

Soil Suitability for Domestic Sewage Treatment and Dispersal Systems
2-Lots Ridgcrest Lane
Vance County, North Carolina
Parcel Number(s): 0541B01006 & 0541B01009

PREPARED FOR: Mr. Bradley Bennett

PREPARED BY: Derrick A. Smith, LSS, REHS

DATE: October 26, 2025

Soil suitability for domestic sewage treatment and dispersal systems was evaluated on October 26, 2025 on two lots located on Ridgcrest Lane, Henderson, 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 if the properties could support a single family residence utilizing a conventional/accepted, subsurface wastewater septic system.

I traversed the properties 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 dry 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 18E "Laws and Rules for Wastewater Treatment and Dispersal Systems".

FINDINGS

This lot is located in the acid crystalline region of Vance County and consists of mostly hardwood trees and a few pines. The soils on this property were predominantly similar to a Wedowee/Saw/Rion soil series. The Wedowee/Saw/Rion soil series has a sandy loam surface material over a clay to clay loam subsoil. Usable soil depths ranges between 24 to 36 inches deep within the areas shown as suitable for an accepted (25% reduction) wastewater system. Please reference the attached site sketch map for potential suitable soil areas. Soil structure was suitable and was estimated to be granular near the soil surface and subangular to angular blocky in the subsoil within the suitable soil areas.

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, workshops, pools etc.). The area ultimately designated by the Vance County health department 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 Vance County health department. 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 three bedroom residence is approximately 8,000 to 10,000 ft² (could be more depending on site features) or 600-720 linear feet of accepted line (system and repair). These estimates reference Laws and Rules for Wastewater Treatment and Dispersal Systems for North Carolina and use a LTAR of 0.25-0.30 gpd/ft² for conventional/accepted septic systems, and a LTAR of 0.25-0.30 gpd/ft² for modified conventional septic systems (.0900). The health department will determine the ultimate LTAR after their individual site evaluation.

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 Vance 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 on 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 Vance County health department to determine, among other things, system size and layout, drive, well and house location. Only after developing this information can a final determination be made concerning specifics of system design and site utilization. Please note that while careful

consideration was taken to cut out any soils that were shallow to rock, there may be areas shown as suitable that could be unsuitable due to rock. Both lots appear to have had fill material placed onto the lots from the construction of the initial subdivision road. The lot on the right, as you head towards the cul-de-sac, does not appear to have enough suitable soil for a system and repair for a three-bedroom home. Therefore, I would recommend recombining the lot with the adjacent lot.

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,

D. A. Smith

10/26/25

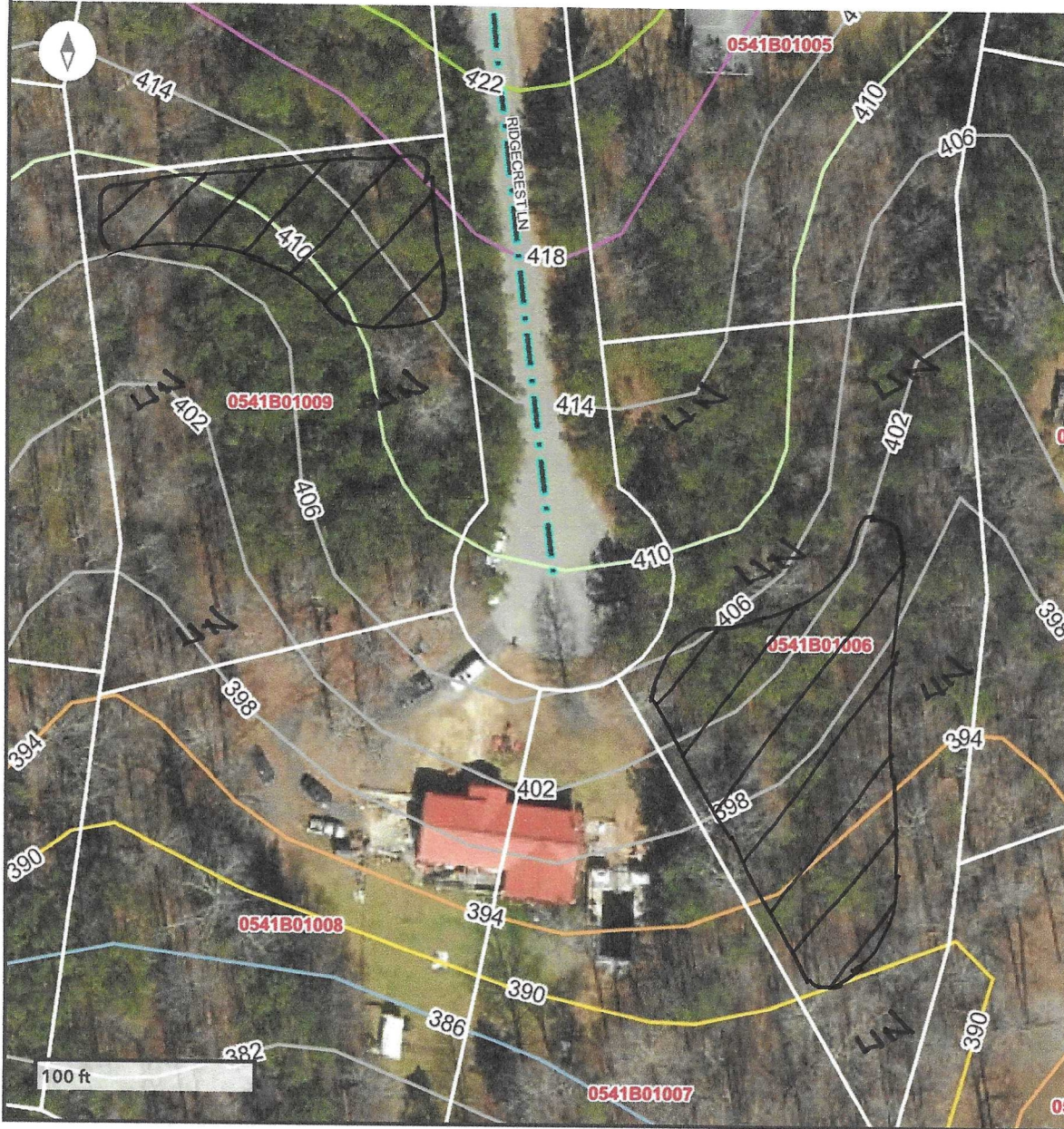
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* NOT A SURVEY



Ridgecrest Lane



NC CGIA, Microsoft, Vantor

 AREAS CONTAIN SOILS THAT ARE SUITABLE FOR
AN ACCEPTED WASTEWATER SYSTEM; ≥ 24 " SOILS

UN UNSUITABLE SOILS

* SOIL AREAS ARE APPROXIMATE

SCALE: NTS