

Soil and Site Evaluation For Wastewater Treatment and Dispersal Systems

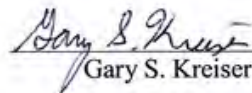
Wall Street

Grifton, NC

Pitt County

(Parcel # 43146)

September 18, 2025


Gary S. Kreiser



Findings: Based on the soil and site evaluation, there is a high degree of certainty that 3 bedroom home could be placed on the property and it could be used for residential development.

No opinions are made regarding the following:

- Home location;
- Specific septic system layout/components; and
- Horizontal setbacks required from septic systems.

INTRODUCTION

Soil & Septic Solutions performed an on-site subsurface wastewater system investigation on approximately 3.1-acre parcel (Parcel # 43146) located on Wall Street in Grifton, Pitt County, North Carolina on September 13, 2025. The property was evaluated in accordance with 15A NCAC 18E "Wastewater Treatment and Dispersal Systems". The purpose of this investigation was to perform an analysis of parcel capacity for residences.

At the time of the survey, the property was mostly an agriculture field. Slopes were around 2 percent.

INVESTIGATION METHODOLOGY

Soil borings were made with a hand-turned auger in the study area. Observations of the landscape (slope, drainage patterns, past use, etc.) as well as soil properties (depth, texture, structure, seasonal wetness, restrictive horizons, etc.) to a depth ≥ 48 inches when possible were recorded. Soil color was determined with a Munsell Soil Color Chart. From these observations, potentially suitable areas for wastewater disposal were identified.

A handheld global positioning system (GPS) with sub-meter accuracy was used to locate each soil boring as well as other pertinent site features.

FINDINGS

On the day of the field investigation, seven (7) hand auger borings were made on the property, logged, and their locations are shown in the Soil Boring Location Exhibit. Soil Boring logs are attached.

Depth to wetness was the limiting soil factor (See Soil Boring Logs). The area to the front of the lot was unsuitable due to depth to wetness. The subsoil texture was a sand to sandy loam. An area was delineated that had a depth of at least 36 inches to wetness. This area is suitable for septic systems and is estimated to be 40,000 ft². Due to thick vegetation the back portion of the lot was not reviewed.

Based on the soil texture and depth to limiting conditions a long-term acceptance rate (LTAR) of 0.6 to 0.8 gpd/ft² is recommended. Final LTAR recommendations will depend on the location of the septic system. Recommended trench depth would depend on location of the septic system but would most likely be between 18 and 24 inches.

GENERAL DESIGN AND INSTALLATION CRITERIA

Wastewater systems can be used when there is at least 12 inches of naturally occurring soil between the bottom of the trench and the limiting condition. For Group I soils (sands) the depth to wetness needs to be 18 inches.

For a 3-bedroom system, the design flow is 360 gallons per day (gpd). When the design flow is divided by the LTAR (using 0.60), the area of trench bottom can be calculated, which is 600 ft². The total length of trenches can be calculated by dividing the trench bottom area by 3 feet (which is the maximum trench width). Using these calculations, a 3-bedroom home would need 200 linear feet of trench.

Based on the depth to wetness in the suitable soil area and the slope in this area, there is enough soil depth to install a conventional septic system.

Traditional gravel trenches are laid on contours 9 feet from the center. Assuming 2 - 100-foot lines, the minimum area need is approximately 1,200 ft². This area assumes an even linear slope with parallel septic lines. Additionally, septic systems need a designated repair area. At a

minimum there needs to be at least 2,400 ft² for both the initial and repair area. This area could be reduced by using approved systems that allow for a 25% reduction in trench length.

Required horizontal setbacks (property lines, wells etc.,) were not considered in the soil that could be used for a septic system. These setbacks will affect the overall area that can be used.

Permitting of the septic system may be done through the County Environmental Health Department or through the private permitting option. It is recommended that a site layout be performed to verify that there is enough space for the septic and repair system. Additionally, careful placement of the homes and other improvements will need to be considered as to maximum the area of soil that can be used for septic.

CONCLUSIONS

Depth to wetness was the limiting soil condition. There is an area that has enough depth to wetness and corrects for slope and still maintains the required 18-inch vertical separation. The use of an accepted system would allow for a 25 percent reduction in trench length.

The exact location of the system and potential layout as well as house locations and horizontal setbacks, were not calculated or defined. Careful consideration as to house locations and other improvements will need to be evaluated to maximize the potential septic area.

