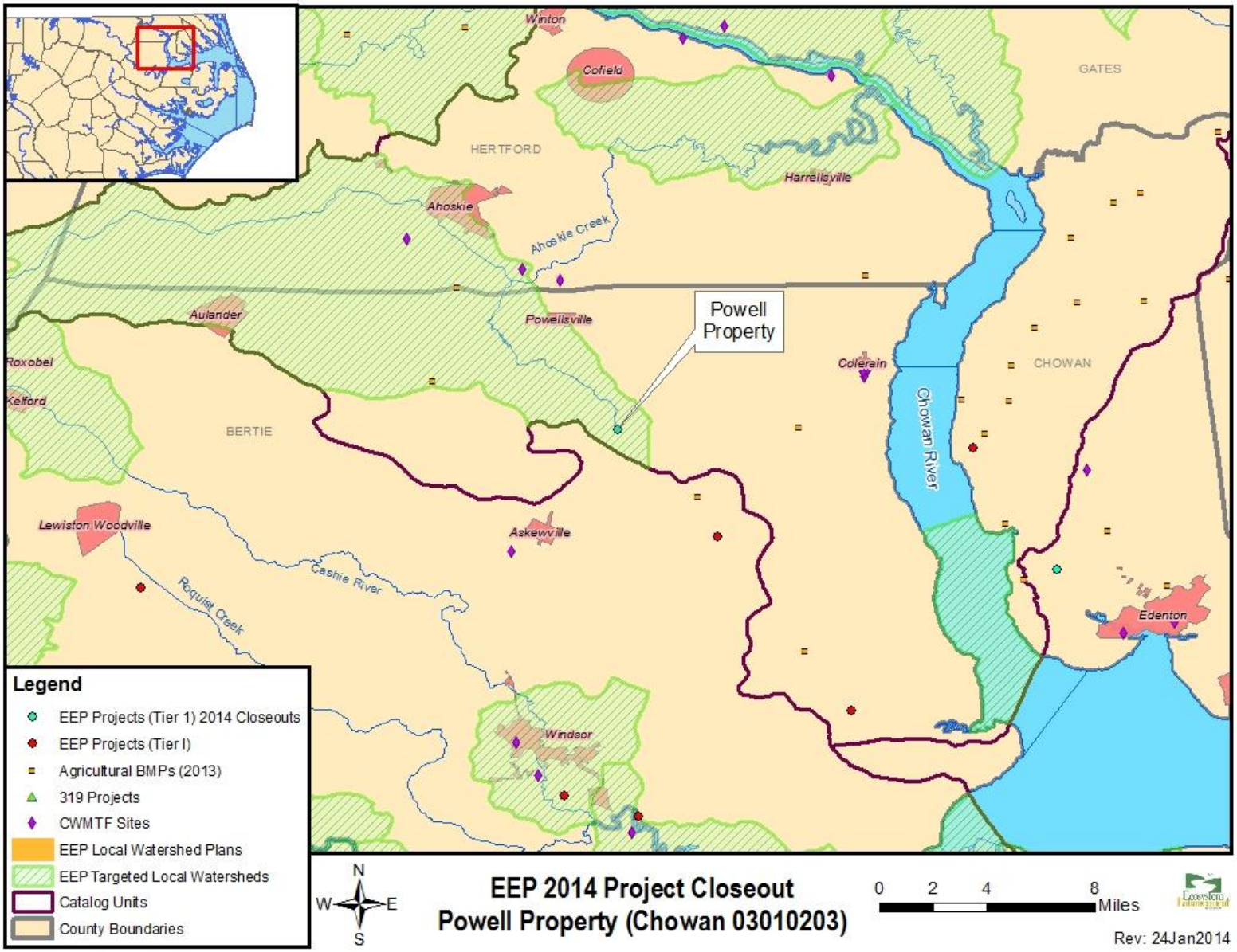
Site is covered in an herbaceous layer.

