FINAL DETAILED MITIGATION PLAN
LITTLE LICK CREEK BUFFER RESTORATION
DURHAM COUNTY, NORTH CAROLINA
EEP Project No. 92542, Contract No. D13010S
NEUSE RIVER BASIN
CATALOGING UNIT 03020201

Prepared for:

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

April 2013

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Prepared by:

Axiom Environmental, Inc.
218 Snow Avenue
Raleigh, North Carolina 27603
(919) 215-1693
Project Manager: Grant Lewis

April 2013

EXECUTIVE SUMMARY

This detailed mitigation plan describes the **Little Lick Creek Buffer Project** (Project) and is designed specifically to assist in fulfilling North Carolina Ecosystem Enhancement Program (NCEEP) mitigation goals. The Project is located approximately five miles east of Durham in Durham County, North Carolina. This portion of Durham County is located within the Upper Neuse River Basin Hydrologic Unit and Targeted Local Watershed 03020201050020.

This document details riparian buffer and nutrient offset buffer mitigation within an approximately 12.14-acre easement. This restoration work will result in 0.87 acre (37,897 square feet) between top of bank and 50 feet from the top of bank viable for either riparian buffer mitigation or nutrient offset mitigation (providing 1977 pounds of nitrogen and 127 pounds of phosphorus offsets over 30 years). Additionally, work between 50 feet and 200 feet from the top of bank will result in 6.65 ac (289,672 square feet) of nutrient offset mitigation (providing 15,116 pounds of nitrogen offsets and 974 pounds of phosphorus offsets over 30 years).

The *Little Lick Creek Local Watershed Plan* (NCEEP 2006) project atlas includes this Project (called Butler Road) with identified stressors resulting from anthropogenic activities related to the conversion of 80 percent of the watershed to disturbed land use/land cover with impervious surfaces covering over 14 percent of the watershed. Water quality is influenced due to the watershed slope (6 percent), the presence of moderately erodible soils, and its location within the Triassic Basin ecoregion. This project was identified for riparian buffer and nutrient offset restoration opportunities to improve hydrology, water quality, and habitat.

Little Lick Creek is on the NC Section 303(d) list of impaired water bodies, due to poor aquatic life ratings and low levels of dissolved oxygen.

The goals of the Little Lick Creek Project (Butler Road) address stressors identified in the Project watershed and include the following.

- Restore riparian buffers associated with Little Lick Creek, a UT to Little Lick Creek, and water conveyances flowing to jurisdictional waters on site.

The project goals will be addressed by the following objectives:

- Reestablish natural vegetation along stream banks and water by planting existing cleared/disturbed land and treating invasive species.

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LITTLE LICK CREEK
DETAILED MITIGATION PLAN

1.0 RESTORATION PROJECT GOALS AND OBJECTIVES

The Little Lick Creek Buffer Restoration Project is located in the Little Lick Creek Local Watershed planning area, which is nested in the 700 square mile Falls Lake watershed. The Project watershed is located within 14-digit Hydrologic Unit Code (HUC) 03020201050020, which was identified as a Targeted Local Watershed (TLW) in the North Carolina Ecosystem Enhancement Program (NCEEP) 2010 *Neuse River Basin Restoration Priority* (RBRP) plan and is identified in the 2009 *Little Lick Creek Local Watershed Plan* (LWP) Upper Neuse Project Atlas (Butler Road).

NCEEP developed a LWP for the 21-square mile Little Lick Creek watershed area that included land use analysis, water quality monitoring, and stakeholder input to identify problems with water quality, habitat, and hydrology. The Little Lick Creek watershed is relatively undeveloped and in an active state of rural to suburban transition with agriculture, forestry, rural, and undeveloped land comprising over 50 percent of the land uses. Durham's laws zone this land for more intensive development; therefore, this land is rapidly being converted to residential and commercial properties. Little Lick Creek is on the NC Section 303(d) list of impaired water bodies, due to poor aquatic life ratings and low levels of dissolved oxygen as the result of trash dumping, poor maintenance of on-site wastewater treatment systems, small vehicle maintenance and repair operations, outdoor materials storage, grease storage, and wash water disposal.

The Little Lick Creek LWP project atlas includes this Project (Butler Road) with identified stressors resulting from anthropogenic activities related to the conversion of 80 percent of the watershed to disturbed land use/land cover with impervious surfaces covering over 14 percent of the watershed. Water quality is influenced due to the watershed slope (6 percent), the presence of moderately erodible soils, and its location with the Triassic Basin ecoregion. This project was identified for riparian buffer and nutrient offset restoration opportunities to improve hydrology, water quality, and habitat.

The goals of the Little Lick Creek Project (Butler Road) address stressors identified in the Project watershed and include the following.

- Restore riparian buffers associated with Little Lick Creek, a UT to Little Lick Creek, and water conveyances flowing to jurisdictional waters on site.

The project goals will be addressed by the following objectives:

- Reestablish natural vegetation along stream banks and water by planting existing cleared/disturbed land and treating invasive species.

2.0 SITE SELECTION

2.1 Directions

Directions to the Project from Raleigh, North Carolina:

- Take Glenwood Avenue/US-70 West towards Durham
- After approximately 15.5 miles, turn right on S. Mineral Springs Road
- Turn left after 0.2 mile to stay on S. Mineral Springs Road
- The Project is 2.8 miles on the left; the access point is on Butler Road
  Latitude 35.9852 ºN, Longitude 78.8208 ºW (NAD83/WGS84)

2.2 Site Selection

The Little Lick Creek Project easement area consists of 12.14 acres that was subdivided and proposed for development. The Project is currently characterized fallow fields and mature mixed hardwood forest (Figure 4). Of the 4.12 acres of existing mature forest on site, 0.22 acre is comprised of singular mature trees not associated with a contiguous forest.

Riparian buffer vegetation adjacent to stream channels and water conveyances is variable ranging from disturbed vegetation with little diversity to more diverse mature forest. Fallow fields are dominated by herbaceous vegetation and maintain little vegetative diversity with several thick areas of rose (*Rosa* sp.) and blackberry (*Rubus argutus*) with scattered Japanese honeysuckle (*Lonicera japonica*), two small areas of loblolly pine (*Pinus taeda*) seedlings, and scattered natural recruits of various oak species (*Quercus* spp.) and sweetgum (*Liquidambar styraciflua*). Mixed hardwood forest areas are composed of the following.

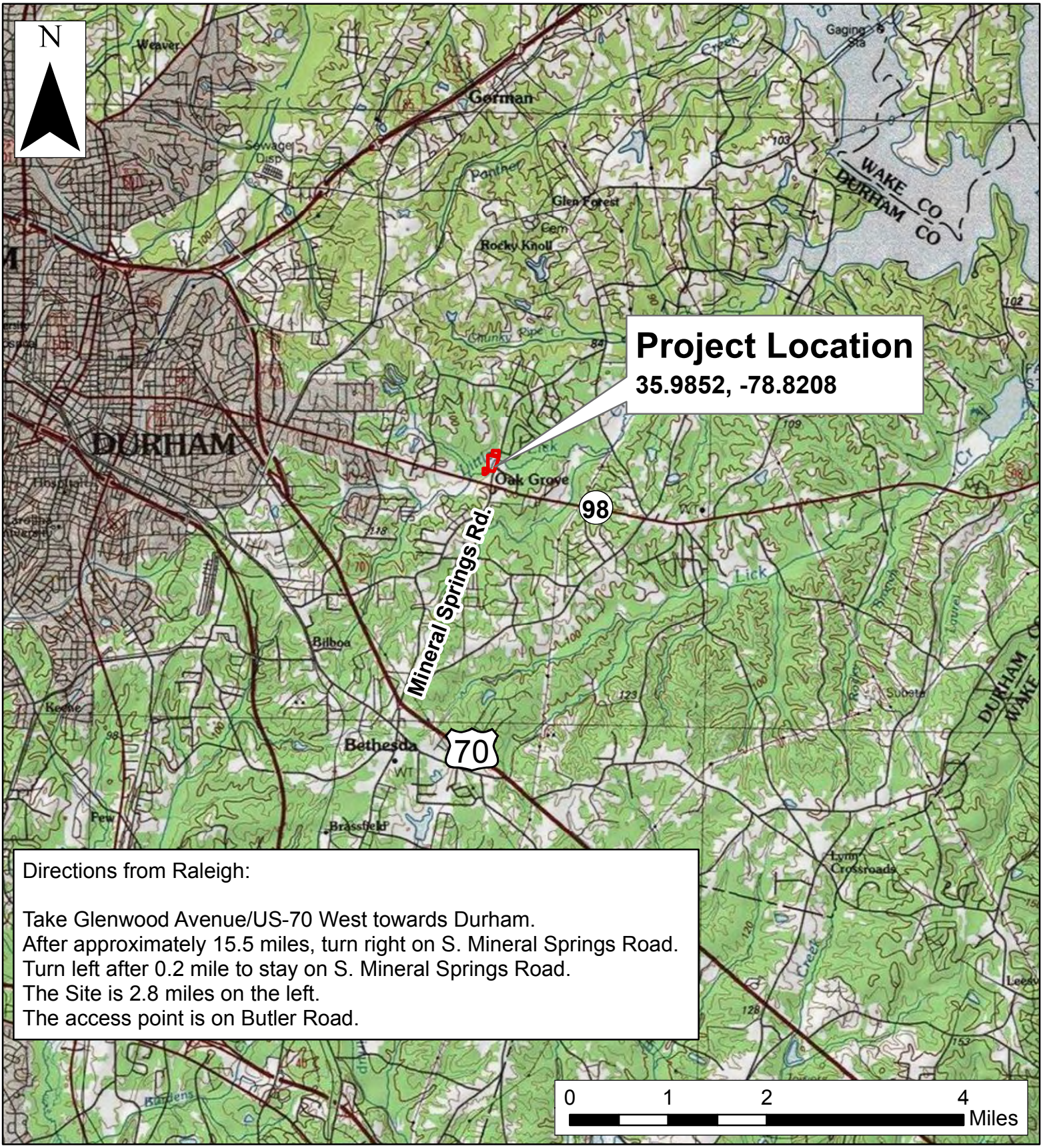
- Winged elm (*Ulmus alata*)
- Water oak (*Quercus nigra*)
- Willow oak (*Quercus phellos*)
- Northern red oak (*Quercus rubra*)
- Wax myrtle (*Morella cerifera)*
- Tag alder (*Alnus serrulata*)
- River birch (*Betula nigra*)
- Red maple (*Acer rubrum*)
- Sweetgum (*Liquidambar styraciflua*)
- Black gum (*Nyssa sylvatica)*
- Black cherry (*Prunus serotina*)
- Eastern red cedar *(Juniperus virginiana*)
- Black willow (*Salix nigra*)
- Green ash (*Fraxinus pennsylvanica*)
- Japanese honeysuckle (*Lonicera japonica*)
- Chinese privet (*Ligustrum sinense*)
- Thorny olive (*Eleagnus pungens*)

Project water conveyances flow to Little Lick Creek, a jurisdictional stream, and have narrow to no riparian buffers. The Project area is divided by Butler Road and a sewer easement runs approximately parallel to the west of Little Lick Creek.

The Project has been cleared since the oldest available aerial photography (March 1964). Historically, water conveyances were straightened and/or disturbed with little to no riparian buffer, and locations of adjacent roadways have not changed since 1964.

2.3 Vicinity Map

The Little Lick Creek Project is located just east of the City of Durham in Durham County just north of the intersection of Highway 98 and Mineral Springs Road (Figure 1).



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PROJECT LOCATION MAP
LITTLE LICK CREEK PROJECT
Durham County, North Carolina

Dwn. by. KRJ	FIGURE
Date: January 2013	1
EEP Project: 92542	

2.4 Watershed Map

Little Lick Creek drains an approximately 6.0-square mile watershed at the Project outfall (Figure 2). The watershed is highly developed and contains a portion of the City of Durham.

2.5 Soil Survey

Soils within the Project, according to the Natural Resource Conservation Service *Web Soil Survey* (NRCS 2012) are comprised of Altavista silt loam, Chewacla and Wehadkee soils, Creedmoor sandy loam, and White Store sandy loam. Soils within the Project are depicted in Figure 3 and described below.

Table 1. Soils Mapped within the Project

Soil Series	Hydric Status*	Family	Description
Altavista silt loam	Hydric	*Aquic Hapludults*	This series consists of rarely flooded, moderately well-drained soils on stream terraces. Slopes are between 0-6 percent. Depth to the water table is between 18-30 inches. These soils are old loamy alluvium derived from igneous and metamorphic rock.
Chewacla and Wehadkee soils	Hydric	*Fluvaquentic Dystrudepts* and *Fluvaquentic Endoaquepts*	This series consist of somewhat poorly to poorly drained, frequently flooded soils found on floodplains and in depressions on floodplains. Slopes are between 0-2 percent. Depth to the water table is between 0-24 inches. These soils are loamy alluvium derived from igneous and metamorphic rock.
Creedmoor sandy loam	Not Hydric	*Aquic Hapludults*	This series consist of moderately well-drained soils found on uplands. Slopes are between 2-10 percent. Depth to the water table is between 18-24 inches. These soils are residuum weathered from shale and siltstone and/or mudstone and/or sandstone.
White Store sandy loam	Not Hydric	*Vertic Hapludalfs*	This series consist of moderately well-drained soils found on hillslopes on ridges. Slopes are between 6-10 percent. Depth to the water table is between 12-18 inches. These soils are residuum weathered from mudstone and/or shale and siltstone and/or sandstone.

