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5 April 2023

Dale Robbins

Reference: Soil Investigation and Septic System Design
Ponchartrain Street; PIN 0613-73-0964.000

Dear Mr. Robbins,

A site investigation was conducted for the above referenced property, which is located on the western side of Ponchartrain Street 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 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.

SOIL INVESTIGATION

The soils were evaluated under moist soil conditions through the advancing of auger borings. A portion of this lot was observed to be underlain by soils rated as provisionally suitable for subsurface sewage waste disposal (Figure 1). These provisionally suitable soils were observed to be friable clay loams to greater than 36 inches and will support long term acceptance rates of 0.35 gal/day/sqft. The unsuitable soil area is so rated due to inadequate soil depth to excessive soil wetness conditions and/or unsuitable landscape position.

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 final house location will determine whether or not a pump is required to deliver effluent to the initial drainfield, but it appears that gravity flow can easily be accomplished.

The initial septic system is proposed as a gravity driven system to 172 feet of Prefabricated Permeable Panel Block drainlines utilizing a long term application rate of 0.35 gal/day/ft^2. Serial distribution will be used to distribute effluent to four variable length drainlines with drop boxes installed at the connections between the lines**.** The drainlines should be installed on contour with trench bottom depths at 24 inches below surface.

It is our understanding that this lot was recorded prior to 1982, and that the lot is exempt from the repair area requirement of the referenced regulations. However, some repair area may be available below the initial septic system, depending on the final house site. The soils in this area had limited usable soil depth, and drainlines that can be installed ultra-shallow would likely be required in this area.

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.

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 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.

SYSTEM MAINTENANCE

It is recommended that care be taken to preserve the life of your septic system. The septic tank, pump tank, and distribution boxes should be kept accessible for pumping and adjustment. Your septic system should be inspected periodically and the septic tank pumped out every 2 to 5 years by a professional contractor. Practicing water conservation in the home, such as promptly repairing leaky fixtures and running washing machines and dishwashers only when full, will help to avoid overloading the septic system. Also, disposal of oils, fats, and grease into the septic system should be avoided because they could clog drainlines and conveyance pipes. A list of other useful suggestions can be found at https://content.ces.ncsu.edu/septic-system-owners-guide

It is required that the nitrification field and repair area be protected from vehicular traffic or other unauthorized access. Vehicular traffic can damage soils, pipes, and valve boxes. Damage to the nitrification field or repair area could result in the septic permit being revoked.

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,

Hal Owen
Licensed Soil Scientist

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Ponchartrain Street; PIN 0613-73-0964.000
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Figure 1. Soil Map showing Septic Suitability

