STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

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GOVERNOR

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May 2004

STATE PROJECT: 33208.1.1 (B-3663)
F. A. PROJECT: BRZ-1212(4)
COUNTY: Henderson
DESCRIPTION: Bridge No. 320 on SR-1212 over Shaw Creek

SUBJECT: Geotechnical Report – Foundation Investigation

Site Description

This project is located in central Henderson County off US-64 northwest of the municipality of Hendersonville. The project area is sparsely residential. Proposed is a single 49-foot span cored slab bridge erected on a 60° skew that will traverse both Shaw Creek and Norfolk Southern Railway along the existing alignment. As a result, a temporary detour crossing is to be constructed approximately 45 feet downstream from the existing bridge.

The subsurface investigation was completed with the utilization of a CME-550 ORV drill unit equipped with an automatic drop hammer for SPT analysis, eight-inch hollow stem augers, and NXWL rock coring apparatus. Shelby Tube samples were collected from the detour alignment and submitted for consolidation testing.

Foundation Materials

Bridge

A single boring was advanced in the vicinity of both end bents. These borings revealed approximately 2 feet of sand and gravel embankment placed upon alluvial soils. The alluvium consists of 8 feet of very soft slightly organic sandy silt deposited over up to 3 feet of loose to medium dense basal sand and gravel. Beneath the alluvium lies a 4 to 8 foot thick saprolite horizon composed of dense slightly micaceous sandy silt. Hard rock was encountered between approximate elevations 2068 and 2072 feet. The majority of the rock is very severely weathered, with intact rock composed of augen gneiss. Recovery and RQD values were zero percent respectively for the bottom two core runs.

Detour

The detour embankment will be founded on flood plain alluvial soils. Two feet of very loose silty sand comprises the surficial layer. Beneath this is a 1 to 6 foot thick deposit of very soft organic clay. Shelby Tubes were advanced in this material to obtain consolidation parameters. Loose alluvial gravel and sand with very soft organic sandy silt underlies this horizon, which has been deposited over loose to medium dense sandy saprolite.

Groundwater

Groundwater was measured from 4 to 6 feet beneath natural ground in all boring locations.

Respectfully Submitted,

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Project Engineering Geologist

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