*USDA 2012

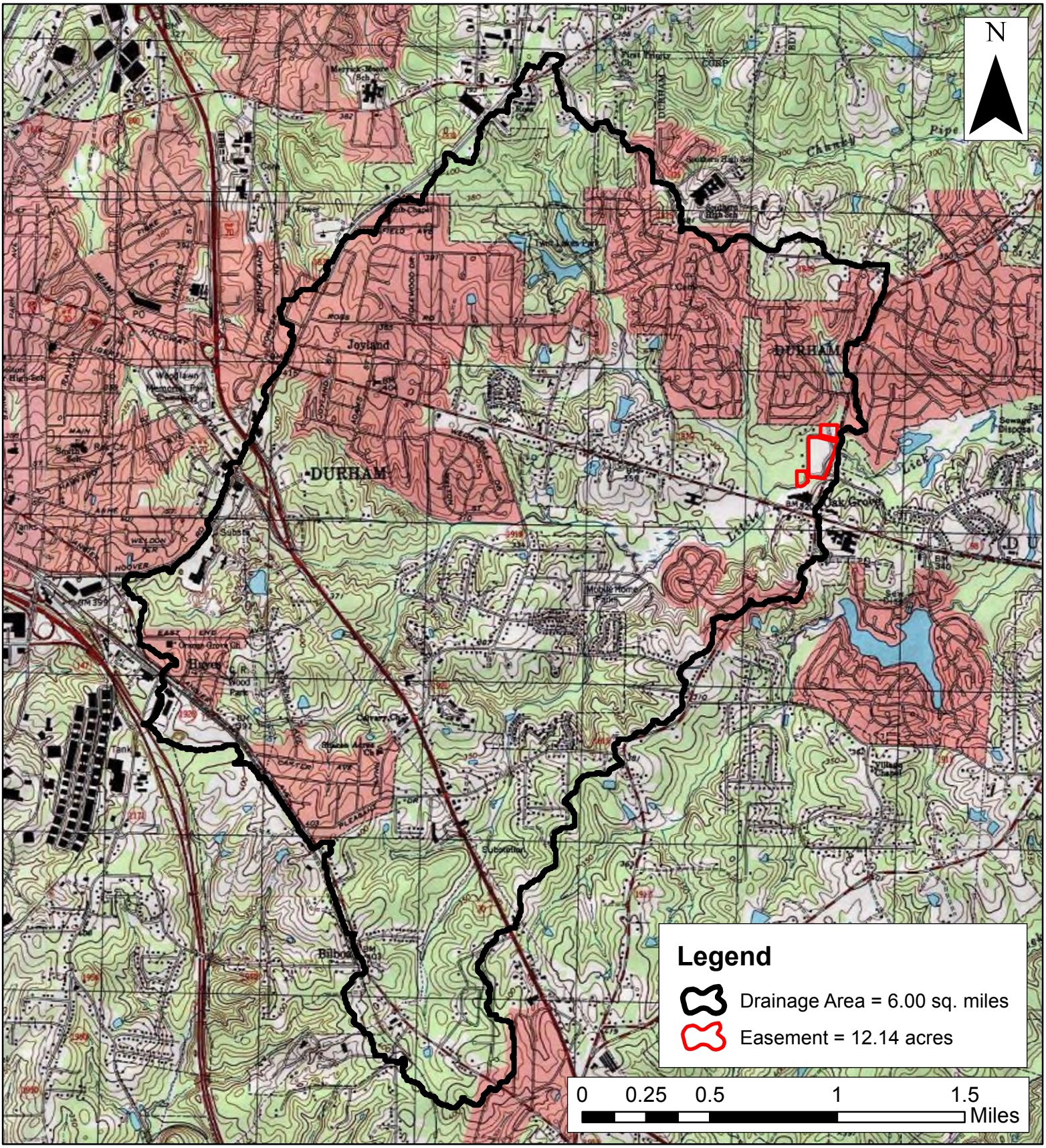
Two soil samples were collected within the Project for analysis by the North Carolina Department of Agriculture and Consumer Services (NCDA&CS) Agronomy Division to receive Project specific lime and fertilizer recommendations in order to protect the environment by minimizing the use of fertilizers. Each sample was collected following the protocol outlined by the NCDA&CS and recommendations are given for the establishment of hardwood forest vegetation and the maintenance of hardwood forest vegetation. The soil samples were taken in fallow fields, one north of Butler Road and the other south of Butler Road as shown in Figure 4. Soil samples are currently being analyzed by NCDA&CS; Project specific recommendations for soil amendments will be included in Project bid documentation.

2.6 Current Condition Plan View

The Little Lick Creek current conditions, consisting of fallow fields and mature forest, are depicted on Figure 4.

2.7 Historical Condition Plan View

The Little Lick Creek historical conditions (March 1964 aerial photography) are depicted on Figure 5.



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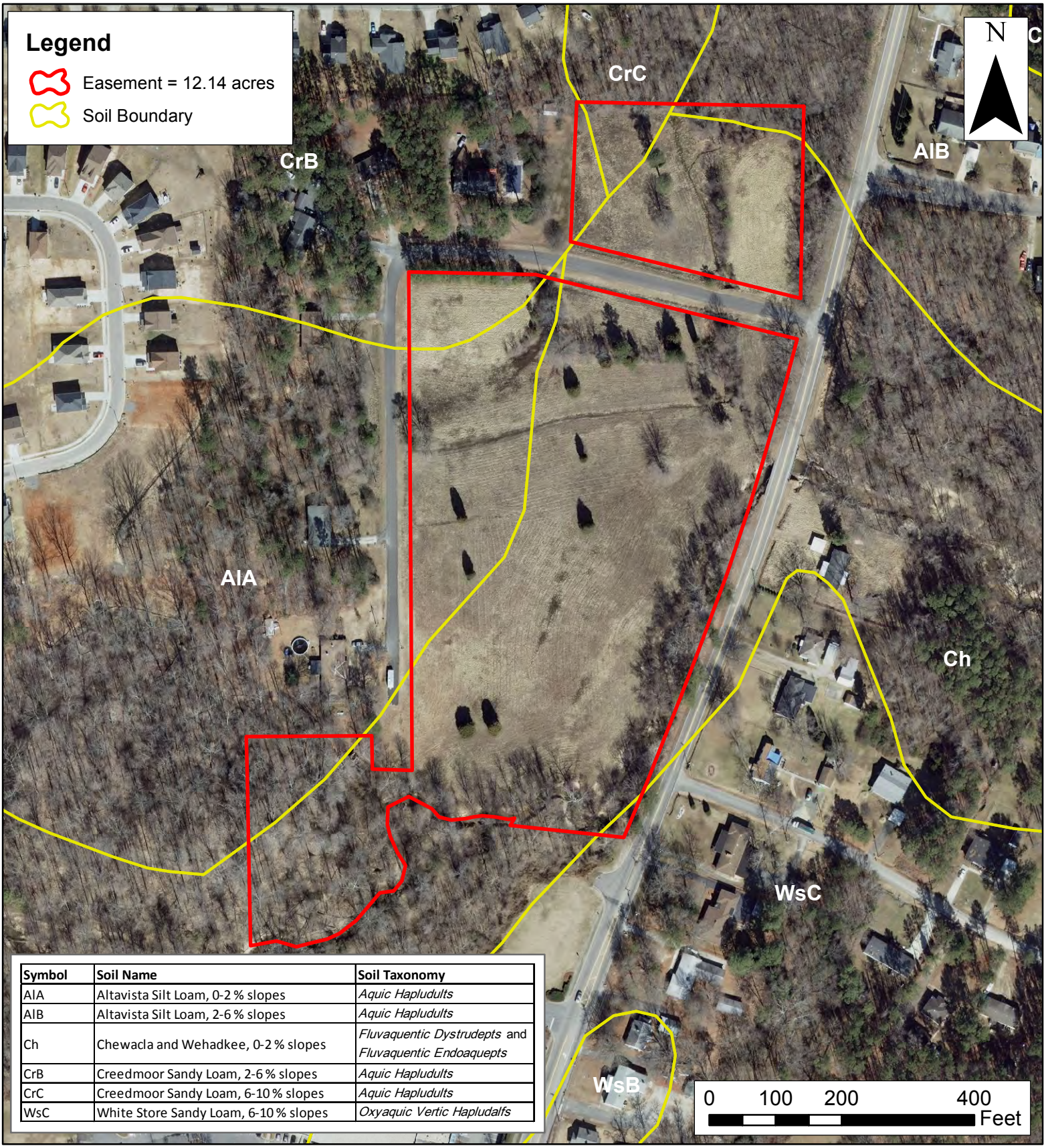
PROJECT WATERSHED MAP
LITTLE LICK CREEK PROJECT
Durham County, North Carolina

Dwn. by. KRJ	FIGURE
Date: January 2013	2
EEP Project: 92542	



Symbol	Soil Name	Soil Taxonomy
AlA	Altavista Silt Loam, 0-2 % slopes	*Aquic Hapludults*
AlB	Altavista Silt Loam, 2-6 % slopes	*Aquic Hapludults*
Ch	Chewacla and Wehadkee, 0-2 % slopes	*Fluvaquentic Dystrudepts* and *Fluvaquentic Endoaquepts*
CrB	Creedmoor Sandy Loam, 2-6 % slopes	*Aquic Hapludults*
CrC	Creedmoor Sandy Loam, 6-10 % slopes	*Aquic Hapludults*
WsC	White Store Sandy Loam, 6-10 % slopes	*Oxyaquic Vertic Hapludalfs*

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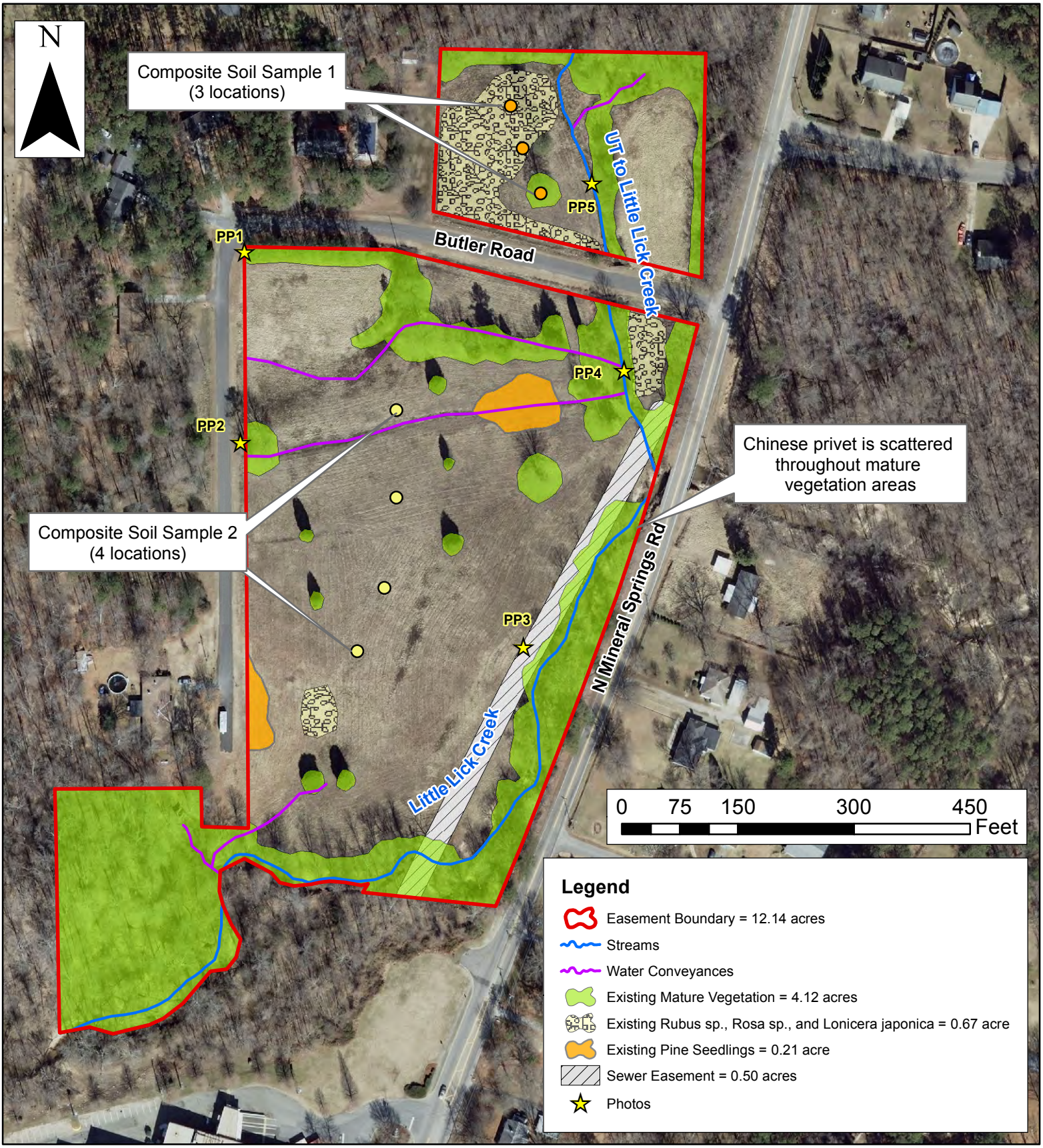
PROJECT NRCS SOIL SURVEY MAP
LITTLE LICK CREEK PROJECT
Durham County, North Carolina

