



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY
GOVERNOR

P.O. BOX 25201, RALEIGH, N.C. 27611-5201

DAVID McCOY
SECRETARY

July 15, 2002

STATE PROJECT: 8.1631801 (R-2911D)
F.A. PROJECT: STP-70(39)
COUNTY: Rowan
DESCRIPTION: US 70 from SR 1739 (Hildebrand Rd.) to West of SR 1953 (Kepley Rd.)
SUBJECT: Geotechnical Report - Inventory

This Geotechnical Inventory Report presents the findings of the Geotechnical Investigation for section D of US 70 from Hildebrand Rd. to west of Kepley Rd. This project is a widening job along existing US 70 and encompasses stations from -L- 228+00 to 371+45.89. The project proceeds in an easterly direction from beginning to end.

The geotechnical field investigation for this project was conducted between March and April of 2002. An ATV mounted drill machine with automatic hammer was utilized for this investigation.

The following survey lines were investigated:

Line	Station
-L-	228+00 – 371+45.89
-Y1-	10+00 – 15+74.66
-Y2-	10+00 – 16+96.77
-Y4-	10+00 – 15+16.39
-Y5-	10+00 – 15+45.75
-Y5 DET-	10+00 – 16+53.89
-Y9-	10+00 – 19+73.09

Areas of Special Geotechnical Interest:

1. Alluvial Soils:

There are several areas containing alluvial soils throughout the project corridor. Alluvial areas are confined to areas adjacent to streams, or low lying drainage areas adjacent to existing US 70. Alluvial soils of special interest include those right of -L- station 259+60 to 262+50. This area contains as much as 7 feet of very soft to soft sandy clayey silt (A-4) and sandy silty clay (A-7-5). The water table in this area is at or near ground surface making the soils saturated. Based on shelby tube test data, soils contain organic content in the 20% – 26 % range with initial moisture content in the 75% - 255% range. Vane shear tests performed in this area returned very low shear strength values. Typical vane shear values of 0 to 115 PSF were common with organic matter such as roots often increasing initial readings.

The next area of interest is right of -L- station 273+80 to 275+20. The upper 5 feet of this area contains a soft silty sandy clay (A-7-5) with a plasticity index of 41. The water table in this area is also high making the soil wet.

The flood plain associated with North Second Creek is defined by a large area right of -L- station 296+00 to 307+00. This area contains very soft to soft silty sandy clay (A-6) ranging from 5 to 10 feet in depth. Soils are wet due to a water table at or near ground surface throughout a large portion of this area.

The last area of interest is right of -L- station 358+50 to 360+50. The upper 1 to 3 feet of soil in this area is very soft, wet, silty clay (A-7-5).

2. High PI Soils: (PI's Greater than 30)

Only 2 instances of High PI soils were encountered during this investigation. The alluvial clay (A-7-6) right of -L- station 273+80 to 275+20 contained a sample yielding a PI of 41 at a depth of 4.4 – 5.4 feet. The next occurrence right of -L- station 289+00 to 292+50 contained a clay layer (A-7-5) between 5 – 10 feet below the ground surface with a PI of 33. The latter clay soil is in a cut section above proposed grade.

3. Rock:

Hard rock was encountered only toward the end of the job. The following is a list of station ranges where rock was discovered at or above proposed grade.

Alignment	Location
-L-	355+25 – 356+50 (RT of -L-)
-L-	363+25 – 366+00 (RT of -L-)