

Site Suitability for Domestic Sewage Treatment and Disposal Systems

7101 & 0 Mobley Road
Lucama, NC
Wilson Counties
PINs: 2688-29-6111.000 &
2688-38-4472.000

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SYNOPSIS

This report shows the findings of a preliminary soil and site evaluation of the referenced parcels in Wilson County NC. The site evaluation revealed two suitable areas sufficient for the potential installation of conventional septic systems and repair area the property. This report is intended to aid the permitting authority to evaluate the site in the future.



Figure 1. Property location in red

Evan, 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 criteria in the Rules and Laws Governing Onsite Wastewater Systems (18E rules). From this evaluation, SSC sketched an area suitable for the installation of a septic system. All dimensions, locations are approximate.

Site Description

The 37 and 15-acre adjoining tracts were located off Mobley Road, near Lucama, NC (figure 1). The site lies in the coastal plain physiographic province in open farmed field. There were two mapping units of interest in the NRCS soil map, MaB, Marlboro and AyB, Autryville soils the open famed field. The wooded sections of the parcel were not evaluated due to soil wetness with unsuitable soils– Gr, Grantham Soils.



Figure 2. Soil map of the of the subject property (SoilWeb).

Soil Borings

Over 44 soil borings and observations were advanced on the parcel as seen in figure 3 below. Their depths of suitable soils categorized the soils; the red dots represent suitable soils to 30" and were the Autryville soils. The brown dots represented suitable soils from 20 to 24" and were the eroded Autryville and Marlboro soils (figure 3). The black dots represent soils with seasonal wetness less than 12 inches (Rains and Grantham soils) or expansive mineralogy (severely eroded Marlboro soils).

The recommended LTAR (long term acceptance rate) for the Autryville soils are 0.4 gallons per day per foot squared (GPD/ft²) and 0.3 gpd/ft² for the Marlboro soils.

