

REPORT

PROJECT

Amended Environmental Impact Assessment
Parker Springs Subdivision
Mt. Gilead Church Road and Silverberry Road
New Hope Township, Chatham County, North Carolina

CLIENT

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PROJECT 06.14896

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1.0 Executive Summary

RLA Development, LLC (RLA) plans to construct a residential subdivision on the approximately 86.74-acre tract located northeast of the intersection of Mt. Gilead Church Road (S.R. 1700) and Silverberry Road (S.R. 1797), in New Hope Township, Chatham County, North Carolina (Appendix A, Figure 1). According to Chatham County Subdivision Regulations 5.2A(1), pursuant to Chapter 113A of the North Carolina General Statutes, the planning board may require the subdivider to submit an environmental impact assessment (EIA) if the development exceeds two acres in area. ECS Carolinas was contracted by RLA to provide the EIA which would satisfy these regulations.

Impacts from the project include crossing of streams for roadway construction which will affect water quality and aquatic habitat. The 100-foot buffer around Parkers Creek and the 50-foot buffer around the remainder of the streams on the subject property should minimize those impacts. Terrestrial habitat will also be affected by the proposed construction, however the terrestrial habitat on the site is already disturbed due to timbering activities which have taken place on the property since approximately 1940.

2.0 Project Description and Need

2.1 Project Description

RLA plans to construct a residential subdivision on the approximately 86.74-acre tract located northeast of the intersection of Mt. Gilead Church Road (S.R. 1700) and Silverberry Road (S.R. 1797), in New Hope Township, Chatham County, North Carolina. At this time 50 lots are proposed for construction, with a minimum lot size of 40,000 square feet. Several roadways will be constructed throughout the subdivision, with a pavement width of approximately 20 feet and a right-of-way width of 50 feet, including shoulder areas and a stormwater v-ditch. Water will be provided by Chatham County and sewer will be treated via individual septic systems. There will be several areas preserved as open space, one to preserve a 100-foot riparian buffer around Parkers Creek, and one to preserve an historic cemetery located on the property. These open space areas will be maintained by the Home Owner's Association.

2.2 Project Purpose and Need

This project is designed to provide housing for residents of Chatham County.

3.0 Alternatives to the Proposed Action

3.1 No-Build Alternative

This alternative would leave the approximately 86.74 acre tract in its current undeveloped state, with no additional development on the property. It would not meet the project purpose and need.

3.2 Parker Springs Subdivision (Preferred Alternative)

This alternative would provide for 50 buildable lots and associated roadways. See Figure 10 for the preliminary sketch plan.

4.0 Existing Environment and Project Impacts

4.1 Geography and Land Use

A review of the United States Geological Survey (USGS) Topographic Map, Farrington, North Carolina Quadrangle (Appendix A, Figure 2), indicates that the subject property is located approximately 400 to 530 feet above mean sea level (MSL). The property is depicted as two plateaus split by a northwest/southeast trending Parkers Creek flowing easterly across the central eastern portion of the property. Mt. Gilead Church Road is depicted west of the subject property and Haw Church is depicted south of the subject property. Based on topographic contours, surface runoff is expected to flow towards Parkers Creek.

Geologically, North Carolina is divided into three physiographic regions beginning with the Coastal Plain Physiographic Province located in the eastern portion of the state, the Piedmont Physiographic Province located in the middle portion of the state, and the Blue Ridge Physiographic Province, located in the western portion of the state. According to information presented on the *1985 Geologic Map of North Carolina* (Map) and in *The Geology of the Carolinas*, the subject property is located in the Piedmont Physiographic Province (Piedmont).

The Piedmont is characterized by gently rolling topography, deeply weathered bedrock, and a relative paucity of solid outcrop. Rocks are strongly weathered in the Piedmont's humid climate and bedrock is generally buried under a thick (6 to 60 feet) blanket of saprolite. Outcrops are commonly restricted to stream valets where saprolite has been removed by erosion. The topography becomes somewhat more rugged with proximity to the Blue Ridge Mountains, where local monadnocks of more resistant rock occur.

In general, shallow unconfined groundwater movement within the overlying soils is controlled largely by topographic gradients. However, as the groundwater percolates downward to the bedrock, it becomes controlled by the orientation of the rock fracture systems. Thus, the direction of groundwater movement may not be consistent with the reflecting topography. Recharge occurs primarily by infiltration along higher elevations and typically discharges into streams or other surface water bodies. The elevation of the shallow water-table is transient and can vary greatly with seasonal fluctuations in precipitation. Movement of groundwater under water-table conditions is generally from higher to lower elevations. As such, shallow groundwater would be expected to flow toward Parkers Creek, which trends northwest/southeast through the central eastern portion of the site. This inference only includes shallow groundwater that is not being influenced by pumping or subsurface conduits such as tile drains or utility lines. Actual site groundwater flow direction cannot be determined without site-specific groundwater information determined through the installation of groundwater monitoring wells.

According to U.S. Geologic Survey (USGS) Land Use/Land Cover data, the subject property is primarily mixed upland hardwoods (Appendix A, Figure 8). An in-person survey of the subject property confirmed this land use/land cover classification and revealed a prevalence of oak, maple, hickory, pine and poplar trees. Only 2.2% of the site is classified by the USGS as bottomland forest/hardwood swamps. The in-person survey confirmed that only a very small percent of the site could be classified as wetlands.

Table 1. Land Use/Land Cover on the subject property.

| Land Use/Land Cover Classification | Percentage |
|------------------------------------|------------|
| Mixed Upland Hardwoods | 89.1 |
| Southern Yellow Pine | 8.3 |

| | |
|-----------------------------------|-------|
| Bottomland Forest/Hardwood Swamps | 2.2 |
| Mixed Hardwoods/Conifers | 0.4 |
| | 100.0 |

4.1.1 Land Use Impacts

The existing land use will be impacted, as it is changing from undeveloped woodland to a residential subdivision.

4.2 Soils and Important Farmlands

The Soil Survey of Chatham County, North Carolina prepared by the United States Department of Agriculture Soil Conservation Service identifies the following soil on the subject property (Appendix A, Figure 3):

Badin-Nanford complex, 15 to 30 percent slopes (BaE)

Component: Badin (50%)

The Badin component makes up 50 percent of the map unit. Slopes are 15 to 30 percent. This component is on uplands, hillslopes on ridges. The parent material consists of residuum weathered from slate and/or metavolcanics and/or argillite. Depth to a root restrictive layer, bedrock, paralithic, is 20 to 40 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches is low. Shrink-swell potential is moderate. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 2 percent. Non-irrigated land capability classification is 4e. This soil does not meet hydric criteria.

Component: Nanford (30%)

The Nanford component makes up 30 percent of the map unit. Slopes are 15 to 30 percent. This component is on uplands, hillslopes on ridges. The parent material consists of residuum weathered from slate and/or metavolcanics and/or argillite. Depth to a root restrictive layer, bedrock, paralithic, is 40 to 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 2 percent. Non-irrigated land capability classification is 4e. This soil does not meet hydric criteria.

Cid-Lignum complex, 2 to 6 percent slopes (CmB)

Component: Cid (50%)

The Cid component makes up 50 percent of the map unit. Slopes are 2 to 6 percent. This component is on uplands, interfluves. The parent material consists of residuum weathered from slate and/or metavolcanics and/or argillite. Depth to a root restrictive layer, bedrock, paralithic, is 20 to 40 inches. The natural drainage class is moderately well drained. Water movement in the most restrictive layer is moderately low. Available water to a depth of 60 inches is low. Shrink-swell potential is moderate. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 18 inches during January, February, March, April, May, and December. Organic matter content in the surface horizon is about 1 percent. Nonirrigated land capability classification is 2e. This soil does not meet hydric criteria.

Georgeville silt loam, 2 to 6 percent slopes (GaB)

Component: Georgeville (90%)

The Georgeville component makes up 90 percent of the map unit. Slopes are 2 to 6 percent. This component is on uplands, interfluves. The parent material consists of residuum weathered from slate

and/or metavolcanics and/or argillite. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches is high. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 1 percent. Nonirrigated land capability classification is 2e. This soil does not meet hydric criteria.

Georgeville-Badin complex, 10 to 15 percent slopes (GkD)

Component: Georgeville (66%)

The Georgeville component makes up 66 percent of the map unit. Slopes are 10 to 15 percent. This component is on uplands, hillslopes on ridges. The parent material consists of residuum weathered from slate and/or metavolcanics and/or argillite. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches is high. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 1 percent. Nonirrigated land capability classification is 3e. This soil does not meet hydric criteria.

Component: Badin (19%)

The Badin component makes up 19 percent of the map unit. Slopes are 10 to 15 percent. This component is on hillslopes on ridges, uplands. The parent material consists of residuum weathered from slate and/or metavolcanics and/or argillite. Depth to a root restrictive layer, bedrock, paralithic, is 20 to 40 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches is low. Shrink-swell potential is moderate. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 2 percent. Nonirrigated land capability classification is 3e. This soil does not meet hydric criteria.

Nanford-Badin complex, 2 to 6 percent slopes (NaB)

Component: Nanford (36%)

The Nanford component makes up 36 percent of the map unit. Slopes are 2 to 6 percent. This component is on uplands, interfluves. The parent material consists of residuum weathered from slate and/or metavolcanics and/or argillite. Depth to a root restrictive layer, bedrock, paralithic, is 40 to 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches is moderate. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 2 percent. Nonirrigated land capability classification is 2e. This soil does not meet hydric criteria.

