MITIGATION PLAN

Burnetts Chapel Buffer
Mitigation Site
Guilford County, North Carolina
DENR Contract 003996

Randleman Lake Watershed
Cape Fear River Basin
HUC 03030003

Prepared for:

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

February 2012

MITIGATION PLAN

Burnetts Chapel Buffer
Mitigation Site
Guilford County, North Carolina
DENR Contract 003996

Randleman Lake Watershed
Cape Fear River Basin
HUC 03030003

Prepared for:

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

Prepared by:

Wildlands Engineering, Inc.
1430 South Mint Street, Suite 104
Charlotte, NC 28203
Phone – 704-332-7754

February 2012

EXECUTIVE SUMMARY

The Burnetts Chapel Buffer Mitigation Site is a full-delivery stream buffer restoration and enhancement project for the North Carolina Ecosystem Enhancement Program (NCEEP) in Guilford County, NC. The project includes the restoration and enhancement of stream buffers along several unnamed tributaries to Randleman Lake. The project is being completed to provide buffer mitigation units (BMUs) in the Cape Fear River Basin and will include 9.2 acres of buffer restoration and 1.5 acres of buffer preservation.

Table ES.1 Project Components
Burnetts Chapel Buffer Mitigation Site

Area	Management Objectives	Type of Mitigation	Area (acres)	Ratio	Mitigation Units (BMUs)
Area A	Restore riparian buffer. Remove crop production and nutrient application.	Buffer Restoration	1.5	1:1	1.5
Area A	No vegetation management proposed.	Buffer Preservation	0.67	N/A	0.0
Area B	Restore riparian buffer. Remove crop production and nutrient application.	Buffer Restoration	7.7	1:1	7.7
Area B	No vegetation management proposed.	Buffer Preservation	0.86	N/A	0.0
		Total	**10.7 acres**	**- - -**	**9.2 BMUs**

The Burnetts Chapel Buffer Mitigation Site is located in the 03030003 Catalog Unit (CU), in the Cape Fear River Basin. The Deep River is the primary river in this HUC which flows into the Randleman Reservoir. The project site streams are direct tributaries to Deep River in the Randleman Reservoir. The newly created reservoir is a regional water supply and stream buffer protection rules are in place throughout the watershed (http://portal.ncdenr.org/web/wq/swp/ws/401/riparianbuffers/rules). The Cape Fear shiner, a federally endangered species, is found in the Deep River. Protection of this species and improving the water quality of the waters draining to the Randleman Reservoir are included as recommendations in the NCEEP 2009 Cape Fear River Basin Restoration Priorities Report (http://www.nceep.net/services/lwps/cape_fear/RBRP%20Cape%20Fear%202008.pdf). The Burnetts Chapel Buffer Mitigation Site was identified as a buffer mitigation opportunity to improve water quality and habitat within the CU.

The major goals of the proposed buffer restoration project are to provide ecological and water quality enhancements to the Randleman Lake watershed of the Cape Fear River Basin by creating a functional riparian corridor and restoring a Piedmont Bottomland Forest as described by Schafale and Weakley (1990). Specific enhancements to water quality and ecological processes are outlined below in Table ES.2.

Table ES.2 Ecological and Water Quality Goals of the Mitigation Project
Burnetts Chapel Buffer Mitigation Site

Water Quality Goals	
Decrease nutrient and fecal coliform levels	Nutrient and fecal coliform input will be decreased by filtering runoff from the pasture and agricultural fields through restored native buffer zones. The off-site nutrient input will also be absorbed on-site by filtering flood flows through restored riparian buffer areas, where flood flows can disperse through native vegetation.
Decrease sediment input	Sediment from off-site sources will be captured by deposition on restored riparian areas where native vegetation will slow overland flow velocities.
Decrease water temperature and increase dissolved oxygen concentrations	Establishment and maintenance of riparian buffers will create long-term shading of the channel flow to minimize thermal heating.
Ecological Goals	
Create appropriate terrestrial habitat	Buffer areas will be restored by removing invasive vegetation and planting native vegetation. Some bank sloping, matting, and planting will occur in isolated locations. Native vegetation will provide cover and food for terrestrial creatures.

This mitigation plan has been written in conformance with the requirements of the following:

- Federal rule for compensatory mitigation project sites as described in the Federal Register Title 33 Navigation and Navigable Waters Volume 3 Chapter 2 Section § 332.8 paragraphs (c)(2) through (c)(14).
- NCDENR Ecosystem Enhancement Program In-Lieu Fee Instrument signed and dated July 28, 2010.

These documents govern NCEEP operations and procedures for the delivery of compensatory mitigation.

Burnetts Chapel Buffer Mitigation Site
Mitigation Plan

TABLES

FIGURES

APPENDICES

1.0 Restoration Project Goals and Objectives

The Burnetts Chapel Buffer Mitigation Site is located in the 03030003 Catalog Unit (CU), in the Cape Fear River Basin. The Deep River is the primary river in this HUC which flows into the Randleman Reservoir. The project site streams are direct tributaries to Deep River in the Randleman Reservoir. The newly created reservoir is a regional water supply and stream buffer protection rules are in place throughout the watershed (http://portal.ncdenr.org/web/wq/swp/ws/401/riparianbuffers/rules). The Cape Fear shiner, a federally endangered species, is found in the Deep River. Protection of this species and improving the water quality of the waters draining to the Randleman Reservoir are included as recommendations in the NCEEP 2009 Cape Fear River Basin Restoration Priorities Report (http://www.nceep.net/services/lwps/cape_fear/RBRP%20Cape%20Fear%202008.pdf). The Burnetts Chapel Buffer Mitigation Site was identified as a buffer mitigation opportunity to improve water quality and habitat within the CU.

The goals of the Burnetts Chapel Buffer Mitigation Project address water quality improvements identified in the Cape Fear River Basin Restoration Priorities Report and include the following:

- Remove harmful nutrients from creek flow;
- Reduce pollution of creek by excess sediment;
- Restore terrestrial habitat; and
- Improve aesthetics.

The project goals will be addressed through the following project objectives:

- Riparian areas will be fenced off from adjacent agricultural activities and runoff will be filtered through buffer zones. Flood flows will be filtered through restored riparian areas, where flood flow will spread through native vegetation. Vegetation will uptake excess nutrients.
- Streambanks will be further stabilized by increased woody root mass in the banks. Storm flow containing grit and fine sediment will be filtered through restored riparian buffer areas, where flow will spread through native vegetation.
- The establishment and maintenance of riparian buffers will create long-term shading of the channel bed, reducing thermal heating and improving aquatic habitat.
- Adjacent buffer and riparian habitats will be restored with native vegetation and invasive species will be treated as part of the project. Native vegetation will provide cover and food for terrestrial creatures.

2.0 Site Selection

2.1 Directions

The proposed Burnetts Chapel Buffer Mitigation Project is located approximately three miles west of the Town of Pleasant Garden and four miles south of the City of Greensboro in Guilford County, NC. The site is approximately 1.5 miles west of Interstate 73 off of Burnetts Chapel Road. The proposed project is surrounded by fields that are alternately used for cattle and crop production.

2.2 Site Selection

Wildlands Engineering, Inc. (WEI) proposes to restore 9.2 acres and preserve 1.5 acres of riparian buffer in Guilford County, NC. The site is comprised of two areas on one parcel of land along several unnamed tributaries and ephemeral ditches to Randleman Reservoir. All of the easement areas are located within open agricultural fields (Figure 2). The project is being completed to provide buffer mitigation units (BMUs) in the Cape Fear River Basin. The project design will cause no adverse impacts to streams or wetlands. The streams and ditches within the project area are tributaries to Deep River in the Randleman Reservoir.

2.3 Vicinity Map

The project site is located within the Randleman Reservoir watershed (NCDWQ Subbasin 03-06-08) of the Cape Fear River Basin (USGS Hydrologic Unit Code 03030003010050) as shown in Figure 1. On-site stream channels are unnamed tributaries to Deep River (Randleman Lake) (NCDWQ Index No. 17-(4)). The North Carolina Division of Water Quality (NCDWQ) assigns best usage classifications to State Waters that reflect water quality conditions and potential resource usage. Deep River is classified as Class WS-IV; Critical Area (CA) waters. Class WS-IV waters are used as sources of water supply for drinking or food processing purposes where a more restrictive WS-I, WS-II, or WS-III classification is not feasible. These waters are also protected for Class C uses such as secondary recreation, fishing, wildlife, fish and aquatic life propagation and survival, and agriculture. WS-IV waters are generally in moderately to highly-developed watersheds or Protected Areas. This portion of Deep River (Randleman Lake) is also located within the Critical Area or area within ½ mile of a water supply. See Figure 1 for the Vicinity Map of the Burnetts Chapel Buffer Mitigation Project.

2.4 Watershed Map

The project site watershed is located in a rural area of Guilford County in the Cape Fear River Basin as shown in Figure 2. At the downstream limits of the project, the drainage area is 366 acres (0.6 square mile). The drainage areas of each of the project reaches is included in Table 1.

Table 1. Drainage Areas
Burnetts Chapel Buffer Mitigation Site

Section Name	Existing Reach Length (feet)	NCDWQ Stream Identification Form Scores*	Stream Watershed Area (acres)	Buffer Watershed Area (acres)	Predominant Land Use of Buffer Watershed Area
Area A	Reach A : 699	A : 30.5	94	22	Forested 64% Agriculture 36%
Area B	Reach B1 : 1025 Reach B2 : 1653 Reach B3 : 768 Reach B4 : 475 Reach B5 : 800	B1 : 41 B2 : 24.25/33.5 B3 : 23.25 B4 : 19.75 B5 : 22.75	B1 : 366 B2 : 99 B3 : 33 B4 : 12 B5 : 10	72	Forested 52%, Agriculture 41%, Institutional** 7%

*NCDWQ Stream Identification Forms are included in Appendix B

** Institutional Land Use is a land use designation for churches, schools, and government land and is typically similar in nature to a commercial land use.

2.5 Soil Survey

Soil mapping units are based on the U.S. Department of Agriculture (USDA) Natural Resource Conservation Service (NRCS) Soil Survey for Guilford County. Soils along the Burnetts Chapel Buffer Mitigation project area are primarily mapped as Chewacla loam, Enon fine sandy loam, Helena sandy loam, and Vance sandy loam. These soils are described below in Table 2. A soils map is provided in Figure 3.

Table 2. Project Soil Types and Descriptions
Burnetts Chapel Buffer Mitigation Site

Soil Name	Location	Description
Chewacla loam, 0-2% slopes, frequently flooded	Area A	These soils are very deep somewhat poorly drained. They are found in valleys and floodplains and are frequently flooded. Shrink swell potential is low.
Enon fine sandy loam, 2-6% slopes	Area B	These well drained soils are found on uplands. Shrink-swell potential is moderate. The soil is neither flooded nor ponded.
Helena sandy loam, 6-10% slopes	Areas A and B	These soils are found on uplands, ridges, and hillslopes. The soils are moderately well drained and shrink-swell potential is moderate. The soils are neither flooded nor ponded.
Vance sandy loam, 10-15% slopes	Area B	These soils are found on hillslopes, ridges, and uplands. The soils are well drained and shrink-swell potential is low. The soils are neither flooded nor ponded.
Source: Guilford County Soil Survey, USDA-NRCS, http://efotg.nrcs.usda.gov		

2.6 Current Condition Plan View

On February 2, 2011, WEI investigated on-site jurisdictional waters of the U.S. using the U.S. Army Corps of Engineers (USACE) Routine On-Site Determination Method. This method is defined in the 1987 Corps of Engineers Wetlands Delineation Manual. Determination methods included stream classification utilizing the NCDWQ Stream Identification Form and the USACE Stream Quality Assessment Worksheet. Potential jurisdictional wetland areas as well as typical upland areas were classified using the USACE Routine Wetland Determination Data Form. All USACE forms are included in Appendix B.

The results of the on-site field investigation indicate that there are two perennial streams (Reach A/Reach B1 and Reach B2) and four intermittent streams (Reach B2, B3, B4, and B5) located within the property boundary (Figure 4). A portion of Reach B5 was determined to be ephemeral. No jurisdictional wetland areas were identified within the proposed project area.

On December 19, 2009, Sue Homewood of the North Carolina Division of Water Quality (NCDWQ) conducted an on-site determination to review features within the property for intermittent/perennial determination. This NCDWQ jurisdictional determination letter and map has been enclosed in Appendix B. WEI's jurisdictional determinations of on-site stream channels concur with the determinations made by the NCDWQ. The NCDWQ has also approved all six project reaches as appropriate for buffer mitigation as related to the rules set forth in the Randleman Lake Water Supply Watershed: Mitigation Program for Protection and Maintenance of Existing Riparian Buffers (15ANCAC02B.0252). The approval letter from NCDWQ is also included in Appendix B.

2.7 Historical Condition Plan View

The Burnetts Chapel Buffer Mitigation Site has historically been forested or used for agricultural purposes. Historic aerial photos are included in Appendix B and date back to 1973, showing the site in various stages of timber clearing, row crop production, and open pasture. The current property owner has confirmed that the site has been farmed for more than 100 years and has included activities such as crop production, livestock pastures, and timber.

2.8 Site Photographs

See Appendix B for site photographs of the Burnetts Chapel Buffer Mitigation Project.

3.0 Site Protection Instrument

3.1 Site Protection Instruments Summary Information

The land required for buffer planting, management, and stewardship of the mitigation project includes portions of the parcel(s) listed in Table 3. The proposed conservation easement on this property has not yet been recorded. A copy of the draft land protection instrument is included in the Appendix A.

Table 3. Site Protection Instrument
Burnetts Chapel Buffer Mitigation Site

Landowner	PIN	County	Site Protection Instrument	Deed Book and Page Number	Acreage to be Protected
Richard L. & Valerie M. Ingram	7840906275	Guilford	Conservation Easement	To Be Recorded	12.0

All site protection instruments require 60-day advance notification to the Corps and the State prior to any action to void, amend, or modify the document. No such action shall take place unless approved by the State.

3.2 Site Protection Instrument Figure

See Figure 5 for the Site Protection Instrument Figure for the Burnetts Chapel Buffer Mitigation Project.

4.0 Baseline Information

Table 4 summarizes the attributes of the overall project and of the project reaches.

Table 4. Baseline Information
Burnetts Chapel Buffer Mitigation Site

Project Information	
Project Name	Burnetts Chapel Buffer Mitigation Site
County	Guilford County
Project Area (acres)	12.0
Project Coordinates (latitude and longitude)	35° 56' 46.0"N, 79° 50' 44.2"W
Project Watershed Summary Information	
Physiographic Province	Carolina Slate Belt of the Piedmont
River Basin	Cape Fear
USGS Hydrologic Unit 8-digit	03030003
USGS Hydrologic Unit 14-digit	03030003010050
DWQ Sub-basin	03-06-08
Project Drainage Area (acres)	366
Project Drainage Area Percentage of Impervious Area	3%
CGIA Land Use Classification	52% Forest Land, 41% Cultivated Land, 7% Institutional

Summary Information						
Parameters	**Reach A**	**Reach B1**	**Reach B2**	**Reach B3**	**Reach B4**	**Reach B5**
Length of reach (linear feet)	699	1,025	1,653	768	475	800
Drainage area (acres)	94	366	99	33	12	10
NCDWQ stream identification score	30.5	41	24.25/ 33.5	23.25	19.75	22.75
Description Intermittent/ Perennial/ Ephemeral	Perennial	Perennial	Int./ Per.	Inter-mittent	Inter-mittent/ Ephem.	Inter-mittent/ Ephem.
Underlying mapped soils	Chewacla loam 0-2% slopes (Ch)	Helena sandy loam 6-10% slopes (HeC)	Helena sandy loam 6-10% slopes (HeC)	Vance sandy loam 10-15% slopes (VaD)	Helena sandy loam 6-10% slopes (HeC)	Enon fine sandy loam 2-6% slopes (EnB)
Drainage class	Poorly-drained	Mod. well-drained	Mod. well-drained	Well-drained	Mod. well-drained	Well-drained
Soil Hydric status	Yes	No	No	No	No	Yes
FEMA classfication	no regulated floodplain	no regulated floodplain	no regulated flood-plain	no regulated flood-plain	no regulated flood-plain	no regulated flood-plain
Native vegetation community	Bottom-land forest	Bottom-land forest	Bottom-land forest	Bottom-land forest	Bottom-land forest	Bottom-land forest
Percent composition of exotic invasive vegetation	5%	5%	2%	0%	0%	0%

Regulatory Considerations			
Regulation	**Applicable**	**Resolved**	**Supporting Documentation**
Waters of the United States - Section 404	X	X	See Appendix B
Waters of the United States - Section 401	X	X	See Appendix B
Division of Land Quality (Dam Safety)	N/A	N/A	N/A
Endangered Species Act	X	X	See Appendix B
Historic Preservation Act	X	X	See Appendix B
Coastal Zone Management Act (CZMA) / Coastal Area Management Act (CAMA)	N/A	N/A	N/A
FEMA Floodplain Compliance	N/A	N/A	N/A
Essential Fisheries Habitat	N/A	N/A	N/A

4.1 Watershed Summary Information

The Burnetts Chapel Buffer Mitigation Site is located within the Randleman Reservoir/ Hickory Creek watershed (NCDWQ Subbasin 03-06-08) of the Cape Fear River Basin (USGS Hydrologic Unit Code 03030003010050). Land use within the watershed is historically rural and is dominated by forestry, agriculture and livestock with approximately 52% of the watershed forested, 41% cultivated/ agriculture, and 7% institutional (Figure 2). While development is occurring in Guilford County along the Interstate 85 and Interstate 40 corridors within and around Greensboro, there is no evidence of increased development pressure in the project site's watershed which is located approximately four miles south of Greensboro.

NCEEP develops River Basin Restoration Priorities (RBRP) to guide its restoration activities within each of the state's 54 cataloging units. RBRPs delineate specific watersheds that exhibit both the need and opportunity for wetland, stream and riparian buffer restoration. These watersheds are called Targeted Local Watersheds (TLWs) and receive priority for NCEEP planning and restoration project funds. The 2009 Cape Fear River Basin RBRP identified HUC 03030003010050. The Burnetts Chapel Buffer Mitigation Site is located within that HUC. The restoration of riparian buffer areas will aid in protecting water quality and endangered species habitat within the Deep River watershed by filtering runoff from adjacent agricultural practices and restoring terrestrial habitat.

4.2 Existing Conditions Summary Information

Reach A and Reach B1 are part of the same perennial stream and exhibit only moderate incision with stable bedform and stream banks throughout. Portions of the riparian zones within these areas have been maintained in the past and are currently mowed on an annual basis resulting in varying buffer widths from the top of stream bank out to approximately 30 feet. Due to the topography of these areas, the majority of the runoff to these reaches comes directly from adjacent crop and pastureland. The upstream and downstream portions of these areas end at a wooded riparian buffer; however, mature trees are sporadic within the proposed project area.

Reach B2 is a perennial stream flowing south from a large off-site pond until its confluence with Reach B1. This channel exhibited stable geomorphic conditions with no active bed incision or bank erosion. Large portions of this channel are entirely lacking riparian buffer zones as a result of active pasture mowing and the buffer zones currently include low growing graminoid species. Small pockets of mature hardwood canopy forest exist along this reach with 5" diameter or greater tree densities of approximately 290 to 484 trees per acre (Table 5).

