

# HAL OWEN & ASSOCIATES, INC.

SOIL & ENVIRONMENTAL SCIENTISTS

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6 February 2023

Matthew Szalecki  
Family Building Co.

Reference: Soil Investigation and Septic System Design  
436 Natchez Trace; PIN 0613-85-5223

Dear Mr. Szalecki,

A site investigation was conducted on 1 February 2023 for the above referenced property, which is located on the northwestern side of Natchez Trace (SR 1463) 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.

## 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 modified or alternative systems for subsurface sewage waste disposal (Figure 1). These soils were observed to be firm clays to greater than 25 inches and will support long term acceptance rates of 0.25 gal/day/sqft. The soils rated as provisionally suitable for drip systems are limited in soil depth to the extent that subsurface drip dispersal systems will be required. These type systems are significantly more expensive and are intended only for use as repair areas. 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 addition of a 1000-gallon pump tank will be necessary to pump effluent uphill to the proposed drainfield. The home will not have a basement.

The initial septic system is proposed as a pump driven system to 360 feet of chamber drainlines utilizing a long-term application rate of 0.25 gal/day/ft<sup>2</sup>. Serial distribution will be used to distribute effluent to four variable length drainlines, connected by overflow pipes. The drainlines should be installed on contour with trench bottom depths at 18 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 above the initial septic system and should be preserved. 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 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.

## 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.

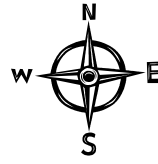


Sincerely,

A handwritten signature in black ink that reads "Hal Owen". The signature is written in a cursive style with a large, prominent "H" and "O".

Hal Owen  
Licensed Soil Scientist

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Scale 1 in = 50 ft

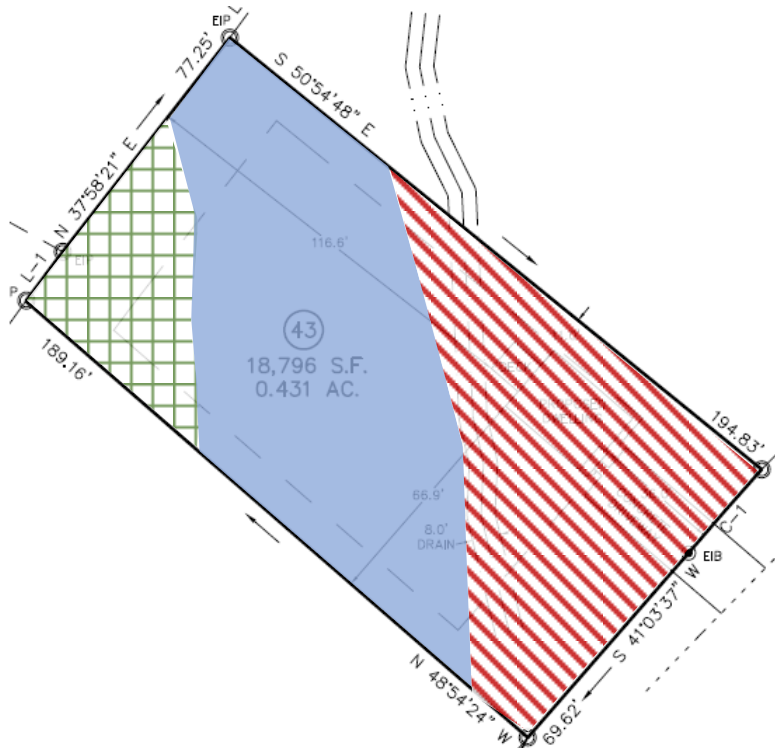


Map for reference only.  
Distances are paced  
and approximate.  
Not a survey.

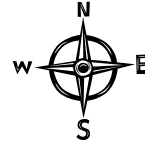
Figure 1. Soil Map showing Septic Suitability

*Soil Map Legend*

	Provisionally Suitable Soils For Modified or Alternative Systems
	Provisionally Suitable for Drip Systems
	Unsuitable Soils



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Scale 1 in = 30 ft

Map for reference only.  
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 Not a survey.

Figure 2. Septic System Layout

Lines flagged at site on 9-ft centers.				
Line #	Color	Relative Elevation (ft)	Drainline Length(ft)	Field Length(ft)
1	R	95.69	105	109
2	W	92.97	100	112
3	B	90.04	100	105
4	Y	86.36	55	55
Reference Elev:		100.00		

Initial System	
Pump to 360 ft (X 3ft)	
Chamber drainlines (Lines 1-4)	
Installed on contour, MTD 18 inches	
LTAR 0.25 gpd/sf	