Dwn. by. KRJ	FIGURE
Date: January 2013	3
EEP Project: 92542	



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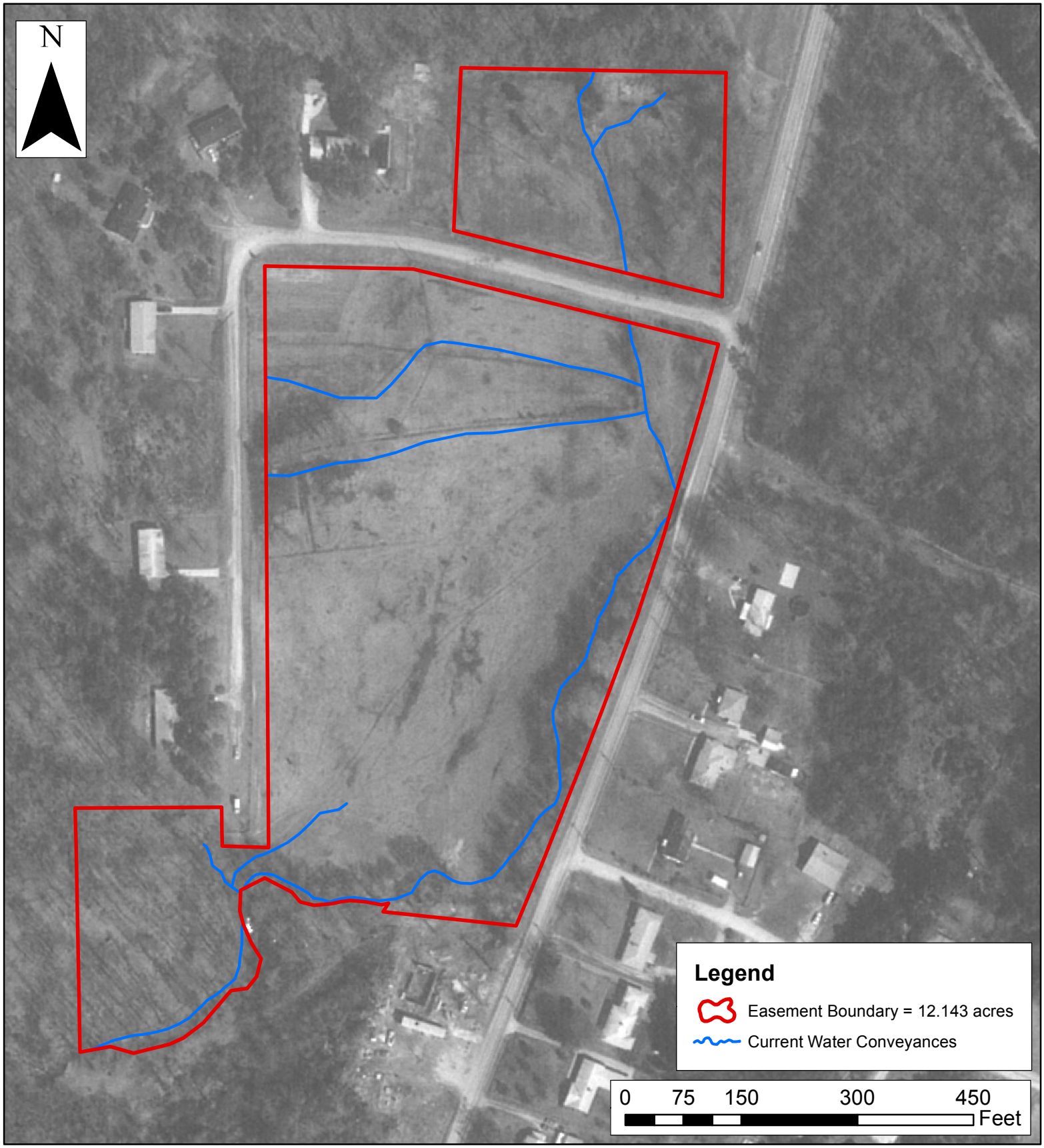
CURRENT CONDITION PLAN VIEW
LITTLE LICK CREEK PROJECT
Durham County, North Carolina

Dwn. by. KRJ/CLF	FIGURE
Date: February 2013	4
EEP Project: 92542	



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HISTORICAL CONDITION PLAN VIEW
AERIAL PHOTOGRAPHY FROM MARCH 1980
LITTLE LICK CREEK SITE
Durham County, North Carolina

Dwn. by. KRJ	FIGURE
Date: January 2013	5
EEP Project: 92542	

2.8 Project Photographs

Project photographs were taken in January 2013; locations are depicted on Figure 4.

r

Photo 1 Facing East

Photo 2 Facing Northeast

Photo 3 Facing South Looking Towards Little Lick Creek

Photo 4 Facing West Looking at a Water Conveyance Draining Project Fields

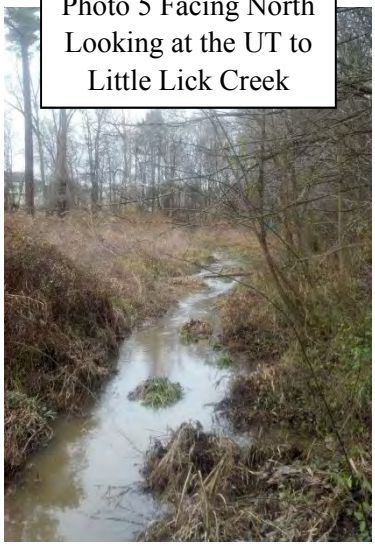


Photo 5 Facing North Looking at the UT to Little Lick Creek

3.0 SITE PROTECTION INSTRUMENT

3.1 Site Protection Instrument Summary Information

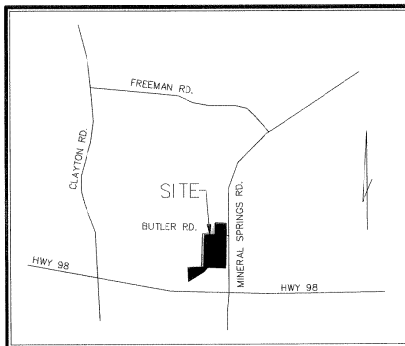
The land required for the construction, management, and stewardship of this mitigation project includes portions of the following parcels and has been protected by a permanent conservation easement and right of access; a copy of the recorded land protection instrument is included in Appendix A.

Table 2. Project Land Information

Parcel	Landowner	PIN	County	Site Protection Instrument	Deed Book/Page Number	Acreage Protected
1	Richard and Thelma Larrabee	0851-03-33-1926	Durham	Conservation Easement and Right of Access	318/41 and 1412/109	12.1434
2		0851-03-33-3904				
3		0851-03-23-9703				
4		0851-03-33-1710				
5		0851-03-33-2686				
7		0851-03-23-9513				
8		0851-03-33-1348				
9		0851-03-23-9313				
10		0851-03-23-9103				
11		0851-03-33-0097				

3.2 Site Protection Instrument Figure

The surveyed conservation easement and right of access for this mitigation project is depicted on Figure 6.



VICINITY MAP - NOT TO SCALE

POINT TABLE		
REBAR & CAP #	NORTHING	EASTING
1	814078.38	2053406.53
2	813789.31	2053401.32
3	813874.74	2053054.54
4	814084.69	2053063.91
5	813728.62	2053396.87
6	812978.33	2053135.04
7	812996.50	2052963.33
8	812833.30	2052571.14
9	813130.46	2052565.77
10	813131.63	2052755.02
11	813081.47	2052755.32
12	813079.48	2052815.34
13	813829.73	2052810.70
14	813825.80	2053002.34

STATE OF NORTH CAROLINA WAKE COUNTY

I, G. SCOTT WILSON, CERTIFY THAT THIS PLAT WAS DRAWN UNDER MY SUPERVISION FROM AN ACTUAL SURVEY MADE UNDER MY SUPERVISION. DEED DESCRIPTION RECORDED IN BOOK 1412, PAGE 109, ; THAT THE BOUNDARIES NOT SURVEYED ARE CLEARLY INDICATED AS DRAWN FROM INFORMATION FOUND IN BOOK ________ PAGE ________; THAT THE RATIO OF PRECISION AS CALCULATED IS 1:10,000+; THAT THIS PLAT WAS PREPARED IN ACCORDANCE WITH G.S. 47-30 AS AMENDED.

WITNESS MY ORIGINAL SIGNATURE, LICENSE NUMBER AND SEAL THIS 23 DAY OF June A.D., 2011

PROFESSIONAL LAND SURVEYOR - LICENSE # 2601

NORTH CAROLINA PROFESSIONAL SEAL L-2601 LAND SURVEYOR G. SCOTT WILSON

I, G. SCOTT WILSON, PROFESSIONAL LAND SURVEYOR NO. L-2601 CERTIFY TO ONE OR MORE OF THE FOLLOWING AS INDICATED.
A. THAT THIS PLAT IS OF A SURVEY THAT CREATES A SUBDIVISION OF LAND WITHIN THE AREA OF A COUNTY OR MUNICIPALITY THAT HAS AN ORDINANCE THAT REGULATES PARCELS OF LAND.
B. THAT THIS PLAT IS OF A SURVEY THAT IS LOCATED IN SUCH PORTION OF A COUNTY OR MUNICIPALITY THAT IS UNREGULATED AS TO AN ORDINANCE THAT REGULATES PARCELS OF LAND.
(C.) THAT THIS IS OF A SURVEY OF AN EXISTING PARCEL OR PARCELS OF LAND AND DOES NOT CREATE A NEW STREET OR CHANGE AN EXISTING STREET;
D. THAT THIS PLAT IS OF A SURVEY OF ANOTHER CATEGORY, SUCH AS THE RECOMBINATION OF EXISTING PARCELS, A COURT-ORDERED SURVEY OR OTHER EXCEPTION TO THE DEFINITION OF SUBDIVISION;
E. THAT THE INFORMATION AVAILABLE TO THIS SURVEYOR IS SUCH THAT I AM UNABLE TO MAKE A DETERMINATION TO THE BEST OF MY PROFESSIONAL ABILITY AS TO PROVISIONS CONTAINED IN (A) THROUGH (D) ABOVE.

G. SCOTT WILSON P.L.S. NO. 2601

OWNERS CERTIFICATE:

THE UNDERSIGNED OWNER OF THIS PROPERTY LYING WITHIN THE ATTACHED PLAT AND SUBDIVISION HEREBY CERTIFIES THAT RICHARD D. LARRABEE & THELMA A. LARRABEE ORDERED THE WORK OF SURVEYING AND PLATTING TO BE DONE, AND THAT ALL PUBLIC STREETS, ALLEYS, EASEMENTS, AND OTHER OPEN SPACES SO DESIGNATED UPON SAID PLAT ARE HEREBY DEDICATED FOR SUCH USE AND THAT ALL PUBLIC AND PRIVATE EASEMENTS SHOWN UPON SAID PLAT ARE HEREBY GRANTED FOR THE USE STIPULATED.

Richard D. Larrabee (OWNER)

Thelma A. Larrabee (OWNER)

WITNESS TO SIGNATURE G. SCOTT WILSON, PLS

STATE OF NORTH CAROLINA
COUNTY OF WAKE

I RAYE W. TAYLOR A NOTARY PUBLIC, CERTIFY THAT G. SCOTT WILSON PERSONALLY APPEARED BEFORE ME THIS DAY AND CERTIFIED TO ME BY AFFIRMATION THAT HE IS NOT A GRANTEE OR BENEFICIARY OF THE TRANSACTION, SIGNED THE FOREGOING DOCUMENT AS A SUBSCRIBING WITNESS, AND WITNESSED RICHARD D. LARRABEE & THELMA A. LARRABEE SIGN THE FOREGOING DOCUMENT.

