



COMMONWEALTH of VIRGINIA



SOUTHSIDE HEALTH DISTRICT

Mecklenburg County

Environmental Health

<http://www.vdh.state.va.us/LHD/south/south.htm>

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DISTRICT HEALTH DIRECTOR  
William R. Nelson, M.D., M.P.H.

March 23, 2006

Robert L. Hendricks  
Zoning Administrator  
Post Office Box 307  
Boydton, Virginia 23917

Dear Mr. Hendricks:

A review of the soil evaluations conducted by Mr. Daniel J. Bliley, CPSS on the Peete River Farm Subdivision has been completed by the Mecklenburg County Health Department. All lots were evaluated in accordance with the Sewage Handling and Disposal Regulations (July 2000).

Based on the information submitted, it appears that lots 6, 7, 10, 13, 19, 20, 22, 25, 26-A, 27-A, 28, 29, 30-A, 31-A, 32-A, 33-A, 34-A, 41, 51, and 52 are suitable for the installation of a subsurface type sewage disposal system for a single family dwelling unit of four (4) bedrooms or less. Lots 26, 27, 30, 31, 32, 33, and 34 will require engineered plans for the pump design, these lots will be pumped to offsite lots located in Virginia. Lot 26 to 26-A, 27 to 27-A, 30 to 30-A, 31 to 31-A, 32 to 32A, 33 to 33-A, and 34 to 34-A.

Based on the information submitted, it appears that lots 14, 42, 43, 46, 53, 55, 56, and 57 are suitable for the installation of a subsurface type sewage disposal system for a single family dwelling unit of five (5) bedrooms or less.

Based on the information submitted, it appears that lots 1, 2, 3, 4, 5, and 58, located in North Carolina will be permitted for septic systems by the Warren County Health Department. Lots 8, 9, 11, 12, 15, 16, 17, 18, 21, 23, 24, 35, 36, 37, 38, 39, 40, 44, 45, 47, 48, 49, 50, and 54 located in Virginia, will be pumped to offsite drainfields located in North Carolina. Sewage disposal permits for these lots will be permitted by the Warren County Health Department.

This approval is contingent upon the following factors:

1. The subsurface type sewage disposal system, for each lot, must be specifically located by permit (CHS-202) by the Health Department before any construction is started.
2. Depending on house location, some lots may require the use of a pump to convey the effluent to the subsurface type sewage disposal system.

Also, local ordinance requires that a building permit be obtained from the Office of the Building Inspector, Boydton, Virginia 23917, before any construction is started.

March 13, 2006

Mr. Robert Hendrick  
Zoning Administrator  
Mecklenburg County  
PO Box 307  
Boydton, Virginia 23917

Dear Mr. Hendrick:

This letter concerns the suitability for septic system drainfields in the Warren County, North Carolina sections of the Peete River Farm Subdivision located on Lake Gaston along the Virginia-North Carolina state line.

The attached soils report prepared by Daniel J. Bliley, Licensed Soil Scientist shows the distribution of soils relative to septic system suitability in the Warren County areas of the subdivision. This report shows that the areas are dominated by soils that have potential for conventional or alternative septic system drainfields. The areas were identified by detailed soils investigations. The soils were classified under state sewage disposal regulations(15 NCAC 18A .1900-1968).

Six of the water front lots (1, 2, 3, 4, 5 & 58) are predominantly located in North Carolina and can be permitted for septic systems by the Warren County Health Department. Also Shown on the map are off site areas that are designed to serve as primary or repair drainfield sites for twenty-five (5-repair, 8, 9, 11, 12, 15, 16, 17, 18, 21, 23, 24, 35, 36, 37, 38, 39, 40, 44, 45, 47, 48, 49, 50 & 54) of the water front lots located in Virginia, which have unfavorable on lot soil conditions for septic system drainfields. Sewage disposal permits for these lots will be issued by the Warren County Health Department. Each of the off site areas contains sufficient usable soils for four bedroom dwellings or larger. Easements for access to these areas are also shown on the map.