Component: Badin (33%)

The Badin component makes up 33 percent of the map unit. Slopes are 2 to 6 percent. This component is on uplands, interfluves. The parent material consists of residuum weathered from slate and/or metavolcanics and/or argillite. Depth to a root restrictive layer, bedrock, paralithic, is 20 to 40 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches is low. Shrink-swell potential is moderate. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 2 percent. Nonirrigated land capability classification is 2e. This soil does not meet hydric criteria.

Nanford-Badin complex, 6 to 10 percent slopes NaC

Component: Nanford (50%)

The Nanford component makes up 50 percent of the map unit. Slopes are 6 to 10 percent. This component is on uplands, hillslopes on ridges. The parent material consists of residuum weathered from slate and/or metavolcanics and/or argillite. Depth to a root restrictive layer, bedrock, paralithic, is 40 to 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches is moderate. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 2 percent. Nonirrigated land capability classification is 3e. This soil does not meet hydric criteria.

Component: Badin (30%)

The Badin component makes up 30 percent of the map unit. Slopes are 6 to 10 percent. This component is on hillslopes on ridges, uplands. The parent material consists of residuum weathered from slate and/or metavolcanics and/or argillite. Depth to a root restrictive layer, bedrock, paralithic, is 20 to 40 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches is low. Shrink-swell potential is moderate. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 2 percent. Nonirrigated land capability classification is 3e. This soil does not meet hydric criteria.

Nanford-Badin complex, 10 to 15 percent slopes (NaD)

Component: Nanford (40%)

The Nanford component makes up 40 percent of the map unit. Slopes are 10 to 15 percent. This component is on uplands, hillslopes on ridges. The parent material consists of residuum weathered from slate and/or metavolcanics and/or argillite. Depth to a root restrictive layer, bedrock, paralithic, is 40 to 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches is moderate. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 2 percent. Nonirrigated land capability classification is 3c. This soil does not meet hydric criteria.

Component: Badin (35%)

The Badin component makes up 35 percent of the map unit. Slopes are 10 to 15 percent. This component is on uplands, hillslopes on ridges. The parent material consists of residuum weathered from slate and/or metavolcanics and/or argillite. Depth to a root restrictive layer, bedrock, paralithic, is 20 to 40 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches is low. Shrink-swell potential is moderate. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 2 percent. Nonirrigated land capability classification is 3e. This soil does not meet hydric criteria.

Nanford-Badin complex, 2 to 6 percent slopes (NaB) and Georgeville silt loam, 2 to 6 percent slopes (GaB) are listed as Prime Farmland on the North Carolina List of Important Farmlands published by the US Natural Resource Conservation Service (NRCS). Cid-Lignum complex, 2 to 6 percent slopes (CmB) is listed as a Farmland of Statewide Importance on the NC List of Important Farmlands.

4.2.1 Impacts to Soils and Important Farmlands

The majority of soils on the subject property are listed as Prime Farmland on the NC List of Important Farmlands. The remainder of the subject property is listed as Farmland of Statewide Importance. However, the property has not been used for farmland, so no impacts to prime farmland are anticipated from the proposed project.

4.3 Formally Classified Public Lands

There are no Formally Classified Public Lands on or within the vicinity of the subject property.

4.3.1 Impacts to Formally Classified Public Lands

Because there are no Formally Classified Public Lands on or within the vicinity of the subject property, no impacts to these lands are anticipated.

4.4 Floodplains

In an effort to provide more up to date floodplain information, the State of North Carolina has partnered with the Federal Emergency Management Agency (FEMA) to produce an online floodplain mapping program. A review of the flood maps provided online by this program was performed. According to FEMA's Digital Flood Insurance Rate Map (DFIRM), the subject property is not located within the 500-year or 100-year floodplain. A flood hazard zones map of the area is provided as Appendix A; Figure 4.

4.4.1 Impacts to Floodplains

Because the site is not located in or near a floodplain, no impacts to floodplains are anticipated.

4.5 Water Resources

The subject property is located within the Cape Fear River Basin, and drains to Parkers Creek which also bisects the property. Parkers Creek is classified by NCDWQ as WS-IV; NSW; B. The 8-digit Hydrologic Unit Code is 03030002.

The wetlands and streams on the subject property were delineated by Mr. Scott Mitchell, PE, LSS of Mitchell Environmental, P.A. The wetlands and stream features are illustrated in Figure 5. Two jurisdictional perennial streams were delineated, including Parkers Creek. Four jurisdictional intermittent streams and one isolated intermittent stream were delineated. Four jurisdictional wetland areas and one isolated wetland were also delineated. These features have been verbally approved by Mr. Monte Matthews of the U.S. Army Corps of Engineers per an on-site concurrence meeting on August 16, 2007 and by the Ms. Lia Myott of the North Carolina Division of Water Quality (NCDWQ) per an on-site concurrence meeting on September 7, 2007. A letter from NCDWQ with the findings of their meeting is provided in Appendix B.

4.5.1 Impacts to Water Resources

A 100-foot open space buffer will be provided around Parkers Creek, and 50-foot buffers will be provided around all other streams delineated on the subject property, to be maintained by the Home Owners's Association. However, several crossings of the streams on the property will be necessary for

roadway construction. Section 404 Nationwide 39 permit and North Carolina Division of Water Quality (NCDWQ) Water Quality Certification (WQC) 3631 or an Individual Permit will be obtained prior to construction activities.

Sedimentation impacts from construction will be kept to a minimal by using silt fencing and other erosion control devices. A Sediment and Erosion Control Permit will be obtained prior to construction activities.

4.6 Archeological and Historical Resources

A review of databases at the North Carolina State Historic Preservation Offices, Office of Archives and History and Office of State Archeology, revealed no archeological resources but several historic architectural resources on or within one mile of the subject property. These features are depicted on Figure 9. A cemetery located on the property is dated back to approximately the Civil War era. An email from Dolores A. Hall of the Office of State Archeology (Appendix B) states that “there is a low probability for the presence of important Native American archeological sites on the property. We do not recommend any archeological survey prior to project development.”

4.6.1 Impacts to Archeological and Historical Resources

The cemetery located on the subject property will be preserved as open space, and will not be affected by the proposed development.

The architectural resources are located at such a distance away from the subject property, so as not be affected visually or physically by the proposed development.

4.7 Biological Resources

4.7.1 Aquatic and Terrestrial Habitats

Most streams on the subject property provide limited habitat for aquatic life, with the exception of Parkers Creek which may support Mosquitofish (*Gambusia holbrooki*), various minnow species, various crayfish, and various macroinvertebrates. According to the North Carolina Natural Heritage Program (NHP) habitat suitable for the significantly rare Carolina Ladle Crayfish (*Cambarus davidi*) and the species of special concern Loggerhead Shrike (*Lanius ludovicianus*) may be present on the subject property. However, no elemental occurrences of those species have been found on the subject property at this time.

The terrestrial habitat type of the subject property is primarily Basic Oak-Hickory Forest (Schafale and Weakley, 1990). Vegetation is dominated by species such as White Oak (*Quercus alba*), Southern Shagbark Hickory (*Carya carolinae-septentrionalis*), and Pines (*Pinus spp.*), and in the more disturbed areas by Red Maple (*Acer rubrum*) and Sweetgum (*Liquidambar styraciflua*). The site is owned by Chatham Land and Timber Management, LLC and has been used for timbering since approximately 1940. Common animals species include the robin (*Turdus migratorius*), cardinal (*Cardinalis cardinalis*), Carolina wren (*Thryothorus ludovicianus*), Gray squirrel (*Sciurus carolinensis*), white-tailed deer (*Odocoileus virginianus*), Virginia opossum (*Didelphis virginiana*), and various owls and woodpeckers.

4.7.1.1 Impacts to Aquatic and Terrestrial Habitats

Impacts to aquatic habitat include crossing of the streams on the property for roadway construction. The 100-foot buffer around Parker Creek and the 50-foot buffer around the remainder of the streams on the property should limit most of the impacts to the aquatic habitat. Sedimentation impacts from construction will be kept to a minimal by using silt fencing and other erosion control devices. A Sediment and Erosion Control Permit will be obtained prior to construction activities.

Impacts to terrestrial habitat include the removal of most of the tree species in order to clear and grade the land for construction, which will affect those species that rely on the trees for habitat and foraging. However the subject property has been used for timbering since approximately 1940, so it is already a disturbed habitat, which is fractured by timber roads.

4.7.2 Threatened and Endangered Species

According to the NHP, habitat suitable for the significantly rare Carolina Ladle Crayfish (*Cambarus davidi*) and the species of special concern Loggerhead Shrike (*Lanius ludocicianus*) may be present on the subject property. However, no elemental occurrences of those species have been found on the subject property at this time.

4.7.2.1 Impacts to Threatened and Endangered Species

Impacts to Threatened and Endangered species could result from crossing of the streams on the property for roadway construction. The 100-foot buffer around Parker Creek and the 50-foot buffer around the remainder of the streams on the property should limit most of the impacts to the Threatened and Endangered species. Sedimentation impacts from construction will be kept to a minimal by using silt fencing and other erosion control devices. A Sediment and Erosion Control Permit will be obtained prior to construction activities.

4.8 Socio-Economics and Environmental Justice

Table 2 below is taken from <http://quickfacts.census.gov/qfd/states/37/37037.html>. It highlights some of the findings of the 2000 U.S. Census for Chatham County and compares them to the North Carolina average. It appears that Chatham County has a higher minority population but a higher income than the North Carolina average.

