

ON-SITE SOIL AND SITE EVALUATION

**Lot 5B - Tower Road (7.17-Acres)
No address is currently assigned
Transylvania County, North Carolina
Parcel ID# 9504-12-1373-000
4-Bedroom (480 GPD)
AOWE Permitting (License #10010E)**

Prepared for:

Prepared by:
*Alternative Septic Services, LLC
15 Lone Coyote Ridge
Fletcher, NC 28732*



Steven J. Melin #1254

Steven J. Melin, LSS

December 4, 2022



Lot 5B - Tower Road (7.17-Acres) (no address is currently assigned)
PIN# 9504-12-1373-000 (Transylvania County, NC)
Saprolite System: No

12-04-2022

Onsite Wastewater Septic System Overview:

The following report has been prepared by Alternative Septic Services (Steven J. Melin #1254) for a 7.17-acre tract at Lot 5B –off of Tower Road in Cedar Mountain (Transylvania County), NC. Please note that a 4-bedroom house is proposed (480 GPD). The following report prepared by Steve Melin (#1254) is intended to be permitted under the AOWE privatization rules (License #10010E).

Application Type:	NOI (4-BDR)					
Number of Bedrooms:	Proposed Septic System	GPD	Soil Group	Soil Texture	LTAR	Linear Feet Required Calculation (in Square and Linear Feet)
Initial Septic System:	25% Reduction 32” trench depth	480	IV	Clay	0.32	$480 \text{ gpd} / 0.32 \text{ gpd/ft}^2 = 1,500 \text{ ft}^2$ $1,500 \text{ ft}^2 / 4.0 \text{ ft trench eq} = 375 \text{ ft}$ (See calculations below)
Repair Septic System:	25% Reduction 32” trench depth	480	IV	Clay	0.32	$480 \text{ gpd} / 0.32 \text{ gpd/ft}^2 = 1,500 \text{ ft}^2$ $1,500 \text{ ft}^2 / 4.0 \text{ ft trench eq} = 375 \text{ ft}$ (See calculations below)
Easement Required:	No					

Onsite Wastewater Septic System Configuration and Recommendations:

The following recommendations are proposed for a 7.17-acre tract at Lot 5B off of Tower Road in Cedar Mountain (Transylvania County), NC. The proposed system design/layout is for a four-bedroom house. The septic area has been evaluated and determined to contain Group IV soils (the most restrictive texture being clay). A long-term acceptance rate (LTAR) of 0.32 has been assigned to these soils at a 32” trench depth (*See the attached soil descriptions*).

It is recommended to utilize a 25% Reduction type system for the septic drainfield. The (initial) septic system will require 375 linear feet of material to accommodate the 4-bedroom septic system. The trench depth is 32” (on contour). It is anticipated that gravity flow can be maintained to the drainfield. The square and linear footage required for installation of this system is illustrated below.

$$\begin{aligned} &4\text{-bedroom home} \times 120 \text{ gallon per bedroom per day} = 480 \text{ gallons per day (gpd)} \\ &\text{Group IV, Clay, } 0.32 \text{ gallons per square foot per day (LTAR)} \\ &\text{Square Footage required: } 480 \text{ gpd} / 0.32 \text{ LTAR} = 1,500 \text{ square feet} \\ &1,500 \text{ ft}^2 / 4.0' \text{ trench equivalency} = 375 \text{ Linear Feet} \end{aligned}$$

It is recommended to utilize a 25% Reduction type system for the repair septic drainfield. The repair system will require 375 linear feet of material to accommodate the 4-bedroom repair septic system. The recommended trench depth is 32” (on contour). The square and linear footage required for installation of this system is illustrated below.

$$\begin{aligned} &4\text{-bedroom home} \times 120 \text{ gallon per bedroom per day} = 480 \text{ gallons per day (gpd)} \\ &\text{Group IV, Clay, } 0.32 \text{ gallons per square foot per day (LTAR)} \\ &\text{Square Footage required: } 480 \text{ gpd} / 0.32 \text{ LTAR} = 1,500 \text{ square feet} \\ &1,500 \text{ ft}^2 / 4.0' \text{ trench equivalency} = 375 \text{ Linear Feet} \end{aligned}$$

The proposed septic system area has been identified in the field. It is recommended to utilize 375 linear feet of drainline for the septic drainfield. *(See attached site plan for detail.)* It is also recommended to delineate the system again prior to installation.