Please contact me if you have any questions regarding this matter.

Sincerely,

*Andy Smith, RS*

Andy Smith, RS  
Environmental Health Supervisor  
Warren County Health Dept.

Cc: Mecklenburg Co. Health Dept.

# DANIEL J. BLILEY

SOIL AND LAND USE CONSULTANT

614 SOUTH SECOND STREET  
March 31, 2005

SMITHFIELD, NORTH CAROLINA 27577

(919) 934-8610

Mr. Clyde P. Harris, Jr.  
3105 Ward Blvd.  
Suite D  
Wilson, North Carolina 27893

Dear Clyde:

This report concerns the preliminary soils and site investigations for on site sewage disposal suitability on the 80 acre section of the Peete Farm located on the north side of Peete Farm Road adjacent to Hawtree creek and Lake Gaston along the Virginia-North Carolina State line.

The attached map shows the approximate location of various soils areas on the property as well as selected cultural features and drainage features. Most of these features were located using GPS technology. The soils boundaries were estimated from auger boring made at selected locations and from field observations of soil related landforms and vegetation. At many locations these boundaries are gradational in nature and may not be highly significant, because of the variability in the underlying materials. In the Virginia areas the boundaries were estimated from soil borings made to depths of 60 inches or less depending upon the specific depth to rock. Deeper soil borings, possibly to depths of 80 to 120 inches, will be needed before specific drainfield sites can be identified. In the North Carolina areas the soils borings were made to depths of 40 inches. Investigations of lots 50 through 55 are somewhat incomplete at this time.

Brief descriptions of the soils areas and suitability for septic system drainfields are as follows:

## VIRGINIA SECTION

**SOILS AREA 2a:** These soils generally appear to be acceptable for conventional septic system drainfields. These soils have well drained friable red clay subsoils that are underlain by loamy saprolite materials at depths ranging from 40 to 56 inches from the soil surface. It is anticipated that the estimated percolation rated in these areas will range from about 30 to more than 65 inches/min. Trench depths may range from 70 to more than 100 inches from the soil surface. The drainfield trench requirements for five bedroom dwellings will range from 430 to 1,250 linear ft. per lot including the repair (50 %) area where required. These trench requirements can be reduce (in some cases significantly) by using low

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pressure distribution, by using systems involving pre-treatment or by using other innovative measures for reductions in trench area requirements. Included in these soils areas are small areas of soils similar to those in area 2 which have shallow depths and higher estimated percolation rates. There are also some isolated areas of unsuitable soils present which have shallow depths to bedrock.

**SOILS AREA 2:** These soils have potential for septic system drainfields. These soils generally have friable red clay subsoils which are underlain by restrictive saprolite or hard bedrock at depths generally below 36 inches from the soil surface. These soils can generally be used for shallow placed conventional drainfields. The percolation rates are estimated to range from 90 to 120 min./inch. The trench requirements for five bedroom dwellings are estimated to range from about 1,900 to 2,500 linear ft. per lot. These trench requirements can be significantly reduced by using low pressure distribution (1,059 to 1,310 linear ft.) or by using pre-treatment systems for additional reductions.

**SOILS AREA 3:** These soils will dominantly classify unsuitable for conventional or alternative septic system drainfields. These soils mainly have unfavorable landscape properties for septic system drainfields. Some of these soils have shallow depth to bedrock or they have gray mottles or other indicators of intermittent wetness in the subsoils. Overall these areas are not considered to be usable for septic system drainfields.

## **NORTH CAROLINA AREAS**

**SOILS AREA 1:** These soils will dominantly classify provisionally suitable for conventional or modified conventional septic system drainfields. these soils have friable red clay subsoils which have structure and are free of gray wetness mottling within the upper 30 to 40 inches of the soil profiles. The subsoils are underlain by loamy saprolite materials at depths ranging from 36 to more than 48 inches from the soil surface. The saprolite materials appear to be variable in their clay content, density and hydraulic conductivity . Overall these soils can be used for conventional septic system drainfields with few concerns for modifications. Locally saprolite systems or shallow fill (at grade) installations may be required where the soil depths are less than 30 inches.

