

# *Site Suitability for Domestic Sewage Treatment and Disposal Systems*

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Bill Compton Rd  
Lot 3  
Blanch, NC  
Caswell County  
PIN#: 0109.00.00.0002.0000

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Prepared for: Pete Reese and Cassandra Gettelman, ReelVest  
Properties

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## SYNOPSIS

This report shows the findings of a *preliminary* soil and site evaluation of the referenced parcel in Caswell County, NC. The report shows that there several areas of suitable soils found on the property. The soil and site conditions were suitable for the installation of an in-ground anaerobic drip system. This system will require a maintenance contract with a certified subsurface operator. This report is intended to assist the permitting authority pursuant to citing onsite wastewater systems. All applicable setbacks must be maintained.

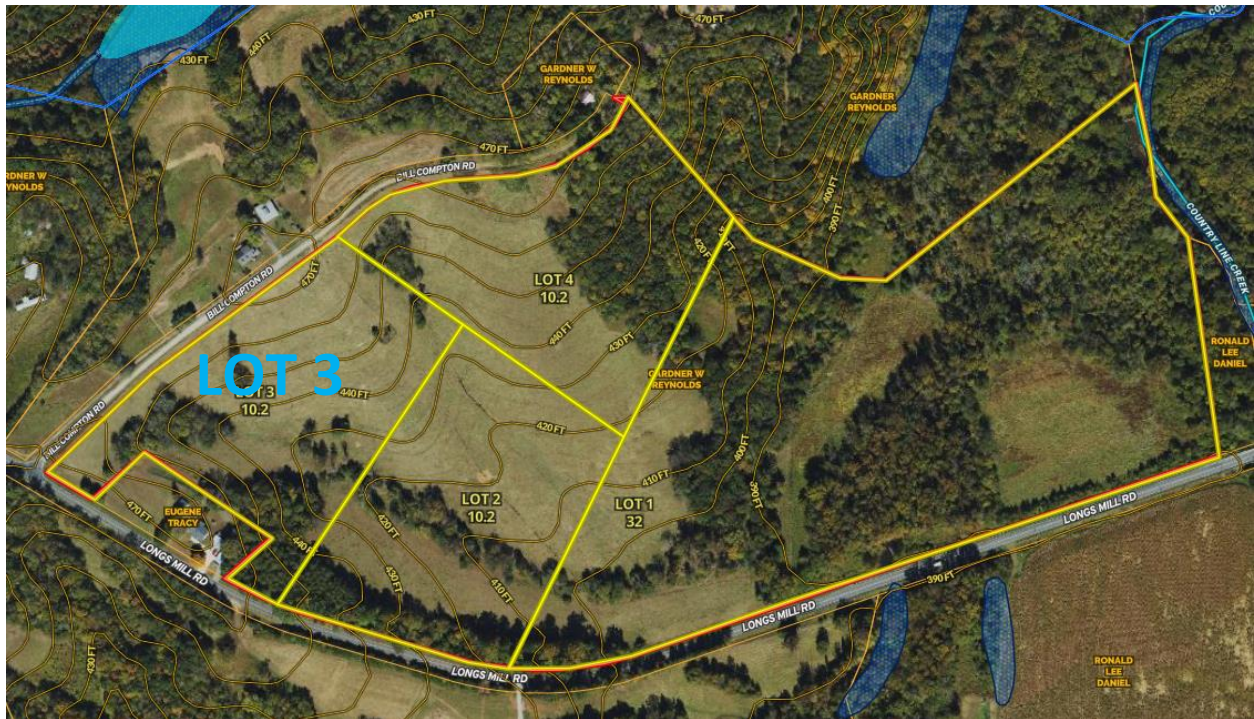


Figure 1. Property Location

**Pete and Cassandra**, 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 18E. From this evaluation, SSC sketched an area suitable for the installation of a septic system. All dimensions, locations are approximate.

### Site Description

The 10-acre lot lay in the Piedmont physiographic province. The Rassalo and Enott soil complex (ReB) and (ReC) soil mapping unit was of interest (Figure 2). These soils were weathered from residuum from plutons or mafic intrusive dikes. These soils are typically marginally to unsuitable for conventional septic systems.



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



## Soil Borings and Observations

Over 13 soil borings and observations were advanced on the lot (figure 3). There were several landforms on this lot: a main upland ridgetop and nose slope. The soils found during this evaluation corresponded with the existing soil mapping. Their depths of suitable soils categorized the borings. The brown dots had suitable soils to 20" (at-grade conventional septic system) and were the Rassalo soils. The yellow dots represented Enott soils that were 18-19 inches to expansive mineralogy. The black dots were soils with less than 12 inches to expansive mineralogy (unsuitable for any system).

The recommended loading rate (LTAR) Enott and Rassalo soils are 0.1 gallons per day per square foot (GPD/ft<sup>2</sup>) for a potential anaerobic drip system.