APPENDIX A: Watershed Summary

Powell Property Project

The Powell Property project is located in Bertie County, roughly 11 miles south of the town of Ahoskie in the Chowan River Basin. It is located within HUC 03010203050011, the Ahoskie Creek watershed, which is listed as a Targeted Local Watershed (TLW) in the 2009 Chowan River Basin Restoration Priorities (RBRP) plan, as well as in the previous 2002 RBRP plan. (http://portal.ncdenr.org/web/eep/rbrps/chowan). The EEP has no other projects located within this TLW, however, there are two NC Clean Water Management Trust Fund projects located within the watershed. The project site is located at the headwaters of the Quiccosin Swamp and is contiguous with nearby forested wetland areas. The project drains into the swamp, which flows into nearby Ahoskie Creek and eventually into the Chowan River. The 2009 RBRP plan states that roughly 63% of the watershed is forested and/or a wetland area. None of the streams in the TLW are designated 303(d) impaired waters, nor is there any designated SNHA, and only 0.2% is in conservation. Thirty-two percent of the watershed is in agriculture, including 13 permitted animal operations. None of the adjacent designated shellfish harvesting area is listed as being closed. For this TLW, the RBRP recommends projects that increase conservation land and reduce agricultural impacts, such as stream and buffer corridor restoration, as well as agricultural BMPs. The more general basin-wide goals are to implement wetland, stream, and shoreline restoration projects that reduce sources of sedimentation, nutrient pollution and surface runoff by restoring hydrology and vegetation, stabilizing banks and restoring natural geomorphology where appropriate.

The Powell Property project involved stream and riparian wetland restoration from their degraded conditions as a straightened agricultural ditch with row crops planted in adjacent fields. The stream has been returned to its natural condition with its channel restored, floodplain re-established, side banks stabilized, and a riparian buffer restored. The adjacent farm fields were also restored as wetlands, with drainage ditches removed or filled, man-made berms removed, and extensive native wetland tree and shrub species planted. The project contributes to the general river basin and TLW-specific water quality improvement goals as it re-connects the stream to the floodplain, increases stream stability (thus reducing sediment loss), improves riparian buffer habitat and corridor development, and improves overall nutrient removal capacity in an historic agricultural location. Thus the restoration should reduce the volume of pollutants draining into the Chowan River and ultimately into the Albemarle Sound.


Winton
Cofield
GATES
HERTFORD
Harrellsville
Ahoskie
Ahoskie Creek
Powell Property
Aulander
Powellsville
Roxobel
Kelford
Colerain
CHOWAN
BERTIE
Chowan River
Lewiston Woodville
Askewville
Cashie River
Roquist Creek
Edenton
Windsor
Legend
EEP Projects (Tier 1) 2014 Closeouts
EEP Projects (Tier I)
Agricultural BMPs (2013)
319 Projects
CWMTF Sites
EEP Local Watershed Plans
EEP Targeted Local Watersheds
Catalog Units
County Boundaries
N
W
E
S
EEP 2014 Project Closeout
Powell Property (Chowan 03010203)
0 2 4 8 Miles
Rev: 24Jan2014

Appendix B - Land Ownership and Protection

SITE PROTECTION INSTRUMENT

The land required for the construction, management, and stewardship of this mitigation project includes a portion of the following parcels:

Grantor	County	Site Protection Instrument	Deed Book & Page Number	Acreage protected
Albemarle Restoration. LLC	Bertie	Conservation Easement	897/ 251	55.950

The conservation easement is available at the county register of deeds office or at the link below:

http://www.nceep.net/GIS_DATA/PROPERTY/92548_PowellProperty.pdf

APPENDIX C - Jurisdictional Determination & Permits

U.S. ARMY CORPS OF ENGINEERS

WILMINGTON DISTRICT

Action ID. **2008-01863** County: **Bertie** USGS Quad: **Powellsville**

GENERAL PERMIT (REGIONAL AND NATIONWIDE) VERIFICATION

Property Owner / Authorized Agent: **Albemarle Restorations, LLC.**
Address: **P.O. Box 204**
Gatesville, North Carolina 27938
Attn: Mr. Scott McGill

Telephone No.: **(252) 333-0249**
Size and location of property (water body, road name/number, town, etc.): **The project property area is approximately 90 acres located just west of NCSR 1312 and approximately .3 miles north of NCSR 1307 and Buzzards Crossroads, adjacent to Quioccosin Swamp, in Bertie County, North Carolina.**

Description of projects area and activity: **Restoration of jurisdictional waters temporarily impacting 6,985 linear feet of existing channel (1.84 acres). Note - See attached Additional Special Conditions.**

Applicable Law: ☒ Section 404 (Clean Water Act, 33 USC 1344)
☐ Section 10 (Rivers and Harbors Act, 33 USC 403)
Authorization: Regional General Permit Number: _____
Nationwide Permit Number: **NW # 27**

Your work is authorized by the above referenced permit provided it is accomplished in strict accordance with the attached conditions and your submitted plans. Any violation of the attached conditions or deviation from your submitted plans may subject the permittee to a stop work order, a restoration order and/or appropriate legal action.