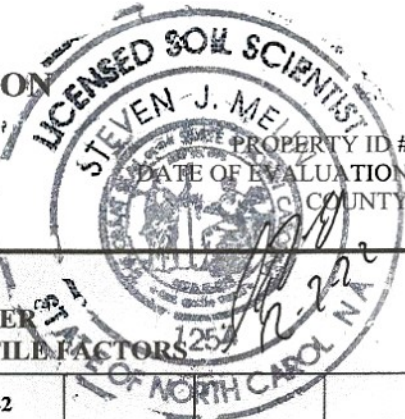
Onsite Wastewater Septic System Setbacks (Buffers) and Site Recommendations:

The following items are recommended to preserve the integrity of the proposed site and surrounding area.

1. It is recommended to encase all septic system supply lines where they cross roads, drives and/or power lines *(pursuant to Laws and Rules for Sewage Treatment, and Disposal Systems 15A NCAC 18A .3750)*
2. It is recommended to divert all stormwater runoff away from all proposed septic areas.
3. A 1,000 gallon septic is recommended. The septic tank is proposed to feed three-hundred seventy-five feet (375') of drainline by serial distribution. Please see the attached map.
4. The proposed septic system designs/layouts are based on dodging large trees or other obstacles that may hinder the installation or operation of the septic system.
5. The proposed onsite wastewater system is based off of theoretical calculations based on data obtained at the site. Actual system performance is not guaranteed.
6. The proposed initial septic system and repair system must maintain a setback (Buffer), specified by North Carolina Department of Environment and Natural Resources (NCDENR), including: 5' horizontal from the house and all foundations, 50' horizontal from any surface water, 100' horizontal minimum from all wells (can be reduced to 50' under circumstances), 10' horizontal from all property lines and water lines, 20' horizontal from any other septic system (except repair) and 15' horizontal from cut banks (unless filled and compacted, 5' horizontal setback).

9504-12-1373-000

Cedar Mountain
SOIL/SITE EVALUATION
(Continuation Sheet)



Sheet ___ of ___

DEPARTMENT OF ENVIRONMENT
AND NATURAL RESOURCES
DIVISION OF ENVIRONMENTAL HEALTH
7.17-Ac

Lot # 5B
Tower
PST 2002

PROPERTY ID #: _____
DATE OF EVALUATION: 12-2-20
COUNTY: Transylvania

P R O F I L E #	.1940 LANDSCAPE POSITION/ SLOPE %	HORIZ ON DEPTH (IN.)	SOIL MORPHOLOGY (.1941)		OTHER PROFILE FACTORS				PROFILE CLASS & LTAR
			.1941 STRUCTURE/ TEXTURE	.1941 CONSISTENCE/ MINERALOGY	.1942 SOIL WETNESS/ COLOR	.1943 SOIL DEPTH	.1956 SAPRO CLASS	.1944 RESTR HORIZ	
1	AB	0-8	Gr / sl	FR	10YR 3/3	16Y			IV 0.32
	BA	8-16	1msbk / scl	FR	7.5YR 2/4				
	BT	16-31	2msbk / cl	FR (st/p)	7.5YR 2/6				
	BC	31-64	1msbk / scl	FR	7.5YR 2/3 + PM				
2	BA	0-8				16Y			IV 0.32
	BT	8-16	sl						
	BC	16-35	st. clay / c. 2' wood st. in 11"						
3	AB	0-8	1msr / sl	FR	10YR 3/3	16Y			IV 0.32
	BA	8-19	1msbk / scl	FR (st/p)	7.5YR 2/4				
	Bt1	19-38	2msbk / c	FR (st/p)	7.5YR 2/6				
	Bt2	31-64	1msbk / cl	FR	7.5YR 2/6 + P				
3	AB	0-9	1msr / sl	FR	10YR 3/3	16Y			IV 0.35
	BA	9-17	1msbk / scl	FR	10YR 2/4				
	Bt1	17-28	1msbk / c	FR (st/p)	10YR 2/6				
	Bt2	28-64	2msbk / scl	FR (st/p)	10YR 2/6				
4	BT	0-8				16Y		58" Rtbr	IV 0.35
	BT	8-29	2msbk / c	FR (st/p)	10YR 2/4				
	BC ₁	29-58	1msbk / cl	FR	10YR 2/6				
	BC ₂	58+	2msbk / scl						

