

February 17, 2022

Mr. Dan Hall  
Red Door Homes  
4002 Fayetteville Road  
Raeford, North Carolina 28376



**Subject: Summary of Foundation Bearing Material Evaluation**  
**2876 Hillmon Grove Road**  
**Cameron, North Carolina**  
**Project Number: 4206.500 (34891-00)**  
**Red Door Job Number: N/A**

Dear Mr. Hall:

On February 11 and 16, 2022, SUMMIT Engineering, Laboratory and Testing, Inc. (SUMMIT) visited the subject site for the purpose of observing and evaluating the near surface foundation bearing materials for the residential structure. The following is a summary of our onsite observations and evaluation

Our work included testing and bearing grade evaluations of the in-place soil at the bottom of the foundation excavations. Hand auger borings were incrementally advanced by manually twisting a sharpened steel auger into the soil at selected locations along the footing excavation. The soil consistency in the bottom of the excavation and at selected intervals below the bearing grade was evaluated by Dynamic Cone Penetrometer (DCP) testing. The conical point of the DCP was first seated to penetrate any loose cuttings and then driven three additional 1-3/4 inch increments with blows from a 15-pound hammer falling 20 inches. The soil's strength characteristics and foundation support capability was determined based on the average blows per increment (bpi) over the last two increments to achieve this penetration. Additionally, the entire excavated foundation was evaluated by hand probing using a 1/2 inch diameter steel probe rod to check for soft areas at the surface intermediate of our hand auger boring locations.

The materials encountered in our hand auger borings generally consisted of orange and tan, silty-sand (fill underlain by residual soils) and were free of significant quantities of organics and debris. It should be noted that soft soils were encountered to an approximate depth of 3 feet below the planned foundation bearing elevation at the left rear exterior wall foundation corner. The contractor was informed and SUMMIT recommended over-excavating to firm soils in the areas designated in marking paint. SUMMIT returned on February 16, 2022 to observe that the recommended over-excavations had been completed. We recommend backfilling the over-excavated areas with compacted clean washed stone (NCDOT No. 57 stone) wrapped in a woven geotextile (Mirafi 500x or equivalent) or place full depth concrete. If additional testing for the purpose of estimating volumetric change (shrink/swell) potential or to estimate consolidation is desired, SUMMIT can provide these services.

**SUMMIT** tested the four exterior wall corners of the residential foundation and fill soils were encountered to an approximate depth of 12 inches below the foundation bearing elevation. **SUMMIT** assumes that the fill placement was observed and tested to verify that the fill material was placed and compacted properly. Based on the results of our DCP testing, the completed remedial measures, and the assumption that the fill placed throughout the building pad is similar or better than the properly compacted fill material encountered in the hand auger borings, the soils encountered are suitable for support of the residential structure utilizing a net allowable soil bearing pressure of **2,000 pounds-per-square-foot**.

If foundation bearing materials are exposed to inclement weather or adverse construction activities, **SUMMIT** should be contacted to re-evaluate the foundation bearing materials prior to concrete placement. If it is imminent that inclement weather is forecasted prior to concrete placement, then the footings can be over-excavated (deepened) approximately 2 to 4 inches and a mud-mat (lean concrete) can be placed up to the foundation bearing elevation to help protect the foundation bearing materials from softening.

**SUMMIT** appreciates the opportunity to provide our professional services to you on this project. If you have any questions concerning the information in this report or if we can be of further service, please contact us.

Sincerely,  
**SUMMIT** Engineering, Laboratory and Testing, Inc.



Jeff A. Taylor, P.E.  
Geotechnical Engineer

A handwritten signature in black ink, appearing to read "Adam D. Perry".

Adam D. Perry, E.I.  
Staff Professional