

Site Suitability for Domestic Sewage Treatment and Disposal Systems

Sims Bridge Road
Kittrell, NC
Franklin County
Parcel IDs # 007132
032271, 032272, 032273

Prepared for: Jennifer Kelly, Land Duo

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SYNOPSIS

This report shows the findings of a preliminary soil and site evaluation of the four referenced parcels in Franklin County, NC. The site evaluation revealed four separate areas of provisionally suitable soils on each of the lots that would support the installation of a conventional septic system plus repair area. One lot would support a three-bedroom and the remaining lots could support a four-bedroom dwelling.



Figure 1. Property Location in Franklin County.

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To: Jennifer Kelly

Re: Soil Feasibility for parcels: # 007132, 032271, 032272, 032273

Jennifer, this is a summary of my findings:

Severson Soil Consulting, PLLC (SSC) conducted a preliminary onsite wastewater soil feasibility study on the above referenced parcel to determine the area of soils, suitable for a subsurface onsite wastewater disposal system. The soil and site evaluation were performed by using a hand auger boring during moist soil conditions based on the recommended criteria found in the "Laws and Rules for Sewage Treatment and Disposal Systems", 15NCAC 18A. 1900. From this evaluation, SSC sketched an area of suitable soils on each lot. Soil boring locations were obtained onX hunt web application.

Site Description

The four tracts were 59, 6.73, 1.89, and 2.35 acres, respectively. The properties were situated near the intersection of Sims Bridge Road and Lee Brooks Road (figure 1). The site lay in the Piedmont where the underlying parent material was residuum weathered from felsic igneous and metamorphic rocks. The NRCS soil map showed two soil mapping units on the subject property: WbD and WaB. The WbD unit was the Wake-Wateree-Wedowee complex, 8 to 15 percent slopes, rocky. The WaB unit was Wake-Saw-Wedowee complex, 2 to 8 percent slopes, rocky (WaB). See Figure 2 for the soil map. The Wedowee soils are typically well suited for onsite septic systems while the other named soils are shallow to bedrock and are not suited for conventional systems.

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Figure 2. Soil map of the of the subject property (NRCS Soil Map)

The eastern portion of the 59-acre tract was dominated by a drainageway, a pond, and a floodplain (figure 3). Therefore, this area was not evaluated.



Figure 3. Topographic map of eastern portion of the 59-acre tract.

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Soil Borings

Over 34 soil borings were advanced on all of the parcels shown in figure 4. Their depths to suitable soils categorized the soils: the red dots represent soils to 30", the brown dots are suitable soils from 20-24". Yellow dots represent soils to 18" to a restriction. The blue dots were minor drainageways and are to be avoided. The red dots were the Wedowee and Rion soils; the brown dots were the Wateree soils; and the yellow dots were the Wake or Saw soils. The recommended loading rate (LTAR) for the Wedowee or Rion soils is 0.3 gallons per day per square foot (GPD/ft²). Four usable areas found for a conventional onsite wastewater system, one on each lot (figure 4).