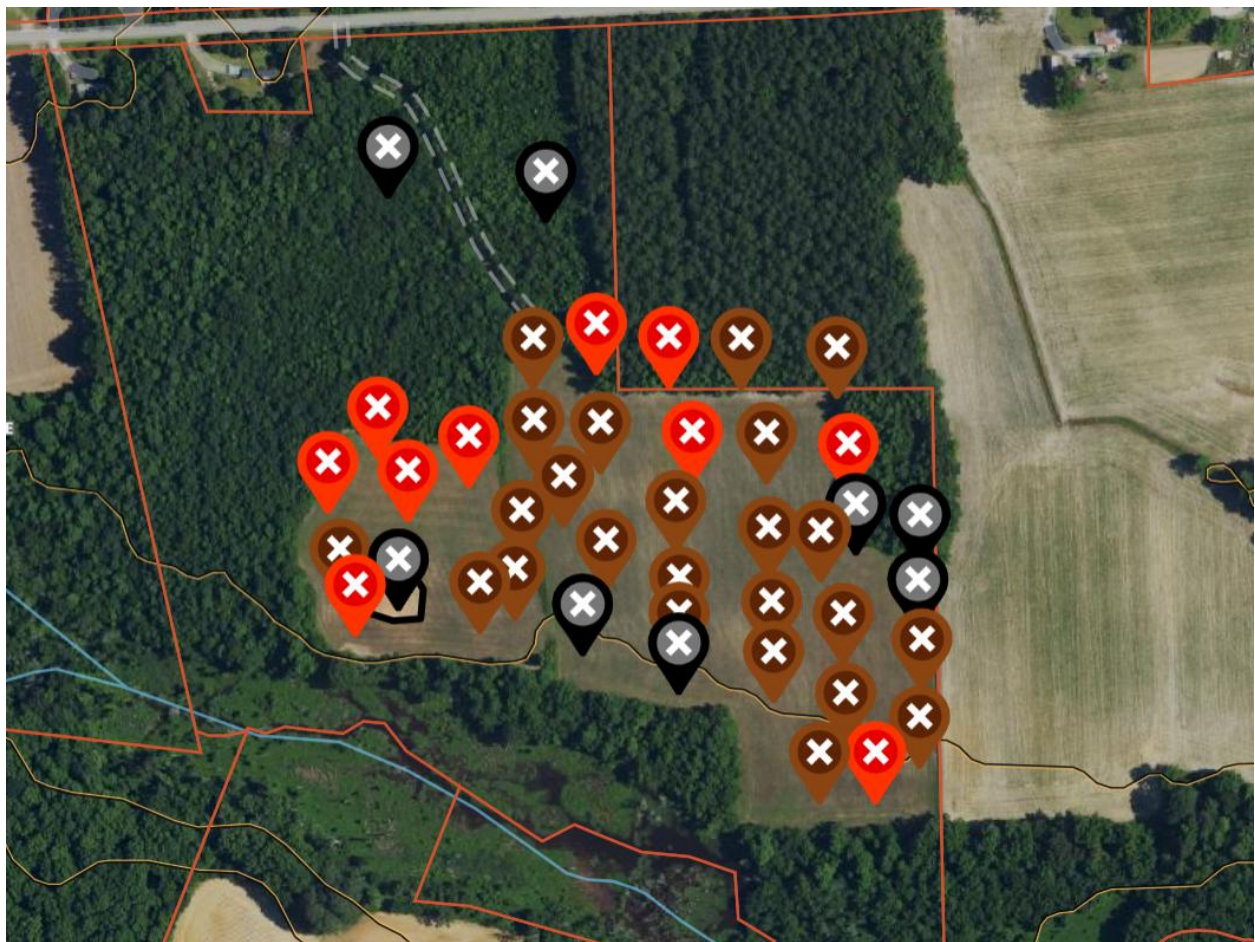


Figure 3. Soil boring locations within the lot as located by the onX Hunt application.

Example Required Area

The required linear footage needed for an accepted status (chamber or polystyrene aggregate) drainfield product is calculated by dividing the flow rate for a four-bedroom dwelling (4-BR= 480 gpd) by the long-term acceptance rate, LTAR (0.3 GPD/ft²). Then divide that number by a 3-foot-wide trench bottom. Then multiply the result by 0.75 to account for the 25% percent reduction in the accepted status drainfield product.

$$[(480\text{gpd} / 0.3 \text{ gpd/ft}^2) / 3\text{ft wide trench}] \times 0.75 = 400 \text{ LF}$$

533 Linear Feet of accepted drainfield product would be needed for a low-profile chamber product which does not qualify for the 25% reduction

The required space of suitable soils was calculated based upon a 3-foot-wide trench and a 9-foot minimum center to center spacing of each trench. Assuming three 100-foot-long trench lengths, the minimum total area required would then be 10,000 ft² including primary and a 100% repair area (5,000 ft² x 2). Other drainfield lengths and configurations could be employed, such as additional shorter or longer lines. This system may require a pump to d-box or pressure manifold if gravity distribution cannot be achieved.

Usable Areas

Two usable soil areas were located on the property. They are areas A and B as shown in figure 4 below. They were in the farmed field and located east and west of a drainageway landform in the middle of the farmed field. This follows the general pattern of the existing soil map seen in figure 2.