These soils have potential for spray fields for slow rate surface spray irrigation disposal systems. The main limitation to use for spray systems is the clayey subsoils and underlying saprolites which have low to variable hydraulic conductivity. Locally the surface layers may have high clay content and moderately low infiltration rates. For preliminary

(SOILS AREA 1 cont.) planning purposes it is recommended that the limiting saturated hydraulic conductivity of 0.50 in./hr be used. Hydraulic conductivity based on actual field measurements may need to be estimated before any plans can be finalized for design of a surface spray irrigation system. A water balance will need to be constructed which can be used as a guide for weekly-monthly application of waste water. The actual hydraulic conductivity will be important in estimating the size of the needed spray field and the amount of seasonal storage that will be required. For treated domestic waste water it is estimated that the weekly application rate could range from 0.75 to 1.0 inches. It is likely that some storage will be required for months where weather conditions will not allow for regular irrigation.

## SUMMARY

Most of the lots have significant areas of soils that have potential for septic system drainfields using conventional methods or by using various alternative measures as allowed under Virginia or North Carolina State regulations. The main concern at this time would be for the size of dwellings and the kinds of septic systems that can be supported on the lots. It appears at this point that Lots 1, 2, 3, 4, 5, 6, 7, 13, 19, 20, 21, 22, 24, 36, 37, 40, 41, 43, 49, 50, 51, 52, 53 & 54 may have potential for four to five bedroom dwellings subject to the specific house locations. Some of the remaining lots could potentially support four to five bedroom dwellings subject to the use of pre-treatment systems, innovative (space saver) systems, restricted house locations and detailed on lot planning. Lots 45, 46, 47 & 48 do not have acceptable soils for septic system drainfields. Off site drainfield areas will be required for these lots. As you are aware there are significant areas of rock outcrops on lots 45 & 46.

The investigations of lots 50 through 55 are somewhat incomplete. These lots have favorable topography and vegetation indicative of good soil. In any case these lots could be extended into favorable by adjusting the road if necessary.

The use of innovative and pre-treatment systems is becoming more common place in Mecklenburg County and in other areas in Virginia because of the high percentage of unsuitable soils present. The cost of pre-treatment systems may range from about 12,000 to 20,000 per lot depending upon the system. Most of these systems require periodic regular inspections to ensure that they are properly functioning. Systems using low pressure distribution to my knowledge have generally not been used in Mecklenburg County because they require design by a professional engineer, they employ a pump system and

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they are somewhat more complex than standard conventional septic systems. I will obtain more details regarding the specific design criteria and cost for these alternative sewage disposal systems that can be permitted in Virginia.

The determination of drainfield size in Virginia is dependent upon the estimated or measured percolation rates. The highest estimated percolation rate can be obtained in the loamy saprolites which occur at depths ranging from 45 to more than 90 inches, such as should occur in area 2a. In many cases it is difficult to obtain an area that has uniform saprolite because of the variability in the materials. Sometimes it is desirable to use a backhoe to investigate the saprolites because small rock bodies or other insignificant features can be more clearly identified and eliminated from consideration more easily. Some of the soils in area 2 could possibly be re-classified to area 2a by using backhoe investigations.

There are some questions that need to be addressed before plans for a centralized sewer system can be finalized, such as the calculation of the design sewage flows. Virginia calculates the sewage flows at 150 gal./bedroom. North Carolina calculates the design flow at 120 gal./bedroom. You may be able to use the North Carolina design flows if the treatment plant and disposal field are in North Carolina. This would be advantageous because of the lower design sewage flow. I will contact the local Health Department regarding this matter. Likewise the question of individual lots with dwellings in Virginia and drainfields in North Carolina needs to be resolved. It would be more desirable to have the drainfields permitted in North Carolina because the rules are more flexible relative to the kinds of soils that are present.

Please call me if you want to discuss this report or the soil conditions on the property in more detail.

Sincerely

Daniel J. Bliley  
Licensed Soil Scientist