Reaches B3, B4, and B5 are small intermittent channels with small upstream ephemeral channels located entirely within existing open pasture. These channels exhibit small cross-sectional areas with very minor flow pattern, silt and sand substrates, and relatively stable bank conditions. These three reaches entirely lack suitable woody riparian species and are dominated by various grass and sedge species.

4.2.1 Vegetation Survey in Buffer Preservation Areas

A vegetation survey of Reach A and Reach B1 of trees 5" in diameter or greater resulted in tree densities of approximately 484 trees per acre and 490 trees per acre, respectively, in the areas of buffer preservation. Results from the tree survey performed by WEI are included in Table 5; tree survey plot locations are shown in Figure 4.

Table 5. Riparian Buffer Preservation Area Vegetation Plots
Burnetts Chapel Buffer Mitigation Site

Plot	Reach	Dimensions (ft.)	Number of Trees ≥ 5" DBH	Tree Density Per Acre
#1	Reach A	30' x 30'	10	484
#2	Reach B1	20' x 40'	9	490
#3	Reach B2	30' x 30'	10	484
#4	Reach B2	30' x 30'	6	290

4.2.2 Vegetation Community Types Descriptions

Vegetation habitats within the project area are primarily comprised of open pastures dominated by various graminoid species, in addition to a few small areas of mixed hardwood forest. The riparian zones surrounding Reaches B3, B4, B5, and the upper portion of Reach B2 have been heavily mowed and maintained and completely lack canopy, understory, and shrub vegetative layers. Typical herbaceous vegetation within these areas includes: Canada goldenrod (*Solidago canadensis*), soft stem rush (*Juncus effusus*), common blackberry (*Rubus argutus*), strawcolored flatsedge (*Cyperus strigosus*), and various grasses (*Festuca* spp.).

Areas of mixed hardwood bottomland forests are located throughout Reaches A, B1, and the middle portion of Reach B2. These forested areas exhibit mature canopy tree species with a moderate understory shrub and vine layer. These areas are in good condition and show no evidence of recent maintenance or vegetation disturbances. Canopy hardwood species include: American sycamore (*Platanus occidentalis*), red maple (*Acer rubrum*), sweet gum (*Liquidambar styraciflua*), shagbark hickory (*Carya ovata*), tulip poplar (*Liriodendron tulipifera*), southern red oak (*Quercus falcata*), box elder (*Acer negundo*), red elm (*Ulmus rubra*), and red cedar (*Juniperus virginiana*). Typical shrub species include common blackberry, small amounts of Chinese privet (*Ligustrum sinense*), and American holly (*Ilex opaca*) with interspersed vine species of catbriar (*Smilax rotundifolia*), poison ivy (*Toxicodendron radicans*), and Japanese honeysuckle.

4.3 Regulatory Considerations

4.3.1 Endangered and Threatened Species

The Endangered Species Act (ESA) of 1973, amended (16 U.S.C. 1531 et seq.), defines protection for species with the Federal Classification of Threatened (T) or Endangered (E). An "Endangered Species" is defined as "any species which is in danger of extinction throughout all or a significant portion of its range" and a "Threatened Species" is defined as "any species which is likely to become an Endangered Species within the foreseeable future throughout all or a significant portion of its range" (16 U.S.C. 1532).

WEI utilized the U.S. Fish and Wildlife Service (USFWS) and North Carolina Natural Heritage Program (NHP) databases in order to identify federally listed Threatened and Endangered plant and animal species for Guilford County, NC (USFWS, 2008 and NHP, 2009). Two federally listed species, the bald eagle (*Haliaeetus leucocephalus*) and the small whorled pogonia (*Isotria medeoloides*) are currently listed in Guilford County (Table 6). A Categorical Exclusion Checklist for the project is included in Appendix B.

Table 6. Listed Threatened and Endangered Species in Guilford County, NC
Burnetts Chapel Buffer Mitigation Site

Species	Federal Status	Habitat
Vertebrate		
Bald eagle (*Haliaeetus leucocephalus*)	BGPA	Near large open water bodies: lakes, marshes, seacoasts, and rivers
Vascular Plant		
Small whorled pogonia (*Isotria medeoloides*)	T	Montane oak-hickory or acidic cove forests
E = Endangered; T=Threatened; BGPA=Bald & Golden Eagle Protection Act		

Bald Eagle

The bald eagle is a very large raptor species, typically 28 to 38 inches in length. Adult individuals are brown in color with a very distinctive white head and tail. Bald eagles typically live near large bodies of open water with suitable fish habitat including lakes, marshes, seacoasts, and rivers. This species generally requires tall, mature tree species for nesting and roosting. Bald eagles were de-listed from the Endangered Species List in June 2007; however, this species remains under the protection of the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act (BGPA). This species is known to occur in every U.S. state except Hawaii.

Small Whorled Pogonia

The small whorled pogonia is a small perennial herb, approximately 9 to 25 cm in height with a whorl of green elliptical leaves. This species is typically found in montane oak-hickory or acidic cove forests. The understory structure of these habitats can range from dense rhododendron thickets to open/sparse shrub strata. Current threats to this species include loss of habitat and overutilization for scientific and private collections.

A pedestrian survey of the site was performed on February 2, 2011. On-site habitat includes active hay fields, open pastures, early successional forests, and streamside thickets. No suitable habitat for the bald eagle exists within the project and no large areas of open water exist within proximity to the project area. Additionally, minimal habitat exists for the small whorled pogonia. Much of the cleared areas within the site are actively mowed and heavily maintained. Any forested areas within the project area are reduced to maintained streamside thickets. As a result of the pedestrian survey, no Federally-listed species were found to exist on the site.

WEI requested review and comment from the USFWS on July 19, 2011, in respect to the Burnetts Chapel Buffer Mitigation Site and its potential impacts on threatened or endangered species. It is WEI's position that for the Guilford County listed endangered species, which include the bald eagle and the small whorled pogonia, the Burnetts Chapel Buffer Mitigation Site's biological conclusion is "no effect." USFWS responded on August 5, 2011, that, "the proposed action is not likely to adversely affect any federally-listed endangered species or threatened species, their formally designated critical habitat, or species currently proposed for listing." USFWS believes that, "the requirements under section 7(a)(2) of the Act have been satisfied." The approved Categorical Exclusion Checklist for the project is included in Appendix B.

4.3.2 Cultural Resources

The National Historic Preservation Act declares a national policy of historic preservation to protect, rehabilitate, restore, and reuse districts, sites, buildings, structures, and objects significant in American architecture, history, archaeology, and culture, and Section 106 mandates that federal

agencies take into account the effect of an undertaking on a property that is included in, or is eligible for inclusion in, the National Register of Historic Places.

WEI requested review and comment from the State Historic Preservation Office (SHPO) with respect to any archeological and architectural resources related to the Burnetts Chapel Buffer Mitigation Site on July 8, 2011. SHPO responded on July 19, 2011, that they were aware of no historic resources that would be affected by the project. The approved Categorical Exclusion Checklist for the project is included in Appendix B.

5.0 Determination of Credits

Mitigation credits presented in Table 7 are projections based upon site design. Upon completion of site construction the project components and credits data will be revised to be consistent with the as-built condition.

Table 7. Determination of Credits
Burnetts Chapel Buffer Mitigation Site

Burnetts Chapel Buffer Mitigation Site, Guilford County, DENR Contract 003996									
Mitigation Credits									
	Stream		**Riparian Wetland**		**Non-riparian Wetland**		**Buffer**	**Nitrogen Nutrient Offset**	**Phosphorus Nutrient Offset**
Type	R	RE	R	RE	R	RE			
Totals							9.4		
Project Components									
Project Component or Reach ID	**Stationing / Location**		**Existing Footage / Acreage**		**Approach (PI, PII, etc.)**		**Restoration or Restoration Equivalent**	**Restoration Footage or Acreage**	**Mitigation Ratio**
Reach A	Area A				N/A		Restoration	1.5 ac	1:1
Reach B1	Area B				N/A		Restoration	0.7 ac	1:1
Reach B2	Area B				N/A		Restoration	2.7 ac	1:1
Reach B3	Area B				N/A		Restoration	0.4 ac	1:1
Reach B4	Area B				N/A		Restoration	1.7 ac	1:1
Reach B5	Area B				N/A		Restoration	2.2 ac	1:1

Component Summation						
Restoration Level	Stream (linear feet)	Riparian Wetland (acres)		Non-Riparian Wetland (acres)	Buffer (square feet)	Upland (acres)
		Riverine	Non-Riv.			
Restoration					400,752	
Enhancement						
Enhancement I						
Enhancement II						
Creation						
Preservation						
High Quality Preservation						

6.0 Mitigation Work Plan

Actions required to develop the project site for mitigation include altering current land use practices. Buffer restoration will involve removing invasive vegetation from the restoration area and replanting appropriate native tree species within the buffer corridor. Herbaceous riparian vegetation will also be planted but will generally re-establish naturally. Intensive vegetation management and a rigorous herbicide schedule will be implemented over the first few years of tree establishment in the riparian buffer restoration areas to prevent establishment of invasive species that will attempt to out-compete the planted native vegetation. Any vegetation control requiring herbicide application will be performed in accordance with NC Department of Agriculture (NCDA) rules and regulations. More detailed descriptions of the proposed restoration activity follows.

6.1 Parcel Preparation

The majority of the site slated for buffer restoration has been maintained as a cleared agricultural field. These areas are relatively clear and will require little site preparation other than select herbicide treatments or limited mechanical clearing to remove undesirable brush prior to planting.

WEI will manage vegetation growth by mowing in between planted trees annually during the monitoring period. Additionally, selective applications of a pre-emergent herbicide will be used to control weedy competition. Past project experience has indicated that use of these techniques significantly limits competition from undesirable vegetation and results in significant increases in tree growth.

As part of the parcel preparation, two small surface water impoundments, located on Reaches B4 and B5, will be removed in order to allow for stable stream channels to be constructed and for these areas to qualify for buffer restoration credit. These ponds are small agricultural impoundments (0.26 and 0.10 acre) that fall below the State's threshold for dam height (15 feet or higher) and impoundment size (10 acre-feet or more) to be regulated by Dam Safety Law (G.S. 143-215-23). Prior to the removal of these ponds, WEI has received written 404 approval (SAW-2011-01878) from the USACE – Raleigh Regulatory Office and 401 approval (DWQ# 11-0841) from the NCDWQ – Winston-Salem Office for proposed impacts to these features and the creation of the new channel alignments. The 404 General Permit Verification and the approved 401 Water Quality Certification are enclosed in Appendix B.

6.2 Planting

The revegetation plan for the site will include planting of bare root trees and controlling invasive species growth. Bare root trees selected for the site will be native hardwood species typical to the North Carolina Piedmont, proven to establish and grow in similar site conditions. Tree species specified for planting on the Burnetts Chapel Buffer Mitigation Site are detailed in Table 8.

Table 8. Selected Tree and Shrub Species Appropriate for Buffer Restoration
Burnetts Chapel Buffer Mitigation Site

Scientific Name	Common Name	Initial Height (ft)	Total # of stems	Planting Composition (%)
Cercis canadensis	American Redbud	2-3	425	5
Liriodendron tulipifera	Tulip Poplar	2-3	1275	15
Quercus phellos	Willow Oak	2-3	850	10
Platanus occidentalis	Sycamore	2-3	1700	20
Betula nigra	River Birch	2-3	850	10
Carpinus caroliniana	Ironwood	2-3	850	10
Quercus michauxii	Swamp Chestnut Oak	2-3	425	5
Fraxinus pennsylvanica	Green Ash	2-3	1700	20
Quercus rubra	Northern Red Oak	2-3	425	5
Totals			**8500**	**100**

"Character Trees" are defined as expected volunteer species identified from a survey of local vegetation on less degraded sections of the specified stream and from reference literature that details native species. A list of Character Tree species is listed in Table 9.

Table 9. Character / Existing Tree and Shrub Species (Piedmont Bottomland Hardwood Communities)
Burnetts Chapel Buffer Mitigation Site

Scientific Name	Common Name	Wetland Indicator Status
Quercus falcata	Southern Red Oak	FACU-
Ilex opaca	American Holly	FAC-
Carya ovata	Shagbark Hickory	FACU
Acer negundo	Boxelder	FACW
Ulmus rubra	Slippery Elm	FAC
Acer rubrum	Red Maple	FAC
Liquidambar styraciflua	Sweetgum	FAC+
Juniperus virginiana	Eastern Red Cedar	FACU-
Pinus taeda	Loblolly Pine	FAC

6.3 Target Plant Communities

Riparian stream buffers will be planted and restored to the dominant natural plant community that exists within the project watershed. This natural community within and adjacent to the project easement is classified as Piedmont Bottomland Forest and was determined based on existing canopy and herbaceous species (Schafale and Weakley, 1990). Proposed plant and seed materials will be placed on stream banks out to the project easement limits. These areas will be planted with bare root trees and a seed mixture of permanent herbaceous vegetation ground cover.

A permanent seed mixture of native herbaceous and grass species will be applied to all areas within the project easement. An herbaceous seed mixture was chosen that will provide rapid stabilization within the easement areas. These species will also provide early habitat value through rapid growth of ground cover to the tops of banks and buffer areas. Proposed herbaceous species are shown in Table 10.

Individual tree and shrub species will be planted throughout the project easement. Species planted as bare roots will be spaced at an initial density of 680 plants per acre (8 feet on center). Targeted densities after monitoring year 5 are 320 woody stems per acre. Proposed tree and shrub species are representative of existing on-site vegetation communities and are typical of Piedmont Bottomland Forests, shown in Table 8.

Table 10. Permanent Riparian Seeding Species
Burnetts Chapel Buffer Mitigation Site

Scientific Name	Common Name	Wetland Indicator Status
Agrostis stolonifera	Creeping bentgrass	FACW
Andropogon ternarius	Split beardgrass	FACU
Bouteloua curtipendula	Side oats grama	FACU
Bouteloua gracilis	Blue grama	N/A
Panicum clandestinum	Deer tongue	FACW
Schizachyrium scoparium	Little bluestem	FACU
Sporobolus clandestinus	Rough dropseed	N/A
Vicia villosa	Hairy vetch	N/A
Chasmanthium latifolium	River Oats	FAC-
Carex vulpinoidea	Fox sedge	OBL

6.4 Buffer Project Design Parameters and Design Justification

The project site concept plan is shown in Figure 6. The proposed buffer restoration work will improve water quality and terrestrial habitat throughout the project area. The restoration and planting of a 50-foot riparian buffer zone will improve water quality by allowing for the absorption of nutrient runoff from adjacent pastures and cropland and capture sediment from off-site sources by slowing overland flow velocities. Water temperatures will also be decreased through the creation of long-term shading from established canopy trees. The proposed buffer zones will improve terrestrial habitat for native wildlife and provide further connectivity to existing off-site forested areas and stream riparian zone habitats.

Reach A has an existing riparian buffer with widths varying from 2 to 36 feet from the channels top of bank. These existing riparian areas will be preserved within the conservation easement and the remaining

riparian zone will be planted, providing a full 50-foot buffer zone from the existing top of bank. Appendix C shows the proposed planting zone on Reach A along with the proposed plant species and seed mix.

Reach B1 is located along the eastern edge of a mature forested area with riparian buffer widths varying from 8 to 50 feet from the channel's top of bank. These existing riparian areas along the left floodplain of the channel will be preserved within the conservation easement and the remaining riparian zone will be planted. Appendix C shows the proposed planting zone on Reach B1 along with the proposed plant species.

Reach B2 exhibits pockets of mature canopy forest within the riparian buffer zone as well as long reaches of single line trees along the channel's top of bank. These small pockets of mature canopy trees will be preserved and the remaining riparian buffer zone will be planted, providing a full 50-foot buffer zone from the existing top of bank. Appendix C shows the proposed planting zone on Reach B2 along with the proposed plant species.

Reaches B3, B4, and B5 are located entirely within an open pasture and exhibit few to no mature canopy trees species, dominated by an herbaceous graminoid species layer. The riparian buffer zones of each reach will be planted, providing a full 50-foot buffer zone from the existing top of banks. Appendix C shows the proposed planting zones on Reaches B3, B4, and B5 along with the proposed plant species.

7.0 Maintenance Plan

WEI will conduct a physical inspection of the site a minimum of once per year throughout the post-construction monitoring period until performance standards are met. These site inspections may identify site components and features that require routine maintenance. Routine maintenance should be expected most often in the first two years following site construction and may include the components listed in Table 11.

Table 11. Maintenance Plan Components
Burnetts Chapel Buffer Mitigation Site

Component / Feature	Maintenance Through Project Close-Out
Vegetation	Vegetation shall be maintained to ensure the health and vigor of the targeted plant community. Routine vegetation maintenance and repair activities may include supplemental planting, pruning, mulching, and fertilizing. Exotic invasive plant species shall be controlled by mechanical and/or chemical methods. Any vegetation control requiring herbicide application will be performed in accordance with NC Department of Agriculture (NCDA) rules and regulations.
Site Boundary	Site boundaries shall be identified in the field to ensure clear distinction between the mitigation site and adjacent properties. Boundaries may be identified by fence, marker, bollard, post, tree-blazing, or other means as allowed by site conditions and/or conservation easement. Boundary markers disturbed, damaged, or destroyed will be repaired and/or replaced on an as needed basis.

8.0 Performance Standards

The success criteria for the project site will follow approved success criteria presented in the NCEEP Mitigation Plan Guidance (Version 2.0, 10/01/2010). WEI will oversee annual monitoring of vegetation to assess the condition of the finished project for five years, or until success criteria are met.

The final vegetative success criteria will be the survival of 320 five-year-old planted trees per acre in the riparian buffer at the end of year five of the monitoring period. Along with the stem density requirement, the final planted vegetation community must also include at least two different planted species to be considered successful.

9.0 Monitoring Requirements

Annual monitoring data will be reported using the NCEEP Monitoring Report template (Version 1.3, 11/15/10). The monitoring report shall provide a project data chronology that will facilitate an understanding of project status and trends, population of NCEEP databases for analysis, research purposes, and assist in decision making regarding close-out. Project monitoring requirements are listed in more detail in Table 12.

Table 12. Monitoring Requirements
Burnetts Chapel Buffer Mitigation Site

Parameter	Monitoring Feature	Quantity						Frequency
		Reach A	Reach B1	Reach B2	Reach B3	Reach B4	Reach B5	
Vegetation (CVS Level I)	Vegetation (CVS Level I)	3 plots	4 plots	5 plots	3 plots	2 plots	3 plots	Annual
Project Boundary								Semi-annual

The extent of invasive species coverage will be monitored and controlled as necessary. At the end of the first growing season, species composition, density, and survival will be evaluated. The site will then be evaluated each subsequent year until the final success criteria are achieved.

Vegetation monitoring plots will be installed across the site to measure the survival of the planted trees. The number of monitoring plots required will be based on the NCEEP methodology for vegetation monitoring. The size of individual plots will be 100 square meters for woody tree species. Individual plot data will be provided each year and will include diameter, height, and density, and coverage quantities. Individual seedlings will be marked so they can be found in succeeding monitoring years. Mortality will be determined from the difference between the previous year's living planted seedlings and the current year's living planted seedlings.

Monitoring will begin at the end of the first growing season. Monitoring in each of the following years will be performed between July and November.

10.0 Long-Term Management Plan

Upon approval for close-out by the NCDWQ, the site will be transferred to the NCDENR Division of Natural Resource Planning and Conservation and Stewardship Program. This party shall be responsible for periodic inspection of the site to ensure that restrictions required in the conservation easement or the deed restriction document(s) are upheld. Endowment funds required to uphold easement and deed restrictions shall be negotiated prior to site transfer to the responsible party.