This verification will remain valid until the expiration date identified below unless the nationwide authorization is modified, suspended or revoked. If, prior to the expiration date identified below, the nationwide permit authorization is reissued and/or modified, this verification will remain valid until the expiration date identified below, provided it complies with all requirements of the modified nationwide permit. If the nationwide permit authorization expires or is suspended, revoked, or is modified, such that the activity would no longer comply with the terms and conditions of the nationwide permit, activities which have commenced (i.e., are under construction) or are under contract to commence in reliance upon the nationwide permit, will remain authorized provided the activity is completed within twelve months of the date of the nationwide permit's expiration, modification or revocation, unless discretionary authority has been exercised on a case-by-case basis to modify, suspend or revoke the authorization.

Activities subject to Section 404 (as indicated above) may also require an individual Section 401 Water Quality Certification. You should contact the NC Division of Water Quality (telephone (919) 733-1786) to determine Section 401 requirements.

For activities occurring within the twenty coastal counties subject to regulation under the Coastal Area Management Act (CAMA), prior to beginning work you must contact the N.C. Division of Coastal Management .

This Department of the Army verification does not relieve the permittee of the responsibility to obtain any other required Federal, State or local approvals/permits.

If there are any questions regarding this verification, any of the conditions of the Permit, or the Corps of Engineers regulatory program, please contact **Bill Biddlecome at (252) 975-1616 ext 26**.

Corps Regulatory Official William J. Biddlecome Date: **06/17/2008**

Expiration Date of Verification: **06/17/2010**

The Wilmington District is committed to providing the highest level of support to the public. To help us ensure we continue to do so, please complete the attached customer Satisfaction Survey or visit http://www.saw.usace.army.mil/WETLANDS/index.html to complete the survey online.

Copy Furnished:

Determination of Jurisdiction:

☐ Based on preliminary information, there appear to be waters of the US including wetlands within the above described project area. This preliminary determination is not an appealable action under the Regulatory Program Administrative Appeal Process (Reference 33 CFR Part 331).

☐ There are Navigable Waters of the United States within the above described project area subject to the permit requirements of Section 10 of the Rivers and Harbors Act and Section 404 of the Clean Water Act. Unless there is a change in the law or our published regulations, this determination may be relied upon for a period not to exceed five years from the date of this notification.

☒ There are waters of the US and/or wetlands within the above described project area subject to the permit requirements of Section 404 of the Clean Water Act (CWA)(33 USC § 1344). Unless there is a change in the law or our published regulations, this determination may be relied upon for a period not to exceed five years from the date of this notification.

☐ The jurisdictional areas within the above described project area have been identified under a previous action. Please reference jurisdictional determination issued _____. Action ID _____

Basis of Jurisdictional Determination: **This waterbody exhibits an Ordinary High Water Mark as indicated by changes in soil character and absence of terrestrial vegetation and is hydrologically connected to Quioccosin Swamp, a tributary to Stoney Creek, a tributary to Ahoskie Creek, a tributary to Wiccacon River, which is a tributary to the Chowan River.**

Corps Regulatory Official: William J. Biddlecome

Date **06/17/2008**

SURVEY PLATS, FIELD SKETCH, WETLAND DELINEATION FORMS, PROJECT PLANS, ETC., MUST BE ATTACHED TO THE FILE COPY OF THIS FORM, IF REQUIRED OR AVAILABLE.

