



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

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SECRETARY

December 2, 2004

STATE PROJECT: 33664.1.1 (B-4327)
F.A. PROJECT: BRZ-1131 (7)
COUNTY: Wilson
DESCRIPTION: Bridge No. 52 on SR 1131 (New Sandy Hill Rd.) over Turkey Creek at -L-
Station 23+80.00
SUBJECT: Geotechnical Report - Structure Inventory

Project Description

A single-span bridge, 130 feet in length with a 90° skew, is proposed on SR 1131 (New Sandy Hill Rd.) over Turkey Creek to replace the existing structure. The new bridge will be 12 feet longer than the existing bridge. The project is located about 9 miles west of Wilson.

The subsurface investigation was conducted during September of 2004 using a CME 550 drill machine with an automatic hammer. Borings EB1-A, EB1-B and EB2-B were advanced using wash drilling with N-casing. Boring EB2-A was drilled during the roadway investigation performed by the Greenville Area Office of the Geotechnical Unit in July of 2002. The boring was advanced using rotary with bentonite drilling fluid. Standard Penetration Test borings were performed at each of the two bent locations. Representative soil samples were obtained for visual classification in the field and selected samples were submitted to the Materials and Test Unit for laboratory analysis.

Physiography and Geology

The project is located in the western portion of Wilson County within the Lower Piedmont Physiographic Province. The site is located within the Eastern Slate Belt and is underlain by foliated to massive granitic rock.

Soil Properties

Soils encountered at the project site include roadway embankment, alluvial and residual soils.

Roadway embankment soils are present at the End Bent 2 location and has a thickness of 7.0 feet. This soil consists of red-brown, moist, soft to medium stiff, silty clay (A-7-6). Embankment soils are underlain by alluvial soils.

Alluvial soils were encountered at both end bent locations and range in thickness from 9.2 to 11.8 feet. Alluvial soils consist of tan-brown and tan-gray, moist to wet, very soft to very stiff, sandy silt (A-4) and tan-brown to gray, moist, soft to medium stiff, sandy clay (A-6). The alluvial soils were deposited on residual soils.

Residual soils were encountered at both end bents and range in thickness from 9.0 to 26.5 feet. The soils consist of tan-gray-brown, moist, medium dense to very dense, coarse and silty sand (A-1-b, A-2-4). Tan-brown and gray-brown-tan, moist, very stiff to hard, micaceous, saprolitic, sandy and silty clay (A-6, & A-7-5, A-7-6) is also present. Weathered rock underlie residual soils.

Rock Properties

Weathered rock was derived from the underlying foliated to massive granitic rock and ranges in thickness from 0.4 to 9.0 feet. The top of weathered rock was encountered at elevations ranging from 122.4 at EB1-A to 117.0 feet at EB2-A. Boring EB2-A was terminated on crystalline granitic rock.

Groundwater

Groundwater elevation ranged from 146.1 at EB2-A in 2002 to 139.8 feet at EB2-B in 2004. Groundwater elevations are influenced by the water levels of Buckhorn Reservoir.

Notice

This Geotechnical foundation report is based on the bridge survey and hydraulic design report for bridge no. 52 on SR 1131 (New Sandy Hill Rd.) over Turkey Creek dated September 30, 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,

A handwritten signature in black ink that reads "Joseph I. Milkovits, Jr.".

Joseph I. Milkovits, Jr.
Project Geologist