

Site Suitability for Domestic Sewage Treatment and Disposal Systems

Pony Farm Road
Siler City, NC
Chatham County
Parcel ID#: 14456

Prepared for: Pete Reese, ReelVest

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SYNOPSIS

This report shows the findings of a preliminary soil and site evaluation of the referenced parcel in Chatham County, NC. The soil evaluation found that there was an area of suitable soil for an anaerobic drip for the primary and repair. The permitting will typically involve an engineer's design and an additional soil hydraulic assessment. An anaerobic drip system requires a maintenance contract with a certified subsurface operator. This report is intended to assist the permitting authority pursuant to citing onsite wastewater systems.

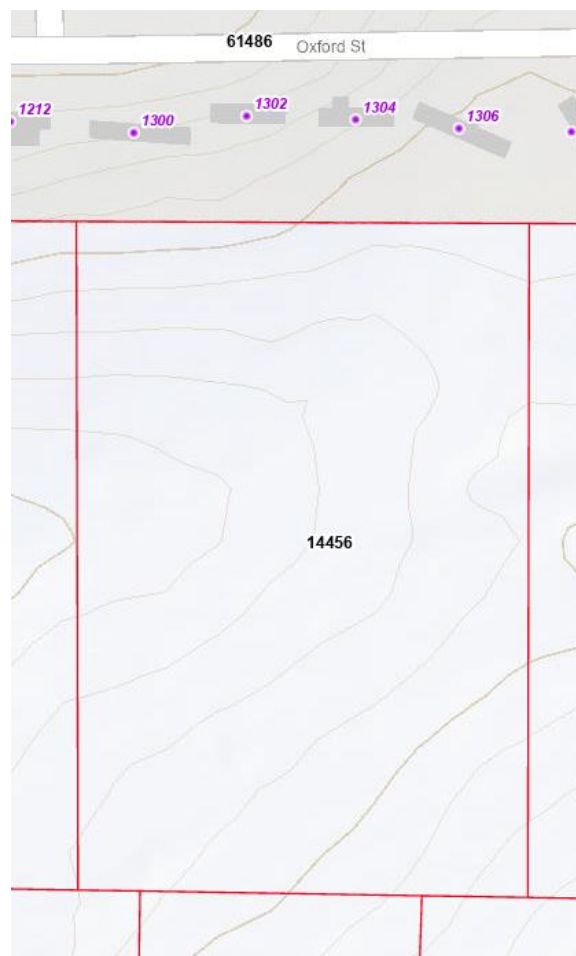


Figure 1. Property Location (Chatham County, NC GIS)

Pete, 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 suitable for the installation of a septic system. All dimensions, locations are approximate.

Site Description

The 4-acre tract was located off Pony Farm Road in Siler City, NC (figure 1). The site lies in the Carolina Slate belt sub province. The NRCS soil map (figure 2) shows three soil units on the property: CmB (Cid) and NaC (Nanford). The Nanford is marginally suitable, and the Cid soils are unsuitable. The property was heavily wooded with young pines.



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

Over 11 soil borings and soil pits were advanced on the parcel (figures 3-5). Their depths of suitable soils categorized the borings. The yellow dots represented soils that were 18-19" to a restriction (Cid soils, anaerobic drip). The purple dots represented soils that were 13-17" to a restriction (Cid soils, aerobic drip). The black dots represented soils that were <12" to a restrictive layer (Misenheimer soils). The primary restriction was fractured argillite rock (slate) and resultant redoximorphic features occurring because of a perched water table upon the rock. The recommended loading rate (LTAR) the yellow and purple dot soils is 0.1 gallons per day per square foot (GPD/ft²). Blue dots were ditches.

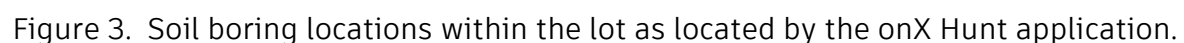




Figure 4. Cid soil profile.



Figure 5. Redoxim features from the Cid soil profile.

Usable Area

There was an area of soils suited for an anerobic drip system (figure 7). The usable area was 0.95 acres (41,382 ft²).