DATE 6-23-11 Raye W. Taylor NOTARY PUBLIC

MY COMMISSION EXPIRES March 27, 2015

RAYE W. TAYLOR NOTARY PUBLIC WAKE COUNTY, NC

STATE OF NORTH CAROLINA
COUNTY OF DURHAM

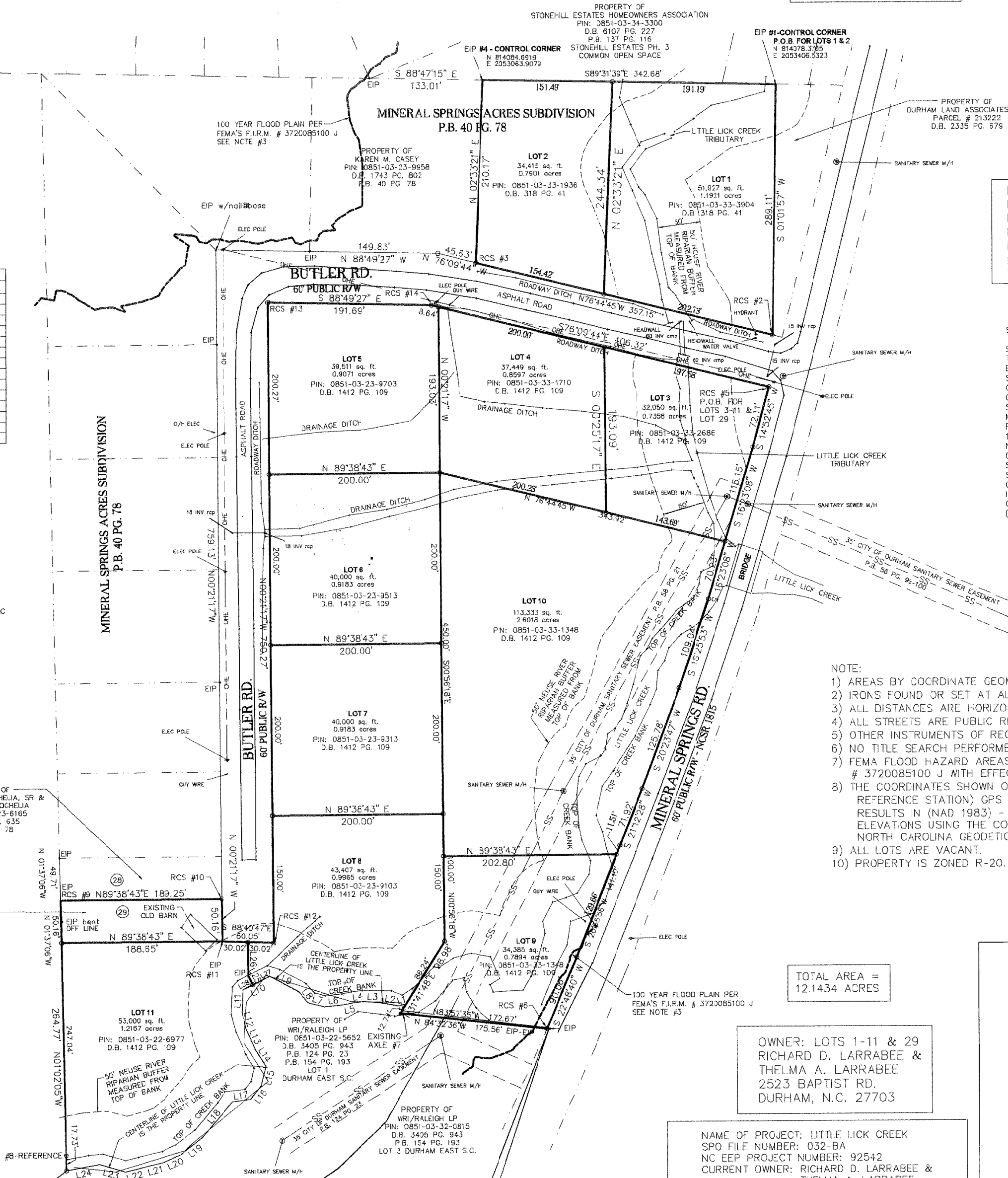
I, ______________________, REVIEW OFFICER FOR DURHAM COUNTY N.C., DO HEREBY CERTIFY THE PLAT OR MAP TO WHICH THIS CERTIFICATION IS AFFIXED MEETS ALL STATUTORY REQUIREMENTS FOR RECORDING.

______________________ DATE ______________

REVIEW OFFICER

SCALE: 1" = 100'

0 50 100 200 300 400



LEGEND
P.O.B. = POINT OF BEGINNING
EIP = EXISTING IRON PIPE
RCS = REBAR & CAP SET
M/H = MANHOLE
INV = INVERT
RCP = REINFORCED CONCRETE PIPE
CMP = CORRUGATED METAL PIPE
OHE = OVERHEAD ELECTRIC LINES

NC GRID NAD '83/2001

LINE TABLE		
LINE	DIRECTION	DISTANCE
L1	S77°10'38"W	9.05
L2	N79°54'00"W	21.51
L3	N86°16'48"W	19.59
L4	S82°46'27"W	12.48
L5	S76°42'47"W	11.53
L6	S83°52'26"W	22.53
L7	N76°59'22"W	19.01
L8	N41°13'58"W	16.50
L9	N62°48'29"W	39.42
L10	S62°45'18"W	35.09
L11	S01°48'51"W	26.53
L12	N15°14'29"W	18.50
L13	N24°15'18"W	26.29
L14	N32°23'57"W	23.29
L15	S13°05'48"W	23.84
L16	S38°01'32"W	19.49
L17	S81°53'33"W	21.31
L18	S40°01'42"W	54.40
L19	S51°49'38"W	32.19
L20	S65°09'04"W	20.04
L21	S75°19'54"W	28.89
L22	S75°26'22"W	19.31
L23	N74°32'16"W	31.23
L24	S79°08'30"W	39.68
L25	N27°14'42"W	11.01
L26	N01°01'18"W	40.47
L27	S62°45'18"W	22.09
L28	S62°45'18"W	12.99

REFERENCES
P.B. 186 PG. 47
P.B. 154 PG. 193
P.B. 137 PG. 116
P.B. 124 PG. 23
P.B. 82 PG. 1
P.B. 40 PG. 78

STREAM BUFFERS:

STREAM BUFFERS (SUBURBAN OR RURAL TIER, AND ANYWHERE IN THE NEUSE BASIN):50 FOOT WIDE UNDISTURBED STREAM BUFFER, MEASURED FROM TOP OF BANK EACH SIDE OF STREAM. NO CLEARING OR GRADING OTHER THAN SELECTIVE THINNING AND ORDINARY MAINTENANCE OF EXISTING VEGETATION PERMITTED, EXCEPT IN ACCORDANCE WITH 15A NCAC 02B.233 (6) VEGETATION MANAGEMENT. NO STRUCTURES OR FEATURES REQUIRING GRADING OR CONSTRUCTION MAY BE BUILT WITHIN THE 10 FOOT STREAM BUFFER SETBACK. ANY USE ALLOWED BY SECTION 8.5.5 OF THE UDO SHALL BE DESIGNED AND CONSTRUCTED TO MINIMIZE THE AMOUNT OF INTRUSION INTO THE STREAM BUFFER AND TO MINIMIZE CLEARING, GRADING, EROSION AND WATER QUALITY DEGRADATION. (UDO SECTION 8.5.5 B, C AND E)

NOTE:
1) AREAS BY COORDINATE GEOMETRY UNLESS SHOWN OTHERWISE.
2) IRONS FOUND OR SET AT ALL CORNERS UNLESS SHOWN OTHERWISE.
3) ALL DISTANCES ARE HORIZONTAL GROUND DISTANCES.
4) ALL STREETS ARE PUBLIC RIGHTS-OF-WAY UNLESS SHOWN OTHERWISE.
5) OTHER INSTRUMENTS OF RECORD MAY AFFECT THIS PROPERTY.
6) NO TITLE SEARCH PERFORMED FOR THIS SURVEY.
7) FEMA FLOOD HAZARD AREAS LOCATED ON THIS SITE PER FIRM PANEL # 3720085100 J WITH EFFECTIVE DATE OF MAY 2, 2006. ZONE AE
8) THE COORDINATES SHOWN ON THIS PLAT WERE DERIVED BY VRS (VIRTUAL REFERENCE STATION) GPS USING DUAL FREQUENCY RECEIVER. THIS METHOD RESULTS IN (NAD 1983) - (CORS 96) POSITIONS AND NAVD 88 (MSL) ELEVATIONS USING THE CONTINUOUSLY OPERATING STATIONS MAINTAINED BY NORTH CAROLINA GEODETIC SURVEY.
9) ALL LOTS ARE VACANT.
10) PROPERTY IS ZONED R-20.

TOTAL AREA = 12.1434 ACRES

OWNER: LOTS 1-11 & 29
RICHARD D. LARRABEE &
THELMA A. LARRABEE
2523 BAPTIST RD.
DURHAM, N.C. 27703

NAME OF PROJECT: LITTLE LICK CREEK
SPO FILE NUMBER: 032-BA
NC EEP PROJECT NUMBER: 92542
CURRENT OWNER: RICHARD D. LARRABEE & THELMA A. LARRABEE

FILED
Plat Book 188 Page 35
Date 6-23-11 Time 1:24
WILLIE L. COVINGTON
REGISTER OF DEEDS
DURHAM COUNTY, NC

REV.	DATE	DESCRIPTION

BASS, NIXON & KENNEDY, INC.
CONSULTING ENGINEERS
6310 CHAPEL HILL ROAD, SUITE 250
RALEIGH, NORTH CAROLINA 27607
3319 HERITAGE TRADE DRIVE
WAKE FOREST, NORTH CAROLINA 27587
TELEPHONE: (919)851-4422 OR (800)354-1879
FAX: (919)851-8968 (Ral.), (919)570-1362 (WF)

SURVEYED BY JO
DRAWN BY PM
CHECKED BY SW
DATE 06-21-11

CONSERVATION AREA FOR THE STATE OF NORTH CAROLINA ECOSYSTEM ENHANCEMENT PROGRAM LITTLE LICK CREEK BUFFER (BUTLER RD.) SPO # 032-BA
PROPERTY OF
RICHARD D. LARRABEE &
THELMA A. LARRABEE
OAKGROVE TOWNSHIP DURHAM COUNTY DURHAM, N.C.

SHEET 1 OF 1

R:\2011-03JOBS\1106100R Little Lick Creek\11061LDD\dwg\11061BOUNDARY.dwg, 6/22/2011 3:56:47 PM, pat

4.0 BASELINE INFORMATION

Baseline information for the Project is summarized in the following table and sections.

Table 3. Baseline Project Information

Project Information		
Project Name	Little Lick Creek	
Project County	Durham	
Project Area	12.1434 acres	
Project Coordinates	35.9852 ºN, 78.8208 ºW	
Project Watershed Summary Information		
Physiographic Region	Piedmont	
Project River Basin	Neuse	
USGS 8-digit HUC	03020201	
USGS 14-digit HUC	03020201050020	
NCDWQ Subbasin	03-04-01	
Project Drainage Area	6.0 square miles	
Project Drainage Area Impervious Surface	>14%	
Reach Summary Information		
Parameters	**Little Lick Creek**	**UT to Little Lick Creek**
Length of Reach (linear feet)	1254	510
Drainage Area (square miles)	6.04	0.27
NCDWQ Index Number	27-9-(0.5)	27-9-(0.5)
NCDWQ Classification	WS-IV, NSW	WS-IV, NSW
Dominant Soil Series	Chewacla and Wehadkee	
Drainage Class	Somewhat Poorly to Poorly Drained	
Soil Hydric Status	Hydric	
Slope	0-2 percent	
FEMA Classification	100-Year Floodplain	
Native Vegetation Community	Piedmont/Low Mountain Alluvial Forest	
Percent Composition of Exotic Invasives	5.6	
Regulatory Considerations		
Regulation	**Applicable**	
Waters of the U.S. –Sections 404 and 401	No	
Endangered Species Act	No	
Historic Preservation Act	No	
CZMA/CAMA	No	
FEMA Floodplain Compliance	No	
Essential Fisheries Habitat	No	

4.1 Watershed Summary Information

The Project is located in United States Geological Survey (USGS) Hydrologic Unit (HU) 03020201050020 (North Carolina Division of Water Quality [NCDWQ] Subbasin 03-04-01) of the Upper Neuse River Basin and will service the USGS 8-digit Cataloging Unit (CU) 03020201 (Figure 2) (USGS 1974). The project HU encompasses approximately 21 square miles and is largely characterized by urban land use. Further discussion of the Little Lick Creek watershed and NCEEP's LWP can be found in Section 1.0 (Restoration Project Goals and Objectives).

The Project drainage area, nested in the 700 square mile Falls Lake watershed, encompasses approximately 6.0 square miles at the downstream Project outfall (Figure 2). The Project drainage area is located on the outer edge of Durham with identified stressors resulting from anthropogenic activities related to the conversion of 80 percent of the watershed to disturbed land use/land cover and impervious surfaces covering over 14 percent of the watershed (NCEEP 2006).