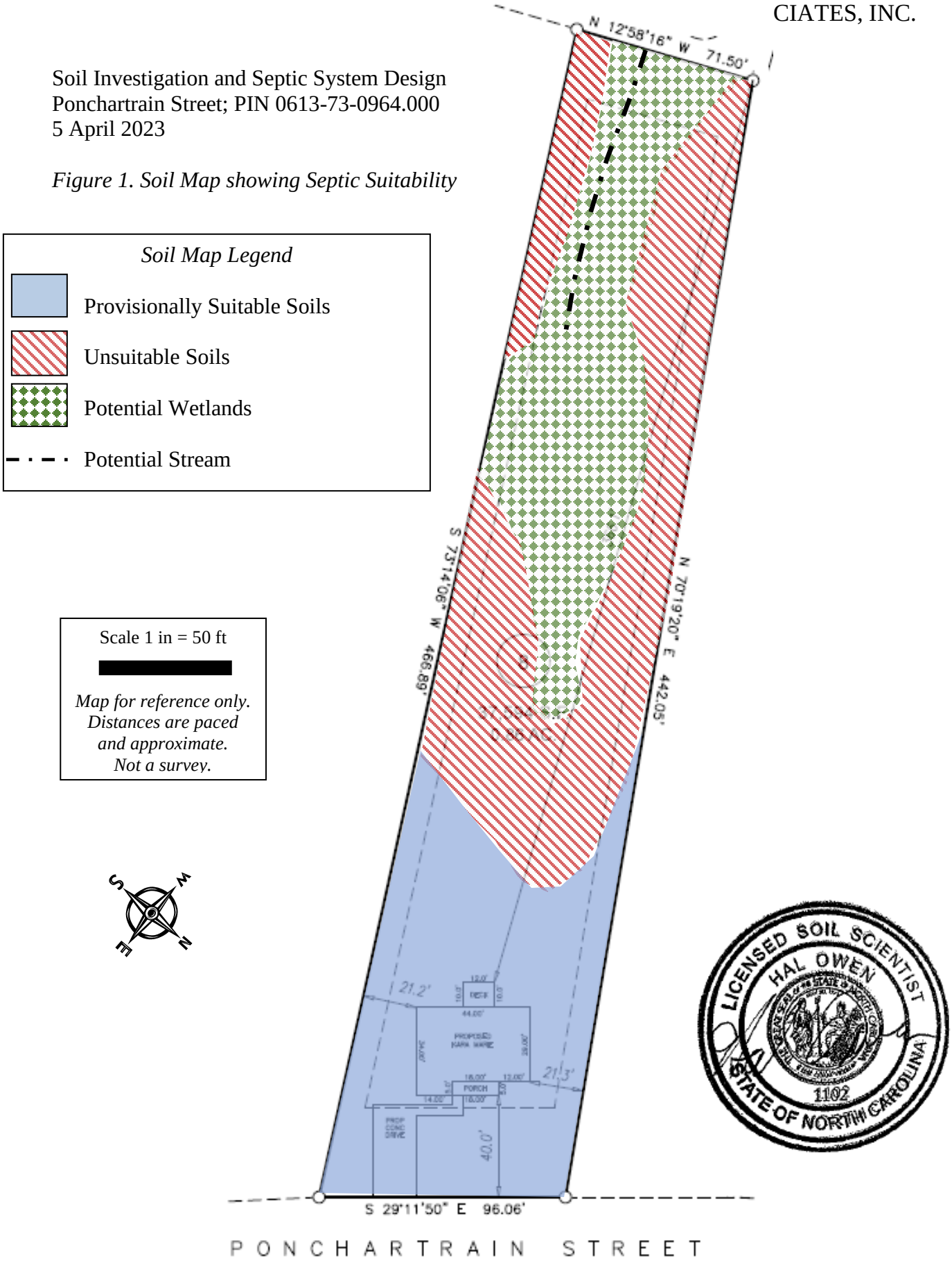

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Figure 2. Septic System Layout

