

Soil Support Value = 4.0
Regional Factor = 1.4
Subgrade Reaction, k = 190 pci

Acceptable base materials for use on this project are graded aggregate, limerock, soil cement, and asphaltic concrete bases.

- 6. Ditch Lining** We recommend the following values for use in the ditch lining calculations for this project (Sample # 4685 at station Shiloh Rd 48+00 was used as representative soils for the Index tests):

Plasticity Index, PI = 5
D75 (mm) = 0.229
Unified Soils Classification System
(USCS) = SC-SM

- 7. Slopes** Maximum 2:1 slopes will be safe for this project.

- 8. Groundwater** The groundwater elevation was encountered near grade at the time of the investigation at the following locations on this project:

<u>Station to Station</u>	<u>Location</u>
Ramp "A" 33+00± to 40+00±	Left and Right
Ramp "BB" 55+00± to 60+00±	Left and Right
Reloc. Union Rd 35+00± to 45+00±	Left and Right

We recommend that one layer of low-strength filter fabric be placed on top of the existing ground prior to placing the fills, as shown on the attached detail, to provide stability for embankment construction. However, if these areas stable at the time of construction, the fabric may be eliminated, as directed by the Engineer.

We recommend that underdrains and drainage stone be set up on an as-needed basis, as directed by the Engineer, at the following locations:

<u>Station to Station</u>	<u>Location</u>
Ramp "DD" 80+00± to 84+00±	Right

- 9. Shrinkage** We recommend an average shrinkage factor of 25 % for use in the earthwork calculations for this project.

- 10. Culverts** We recommend that a 12-inch blanket of Type II Foundation Backfill material be placed under the barrel of all culverts and 48-inch diameter and larger cross-drains on this project.