Table 2. 2000 Census Data for Chatham County versus the State of North Carolina

| Census Categories | Chatham | North Carolina |
|---|---------|----------------|
| Population, 2005 estimate | 58,002 | 8,683,242 |
| Population, percent change, April 1, 2000 to July 1, 2005 | 17.6% | 7.9% |
| Population, 2000 | 49,329 | 8,049,313 |
| Persons under 5 years old, percent, 2005 | 6.1% | 7.0% |
| Persons under 18 years old, percent, 2005 | 22.4% | 24.7% |
| Persons 65 years old and over, percent, 2005 | 13.9% | 12.1% |
| White persons, percent, 2005 (a) | 82.6% | 74.1% |
| Black persons, percent, 2005 (a) | 14.2% | 21.8% |

| | | |
|---|----------|-----------|
| American Indian and Alaska Native persons, percent, 2005 (a) | 0.4% | 1.3% |
| Asian persons, percent, 2005 (a) | 1.9% | 1.8% |
| Native Hawaiian and Other Pacific Islander, percent, 2005 (a) | 0.2% | 0.1% |
| Persons reporting two or more races, percent, 2005 | 0.7% | 1.0% |
| Persons of Hispanic or Latino origin, percent, 2005 (b) | 11.3% | 6.4% |
| Households, 2000 | 19,741 | 3,132,013 |
| Persons per household, 2000 | 2.47 | 2.49 |
| Median household income, 2003 | \$44,089 | \$39,438 |
| Per capita money income, 1999 | \$23,355 | \$20,307 |
| Persons below poverty, percent, 2003 | 9.6% | 13.4% |

4.8.1 Socio-Economic Impacts

This project will not have a disproportionately high adverse human health or environmental effect on local minority or low income communities.

4.9 Air Quality

This area Chatham County has been designated by U.S. Environmental Protection Agency (EPA) as a non-attainment area for 8-hour ozone.

4.9.1 Impacts to Air Quality

Any impacts to air quality are expected to be temporary in nature during the time of construction and during any site clearing or grading. These temporary impacts will most likely be from airborne particulates and exhaust emissions of construction vehicles and from roadway construction.

4.10 Noise

Noise levels in the area of the subject property are not high as adjacent properties are undeveloped woodland, Monterrane Subdivision, and Haw River Church. The church and subdivision would be considered sensitive noise receptors within the vicinity of the subject property. The proposed project is unlikely to cause a noticeable increase in ozone levels, based on the number of proposed buildable lots and roadways.

4.10.1 Noise Impacts

Residents of the Monterrane Subdivision and users of the Haw River Church may experience nuisance noise levels during construction of the Parker Springs Subdivision. Construction activities will typically take place during daytime hours in accordance with Chatham County noise ordinances.

5.0 Summary of Mitigation

Mitigation includes preserving a 100-foot buffer around Parkers Creek, a 50-foot buffer around all other jurisdictional streams on the subject property, and preserving a historic cemetery located on the property.

6.0 References

Carolina Geological Society Fiftieth Anniversary Volume, *The Geology of the Carolinas*, Horton, J. Wright and Zullo, Victor A., University of Tennessee Press, 1991

North Carolina Geological Survey, *Geologic Map of North Carolina*, dated 1985.

State of North Carolina and Federal Emergency Management Agency, *Digital Flood Rate Insurance Panel 3648*.

United States Department of Agriculture, Soil and Water Conservation Service, *Important Farmlands of North Carolina*, June 1994.

United States Department of Agriculture, Soil and Water Conservation Service, *Soil Survey of Chatham County, North Carolina*, 1983.

United States Geological Survey Topographic Map 1987, 7.5 minute series, *Farrington Quadrangle*, scale 1:24,000, U.S. Geological Survey, Denver, Colorado.

Chatham County Online GIS Service.

Schafale, Michael P., and Weakley, Alan S., *Classification of the Natural Communities of North Carolina, Third Approximation*, 1990.

7.0 Qualifications of Preparers

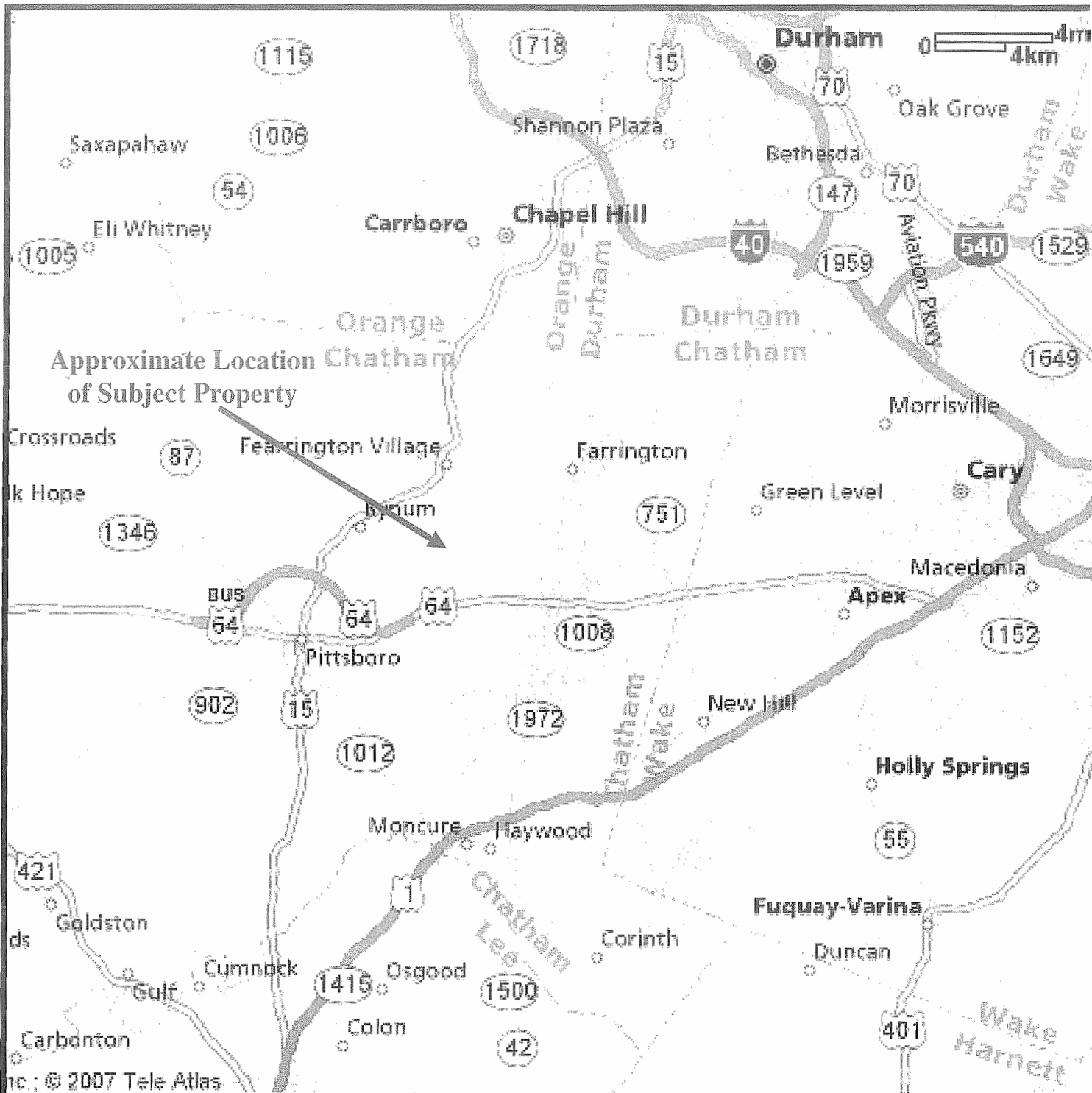
Mr. Stephen Mark Brown, LG, PG, RSM is a Principal Geologist for the Raleigh Branch of ECS Carolinas, LLP with over 30 years experience in the practice of engineering and environmental geology. He has served as a Senior Project Geologist delineating soil and groundwater contamination at numerous private, commercial, municipal, state, and federal sites in central and eastern North Carolina, including military bases located in Fayetteville, Goldsboro, Havelock, and Jacksonville, North Carolina. He has also served as a Senior Project Geologist performing semi-annual and annual compliance assessments of lined and unlined municipal solid waste landfills in eastern North Carolina and providing waste characterization reports with regard to hazardous, non-hazardous, and solid waste sites in accordance with USEPA and North Carolina Department of Environment and Natural Resources (NCDENR) guidelines. Mr. Brown is currently listed as a Registered Site Manager (RSM) with the NCDENR - Inactive Hazardous Sites Branch, Registered Environmental Consultant Program and is experienced in assessment and cleanup of contaminated sites listed within the NC UST Trust Fund, and EPA and NC Brownfields Programs. He has extensive hands-on experience with various field assessment methods including soil boring, rock drilling, direct push drilling, geophysical logging, pump tests, and monitor and water supply well installation. Mr. Brown received his B.A in Geology from Appalachian State University in 1975 and is currently or has been actively licensed as a professional geologist in North Carolina, Virginia, Kentucky, South Carolina, and Tennessee.