The findings presented herein represent Soil & Septic Solutions' soil and site evaluation and knowledge of the current laws and regulations governing on-site wastewater systems in North Carolina. This report discusses the general location of suitable soils and site conditions that are favorable for septic systems and does not constitute or imply any approval or permit as needed from the County Health Department.

It is Soil & Septic Solutions' professional opinion that this lot can be used for residential development. Any concurrence with the findings of this report would be made during the County's site evaluation. Additionally, do not clear or grub any land until the County has granted the appropriate approvals.

Sincerely,



Attachments:

- 1) Soil boring Location Exhibit
- 2) Soil Boring Logs



GRAPHIC SCALE



1 inch = 150 ft.

Larry S. Knepper
Larry S. Knepper



B1

UN

UN

B2

B3

UN

B4

B5

B7

B6

SUITABLE SOIL

NE

NOTES:

- 1) NOT A SURVEY - PROPERTY LINES FROM NC ONEMAP, BORING LOCATIONS BASED ON GPS.
- 2) MAP NOT VALID WITHOUT REPORT.
- 3) UN - AREAS UNSUITABLE
- 4) NE - AREAS NOT EVALUATED - NO OPINION MADE.
- 5) DO NOT CUT, FILL OR ALTER DRAINFIELD OR REPAIR AREA.
- 6) SOIL & SITE EVALUATION NOT FOR ISSUANCE OF PERMIT, CONCURRENCE FROM COUNTY WILL BE REQUIRED OR ADDITIONAL WORK NEEDED FOR PRIVATE PERMIT.

WALL STREET
(PARCEL # 43146)

GRIFFON

PITT COUNTY

NORTH CAROLINA

SOIL BORING LOCATIONS

SOIL & SEPTIC SOLUTIONS

SOIL/SITE EVALUATION for ON-SITE WASTEWATER SYSTEM
(Complete all fields in full)

OWNER: _____ DATE EVALUATED: 9/13/25
ADDRESS: _____
PROPOSED FACILITY: _____ PROPOSED DESIGN FLOW (.0400): _____ PROPERTY SIZE: _____
LOCATION OF SITE: _____ PROPERTY RECORDED: _____
WATER SUPPLY: ☐ Public ☐ Single Family Well ☐ Shared Well ☐ Spring ☐ Other _____ WATER SUPPLY SETBACK: _____
EVALUATION METHOD: ☒ Auger Boring ☐ Pit ☐ Cut TYPE OF WASTEWATER: ☒ Domestic ☐ High Strength ☐ IPWW

P R O F I L E #	.0502 LANDSCAPE POSITION/ SLOPE %	HORIZON DEPTH (IN.)	SOIL MORPHOLOGY		OTHER PROFILE FACTORS				.0509 PROFILE CLASS & LTAR*	.0502(d) SLOPE CORRE CTION
			.0503 STRUCTURE/ TEXTURE	.0503 CONSISTENCE/ MINERALOGY	.0504 SOIL WETNESS/ COLOR	.0505 SOIL DEPTH	.0506 SAPRO CLASS	.0507 RESTR HORIZ		
1	L <2%	0-12	GR/S	VFR/NS/NP/SEXP	10YR 3/2	-	-	-	UN	-
		12-26	GR/LS	VFR/NS/NP/SEXP	10YR 6/2 @ 12"					
2	L 2%	0-24	GR/SL	VFR/NS/NP/SEXP	10YR 2/1	-	-	-	UN	-
3	L 2%	0-12	GR/S	VFR/NS/NP/SEXP	10YR 3/2	-	-	-	UN	-
		12-26	GR/LS	VFR/NS/NP/SEXP	10YR5/2 @ 12"					
4	L 2%	0-18	GR/S	VFR/NS/NP/SEXP	10YR 6/4	S	-	-	S 0.6-0.8	0.72
		18-36	GR/S	VFR/NS/NP/SEXP	10YR 7/3					
		36+	GR/LS	VFR/NS/NP/SEXP	10YR 5/2 @ 36"					

DESCRIPTION	INITIAL SYSTEM	REPAIR SYSTEM	SITE CLASSIFICATION (.0509): _____ EVALUATED BY: <u>GARY KREISER</u> OTHER(S) PRESENT: _____
Available Space (.0508)			
System Type(s)			
Site LTAR			
Maximum Trench Depth			
Comments: _____			

