STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

PAT MCCRORY
GOVERNOR

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SECRETARY

July 19, 2013

STATE PROJECT: 42270.1.1 (B-5124)
FEDERAL PROJECT: BRSTP-0301(25)
COUNTY: Nash
DESCRIPTION: Replace Bridge Nos. 85, 141, & 151 over Swift Creek on US 301

SUBJECT: Geotechnical Report – Revised Inventory

The Geotechnical Engineering Unit has completed a subsurface investigation for this project and presents the following inventory. Plans and selected cross-sections will be submitted for this roadway project.

Project Description

This project lies along US 301 between Battleboro and Whitakers in Nash County. Grading, paving, and minor widening of US 301 will be done to accommodate the replacement structures over Swift Creek. The total project length is 1.3 miles. The proposed grade will be raised 1.5 feet or less in most places. A geotechnical investigation was conducted during January and July of 2013.

Hand auger borings and/or probing rods were performed at various offset locations along -L- alignment. Representative samples were collected for visual classification in the field and were submitted for laboratory analysis by the Materials and Tests Unit.

The following alignments, totaling 1.3 miles, were investigated. Subsurface cross-sections of these alignments are included in this report.

Line	Stations(±)
-L-	11+20 to 80+60

Areas of Special Geotechnical Interest

The following sections were found to contain soft, cohesive soils which have the potential to cause embankment stability and/or long term settlement problems:

Line	Stations(±)
-L-	74+50 to 76+75

An inactive landfill is present adjacent to the project and outside of the proposed construction limits along the following continuous interval:

Line	Stations(±)	
-L-	59+00 to 73+00	RT

Physiography & Geology

The project corridor is located within the Coastal Plain Physiographic Province. This area is underlain by roadway embankment and recent alluvial sediments. Topography along the project is nearly flat to gently sloping. Ground elevations ranged from 84± feet above sea level along the channel bed of Swift Creek to 102± feet above sea level along the existing US 301 roadway embankment. Most of the project resides in a wetland with surface water flowing directly into Swift Creek.

Soil Properties

Soils encountered during this investigation are separated into 3 categories: roadway embankment, alluvial and undivided coastal plain soils.

Roadway embankment soils generally consist of 5.0± feet of loose to dense, brown, tan and orange, silty sand (A-2-4) and sand with gravel (A-1-b).

Alluvial deposits were encountered in the adjacent floodplain and beneath the roadway embankment. These soils consist of very soft to very stiff, tan, brown and gray, sandy clay (A-6) and silty clay (A-7-6), loose to dense, tan, brown and gray, coarse sand (A-3) and silty sand (A-2-4). Shear strengths as determined by vane shear testing of the cohesive alluvial soils range from 204 psf to 2400+ psf.

Undivided coastal plain soils found in the upland areas consist of loose, tan and brown, silty sand (A-2-4).

Ground Water

Ground water data was collected during January and July of 2013, during which periods the area experienced normal and above normal precipitation conditions respectively. Surface water is encountered along most of the project. Surface water levels range from near the ground surface to 1.0± foot above the ground surface in the low-lying wetland areas of the project. Ground water elevations were found to be from 89± to 92± feet above sea level.

Prepared By:

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