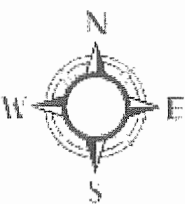
Ms. Christina Breen is a Senior Environmental Scientist and Wetland Services Team Leader with the environmental group for the Raleigh Branch of ECS, Carolinas, LLP. Her current duties include wetland delineations, stream determinations, producing and applying for 404/401 permits, developing habitat

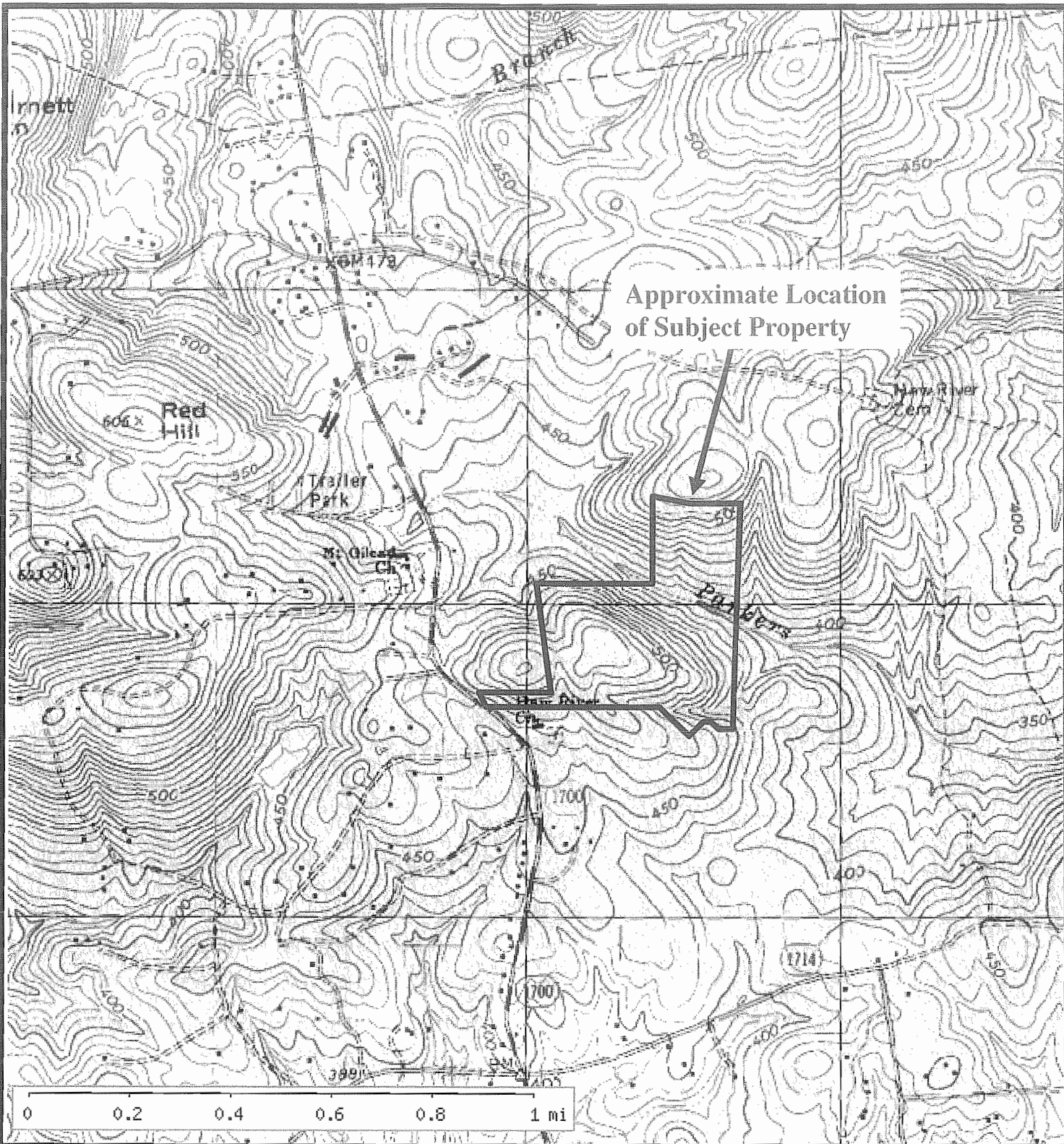
enhancement plans, and completing NEPA field assessments and documentation. Ms. Breen received her B.S. in Environmental Science from Virginia Tech in 2000.

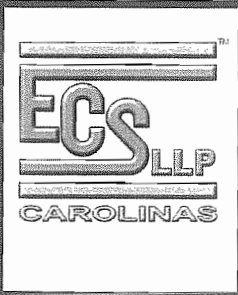
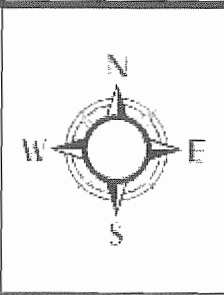
Ms. Lauren Tucker serves as an environmental scientist for the Raleigh Branch of ECS Carolinas, LLP. Her responsibilities include stream and wetland delineations, 404/401 permitting, and NEPA field assessments and documentation. Ms. Tucker holds a Masters degree from Duke University in environmental management and has been trained to perform wetland delineations according to the 1987 Army Corp of Engineers 1987 Wetland Delineation Manual. Also, Ms. Tucker is knowledgeable in Geographic Information Systems (GIS), water quality monitoring, and vegetative sampling design.

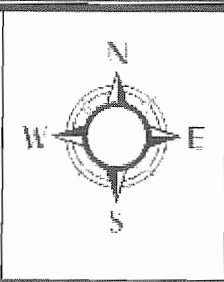
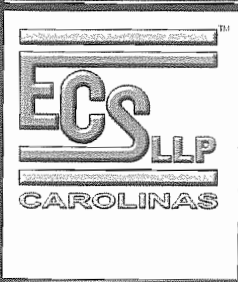
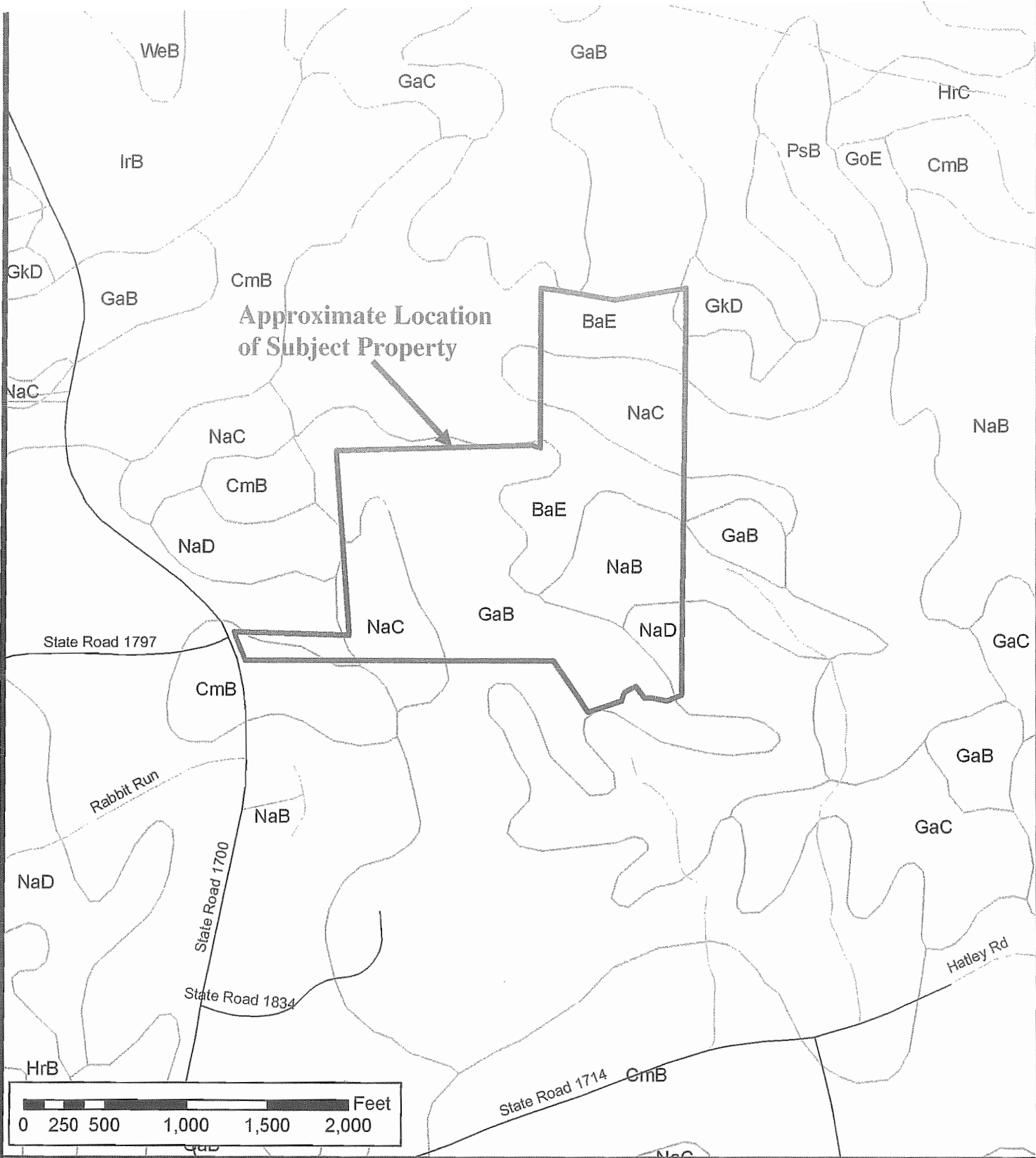
APPENDIX A – FIGURES



| | | | |
|---|---|--|-------------------------|
|  |  | <p>Vicinity Map 2007 Mapquest</p> | <p>Figure No. 1</p> |
| <p>Amended Environmental Impact Assessment Parker Springs Subdivision Mt. Gilead Church Road and Silverberry Road New Hope and Williams Townships, Chatham County, North Carolina</p> | | <p>ECS Project # 14896</p> | |



| | | | |
|--|---|---|--|
|  |  | <p style="text-align: center;">Topographic Map USGS 7.5-Minute Series Farrington, North Carolina Quadrangle</p> <p style="text-align: center;">Amended Environmental Impact Assessment Parker Springs Subdivision Mt. Gilead Church Road and Silverberry Road New Hope and Williams Townships, Chatham County, North Carolina</p> | <p style="text-align: center;">Figure No. 2</p> <p style="text-align: center;">ECS Project # 14896</p> |
|--|---|---|--|