The NCDENR Division of Natural Resource Planning and Conservation's Stewardship Program currently houses NCEEP stewardship endowments within the non-reverting, interest-bearing Conservation Lands Stewardship Endowment Account. The use of funds from the Endowment Account is governed by North Carolina General Statue GS 113A-232(d)(3). Interest gained by the endowment fund may be used only for the purpose of stewardship, monitoring, stewardship administration, and land transaction costs, if applicable. The NCDENR Stewardship Program intends to manage the account as a non-wasting endowment. Only interest generated from the endowment funds will be used to steward the

compensatory mitigation sites. Interest funds not used for those purposes will be re-invested in the Endowment Account to offset losses due to inflation.

11.0 Adaptive Management Plan

Upon completion of site construction WEI will implement the post-construction monitoring protocols previously defined in this document. Project maintenance will be performed as described previously in this document. If, during the course of annual monitoring it is determined the site's ability to achieve site performance standards are jeopardized, WEI will notify NCDWQ of the need to develop a Plan of Corrective Action. Once the Corrective Action Plan is prepared and finalized WEI will:

1. Notify the NCEEP and NCDWQ in writing.
2. Revise performance standards, maintenance requirements, and monitoring requirements as necessary and/or required by the NCDWQ.
3. Obtain other permits as necessary.
4. Implement the Corrective Action Plan.
5. Provide the NCDWQ a Record Drawing of Corrective Actions. This document shall depict the extent and nature of the work performed.

12.0 Financial Assurances

Pursuant to Section IV H and Appendix III of the Ecosystem Enhancement Program's In-Lieu Fee Instrument dated July 28, 2010, the North Carolina Department of Environment and Natural Resources has provided the US Army Corps of Engineers Wilmington District with a formal commitment to fund projects to satisfy mitigation requirements assumed by NCEEP. This commitment provides financial assurance for all mitigation projects implemented by the program.

13.0 References

North Carolina Geological Survey (NCGS), 2009. Mineral Resources. http://www.geology.enr.state.nc.us/Mineral%20resources/mineralresources.html

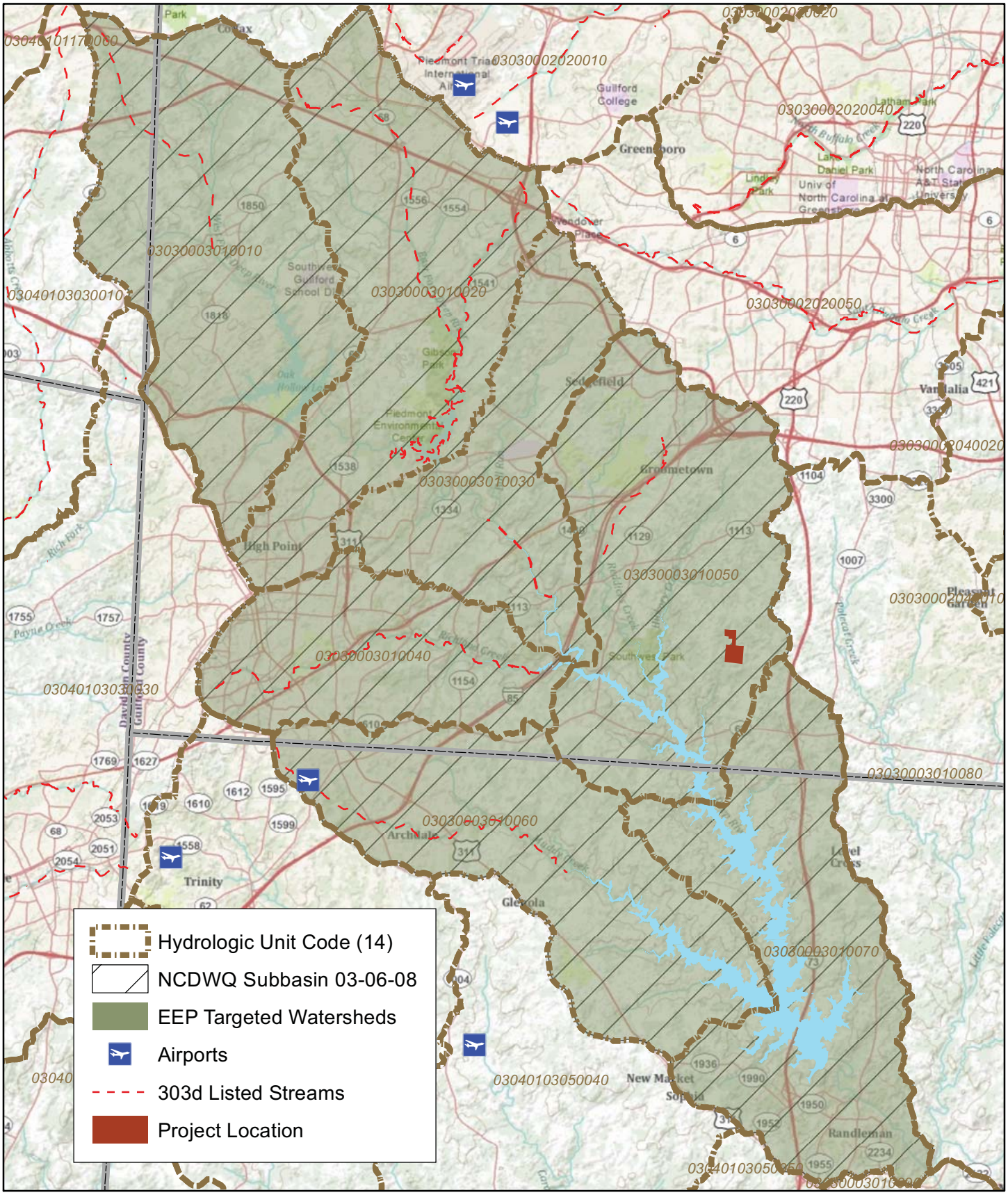
North Carolina Natural Heritage Program (NHP), 2009. Natural Heritage Element Occurrence Database, Chatham County, NC. http://149.168.1.196/nhp/county.html

Schafale, M.P. and A.S. Weakley. 1990. Classification of the Natural Communities of North Carolina, 3rd approx. North Carolina Natural Heritage Program, Raleigh, North Carolina.

United States Department of Agriculture (USDA), 2009. Natural Resources Conservation Service, Soil Survey Geographic (SSURGO) database for Chatham County, North Carolina. http://SoilDataMart.nrcs.usda.gov

United States Fish and Wildlife Service (USFWS), 2008. Endangered Species, Threatened Species, Federal Species of Concern and Candidate Species, Chatham County, NC. http://www.fws.gov/nc-es/es/countyfr.html

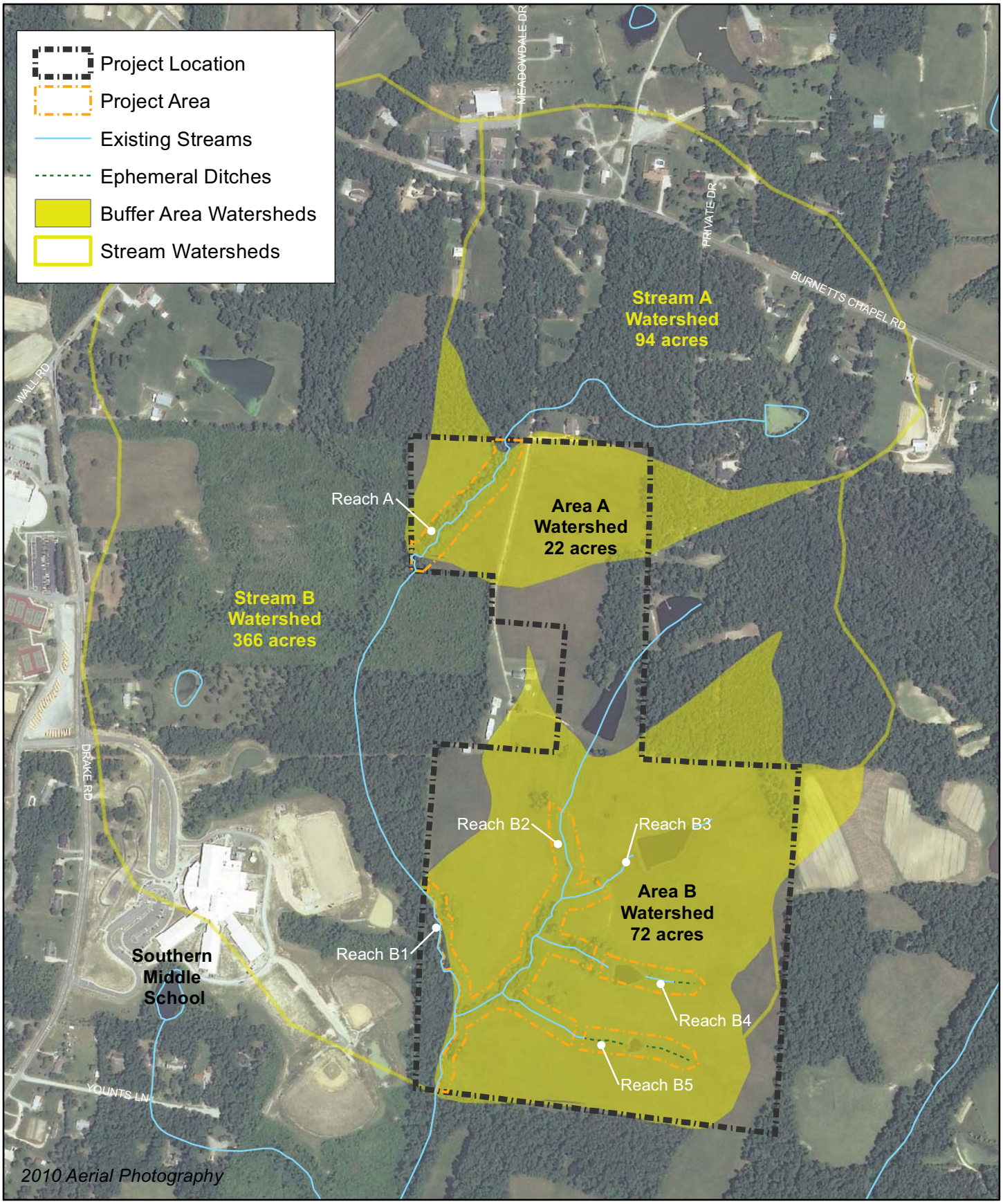
United States Geological Survey (USGS), 1998. North Carolina Geology. http:// http://www.geology.enr.state.nc.us/usgs/carolina.htm



WILDLANDS ENGINEERING

Figure 1 Vicinity Map
Burnetts Chapel Buffer Mitigation Site
Cape Fear Basin (03030003)

Guilford County, NC



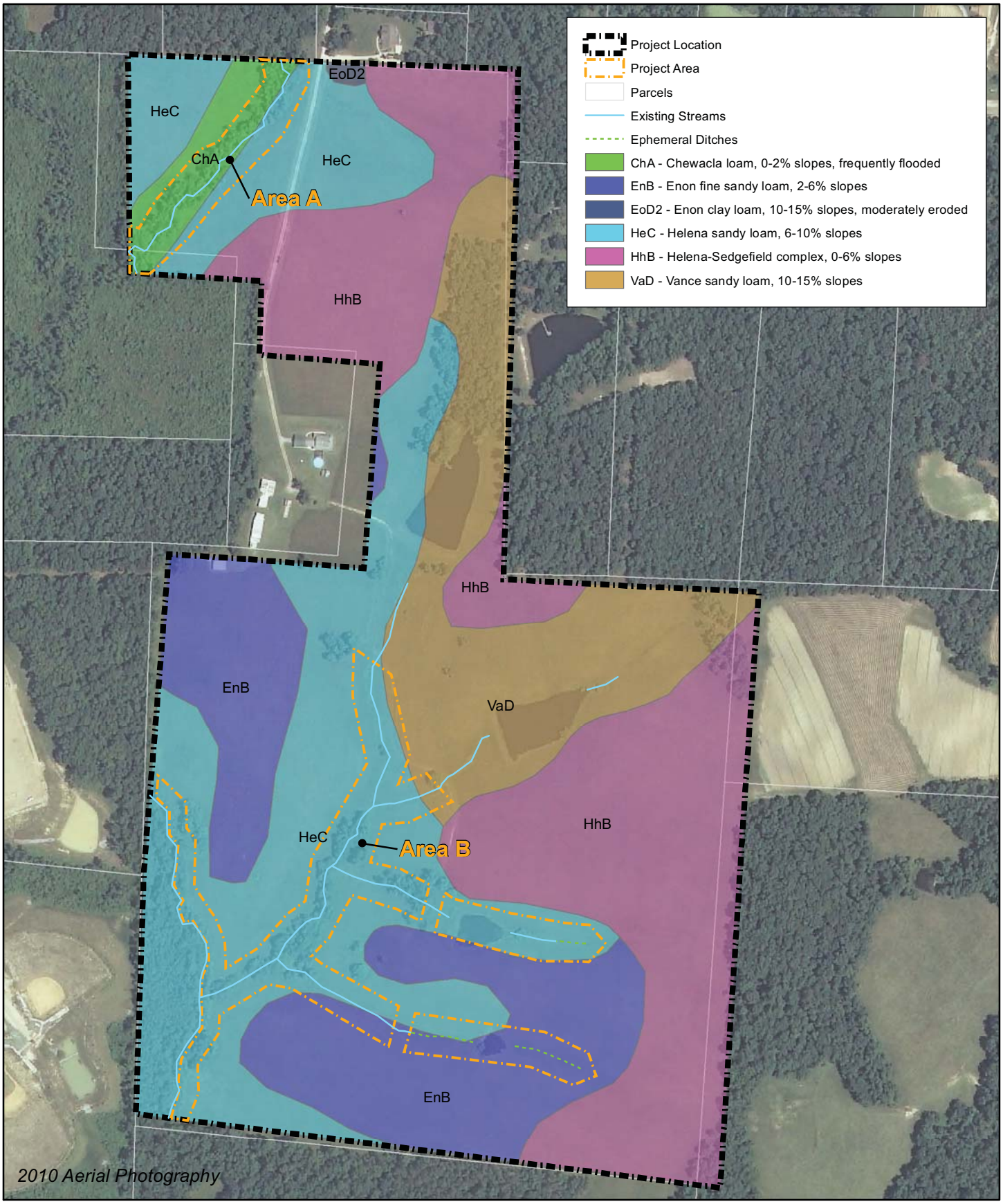
WILDLANDS ENGINEERING

0 325 650 Feet

N

Figure 2 Watershed Map
Burnetts Chapel Buffer Mitigation Site
Cape Fear River Basin (03030003)

Guilford County, NC



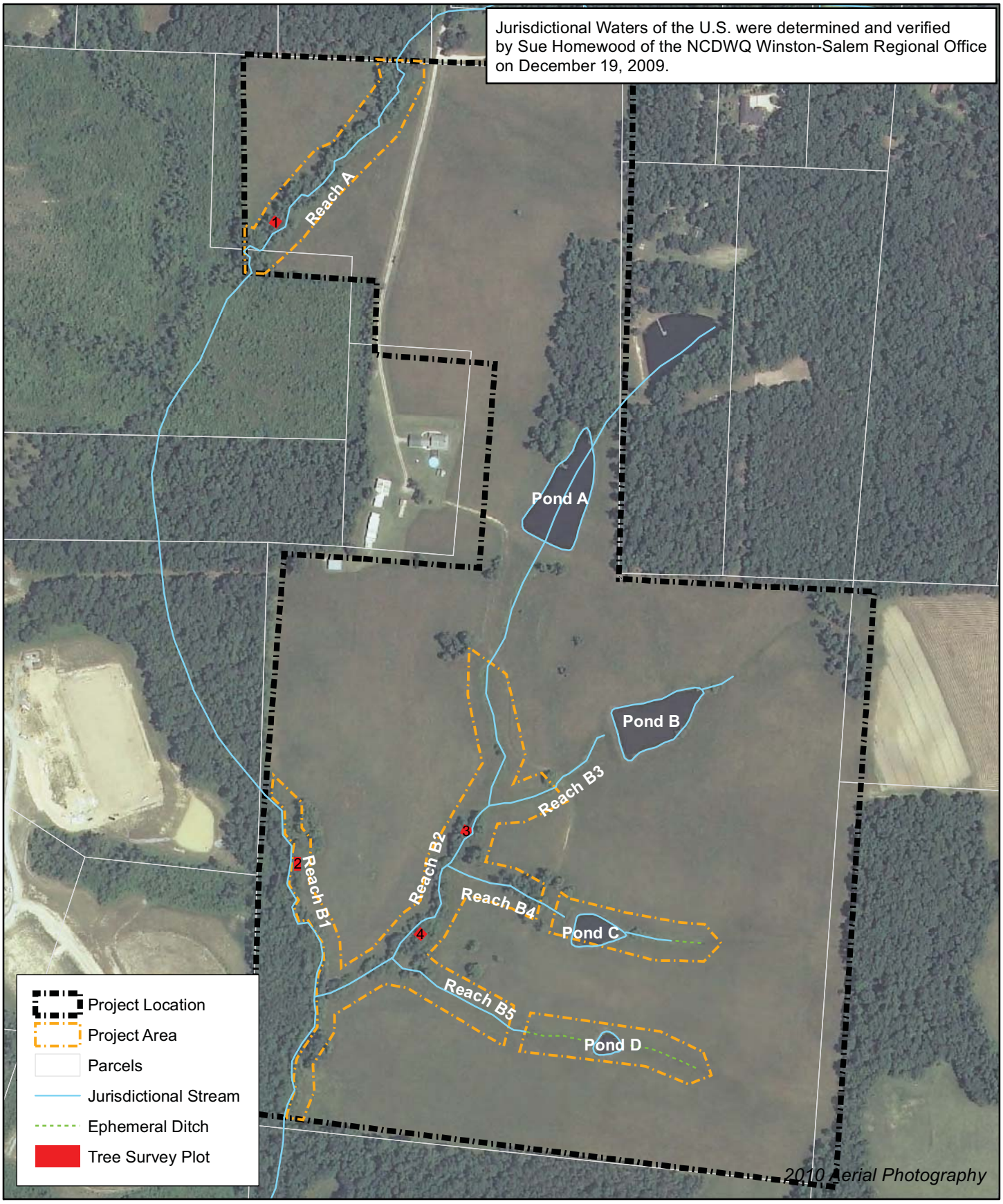
WILDLANDS ENGINEERING

0 200 400 Feet

N

Figure 3 Soils Map
Burnetts Chapel Buffer Mitigation Site
Cape Fear River Basin (03030003)

