



April 20, 2006

Crosland
4000 WestChase Boulevard, Suite 390
Raleigh, North Carolina 27607

Attention: Mr. Edmund Waddill

Reference: **Level I Soil Assessment for Septic System Suitability**
Danek Property - 302 Acres
Chatham County, North Carolina
S&ME Project No. 1054-06-160

Dear Edmund:

S&ME, Inc. has conducted a level 1 soil assessment on the above referenced 302-acre site in Chatham County to evaluate the soil suitability for septic systems. Our services were performed in general accordance with our Proposal Number 3943-06V dated April 6, 2006.

This report identifies the general location of potentially useable soils for on-site wastewater treatment and disposal systems, and does not constitute or imply approval for permit, as required by the local health department. Soil evaluations are done based on interpretations of the rules governing wastewater treatment and disposal systems and are not guarantees for site approval and system location will need detailed site specific evaluations. The local health department will need to evaluate and permit each individual system. Current soil science and environmental health sampling procedures have been used for this evaluation.

SITE INFORMATION

The site is identified as Chatham County parcel number 9763-77-2294 and consists of approximately 302 acres. A site vicinity map is shown on the attached Figure 1. The property is mostly undeveloped forest with gentle to steep rolling topography in the Piedmont landscape. There are some drainage features and two major utility easements that cross the property. Some portions of the site contain numerous cobbles and boulders on the ground surface. This site drains toward the northwest to Pokeberry Creek, which forms the northwest boundary for the site. Bynum Ridge Road runs along the southern boundary and a fence runs along the east boundary line.

SOIL SURVEY REVIEW

The Natural Resources Conservation Service (NRCS) has mapped several different soil series on this site. The predominant soil mapped on the gently sloping uplands is Georgeville Silt Loam and Silty Clay Loam, eroded. These soils generally have a deep red silty clay subsoil. The soil depth is generally greater than 30 inches from the surface and the clay is generally only slightly plastic and sticky. The Georgeville soil is mostly usable for septic systems. An area of Cid – Lignum soil complex has been mapped along the petroleum easement. These soils have an orange silty clay subsoil that is plastic and sticky and is generally unusable for septic systems. The clay mineralogy is mixed and the clay will shrink and swell upon drying and wetting cycles. Also, water will usually perch above the subsoil rendering it unusable for septic systems.

The NRCS has mapped the steeper slopes as Georgeville, Nanford and Badin. The Georgeville and Nanford soils are generally usable for septic systems since they are deep and well drained and do not have mixed mineralogy clays. The Badin soil is similar to the Georgeville soil, but it is not as deep and has some mixed mineralogy clays; therefore, it is not well suited for septic systems. The flood plain soils along Pokeberry Creek have been mapped as the Chewacla and Wehadkee soils that are unusable for septic systems because they are poorly drained and frequently flooded.

SOIL EVALUATION

S&ME, Inc. personnel walked across this property and advanced approximately 260 hand auger borings to assess the soil characteristics with regard to subsurface septic system suitability and surface drip system suitability. Soil borings performed on the site are approximately located and shown on Figure 2. Soil borings were not performed in low-lying areas such as drainage features or hydric soils. The following is an explanation of the color-coded soil boring legend found on Figure 2.

Red – Soils that are at least 30 inches deep to any unsuitable soil characteristics. Areas of uniform topography with these soils can accommodate conventional, modified (shallow placement) or alternative subsurface septic fields. Additionally, surface drip or spray wastewater systems can be sited on these type of soils.

Green – Soils that are 24 to 30 inches deep to any unsuitable soil characteristics. Areas of uniform topography with these soils can accommodate modified (shallow placement) or alternative subsurface septic fields. Additionally, surface drip or spray wastewater systems can be sited on these type of soils.

Blue – Soils that are 18 to 24 inches deep to any unsuitable soil characteristics. Areas of uniform topography with these soils can accommodate alternative subsurface septic fields, such as the low pressure pipe system or subsurface drip systems, especially if they are coupled with wastewater pretreatment components. Additionally, surface drip or spray wastewater systems can be sited on these types of soils.

Yellow – Soils that are 12 to 18 inches deep to any unsuitable soil characteristics including soil wetness conditions. Areas of uniform topography with these soils are generally unusable for subsurface septic systems but can accommodate surface drip or spray wastewater systems.

Gray – Soils that are less than 12 inches deep to any unsuitable soil characteristics including soil wetness conditions; mixed mineralogy clays, or saprolite or rock. Regardless of the topography, these soils are generally unusable for subsurface septic systems or surface drip and/or spray wastewater systems.

Septic system component setbacks from property lines, surface waters etc. may preclude the use of certain kinds of septic systems. Also, steep slopes may require septic systems that utilize narrow trenches in order to maintain the required regulatory vertical separation from the trench bottom to any unsuitable soil characteristic on the upslope side of the trench.

For planning purposes, each 4 bedroom residential lot that utilizes the subsurface septic systems will generally require 10,000 to 14,000 square feet of usable soil to accommodate a subsurface septic system and repair field. At your request, S&ME, Inc. can conduct a more detailed Level II soil study on the site to provide delineated soil units that take into account complex and unusable topographic features such as gullies and drains, etc.


CLOSURE

This report is provided for the sole use of Crosland for the above referenced site. No other use is authorized by S&ME, Inc. We appreciate the opportunity to conduct this soil assessment. If you have any questions regarding this report, please do not hesitate to contact us.