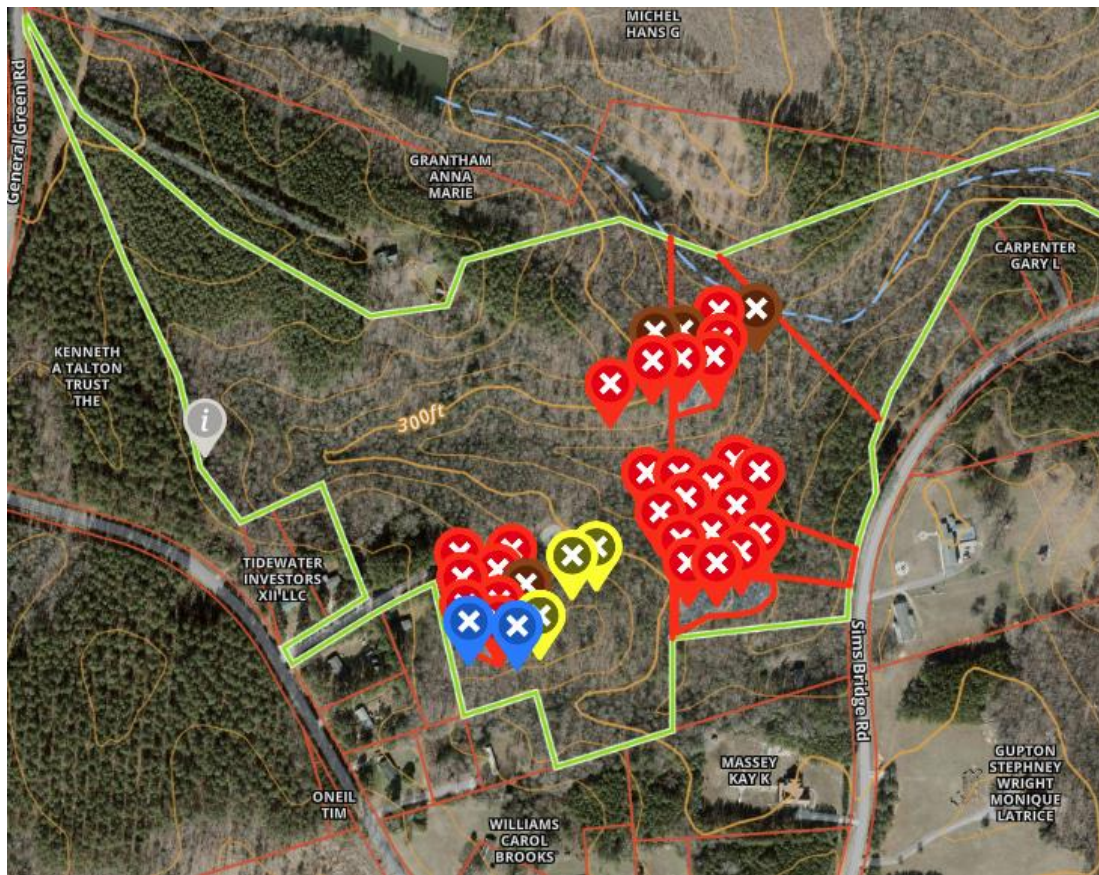


Figure 4. Soil boring locations within each lot.

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Usable Area per Lot

Lot 007132

A 17,424 ft² area of provisionally suitable soils (Wedowee) were found south of Dunbar Court. The other boreholes were shallower to bedrock. Detailed soil profile descriptions could be furnished upon request.