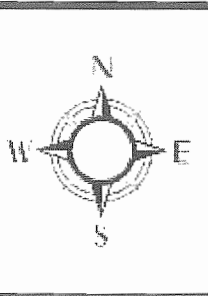
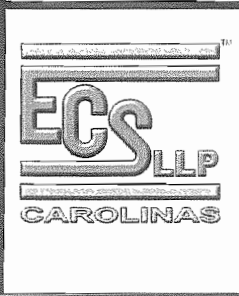
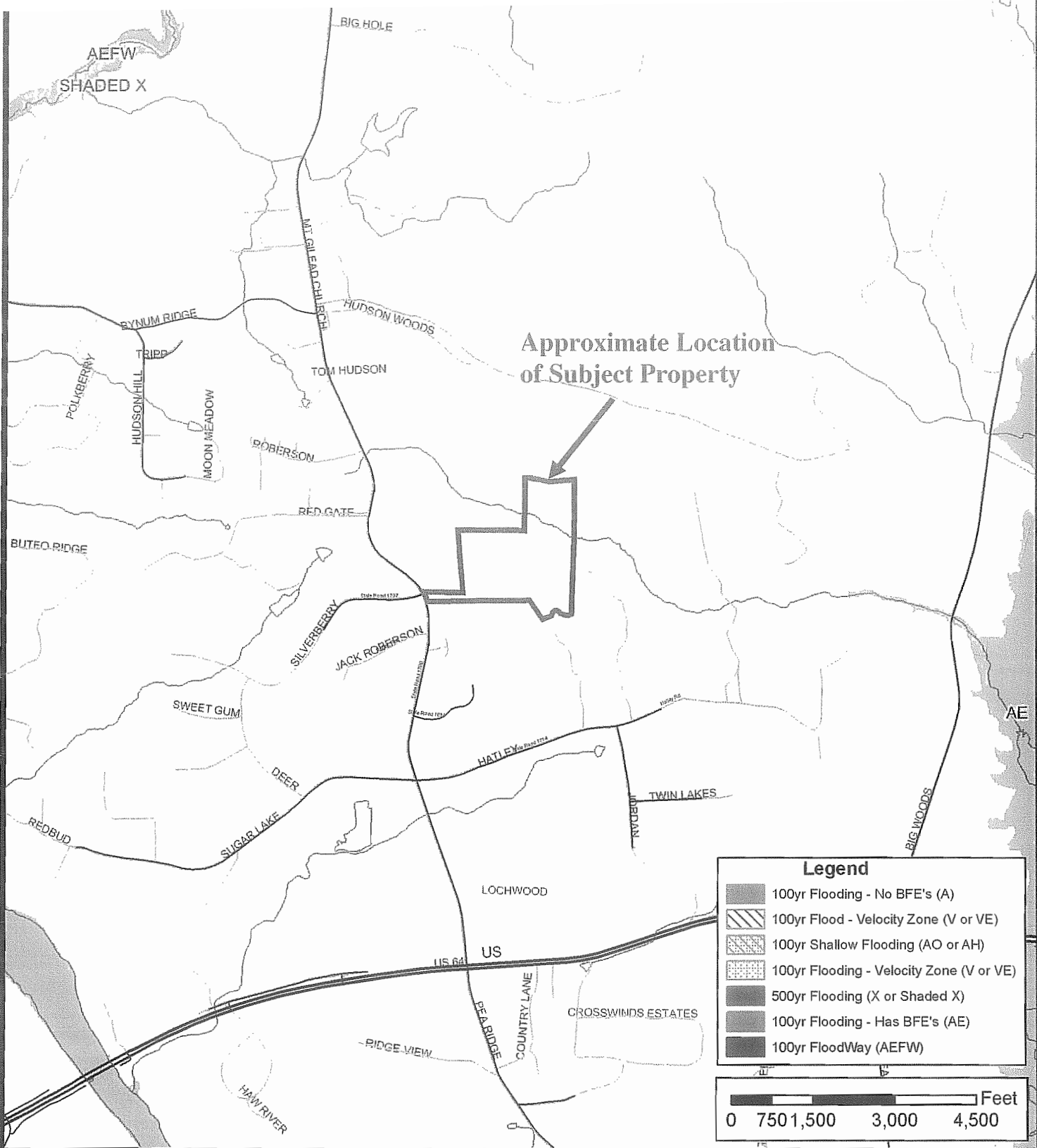


Soil Map
 NRCS Soil Survey of Chatham County

Amended Environmental Impact Assessment
 Parker Springs Subdivision
 Mt. Gilead Church Road and Silverberry Road
 New Hope and Williams Townships, Chatham County, North Carolina

Figure No.
3

ECS Project #
14896



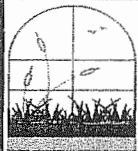
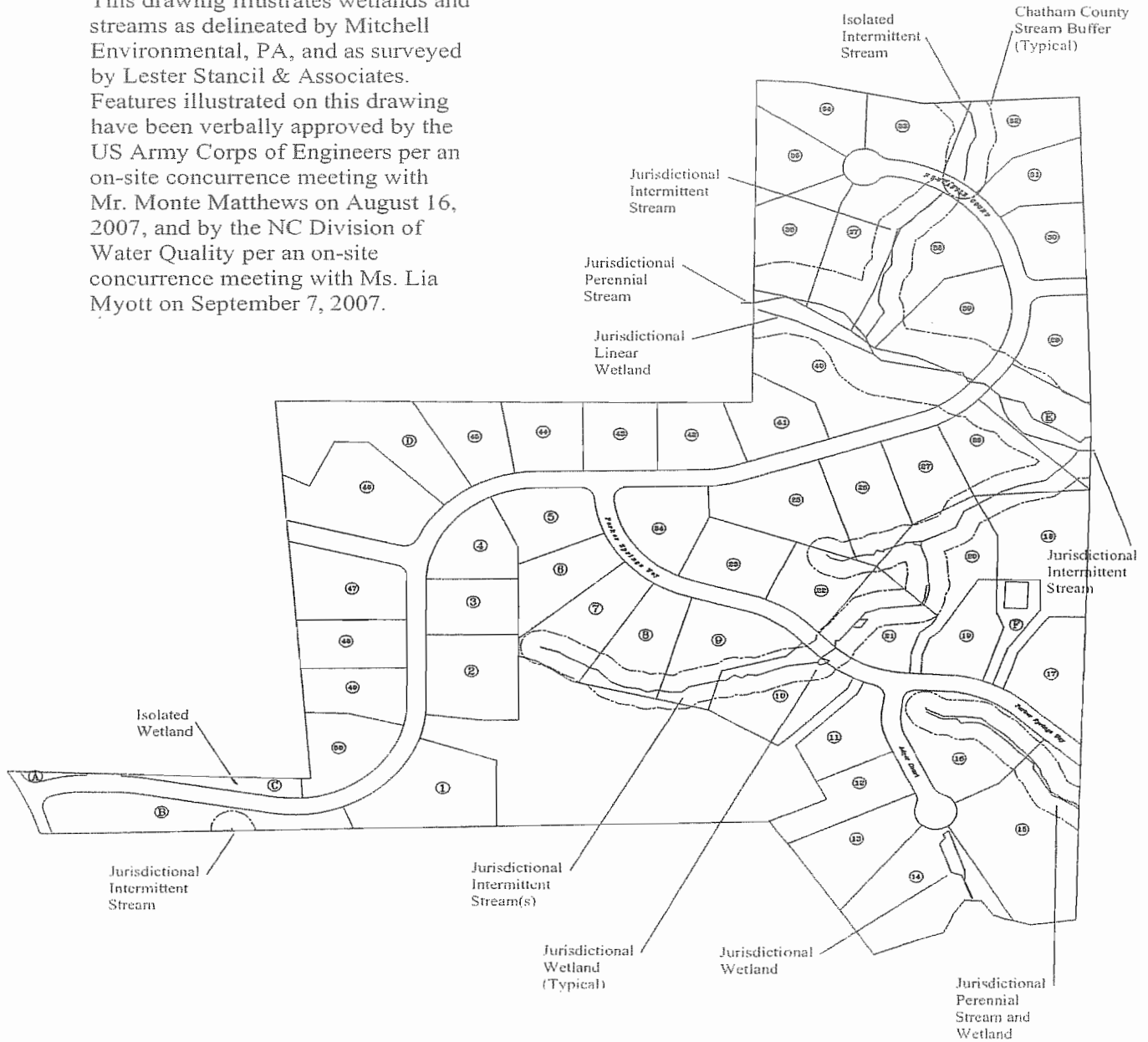
Flood Hazard Zones Map
 North Carolina Floodplain Mapping Program

Figure No.
4

Amended Environmental Impact Assessment
 Parker Springs Subdivision
 Mt. Gilead Church Road and Silverberry Road
 New Hope and Williams Townships, Chatham County, North Carolina

ECS Project #
14896

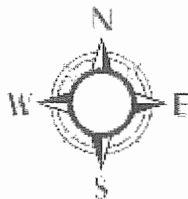
This drawing illustrates wetlands and streams as delineated by Mitchell Environmental, PA, and as surveyed by Lester Stancil & Associates. Features illustrated on this drawing have been verbally approved by the US Army Corps of Engineers per an on-site concurrence meeting with Mr. Monte Matthews on August 16, 2007, and by the NC Division of Water Quality per an on-site concurrence meeting with Ms. Lia Myott on September 7, 2007.