Sincerely,

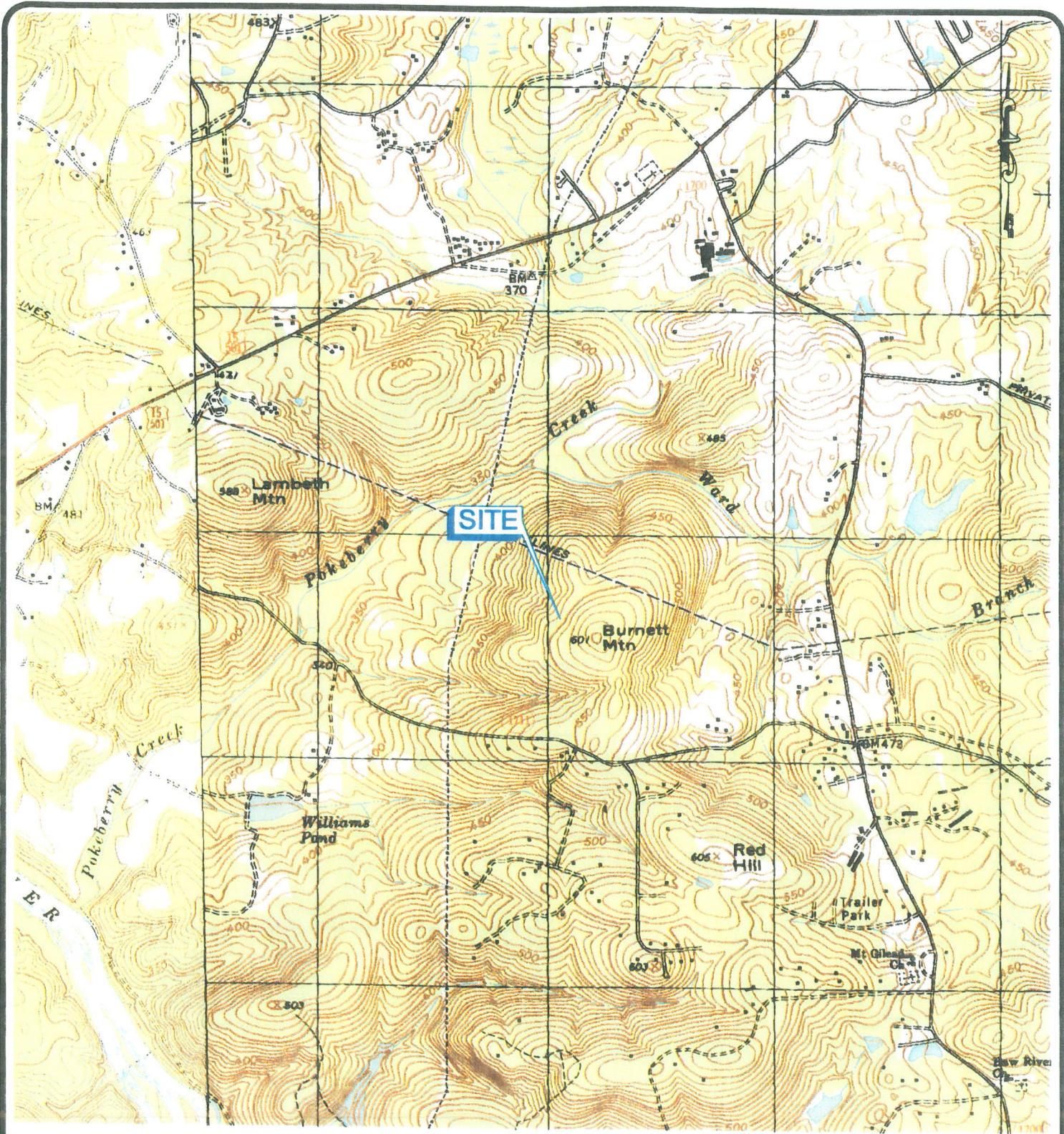
S&ME, Inc.

John R. Davis *JNR*
John R. Davis, Jr., LSS
Project Manager


Wes Lowder, P.E.
Senior Reviewer

Enclosures: Figure 1 Site Vicinity Map.
Figure 2 Soil Boring Locations

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GRAPHIC SCALE IN FEET

BYNUM, NC USGS QUADRANGLE DATED 1968
 FARRINGTON, NC USGS QUADRANGLE DATED 1993

SCALE:	AS SHOWN
DATE:	APRIL 2006
DRAWN BY:	JCJ
PROJECT NO:	1054-06-160



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VICINITY MAP
 DANEK 302 ACRE TRACT
 SOIL ASSESSMENT FOR
 SEPTIC SYSTEM STABILITY
 FARRINGTON, NORTH CAROLINA

FIGURE NO.

1



Soil Legend

Red – Soils greater than 30 inches deep to any unsuitable soil characteristics. Usable for subsurface septic systems.

Green – Soils 24 to 30 inches deep to any unsuitable soil characteristics. Usable for modified and alternative subsurface septic systems.

Blue – Soils that are 18 to 24 inches deep to any unsuitable soil characteristics. Usable for alternative subsurface septic systems.

Yellow – Soils that are 12 to 18 inches deep to any unsuitable soil characteristics. Usable for surface drip or spray septic systems.

Gray – Soils less than 12 inches deep to any unsuitable soil characteristics including soil wetness conditions; mixed mineralogy clays, or saprolite or rock. Not usable for any septic system.

See report for more detailed description of classified soils with regard to septic system suitability.



SCALE:	AS SHOWN	DATE:	APRIL 2006
PROJECT NO.	1054-06-160	DRAWN BY:	JCJ
		CHECKED BY:	

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SOIL SAMPLE LOCATIONS
 DANEK 302 ACRE TRACT
 SOIL ASSESSMENT FOR
 SEPTIC SYSTEM STABILITY
 FARRINGTON, NORTH CAROLINA