

April 3, 2009

Mrs. Lesia Monfre
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Mrs. Monfre:

This report concerns the preliminary soils and site investigations for septic system suitability and related development issues on the Poplin Heirs property located along Carpenter Pond Road just north of the intersection with Hickory Grove Church Road in eastern Durham County. The Durham Co. parcel numbers are 194834 and 194853. A small section of the property is in Wake County. The parcel number is 0174230.

The attached sketch map shows the approximate locations of various soils areas on the property as well as selected cultural features and drainage features. This map was prepared using property information and aerial photography obtained from the Durham Co. and Wake Co. GIS web sites. The topographic contours were obtained from the NCDOT GIS web site. The USDA soil survey maps and the USGS topographic maps were also consulted as to the general nature of the soils, landforms and streams.

The soils boundaries and areas as shown were estimated from hand auger borings made at selected locations and from field observations of soil related landforms and vegetation. The locations of the individual soil borings as well as the locations of selected cultural features and drainage features were estimated using a Trimble mapping grade GPS receiver. This map should be sufficient in detail for the preparation of preliminary sketch plans for subdividing the property into a family subdivision. The map could possibly be used for more intensive planning subject to additional follow-up soils investigations and consultations. This map is not sufficient in detail for the preparation of a final subdivision plan. Additional follow-up investigations of individual lots and consultations regarding specific development plans for lots will be required in some capacity.

Brief descriptions of the soil areas and suitability for septic system drainfields based on State Sewage Disposal Regulations (15A NCAC 18A .1900-.1970) are as follows:

SOILS AREA 1: These soils will dominantly classify provisionally suitable for conventional septic system drainfields. These soils have dark brown and light brown fine sandy loam to loam surface layers 6 to 10 inches thick. The underlying subsoils are mainly friable red clays that exhibit soil structure and are free of seasonal wetness indicators within the upper 30 to more than 40 inches of the soil profiles. The subsoils are underlain by loamy saprolite (soft weathered bedrock materials) which have variable caly content and variable suitability for septic system drainfields. These soils generally have potential for conventional septic system drainfields. At some locations modifications to the standard installation such as shallow placement of trenches or the installation of up-slope interceptor drainage measures may be required. Locally there may be some isolated small areas of unsuitable soils included in these areas. The sewage loading rates (LTAR) are estimated to range from 0.25 to 0.35 gal./sq. ft. of trench bottom for conventional or modified conventional drainfields.

SOILS AREA 2: These soils will classify provisionally suitable to unsuitable for standard conventional septic system drainfields. These soils are similar to those soils in area 1. However included in the areas are old agricultural terraces and other topographic irregularities which will affect the placement of septic

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AREA 2 (CONT.); system drainfields. Also there are some soils included in these areas that have structureless saprolite within the upper 30 inches of the soil profiles. These shallow soils are generally associated with the steeper slopes. These soils generally have potential for septic system drainfields. Most of the unsuitable soils can be re-classified to provisionally suitable by using modifications for conventional drainfields or by using alternative (low pressure or drip irrigation) septic systems as specified under the State Sewage Disposal Regulations. The sewage loading rates (LTAR) are estimated to range from 0.25 to 0.30 for modified conventional or conventional drainfields. For alternative septic systems the LTAR is estimated to range from 0.10 to 0.12 gal./sq. ft. of drainfield area. It may be desirable to allocate additional space above normal for drainfields when designing lots in these areas to account for the localized unsuitable conditions that will be encountered.

SOILS AREA 3: These soils will dominantly classify unsuitable for conventional or low pressure pipe (Lpp) septic systems. These soils occur on the steeper slopes or they occur within the required 50 ft. buffer (or riparian buffers) from streams. Some of these soils have shallow depths to restrictive saprolite or have expansive subsoil clays. Overall these soils are not recommended for conventional or low pressure septic system drainfields. Some site can be considered for subsurface or surface drip irrigation systems. These kinds of sewage disposal systems are not normally considered practical due to the high initial cost of the installation and the preliminary investigations that are required for the design and permitting.

SUMMARY

These properties have potential for further development using septic system drainfields for on site sewage disposal. The property can be subdivided into a combination of minimum size lots and small tracts using soils areas 1 & 2 as sites for conventional, modified conventional or alternative septic system drainfields. Isolated areas of soils area 3 can be considered for certain alternative (drip) systems. You can use the attached map to prepare preliminary sketch plans for subdividing the property. You need to be aware that the surface drainage features and gullies are localized unsuitable landscape features that will restrict placement of septic system drainfields. For preliminary planning purposes you will need to allocated at least 15,000 sq. ft. of soils 1 or 2 to each building lot for septic system drainfields (three to four bedroom dwellings) in Durham County. In Wake County each lot is required to contain at least 40,000 sq. ft. of soils areas 1 or 2 for recordation under section V of the county sewage disposal regulations. Lots can be recorded under section VI with less than 40,000 sq. ft. of usable soils provided that detailed lot development plans are prepared showing the locations of septic system drainfields, dwellings, well sites, driveways and any other planned accessory structures.

Attached with this report is a copy of the USDA soil survey maps for both Wake and Durham Counties. Highlighted on this map in blue marker are two stream features. These features and the pond will be subject to riparian buffers under the Neuse Basin Regulations for the reduction of nutrient and sediment discharges . The riparian buffers extend outwards 50 ft. each side of the stream channels and are required to be maintained in the present undisturbed vegetative condition. Most development related activities are prohibited in the riparian buffers. It may be possible to reduce the extent of these stream features because certain segments do not appear to meet specific criteria for streams. An inspection by NCDENR, Division of Water Quality will be scheduled in order to reduce the stream features. You may contact Martin Richmond at 791-4200 to schedule a field inspection if you wish.

We discussed the possible preparation of preliminary sketch plans for subdividing the property. I will be able to do this but would like to discuss some specifics with you before hand. I will try to get up with you for the discussions. There may be some problems with the fronting of new lots along Laurdane Road.

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In any case please call me if there are any questions concerning the details of these investigations or if you want to discuss various schemes for developing the property.

Sincerely

Daniel J. Bliley
Licensed Soil Scientist

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