

- 5) Pond: A shallow man-made pond containing some silt and muck is within the proposed construction limits at the following location.

<u>Line</u>	<u>Station</u>	<u>Offset</u>
-L-	51+21 – 51+49	17 m LT – 61m LT

- 6) Water Wells: Water wells were located within the proposed construction limits at the following locations.

<u>Line</u>	<u>Station</u>	<u>Offset</u>
-L-	51+82	9 m RT
-L-	52+12	86 m RT
-L-	52+83	75 m LT
-Y2-	22+06	22 m LT

- 7) Trash and Debris: The following areas contain waste classified as inert debris within the proposed construction limits.

<u>Line</u>	<u>Station</u>	<u>Offset</u>	<u>Type of Waste</u>
-L-	42+87 – 42+95	29 m RT – 34 m RT	Tin Roofing Materials
RPD	13+25 – 13+96	5 m RT – 70 m LT	Abandoned Cars

#### Physiography and Geology

The project is located southwest of Clayton near the boundary of the Piedmont Physiographic Province and the Coastal Plain Province. The western half of the project has topography typical of the Piedmont with gently rolling terrain and a wide well-defined stream valley although some of the smaller drainage areas are narrow and incised. The eastern portion of the project has topography more typical of the Coastal Plain province with flatter terrain and wide meandering stream valleys. The project is drained by White Oak Creek, an unnamed tributary to White Oak Creek, an unnamed tributary to Little Creek, and some seasonal drainage areas which all flow into the Neuse River southeast of the project. Geologically, metamorphosed granitic rocks of the Raleigh Belt underlie the project with some areas containing Tertiary terrace deposits and upland sediments of the Coastal Plain. A large diabase dike is present at the western side of Austin Pond.

#### Soils Properties

Soils present on this project are separated into four major categories based on origin. These categories are: residual soils, coastal plain sediments, alluvial soils, and roadway embankment.

Residual soils are present throughout the project and are derived from the weathering of the metamorphic rocks underlying the project. The surficial residual soils are generally red-brown to orange-brown to tan, soft to very stiff, moist, silty and sandy clay (A-6, A-7) with some medium stiff sandy silt (A-4, A-5) and loose to medium dense silty sands (A-2-4) present on the western half of the project. The surficial clays have low to high plasticity indices (11 to 41) that generally decrease with depth.

The subsurface residual soils consist of red-brown, green-gray, and tan, very loose to very dense, moist to wet silty sand (A-2-4) and very soft to hard, moist to wet, silty and sandy clay (A-6, A-7-5, A-7-6) and sandy and clayey silt (A-4, A-5). These soils exhibited a saprolitic texture and most had mica in them ranging from a trace to highly micaceous. The sands were encountered predominantly in the western half of the project while the silts and clays were encountered throughout the project. The clays have low to high plasticity indices (11 to 35) that generally decrease with depth. Subsurface residual soils generally have better engineering properties than surficial residual soils. These subsurface residual soils graded into soft weathered rock and hard rock in isolated locations of Austin Pond.

Coastal Plain soils are present on the eastern and western ends of the project. These soils are Tertiary deposits ranging up to about 5 meters in thickness. The thickest layers occur in the vicinity of -Y2- at the highest elevations on the project. These soils consist of brown, red-brown, tan, and green-gray, soft to very stiff, moist to wet, silty and sandy clay (A-6, A-7-5, A-7-6). Some tan to red-brown to 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) were also present in isolated locations. The coastal plain clays have low to high plasticity indices (12 to 33) but were generally below 26 throughout the project.

Alluvial soils were found in association with the numerous drainage features which cross the project. These soils are predominantly dark gray to light gray, very loose to loose, moist to wet silty sands (A-2-4) with some green-gray to tan silty and sandy clays (A-7-5) and silts (A-4). The alluvial clays are moderately to highly compressible while the alluvial silts and sands are slightly to moderately compressible.

Roadway embankment soils are present on the project in small quantities near the existing roads but were not sampled.

#### Rock Properties

Rock was encountered in six borings at the western end of the project. Rock is present above and/or within 2 meters of grade from Stations 44+45 to 45+30. The rock mass has weathered into a domed shape typical of granite.

#### Groundwater

Groundwater was encountered throughout the project in approximately 60% of the borings. Groundwater was encountered as high as 1.6 meters above the proposed grade and was above or within 2 meters of grade in six different areas. The groundwater table is subject to seasonal fluctuations of up to 3 meters based on standpipe data measured monthly. One of these stand pipes was located on the western end of this project and two were on the adjacent project to the east.