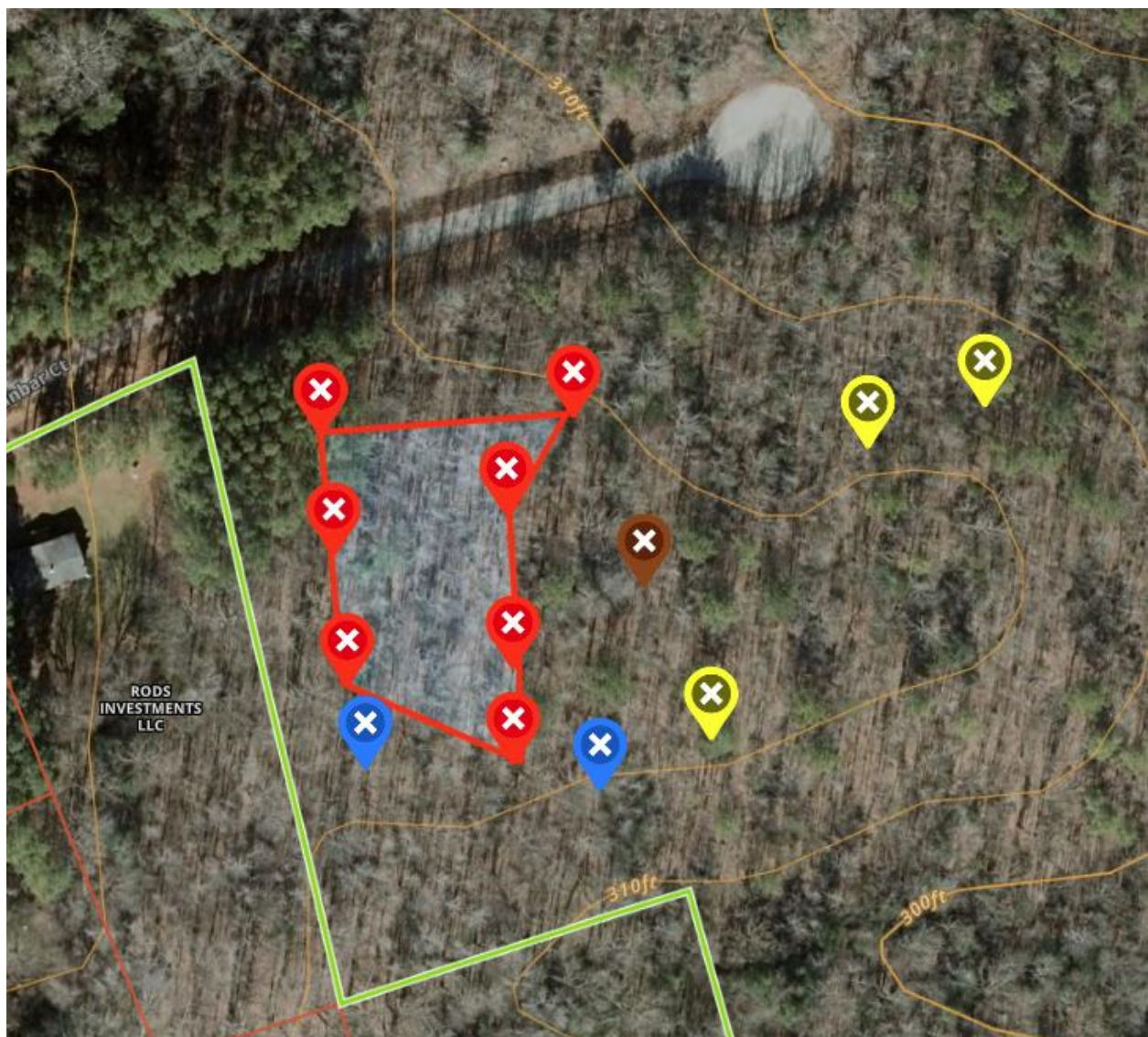


Figure 5. Area of provisionally suitable soils for lot 007132 bounded in red.

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Lots 032271 and 032272

Figure 6 below shows lot lines that were approximated in the onX hunt web application. A 29,185 ft² area of provisionally suitable soils (Wedowee and Rion) were found on lot 032271 (lower lot). A 31,363 ft² area of provisionally suitable soils (Wedowee and Rion) were found on lot 032272 (upper lot).



Figure 6. Area of provisionally suitable soils for lot 032271 (lower) and 032272 (upper) bounded in red.

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Lot 032273

A 13,506 ft² area of provisionally suitable soils (Wedowee and Rion) were on lot 032272 (upper lot). The area was located on the nose slope from the adjoining ridge to the east. The northern and western bound of the suitable area were a lower sideslope, verging on a drainageway or concave landform (figure 7).