COMMENTS:

Install Dry
conditions only!
32' 0.32 4-BR

Soils and Onsite Wastewater Evaluation. Lot 5B - Tower Road (PIN# 9504-12-1373-000). Transylvania County, NC (SJM (Dec. 2022))

Lot 5B - Tower Road
Transylvania Co, NC
4-BDR (480 GPD)

Initial System:
25% Reduction
0.32 LTAR; 5 x 75'
32" trench depth

Repair System:
25% Reduction
0.32 LTAR; 375 LF
32" trench depth



- ▲ Existing Well
- 50' Well Buffer
- Auger Boring
- GPS Points
- Road
- Swale
- Fence
- Driveway
- Approximate Boundary
- Initial Drainline - Orange Pin Flags
- Initial Drainline - Blue Pin Flags
- Initial Drainline not delineated
- Repair Area
- Tank
- Potential House Location
- Topography (4' (NCDOT))
- Topography (20' (NCDOT))

Lot 5B
4-BDR
7.17-Ac

1,000 Gal.
Septic Tank

rocky

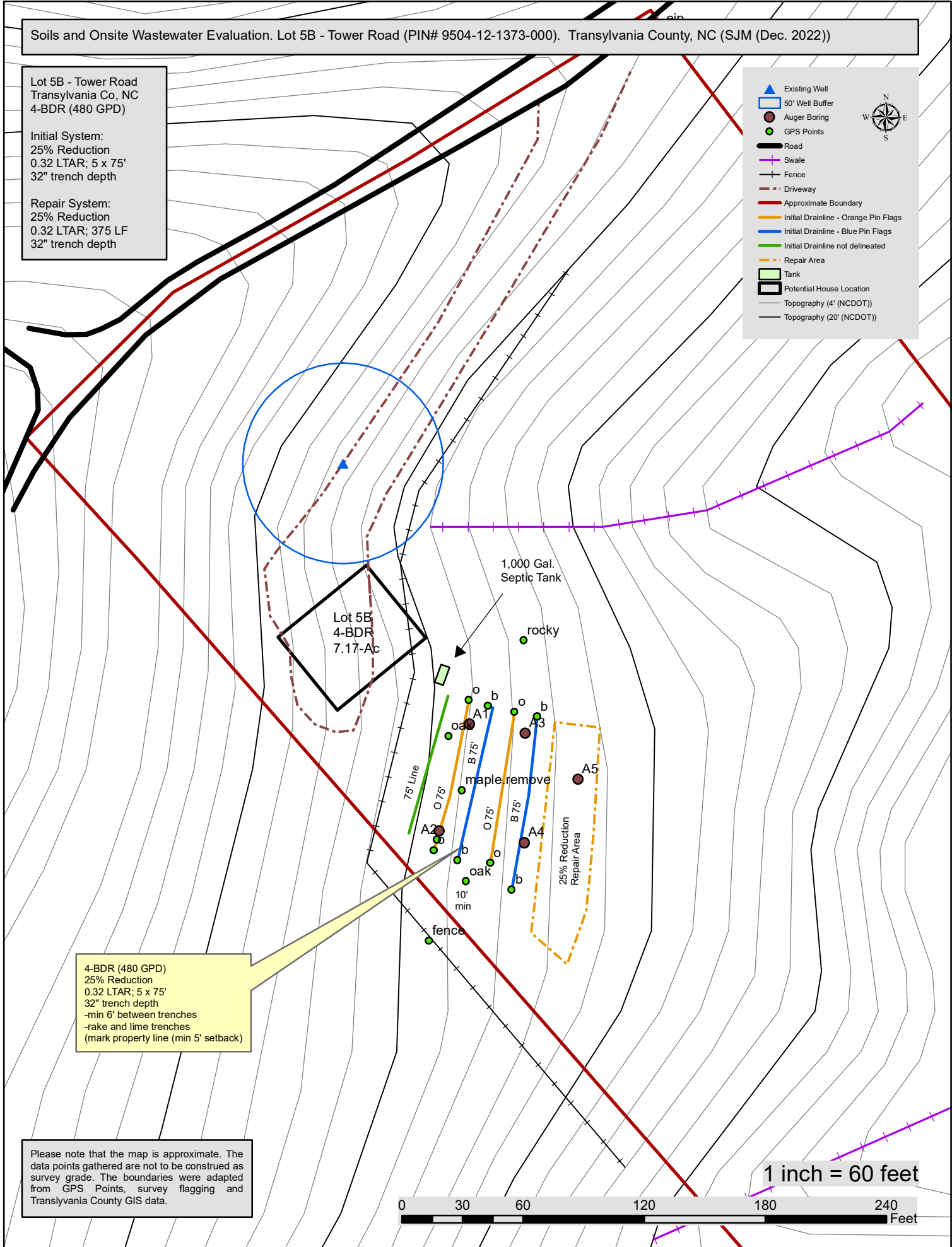
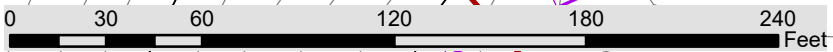
maple remove