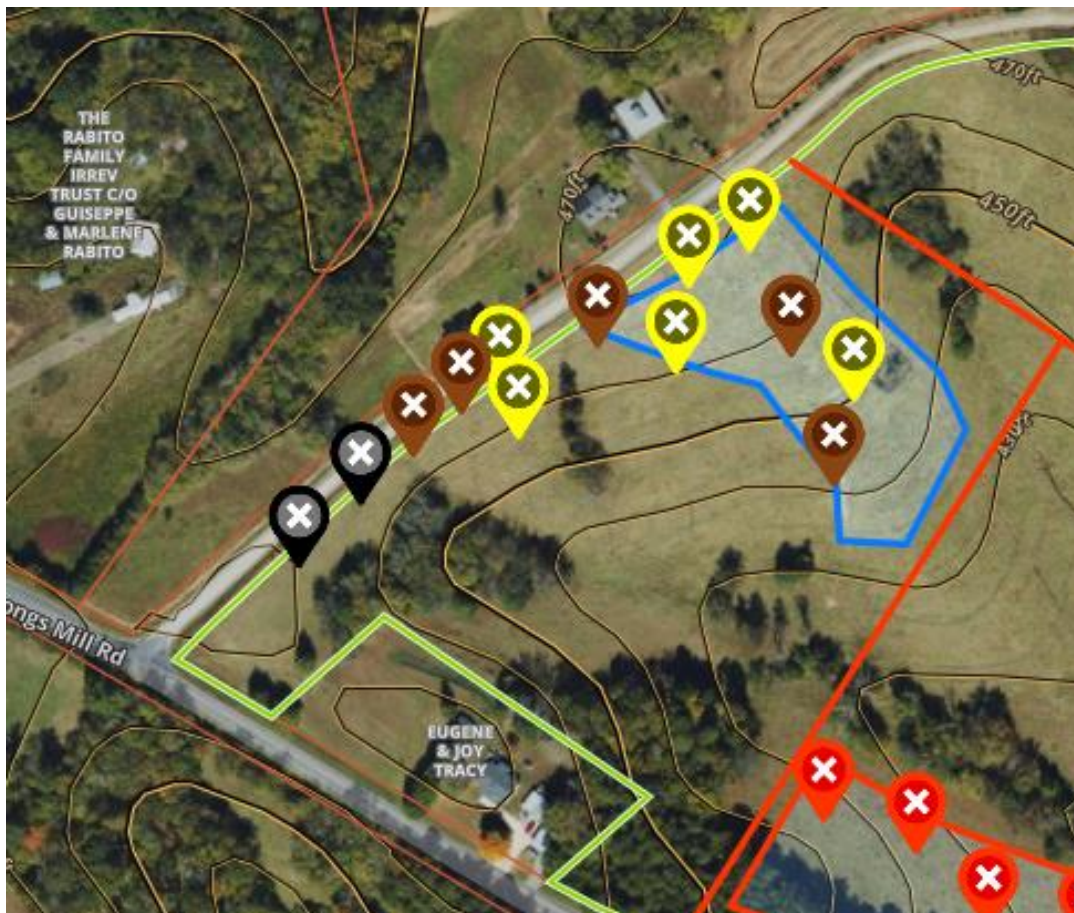


Figure 3. Soil boring and suitable area locations as located by the onX Hunt application.

## Dispersal Area

The minimum dispersal area for the primary system is calculated by dividing the daily design flow (4-BR= 480 gpd) by the long-term acceptance rate LTAR (0.1 GPD/ft<sup>2</sup>).

$$480 \text{ gpd} / 0.1 \text{ GPD/ft}^2 = 4,800 \text{ ft}^2$$

The total minimum area needed for the primary and reserve are is 9,600 ft<sup>2</sup> multiplied by a safety factor of 20% bringing the total up to 11,520 ft<sup>2</sup> The total dripline length in feet is divided by the minimum area divided by the line spacing.  $4,800 \text{ ft}^2 / 2\text{ft} = 2,400 \text{ LF}$  of tubing.

## Usable Areas

The useable area of soils for an anaerobic drip system was located on a nose slope. The red outline in figure 4 below is a 1.91-acre (83,200 ft<sup>2</sup>) contiguous area. This is 7.5 times the area needed for a drip septic system and repair for a potential 4-BR dwelling. All property line setbacks (10 feet minimum) should be maintained from the suitable area.



Figure 4. Usable area for a conventional septic system.

## Permitting

Prior to the issuance of a septic permit, the lot will require a soil and site evaluation by the Caswell County Health Department or other permitting authority. The specific trench product type and final 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 or permitting authority. However, the areas of suitable soil have 7.5 times the minimum needed space for an anaerobic drip system and drip repair depending on the final 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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