

NC Firm # P-0961

Construction Services / CMT - Project Summary Report

**To:**  
Name: Noah Cooke  
Company: Cooke Custom Homes  
Address: 3713 Birch Brook Ct  
Raleigh, NC  
Email: cookecustomhomesllc@gmail.com

**Re:**  
Work Type(s): Soil Investigation  
Project Location: 3713 Birch Brook Ct  
Raleigh, NC  
**Date:** 4/21/2023

Date:	Test / Observation Type	Location	Site/Travel Time/ Lab Time	Results:
3/24/2023	Visual observation	Rear of Home	2 hours	Staked area noted for proposed ADU
3/23/2023	Hand Auger Boring, Probe, DCP	B-1 - Front Left Corner		Marginal material at surface - 3 to 4 blow counts average. At minus 2 ft material firms up with 6 blow count averages moving to average blow counts of 8 at minus 4 ft. Samples were retrieved for lab testing.
3/23/2023	Hand Auger Boring, Probe, DCP	B2 - Center of Layout		
3/23/2023	Hand Auger Boring, Probe, DCP	B3 - Rear Right Corner		
3/23/2023	Hand Auger Boring, Probe, DCP	B4 - Middle Left of Center		
3/23/2023	Hand Auger Boring, Probe, DCP	B5 - Middle Right of Center		
4/6/2023	Proctor & Classification	JDS Lab	3 hours	Clayey Sand (SC) LL = 47, PL = 25, PI = 22, NM = 17.3% Max Dry Density = 107.7 PCF Opt. Moisture = 17.2 %

JDS was asked to present estimated values for friction angle, unit weight and cohesion for the materials located on this site. JDS was also asked to report whether flood prone soils are located on site. Those result are reported below:

**Wet Unit Weight**  $\gamma = 126$  PCF  
**Dry Unit Weight:**  $\gamma = 108$  PCF  
**Estimated Soil Friction Angle :**  $\Phi' = 25^\circ$   
**Estimated Cohesion:**  $c' = 110$  PSF  
**Flood Prone Soils on Site:** Yes Per Wake GIS  
**Slopes Greater Than 3:1 Located on Site** No. Rear of Lot Max Elevation 360', Min Elevation 352' over approximately 220'

These values are estimated based on site and lab testing as well as experience with local geology. For exact values a triaxial laboratory test is recommended. Subsurface conditions can vary widely over small distances and can change with time. Water penetration and other environmental factors can influence the soil stata and its mechanical properties well after JDS performed our work. No warranty expressed or implied, should be understood.

**Additional Comments:**

Wake county GIS indicated a portion of the lot contained flood prone soils. The natural moisture of the material was almost identical to the optimum moisture content and most of the material classified as sand which does not significantly react to moisture changes. Additionally, the blow counts at the surface indicate looser material that may remain. However, the ground anchors should not be given much value for resistance in the first 2 feet. It would be recommended that the anchors be extended an additional 2 feet. JDS does not anticipate risk factors associated with the flood-prone soils to influence the structural integrity of the project.

If you have any questions or if I can be of further assistance to you on this project, please contact me at (919)-559-8275

Respectfully Submitted,  
Elijah B. Smith