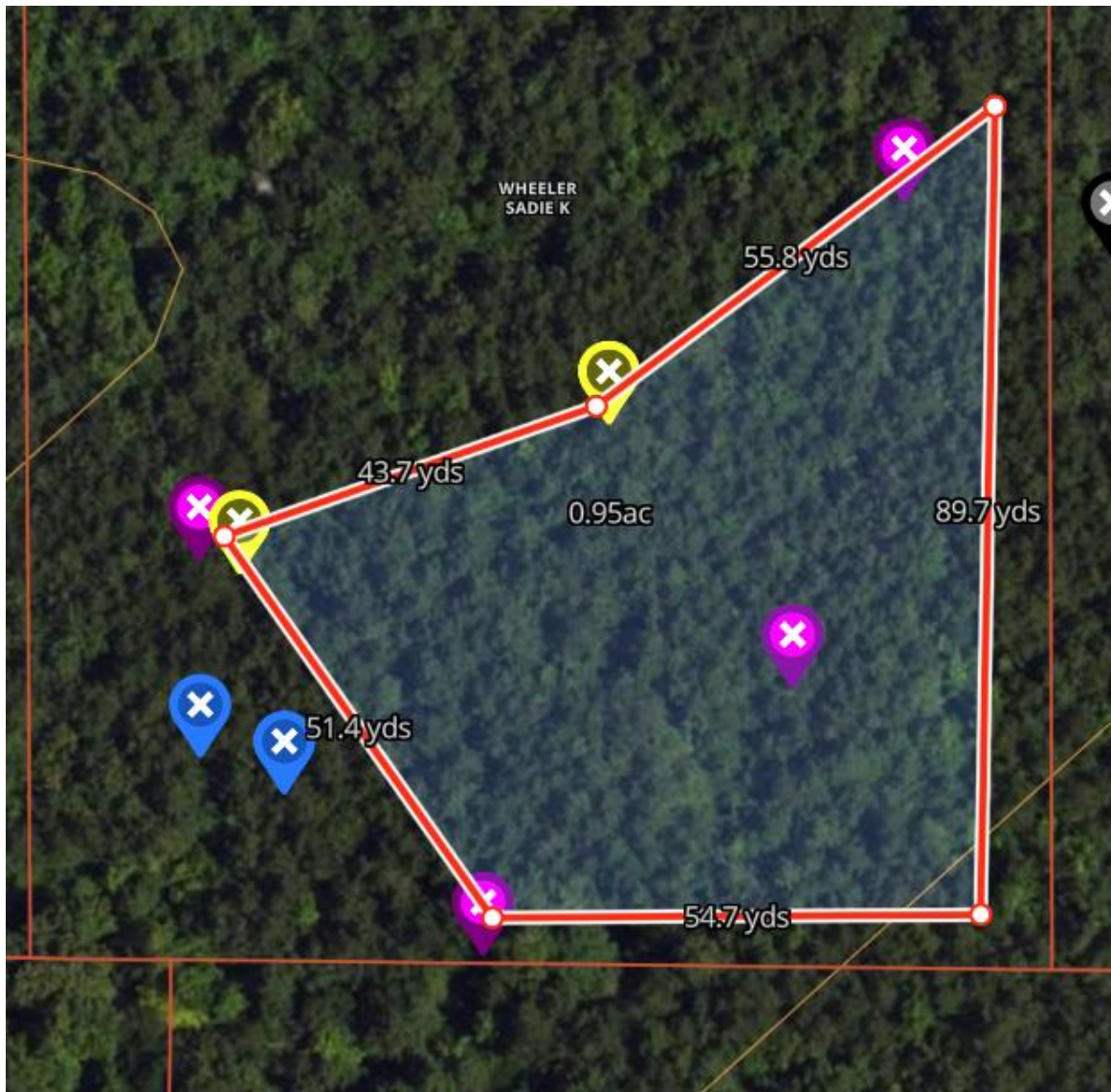


Figure 6. Usable area on the parcel.

Permitting his type of system will require additional hydraulic assessments (including Ksats) of the soil.

Required Area Needed

The usable area evaluated (Figure 6 above) had sufficient space needed area for a primary and reserve drainfield to service a 4- bedroom dwelling.

The required linear footage of drip product is calculated by dividing the flow rate (4-BR= 480 gpd) by the LTAR (0.1), then dividing that by 2 feet (for a 2-foot center spacing).

$$480\text{gpd} / 0.1 \text{ gpd/ft}^2 = 4,800 \text{ ft}^2 / 2\text{ft center spacing} = 2,400 \text{ linear feet of drip tube}$$

The area needed for the primary drainfield would be 4,800 ft². The total area required would then be 9,600 ft² including primary and a 100% repair area. Adding a safety factor to account for obstacles in the field, the total area needed for the primary and reserve drainfield for a four-bedroom dwelling would be 11,520 ft².

Permitting

Prior to the issuance of a septic permit, the lot will require a soil and site evaluation by the Chatham County Health Department or other permitting authority. It will also require an additional hydraulic testing by a LSS. The specific 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 3.5 times the needed space for an anaerobic drip system and repair depending on the final loading rate. This report may be used to assist the local permitting authority 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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