MITCHELL ENVIRONMENTAL, P.A.
 P.O. BOX 341
 FUQUAY VARINA, NC 27526
 OFFICE: 919-557-4682
 FAX: 919-557-4683
 bsmenvironmental@earthlink.net

PREPARED FOR: RLA Development, LLC
 318 West Millbrook Road
 Raleigh, North Carolina 27609
 DATE: October 11, 2007 SCALE: 1" = 400'
 ENVIRONMENTAL SCIENTIST CONTACT:
 SCOTT MITCHELL, PE, LSS

SUTTON SPRINGS S/D
CHATHAM COUNTY
APPROVED WETLAND AND
STREAM DELINEATION



Approved Wetland and Stream Delineation Map
 Mitchell Environmental, P.A.


Figure No.
5

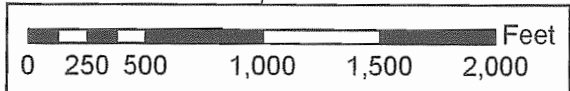
Amended Environmental Impact Assessment
 Parker Springs Subdivision
 Mt. Gilead Church Road and Silverberry Road
 New Hope and Williams Townships, Chatham County, North Carolina

ECS Project #
14896

Approximate Location
of Subject Property



 NWI Wetland Areas

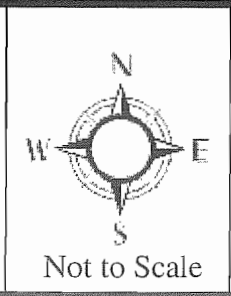
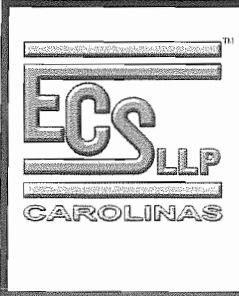
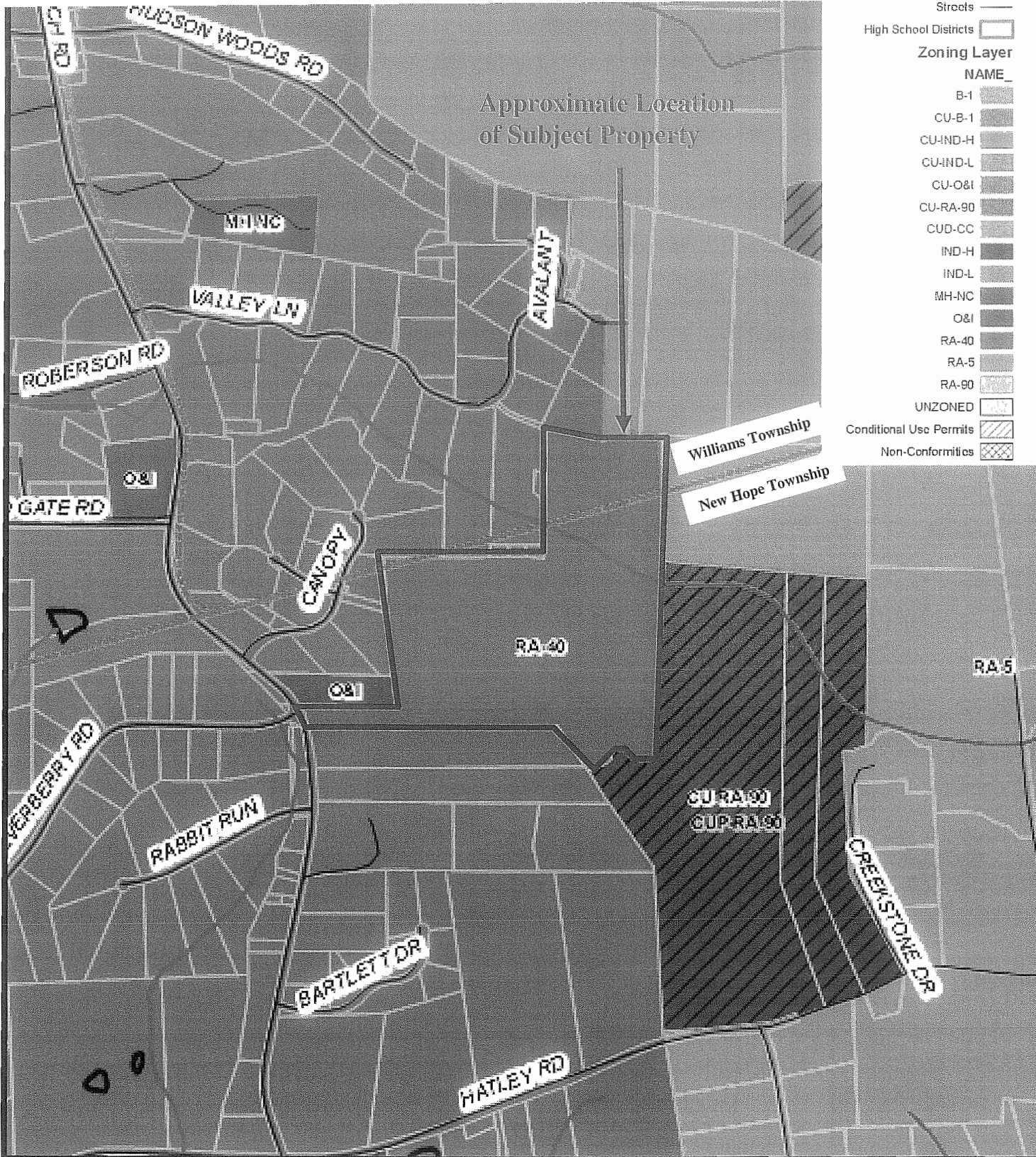


National Wetlands Inventory Map

Amended Environmental Impact Assessment
Parker Springs Subdivision
Mt. Gilead Church Road and Silverberry Road
New Hope and Williams Townships, Chatham County, North Carolina

Figure No.
6

ECS Project #
14896



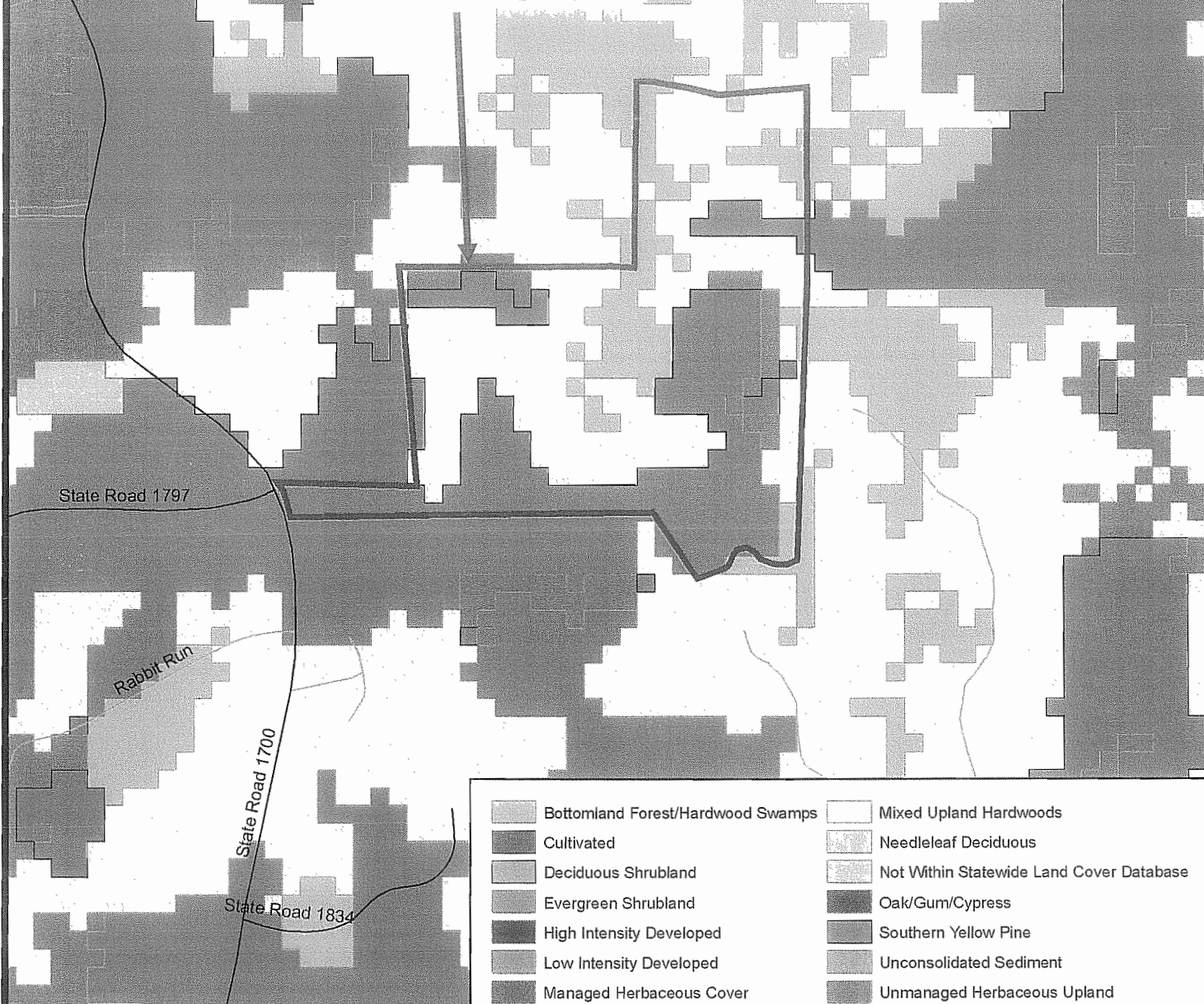
Chatham County Zoning

Figure No.
7

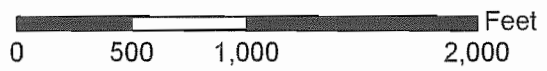
Amended Environmental Impact Assessment
Parker Springs Subdivision
Mt. Gilead Church Road and Silverberry Road
New Hope and Williams Townships, Chatham County, North Carolina

