

-LPB-	11+80 to 16+50
-LPB-	21+70 to 23+60
-RPD-	11+70 to 14+70
-LREV-	12+40 to 18+99
-L-	19+00 to 19+30
-L-	22+60 to 23+10
-L-	26+90 to 28+00
-YREV-	15+10 to 15+60
-SRD1-	10+20 to 12+00

- 4) Water Wells: Water wells within or in close proximity to the right of way or construction easement were noted at the following locations:

<u>Line</u>	<u>Station</u>	<u>Offset (m)</u>
-FLYLEREV-	10+35	9 LT
-FLYLWREV-	11+13	11 RT
-Y2-	12+10	25 LT
-Y2B-	14+26	23 RT

Water levels in the wells could not be determined. Other wells may be present along the project that went undetected.

- 5) Springs and Seeps: Wet weather springs and/or seeps were encountered at the following locations.

<u>Line</u>	<u>Station</u>	<u>Offset (m)</u>
-FLYLWREV-	22+66	6 LT
-LREV-	15+95	18 RT

- 6) Lakes and Ponds: Lakes or ponds within or in close proximity of right of way are noted at the following locations.

<u>Line</u>	<u>Station</u>	<u>Offset (m)</u>
-LREV-	18+32	76 RT
-L-	22+96	40 RT
-L-	25+80	50 LT

#### Physiography and Geology

The project is located in the eastern most portion of the Piedmont Physiographic Province. Land use along the project corridor consists of a combination of wooded land, homes and farmland. The project is drained by several unnamed tributaries of Swift Creek and some seasonal drainage areas which all flow into the Neuse River. Geologically, granitic rocks of the Raleigh Belt underlie the project with some areas containing Tertiary terrace deposits and upland sediments of the Coastal Plain. Soils are derived from the weathering of the underlying granitic rock, deposition of alluvial sequences adjacent to streams as well as the weathering of the thin Coastal Plain deposits.

#### Soil Properties

Soils encountered during this investigation are separated into five categories based on origin. They consist of alluvial, Coastal Plain, residual, roadway embankment and artificial fill soils.

Alluvial soils are present in the floodplains of several small creeks and streams that cross the project corridor and are typically less than 3.5 meters thick. These soils consist primarily of tan to gray, very loose to medium dense, moist to wet, silty sands (AASHTO classification A-2-4) and gray to brown, very soft to medium stiff, moist to wet, sandy and silty clay (A-6, A-7-5, A-7-6).

Coastal Plain soils are present in a thin layer over most upland portions of the project. These soils are Tertiary deposits ranging up to about 5 meters in thickness. These soils primarily consist of brown, red-brown, tan, and green-gray, soft to very stiff, moist to wet, sandy and silty clay (A-6, A-7-5, A-7-6). Plasticity indices of the silty clays generally range from 25 to 35. Some tan, red-brown and green-gray, loose to dense, moist to wet, silty and clayey sands (A-2-4, A-2-6, A-2-7) and medium stiff to stiff, moist to wet, sandy and clayey silts (A-4, A-5) are also present in some locations. Coastal Plain soils were deposited on residual soils

Residual soils are derived from the in-place weathering of the underlying granite. They consist primarily of tan-brown, gray, orange and red-brown, soft to stiff, dry to moist, sandy and silty clay (A-6, A-7) and tan, gray and orange, medium stiff to hard, dry to wet, clayey and sandy silt (A-4, A-5). Most of the residual, silty clays on the project exhibit plasticity indices from 20 to 35. Lesser amounts of tan, orange and brown, loose to very dense, dry to moist, silty sand (A-2-4) are also present. Mica contents for all residual soils generally range from trace to moderate amounts. Residual soils grade into soft weathered rock.

Roadway Embankment soils were encountered in small amounts associated with several existing roadways on the project. These soils are similar to and derived from the residual soils encountered elsewhere on the project.

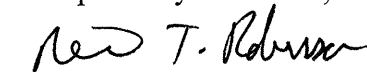
Artificial Fill soils are present in the three small earthen dams on the project and consist of tan to orange, medium stiff, moist to wet, sandy silt, sandy and silty clay (A-4, A-6, A-7-5, A-7-6).

#### Rock Properties

Soft weathered rock is derived from the underlying granite and was encountered primarily in the cut section along existing I-40 at -I1Y1- Sta. 19+40 to 20+00 and in the cut section on -FLYLEREV- from Sta.10+20 to 12+60. Soft weathered rock grades into hard rock.

Granitic hard rock of the Raleigh Belt underlies the project area. Areas of hard rock yielding either SPT or auger refusal are outlined in "Areas of Special Geotechnical Interest."

Respectfully submitted,



Neil T. Roberson  
Project Geologist