4.2 Reach Summary Information

Little Lick Creek within the Project has been assigned a Stream Index Number of 27-9-(0.5) and a Best Usage Classification of WS-IV, NSW (NCDWQ 2012). Streams with a designation of WS-IV are waters used by industry to supply their employees with drinking water or as waters formerly used as water supply. These waters are also protected for Class C uses. Class C water uses include secondary recreation, fishing, wildlife, fish and aquatic life propagation and survival, and agriculture. The supplemental classification NSW (Nutrient Sensitive Waters) includes areas with water quality problems associated with excessive plant growth resulting from nutrient enrichment. Further discussion of the Little Lick Creek can be found in Section 1.0 (Restoration Project Goals and Objectives).

4.3 Wetland Summary Information

This project contains no jurisdictional wetlands.

4.4 Regulatory Considerations

Little Lick Creek and an unnamed tributary to Little Lick Creek were verified as subject to the Neuse River Buffer Rule and viable for Nutrient Offset/Riparian Buffer mitigation during an onsite determination made by Eric Kulz on October 23, 2009. Verification letters and associated maps can be found in Appendix B.

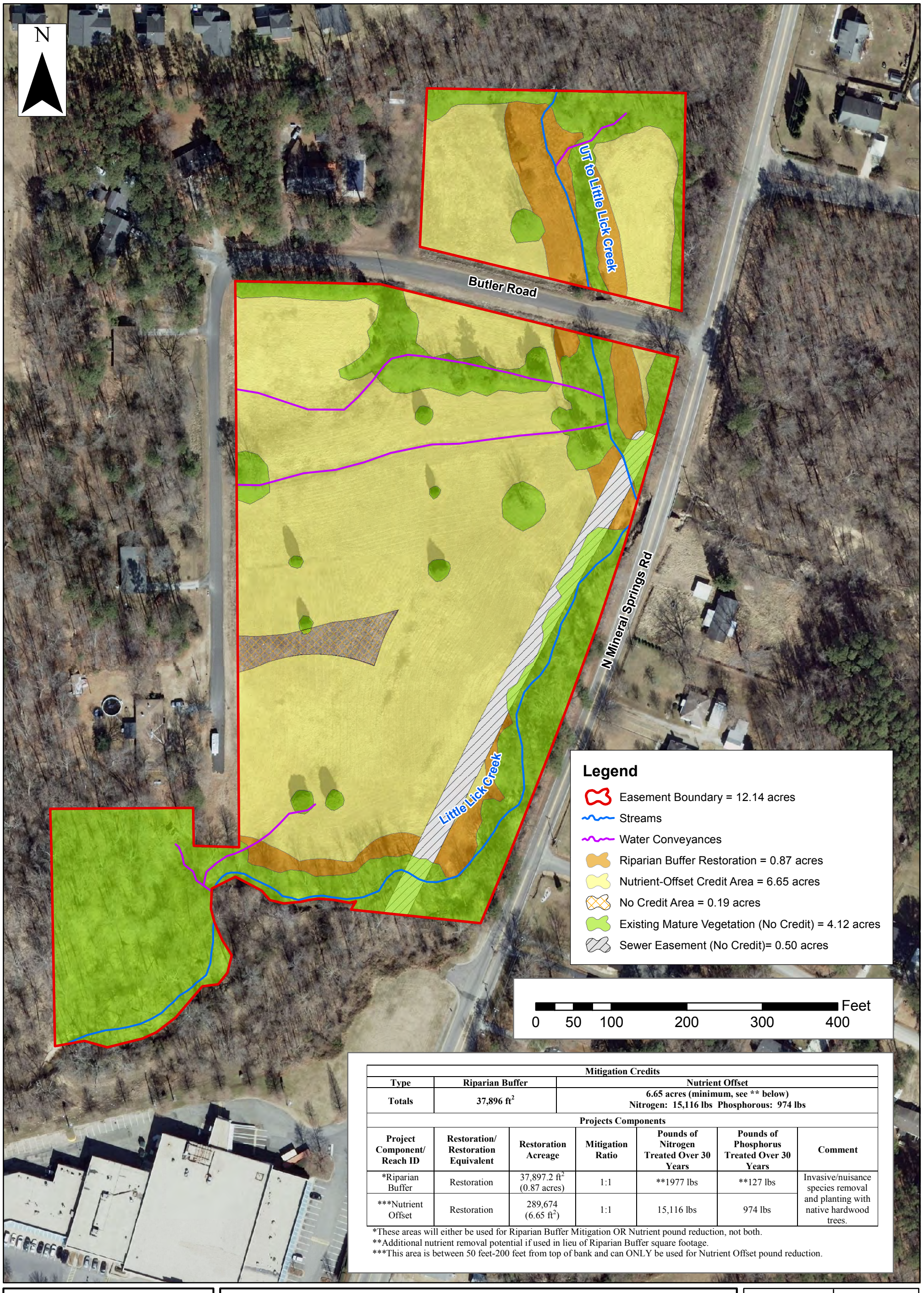
5.0 DETERMINATION OF CREDITS

Mitigation credits presented in the following table are projections based upon Project design (Figures 7-8). Upon completion of Project construction the project components and credits data will be revised to be consistent with the as-built condition.

Table 4. Project Components and Mitigation Credits

Mitigation Credits						
Type	**Riparian Buffer**		**Nutrient Offset**			
Totals	**37,896 ft^2**		**6.65 acres (minimum, see ** below) Nitrogen: 15,116 lbs Phosphorous: 974 lbs**			
Projects Components						
Project Component/ Reach ID	**Restoration/ Restoration Equivalent**	**Restoration Acreage**	**Mitigation Ratio**	**Pounds of Nitrogen Treated Over 30 Years**	**Pounds of Phosphorus Treated Over 30 Years**	**Comment**
*Riparian Buffer	Restoration	37,897.2 ft^2 (0.87 acres)	1:1	**1977 lbs	**127 lbs	Invasive/nuisance species removal and planting with native hardwood trees.
***Nutrient Offset	Restoration	289,674 (6.65 ft^2)	1:1	15,116 lbs	974 lbs	

*These areas will either be used for Riparian Buffer Mitigation OR Nutrient pound reduction, not both.
**Additional nutrient removal potential if used in lieu of Riparian Buffer square footage.
***This area is between 50 feet-200 feet from top of bank and can ONLY be used for Nutrient Offset pound reduction.



Mitigation Credits						
Type	**Riparian Buffer**	**Nutrient Offset**				
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*These areas will either be used for Riparian Buffer Mitigation OR Nutrient pound reduction, not both.
**Additional nutrient removal potential if used in lieu of Riparian Buffer square footage.
***This area is between 50 feet-200 feet from top of bank and can ONLY be used for Nutrient Offset pound reduction.

Axiom Environmental, Inc.
Axiom Environmental
218 Snow Avenue
Raleigh, NC 27603
(919) 215-1693

MAP ASSETS
LITTLE LICK CREEK PROJECT
Durham County, North Carolina

Dwn. by. KRJ/CLF
Date: May 2013
EEP Project: 92542

FIGURE
7

N

Butler Road

UT to Little Lick Creek

Little Lick Creek

N Mineral Springs Rd

0 75 150 300 Feet

Legend

- Easement Boundary = 12.14 acres
- Streams
- Water Conveyances
- Piedmont Alluvial Forest Planting = 7.70 acres
- Pine Seedling Management = 0.21 acre
- Rubus sp., Rosa sp., and Lonicera japonica Management = 0.67 acre
- Existing Mature Vegetation, No Planting
- Spot-treatment for Chinese Privet = 2.67 acres
- Spot-treatment for Chinese privet and thorny olive = 1.45 acres
- Sewer Easement = 0.50 acre

Planting Plan

Species
Swamp chestnut oak (*Quercus michauxii*)
Cherrybark oak (*Quercus pagoda*)
Sycamore (*Platanus occidentalis*)
American elm (*Ulmus americana*)
Green ash (*Fraxinus pennsylvanica*)
Willow oak (*Quercus phellos*)
Water oak (*Quercus nigra*)
River birch (*Betula nigra*)
Hackberry (*Celtis laevigata*)
Tulip poplar (*Liriodendron tulipifera*)

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MITIGATION WORK PLAN
LITTLE LICK CREEK PROJECT
Durham County, North Carolina

Dwn. by. KRJ/CLF

Date: February 2013

EEP Project: 92542

FIGURE 8

6.0 CREDIT RELEASE SCHEDULE

All riparian buffer and nutrient offset credits for this project were released in full at Project Institution (September 24, 2012).

7.0 MITIGATION WORK PLAN

7.1 Target Plant Community

The target community for Project plant restoration, based on Schafale and Weakley (1990) community descriptions, most closely resembles a Piedmont/Low Mountain Alluvial Forest. Dominant overstory species within this community, according to Schafale and Weakley (1990) and observed within onsite reference areas, include the following.

- River birch (*Betula nigra*)
- Sycamore (*Platanus occidentalis*)
- Sweetgum (*Liquidambar styraciflua*)
- Tulip poplar (*Liriodendron tulipifera*)
- American elm (*Ulmus americana*)
- Hackberry (*Celtis laevigata*)
- Black walnut (*Juglans nigra*)
- Green ash (*Fraxinus pennsylvanica*)
- Bitternut hickory (*Carya cordiformis*)
- Shagbark hickory (*Carya ovata*)
- Shingle oak (*Quercus imbricaria*)
- Red maple (*Acer rubrum*)
- Water oak (*Quercus nigra*)
- Willow oak (*Quercus phellos*)
- Northern red oak (*Quercus rubra*)
- Black gum (*Nyssa sylvatica)*
- Black cherry (*Prunus serotina*)
- Green ash (*Fraxinus pennsylvanica*)

7.2 Design Parameters

7.2.1 Soil Amendments

Project specific soil amendment recommendations will be obtained based on the results of two soil samples collected within the Project. The samples are currently being analyzed by the NCDA&CS Agronomy Division; results will be included in Project bid documentation if soil amendments are necessary.

7.2.2 Vegetation Management

Vegetation management within the Project will include management of areas of loblolly pine (*Pinus taeda*) seedlings, dense areas of blackberry (*Rubus argutus*), and several invasive species including rose (*Rosa* sp.), Japanese honeysuckle (*Lonicera japonica*), and Chinese privet (*Ligustrum sinense*) as depicted on Figure 8. Two areas of dense pine recruits (totaling 0.21 acre), which average 3-5 feet in height, within fallow fields will be manually removed by cutting individual plants at the base of the plant

to prevent resprouting. Two additional areas of dense rose (*Rosa* sp.) and blackberry (*Rubus argutus*) with scattered Japanese honeysuckle (*Lonicera japonica*) (totaling 0.67 acre) within fallow fields will be manually removed by cutting individual plants and spraying stumps and/or branches with chemical herbicide. Removal of these areas in addition to areas of pine seedlings is intended to reduce competition for planted containerized hardwoods. Additional treatment of Chinese privet (*Ligustrum sinense*), scattered within 2.67 acres of mature forest, and treatment of both Chinese privet (*Ligustrum sinense*) and thorny olive (*Eleagnus pungens*) scattered within 1.45 acres of mature reference forest, will be manually removed by cutting individual plants and spraying stumps and/or branches with chemical herbicide.

7.2.3 Plant Community Restoration

Restoration of floodplain forest and stream-side habitat allows for development and expansion of characteristic species across the landscape. Ecotonal changes between community types contribute to diversity and provide secondary benefits, such as enhanced feeding and nesting opportunities for mammals, birds, amphibians, and other wildlife. Piedmont/Low Mountain Alluvial Forest is the primary plant community association targeted for this Project (Figure 8).

Table 5. Planting Plan

Species
Swamp chestnut oak (*Quercus michauxii*)
Cherrybark oak (*Quercus pagoda*)
Sycamore (*Platanus occidentalis*)
American elm (*Ulmus americana*)
Green ash (*Fraxinus pennsylvanica*)
Willow oak (*Quercus phellos*)
Water oak (*Quercus nigra*)
River birch (*Betula nigra*)
Hackberry (*Celtis laevigata*)
Tulip poplar (*Liriodendron tulipifera*)

8.0 MAINTENANCE PLAN

NCEEP shall monitor the Project on a regular basis and shall conduct a physical inspection of the Project a minimum of once per year throughout the post-construction monitoring period until performance standards are met.

9.0 VEGETATION SUCCESS CRITERIA

An average density of 320 planted hardwood stems per acre must be surviving after five monitoring years in accordance with North Carolina Division of Water Quality Administrative Code 15A NCAC 02B.0242 (*Neuse River Basin, Mitigation Program for Protection and Maintenance of Existing Riparian Buffers*) (NCDWQ 2007).

10.0 MONITORING REQUIREMENTS

Annual monitoring data will be reported using the EEP monitoring template. The monitoring report shall provide a project data chronology that will facilitate an understanding of project status and trends, population of EEP databases for analysis, research purposes, and assist in decision making regarding

project close-out. The following table outlines monitoring requirements for this project; monitoring parameter descriptions follow.