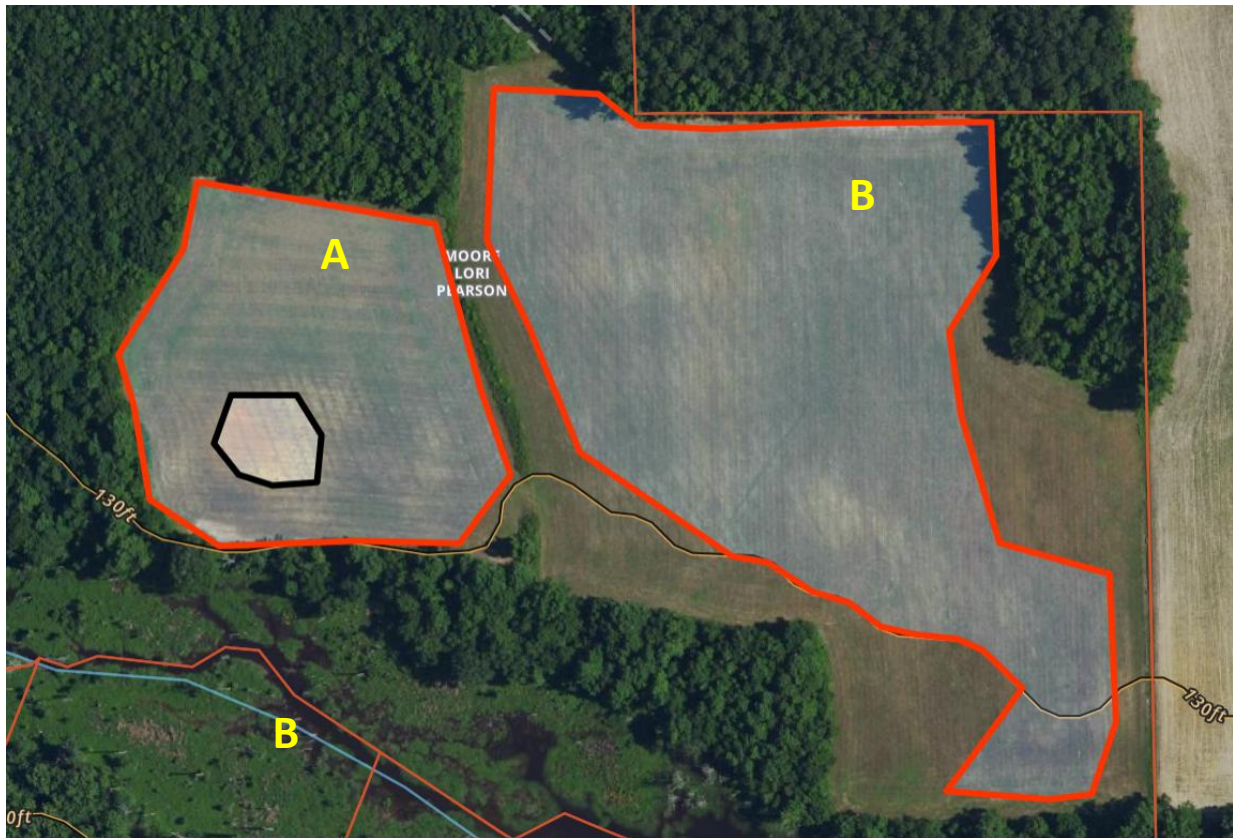


Figure 4. Usable Soil Areas A and B

Area A

This area is in the eastern farmed field portion of the property (see figure 5 below) on a broad gently sloping plain in the open field. It was 3.55 acres or 154,638 ft² in size. There was circular area of eroded Marlboro soil on top of the hill that was unsuitable for drainfield use. This eroded spot is shown in the figure below and can be seen in figure 2.



Figure 5. Usable soil area A with GPS coordinates

-78.048843,35.639465 -78.04784,35.639322 -78.047652,35.63876 -78.047523,35.638462 -
78.04766,35.638315 -78.04774,35.638227 -78.048177,35.638236 -78.048752,35.638218 -
78.049044,35.638378 -78.049112,35.638703 -78.049175,35.638875 -78.048903,35.639235 -
78.048843,35.639465

Unsuitable area coordinates (in black above) -78.048702,35.638735 -78.048426,35.638735 -
78.04832,35.638598 -78.048339,35.638437 -78.048528,35.638425 -78.04867,35.638462 -
78.048775,35.63857 -78.048702,35.638735

Area B

This area is in the western farmed field portion of the property (see figure 6 below) on a broad gently sloping plain in the open field. It was 8.27 acres or 360,241 ft² in size. The field was suitable except for the following locations: concave areas below 130 feet in elevation, areas near the drainage ditch, and flat to concave areas in the northeast.



Figure 6. Usable soil area B with GPS coordinates

-78.045255,35.63735 -78.045074,35.637367 -78.044973,35.637615 -78.045,35.638122 -
78.045464,35.63823 -78.045624,35.638662 -78.045677,35.638953 -78.045478,35.639212 -
78.045498,35.63967 -78.046153,35.639665 -78.046678,35.639646 -78.04699,35.639658 -
78.047153,35.639765 -78.047595,35.639786 -78.047624,35.639264 -78.04744,35.63896 -
78.047402,35.638876 -78.047233,35.638539 -78.046592,35.638183 -78.046441,35.638161 -
78.046249,35.638062 -78.046098,35.638025 -78.045963,35.637941 -78.045817,35.637915 -
78.045641,35.637899 -78.045534,35.637861 -78.045367,35.637732 -78.045686,35.637378 -
78.045255,35.63735

Permitting

Prior to the issuance of a septic permit, the lot will require a soil and site evaluation by the Wilson County Health Department of private permitting authority. 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 are developed 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 have at least 16 times the needed space for a conventional system and repair depending on the loading rate. This report may be used to assist the local permitting agency to issue a septic permit.

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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