25% Reduction
Repair Area

4-BDR (480 GPD)
25% Reduction
0.32 LTAR; 5 x 75'
32" trench depth
-min 6' between trenches
-rake and lime trenches
(mark property line (min 5' setback))

Please note that the map is approximate. The data points gathered are not to be construed as survey grade. The boundaries were adapted from GPS Points, survey flagging and Transylvania County GIS data.

1 inch = 60 feet





15 Lone Coyote Ridge
Fletcher, NC 28732

Lot 5B - Tower Road
PIN# 9504-12-1373-000 (Transylvania County)
4-BDR (480 GPD)
Saprolite System: No

12/4/2022

Septic System Calculation Worksheet

Initial System = 25% Reduction

Trench Bottom Depth: 32" (on contour)

Gal / Day	Trench Width (Inches)	Trench Equivalency (Feet)	Soil Depth on 0% Slope
480	36	4	44

Slope	Pit / Boring#	Suitable Soil Depth (in.)	Total Suitable Depth/ Sap. Depth (in.)	Soil Needed (slope adjusted) (in.)	¹ Total Depth of Saprolite Required (2:1 ratio) factoring Soil		Morphological Based Field LTAR
					Depth (in.)	Fill Material Required (in.)	
15%	A1	64	64	49.4	N/A	0	0.32
16%	A2	64	64	49.8	N/A	0	0.32
14%	A3	64	64	49.0	N/A	0	0.35
11%	A4	60	60	48.0	N/A	0	0.35
LTAR Utilized							0.32
Linear Feet Required							375

Repair System = 25% Reduction

Trench Bottom Depth: 32" (on contour)

Gal / Day	Trench Width (Inches)	Trench Equivalency (Feet)	Soil Depth on 0% Slope
480	36	4	44

Slope	Pit / Boring#	Suitable Soil Depth (in.)	Total Suitable Depth/ Sap. Depth (in.)	Soil Needed (slope adjusted) (in.)	¹ Total Depth of Saprolite Required (2:1 ratio) factoring Soil		Morphological Based Field LTAR
					Depth (in.)	Fill Material Required (in.)	
15%	A1	64	64	49.4	N/A	0	0.32
16%	A2	64	64	49.8	N/A	0	0.32
14%	A3	64	64	49.0	N/A	0	0.35
11%	A4	60	60	48.0	N/A	0	0.35
11%	A5	60	60	48.0	N/A	0	0.35
LTAR Utilized							0.32
Linear Feet Required							375

¹ [(soil depth needed-soil depth) x 2] + Soil depth = sap. Depth needed.
Above equation only to be used if the difference in soil depth needed and actual soil depth present = 12" or less