



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

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STATE PROJECT: 34850.1.1 (U-2717)
F.A. PROJECT: STP-1113 (2)
COUNTY: Guilford
DESCRIPTION: High Point – SR 1113 (Kivett Dr.) from Pendleton St. to US 29-70, I-85 Business
SUBJECT: Geotechnical Report - Structure Inventory for Bridge No. 218 on -L- (SR 1113, Kivett Dr.) over I-85 Business at -L- Station 40+56.584

Project Description

A two-span bridge, 81.4 meters in length with a 114° 41' 43" skew, is proposed on -L- (SR 1113, Kivett Dr.) over I-85 Business to replace the existing structure. The new bridge will be 23.4 meters longer than the existing bridge. The project is located in Guilford County about 5 miles east of High Point.

The subsurface investigation was conducted during January of 2004 using a CME-550 drill machine with an automatic hammer. Standard Penetration Test borings were performed at each of the three bent locations. All borings were advanced using hollow stem augers until weathered rock and/or crystalline rock was encountered. Representative soil samples were obtained for visual classification in the field and selected samples were sent to the Materials and Test Unit for laboratory analysis.

Physiography and Geology

The project is located in rolling terrain of the Piedmont Physiographic Province. Geologically, the site is located within the Carolina Slate Geologic Belt and is underlain by metamorphosed granitic rock.

Soil Properties

Soils encountered at the project site include residual soils.

Residual soils were encountered in all borings and range in thickness from 9.19 to 15.45 meters. Residual soils consist of orange-brown to red-orange and tan-brown to tan-gray, dry to wet, medium stiff to very stiff, plastic to highly plastic (33-49 plasticity indices), sandy clay (A-6) and silty clay (A-7-5, A-7-6). Tan to blue-brown, green-gray and white, dry to moist, loose to very dense, saprolitic, micaceous, silty sand (A-2-4, A-2-5) and tan to gray-brown, red to orange brown and white, dry to moist, soft to hard, saprolitic, micaceous, sandy and clayey silt (A-4 and A-5) are also present. Weathered rock and/or crystalline rock underlie residual soils.

Undisturbed Samples

Undisturbed thin wall Shelby tube samples were collected at the following locations and submitted for testing.

<u>Sample No.</u>	<u>Station</u>	<u>Depth (meters)</u>	<u>Test</u>
ST-1	40+24.7, 16.1m LT	2.10 – 2.72	Consolidation
ST-2	41+05.8, 15.7m LT	2.20 – 2.82	Consolidation

Rock Properties

Weathered rock was derived from the underlying metamorphosed granite and ranges in thickness from 0.18 to 2.13 meters. The top of weathered rock was encountered at elevations ranging from 242.97 at EB1-B to 239.90 meters at EB2-A.

Crystalline rock was encountered at both interior bent borings and at the EB2-A boring location. The top of crystalline rock ranges in elevation from 239.40 at EB2-A to 238.99 meters at B1-A.

Goundwater

Groundwater was encountered at each bent location. Groundwater elevations ranged from 251.72 at EB1-A to 248.94 meters at B1-A.

Notice

This Geotechnical foundation report is based on the Preliminary General Drawing for Bridge no. 218 on -L- (SR 1113, Kivett Drive) over I-85 Business dated October 27, 2003. If significant changes are made in the design or location of the proposed structure, the subsurface information should be reviewed and modified as necessary.

Respectfully submitted,

Joseph I. Milkovits, Jr.
Project Geologist