STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

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STATE PROJECT: 8.1830501 (R-2206C)
COUNTY: Lincoln
DESCRIPTION: Bridge on Mundy Rd. (SR 1349) over NC 16

SUBJECT: Geotechnical Report – Bridge Foundation Investigation

This 2 lane structure is a new bridge on Mundy Rd. (SR 1349) over proposed NC 16. The proposed structure is comprised of 2 spans at lengths of 33.66 and 30.33 meters, and is approximately 9.54 meters in width. Skew angle for the bridge is 76^ 30' 01. According to the provided structure sketch the bridge will be a composite deck on a prestressed concrete 160mm modified bulb tee. Slopes are proposed at 2:1 with 150mm concrete slope protection.

Foundation test borings were performed with a CME-550 drill machine utilizing NW Casing and automatic drop hammer. The field investigation for this project was conducted in June of 2003.

Physiography/Geology

Geologically this site is part of the Charlotte Belt and is underlain by metamorphosed quartz diorite and granitic rock. The topography of the bridge site is flat and open. Some roadway fill soil is associated with existing Mundy Road. Residual soils were encountered at all boring locations, and consist of 2 to 4.2 meters of stiff to very stiff silty sandy clay (A-7-5, A-7-6), 2.5 to 11.5 meters of stiff to hard micaceous sandy silt (A-4), and 2.5 to 3.2 meters of loose to dense micaceous silty sand (A-2-4). Weathered rock was only encountered in one instance and occurred as a 1.2 meter thick layer in boring EB2-A.

Foundation Materials

End Bent 1:
This proposed bent is located west of proposed -L- (NC 16). Only one boring was performed at this bent location due to the addition of new utilities at the site. This boring was performed through the hard top along the edge of existing Mundy Road and encountered 0.9 meters of pavement, gravel, and roadway fill soils. Beneath fill soil at

elevation 271.59 lies 2.1 meters of residual stiff to very stiff red-tan sandy silty clay (A-7-6). Following residual clay, 11.4 meters of stiff to hard red-tan-white micaceous sandy silt (A-4) is first encountered at elevation 269.49 meters.

Bent 1:
This proposed bent is located in the center median of proposed NC 16. Two borings performed at this boring location encountered 3.5 meters of stiff sandy silty clay (A-7-5) overlying approximately 2.5 meters of stiff tan-brown micaceous sandy silt (A-4) occurring at elevation 266.3 meters. Elevation 263.7 marks the beginning of 3.1 meters of medium dense tan-brown micaceous silty sand (A-2-4). Below sand at elevation 260.6, 3.0 meters of medium stiff to stiff gray micaceous sandy silty clay (A-7-5) is encountered overlying stiff to very stiff tan-white micaceous sandy silt (A-4). The silt layer begins at approximate elevation 247.5 meters and continues for the remaining length of each boring.

End Bent 2:
This proposed bent is located east of proposed -L- (NC 16). Two borings performed at this bent location encountered 4.2 to 4.5 meters of residual stiff to very stiff red-brown silty sandy clay (A-7-6) overlying up to 6.8 meters of medium stiff to hard red-tan-gray micaceous sandy silt. The clay / silt soil horizon occurs between elevation 261.70 and 262.81 meters. Beneath silt at an elevation range of 254.9 to 256.8 meters, loose to dense tan-brown micaceous silty sand (A-2-4) is encountered and continues throughout the remaining length of the boring. A 1.2 meter thick seam of weathered rock was encountered in boring EB2-A between elevation 259.9 and 258.7 meters.

Groundwater

Static groundwater measurements made more than 24 hours after each boring indicate a groundwater table between elevation 263 meters at End Bent 2 and 268 meters at End Bent 1.

Respectfully submitted,

J.E. Beverly, Project Geologist

J E Beverly