Table 6. Monitoring Schedule

Parameter	Quantity	Frequency	Notes
Vegetation	8 CVS plots (see Figure 9 for approximate locations)	Monitoring Years 1-5	Vegetation will be monitored using the Carolina Vegetation Survey (CVS) protocols
Exotic and nuisance vegetation		Semi-annual	Locations of exotic and nuisance vegetation will be mapped
Project boundary		Semi-annual	Locations of fence damage, vegetation damage, boundary encroachments, etc. will be mapped

Vegetation Monitoring

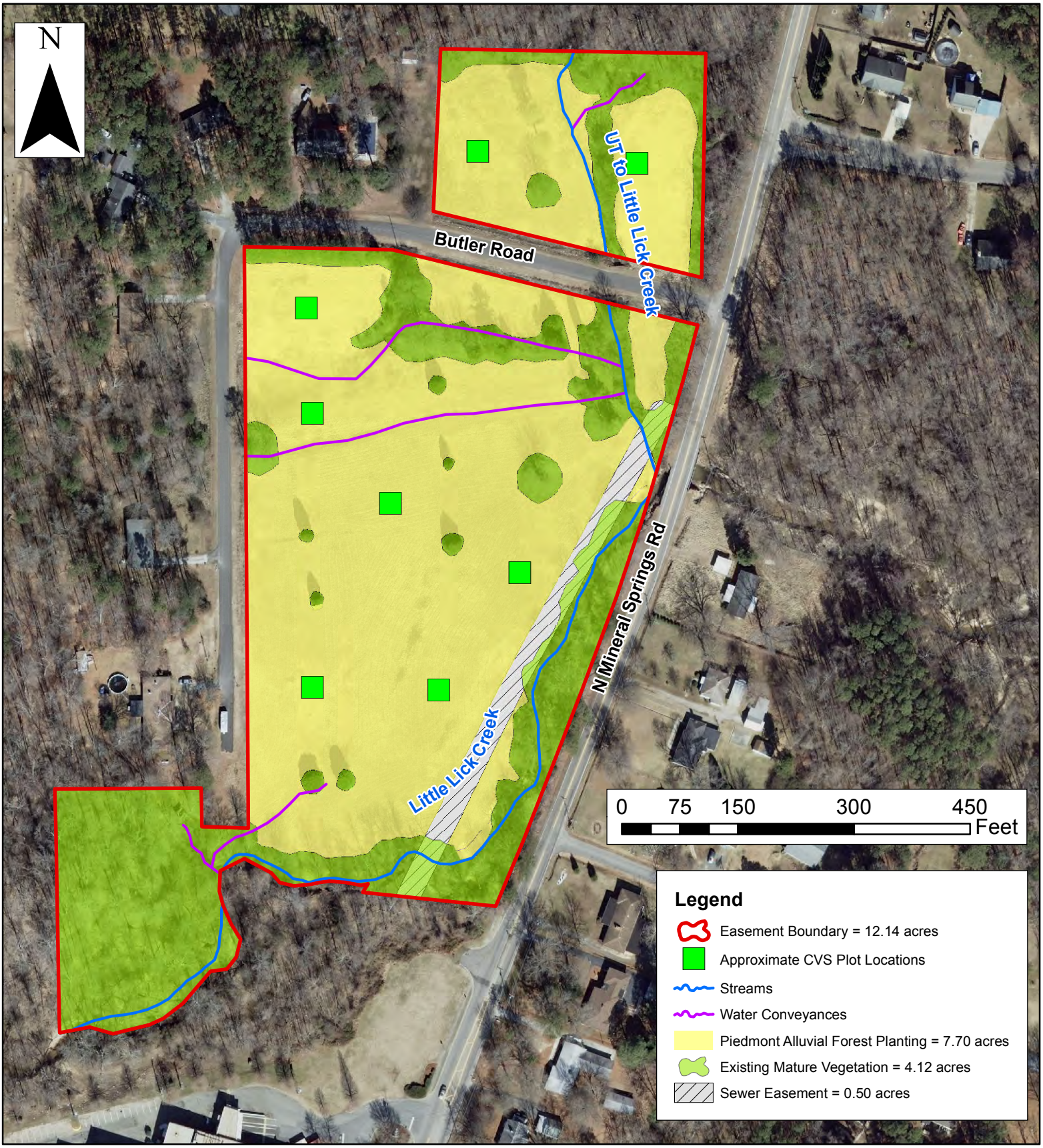
After planting has been completed during the 2013-2014 dormant season, baseline sampling will be performed to determine initial species composition and density.

During quantitative vegetation sampling in early fall of the first year, eight CVS plots (10-meter by 10-meter) will be permanently monumented within the Project and monitored as per guidelines established in *CVS-EEP Protocol for Recording Vegetation, Version 4.2* (Lee et al. 2008) (Figure 9).

11.0 LONG-TERM MANAGEMENT PLAN

Upon approval for close-out, the Project will be transferred to the an appropriate responsible party. This party shall be responsible for periodic inspection of the Project 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 transfer to the responsible party.

The responsible party will house the stewardship endowment within a non-reverting, interest bearing account. The account shall be managed as a non-wasting endowment. Interest gained by the endowment fund may be used only for the purpose of stewardship, monitoring, stewardship administration, and land transaction costs (if applicable). Interest funds not used for those purposes will be re-invested in the endowment account to offset losses due to inflation.



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MONITORING PLAN
LITTLE LICK CREEK PROJECT
Durham County, North Carolina

Dwn. by. KRJ/CLF	FIGURE
Date: April 2013	9
EEP Project: 92542	

12.0 REFERENCES

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United States Geological Survey (USGS). 1974. Hydrologic Unit Map - 1974. State of North Carolina.

Appendix A.
Site Protection Instrument

2011027666

FOR REGISTRATION REGISTER OF DEEDS
Willie L. Covington
DURHAM COUNTY, NC
2011 SEP 14 04:07:18 PM
BK:6800 PG:31-42 FEE:$49.00

INSTRUMENT # 2011027666

STATE OF NORTH CAROLINA
DURHAM COUNTY

CONSERVATION EASEMENT AND RIGHT OF ACCESS

SPO File Number 032-BA
EEP Site ID 92542
Prepared by: Office of the Attorney General and James Rogers
Property Control Section
Return to: ~~NC Department of Administration~~
~~State Property Office~~
1321 ~~Mail Service Center~~
Raleigh, ~~NC~~ 27699-1321

James R. Rogers III
875-B2 Washington St
Raleigh NC 27605

THIS DEED OF CONSERVATION EASEMENT AND RIGHT OF ACCESS, pursuant to the provisions of N.C. General Statutes Chapter 121, Article 4 and made this 24th 31st day of ~~September~~ August 2011, by **Richard D. Larrabee and wife Thelma A. Larrabee**, ("**Grantor**"), whose mailing address is **2523 Baptist Road, Durham, NC 27703**, to the State of North Carolina, ("**Grantee**"), whose mailing address is State of North Carolina, Department of Administration, State Property Office, 1321 Mail Service Center, Raleigh, NC 27699-1321. The designations Grantor and Grantee as used herein shall include said parties, their heirs, successors, and assigns, and shall include singular, plural, masculine, feminine, or neuter as required by context.

WITNESSETH:

WHEREAS, pursuant to the provisions of N.C. Gen. Stat. § 143-214.8 et seq., the State of North Carolina has established the Ecosystem Enhancement Program (formerly known as the Wetlands Restoration Program) within the Department of Environment and Natural Resources for the purposes of acquiring, maintaining, restoring, enhancing, creating and preserving wetland and riparian resources that contribute to the protection and improvement of water quality, flood prevention, fisheries, aquatic habitat, wildlife habitat, and recreational opportunities; and

WHEREAS, The State of North Carolina is qualified to be the Grantee of a Conservation Easement pursuant to N.C. Gen. Stat. § 121-35; and

WHEREAS, the Ecosystem Enhancement Program in the Department of Environment and Natural Resources has approved acceptance of this instrument; and

WHEREAS, the Department of Environment and Natural Resources and the United States Army Corps of Engineers, Wilmington District entered into a Memorandum of Understanding, (MOU) duly executed by all parties on November 4, 1998. This MOU recognized that the Wetlands Restoration Program was to provide effective compensatory mitigation for authorized impacts to wetlands, streams and other aquatic resources by restoring, enhancing and preserving the wetland and riparian areas of the State; and

WHEREAS, the Department of Environment and Natural Resources, the North Carolina Department of Transportation and the United States Army Corps of Engineers, Wilmington District, entered into a Memorandum of Agreement, (MOA) duly executed by all parties in Greensboro, NC on July 22, 2003. This MOA recognized that the Ecosystem Enhancement Program was to provide for compensatory mitigation by effective restoration and protection of the land, water and natural resources of the State; and

WHEREAS, the Department of Environment and Natural Resources, the U.S. Army Corps of Engineers, the U.S. Environmental Protection Agency, the U.S. Fish and Wildlife Service, the North Carolina Wildlife Resources Commission, the North Carolina Division of Water Quality, the North Carolina Division of Coastal Management, and the National Marine Fisheries Service entered into an agreement to continue the In-Lieu Fee operations of the North Carolina Department of Natural Resources' Ecosystem Enhancement Program with an effective date of 28 July, 2010, which supersedes and replaces the previously effective MOA and MOU referenced above; and

WHEREAS, the acceptance of this instrument for and on behalf of the State of North Carolina was granted to the Department of Administration by resolution as approved by the Governor and Council of State adopted at a meeting held in the City of Raleigh, North Carolina, on the 8th day of February 2000; and

WHEREAS, Grantor owns in fee simple certain real property situated, lying, and being in Oakgrove Township, Durham County, North Carolina (the "**Property**"), and being more particularly described as that certain parcel of land containing approximately **12.1434** acres and being conveyed to the Grantor by deed as recorded in **Deed Book 318, Page 41, Deed Book 1412, Page 109** of the Durham County Registry, North Carolina; and

WHEREAS, Grantor is willing to grant a Conservation Easement and Right of Access over the herein described areas of the Property, thereby restricting and limiting the use of the included areas of the Property to the terms and conditions and purposes hereinafter set forth, and Grantee is willing to accept said Easement and Access Rights. The Conservation Easement shall be for the protection and benefit of the waters of ***Little Lick Creek***.

NOW, THEREFORE, in consideration of the mutual covenants, terms, conditions, and restrictions hereinafter set forth, Grantor unconditionally and irrevocably hereby grants and conveys unto Grantee, its successors and assigns, forever and in perpetuity, a Conservation Easement along with a general Right of Access.

The Easement Area consists of the following:

Lot Numbers 1 through 11 and Lot Number 29 containing a total of **12.1434 acres** as shown on the plat of survey entitled "Conservation Area for the State of North Carolina Ecosystem Enhancement Program, Little Lick Creek Buffer (Butler Rd.), SPO File No. 032-BA, Property of Richard D. Larrabee & Thelma A. Larrabee," dated June, 21, 2011 by *G.Scott Wilson*, PLS Number 2601 and recorded in the Durham County, North Carolina Register of Deeds at **Plat Book 188 Page 35.**

See attached "**Exhibit A**", Legal Description of area of the Property hereinafter referred to as the "Easement Area"

The purposes of this Conservation Easement are to maintain, restore, enhance, construct, create and preserve wetland and/or riparian resources in the Easement Area that contribute to the protection and improvement of water quality, flood prevention, fisheries, aquatic habitat, wildlife habitat, and recreational opportunities; to maintain permanently the Easement Area in its natural condition, consistent with these purposes; and to prevent any use of the Easement Area that will significantly impair or interfere with these purposes. To achieve these purposes, the following conditions and restrictions are set forth:

I. DURATION OF EASEMENT

Pursuant to law, including the above referenced statutes, this Conservation Easement and Right of Access shall be perpetual and it shall run with, and be a continuing restriction upon the use of, the Property, and it shall be enforceable by the Grantee against the Grantor and against Grantor's heirs, successors and assigns, personal representatives, agents, lessees, and licensees.

II. GRANTOR RESERVED USES AND RESTRICTED ACTIVITES

The Easement Area shall be restricted from any development or usage that would impair or interfere with the purposes of this Conservation Easement. Unless expressly reserved as a compatible use herein, any activity in, or use of, the Easement Area by the Grantor is prohibited as inconsistent with the purposes of this Conservation Easement. Any rights not expressly reserved hereunder by the Grantor have been acquired by the Grantee. Without limiting the generality of the foregoing, the following specific uses are prohibited, restricted, or reserved as indicated:

A. Recreational Uses. Grantor expressly reserves the right to undeveloped recreational uses, including hiking, bird watching, hunting and fishing, and access to the Easement Area for the purposes thereof.

B. Usage of motorized vehicles in the Easement Area is prohibited.

C. Educational Uses. The Grantor reserves the right to engage in and permit others to engage in educational uses in the Easement Area not inconsistent with this Conservation Easement, and the right of access to the Easement Area for such purposes including organized

educational activities such as site visits and observations. Educational uses of the property shall not alter vegetation, hydrology or topography of the site.