Copy Furnished:
Mr. Guy C. Pearce
Ecosystem Enhancement Program
1652 Mail Service Center
Raleigh, North Carolina 27699-16522

Michael F. Easley, Governor

William G. Ross Jr., Secretary
North Carolina Department of Environment and Natural Resources

Coleen H. Sullins,. Director
Division of Water Quality

August 7, 2008

DWQ Project # 08-0942
Bertie County

Albemarle Restoration, LLC
Attn: Scott McGill
P.O. Box 5
Jarrettsville, MD 21084

Subject Property: **Powell Property Wetland Restoration**
Quioccosin Swamp [030101, 25-14-1-6-2, C;NSW]

Approval of 401 Water Quality Certification with Additional Conditions

Dear Mr. McGill:

You have our approval, in accordance with the attached conditions and those listed below, to place fill within or otherwise impact 6,985 feet of streams for the purpose of wetland and stream restoration at the subject property, as described within your application dated June 4, 2008 and received by the N.C. Division of Water Quality (DWQ) on June 9, 2008. After reviewing your application, we have decided that the impacts are covered by General Water Quality Certification Number 3689 (GC 3689). The Certification allows you to use Nationwide Permit(s) 27 when issued by the US Army Corps of Engineers (USACE). In addition, you should obtain or otherwise comply with any other required federal, state or local permits before you go ahead with your project including (but not limited to) Erosion and Sediment Control, and Non-discharge regulations. **Also, this approval to proceed with your proposed impacts or to conduct impacts to waters as depicted in your application shall expire upon expiration of the 404 or CAMA Permit.**

This approval is for the purpose and design that you described in your application. If you change your project, you must notify us and you may be required to send us a new application. If the property is sold, the new owner must be given a copy of this Certification and approval letter and is thereby responsible for complying with all conditions. If total fills for this project (now or in the future) exceed one acre of wetland or 150 linear feet of stream, compensatory mitigation may be required as described in 15A NCAC 2H .0506 (h). This approval requires you to follow the conditions listed in the attached certification and any additional conditions listed below.

The Additional Conditions of the Certification are:

1. Impacts Approved

   The following impacts are hereby approved as long as all of the other specific and general conditions of this Certification (or Isolated Wetland Permit) are met. No other impacts are approved including incidental impacts:

401 Oversight/Express Review Permitting Unit
1650 Mail Service Center, Raleigh, North Carolina 27699-1650
2321 Crabtree Boulevard, Suite 250, Raleigh, North Carolina 27604
Phone: 919-733-1786 / FAX 919-733-6893 / Internet: http://h2o.enr.state.nc.us/ncwetlands

	Amount Approved (Units)	Plan Location or Reference
Stream	6,985 (feet)	PCN page 8 of 13
404/CAMA Wetlands	0 (acres)	NA
Waters	0 (acres)	NA
Buffers	0 (square ft.)	NA

2. Erosion & Sediment Control Practices

Erosion and sediment control practices must be in full compliance with all specifications governing the proper design, installation and operation and maintenance of such Best Management Practices in order to protect surface waters standards:

a. The erosion and sediment control measures for the project must be designed, installed, operated, and maintained in accordance with the most recent version of the *North Carolina Sediment and Erosion Control Planning and Design Manual*.
b. The design, installation, operation, and maintenance of the sediment and erosion control measures must be such that they equal, or exceed, the requirements specified in the most recent version of the *North Carolina Sediment and Erosion Control Manual*. The devices shall be maintained on all construction sites, borrow sites, and waste pile (spoil) projects, including contractor-owned or leased borrow pits associated with the project.
c. For borrow pit sites, the erosion and sediment control measures must be designed, installed, operated, and maintained in accordance with the most recent version of the *North Carolina Surface Mining Manual*.
d. The reclamation measures and implementation must comply with the reclamation in accordance with the requirements of the Sedimentation Pollution Control Act.

3. No Waste, Spoil, Solids, or Fill of Any Kind

No waste, spoil, solids, or fill of any kind shall occur in wetlands, waters, or riparian areas beyond the footprint of the impacts depicted in the Pre-Construction Notification. All construction activities, including the design, installation, operation, and maintenance of sediment and erosion control Best Management Practices, shall be performed so that no violations of state water quality standards, statutes, or rules occur.

4. No Sediment & Erosion Control Measures w/n Wetlands or Waters

Sediment and erosion control measures shall not be placed in wetlands or waters without prior approval from the Division. If placement of sediment and erosion control devices in wetlands and waters is unavoidable, design and placement of temporary erosion control measures shall not be conducted in a manner that may result in dis-equilibrium of wetlands or stream beds or banks, adjacent to or upstream and down stream of the above structures. All sediment and erosion control devices shall be removed and the natural grade restored within two (2) months of the date that the Division of Land Resources or locally delegated program has released the project.

