

Soil Suitability for Domestic Sewage Treatment and Disposal Systems
Goochs Mill Road (+/- 6.7 Acres)
Granville County, North Carolina
Map Number(s): 098200657185 & 0982009656039

PREPARED FOR: Olivier Diolosa

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DATE: February 19, 2022

Soil suitability for domestic sewage treatment and disposal systems was evaluated on February 19, 2022 on +/- 6.7 acres located on Goochs Mill Road in Granville County NC. I, Derrick Smith, a NC licensed soil scientist conducted the soil evaluation. This was performed at your request as part of the preliminary planning process in order to determine areas of soil with potential for an accepted, subsurface wastewater septic system for a three or four bedroom single family residence.

I traversed the property and observed landforms (slope, drainage patterns, past use, etc.) as well as soil conditions (depth, texture, structure, seasonal wetness, restrictive horizons, etc.) through the use of hand auger borings. The site was evaluated during moist soil conditions. From these observations, an evaluation of the site, relative to subsurface disposal of wastewater, was developed. Soil areas were estimated in the field. The soil/site evaluation criteria used is that contained in 15 A NCAC 18A .1900 "Laws and Rules for Sewage Treatment and Disposal Systems".

FINDINGS

This property is located in the acid crystalline region of Granville County. The soils on this property within the suitable soil area is similar to a Cecil soil series. Usable soil depths were 36+ inches deep. Soil structure was provisionally suitable and was estimated to be granular near the soil surface and subangular to angular blocky in the subsoil. Please see the attached site sketch map for the suitable soil area. Soil borings were flagged in the field with pink ribbons representing usable soil depths of at least 36+ inches.

The site plan for each lot must ensure that adequate soil area for system and repair is unaffected by onsite and offsite elements (house placement, driveway, wells, patios, decks, garages, etc.). The area ultimately designated on the site plan for the septic system and repair must remain undisturbed (no mechanical clearing, excavation, heavy traffic or other significant site disturbing activities) until authorized by the Granville County health department after receiving proper permits. A property with initially adequate useable soil area may be rendered unusable as a result of improper site planning and/or soil disturbance.

Final site approval for issuance of improvements is based on regulations in force at the time of permitting and is dependent on satisfactory completion of individual site evaluations following application for an improvement permit detailing a specific use.

GENERAL WASTEWATER CONSIDERATIONS

Once potentially useable areas are located through vertical borings and/or backhoe pits, the next consideration is the horizontal extent of those areas. The size and configuration of the useable soil areas dictate the utility of that area. The size of a subsurface disposal field is determined by : 1) the design flow from the source (120 gallons/bedroom/day in residences), and 2) the long term acceptance rate (LTAR) of the soil (based on the hydraulic conductivity of the soil, a functions of the soil's texture, mineralogy, structure, porosity, etc.). The configuration must be such that an efficient layout of disposal lines (on contour) is possible. An additional consideration is the required setbacks for the system from various elements such as wells (100'), streams and ponds (50') or more (depending on watershed regulations), property lines (10'), top of embankment (15'), watershed buffers, etc.

The utility of a potential useable soil area for a subsurface system is most accurately determined by an on-ground layout of the proposed system. The total area needed for system and repair areas will depend upon the system type, the layout of that system and the total design flow (factors mentioned above). A typical area needed for a four bedroom residence is approximately 12,000 to 16,000 ft² (could be more depending on site features) or 800 to 960 linear feet of accepted line (system and repair). These estimates reference Laws and Rules for Sewage Treatment and Disposal Systems for North Carolina and use a LTAR of 0.25 - 0.30 gpd/ft² for conventional septic systems (.1955), and a LTAR of 0.25 - 0.30 gpd/ft² for modified conventional septic systems (.1956).

This report discusses the general location of potentially useable soils for on-site subsurface wastewater disposal and, of course, does not constitute or imply any approval or permit as needed from the Granville County health department. As a licensed soil scientist, I am hired for my professional opinion in these matters. The rules governing wastewater treatment (interpreted and governed by local and state agencies) are evolving constantly, and in many cases, affected by the opinions of individuals employed by these governing agencies. Because of this, I cannot guarantee that areas delineated and/or systems designed will be permitted by the governing agencies. As always, I recommend that anyone making financial commitments on a piece of property be fully aware of individual permit requirements for each lot prior to final action.

An individual septic system permit will be required for each lot prior to obtaining a building permit. This will involve a detailed evaluation by the local health department to determine, among other things, system layout, drive, well and proposed house location. Only after developing this information can a final determination be made concerning specifics of system design and site utilization. The location of the proposed structure in relation to the drainfield area will ultimately determine if a pump septic tank system will

be necessary. Please be advised that none of the property lines were marked at the time of this evaluation.

I am pleased to be of service in this matter and I look forward to assisting in any site analysis needs you may have in the future. Please feel free to call with any questions or comments.

Sincerely,

Derrick A. Smith, LSS, REHS
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NC Registered Environmental Health Specialist #2402