

Central Carolina Soil Consulting, PLLC

329 South White Street

Wake Forest, NC 27587

919-569-6704

December 27, 2015

Job # 1801

Michael Mansour

RE: Preliminary soil/site evaluation for two tracts adjacent to Pea Ridge Road in Chatham County (roughly 6.6 & 1.9-acres).

Dear Mr. Mansour

Central Carolina Soil Consulting, PLLC conducted a preliminary soil evaluation on the parcel listed above to determine the areas of soils that are provisionally suitable for future commercial subsurface wastewater systems. The soil/site evaluation was performed using hand auger borings during moist soil conditions based on the criteria found in the State Subsurface Rules, 15ANCAC 18A .1900 "Laws and Rules for Sewage Treatment and Disposal Systems" From this evaluation, CCSC sketched the boundary of the provisionally suitable soils and unsuitable areas by ground truthing and GPS field location of soil borings.

The above referenced parcels are located in the Triassic Basinn Geologic unit, where soils have formed from sedimentary parent material such as mudstone and sandstone. The soils that have formed on this parcel are similar to the Creedmoor (deep surface) and Worsham soil series. The attached soils map indicates the areas of provisionally suitable vs. unsuitable soils. The Creedmoor soils have formed on the uplands of the property and are mostly unsuitable with the exception of inclusions with a deep sandy surface and/or sandy clay loam subsurface area. That is, the morphology of the soils contain suitable characteristics that would support subsurface septic systems such as sandy clay loam textured subsoils that are not considered expansive have blocky structure and no indicators of restrictive characteristics within 18-24 inches of the soil

surface. The Worsham soil series have formed in the flood plan of the larger 6.6-acre tract and are unsuitable due to field indicators of a seasonally high water table from 0-18 inches.

The attached soils map indicates the areas of soils which are provisionally suitable for subsurface wastewater systems. The "hatched soil units" on the attached map indicates the areas of soils that have 30+ inches or more of provisionally suitable soil material. These areas have potential for conventional and modified conventional septic systems. There may be inclusions of soils that can only support LPP or ultra-shallow conventional septic systems in the areas mapped as conventional. The "cross hatched" soil units on the attached map indicates areas of soils with 24-29 inches of provisionally suitable soil material. These areas have potential for LPP or ultra-shallow conventional septic systems. The areas listed as "Subsurface Drip" have 18 inches or more of provisionally suitable material and have potential for pretreatment subsurface drip septic systems with additional field work for permitting. Unit "UN" on the attached map indicates areas of unsuitable soils that are located in unsuitable soils or topography and cannot be used for the systems mentioned above. Central Carolina Soil Consulting cannot guarantee that every square foot of area shown as potentially suitable for septic systems will be permitted by the local health department due to the variability of naturally occurring soils.

Future Site Considerations

Several factors should be considered before a final plot plan is created for this property. One consideration is that the proposed lot shall contain an adequate amount of suitable soils, which can support a primary septic system along with a repair septic system. The suitable soil areas cannot be affected by future buildings, stormwater devices, driveways, patios, excavation or filling activities and if an on-site well is used then a 100' setback is required around the well head. An exact square footage of suitable soils required for this lot to obtain a permit cannot be given due the unknown commercial usage at this time along with soil variability and topographic

characteristics on the lot. For example, the conventional soil area on the western side of the large 6.6-acre tract has roughly 5,500 ft² of provisionally suitable soils with a site LTAR of .35 gal/day/ft². With this area that soil unit would potentially support a 250 gal/day wastewater system and repair area which equals 10 employees. The subsurface drip area near Pea Ridge Road on the same tract has approximately 7500 ft² of provisionally suitable soils with a site LTAR of .15 gal/day/ft² for a subsurface drip septic system. This area of soil would potentially support a 350 gal/day wastewater system and repair area that equals 14 employees. The ultra-shallow conventional area on the 1.9-acre tract east of Pea Ridge Road has approximately 12,500 ft² of provisionally suitable soils with a site LTAR of .3 gal/day/ft². This soil area would potentially support a 500-600 gal/day wastewater system and area which equals 20-24 employees. The ultimate application rate will be assigned by the Chatham County Health Department based on a detailed evaluation. A subsurface drip septic system will cost more money, require a subsurface drip operator and requires a PE to design the system.

A septic system field layout will be required at a later date once a site plan has been generated. If the layout proves the lot can accommodate a system and repair on the lot with the proposed commercial usage and flow rate then a septic design can be completed for review by the Chatham County Health Department. It is recommended once a preliminary site plan is generated that you apply for a septic permit so CCSC can meet on-site with the local Health Department and review the soil areas to discuss possible soil LTAR's and proposed system design. The field layout does not represent a septic permit or a guarantee of a permit on the lot. The permits are ultimately issued by the local health department based on current subsurface wastewater regulations. The proposed provisionally suitable soil areas must be protected from future site work, grading/clearing/filling. These areas cannot be used for future parking lots and CCSC recommends any septic sites not used are left wooded.

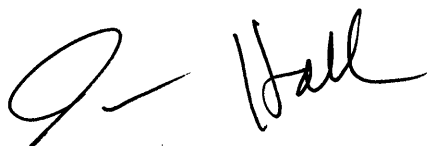
During the road construction process of a property it is important not to impact any suitable soil areas with such activities as excavating or filling. Only the actual roadways and required drainage ditches and/or sediment basins should be constructed

during this process. If the contractor requires a staging area to place fill from the construction process, then areas of unsuitable soils on the property should be utilized as long as they are not state/county buffers, jurisdictional wetlands or other areas protected by local zoning regulations. If this is not possible, then the disturbed areas should be minimized as much as possible. The same precautions should be taken when the individual lots are cleared for home sites. Only the vegetation should be removed in the areas of the proposed drain fields on lots to prevent any disturbance of the naturally occurring soil. A lot with adequate areas of suitable soils can be deemed unsuitable due to poor planning or site disturbance. Central Carolina Soil Consulting recommends that all lot clearing activities are delayed until a permit is issued by the local health department, with the exception of clearing thick vegetation to access the lot.

This report discusses the location of suitable soils for subsurface wastewater disposal systems and does not guarantee any permits or approval required by the local health department. Central Carolina Soil Consulting, PLLC is a professional consulting firm specializing in soil delineations and design for on-site wastewater disposal systems. The rules governing on-site wastewater disposal systems are complex and the interpretation of the rules are based upon the opinions of regulators (state and county level). Due to the subjective nature of the permitting process and the variability of naturally occurring soils, CCSC cannot guarantee that areas delineated as suitable for on-site wastewater disposal systems will be permitted by the governing agencies. These permitting considerations should be taken into account before a financial commitment is made on a tract of land.

If you have any questions regarding the findings on the attached map or in this report, please feel free contact me at anytime. Thank you allowing Central Carolina Soil Consulting to perform this site evaluation for you.

Sincerely,

A handwritten signature in black ink, appearing to read "J. Hall". The signature is fluid and cursive, with the first name "J." and the last name "Hall" clearly distinguishable.

Jason Hall

NC Licensed Soil Scientist #1248



Encl: Soil Map