5. Certificate of Completion

Upon completion of all work approved within the 401 Water Quality Certification or applicable Buffer Rules, and any subsequent modifications, the applicant is required to return the attached certificate of completion to the 401 Oversight/Express Review Permitting Unit, North Carolina Division of Water Quality, 1650 Mail Service Center, Raleigh, NC, 27699-1650.

6. Stream and Buffer Restoration

   You have our approval for your proposed final stream and wetland restoration plans. The stream and wetland restoration must be constructed, maintained, and monitored according to the plans approved by this Office. Any repairs or adjustments to the site must be made according to the approved plans or must receive written approval from this Office to make the repairs or adjustments.

7. Documentation of Headwater Stream Flow

   In order for the Headwater Valley Stream Restoration portions of the project to generate stream mitigation credits, downstream flow must be documented. Potential ways to document flow include placement of multiple narrow lines of white silica sand across the stream bed and mark the locations with flagged stakes. Using photographs (taken monthly and/or after rain events), document how much/how quickly the sand travels downstream over time. Other options for documenting flow include video or photographic evidence of flowing water, rack lines, etc. after storm events, and macrobenthos monitoring which documents the presence of rheophilic organisms.

Violations of any condition herein set forth may result in revocation of this Certification and may result in criminal and/or civil penalties. The authorization to proceed with your proposed impacts or to conduct impacts to waters as depicted in your application and as authorized by this Certification shall expire upon expiration of the 404 or CAMA Permit.

If you do not accept any of the conditions of this Certification (associated with the approved wetland or stream impacts), you may ask for an adjudicatory hearing. You must act within 60 days of the date that you receive this letter. 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 certification and its conditions are final and binding unless you ask for a hearing.

This letter completes the review of the Division of Water Quality under Section 401 of the Clean Water Act. If you have any questions, please telephone Cyndi Karoly in the Central Office in Raleigh at 919-733-9721 or Kyle Barnes in the DWQ Washington Regional Office at 336-771-5000.

Sincerely,

for Coleen H. Sullins.

CHS/*EWK*

Enclosures: GC 3689
Certificate of Completion

cc: USACE Washington Regulatory Field Office
DWQ Washington Regional Office
DLR Washington Regional Office
File Copy
Central Files

APPENDIX - D Debit Ledger

Mitigation Project Name	**Powell Property**
EEP IMS ID	**92548**
River Basin	**CHOWAN**
Cataloging Unit	**03010203**

				Applied Credit Ratios:	1:1	1.5:1	2.5:1	5:1	1:1	3:1	2:1	5:1	1:1	3:1	2:1	5:1	1:1	3:1	2:1	5:1
					Stream Restoration	Stream Enhancment I	Stream Enhancement II	Stream Preservation	Riparian Restoration	Riparian Creation	Riparian Enhancement	Riparian Preservation	Nonriparian Restoration	Nonriparian Creation	Nonriparian Enhancement	Nonriparian Preservation	Coastal Marsh Restoration	Coastal Marsh Creation	Coastal Marsh Enhancement	Coastal Marsh Preservation
Beginning Balance (feet and acres)					**3,340.00**				**48.51**											
Beginning Balance (mitigation credits)					**3,340.00**				**48.51**											
NCDOT Pre-EEP Debits (feet and acres):			Not Applicable																	
EEP Debits (feet and acres):																				
DWQ Permit No	USACE Action IDs	CAMA ID	Impact Project Name																	
	2005-10073		NCDOT TIP B-3636 - Bridge 16 on SR 1222						0.20											
	2006-10572		NCDOT TIP B-3640 - Bridge 16 on SR 1400						0.19											
	2005-10609		SR 1112 - Division 1						0.15											
	2008-01090-121		NCDOT TIP B-4073 - Bridge 13 on SR 1226						0.06											
	2009-01869-137		NCDOT TIP B-4520 - Bridge 32 on SR 1100						0.21											
	2009-01337		NCDOT TIP B-5018 - Bridges 12 & 25 on US 13						0.25											
2012-0296	2006-10391	92-12	NCDOT TIP R-2507A - US 13 Widening						12.10											
Remaining Balance (feet and acres)					**3,340.00**				**35.36**											
Remaining Balance (mitigation credits)					**3,340.00**				**35.36**											

Information from EEP Debit Ledger dated 3/12/2014