ECS Project #
14896

Approximate Location
of Subject Property



| | |
|-----------------------------------|--|
| Bottomland Forest/Hardwood Swamps | Mixed Upland Hardwoods |
| Cultivated | Needleleaf Deciduous |
| Deciduous Shrubland | Not Within Statewide Land Cover Database |
| Evergreen Shrubland | Oak/Gum/Cypress |
| High Intensity Developed | Southern Yellow Pine |
| Low Intensity Developed | Unconsolidated Sediment |
| Managed Herbaceous Cover | Unmanaged Herbaceous Upland |
| Mixed Hardwoods/Conifers | Unmanaged Herbaceous Wetland |
| Mixed Shrubland | Water Bodies |

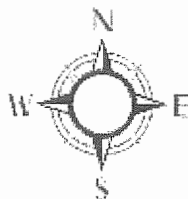


Land Use/Land Cover Map

Figure No.
8

Amended Environmental Impact Assessment
Parker Springs Subdivision
Mt. Gilead Church Road and Silverberry Road
New Hope and Williams Townships, Chatham County, North Carolina

ECS Project #
14896

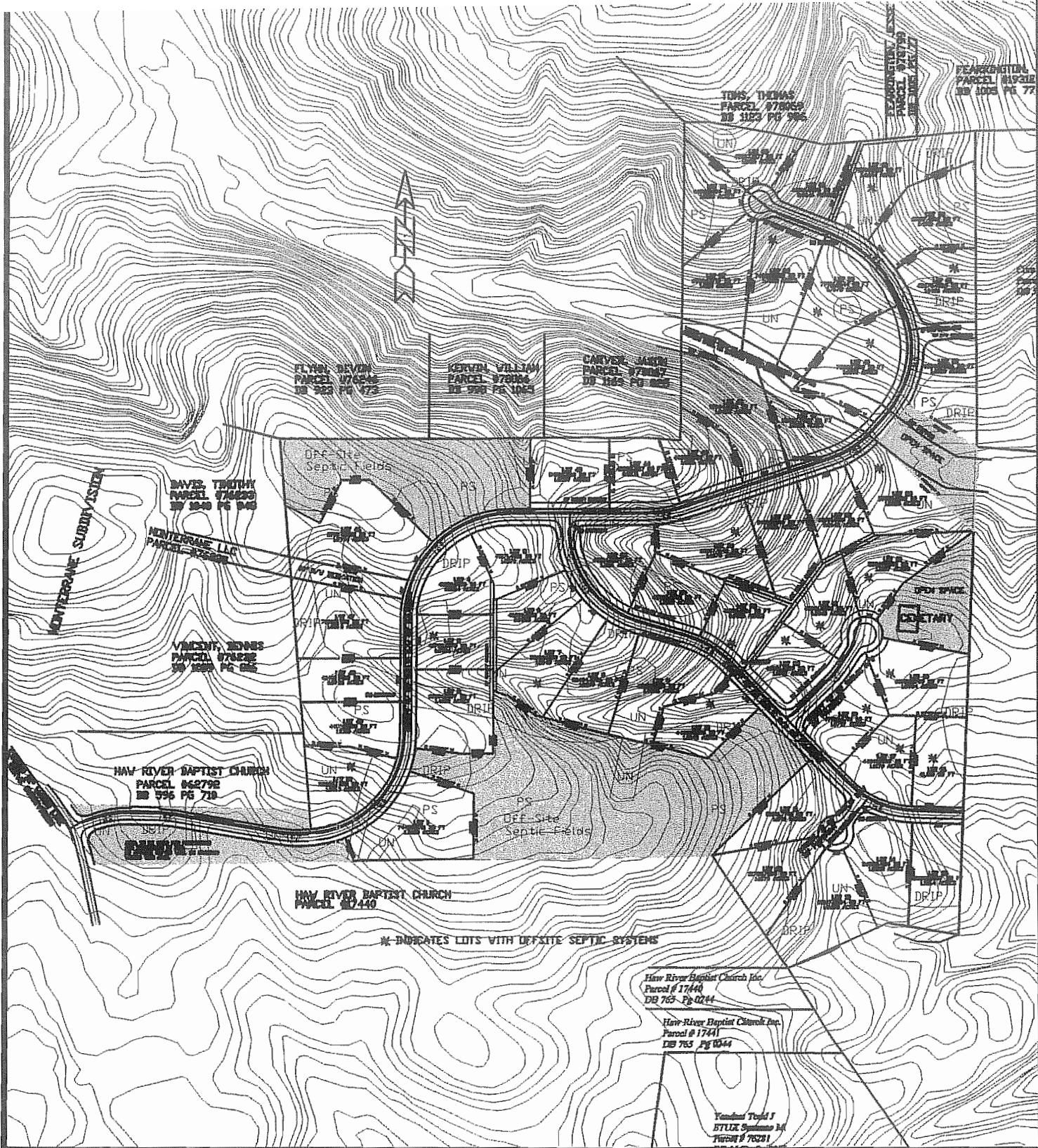


Cultural Resource Map
 NC State Historic Preservation Office

Figure No.
 9

Amended Environmental Impact Assessment
 Parker Springs Subdivision
 Mt. Gilead Church Road and Silverberry Road
 New Hope and Williams Townships, Chatham County, North Carolina

ECS Project #
 14896

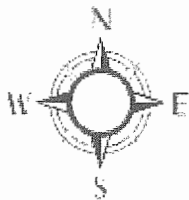


X INDICATES LOTS WITH OFF-SITE SEPTIC SYSTEMS

Hay River Baptist Church Inc.
Parcel # 17440
DB 765 Pg 0244

Hay River Baptist Church Inc.
Parcel # 17441
DB 765 Pg 0244

Vandenberg Tract J
STUEB Systems M
Parcel # 76381



Map Not to Scale

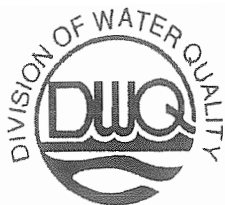
Preliminary Sketch Plan
Provided by RLA Development, LLC

Amended Environmental Impact Assessment
Parker Springs Subdivision
Mt. Gilead Church Road and Silverberry Road
New Hope and Williams Townships, Chatham County, North Carolina

Figure No.
10

ECS Project #
14896

APPENDIX B – AGENCY CORRESPONDENCE



Michael F. Easley, Governor

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

Coleen H. Sullins, Director
Division of Water Quality

September 7, 2007

DWQ EXP# 07-1494
Chatham County

Rusty Ammons
318 West Millbrook Rd.
Raleigh, NC 27612

Subject Property: **Parker Springs Subdivision**

On-Site Stream Intermittent/Perennial Determination - EXPRESS REVIEW PROGRAM

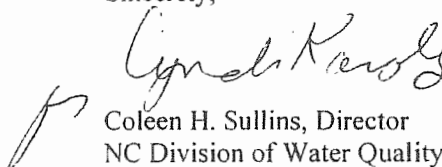
On September 7, 2007, at the request of from Mr. Scott Mitchell of Mitchell Environmental, PA, an on-site determination was conducted to review five stream features located on the subject property to determine their intermittent/perennial status. The features are labeled as "A" through "E" on the attached map, initialed by Lia Myott on September 7, 2007. The Division of Water Quality (DWQ) has determined that the following:

- Feature "A" is an intermittent stream beginning the flag labeled "A1" (correlates with Mitchell flag "SD2-9").
- Feature "B" is a perennial stream beginning at an old spring at the flag labeled "B1" (correlates with Mitchell flag "WD1-13").
- Feature "C" is an intermittent stream beginning the flag labeled "C1" (correlates with Mitchell flag "SD2-1").
- Feature "D" is an intermittent stream beginning as an isolated intermittent stream at the northern property boundary and ending at the flag labeled "D2". The stream begins again as an intermittent stream at the flag labeled "D1" (correlates with Mitchell flag "SD3").
- Feature "E" is an intermittent stream beginning the flag labeled "E1" which is located on the downstream side of the culvert at the dirt entrance road to the property.

This on-site determination shall expire five (5) years from the date of this letter.

This letter *only* addresses the intermittent/perennial status of the stream features listed above according to current DWQ standards and does not approve any activity within the streams or address features that were not observed during the site visit. Nor does this letter approve any activity within Waters of the United States or Waters of the State. If you have any questions, please contact Lia Myott at 919.733.9502.

