



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

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GOVERNOR

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July 20, 2004

STATE PROJECT: 33223.1.1 B-3681
FEDERAL PROJECT: BRSTP-1555(1)
COUNTY: Nash/Edgecombe
DESCRIPTION: Bridge No. 277 over CSX Railroad on SR 1555
SUBJECT: Geotechnical Report - Bridge Foundation Investigation for SR 1555 over CSX Transportation at -L- Station 18+89.64

Site Description

The proposed bridge site is located at the existing SR 1555 bridge over CXS Railroad in Rocky Mount. The replacement structure will be constructed along the existing alignment. Based on the proposed design, the new structure will have three spans having a total length of 232.3 feet. The bents will have a skew of 125± degrees.

One Standard Penetration Test (SPT) boring was made at or near each proposed bent location to provide subsurface information relative to foundation design. The borings were made with a truck mounted Mobile B-47 and ATV mounted CME 45B drill machines and were advanced by rotary drill methods using bentonite drilling fluid.

The bridge site is located in an area known as the "Fall Zone" where both Piedmont and Coastal Plain soil characteristics exist. Soils encountered at this site consist of embankment material, Pliocene age sediments of the Yorktown formation and saprolitic soils derived from the in place weathering of Pennsylvanian-Permian age granitic rock.

The project is primarily located on upland terrain where the natural topography is nearly flat. Elevations at the site range from 83± feet along the railroad bed to 111± feet along the existing SR 1555 embankment. During this investigation, water levels within the bore holes were measured at an elevation of 92± feet.

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Soil Description

Subsurface conditions at the site are relatively uniform. Soils of the Pliocene Yorktown formation generally consist of 10 to 15± feet of medium stiff to very stiff silty sandy clay (A-6) and clayey sandy silt (A-4). The cohesive deposits are underlain at elevations of 68 to 76 feet by 8 to 16 feet of medium dense to very dense clayey fine to coarse sand (A-1-b, A-2-4). Residual soils derived from granitic rocks underlie the Pliocene age sediments in boring B1-B at elevations ranging from 50± to 58± feet. The residual sediments consist of very dense clayey fine to coarse sand (A-2-7) and very stiff silty clay (A-7-5). The Yorktown and residual deposits are underlain at elevations ranging between 50± to 60± feet by weathered rock derived from granite. Hard rock was encountered in all the borings at elevations ranging from 43± to 50± feet.

Based on the proposed design, the existing grade will be maintained at the bridge site. The existing roadway embankment at the end bents consists of 17 to 23± feet of medium stiff to stiff clayey sandy silt (A-4) and silty sandy clay (A-6). The proposed end bent slopes will be mainly constructed within the existing embankment. Some additional fill will be required for construction of the end bent and side slopes. Borrow meeting Coastal Plain criteria is available in nearby areas.

The Geotechnical foundation report is based on the bridge survey report dated April 17, 2004. If significant changes are made in the design or location of the proposed structure, the subsurface information should be reviewed and modified as necessary.

Prepared By:

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