Guilford County, NC



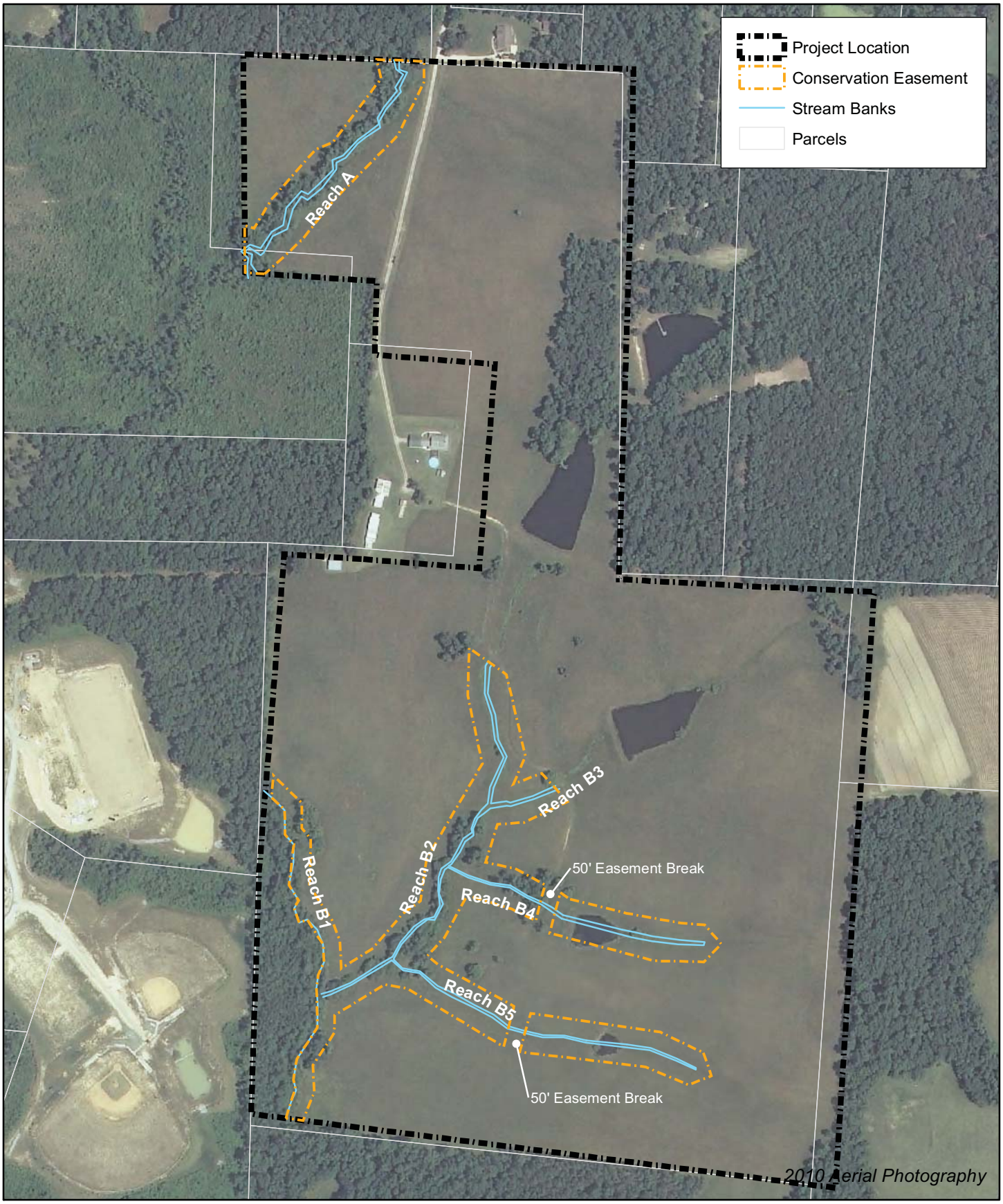
WILDLANDS ENGINEERING

0 200 400 Feet

N

Figure 4 Hydrological Features Map
Burnetts Chapel Buffer Mitigation Site
Cape Fear River Basin (03030003)

Guilford County, NC



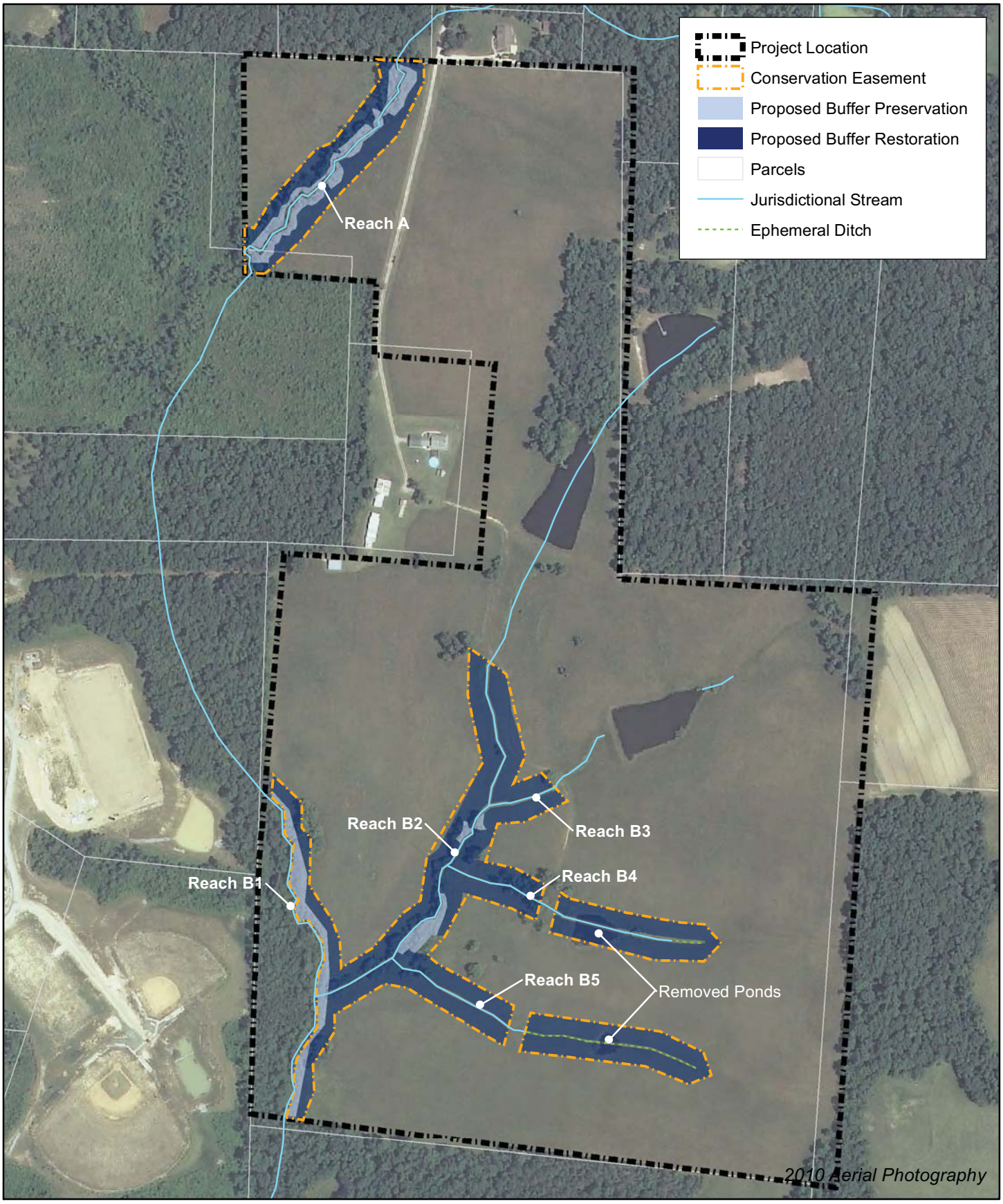
WILDLANDS ENGINEERING

0 200 400 Feet

N

Figure 5 Site Protection Instrument
Burnetts Chapel Buffer Mitigation Site
Cape Fear River Basin (03030003)

Guilford County, NC



WILDLANDS ENGINEERING

0 200 400 Feet

N

Figure 6 Proposed Concept Plan
Burnetts Chapel Buffer Mitigation Site
Cape Fear River Basin (03030003)

Guilford County, NC

Appendix A:
Site Protection Instrument

LEGEND

EIS.● ——— EXISTING IRON STAKE
IS. ● ——— IRON STAKE SET
MON■ ——— CONCRETE MONUMENT
℄ ——— CENTER LINE
M.H.■ ——— MAN HOLE
R\W ——— RIGHT-OF-WAY
O.H. ELEC ——— OVERHEAD ELECTRIC
U.G. ELEC ——— UNDERGROUND ELECTRIC
PT.● ——— POINT
F.H.● ——— FIRE HYDRANT
(#) ——— 5/8" REBAR SET with 3-1/4" ALUM. CAP (UNLESS LABELD E.I.S.)

NOTE: THIS SURVEY HAS BEEN PREPARED WITHOUT THE BENEFIT OF A TITLE REPORT AND, THEREFORE, DOES NOT NECESSARILY INDICATE ALL ENCUMBRANCES ON THE PROPERTY.

SUBJECT TO ANY EASEMENTS, AGREEMENTS OR RIGHTS-OF-WAYS OF RECORD WHICH WERE NOT VISIBLE AT THE TIME OF INSPECTION.

NOTE: NO ATTEMPT WAS MADE TO LOCATE UNDERGROUND UTILITIES.

This plat does not require a certificate of approval by the Division of Highways as provided in NC G.S. 136-102.6, sub-section (G).

Signed_____ Date_____
Planning Director

Approved by the Planning Department of North Carolina on the _____day of_____, 2011 pursuant to Article V of the Development Ordinance.

_____
Planning Director

OWNER(S) SIGNATURES(S) AND ATTEST
Certificate of Ownership and Dedication:

The undersigned hereby acknowledge(s) that the land shown on this plat is within the subdivision-regulation jurisdiction of the _____ and this plat and allotment to be_____free act and deed, and hereby dedicate(s) to the public use as roads, streets, and ease-ments, forever all areas so shown or indicated on said plat.

Signed _____

Signed _____

Attest _____

Review Officer's Certificate

State of North Carolina
County of Guilford

I,_____Review Officer of Guilford County, certify that the map or plat to which this certification is affixed meets all statutory requirements for recording.

_____
Review Officer

CERTIFICATE OF GLOBAL POSITIONING SYSTEMS SURVEYS

I, C.E. ROBERTSON, CERTIFY THAT THE SITE CONTROL LISTED BELOW WAS ESTABLISHED UNDER MY SUPERVISION FROM AN ACTUAL GPS SURVEY MADE UNDER MY SUPERVISION AND THE FOLLOWING INFORMATION WAS USED TO PERFORM THE GPS SURVEY: 1) CLASS OF SURVEY CLASS A; 2) POSITIONAL ACCURACY DOES NOT EXCEED 0.10'; 3) TYPE OF GPS FIELD PROCEDURE RAPID STATIC; 4) DATE OF SURVEY SEPTEMBER 15, 2011; 5) DATUM/EPOCH NAD 83(2011); 6) PUBLISHED/ FIXED CONTROL NGS/CORS : 7)GEIOD MODEL GEIOD09; COMBINED GRID FACTOR 0.99991285; 9) UNITS U.S. SURVEY FOOT; AND THAT THIS INFORMATION WAS PREPARED IN ACCORDANCE WITH THE STANDARDS AND PRACTICE FOR LAND SURVEYING AS OUTLINED BY THE NC ADMINISTRATION CODE TITLE 21, CHAPTER 56.1607

WITNESS MY HAND AND OFFICIAL SEAL THIS 1st DAY OF NOVEMBER 2011 .

L-1421 _____
LICENSE NO. PROFESSIONAL LAND SURVEYOR

CONTROL POINTS:

POINT NUMBER,NORTHING,EASTING,ELEVATION,DESCRIPTION,
1001, 801306.1467,1749243.9457,803.11,NAIL (GRID)
1002, 801805.9963,1749396.5331, 779.72, NAIL (GROUND)
1014, 800470.0088, 1749525.6352, 784.12, NAIL (GROUND)
1102, 800275.1688, 1749890.8211, 795.28, NAIL (GROUND)

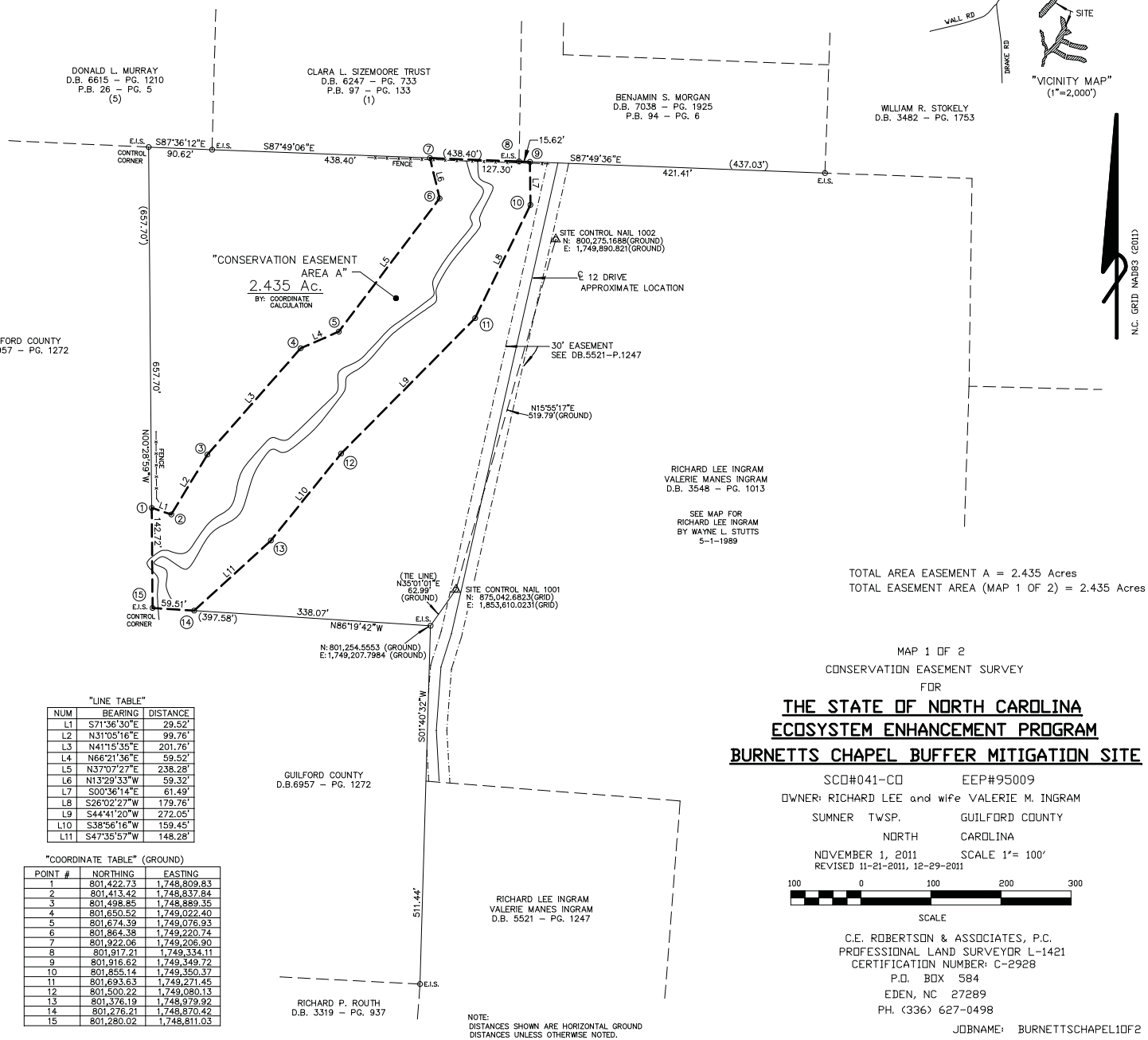
THIS SURVEY IS OF ANOTHER CATEGORY, SUCH AS THE RECOMBINATION OF EXISTING PARCELS, A COURT-ORDERED SURVEY, OR OTHER EXCEPTION TO THE DEFINITION OF SUBDIVISION.

_____
C. E. ROBERTSON, PLS L-1421

NORTH CAROLINA
ROCKINGHAM COUNTY

I, C.E. ROBERTSON, CERTIFY THAT THIS PLAT WAS DRAWN UNDER MY SUPERVISION FROM AN ACTUAL SURVEY MADE UNDER MY SUPERVISION (DEED DESCRIPTION RECORDED IN BOOK 3548-PAGE 1013, ETC), THAT THE BOUNDARIES NOT SURVEYED ARE SHOWN AS BROKEN LINES, THAT THE RATIO OF PRECISION AS CALCULATED IS 1: 10,000, THAT THIS PLAT WAS PREPARED IN ACCORDANCE WITH G.S. 47-30 AMENDED. WITNESS MY ORIGINAL SIGNATURE, REGISTRATION NUMBER, AND SEAL THIS 1st DAY OF NOVEMBER A.D. 2011 .

_____
SURVEYOR
LICENSE NUMBER L-1421



"LINE TABLE"

NUM	BEARING	DISTANCE
L1	S71°36'30"E	29.52'
L2	N31°05'16"E	99.76'
L3	N41°15'35"E	201.76'
L4	N66°21'36"E	59.52'
L5	N37°07'27"E	238.28'
L6	N13°29'33"W	59.32'
L7	S00°36'14"E	61.49'
L8	S26°02'27"W	179.76'
L9	S44°41'20"W	272.05'
L10	S38°56'16"W	159.45'
L11	S47°35'57"W	148.28'

"COORDINATE TABLE" (GROUND)

POINT #	NORTHING	EASTING
1	801,422.73	1,748,809.83
2	801,413.42	1,748,837.84
3	801,498.85	1,748,889.35
4	801,650.52	1,749,022.40
5	801,674.39	1,749,076.93
6	801,864.38	1,749,220.74
7	801,922.06	1,749,206.90
8	801,917.21	1,749,334.11
9	801,916.62	1,749,349.72
10	801,855.14	1,749,350.37
11	801,693.63	1,749,271.45
12	801,500.22	1,749,080.13
13	801,376.19	1,748,979.92
14	801,276.21	1,748,870.42
15	801,280.02	1,748,811.03

NOTE:
DISTANCES SHOWN ARE HORIZONTAL GROUND DISTANCES UNLESS OTHERWISE NOTED.

TOTAL AREA EASEMENT A = 2.435 Acres
TOTAL EASEMENT AREA (MAP 1 OF 2) = 2.435 Acres

MAP 1 OF 2
CONSERVATION EASEMENT SURVEY
FOR

THE STATE OF NORTH CAROLINA
ECOSYSTEM ENHANCEMENT PROGRAM
BURNETTS CHAPEL BUFFER MITIGATION SITE

SCO#041-CO EEP#95009

OWNER: RICHARD LEE and wife VALERIE M. INGRAM

SUMNER TWSP. GUILFORD COUNTY
NORTH CAROLINA

NOVEMBER 1, 2011 SCALE 1"= 100'
REVISED 11-21-2011, 12-29-2011

100 0 100 200 300
SCALE

C.E. ROBERTSON & ASSOCIATES, P.C.
PROFESSIONAL LAND SURVEYOR L-1421
CERTIFICATION NUMBER: C-2928
P.O. BOX 584
EDEN, NC 27289
PH. (336) 627-0498

JOBNAME: BURNETTSCHAPEL1OF2

MAP 2 OF 2
CONSERVATION EASEMENT SURVEY
FOR

THE STATE OF NORTH CAROLINA
ECOSYSTEM ENHANCEMENT PROGRAM
BURNETTS CHAPEL BUFFER MITIGATION SITE

SCO#041-CO EEP#95009

OWNER: RICHARD LEE and wife VALERIE M. INGRAM
SUMNER TWSP. GUILFORD COUNTY
NORTH CAROLINA
NOVEMBER 1, 2011 SCALE 1"= 100'
REVISED 11-21-2011, 12-29-2011

100 0 100 200 300
SCALE

C.E. ROBERTSON & ASSOCIATES, P.C.
PROFESSIONAL LAND SURVEYOR L-1421
CERTIFICATION NUMBER: C-2928
P.O. BOX 584
EDEN, NC 27289
PH. (336) 627-0498
JOBNAME: BURNETTSCHAPEL2OF2

N.C. GRID NAD83 (2011)

TOTAL AREA EASEMENT B = 6.792 Acres
TOTAL AREA EASEMENT C= 1.312 Acres
TOTAL AREA EASEMENT D= 1.445 Acres
TOTAL EASEMENT AREA (MAP 2 OF 2) = 9.549 Acres

LEGEND

EIS.•	EXISTING IRON STAKE
IS. •	IRON STAKE SET
MON•	CONCRETE MONUMENT
℄	CENTER LINE
CMP	CORRUGATED METAL PIPE
R\W	RIGHT-OF-WAY
O.H. ELEC	OVERHEAD ELECTRIC
U.G. ELEC	UNDERGROUND ELECTRIC
PT.•	POINT
RCP	REINFORCED CONCRETE PIPE
(#)	5/8" REBAR SET with 3-1/4" ALUM. CAP (UNLESS LABELD E.I.S.)

