



ENGINEERING & ENVIRONMENTAL SCIENCE COMPANY

3008 ANDERSON DRIVE, SUITE 102

RALEIGH, NC 27609

(919) 781-7798

September 15, 2025

Mrs. Jennifer Rouse
1245 Cool Springs Rd.
Lillington, NC

RE: Fill Density Testing Evaluation
Shed
1245 Coll Springs Rd.
Dunn, NC

Dear Mrs. Rouse:

On September 10, 2025, a Professional Engineer with Engineering & Environmental Science Company (E²S) conducted two (2) density tests on the residential shed pad and two (2) soil borings with dynamic cone penetration testing at the above referenced site.

Fill had been placed for in the shed area. The fill was about 4 ft. deep on the back side of the building pad and about 6 inches to 12 inches at the front side of the pad. For the footing subgrade at the deeper fill area, about 2 to 4 inches of light gray silty SAND (SM) was encounter underlain by reddish brown clayey SAND (SC) that continued to the virgin (undisturbed).

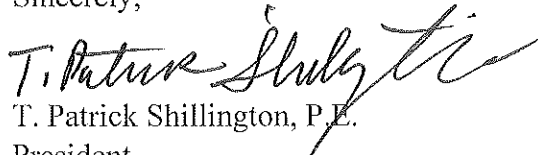
Attachment A shows the locations of the density tests and hand auger borings, and Attachment B provides the density test data. The fill soil had dynamic cone penetrometer readings of 3 to 6 blows per increment. Soil density tests ranged from 86.1% to 92.1% of Standard Proctor Maximum Dry Density (ASTM-D-698) at the locations and depths tested.

The fill beneath the footing had a low compaction level and dynamic cone penetrometer readings. The degree of compaction should be above 95% and the penetrometer readings should be at least 9 blows per increment.

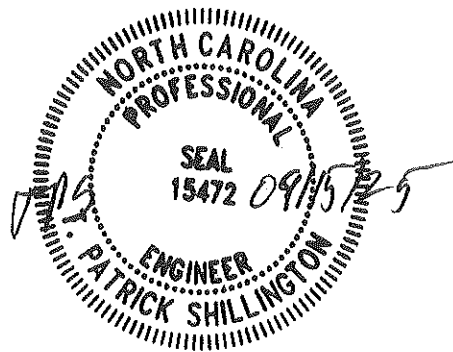
It is recommended that the existing fill be removed beneath the footings and replaced with No. 57 stone. It is not necessary to compact the No. 57 stone.

We appreciate serving you on this project. Please contact us if you have any questions.

Sincerely,


T. Patrick Shillington, P.E.
President

Attachment A: Density Test Locations
Attachment B: Density Test Results



ATTACHMENT A: Density Test Locations



Existing House



 #1 Boring and Density Test Locations

Not To Scale



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Test Locations Shed 1245 Cool Springs Rd. Lillington, NC	DATE: 09/15/25
	FIGURE NO. 1

Attachment B: Density Tests Results

Summary of Density Test Results
Shed
1245 Coll Springs Rd.
Lillington, NC

TEST NO.	DATE SAMPLED	LOCATION	SAMPLE ELEV., FT.	(1)MAX LAB DRY DEN., PCF	(2)IN-PLACE WET DEN., PCF	(2)WATER CONTENT	(2)IN-PLACE DRY DEN.,PCF	PERCENT COMPACTION
1	09/10/25	See Drawing	Subgrade	114.2	108.0	9.7	98.4	86.2
2	09/10/25	See Drawing	Subgrade	114.2	115.8	10.1	105.2	92.1

(1) Standard Proctor (ASTM D-698)

(2) Tests were conducted by the Push Tube Method (ASTM D-2937)

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MOISTURE DENSITY RELATIONSHIP

Job No. _____ Date 09/12/25

Project Name and Location Shed
1245 Cool Springs Rd., Lillington, nc

Source of Material On-Site

Description of Material Reddish-brown clayey SAND (SC)

Material Designation _____

Test Method ASTM D-698

TEST RESULTS

Maximum Dry Density 114.2 PCF

Optimum Water Content 14.6 %

CURVES OF 100% SATURATION
FOR SPECIFIC GRAVITY EQUAL TO:

2.80

2.70

2.60

