



STATE OF NORTH CAROLINA

DEPARTMENT OF TRANSPORTATION

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STATE PROJECT: 8.2251001 (U-2734)
 FEDERAL PROJECT: NHF-1409(3)
 COUNTY: New Hanover
 DESCRIPTION: Wilmington-SR 1409 (Military Cutoff Road) from north of US 74 to US 17
 SUBJECT: Geotechnical Report – Inventory

Project Description

The project generally consists of widening the existing two-lane roadway to a four-lane divided roadway with a raised earth median. The project is located in northeast New Hanover County, southwest of Ogden.

A geotechnical investigation was conducted during May and June of 2000 utilizing hand augers. Representative soil samples were obtained for visual classification in the field and for laboratory analysis by the Materials and Tests Unit.

The following survey lines were investigated:

Line	Station
-L-	13+10 to 50+57
Bike Path	13+20 to 45+30

Areas of Special Geotechnical Interest

- 1) Ground Water: Ground water was encountered within 2 meters of subgrade for the majority of the project.
- 2) Highly Plastic Soils: Highly plastic clays with plasticity indices of 15 or greater were found within construction limits in the following areas and are within 2 meters of subgrade.

-Line-	Station
-L-	21+00
-L-	21+60
-L-	22+00
-L-	24+45

3) Hard Rock: No hard rock was encountered during this investigation.

4) Wells: No wells were encountered during this investigation.

Physiography and Geology

The project is located in northeast New Hanover County. The drainage for the project is generally poor to fair and is provided by Howe Creek and other unnamed tributaries. Geologically the project lies within the Outer Coastal Plain Physiographic Province. The project consists of coastal plain soils underlain by a phosphoric pebble conglomerate to micritic limestone of the Castle Hayne Formation.

Soils

Soils encountered along the project consist of Coastal Plain soils and alluvial soils.

Coastal Plain Soils

The majority of the soils encountered along this project consist of loose to dense, fine to coarse sands (A-3), silty, clayey sands (A-2-4, A-2-6). The moisture content for these soils ranged from 10.4 to 53.2 percent. The cohesive soils encountered are soft to stiff sandy silts (A-4), and sandy, silty clays (A-6, A-7). These soils generally have low to moderate plasticity indices with moisture contents ranging from 19.2 to 32.9 percent. Most of the upland soils contained trace to moderate amounts of organic material. These areas usually range from 0.2 m to 1.8 m in thickness.

Alluvial Soils

Alluvial soils are associated with active flood plains along the project. The alluvial soils consist of loose, fine to coarse sands (A-3) and silty sands (A-2-4). Also, organic granular soils are present and contained 5.7 to 16.3 percent organic material. These soils generally are from 0.2m to 1.2 m in depth. Vane Shear Tests were performed in soils with moderate to high organic contents and indicated shear strengths of 8 kPa to 23 kPa. Undisturbed samples (Shelby Tube) were also taken in these sections.

Undisturbed Samples

Undisturbed (Shelby Tube) samples were taken at the following locations and submitted for testing:

Sample	Station	Depth	Tests
ST-1	-L-	0.50-1.15	Triaxial CU & Consolidation
ST-2	-L-	0.30-1.05	Consolidation
ST-3	-L-	0.00-0.76	Consolidation

Respectfully submitted,

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Project Geologist

CMG/JBB/kw
File: U-2734 inv.