Scale 1 in = 50 ft

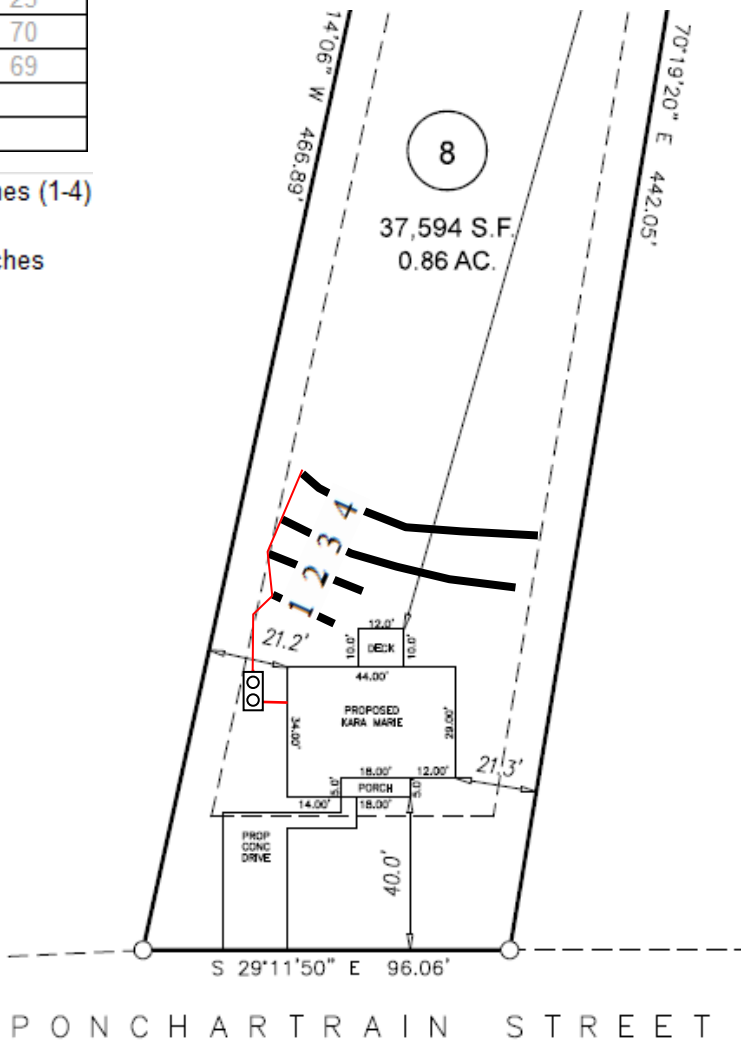
Map for reference only. Distances are paced and approximate. Not a survey.

Lines flagged at site on 9-ft centers.

Line #	Color	Relative Elevation (ft)	Drainline Length(ft)	Field Length(ft)
1	W	99.49	17	17
2	R	98.09	25	25
3	B	96.29	65	70
4	Y	94.85	65	69
Septic Tank:		100.94		
Reference Elev:		**100.00**		

Gravity to 1 X 172 ft (X 3ft) Lines (1-4)
PPBS, horizontal
Installed on contour, MTD 24 inches
LTAR 0.35 gal/day/ft^2

All drainlines at least 5 feet from foundation (including deck)



PROJECT NAME

Initial System

DESIGN DAILY FLOW 360 gallons **SOIL LTAR:** 0.35 gpd/ft^2

TANK (min) Septic Tank: 1000 gallons

SUPPLY LINE Length (ft): 20 Diameter: 3 " sch 40 pvc slope = 2.58%

*minimum slope of supply line is 1/8" per foot (%1.04)

TRENCHES Drainline Type: PPBS, horizontal

Max trench depth: 24 inches Trench Height: 14 in

Trench width: 3 feet Trench Length Factor: 50 % Effective Trench Width 1.5 ft

Absorption Area: 514 sqft Min Linear Length: 171 feet

Actual Trench Length: 1 X 171 feet = **171** **feet**

Gravity Distribution Schematic

Septic Tank

Ground Elevation= 100.94 ft

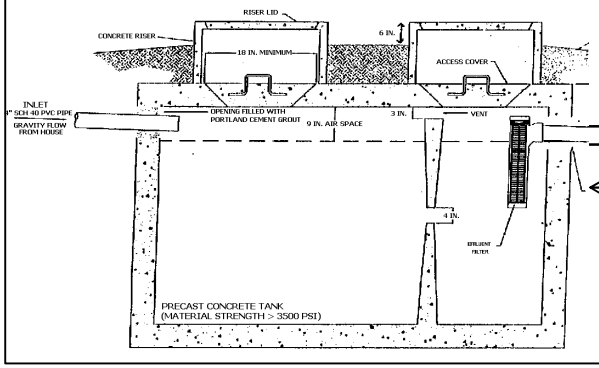
Outlet Depth* = 20 in

Outlet Elevation = 99.27 ft

Trench

Ground Elevation= 99.49 feet

D-box Elevation = 98.76 ft



Supply Line *D-box* *Trench*

20

Drainline

Trench Bottom Elevation: 97.49 ft

*Outlet depth of septic tank is dependant upon the depth of the plumbing stub out from the home.
A pump tank should be added if gravity distribution cannot be demonstrated.

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4/5/2023