LEGEND

LANDSCAPE POSITION	SOIL GROUP	SOIL TEXTURE	CONVENTIONAL LTAR (gpd/ft²)	SAPROLITE LTAR (gpd/ft²)	LPP LTAR (gpd/ft²)	MINERALOGY/ CONSISTENCE		STRUCTURE			
CC (Concave slope)	I	S (Sand)	0.8 - 1.2	0.6 - 0.8	0.4 -0.6	MOIST	WET	SG (Single grain)			
CV (Convex Slope)		LS (Loamy sand)		0.5 -0.7		Lo (Loose)	NS (Non-sticky)	M (Massive)			
D (Drainage way)	II	SL (Sandy loam)	0.6 - 0.8	0.4 -0.6	0.3 - 0.4	VFR (Very friable)	SS (Slightly sticky)	GR (Granular)			
FP (Flood plain)		L (Loam)		0.2 - 0.4		FR (Friable)	S (Sticky)	SBK (Subangular blocky)			
FS (Foot slope)	III	SiL (Silt loam)	0.3 - 0.6	0.1 - 0.3	0.15 - 0.3	FI (Firm)	VS (Very sticky)	ABK (Angular blocky)			
H (Head slope)		SCL (Sandy clay loam)		0.05 - 0.15**		VFI (Very firm)	NP (Non-plastic)	PR (Prismatic)			
L (Linear Slope)		CL (Clay loam)		None		EFI (Extremely firm)	SP (Slightly plastic)	PL (Platy)			
N (Nose slope)		SiCL (Silty clay loam)					P (Plastic)				
R (Ridge/summit)		Si (Silt)								VP (Very plastic)	
S (Shoulder slope)		IV				SC (Sandy clay)	0.1 - 0.4	0.05 - 0.2	SEXP (Slightly expansive)		
T (Terrace)						SiC (Silty clay)			EXP (Expansive)		
TS (Toe Slope)	C (Clay)										
		O (Organic)	None								

* Adjust LTAR due to depth, consistence, structure, soil wetness, landscape, position, wastewater flow and quality.

**Sandy clay loam saprolite can only be used with advanced pretreatment in accordance with 15A NCAC 18E .1200.

HORIZON DEPTH

In inches below natural soil surface

DEPTH OF FILL

In inches from land surface

RESTRICTIVE HORIZON

Thickness and depth from land surface

SAPROLITE

S(suitable) or U(unsuitable); Evaluation of saprolite shall be by pits.

SOIL WETNESS

Inches from land surface to free water or inches from land surface to soil colors with chroma 2 or less - record Munsell color chip designation

CLASSIFICATION

S (Suitable) or U (Unsuitable)

Show profile locations and other site features (dimensions, reference or benchmark, and North).

SOIL/SITE EVALUATION

(Continuation Sheet-Complete all field in full)

Page 2 of 2

DEPARTMENT OF HEALTH AND HUMAN SERVICES
DIVISION OF PUBLIC HEALTH
ENVIRONMENTAL HEALTH SECTION
ON-SITE WATER PROTECTION BRANCH

PROPERTY ID #: _____
DATE OF EVALUATION: 9/13/25
COUNTY: PITT

P R O F I L E #	.0502 LANDSCAPE POSITION/ SLOPE %	HORIZON DEPTH (IN.)	SOIL MORPHOLOGY		OTHER PROFILE FACTORS				.0509 PROFILE CLASS & LTAR*	.0503 SLOPE CORRE CTION
			.0503 STRUCTURE/ TEXTURE	.0503 CONSISTENCE/ MINERALOGY	.0504 SOIL WETNESS/ COLOR	.0506 SOIL DEPTH	.0507 SAPRO CLASS	.0508 RESTR HORIZ		
5	L 2%	0-18	GR/S	VFR/NS/NP/SEXP	10YR 3/3	S	-	-	S 0.6 -0.8	0.72
		18-36	GR/S	VFR/NS/NP/SEXP	10YR 6/6					
		36-48	GR/LS	VFR/NS/NP/SEXP	10YR 6/4					
6	L 2%	0-18	GR/S	VFR/NS/NP/SEXP	10YR 6/4	S	-	-	S 0.6-0.8	0.72
		18-36	GR/S	VFR/NS/NP/SEXP	10YR 7/3					
		36-48	GR/LS	VFR/NS/NP/SEXP	10YR 7/2 @ 36"					
7	L 2%	0-18	GR/S	VFR/NS/NP/SEXP	10YR 3/3	S	-	-	S 0.6-0.8	0.72
		18-36	GR/S	VFR/NS/NP/SEXP	10YR 6/6					
		36-48	GR/LS	VFR/NS/NP/SEXP	10YR 5/8					
					10YR 6/2 @ 48"					

COMMENTS: _____