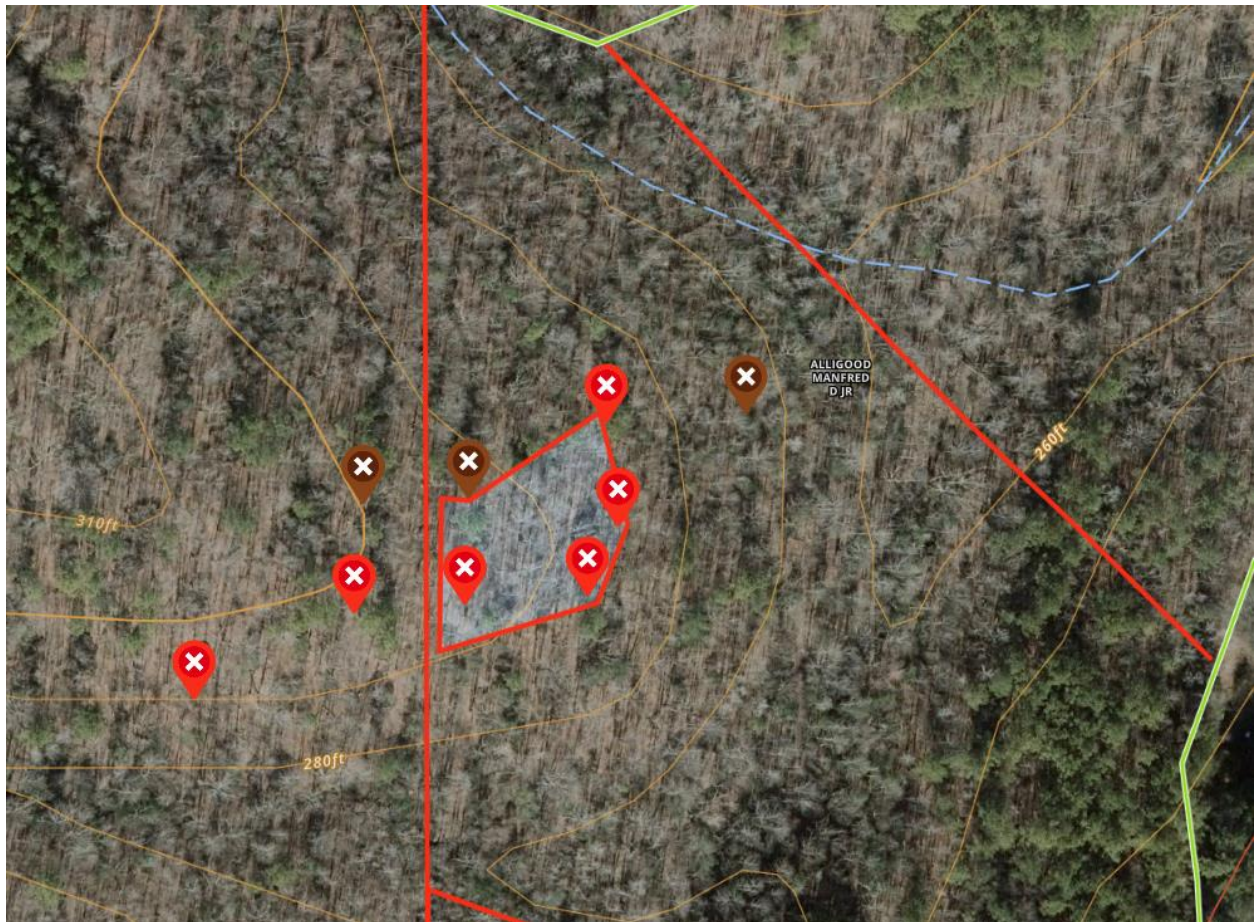


Figure 7. Area of provisionally suitable soils for lot 032273 bounded in red.

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Soil and Usable Area Summary

The minimum required linear footage for a four-bedroom septic system is 400 linear feet of accepted status product and 400 linear feet for a repair area (using a 25% reduction system). The total minimum usable space for a septic system and repair area for a four-bedroom using a soil loading rate of 0.3 GPD/ft² is approximately 6,600 ft² (assuming eight-100 feet lines). Adding a 20% factor to account for trees, slopes, and other variables, this number becomes 7,300 ft² for a more realistic total area needed for a four-bedroom dwelling.

Lot 007132 contains two (17,424 ft² / 7,300 ft²) times the needed area.

Lot 032271 contains four (29,185 ft² / 7,300 ft²) times the needed area.

Lot 032272 contains four (31,363 ft² / 7,300 ft²) times the needed area.

Lot 032273 contains 1.85 (13,506 ft² / 7,300 ft²) times the needed area.

Due to the landscape position, and total usable area, SCC recommends were sufficient on lot 032272 to support a 3-bedroom dwelling. A total of 5,760 ft² would be needed.

Lot 032273 contains 2.4 (13,506 ft² / 5,760 ft²) times the needed area.

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Permitting

Prior to the issuance of a septic permit, the lot will require a soil and site evaluation by the Franklin County Health Department or other permitting pathway. The specific trench product type and soil loading rate will be determined by their assessment. The areas for proposed drainfields shall not be impacted by home sites, pools, garages, nor be mechanically altered from the natural lay of the land. Regulatory setbacks to property lines, roads, wells, etc. are to be maintained.

Exact locations of future drainfields, repair areas, buffer from property lines (current and future), building foundations, pools, decks, and well locations are not addressed in this report. Those items should be fully considered as the plans develop for the potential future use of the site. Depending on the position of the house location, house size, property lines and setbacks that may encroach on available usable space, this lot may require a septic system utilizing a pump.

Due to the subjective nature of the permitting process, zoning, variability of naturally occurring soil, and unforeseen circumstances, SSC cannot guarantee that areas delineated as suitable for on-site wastewater disposal systems will be permitted, as the permits are issued by the local governing agency. However, the areas of suitable soil found in lots 007132, 032271, and 032272 have 2-4 times the needed space for a conventional system and repair for a four-bedroom dwelling and twice the needed area for lot 032273 to support a 3-bedroom dwelling. This report may be used to assist the local permitting agency to issue a septic permit.

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Thank you for your business. Please do not hesitate to ask for more information regarding this report.

Sincerely,

Erik D. Severson

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