Sincerely,



Coleen H. Sullins, Director
NC Division of Water Quality

CHS/cbk/lem

Attachments: Chatham County GIS Streams Map, USGS Topo Quad Map

cc: Scott Mitchell, P.O. Box 431, Fuquay-Varina, NC 27526
Lynn Richardson, Chatham County Planning Dept., 80-A East Street, P.O. Box 54, Pittsboro, NC 27312
File Copy
Central Files

North Carolina Division of Water Quality – Stream Identification Form; Version 3.1

| | | |
|--|-------------------------|--------------------------|
| Date: 9/7/07 | Project: Parker Springs | Latitude: |
| Evaluator: ZM | Site: D | Longitude: |
| Total Points: Stream is at least intermittent if ≥ 19 or perennial if ≥ 30 24 | County: Chatham | Other e.g. Quad Name: |

A. Geomorphology (Subtotal = 16)

| | Absent | Weak | Moderate | Strong |
|--|--------|------|----------|--------|
| 1 ^a . Continuous bed and bank | 0 | 1 | 2 | 3 |
| 2. Sinuosity | 0 | 1 | 2 | 3 |
| 3. In-channel structure: riffle-pool sequence | 0 | 1 | 2 | 3 |
| 4. Soil texture or stream substrate sorting | 0 | 1 | 2 | 3 |
| 5. Active/relic floodplain | 0 | 1 | 2 | 3 |
| 6. Depositional bars or benches | 0 | 1 | 2 | 3 |
| 7. Braided channel | 0 | 1 | 2 | 3 |
| 8. Recent alluvial deposits | 0 | 1 | 2 | 3 |
| 9 ^a Natural levees | 0 | 1 | 2 | 3 |
| 10. Headcuts | 0 | 1 | 2 | 3 |
| 11. Grade controls | 0 | 0.5 | 1 | 1.5 |
| 12. Natural valley or drainageway | 0 | 0.5 | 1 | 1.5 |
| 13. Second or greater order channel on existing USGS or NRCS map or other documented evidence. | No = 0 | | Yes = 3 | |

^a Man-made ditches are not rated; see discussions in manual

B. Hydrology (Subtotal = 2.5)

| | | | | |
|--|--------|-----|-----------|-----|
| 14. Groundwater flow/discharge | 0 | 1 | 2 | 3 |
| 15. Water in channel and > 48 hrs since rain, or Water in channel -- dry or growing season | 0 | 1 | 2 | 3 |
| 16. Leaf litter | 1.5 | 1 | 0.5 | 0 |
| 17. Sediment on plants or debris | 0 | 0.5 | 1 | 1.5 |
| 18. Organic debris lines or piles (Wrack lines) | 0 | 0.5 | 1 | 1.5 |
| 19. Hydric soils (redoximorphic features) present? | No = 0 | | Yes = 1.5 | |

C. Biology (Subtotal = 5.5)

| | | | | |
|---|--|-----|---|-----|
| 20 ^b . Fibrous roots in channel | 3 | 2 | 1 | 0 |
| 21 ^b . Rooted plants in channel | 3 | 2 | 1 | 0 |
| 22. Crayfish | 0 | 0.5 | 1 | 1.5 |
| 23. Bivalves | 0 | 1 | 2 | 3 |
| 24. Fish | 0 | 0.5 | 1 | 1.5 |
| 25. Amphibians | 0 | 0.5 | 1 | 1.5 |
| 26. Macroinvertebrates (note diversity and abundance) | 0 | 0.5 | 1 | 1.5 |
| 27. Filamentous algae; periphyton | 0 | 1 | 2 | 3 |
| 28. Iron oxidizing bacteria/fungus. | 0 | 0.5 | 1 | 1.5 |
| 29 ^b . Wetland plants in streambed N/A | FAC = 0.5; FACW = 0.75; OBL = 1.5 SAV = 2.0; Other = 0 | | | |

^b Items 20 and 21 focus on the presence of upland plants, Item 29 focuses on the presence of aquatic or wetland plants.

Notes: (use back side of this form for additional notes.)

Sketch:

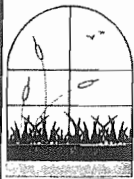
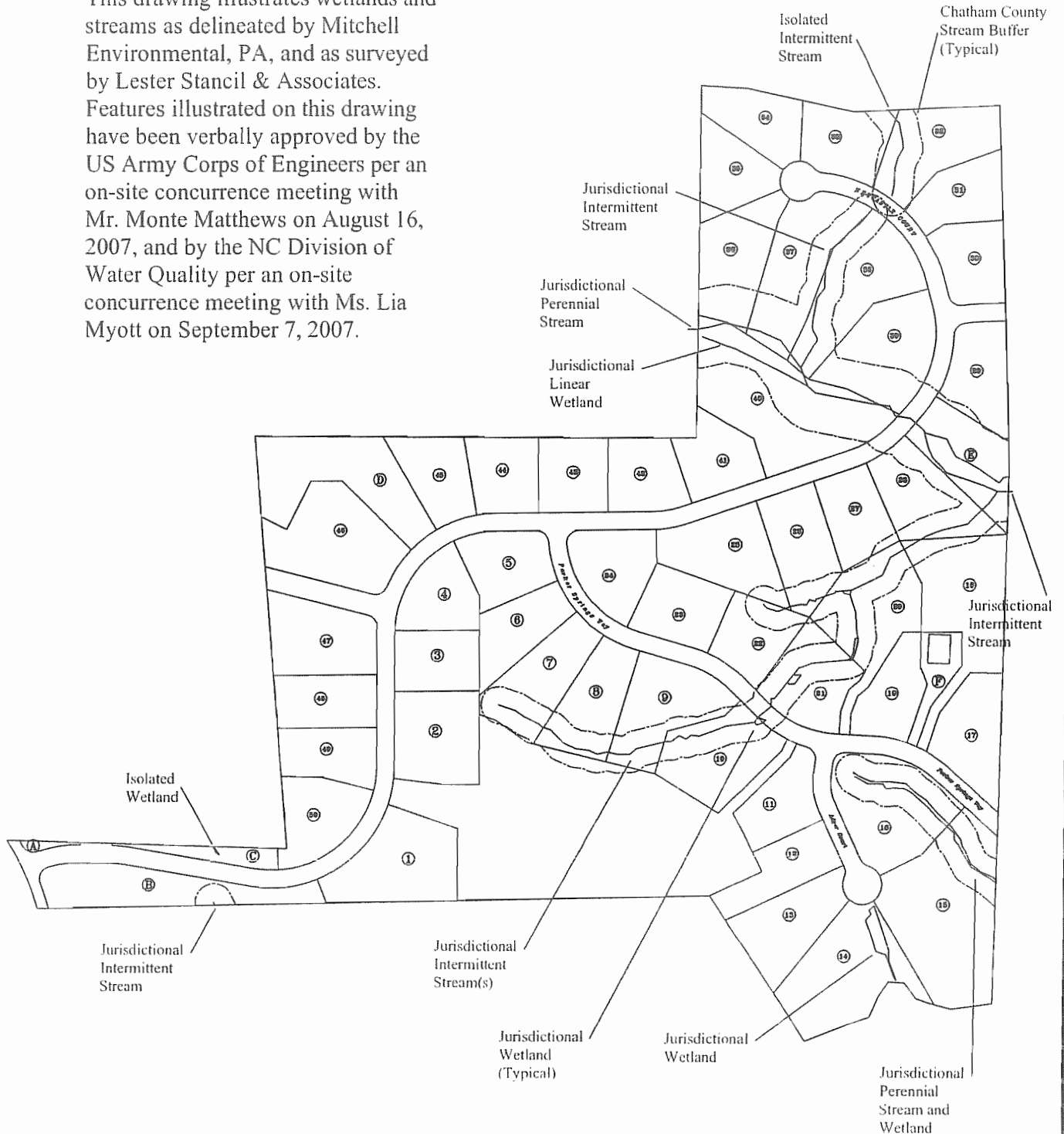
isopods

more riffle

Extreme Drought

? Too Dry to tell

This drawing illustrates wetlands and streams as delineated by Mitchell Environmental, PA, and as surveyed by Lester Stancil & Associates. Features illustrated on this drawing have been verbally approved by the US Army Corps of Engineers per an on-site concurrence meeting with Mr. Monte Matthews on August 16, 2007, and by the NC Division of Water Quality per an on-site concurrence meeting with Ms. Lia Myott on September 7, 2007.



MITCHELL ENVIRONMENTAL, P.A.
P.O. BOX 341
FUQUAY VARINA, NC 27526
OFFICE: 919-557-4682
FAX: 919-557-4683
bsmenvironmental@earthlink.net

PREPARED FOR: RLA Development, LLC
318 West Millbrook Road
Raleigh, North Carolina 27609

DATE: October 11, 2007 SCALE: 1" = 400'

ENVIRONMENTAL SCIENTIST CONTACT:
SCOTT MITCHELL, PE, LSS

SUTTON SPRINGS S/D
CHATHAM COUNTY
APPROVED WETLAND AND
STREAM DELINEATION

Page 1 of 1

Braxton Jones

From: Dolores Hall [dolores.hall@ncmail.net]
Sent: Thursday, October 05, 2006 5:09 PM
To: Braxton Jones
Subject: Chatham Land and Timber Company Property

Mr. Jones:

This email is to confirm that you visited the Office of State Archaeology in September to conduct a map and file search of the tract known as the Chatham Land and Timber Company property. We reviewed the USGS topographic maps and found there are no recorded archaeological sites within the property boundaries. In addition, it is our opinion that there is a low probability for the presence of important Native American archaeological sites on the property. We do not recommend any archaeological survey prior to project development.

You noted that there is an historic period cemetery on the property and it is our understanding that this cemetery is to be preserved and will not be affected by the proposed development.

If you have any questions, please do not hesitate to contact me.

Dolores Hall

Dolores A. Hall
Deputy State Archaeologist-Land
Office of State Archaeology
(919) 733-7342

E-Mail to and from me, in connection with the transaction of public business, is subject to the North Carolina Public Records Law and may be disclosed to third parties.

10/6/2006