Calculation of the Pavement Structure Volume requires running the earthwork quantities calculations twice; once with the Finished grade definition reflecting the top of pavement and the second run reflecting the top of subgrade.

The Pavement Structure Volume is computed as the difference in Excavation Unadjusted Volumes from the Grand Summary Totals for these two earthwork outputs.

The Pavement Structure Volume should be calculated for the -L- line and any -Y- lines that are a significant part of the overall Earthwork quanitity.

The following procedure is based on using the standardized level and color symbology as defined in the NCDOT Level/Symbology Chart and utilizing the default parameters in the NCDOT Roadway Design Criteria files.

Step 1: Compute the Top of Pavement Earthwork Quantity

Edit the Earthwork Input file to reflect the top of pavement definition. A level & color definition is required.

```
XSECTION
/* Top of Pavement calculations */
  earthwork
  Tolerance = 0.003
     xs dgn =  l.xsc
        proposed finish grade
            soil type = a2
            fill multiplication factor = 1.15
            type = line
            lv = 2,10
            co = 0-2

        existing ground line
            soil type = a2
            type = line
            lv = 60

  write earthwork shapes
        plot parameters
          lv = 16
          co = 16
        stratify shape color
```

Computed values for Top of Surfacing:

```
   G R A N D     S U M M A R Y     T O T A L S
            Material Name         Unadjusted   Adjusted   Mult
                                        Volumes       Volumes   Factor
                                       (cu. yd.)       (cu. yd.)
         --------------------------- ---------- ---------- ------
      A2
                Excavation              41666          41666      1.00
                   Fill                       65821          75694      1.15
```

Step 2: Compute the Top of Subgrade Earthwork Quantity

Note: Before proceeding with this step delete the earthwork shapes created in step one.

```
XSECTION
/* Top of Subgrade calculations */

  earthwork
  Tolerance = 0.003
     xs dgn =  l.xsc
        proposed finish grade
            soil type = a2
```

```
            fill multiplication factor = 1.15
            type = line
            lv = 10

            co = 2,10
          existing ground line
            soil type = a2
            type = line
            lv = 60

    write earthwork shapes
          plot parameters
            lv = 16
            co = 16
          stratify shape color
```

Computed values for the Subgrade:

```
   G R A N D     S U M M A R Y     T O T A L S
            Material Name         Unadjusted  Adjusted   Mult
                                        Volumes      Volumes  Factor
                                        (cu. yd.)      (cu. yd.)
          --------------------------- ---------- ---------- ------
       A2
                  Excavation             45620         45620      1.00
                    Fill                       60700         69805      1.15
```

Step 3: Computing the Pavement Structure Volume

Excavation 45620 CY (Grand Summary Totals- Subgrade Quantities- Step 2)

Excavation 41666 CY (Grand Summary Totals- Top of Pavement Quantities- Step 1)

3954 CY (Pavement & Shoulder Material Quantity in the Exc. areas)

Step 4: Summary of Earthwork

The computed quantity should be shown at the bottom of the Summary of Earthwork stating which alignments where included in the computation.

Example of note used for -L- line comps only:

Example of note used when -Y- line excavation quanities are a significant part of the total excavation :