D. **Vegetative Cutting.** Except as related to the removal of non-native plants, diseased or damaged trees, or vegetation that destabilizes or renders unsafe the Easement Area to persons or natural habitat, all cutting, removal, mowing, harming, or destruction of any trees and vegetation in the Easement Area is prohibited.

E. **Industrial, Residential and Commercial Uses.** All industrial, residential and commercial uses are prohibited in the Easement Area.

F. **Agricultural Use.** All agricultural uses are prohibited within the Easement Area including any use for cropland, waste lagoons, or pastureland.

G. **New Construction.** There shall be no building, facility, mobile home, antenna, utility pole, tower, or other structure constructed or placed in the Easement Area.

H. **Roads and Trails.** There shall be no construction of roads, trails, walkways, or paving in the Easement Area.

I. **Signs.** No signs shall be permitted in the Easement Area except interpretive signs describing restoration activities and the conservation values of the Easement Area, signs identifying the owner of the Property and the holder of the Conservation Easement, signs giving directions, or signs prescribing rules and regulations for the use of the Easement Area may be allowed.

J. **Dumping or Storing.** Dumping or storage of soil, trash, ashes, garbage, waste, abandoned vehicles, appliances, machinery, or any other material in the Easement Area is prohibited.

K. **Grading, Mineral Use, Excavation, Dredging.** There shall be no grading, filling, excavation, dredging, mining, drilling; removal of topsoil, sand, gravel, rock, peat, minerals, or other materials.

L. **Water Quality and Drainage Patterns.** There shall be no diking, draining, dredging, channeling, filling, leveling, pumping, impounding or diverting, causing, allowing or permitting the diversion of surface or underground water in the Easement Area. No altering or tampering with water control structures or devices, or disruption or alteration of the restored, enhanced, or created drainage patterns is allowed. All removal of wetlands, polluting or discharging into waters, springs, seeps, or wetlands, or use of pesticide or biocides in the Easement Area is prohibited. In the event of an emergency interruption or shortage of all other water sources, water from within the Easement Area may temporarily be used for good cause shown as needed for the survival of livestock and agricultural production on the Property.

M. **Subdivision and Conveyance.** Grantor voluntarily agrees that no subdivision, partitioning, or dividing of the underlying Property owned by the Grantor in fee simple ("fee") that is subject to this Easement is allowed. Unless agreed to by the Grantee in writing, any future conveyance of the underlying fee and the rights as conveyed herein shall be as a single block of

property. Any future transfer of the fee simple shall be subject to this Conservation Easement. Any transfer of the fee is subject to the Grantee's right of unlimited and repeated ingress and egress over and across the Property to the Easement Area for the purposes set forth herein.

N. **Development Rights.** All development rights are permanently removed from the Easement Area and are non-transferrable.

O. **Disturbance of Natural Features.** Any change, disturbance, alteration or impairment of the natural features of the Easement Area or any intentional introduction of non-native plants, trees and/or animal species by Grantor is prohibited.

The Grantor may request permission to vary from the above restrictions for good cause shown, provided that any such request is not inconsistent with the purposes of this Conservation Easement, and the Grantor obtains advance written approval from the N.C. Ecosystem Enhancement Program, whose mailing address is 1652 Mail Services Center, Raleigh, NC 27699-1652.

III. GRANTEE RESERVED USES

A. **Right of Access, Construction, and Inspection.** The Grantee, its employees and agents, successors and assigns, receive a perpetual Right of Access to the Easement Area over the Property at reasonable times to undertake any activities to restore, construct, manage, maintain, enhance, and monitor the stream, wetland and any other riparian resources in the Easement Area, in accordance with restoration activities or a long-term management plan. Unless otherwise specifically set forth in this Conservation Easement, the rights granted herein do not include or establish for the public any access rights.

B. **Restoration Activities.** These activities include planting of trees, shrubs and herbaceous vegetation, installation of monitoring wells, utilization of heavy equipment to grade, fill, and prepare the soil, modification of the hydrology of the site, and installation of natural and manmade materials as needed to direct in-stream, above ground, and subterraneous water flow.

C. **Signs.** The Grantee, its employees and agents, successors or assigns, shall be permitted to place signs and witness posts on the Property to include any or all of the following: describe the project, prohibited activities within the Conservation Easement, or identify the project boundaries and the holder of the Conservation Easement.

IV. ENFORCEMENT AND REMEDIES

A. **Enforcement.** To accomplish the purposes of this Conservation Easement, Grantee is allowed to prevent any activity within the Easement Area that is inconsistent with the purposes of this Easement and to require the restoration of such areas or features in the Easement Area that may have been damaged by such unauthorized activity or use. Upon any breach of the terms of this Conservation Easement by Grantor, the Grantee shall, except as provided below, notify the Grantor-in writing of such breach and the Grantor shall have ninety (90) days after receipt of such notice to correct the damage caused by such breach. If the breach and damage remains uncured after ninety (90) days, the Grantee may enforce this Conservation Easement by bringing appropriate legal proceedings including an action to recover damages, as well as injunctive and

other relief. The Grantee shall also have the power and authority, consistent with its statutory authority: (a) to prevent any impairment of the Easement Area by acts which may be unlawful or in violation of this Conservation Easement; (b) to otherwise preserve or protect its interest in the Property; or (c) to seek damages from any appropriate person or entity. Notwithstanding the foregoing, the Grantee reserves the immediate right, without notice, to obtain a temporary restraining order, injunctive or other appropriate relief, if the breach is or would irreversibly or otherwise materially impair the benefits to be derived from this Conservation Easement, and the Grantor and Grantee acknowledge that the damage would be irreparable and remedies at law inadequate. The rights and remedies of the Grantee provided hereunder shall be in addition to, and not in lieu of, all other rights and remedies available to Grantee in connection with this Conservation Easement.

B. Inspection. The Grantee, its employees and agents, successors and assigns, have the right, with reasonable notice, to enter the Easement Area over the Property at reasonable times for the purpose of inspection to determine whether the Grantor is complying with the terms, conditions and restrictions of this Conservation Easement.

C. Acts Beyond Grantor's Control. Nothing contained in this Conservation Easement shall be construed to entitle Grantee to bring any action against Grantor for any injury or change in the Easement Area caused by third parties, resulting from causes beyond the Grantor's control, including, without limitation, fire, flood, storm, and earth movement, or from any prudent action taken in good faith by the Grantor under emergency conditions to prevent, abate, or mitigate significant injury to life, or damage to the Property resulting from such causes.

D. Costs of Enforcement. Beyond regular and typical monitoring expenses, any costs incurred by Grantee in enforcing the terms of this Conservation Easement against Grantor, including, without limitation, any costs of restoration necessitated by Grantor's acts or omissions in violation of the terms of this Conservation Easement, shall be borne by Grantor.

E. No Waiver. Enforcement of this Easement shall be at the discretion of the Grantee and any forbearance, delay or omission by Grantee to exercise its rights hereunder in the event of any breach of any term set forth herein shall not be construed to be a waiver by Grantee.

V. MISCELLANEOUS

A. This instrument sets forth the entire agreement of the parties with respect to the Conservation Easement and supersedes all prior discussions, negotiations, understandings or agreements relating to the Conservation Easement. If any provision is found to be invalid, the remainder of the provisions of the Conservation Easement, and the application of such provision to persons or circumstances other than those as to which it is found to be invalid, shall not be affected thereby.

B. Grantor is responsible for any real estate taxes, assessments, fees, or charges levied upon the Property. Grantee shall not be responsible for any costs or liability of any kind related to the ownership, operation, insurance, upkeep, or maintenance of the Property, except as expressly provided herein. Upkeep of any constructed bridges, fences, or other amenities on the Property are the sole responsibility of the Grantor. Nothing herein shall relieve the Grantor of the

obligation to comply with federal, state or local laws, regulations and permits that may apply to the exercise of the Reserved Rights.

C. Any notices shall be sent by registered or certified mail, return receipt requested to the parties at their addresses shown herein or to other addresses as either party establishes in writing upon notification to the other.

D. Grantor shall notify Grantee in writing of the name and address and any party to whom the Property or any part thereof is to be transferred at or prior to the time said transfer is made. Grantor further agrees that any subsequent lease, deed, or other legal instrument by which any interest in the Property is conveyed subject to the Conservation Easement herein created.

E. The Grantor and Grantee agree that the terms of this Conservation Easement shall survive any merger of the fee and easement interests in the Property or any portion thereof.

F. This Conservation Easement and Right of Access may be amended, but only in writing signed by all parties hereto, or their successors or assigns, if such amendment does not affect the qualification of this Conservation Easement or the status of the Grantee under any applicable laws, and is consistent with the purposes of the Conservation Easement. The owner of the Property shall notify the U.S. Army Corps of Engineers in writing sixty (60) days prior to the initiation of any transfer of all or any part of the Property. Such notification shall be addressed to: Justin McCorkle, General Counsel, US Army Corps of Engineers, 69 Darlington Avenue, Wilmington, NC 28403

G. The parties recognize and agree that the benefits of this Conservation Easement are in gross and assignable provided, however, that the Grantee hereby covenants and agrees, that in the event it transfers or assigns this Conservation Easement, the organization receiving the interest will be a qualified holder under N.C. Gen. Stat. § 121-34 et seq. and § 170(h) of the Internal Revenue Code, and the Grantee further covenants and agrees that the terms of the transfer or assignment will be such that the transferee or assignee will be required to continue in perpetuity the conservation purposes described in this document.

VI. QUIET ENJOYMENT

Grantor reserves all remaining rights accruing from ownership of the Property, including the right to engage in or permit or invite others to engage in only those uses of the Easement Area that are expressly reserved herein, not prohibited or restricted herein, and are not inconsistent with the purposes of this Conservation Easement. Without limiting the generality of the foregoing, the Grantor expressly reserves to the Grantor, and the Grantor's invitees and licensees, the right of access to the Easement Area, and the right of quiet enjoyment of the Easement Area

TO HAVE AND TO HOLD, the said rights and easements perpetually unto the State of North Carolina for the aforesaid purposes.

AND Grantor covenants that Grantor is seized of said premises in fee and has the right to convey the permanent Conservation Easement herein granted; that the same is free from

encumbrances and that Grantor will warrant and defend title to the same against the claims of all persons whomsoever.

IN TESTIMONY WHEREOF, the Grantor has hereunto set his hand and seal, the day and year first above written.

Grantor:

By: Richard D. Larrabee

Richard D. Larrabee

By: Thelma A. Larrabee

Thelma A. Larrabee

NORTH CAROLINA
COUNTY OF Wake

I, James R Rogers IV, a Notary Public in and for the County and State aforesaid, do hereby certify that Richard D. Larrabee, Grantor, personally appeared before me this day and acknowledged the execution of the foregoing instrument.

IN WITNESS WHEREOF, I have hereunto set my hand and Notary Seal this the 24th day of August, 2011.

James R Rogers IV

Notary Public

JAMES R. ROGERS, IV NOTARY PUBLIC WAKE COUNTY, NC MY COMMISSION EXPIRES 11/16/2012

My commission expires:

11/16/12

NORTH CAROLINA
COUNTY OF Wake

I, James R Rogers IV, a Notary Public in and for the County and State aforesaid, do hereby certify that Thelma A. Larrabee, Grantor, personally appeared before me this day and acknowledged the execution of the foregoing instrument.

IN WITNESS WHEREOF, I have hereunto set my hand and Notary Seal this the 24th day of August, 2011.

Notary Public

JAMES R. ROGERS, IV NOTARY PUBLIC WAKE COUNTY, NC MY COMMISSION EXPIRES 11/16/2012

My commission expires: 11/16/12

EXHIBIT A

DESCRIPTION FOR LOTS 1 & 2

BEGINNING at an existing iron pipe being the northeast corner of Lot 1 of the Mineral Springs Acres Subdivision as referenced in Plat Book 40, Page 78 and recorded in the Durham County Registry; thence S 00°26'56"W, 289.11 feet to a point in the northern right-of-way of Butler Road, a 60' public right-of-way; thence with the said Butler Road right-of-way, N 76°44'45"W, 357.15 feet to point, a common corner with the Karen Casey property as referenced in Deed Book 1743, Page 802 and recorded in the Durham County Registry; thence leaving the said right-of-way of Butler Road, N 01°58'20"E, 210.17 feet to an existing iron pipe being the northeast corner of the said Karen Casey property and in line with the property of Stonehill Estates Homeowners Association as referenced in Plat Book 137, Page 116 and recorded in the Durham County Registry; thence continuing with the common line with the said Stonehill Estates Homeowners Association property, S 89°31'39"E, 342.68 feet to the Point and Place of BEGINNING and containing a total of 1.9822 acres.