NOTE: THIS SURVEY HAS BEEN PREPARED WITHOUT THE BENEFIT OF A TITLE REPORT AND, THEREFORE, DOES NOT NECESSARILY INDICATE ALL ENCUMBRANCES ON THE PROPERTY.

SUBJECT TO ANY EASEMENTS, AGREEMENTS OR RIGHTS-OF-WAYS OF RECORD WHICH WERE NOT VISIBLE AT THE TIME OF INSPECTION.

NOTE: NO ATTEMPT WAS MADE TO LOCATE UNDERGROUND UTILITIES.

NOTE: DISTANCES SHOWN ARE HORIZONTAL GROUND DISTANCES UNLESS OTHERWISE NOTED.

"LINE TABLE"

NUM	BEARING	DISTANCE
L12	N17°05'37"E	96.68'
L13	N14°15'25"W	24.21'
L14	N09°11'09"E	63.49'
L15	N33°25'37"E	112.99'
L16	N01°25'11"W	119.70'
L17	N07°05'34"E	38.90'
L18	N25°21'46"E	41.39'
L19	N02°07'38"W	53.65'
L20	N32°27'33"W	89.50'
L21	S69°31'30"W	25.62'
L22	N19°46'43"W	46.44'
L23	N30°11'44"E	26.40'
L24	N31°19'45"W	54.44'
L25	N06°28'40"E	122.08'
L26	N40°31'58"W	40.84'
L27	N00°20'34"W	73.56'
L28	N46°19'32"W	54.85'
L29	N04°32'40"E	66.53'
L30	S45°58'06"E	118.60'
L31	S00°20'34"E	76.36'
L32	S40°31'58"E	41.87'
L33	S01°40'36"W	141.96'
L34	S33°22'41"E	122.51'
L35	S21°05'22"E	69.08'
L36	S02°07'38"E	81.41'
L37	N57°45'48"E	113.14'
L38	N40°44'12"E	135.90'
L39	N54°09'57"E	67.62'
L40	N08°07'53"E	129.83'
L41	N30°27'33"E	330.67'
L42	N12°03'16"W	209.03'
L43	N01°35'17"E	143.78'
L44	S54°45'32"E	137.88'
L45	S12°59'51"E	251.61'
L46	S22°32'08"W	91.48'
L47	N69°24'27"E	90.34'
L48	S42°03'00"E	115.52'
L49	S64°35'06"W	144.04'
L50	S85°48'21"W	80.93'
L51	S17°16'01"W	119.42'
L52	S77°42'01"E	94.01'

"LINE TABLE"

NUM	BEARING	DISTANCE
L53	S61°03'07"E	99.26'
L54	S14°17'42"W	111.34'
L55	N64°31'04"W	80.88'
L56	N72°18'28"W	139.67'
L57	S28°31'42"W	145.50'
L58	S42°56'09"W	75.02'
L59	S50°56'00"E	41.34'
L60	S61°05'55"E	261.42'
L61	S14°17'42"W	125.75'
L62	N58°54'40"W	341.87'
L63	N80°33'31"W	66.79'
L64	S58°31'30"W	176.81'
L65	S00°54'25"W	53.09'
L66	S33°25'37"W	116.91'
L67	S02°30'02"E	81.92'
L68	S21°37'39"W	90.64'
L69	S54°52'46"E	36.55'
L70	S76°07'08"E	173.65'
L71	S79°44'09"E	169.13'
L72	S85°28'38"E	71.06'
L73	S40°54'32"E	75.22'
L74	S43°40'28"W	75.22'
L75	N88°37'53"W	150.15'
L76	N75°11'20"W	325.10'
L77	N14°17'42"E	126.92'
L78	S81°50'18"E	394.74'
L79	S64°25'25"E	144.00'
L80	S19°13'37"E	73.89'
L81	S68°00'26"W	73.89'
L82	N67°13'17"W	140.66'
L83	N83°10'50"W	382.55'
L84	N15°56'49"E	120.39'

"COORDINATE TABLE" (GROUND)

POINT #	NORTHING	EASTING
16	798,734.34	1,748,934.26
17	798,826.75	1,748,962.67
18	798,850.21	1,748,956.71
19	798,912.89	1,748,966.85
20	799,007.19	1,749,029.09
21	799,126.85	1,749,026.12
22	799,165.45	1,749,030.92
23	799,202.85	1,749,048.65
24	799,256.46	1,749,046.66
25	799,331.98	1,748,998.63
26	799,323.02	1,748,974.62
27	799,366.72	1,748,958.91
28	799,389.54	1,748,972.18
29	799,436.04	1,748,943.88
30	799,557.34	1,748,957.65
31	799,588.38	1,748,931.11
32	799,661.94	1,748,930.67
33	799,699.82	1,748,891.00
34	799,766.14	1,748,886.27
35	799,683.70	1,748,981.54
36	799,607.35	1,748,982.00
37	799,575.53	1,749,009.21
38	799,433.63	1,749,005.05
39	799,331.32	1,749,072.45
40	799,266.87	1,749,097.31
41	799,185.51	1,749,100.33
42	799,245.86	1,749,186.03
43	799,348.84	1,749,254.72
44	799,388.42	1,749,339.54
45	799,516.95	1,749,357.91
46	799,801.98	1,749,525.53
47	800,006.41	1,749,481.88
48	800,150.14	1,749,485.86
49	800,070.67	1,749,598.47
50	799,825.41	1,749,655.06
51	799,740.92	1,749,620.00
52	799,772.69	1,749,704.57
53	799,686.91	1,749,781.94
54	799,625.10	1,749,651.84
55	799,619.18	1,749,571.12
56	799,505.14	1,749,535.68
57	799,485.11	1,749,627.53
58	799,437.07	1,749,714.39
59	799,414.51	1,749,760.24
60	799,393.48	1,749,790.14
61	799,351.82	1,749,958.72
62	799,321.69	1,750,125.15
63	799,316.08	1,750,195.99
64	799,259.23	1,750,236.25
65	799,204.83	1,750,193.30
66	799,208.42	1,750,043.20
67	799,291.52	1,749,728.90
68	799,329.18	1,749,686.90
69	799,363.98	1,749,613.89
70	799,406.42	1,749,480.82
71	799,278.59	1,749,411.33
72	799,223.67	1,749,360.23
73	799,197.62	1,749,332.32
74	799,071.27	1,749,621.18
75	799,050.09	1,749,670.71
76	798,994.05	1,750,080.45
77	798,931.88	1,750,191.34
78	798,862.12	1,750,215.68
79	798,834.44	1,750,147.16
80	798,888.90	1,750,017.47
81	798,934.33	1,749,637.63
82	798,949.42	1,749,590.13
83	799,125.95	1,749,297.36
84	799,136.90	1,749,237.48
85	799,044.59	1,749,080.69
86	798,991.51	1,749,079.85
87	798,893.93	1,749,015.44
88	798,812.09	1,749,019.02
89	798,727.83	1,748,985.61

CERTIFICATE OF GLOBAL POSITIONING SYSTEMS SURVEYS

I, C.E. ROBERTSON, CERTIFY THAT THE SITE CONTROL LISTED BELOW WAS ESTABLISHED UNDER MY SUPERVISION FROM AN ACTUAL GPS SURVEY MADE UNDER MY SUPERVISION AND THE FOLLOWING INFORMATION WAS USED TO PERFORM THE GPS SURVEY: 1) CLASS OF SURVEY CLASS A; 2) POSITIONAL ACCURACY DOES NOT EXCEED 0.10'; 3) TYPE OF GPS FIELD PROCEDURE RAPID STATIC; 4) DATE OF SURVEY SEPTEMBER 15, 2011; 5) DATUM/EPOCH NAD 83(2011); 6) PUBLISHED/FIXED CONTROL NGS/CORS : 7)GEOID MODEL GEOID09; COMBINED GRID FACTOR 0.99991285; 9) UNITS U.S. SURVEY FOOT; AND THAT THIS INFORMATION WAS PREPARED IN ACCORDANCE WITH THE STANDARDS AND PRACTICE FOR LAND SURVEYING AS OUTLINED BY THE NC ADMINISTRATION CODE TITLE 21, CHAPTER 56.1607

WITNESS MY HAND AND OFFICIAL SEAL THIS 1st DAY OF NOVEMBER 2011 .

L-1421
LICENSE NO. PROFESSIONAL LAND SURVEYOR

CONTROL POINTS:

POINT NUMBER,NORTHING,EASTING,ELEVATION,DESCRIPTION,
1001, 801306.1467,1749243.9457,803.11,NAIL (GRID)
1002, 801805.9963,1749386.5331, 779.72, NAIL (GROUND)
1014, 800470.0088, 1749525.6352, 784.12, NAIL (GROUND)
1102, 800275.1688, 1749890.8211, 795.28, NAIL (GROUND)

THIS SURVEY IS OF ANOTHER CATEGORY, SUCH AS THE RECOMBINATION OF EXISTING PARCELS, A COURT-ORDERED SURVEY, OR OTHER EXCEPTION TO THE DEFINITION OF SUBDIVISION.

C. E. ROBERTSON, PLS L-1421

NORTH CAROLINA
ROCKINGHAM COUNTY

I, C.E. ROBERTSON, CERTIFY THAT THIS PLAT WAS DRAWN UNDER MY SUPERVISION FROM AN ACTUAL SURVEY MADE UNDER MY SUPERVISION (DEED DESCRIPTION RECORDED IN BOOK 3548-PAGE 1013, ETC), THAT THE BOUNDARIES NOT SURVEYED ARE SHOWN AS BROKEN LINES, THAT THE RATIO OF PRECISION AS CALCULATED IS 1: 10,000, THAT THIS PLAT WAS PREPARED IN ACCORDANCE WITH G.S. 47-30 AMENDED. WITNESS MY ORIGINAL SIGNATURE, REGISTRATION NUMBER, AND SEAL THIS 1st DAY OF NOVEMBER A.D. 2011 .

SURVEYOR
LICENSE NUMBER L-1421

Approved by the Planning Department of North Carolina on the _____day of_____, 2011 pursuant to Article V of the Development Ordinance.

Planning Director

"VICINITY MAP" (1"=2,000')

"CONSERVATION EASEMENT AREA B" 6.792 Ac. BY: COORDINATE CALCULATION

"CONSERVATION EASEMENT AREA C" 1.312 Ac. BY: COORDINATE CALCULATION

"CONSERVATION EASEMENT AREA D" 1.445 Ac. BY: COORDINATE CALCULATION

GUILFORD COUNTY
"CONTROL CORNER" E.I.S.
N04°27'20"E 326.95'
RICHARD LEE INGRAM VALERIE MANES INGRAM D.B. 3521 - PG. 1247
RICHARD P. ROUTH D.B. 3319 - PG. 937
E.I.S. S86°18'05"E 238.75' E.I.S. "CONTROL CORNER"
957.57'
GUILFORD COUNTY BOARD OF EDUCATION D.B. 7052 - PG. 1135 D.B. 5972 - PG. 295
N04°32'40"E
PT.
TOP BANK
(1,504.99')
GUILFORD COUNTY BOARD OF EDUCATION D.B. 7052 - PG. 1135 D.B. 6358 - PG. 384
730.95'
N01°52'57"E
RICHARD LEE INGRAM VALERIE MANES INGRAM D.B. 3548 - PG. 1013
RICHARD LEE INGRAM VALERIE MANES INGRAM D.B. 3548 - PG. 1013
RICHARD LEE INGRAM VALERIE MANES INGRAM D.B. 3548 - PG. 1013
PT. 105.78' (1,773.88') 51.77' FENCE 1,616.33' N82°46'14"W E.I.S.
774.04' E.I.S.
ROBERT C. PEGRAM D.B. 2421 - PG. 374
ROBERT C. PEGRAM D.B. 2417 - PG. 699
18"CMP
TOP BANK
EDGE DITCH
"POND"
LOG BLDG.
12" PLASTIC PIPE
FENCE
BRAKE RD
MEADOWDALE DR
PRIVATE DR
BURNETTS CHAPEL RD
WALL RD
SITE

This plat does not require a certificate of approval by the Division of Highways as provided in NC G.S. 136-102.6, sub-section (g).

Signed _____ Date _____
Planning Director

OWNER(S) SIGNATURES(S) AND ATTEST
Certificate of Ownership and Dedication:

The undersigned hereby acknowledge(s) that the land shown on this plat is within the subdivision-regulation jurisdiction of the _____ and this plat and allotment to be_____free act and deed, and hereby dedicate(s) to the public use as roads, streets, and easements, forever all areas so shown or indicated on said plat.

Signed _____
Signed _____
Attest _____

Review Officer's Certificate
State of North Carolina
County of Guilford

I, _____Review Officer of Guilford County, certify that the map or plat to which this certification is affixed meets all statutory requirements for recording.

Review Officer

Approved by the Planning Department of North Carolina on the _____day of_____, 2011 pursuant to Article V of the Development Ordinance.

Planning Director

Appendix B:
Baseline Information Data

NC DWQ Stream Identification Form Version 4.11

Date: 2/2/11	**Project/Site:** Burnetts Chapel	**Latitude:** 35.94958° N
Evaluator: MLJ	**County:** Guilford	**Longitude:** 79.847739° W
Total Points: *Stream is at least intermittent if ≥ 19 or perennial if ≥ 30** 30.5	**Stream Determination (circle one)** Ephemeral Intermittent (Perennial)	**Other** SCPI - A *e.g. Quad Name:*

A. Geomorphology (Subtotal = 15.5)	Absent	Weak	Moderate	Strong
1[a]. Continuity of channel bed and bank	0	1	(2)	3
2. Sinuosity of channel along thalweg	0	1	(2)	3
3. In-channel structure: ex. riffle-pool, step-pool, ripple-pool sequence	0	1	(2)	3
4. Particle size of stream substrate	0	1	(2)	3
5. Active/relict floodplain	0	1	(2)	3
6. Depositional bars or benches	0	(1)	2	3
7. Recent alluvial deposits	0	(1)	2	3
8. Headcuts	0	(1)	2	3
9. Grade control	0	0.5	(1)	1.5
10. Natural valley	0	0.5	1	(1.5)
11. Second or greater order channel	No = (0)		Yes = 3	

[a] artificial ditches are not rated; see discussions in manual

B. Hydrology (Subtotal = 8.5)				
12. Presence of Baseflow	0	1	(2)	3
13. Iron oxidizing bacteria	0	(1)	2	3
14. Leaf litter	1.5	(1)	0.5	0
15. Sediment on plants or debris	0	(0.5)	1	1.5
16. Organic debris lines or piles	0	0.5	(1)	1.5
17. Soil-based evidence of high water table?	No = 0		Yes = (3)	

C. Biology (Subtotal = 6.5)				
18. Fibrous roots in streambed	(3)	2	1	0
19. Rooted upland plants in streambed	(3)	2	1	0
20. Macrobenthos (note diversity and abundance)	(0)	1	2	3
21. Aquatic Mollusks	(0)	1	2	3
22. Fish	(0)	0.5	1	1.5
23. Crayfish	(0)	0.5	1	1.5
24. Amphibians	(0)	0.5	1	1.5
25. Algae	0	(0.5)	1	1.5
26. Wetland plants in streambed	FACW = 0.75; OBL = 1.5 Other = 0			

*perennial streams may also be identified using other methods. See p. 35 of manual.

Notes:

Sketch:

NC DWQ Stream Identification Form Version 4.11

Date: 2/2/11	**Project/Site:** Burnetts Chapel	**Latitude:** 35.943669°N
Evaluator: MLS	**County:** Guilford	**Longitude:** 79.848081°W
Total Points: *Stream is at least intermittent if ≥ 19 or perennial if ≥ 30** 41	**Stream Determination (circle one)** Ephemeral Intermittent (Perennial)	**Other** SCP2 - B1 *e.g. Quad Name:*

A. Geomorphology (Subtotal = 25)	Absent	Weak	Moderate	Strong
1[a]. Continuity of channel bed and bank	0	1	2	(3)
2. Sinuosity of channel along thalweg	0	1	2	(3)
3. In-channel structure: ex. riffle-pool, step-pool, ripple-pool sequence	0	1	(2)	3
4. Particle size of stream substrate	0	1	2	(3)
5. Active/relict floodplain	0	1	(2)	3
6. Depositional bars or benches	0	1	2	(3)
7. Recent alluvial deposits	0	1	(2)	3
8. Headcuts	0	(1)	2	3
9. Grade control	0	0.5	1	(1.5)
10. Natural valley	0	0.5	1	(1.5)
11. Second or greater order channel	No = 0		Yes = (3)	

[a] artificial ditches are not rated; see discussions in manual

B. Hydrology (Subtotal = 9.5)				
12. Presence of Baseflow	0	1	2	(3)
13. Iron oxidizing bacteria	(0)	1	2	3
14. Leaf litter	(1.5)	1	0.5	0
15. Sediment on plants or debris	0	(0.5)	1	1.5
16. Organic debris lines or piles	0	0.5	1	(1.5)
17. Soil-based evidence of high water table?	No = 0		Yes = (3)	

C. Biology (Subtotal = 6.5)				
18. Fibrous roots in streambed	(3)	2	1	0
19. Rooted upland plants in streambed	(3)	2	1	0
20. Macrobenthos (note diversity and abundance)	(0)	1	2	3
21. Aquatic Mollusks	(0)	1	2	3
22. Fish	0	(0.5)	1	1.5
23. Crayfish	(0)	0.5	1	1.5
24. Amphibians	(0)	0.5	1	1.5
25. Algae	(0)	0.5	1	1.5
26. Wetland plants in streambed	FACW = 0.75; OBL = 1.5 Other = 0			

*perennial streams may also be identified using other methods. See p. 35 of manual.

