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22 September 2023

Paul Lyon
Lyon Builders
2139 Barbecue Church Road
Sanford, NC 27332-1414

Reference: Soil Investigation and Septic System Design
4065 Barbecue Church Road; PIN 9578-18-3901.000
Lot #3 Lyon Builders Inc Map#2022-545

Dear Mr. Lyon,

A site investigation was conducted on 19 June 2023 for the above referenced property, which is located on the western side of Barbecue Church Road (SR 1209) in the Barbecue Township in Harnett County, North Carolina. The purpose of the investigation was to determine the ability of this lot to support a subsurface sewage waste disposal system and 100% repair area for a typical three-bedroom home. Public water supplies will be utilized for this lot.

All ratings and determinations were made in accordance with "Laws and Rules for Sewage Treatment and Disposal Systems, 15A NCAC 18A .1900". This report represents my professional opinion but does not guarantee or represent permit approval for any lot by the Local Health Department. The permit you receive from the Local Health Department may contain some modifications or amendments to our submitted design. Please carefully review your permit and adhere to all prescribed requirements.

SEPTIC SYSTEM DESIGN

The proposed single family residential home will contain three bedrooms and generate a design flow of 360 gallons per day (Figure 2). A 1000 gallon (minimum) septic tank is required with an approved effluent filter. The addition of a 1000-gallon pump tank will be necessary to pump effluent uphill to the proposed drainfield.

The initial septic system is proposed as a pump driven system to 406 linear feet of Infiltrator Quick4 Plus Low-Profile Chamber (LPC) drainlines. The long-term application rate (LTAR) used to design the drainfield was 0.3 gal/day/ft^2. A pressure manifold will be used to deliver effluent in parallel distribution to seven 58-foot drainlines. The drainlines shall be installed on contour with maximum trench bottom depths at 10 inches below surface. Due to the ultra-shallow trench depth, it will be necessary to add native backfill over the nitrification field to provide at least six inches of cover over the drainlines.

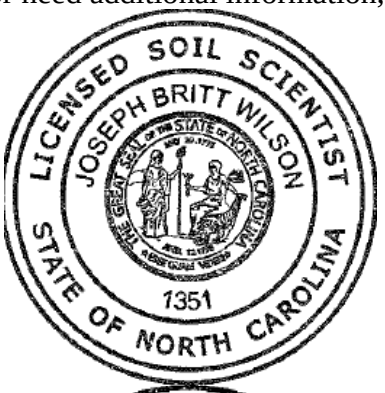
The repair septic system is proposed as a pump driven system to 300 linear feet of Infiltrator Quick4 Plus Low-Profile Chamber (LPC) drainlines. The long-term application rate (LTAR) used to design the drainfield was 0.4 gal/day/ft^2. Effluent will be serially distributed to five unequal length drainlines, connected by overflow pipes. The drainlines shall be installed on contour with maximum trench bottom depths at 10 inches below surface. Due to the ultra-shallow trench depth, it will be necessary to add native backfill over the nitrification field to provide at least six inches of cover over the drainlines.

All regulatory setbacks for a septic system shall be maintained. Drainlines must be installed at least 9 feet apart on center. The septic system (including tanks) must be at least 10 feet from a property line, 5 feet from a home, 50 feet from a surface water, and 100 feet from an individual well (50ft for repair systems).

Potential septic system drainlines have been demonstrated with various colored pin flags that are located on the lot. It is important to protect the areas designated for installation of the septic system or repair area from all land disturbing activities. It is recommended that a staked line or protective fence be placed around the system prior to construction to eliminate any potential damage to the soil or the layout of the system.

CONCLUSION

This report and the attached septic system design information will need to be submitted to the Local Health Department for review and the permitting process. I appreciate the opportunity to provide this service and hope to be allowed to assist you again in the future. If you have any questions or need additional information, please contact me at your convenience.



Sincerely,

Britt Wilson
Licensed Soil Scientist, LSS# 1351

Hal Owen
Licensed Soil Scientist

Soil Investigation and Septic System Design
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Figure 2. Septic System Layout

SEPTIC SYSTEM DESIGN

Design Wastewater Flow 360 gpd
Septic Tank Size (minimum) 1000 gallons
Pump Tank Size (minimum) 1000 gallons

Initial System *See Detailed Design Parameters
System Type: Type IIIbg Design LTAR 0.30 gal/day/ft²
Trenches: Low Profile Chamber (LPC)
Total Trench Length (ft): 406 Trench Spacing 9 ft on center
Trenches installed on contour at 8 inches
Maximum Trench Depth of 10 inches (measured on high side)
Soil Cover 6 inches *Soil Cover Must Extend 5ft Beyond Drainline*

Repair System
System Type: Type IIIbg Design LTAR 0.40 gal/day/ft²
Trenches: Low Profile Chamber (LPC)
Total Trench Length (ft): 300 Trench Spacing 9 ft on center
Trenches installed on contour at 8 inches
Maximum Trench Depth of 10 inches (measured on high side)
Soil Cover 6 inches (max cover shall not exceed 12 in.)

Potential Drainlines flagged at site on 9-ft centers.

Line #	Color	Relative Elevation (ft)	Drainline Length(ft)	Field Length(ft)
11	Y	94.89	58	69
12	B	94.26	58	65
13	W	93.76	58	64
14	R	93.26	58	65
15	Y	92.74	58	71
16	B	92.15	58	74
17	W	91.54	58	72
Septic Tank:		98.16		
Pump Tank:		97.18		
Reference Elev		**100.00**