DESCRIPTION FOR LOTS 3-11

BEGINNING at the point where the southern right-of-way of Butler Road, a 60 ft. public right-of-way, intersects with the western right-of-way of Mineral Springs Road, NCSR 1815, a 60 ft. public right-of-way; thence with the said right-of-way of Mineral Springs Road, S 14°17'44"W, 72.11 feet to a point; thence S 15°48'07"W, 115.15 feet to a point; thence S 15°48'07"W, 70.23 feet to a point; thence S 17°50'52"W, 109.04 feet to a point; thence S 19°48'46"W, 125.78 feet to a point; thence S 20°37'27"W, 71.92 feet to a point; thence S 20°55'56"W, 141.17 feet to a point; thence S 22°13'39"W, 90.06 feet to a point being the northeast corner of Lot 3 of the Durham East Shopping Center as referenced in Plat Book 154, Page193 and recorded in the Durham County Registry; thence leaving the said Mineral Springs right-of-way and with the common line of said Lot 3; N 84°32' 36" W, 172.67 feet to an existing axle; thence N 31°06'47"E, 12.74 feet to a point in the centerline of Little Lick Creek; thence with the centerline of Little Lick Creek the following calls: S 77°10'38"W, 9.05 feet; N 79°54'00"W, 21.51 feet; N 86°16'48"W, 19.59 feet; S 82°46'27"W, 12.48 feet; S 76°42'47"W, 11.53 feet; S 83°52'26"W, 22.53 feet; N 76°59'22"W, 19.01 feet; N 41°13'58"W, 16.50 feet; N 62°48;29"W, 39.42 feet; S 62°45'18"W, 35.09 feet; S 01°48'51"W, 26.53 feet; N 15°14'29"W, 18.50 feet; N 24°15' 18"W, 26.29 feet; N 32°23'57"W, 23.29 feet; S 13°05'48"W, 23.84 feet; S 38°01'32"W, 19.49 feet; S 81°53'33"W, 21.31 feet; S 40°01'42"W, 54.40 feet; S 51°49'38"W, 32.19 feet; S 65°09'04"W, 20.04 feet; S 75°19'54"W, 28.89 feet; S 75°26'22"W, 19.31 feet; N 74°32'16"W, 31.23 feet; S 79°08'30"W, 39.68 feet; thence leaving the said centerline of Little Lick Creek and along the common line with the property of Durham Land Associates, LLC as referenced in Plat Book 186, Page 47 and recorded in the Durham County Registry, N 01°37'06"W, 17.73 feet to a reference point; thence N 01°37'06"W, 247.04 feet to a point being the southwest corner of Lot 29 of the Mineral Springs Acres Subdivision as referenced in Plat Book 40, Page 78 and recorded in the Durham County Registry; thence with the common line of said Lot 29, N 89°03'42"E, 188.65 feet to an existing iron pipe in the western right-of-way of said Butler Road; thence S 88°40'47"E, 60.05 feet to a point in the eastern right-of-way of said Butler Road; thence continuing with the said western right-of-way of Butler Road, N 00°56'18"W, 750.27 feet

to a point in the southern right-of-way of said Butler Road; thence with the said southern right-of-way of Butler Road, S 89°24'28"E, 191.69 feet to a point; thence S 76°44'45"E, 406.32 feet to the Point and Place of BEGINNING and containing a total of 9.9436 acres.

DESCRIPTION FOR LOT 29 MINERAL SPRINGS ACRES SUBDIVISION

BEGINNING at an existing iron pipe in the western right-of-way of Butler Road, a 60 ft. public right-of-way, said pipe being a common corner with Lot 11 as referenced in Plat Book 188, Page 35 and recorded in the Durham County Registry; thence leaving the said right-of-way and with the common line of said Lot 11, S 89°38'43"W, 188.65 feet to a point in the common line with the property of Durham Land Associates, LLC as referenced in Deed Book 4277, Page 299 and recorded in the Durham County Registry; thence with the common line of said property of Durham Land Associates, LLC, N 01° 37' 06" W, 50.16 feet to an existing iron pipe, said pipe being the southwest corner of Lot 28 of the Mineral Springs Acres Subdivision as referenced in Plat Book 40, Page 78 and recorded in the Durham County Registry; thence with the common line of said Lot 28, N 89°38'43"E, 189.25 feet to a point in the said right-of-way of Butler Road; thence with the said right-of-way of Butler Road, S 00°21'17"E, 50.16 feet to the Point and Place of BEGINNING and containing 0.2176 acres.

WILLIE L. COVINGTON
REGISTER OF DEEDS, DURHAM COUNTY
DURHAM COUNTY COURTHOUSE
200 E. MAIN STREET
DURHAM, NC 27701

PLEASE RETAIN YELLOW TRAILER PAGE

It is part of recorded document, and must be submitted with original for re-recording and/or cancellation.

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Filed For Registration:	**09/14/2011 04:07:18 PM**
Book:	**RE 6800 Page: 31-42**
Document No.:	**2011027666**
	DEED-EASE 12 PGS $49.00
Recorder:	**SHARON M CEARNEL**

2011027666

Appendix B.
Baseline Information Data

NCDWQ Stream Determination
NCDWQ Mitigation Viability Letter

North Carolina Department of Environment and Natural Resources
Division of Water Quality
Coleen H. Sullins
Director

Beverly Eaves Perdue
Governor

Dee Freeman
Secretary

October 27, 2009

DWQ Project # 09-1140
Wake County

Ms. Jessica Kemp
N.C. Ecosystem Enhancement Program
1619 MSC
Raleigh, NC 27699-1619

Subject Property: **Butler Road Buffer Restoration Site (Proposed)**
Durham County

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

Dear Ms. Kemp:

OnOctober 23, 2009, at your request Eric Kulz with the DWQ 401 Oversight and Express Review Permitting Unit conducted an on-site determination to review one stream feature located on the subject property for applicability to the Neuse Buffer Rules (15A NCAC 2B .0233). The Feature is labeled as "A" on the attached map initialed by Mr. Kulz on January 14, 2008.

The Division of Water Quality (DWQ) has determined that the surface water labeled as "A" on the attached maps is at least intermittent beginning at a point at the edge of the woodline, and is Subject to the Neuse Buffer Rule. This on-site determination shall expire five (5) years from the date of this letter.

The surface water feature labeled as "B" on the maps is Little Lick Creek, which is a large perennial stream also subject to the Neuse Buffer Rule.

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 Permitting Unit, 2321 Crabtree Blvd., Suite 250, Raleigh, NC 27604-2260. Individuals that dispute a determination by the DWQ or Delegated Local Authority that "exempts" a surface water from the buffer rule may ask for an adjudicatory hearing. You must act within 60 days of the date that you receive this

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

letter. Applicants are hereby notified that the 60-day statutory appeal time does not start until the affected party (including downstream and adjacent landowners) is notified of this decision. DWQ recommends that the applicant conduct this notification in order to be certain that third party appeals are made in a timely manner. To ask for a hearing, send a written petition, which conforms to Chapter 150B of the North Carolina General Statutes to the Office of Administrative Hearings, 6714 Mail Service Center, Raleigh, N.C. 27699-6714. This determination is final and binding unless you ask for a hearing within 60 days.

This letter only addresses the applicability to the buffer rules and does not approve any activity within the buffers. Nor does this letter approve any activity within Waters of the United States or Waters of the State. If you have any additional questions or require additional information please call me at (919) 733-9502.

Sincerely,

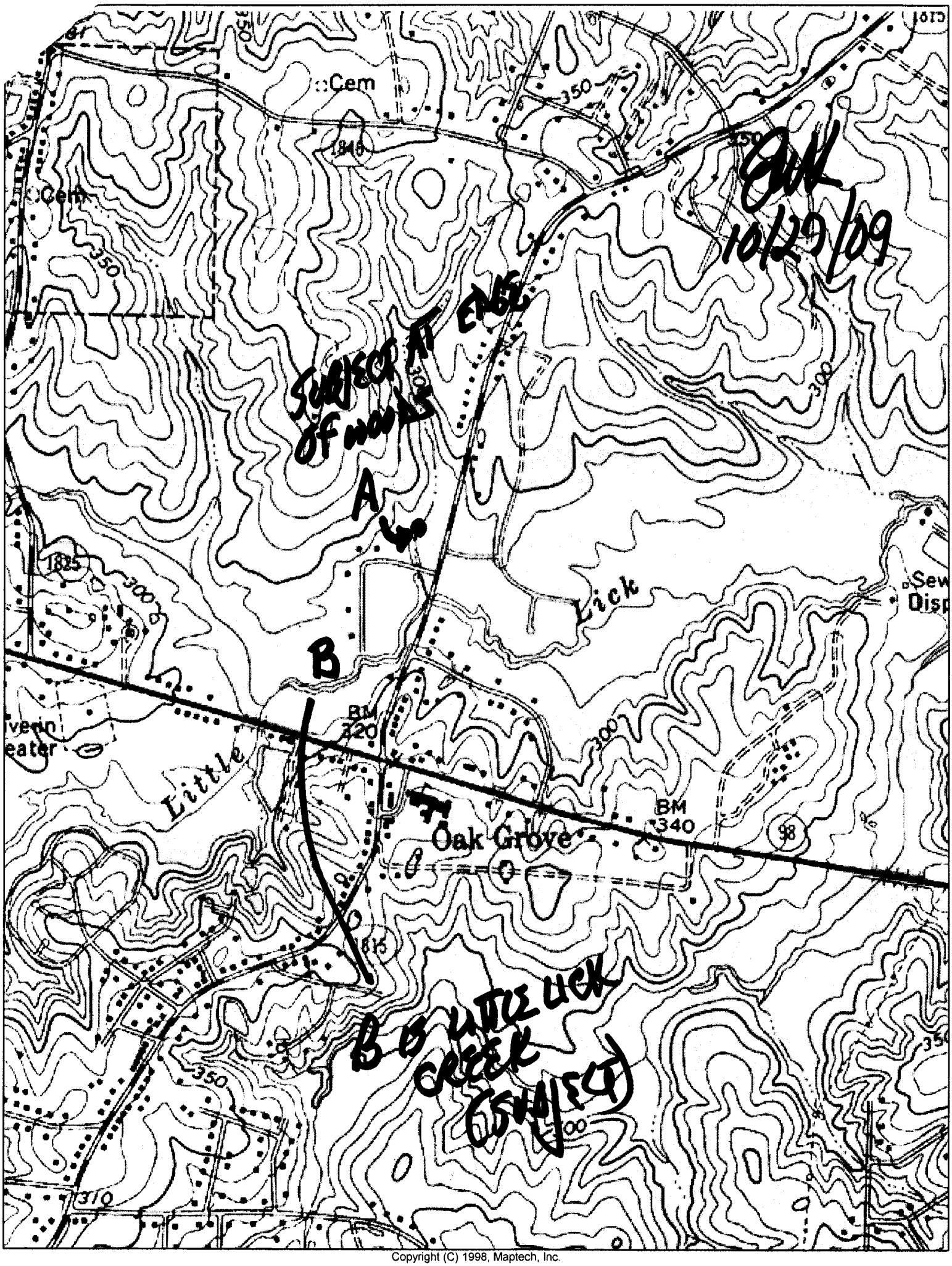
for: Cyndi B. Karoly, Supervisor
401 Oversight/Express Review Permits Unit

CBK/*EWK*

Enclosures: USGS Topographic Map, NRCS Soil Map

cc: Lauren Witherspoon, DWQ Raleigh Regional Office
File Copy (Eric Kulz)
Central Files

Filename: 091140ButlerRoadBufferRestorationSiteNBR




CrC
(Joins sheet 22)
WsB
GrB
CrB
CrC
CrB
AlB
WsB
Oak Grove
WsB
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IrC
IrC

NCDENR
North Carolina Department of Environment and Natural Resources
Division of Water Quality
Coleen H. Sullins
Director

Beverly Eaves Perdue
Governor

Dee Freeman
Secretary

October 27, 2009

Ms. Jessica Kemp
N.C. Ecosystem Enhancement Program
1619 MSC
Raleigh, NC 27699-1619

Re: Butler Road Buffer Restoration Site (Proposed)
Durham County

Dear. Jessica:

The Division of Water Quality (DWQ) 401 Oversight and Express Review Permitting Unit has visited the above-referenced site, which NCEEP is reviewing for a possible buffer restoration site to be used to generate riparian buffer and/or nutrient offset credit within CU 03020201.

The site appeared to be an excellent candidate for planting buffers for Neuse riparian buffer credit (to 50 feet from the top of bank) and nutrient offset credits (51 feet to 200 feet).

Please provide a copy of the buffer restoration plan for review and approval prior to initiating the project. Once the project is complete, please provide an as-built report/plan showing acreages of buffer and nutrient offset credit generated, as well as copies of monitoring reports so we can track the project within our mitigation tracking system.

DWQ appreciates the opportunity to participate in up-front evaluations of potential buffer sites, as technically such sites do not require permits or written concurrence/approval by this office.

We look forward to future participation with your program in our joint efforts to produce quality restoration sites to mitigate for jurisdictional impacts and to protect/improve water quality.

Please feel free to contact me at (919) 715-9050 if you have any questions or if we can be of further assistance.

Sincerely,

Eric W. Kulz, Environmental Senior Specialist
401 Oversight and Express Review Program

cc: File Copy (Eric Kulz)
Lauren Witherspoon - RRO

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