Notes:

Sketch:

NC DWQ Stream Identification Form Version 4.11

Date: 2/2/11	**Project/Site:** Burnetts Chapel	**Latitude:** 35.942744°N
Evaluator: MLS	**County:** Guilford	**Longitude:** 79.84735°W
Total Points: *Stream is at least intermittent if ≥ 19 or perennial if ≥ 30** 33.5	**Stream Determination (circle one)** Ephemeral Intermittent (Perennial)	**Other** SCP3-B2 *e.g. Quad Name:*

A. Geomorphology (Subtotal = 19.5)	Absent	Weak	Moderate	Strong
1[a]. Continuity of channel bed and bank	0	1	(2)	3
2. Sinuosity of channel along thalweg	0	(1)	2	3
3. In-channel structure: ex. riffle-pool, step-pool, ripple-pool sequence	0	1	(2)	3
4. Particle size of stream substrate	0	1	2	(3)
5. Active/relict floodplain	0	1	(2)	3
6. Depositional bars or benches	0	(1)	2	3
7. Recent alluvial deposits	0	(1)	2	3
8. Headcuts	0	1	(2)	3
9. Grade control	0	0.5	(1)	1.5
10. Natural valley	0	0.5	1	(1.5)
11. Second or greater order channel	No = 0		Yes = (3)	

[a] artificial ditches are not rated; see discussions in manual

B. Hydrology (Subtotal = 7.5)				
12. Presence of Baseflow	0	1	(2)	3
13. Iron oxidizing bacteria	(0)	1	2	3
14. Leaf litter	1.5	(1)	0.5	0
15. Sediment on plants or debris	0	(0.5)	1	1.5
16. Organic debris lines or piles	0	0.5	(1)	1.5
17. Soil-based evidence of high water table?	No = 0		Yes = (3)	

C. Biology (Subtotal = 6.5)				
18. Fibrous roots in streambed	(3)	2	1	0
19. Rooted upland plants in streambed	(3)	2	1	0
20. Macrobenthos (note diversity and abundance)	(0)	1	2	3
21. Aquatic Mollusks	(0)	1	2	3
22. Fish	(0)	0.5	1	1.5
23. Crayfish	(0)	0.5	1	1.5
24. Amphibians	(0)	0.5	1	1.5
25. Algae	0	(0.5)	1	1.5
26. Wetland plants in streambed	FACW = 0.75; OBL = 1.5 Other = 0			

*perennial streams may also be identified using other methods. See p. 35 of manual.

Notes:

Sketch:

NC DWQ Stream Identification Form Version 4.11

Date: 2/2/11	**Project/Site:** Burnetts Chapel	**Latitude:** 35.945357°N
Evaluator: MLS	**County:** Guilford	**Longitude:** 79.846058°W
Total Points: *Stream is at least intermittent if ≥ 19 or perennial if ≥ 30** 24.25	**Stream Determination (circle one)** Ephemeral (Intermittent) Perennial	**Other** SCP4 - B2 *e.g. Quad Name:*

A. Geomorphology (Subtotal = 11)	Absent	Weak	Moderate	Strong
1[a]. Continuity of channel bed and bank	0	(1)	2	3
2. Sinuosity of channel along thalweg	0	(1)	2	3
3. In-channel structure: ex. riffle-pool, step-pool, ripple-pool sequence	0	(1)	2	3
4. Particle size of stream substrate	0	(1)	2	3
5. Active/relict floodplain	0	1	(2)	3
6. Depositional bars or benches	(0)	1	2	3
7. Recent alluvial deposits	0	(1)	2	3
8. Headcuts	0	1	(2)	3
9. Grade control	0	(0.5)	1	~~1.5~~
10. Natural valley	0	0.5	1	(1.5)
11. Second or greater order channel	No = (0)		Yes = 3	

[a] artificial ditches are not rated; see discussions in manual

B. Hydrology (Subtotal = 8.5)				
12. Presence of Baseflow	0	1	(2)	3
13. Iron oxidizing bacteria	0	1	(2)	3
14. Leaf litter	(1.5)	1	0.5	0
15. Sediment on plants or debris	(0)	0.5	1	1.5
16. Organic debris lines or piles	(0)	0.5	1	1.5
17. Soil-based evidence of high water table?	No = 0		Yes = 3	

C. Biology (Subtotal = 4.75)				
18. Fibrous roots in streambed	3	2	(1)	0
19. Rooted upland plants in streambed	(3)	2	1	0
20. Macrobenthos (note diversity and abundance)	(0)	1	2	3
21. Aquatic Mollusks	(0)	1	2	3
22. Fish	(0)	0.5	1	1.5
23. Crayfish	(0)	0.5	1	1.5
24. Amphibians	(0)	0.5	1	1.5
25. Algae	(0)	0.5	1	1.5
26. Wetland plants in streambed	FACW = (0.75) OBL = 1.5 Other = 0			

*perennial streams may also be identified using other methods. See p. 35 of manual.

Notes:

Sketch:

NC DWQ Stream Identification Form Version 4.11

Date: 2/2/11	**Project/Site:** Burnetts Chapel	**Latitude:** 35.944576° N
Evaluator: MLS	**County:** Guilford	**Longitude:** 79.845188° W
Total Points: *Stream is at least intermittent if ≥ 19 or perennial if ≥ 30** 23.25	**Stream Determination (circle one)** Ephemeral (Intermittent) Perennial	**Other** SCPS - B3 *e.g. Quad Name:*

A. Geomorphology (Subtotal = 11)	Absent	Weak	Moderate	Strong
1[a]. Continuity of channel bed and bank	0	(1)	2	3
2. Sinuosity of channel along thalweg	0	(1)	2	3
3. In-channel structure: ex. riffle-pool, step-pool, ripple-pool sequence	0	(1)	2	3
4. Particle size of stream substrate	0	(1)	2	3
5. Active/relict floodplain	0	1	(2)	3
6. Depositional bars or benches	(0)	1	2	3
7. Recent alluvial deposits	0	(1)	2	3
8. Headcuts	0	1	(2)	3
9. Grade control	0	(0.5)	1	1.5
10. Natural valley	0	0.5	1	(1.5)
11. Second or greater order channel	No = (0)		Yes = 3	

[a] artificial ditches are not rated; see discussions in manual

B. Hydrology (Subtotal = 7.5)				
12. Presence of Baseflow	0	(1)	2	3
13. Iron oxidizing bacteria	0	1	(2)	3
14. Leaf litter	(1.5)	1	0.5	0
15. Sediment on plants or debris	(0)	0.5	1	1.5
16. Organic debris lines or piles	(0)	0.5	1	1.5
17. Soil-based evidence of high water table?	No = 0		Yes = (3)	

C. Biology (Subtotal = 4.75)				
18. Fibrous roots in streambed	3	2	(1)	0
19. Rooted upland plants in streambed	(3)	2	1	0
20. Macrobenthos (note diversity and abundance)	(0)	1	2	3
21. Aquatic Mollusks	(0)	1	2	3
22. Fish	(0)	0.5	1	1.5
23. Crayfish	(0)	0.5	1	1.5
24. Amphibians	(0)	0.5	1	1.5
25. Algae	(0)	0.5	1	1.5
26. Wetland plants in streambed	FACW = (0.75) OBL = 1.5 Other = 0			

*perennial streams may also be identified using other methods. See p. 35 of manual.

Notes:

Sketch:

NC DWQ Stream Identification Form Version 4.11

Date: 2/2/11	**Project/Site:** Burnetts Chapel	**Latitude:** 35.943514°N
Evaluator: MLJ	**County:** Guilford	**Longitude:** 79.845546°W
Total Points: *Stream is at least intermittent if ≥ 19 or perennial if ≥ 30** 19.75	**Stream Determination (circle one)** Ephemeral (Intermittent) Perennial	**Other** *e.g. Quad Name:* SCPG - B4

A. Geomorphology (Subtotal = 9)	Absent	Weak	Moderate	Strong
1[a]. Continuity of channel bed and bank	0	(1)	2	3
2. Sinuosity of channel along thalweg	(0)	1	2	3
3. In-channel structure: ex. riffle-pool, step-pool, ripple-pool sequence	0	(1)	2	3
4. Particle size of stream substrate	0	(1)	2	3
5. Active/relict floodplain	0	(1)	2	3
6. Depositional bars or benches	0	(1)	2	3
7. Recent alluvial deposits	(0)	1	2	3
8. Headcuts	0	1	(2)	3
9. Grade control	0	0.5	(1)	1.5
10. Natural valley	0	0.5	(1)	1.5
11. Second or greater order channel	No = (0)		Yes = 3	

[a] artificial ditches are not rated; see discussions in manual

B. Hydrology (Subtotal = 5)				
12. Presence of Baseflow	0	(1)	2	3
13. Iron oxidizing bacteria	(0)	1	2	3
14. Leaf litter	1.5	1	(0.5)	0
15. Sediment on plants or debris	(0)	0.5	1	1.5
16. Organic debris lines or piles	0	(0.5)	1	1.5
17. Soil-based evidence of high water table?	No = 0		Yes = (3)	

C. Biology (Subtotal = 6.75)				
18. Fibrous roots in streambed	3	(2)	1	0
19. Rooted upland plants in streambed	(3)	2	1	0
20. Macrobenthos (note diversity and abundance)	(0)	1	2	3
21. Aquatic Mollusks	(0)	1	2	3
22. Fish	(0)	0.5	1	1.5
23. Crayfish	(0)	0.5	1	1.5
24. Amphibians	(0)	0.5	1	1.5
25. Algae	(0)	0.5	1	1.5
26. Wetland plants in streambed	FACW = (0.75) OBL = 1.5 Other = 0			

*perennial streams may also be identified using other methods. See p. 35 of manual.

Notes:

Sketch:

NC DWQ Stream Identification Form Version 4.11

Date: 2/2/11	**Project/Site:** Burnetts Chapel	**Latitude:** 35.942579°N
Evaluator: MLJ	**County:** Guilford	**Longitude:** 79.846258°W
Total Points: *Stream is at least intermittent if ≥ 19 or perennial if ≥ 30** 22.75	**Stream Determination (circle one)** Ephemeral (Intermittent) Perennial	**Other** SCP7 - B5 *e.g. Quad Name:*

A. Geomorphology (Subtotal = 10)	Absent	Weak	Moderate	Strong
1[a]. Continuity of channel bed and bank	0	1	(2)	3
2. Sinuosity of channel along thalweg	(0)	1	2	3
3. In-channel structure: ex. riffle-pool, step-pool, ripple-pool sequence	0	(1)	2	3
4. Particle size of stream substrate	0	(1)	2	3
5. Active/relict floodplain	0	(1)	2	3
6. Depositional bars or benches	0	(1)	2	3
7. Recent alluvial deposits	(0)	1	2	3
8. Headcuts	0	1	(2)	3
9. Grade control	0	0.5	(1)	1.5
10. Natural valley	0	0.5	(1)	1.5
11. Second or greater order channel	No = (0)		Yes = 3	

[a] artificial ditches are not rated; see discussions in manual

B. Hydrology (Subtotal = 7)				
12. Presence of Baseflow	0	1	(2)	3
13. Iron oxidizing bacteria	(0)	1	2	3
14. Leaf litter	(1.5)	1	0.5	0
15. Sediment on plants or debris	(0)	0.5	1	1.5
16. Organic debris lines or piles	0	(0.5)	1	1.5
17. Soil-based evidence of high water table?	No = 0		Yes = (3)	

C. Biology (Subtotal = 5.75)				
18. Fibrous roots in streambed	3	(2)	1	0
19. Rooted upland plants in streambed	(3)	2	1	0
20. Macrobenthos (note diversity and abundance)	(0)	1	2	3
21. Aquatic Mollusks	(0)	1	2	3
22. Fish	(0)	0.5	1	1.5
23. Crayfish	(0)	0.5	1	1.5
24. Amphibians	(0)	0.5	1	1.5
25. Algae	(0)	0.5	1	1.5
26. Wetland plants in streambed	FACW = (0.75) OBL = 1.5 Other = 0			

*perennial streams may also be identified using other methods. See p. 35 of manual.

Notes:

Sketch:

North Carolina Department of Environment and Natural Resources
Division of Water Quality
Beverly Eaves Perdue
Governor
Coleen H. Sullins
Director
Dee Freeman
Secretary

January 4, 2010

Mr. Tommy Cousins
EarthMark Mitigation Services
1960 Derita Road
Concord, North Carolina 28027

Subject Property: 1323 Burnett's Chapel Rd, Greensboro NC, Guilford County

On-Site Determination for Applicability to the Randleman Riparian Buffer Rules (15A NCAC 2H .0250)

Dear Mr. Cousins:

On December 19, 2009, at your request and in your attendance, Sue Homewood conducted an on-site determination to review features located on the subject property for intermittent/perennial determinations with regards to the above noted state regulations. The features that were reviewed are identified on the attached map.

All stream identifications are noted on the attached maps. Buffers are accurately indicated on the attached map provided by EarthMark. Stream #1 was determined to be intermittent from the outlet of pond to the confluence with Stream #2 and perennial from that point to the end of the property. It should be noted there may be some jurisdictional wetlands at the outlet of the pond that would reduce the buffer mitigation capacity of this area. Stream #2 was determined to be intermittent from a headcut directly upstream of the pond to the confluence with Stream #1 and ephemeral above this point. Stream #3 was determined to be intermittent from a knick point where the vegetation changes above the pond to the confluence with Stream #1. Stream #4 was determined to be intermittent but significantly degraded from the outlet of an old pipe to the confluence with Stream #1. Stream #5 was determined to be perennial.

On the site identified as Guilford County property, Stream #G2 was determined to be intermittent from a point identified in the field with you downstream of the property line, and perennial from a clearly identifiable knick point to its confluence with Stream #G1.

Please note that all perennial and intermittent stream channels found on the property are subject to the mitigation rules cited above.

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 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" 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.

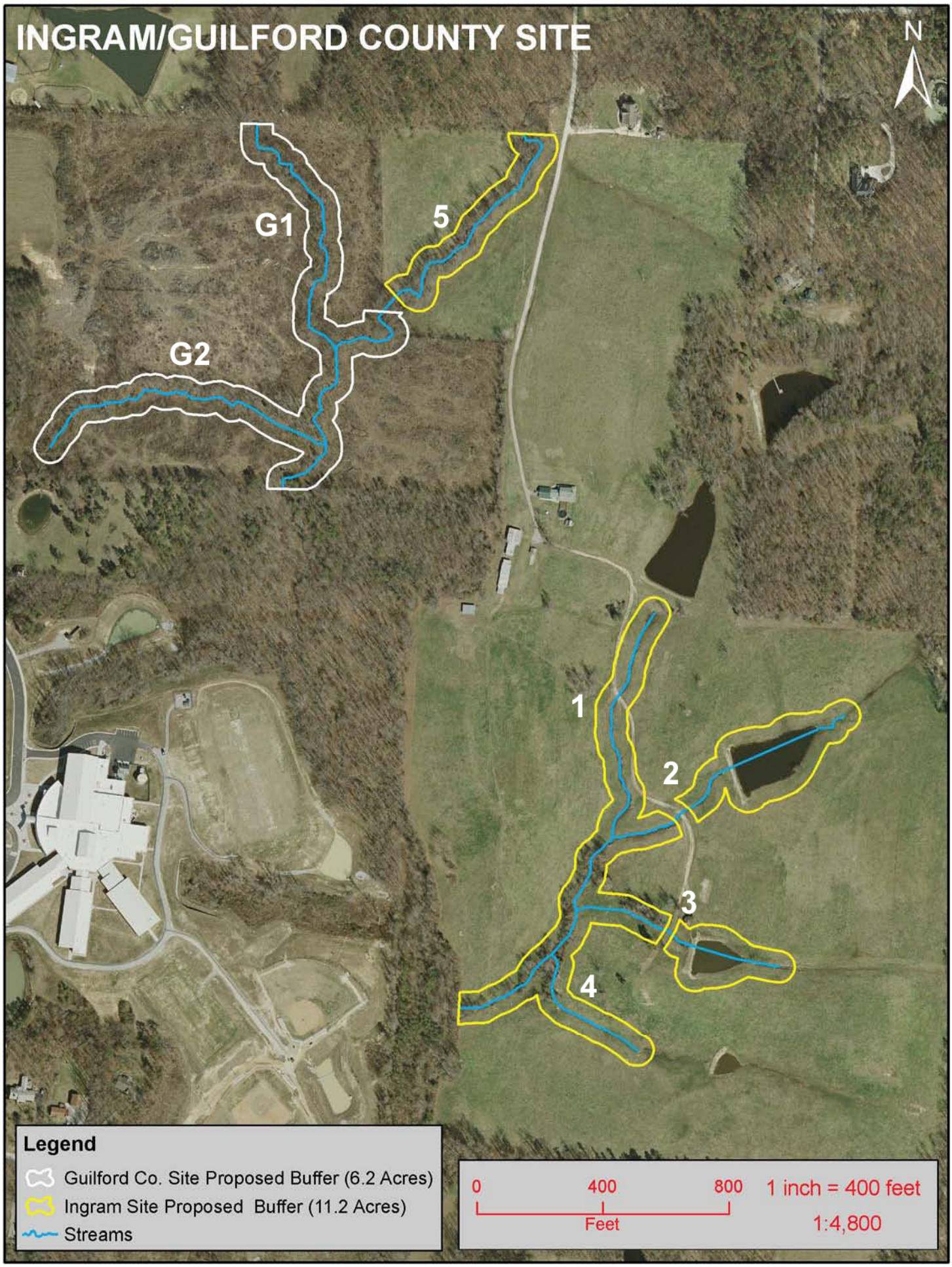
This letter only addresses the applicability to the mitigation rules and the buffer rules and does not approve any activity within Waters of the United States or Waters of the State or their associated buffers. If you have any additional questions or require additional information please call me at 336-771-4964

Sincerely,

Sue Homewood
DWQ Winston-Salem Regional Office

Enclosures: USGS Topo Map
EarthMark Provided Map

cc: Andy Williams, USACE Raleigh Regulatory Office (via email)
DWQ, Winston-Salem Regional Office


INGRAM/GUILFORD COUNTY SITE
N
G1
G2
5
1
2
3
4
Legend
Guilford Co. Site Proposed Buffer (6.2 Acres)
Ingram Site Proposed Buffer (11.2 Acres)
Streams
0
400
800
Feet
1 inch = 400 feet
1:4,800

Burnettes Chapel Mitigation Site
1323 Burnettes Chapel Road
Greensboro, NC 27406

Inquiry Number: 3119551.4
July 11, 2011

The EDR Aerial Photo Decade Package

EDR® Environmental Data Resources Inc

440 Wheelers Farms Road
Milford, CT 06461
800.352.0050
www.edrnet.com

EDR Aerial Photo Decade Package

Environmental Data Resources, Inc. (EDR) Aerial Photo Decade Package is a screening tool designed to assist environmental professionals in evaluating potential liability on a target property resulting from past activities. EDR's professional researchers provide digitally reproduced historical aerial photographs, and when available, provide one photo per decade.

When delivered electronically by EDR, the aerial photo images included with this report are for ONE TIME USE ONLY. Further reproduction of these aerial photo images is prohibited without permission from EDR. For more information contact your EDR Account Executive.

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

Date EDR Searched Historical Sources:

Aerial Photography July 11, 2011

Target Property:

1323 Burnettes Chapel Road

Greensboro, NC 27406

Year	***Scale***	***Details***	***Source***
1973	Aerial Photograph. Scale: 1"=1000'	Panel #: 35079-H7, Pleasant Garden, NC;/Flight Date: February 24, 1973	EDR
1977	Aerial Photograph. Scale: 1"=1000'	Panel #: 35079-H7, Pleasant Garden, NC;/Flight Date: March 01, 1977	EDR
1980	Aerial Photograph. Scale: 1"=1000'	Panel #: 35079-H7, Pleasant Garden, NC;/Flight Date: March 15, 1980	EDR
1983	Aerial Photograph. Scale: 1"=1000'	Panel #: 35079-H7, Pleasant Garden, NC;/Flight Date: April 21, 1983	EDR
1993	Aerial Photograph. Scale: 1"=604'	Panel #: 35079-H7, Pleasant Garden, NC;/Composite DOQQ - acquisition dates: February 02, 1993	EDR
2005	Aerial Photograph. Scale: 1"=604'	Panel #: 35079-H7, Pleasant Garden, NC;/Flight Year: 2005	EDR
2006	Aerial Photograph. Scale: 1"=604'	Panel #: 35079-H7, Pleasant Garden, NC;/Flight Year: 2006	EDR
2008	Aerial Photograph. Scale: 1"=604'	Panel #: 35079-H7, Pleasant Garden, NC;/Flight Year: 2008	EDR


INQUIRY #: 3119551.4
YEAR: 1973
= 1000'
N

INQUIRY #: 3119551.4

YEAR: 1977

= 1000'

N

INQUIRY #: 3119551.4

YEAR: 1980

N

= 1000'

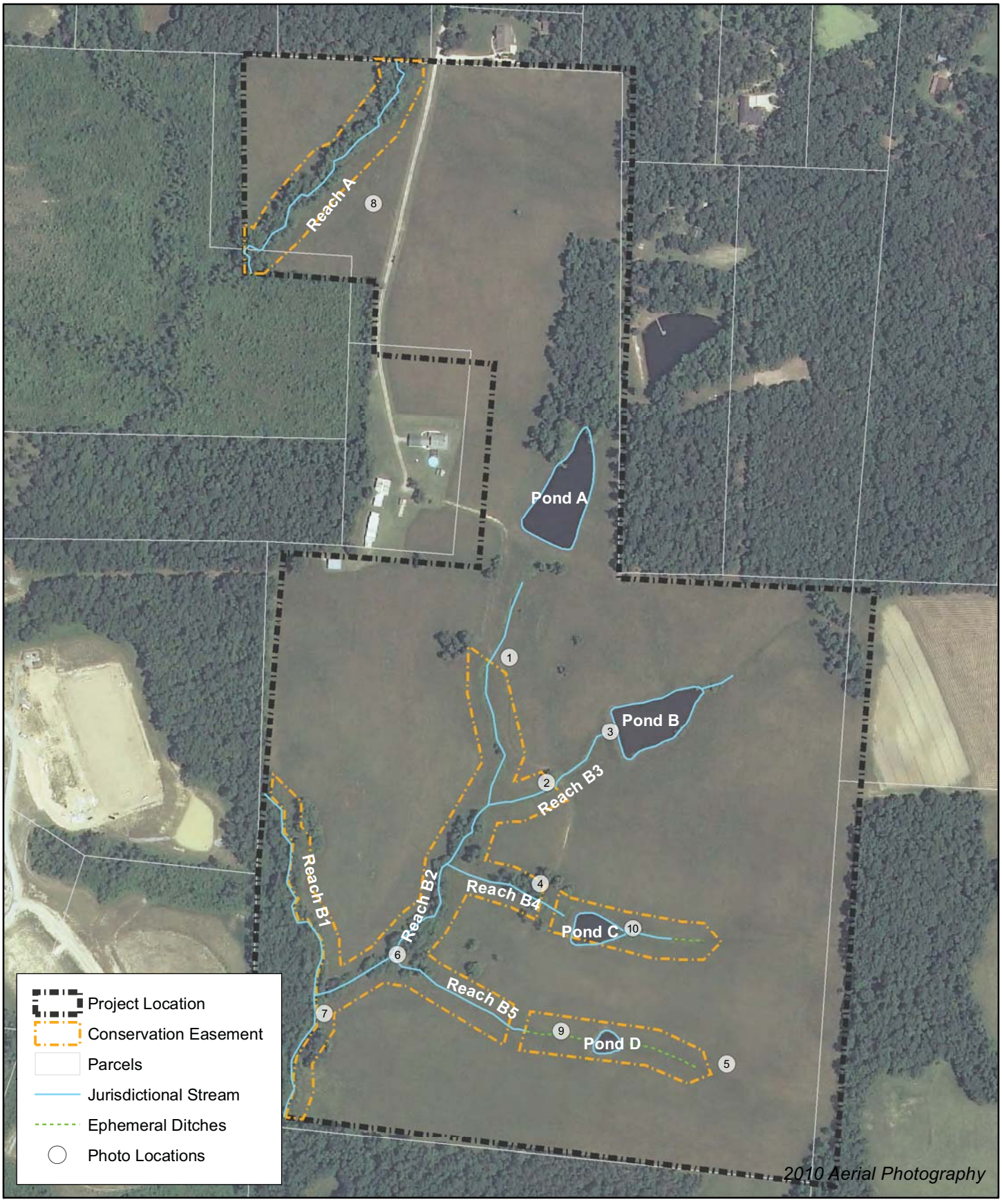

INQUIRY #: 3119551.4
YEAR: 1983
= 1000'
N


INQUIRY #: 3119551.4
YEAR: 1993
= 604'
N
EDR Environmental Data Resources Inc


INQUIRY #: 3119551.4
YEAR: 2005
= 604'
N


INQUIRY #: 3119551.4
YEAR: 2006
= 604'
N


INQUIRY #: 3119551.4
YEAR: 2008
= 604'
N



WILDLANDS ENGINEERING

0 200 400 Feet

N

Figure B-1 Site Photos
Burnetts Chapel Buffer Mitigation Site
Cape Fear River Basin (03030003)

Guilford County, NC

Photo 1- Intermittent Reach B2, facing upstream

Photo 2- Intermittent Reach B3, facing downstream

Photo 3- Pond C, facing upstream

Photo 4- Intermittent Reach B4, downstream of Pond C

Photo 5- Upstream valley of Pond D, facing down slope

Photo 6- Perennial Reach B2, facing upstream

Photo 7- Reach B2 confluence with Reach B1

Photo 8- Existing buffer along Reach A

Photo 9- Ephemeral channel downstream of Pond D

Photo 10- Intermittent Reach B4, upstream of Pond C

NCDENR
North Carolina Department of Environment and Natural Resources
Division of Water Quality
Beverly Eaves Perdue
Governor
Coleen H. Sullins
Director
Dee Freeman
Secretary

October 31, 2011

Kristie Corson
NC Ecosystem Enhancement Program
1652 Mail Service Center
Raleigh, NC 27699-1652

Re: Burnett's Chapel Buffer Mitigation Site
Guilford County

Dear Ms. Corson:

The Division of Water Quality (DWQ) Winston-Salem Regional Office has reviewed the Memorandum submitted by Wildlands Engineering dated October 17, 2011 (attached). This memorandum accurately summarizes all discussions conducted during two site visits as well as all follow up correspondence.

The Division concurs that that the proposed buffer planting areas as depicted in the attached October 17, 2011 memo and diagrams should qualify for buffer restoration credits in the Randleman Lake watershed provided that the plantings are shown to meet the buffer mitigation success criteria established in 15A NCAC 02B .0252. Please note that the buffer restoration area within the drained ponds is dependent on the success of establishing a stable stream channel through these areas.

If you have any questions related to our comments or this mitigation project, please feel free to contact me at 336-771-4964 or sue.homewood@ncdenr.gov.

Sincerely,

Sue Homewood
DWQ Winston-Salem Regional Office

Cc: Andrew Williams, USACE Raleigh Regulatory Field Office (via email)
Andrea Eckardt, Wildlands Engineering (via email)
DWQ-WSRO

North Carolina Division of Water Quality, Winston-Salem Regional Office
Location: 585 Waughtown St. Winston-Salem, North Carolina 27107
Phone: 336-771-5000 \ FAX: 336-771-4630 \ Customer Service: 1-877-623-6748
Internet: www.ncwaterquality.org

WILDLANDS
ENGINEERING

1430 S. Mint Street, Suite 104 · Charlotte, NC 28203 · Phone: 704.332.7754 · Fax: 704.332.3306

MEMORANDUM

To: Sue Homewood, NCDWQ
From: Andrea Eckardt

Cc: Kristie Corson
Tim Baumgartner
Date: 10/14/2011

Re: Burnetts Chapel Buffer Mitigation Site – Proposed Planting Areas

Representatives of Wildlands Engineering, Inc (WEI), NC Ecosystem Enhancement Program (NCEEP), and NC Division of Water Quality (NCDWQ) attended two site visits to the Burnetts Chapel Buffer Mitigation Site on August 18, 2011 and September 8, 2011. Meeting notes and a draft planting area figure were submitted by WEI for agency review following the site visits. WEI received comments from NCDWQ on the notes and initial planting area map via email September 26, 2011. The proposed planting area for the project has since been revised based on agency comments, updated survey data, and site constraints.

Attached is the updated map showing the proposed planting area for the Burnetts Chapel Buffer Mitigation Site. The conservation easement boundary is 50 feet from the surveyed top of bank. There are two existing ponds located within the conservation easement area (Reaches B4 and B5) that will be removed and the channels restored as part of the proposed project. In those areas the proposed restored stream channel location was used to create the easement boundary.

The project planting area, which is the area that will generate restoration credit, is 9.2 acres out of a 11.4 acre conservation easement area. The jurisdictional streams and ephemeral ditches on the site have been excluded from the planting acreage as well as four areas (Areas 1-4) that do not meet riparian buffer restoration or enhancement criteria based on their existing tree counts of greater than 200 stems per acre.

The locations of the tree count plots are also shown on the attached figure. Areas 1-3 were surveyed at the base of the existing trees, per NCDWQ instruction. The boundary of Area 4 was surveyed along an existing fence line that separates the forested area from open field. The results of the plots are included below in Table 1.

Table 1. Burnetts Chapel Existing Buffer Vegetation Plots

Plot	Reach	Dimensions (ft.)	No. Trees ≥ 5" DBH	Tree Density Per Acre
#1	Reach A	30' x 30'	10	484
#2	Reach B1	20' x 40'	9	490
#3	Reach B2	30' x 30'	10	484
#4	Reach B2	30' x 30'	6	290

Below is a summary of the conditions, issues, and mitigation potential at each project Reach.

Reach A – Based on the tree counts performed, 0.67 acres were removed from the planting area. This area will be preserved (no credit). The remainder of the conservation easement area along the reach will be riparian buffer restoration.

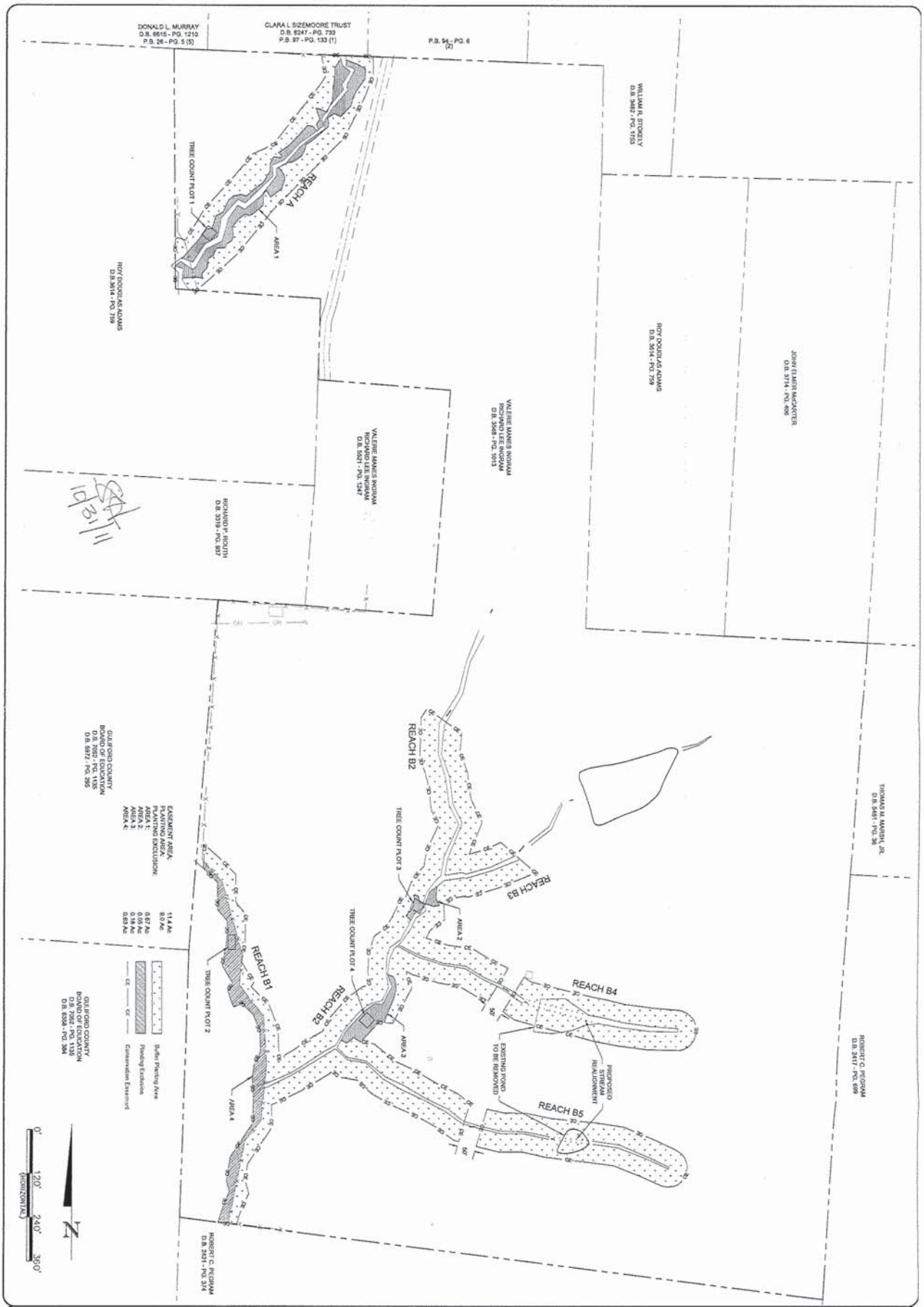
Reach B1 – The portion of the conservation easement west of the existing fence line has been excluded from the planting area (0.63 acres). This area west of the fence will be preserved (no credit). The remainder of the conservation easement area along that reach will be riparian buffer restoration.

Reach B2 – This reach has two areas that were excluded from the planting area (0.05 acres and 0.18 acres) based on the tree counts performed. The remainder of the conservation easement area along this reach will be riparian buffer restoration. The upstream end of the easement area is not "bubbled" as allowed due to an existing road crossing on the property.

Reach B3 – No tree counts were requested on Reach B3. This reach will be riparian buffer restoration. The upstream end of the easement area is not "bubbled" as allowed due to an existing road crossing on the property.

Reach B4 – No tree counts were requested on Reach B4. This reach will be riparian buffer restoration. The knickpoint identified at the second site visit was surveyed and used as the beginning of a true channel form along this reach. The upstream end of the easement area has been "bubbled" 50 feet per NCDWQ guidance. There is also one 50 foot easement break on this reach at an existing road crossing on the property. WEI is currently working with NCDWQ and USACE on the permits for the existing pond removal and channel restoration on the reach.

Reach B5 – No tree counts were requested on Reach B5. This reach will be riparian buffer restoration. The knickpoint identified at the second site visit was surveyed and used as the beginning of a true channel form along this reach. The upstream end of the easement area has been "bubbled" 50 feet per NCDWQ guidance. There is also one 50 foot easement break on this reach at an existing road crossing on the property. WEI is currently working with NCDWQ and USACE on the permits for the existing pond removal and channel restoration on the reach.



Date:	October 31, 2013
Job Number:	905-02130
Project Engineer:	EER
Drawn By:	JCK
Checked By:	AHE

Revisions

Sheet 1

Burnetts Chapel Buffer Mitigation
Guilford County, NC - Cape Fear River Basin

Buffer Exhibit

DRAFT

WILDLANDS ENGINEERING
1430 South Mint Street, Suite 104
Charlotte, NC 28203
Tel: 704.332.7754
Fax: 704.332.3306
Firm License No. P-0831

60% Plans - Not For Construction

Categorical Exclusion Form for Ecosystem Enhancement Program Projects
Version 1.4

Note: Only Appendix A should to be submitted (along with any supporting documentation) as the environmental document.

Part 1: General Project Information	
Project Name:	Burnetts Chapel Buffer Mitigation Site
County Name:	Guilford County
EEP Number:	Contract Number 003996, RFP 16-003567
Project Sponsor:	Wildlands Engineering, Inc.
Project Contact Name:	Andrea Spangler Eckardt
Project Contact Address:	1430 S. Mint Street, Suite 104, Charlotte, NC 28203
Project Contact E-mail:	aeckardt@wildlandsinc.com
EEP Project Manager:	Kristie Corson

Project Description

The Burnetts Chapel Buffer Mitigation Site is a riparian buffer mitigation project located in Guilford County, NC, west of the Town of Pleasant Garden and south of the City of Greensboro. The project is located on several unnamed tributaries to Randleman Lake. The project will provide riparian buffer mitigation units to NCEEP in the Cape Fear River Basin (03030003) - Randleman Lake. The mitigation project involves a combination of buffer restoration and enhancement.

For Official Use Only

Reviewed By:

9/6/11 — Kristie L Corson

Date — **EEP Project Manager**

Conditional Approved By:

Date — **For Division Administrator FHWA**

☐ **Check this box if there are outstanding issues**

Final Approval By:

9-2-11 — [signature]

Date — **For Division Administrator FHWA**

RECEIVED

AUG 23 2011

NC ECOSYSTEM ENHANCEMENT PROGRAM

Part 2: All Projects Regulation/Question	Response
Coastal Zone Management Act (CZMA)	
1. Is the project located in a CAMA county?	☐ Yes ☑ No
2. Does the project involve ground-disturbing activities within a CAMA Area of Environmental Concern (AEC)?	☐ Yes ☐ No ☑ N/A
3. Has a CAMA permit been secured?	☐ Yes ☐ No ☑ N/A
4. Has NCDCM agreed that the project is consistent with the NC Coastal Management Program?	☐ Yes ☐ No ☑ N/A
Comprehensive Environmental Response, Compensation and Liability Act (CERCLA)	
1. Is this a "full-delivery" project?	☑ Yes ☐ No
2. Has the zoning/land use of the subject property and adjacent properties ever been designated as commercial or industrial?	☐ Yes ☑ No ☐ N/A
3. As a result of a limited Phase I Site Assessment, are there known or potential hazardous waste sites within or adjacent to the project area?	☐ Yes ☑ No ☐ N/A
4. As a result of a Phase I Site Assessment, are there known or potential hazardous waste sites within or adjacent to the project area?	☐ Yes ☐ No ☑ N/A
5. As a result of a Phase II Site Assessment, are there known or potential hazardous waste sites within the project area?	☐ Yes ☐ No ☑ N/A
6. Is there an approved hazardous mitigation plan?	☐ Yes ☐ No ☑ N/A
National Historic Preservation Act (Section 106)	
1. Are there properties listed on, or eligible for listing on, the National Register of Historic Places in the project area?	☐ Yes ☑ No
2. Does the project affect such properties and does the SHPO/THPO concur?	☐ Yes ☐ No ☑ N/A
3. If the effects are adverse, have they been resolved?	☐ Yes ☐ No ☑ N/A
Uniform Relocation Assistance and Real Property Acquisition Policies Act (Uniform Act)	
1. Is this a "full-delivery" project?	☑ Yes ☐ No
2. Does the project require the acquisition of real estate?	☑ Yes ☐ No ☐ N/A
3. Was the property acquisition completed prior to the intent to use federal funds?	☐ Yes ☑ No ☐ N/A
4. Has the owner of the property been informed: * prior to making an offer that the agency does not have condemnation authority; and * what the fair market value is believed to be?	☑ Yes ☐ No ☐ N/A

Part 3: Ground-Disturbing Activities Regulation/Question	Response
American Indian Religious Freedom Act (AIRFA)	
1. Is the project located in a county claimed as "territory" by the Eastern Band of Cherokee Indians?	☐ Yes ☑ No
2. Is the site of religious importance to American Indians?	☐ Yes ☐ No ☑ N/A
3. Is the project listed on, or eligible for listing on, the National Register of Historic Places?	☐ Yes ☐ No ☑ N/A
4. Have the effects of the project on this site been considered?	☐ Yes ☐ No ☑ N/A
Antiquities Act (AA)	
1. Is the project located on Federal lands?	☐ Yes ☑ No
2. Will there be loss or destruction of historic or prehistoric ruins, monuments or objects of antiquity?	☐ Yes ☐ No ☑ N/A
3. Will a permit from the appropriate Federal agency be required?	☐ Yes ☐ No ☑ N/A
4. Has a permit been obtained?	☐ Yes ☐ No ☑ N/A
Archaeological Resources Protection Act (ARPA)	
1. Is the project located on federal or Indian lands (reservation)?	☐ Yes ☑ No
2. Will there be a loss or destruction of archaeological resources?	☐ Yes ☐ No ☑ N/A
3. Will a permit from the appropriate Federal agency be required?	☐ Yes ☐ No ☑ N/A
4. Has a permit been obtained?	☐ Yes ☐ No ☑ N/A
Endangered Species Act (ESA)	
1. Are federal Threatened and Endangered species and/or Designated Critical Habitat listed for the county?	☑ Yes ☐ No
2. Is Designated Critical Habitat or suitable habitat present for listed species?	☐ Yes ☑ No ☐ N/A
3. Are T&E species present or is the project being conducted in Designated Critical Habitat?	☐ Yes ☐ No ☑ N/A
4. Is the project "likely to adversely affect" the species and/or "likely to adversely modify" Designated Critical Habitat?	☐ Yes ☐ No ☑ N/A
5. Does the USFWS/NOAA-Fisheries concur in the effects determination?	☐ Yes ☐ No ☑ N/A
6. Has the USFWS/NOAA-Fisheries rendered a "jeopardy" determination?	☐ Yes ☐ No ☑ N/A

Executive Order 13007 (Indian Sacred Sites)	
1. Is the project located on Federal lands that are within a county claimed as "territory" by the EBCI?	☐ Yes ☑ No
2. Has the EBCI indicated that Indian sacred sites may be impacted by the proposed project?	☐ Yes ☐ No ☑ N/A
3. Have accommodations been made for access to and ceremonial use of Indian sacred sites?	☐ Yes ☐ No ☑ N/A
Farmland Protection Policy Act (FPPA)	
1. Will real estate be acquired?	☑ Yes ☐ No
2. Has NRCS determined that the project contains prime, unique, statewide or locally important farmland?	☑ Yes ☐ No ☐ N/A
3. Has the completed Form AD-1006 been submitted to NRCS?	☑ Yes ☐ No ☐ N/A
Fish and Wildlife Coordination Act (FWCA)	
1. Will the project impound, divert, channel deepen, or otherwise control/modify any water body?	☐ Yes ☑ No
2. Have the USFWS and the NCWRC been consulted?	☐ Yes ☐ No ☑ N/A
Land and Water Conservation Fund Act (Section 6(f))	
1. Will the project require the conversion of such property to a use other than public, outdoor recreation?	☐ Yes ☑ No
2. Has the NPS approved of the conversion?	☐ Yes ☐ No ☑ N/A
Magnuson-Stevens Fishery Conservation and Management Act (Essential Fish Habitat)	
1. Is the project located in an estuarine system?	☐ Yes ☑ No
2. Is suitable habitat present for EFH-protected species?	☐ Yes ☐ No ☑ N/A
3. Is sufficient design information available to make a determination of the effect of the project on EFH?	☐ Yes ☐ No ☑ N/A
4. Will the project adversely affect EFH?	☐ Yes ☐ No ☑ N/A
5. Has consultation with NOAA-Fisheries occurred?	☐ Yes ☐ No ☑ N/A
Migratory Bird Treaty Act (MBTA)	
1. Does the USFWS have any recommendations with the project relative to the MBTA?	☐ Yes ☑ No
2. Have the USFWS recommendations been incorporated?	☐ Yes ☐ No ☑ N/A
Wilderness Act	
1. Is the project in a Wilderness area?	☐ Yes ☑ No
2. Has a special use permit and/or easement been obtained from the maintaining federal agency?	☐ Yes ☐ No ☑ N/A

U.S. ARMY CORPS OF ENGINEERS
WILMINGTON DISTRICT

Action Id. **SAW-2011-01878** County: **Guilford** U.S.G.S. Quad: **NC-PLEASANT GARDEN**

GENERAL PERMIT (REGIONAL AND NATIONWIDE) VERIFICATION

Property Owner: **Wildlands Engineering**
Matt Jenkins
Address: **1420 South Mint Street**
Suite 104
Charlotte, NC, 28203

Agent: **Wildlands Engineering**
Matt Jenkins
Address: **1420 South Mint Street**
Suite 104
Charlotte, NC, 28203

Size and location of property (water body, road name/number, town, etc.): . **Latitude 35.9453 Longitude -79.8457; The site is located east of the Drake Road and south of Burnetts Chapel Road, at the terminus of Wyn Dan Court, in Guilford County, North Carolina and is identified as the Burnetts Chapel Buffer Mitigation Site.**

Description of projects area and activity: **This authorization is for the permanent discharge of clean fill material associated with a stream restoration project. Authorized impacts are as follows: Site S1) 240 linear feet of stream construction through drained pond bottom (pond C) and reach B4; Site S2) 170 linear feet of stream construction through a drained pond bottom (Pond D) and reach B5.**

Applicable Law: ☒ Section 404 (Clean Water Act, 33 USC 1344)
☐ Section 10 (Rivers and Harbors Act, 33 USC 403)

Authorization: Regional General Permit Number or Nationwide Permit Number: **NWP 27 Aquatic Habitat Restoration, Establishment, and Enhancement Activities.**

SEE ATTACHED NATIONWIDE AND SPECIAL CONDITIONS.

Your work is authorized by the above referenced permit provided it is accomplished in strict accordance with the attached conditions and your submitted application and attached information dated September 12, 2011 and supplemental information provided on November 4, 2011. 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 is valid until the NWP is modified, reissued, or revoked. All of the existing NWPs are scheduled to be modified, reissued, or revoked prior to March 18, 2012. It is incumbent upon you to remain informed of changes to the NWPs. We will issue a public notice when the NWPs are reissued. Furthermore, if you commence or are under contract to commence this activity before the date that the relevant nationwide permit is modified or revoked, you will have twelve (12) months from the date of the modification or revocation of the NWP to complete the activity under the present terms and conditions of this nationwide permit.

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 Andrew Williams at 919-554-4884 x26.

Corps Regulatory Official Andrew Williams Date: November 29, 2011

Expiration Date of Verification: **03/18/2012**

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://per2.nwp.usace.army.mil/survey.html to complete the survey online.

Copy Furnished:

Sue Homewood
North Carolina Department of Natural Resources
Division of Water Quality
585 Waughtown Street
Winston-Salem, NC 27107

Determination of Jurisdiction:

A. ☐ 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).

B. ☐ 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.

C. ☒ 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.

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

Basis For Determination:

The two (2) streams are relatively permanent waters (RPWs) and unnamed tributaries to an unnamed tributary, which is also an RPW. This unnamed tributary flows to Randleman Lake, an impoundment of the Deep River, a traditionally navigable water (TNW). The Deep River below Randleman Lake flows to the Cape Fear River, a navigable water of the United States. The Ordinary High Water Mark (OHWM) of the unnamed tributaries was indicated by the following physical characteristics: clear natural line impressed on the bank, shelving, and scour. There are also two impoundments located on each of the unnamed tributaries.

This jurisdictional determination is only for the stream/waters proposed for impacts associated with this Nationwide Permit verification and does not include any other waters/wetlands that may be located on the property/project site.

Remarks: None

Attention USDA Program Participants

This delineation/determination has been conducted to identify the limits of Corps' Clean Water Act jurisdiction for the particular site identified in this request. The delineation/determination may not be valid for the wetland conservation provisions of the Food Security Act of 1985. If you or your tenant are USDA Program participants, or anticipate participation in USDA programs, you should request a certified wetland determination from the local office of the Natural Resources Conservation Service, prior to starting work.

F. Appeals Information (This information applies only to approved jurisdictional determinations as indicated in B and C above).

This correspondence constitutes an approved jurisdictional determination for the above described site. If you object to this determination, you may request an administrative appeal under Corps regulations at 33 CFR Part 331. Enclosed you will find a Notification of Appeal Process (NAP) fact sheet and request for appeal (RFA) form. If you request to appeal this determination you must submit a completed RFA form to the following address:

US Army Corps of Engineers
South Atlantic Division
Attn: Jason Steele, Review Officer
60 Forsyth Street SW, Room 10M15
Atlanta, Georgia 30303-8801
Phone: (404) 562-5137

In order for an RFA to be accepted by the Corps, the Corps must determine that it is complete, that it meets the criteria for appeal under 33 CFR part 331.5, and that it has been received by the Division Office within 60 days of the date of the NAP. Should you decide to submit an RFA form, it must be received at the above address by **January 27, 2011**.
It is not necessary to submit an RFA form to the Division Office if you do not object to the determination in this correspondence.

Corps Regulatory Official: Andrew Williams

Date: **November 29, 2011** Expiration Date: November 29, 2016

Copy furnished:

Sue Homewood
North Carolina Department of Natural Resources
Division of Water Quality
585 Waughtown Street
Winston-Salem, NC 27107

North Carolina Department of Environment and Natural Resources
Division of Water Quality
Beverly Eaves Perdue
Governor
Coleen H. Sullins
Director
Dee Freeman
Secretary

November 21, 2011
DWQ# 11-0841
Guilford County

Mr. Matt Jenkins
Wildlands Engineering Inc.
1430 South Mint Street, Suite 104
Charlotte, NC 28203

APPROVAL of 401 Water Quality Certification with Additional Conditions

Dear Mr. Jenkins:

You have our approval, in accordance with the attached conditions, to impact 0.36 acres of open waters for the purpose of draining the ponds and creating natural stream channels for the Burnett's Chapel Buffer Mitigation Site located in Pleasant Garden, NC in Guilford County, as described in your application received by the Division on September 12, 2011 and additional information received November 4, 2011 and November 21, 2011. After reviewing your application, we have determined that this fill is covered by General Water Quality Certification Numbers 3689, which can be viewed on our web site at http://h2o.enr.state.nc.us/ncwetlands/rd_wetlands_certifications.htm. This Certification allows you to use Nationwide Permit Number 27 when it is issued by the U.S. Army Corps of Engineers. In addition, you should secure any other applicable federal, state or local permits before you proceed with your project, including (but not limited to) those required by Sediment and Erosion Control (including trout buffer waivers as necessary), Non-Discharge, State Stormwater, and Water Supply Watershed regulations. Also, this approval will expire when the accompanying 404 permits expire unless otherwise specified in the General Certification.

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

1. The following impacts are hereby approved as long as all other specific and general conditions of this Certification are met. No other impacts, including incidental impacts, are approved:

Sites	Impact area
Pond C	0.26 acres of open water converted to approximately 240 linear feet of stream
Pond D	0.10 acres of open water converted to approximately 170 linear feet of stream
	0.36 acres open water draining **Approximately 410 linear feet of stream creation**

2. The designer or his designee must supervise the creation of the new stream channels at all times.

3. Final As-Built plans must be submitted to the Division within 60 days of construction completion.

4. Approval of the stream restoration plan and issuance of the 401 Water Quality Certification means that DWQ has determined that the proposed activity will not remove or degrade significant existing uses of the surface water (15A NCAC 2H .0506(a)). The issuance does not represent an approval of buffer credit yield for the project.

5. Native vegetation shall be used along the new streambanks. All tree and shrub plantings on both sides of the stream shall be protected from mowing or clearing.

6. Natural fiber matting is recommended for streambank stabilization over plastic matting that can entrap small animals.

7. Visual monitoring of the stream channels and all structures shall be conducted at a minimum of quarterly for the first year or two bankfull events (whichever is longer), and then annually until it is determined that all structures and stream banks are stable (particularly after storm events) and vegetation is successful. Any failures of structures, stream banks, or vegetation may require future repairs or replacement to ensure the stability and water quality of the stream and downstream waters.

8. Upon finishing the project, the Applicant shall fill out and return the enclosed "Certificate of Completion" to notify NCDWQ when all work included in the 401 Certification has been completed. This certificate should be returned to the Winston-Salem Regional Office of the NCDWQ at the address listed on the form.

If you do not accept any of the conditions of this certification, 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.

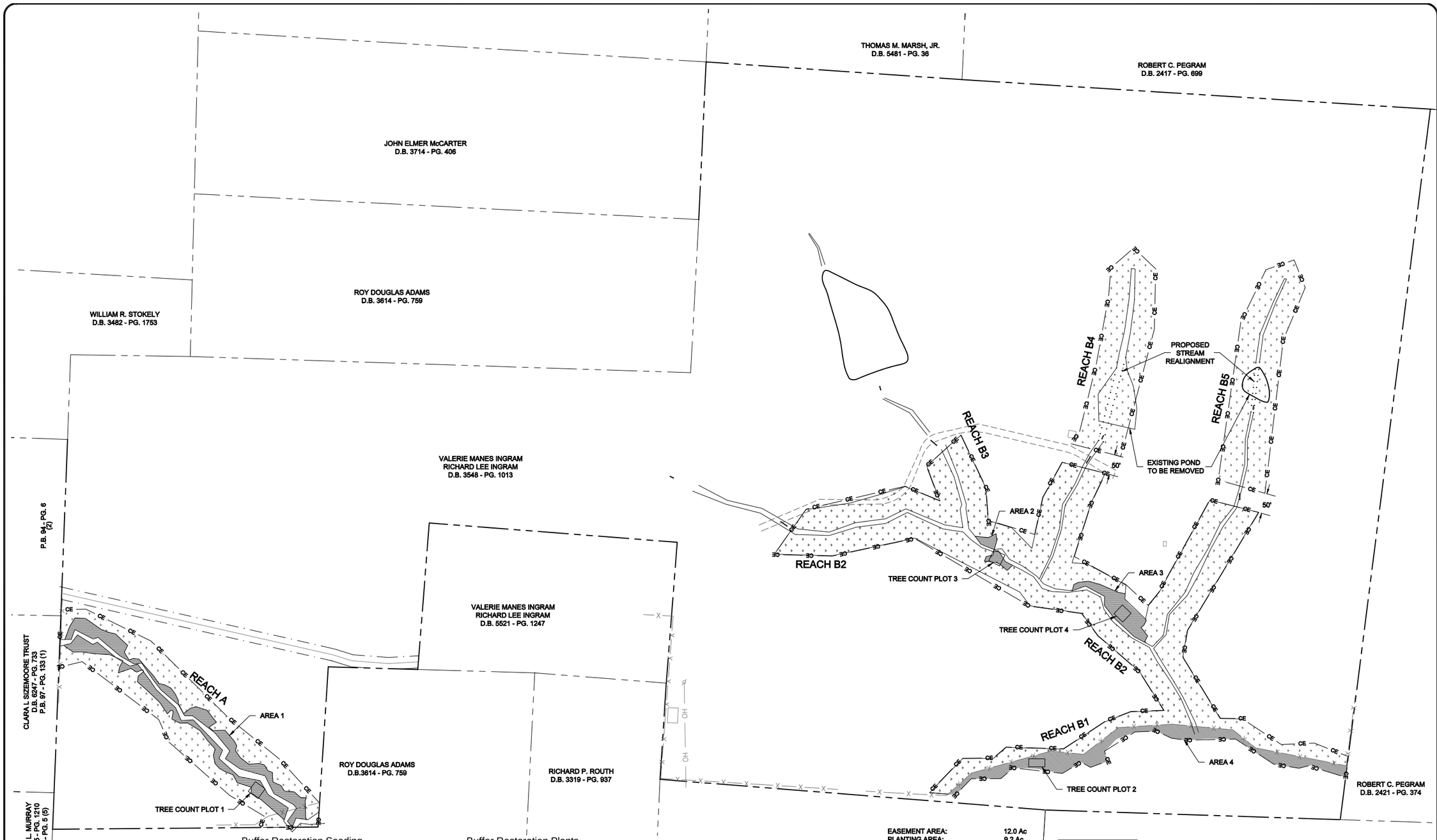
This letter completes the review of the Division of Water Quality under Section 401 of the Clean Water Act. If you have any questions, please contact Sue Homewood in the DWQ Winston-Salem Regional Office at 336-771-4964 or at sue.homewood@ncdenr.gov.

Sincerely,

for Coleen H. Sullins, Director
Division of Water Quality

cc: Andy Williams, U. S. Army Corps of Engineers, Raleigh Regulatory Field Office (via email)
Kristie Corson, NCEEP (via email)
DWQ Winston-Salem Regional Office
DWQ Wetlands/401

Appendix C:
Project Plan Sheets



Buffer Restoration Seeding

Scientific Name	Common Name	Wetland Indicator Status
Agrostis stolonifera	Creeping bentgrass	FACW
Andropogon ternarius	Split beardgrass	FACU
Bouteloua curtipendula	Side oats grama	FACU
Bouteloua gracilis	Blue grama	NI
Panicum clandestinum	Deer tongue	FACW
Schizachyrium scoparium	Little bluestem	FACU
Sporobolus clandestinus	Rough dropseed	NI
Vicia villosa	Hairy vetch	NI
Chasmanthium latifolium	River Oats	FAC-
Carex vulpinoidea	Fox sedge	OBL

Buffer Restoration Plants

Scientific Name	Common Name	Size (ft)	Total # of stems	Planting Composition (%)
Cercis canadensis	American Redbud	2-3	425	5
Liriodendron tulipifera	Tulip Poplar	2-3	1275	15
Quercus phellos	Willow Oak	2-3	850	10
Plantus occidentalis	Sycamore	2-3	1700	20
Betula nigra	River Birch	2-3	850	10
Carpinus caroliniana	Ironwood	2-3	850	10
Quercus michauxii	Swamp Chestnut Oak	2-3	425	5
Fraxinus pennsylvanica	Green Ash	2-3	1700	20
Quercus rubra	Northern Red Oak	2-3	425	5
Totals			**8500**	**100**

EASEMENT AREA:	**12.0 Ac**
PLANTING AREA:	**9.2 Ac**
PLANTING EXCLUSION:	
AREA 1:	**0.67 Ac**
AREA 2:	**0.05 Ac**
AREA 3:	**0.18 Ac**
AREA 4:	**0.63 Ac**

50' Buffer Planting Area

Planting Exclusion

CE CE Conservation Easement

GULIFORD COUNTY BOARD OF EDUCATION
D.B. 7052 - PG. 1135
D.B. 5972 - PG. 295

GULIFORD COUNTY BOARD OF EDUCATION
D.B. 7052 - PG. 1135
D.B. 6358 - PG. 384

N

0' 120' 240' 360'
(HORIZONTAL)

WILDLANDS ENGINEERING
1430 South Mint Street, Suite 104
Charlotte, NC 28203
Tel: 704.332.7754
Fax: 704.332.3306
Firm License No. F-0831

DRAFT

Burnetts Chapel Buffer Mitigation
Guilford County, NC - Cape Fear River Basin
Buffer Exhibit

Revisions

Date: October 11, 2011
Job Number: 005-02130
Project Engineer: EGR
Drawn By: JCK
Designed By: ASE

Sheet 1

60% Plans - Not for Construction