HYDROLOGY:

Water continues to flow in Little Creek, establishing a water table at original land surface. Hanes Mall Blvd, the nearby commercial development, the bridge over the interstate and the interstate all control runoff and send it through culverts, subject to leakage, to Little Creek. Wet areas of fill and residual soil were encountered but their extent is unknown.

Location	Notes
End Bent One	1984 water at elevation 754 in residual soil
End Bent One	2003 from 810 to 800 wet roadway fill
Bent One	1984, water at elevation 778 & 772 in roadway fill
Bent Two	1984, water at elevation 766 in roadway fill
Bent Two	2003 from elevation 784 to 746 wet fill and residual
Bent Two	2003 lost drilling water: void at 722
Bent Three	1984 water at elevation 746 in alluvium
End Bent Two	1984 water at elevation 746 in alluvium

FOUNDATION SUBGRADE DESCRIPTION; BENT BY BENT

This project will widen one bridge and build a twin bridge adjacent to the original bridge. The typical drilling program was abbreviated because of access problems. For this reason the adjacent bents of the left and right bridges will be described together.

Borings from the 1984 investigation were retrieved from the recently organized archives in Raleigh, and integrated into this report, using baseline information from old files archived here. The 1984 borings are marked by an asterisk enclosed in parenthesis here, (*) and in the same way on the maps.

END BENT ONE (EB-1 LEFT AND RIGHT)

The 1984 drill-holes were collared at the original land surface, before construction of the Hanes Mall Blvd Bridge, and drilled to weathered rock or auger refusal. The new borings were drilled from the roadway through the fill to the top of residual soil. The left bridge extension falls on the side slope of Hanes Mall Blvd and is inaccessible. The right bridge footing falls on the right side slope and is also inaccessible.

Boring EB1-A. The "A" Boring was drilled at -L-19+80, 30.00' LT., elevation 810 on the shoulder of the existing roadway. The boring encountered 36'of roadway fill. Twelve feet, (12') of wet medium stiff micaceous A-5 was followed by 10' of wet micaceous loose A-2-5 sand, then 10' of moist stiff sandy clay, over 4 feet of stiff moist micaceous A-5 soil. Moist stiff to very stiff red "cap clay" was at the top of the residual soil interval that ended in highly micaceous weathered pegmatite at 9' below the residual contact.

Boring EB1-B. The "B" Boring was drilled at -L-19+75, 4.0' LT.[1], elevation 811.0, on the shoulder of the existing roadway. The boring was similar to the "A" hole. Ten feet, (10'), of soft wet micaceous A-5 fill was followed by 5' of wet A-2-5, then 15' of med. Stiff moist to wet A-7-5 clay. At 33' depth, residual stiff wet red cap clay was found in a gradual transition to A-2-5 highly micaceous pegmatite at 11' below the residual contact.

Boring EB1-A (*). The "A(*)" Boring was drilled at a location equivalent to -L-19+80, 35.0' LT., elevation 776.0, prior to construction of the present roadway. The boring was started in residual red stiff A-7 clayey sand, which changed to A-1 gravel after 2'. The boring stayed in micaceous residual sand, gravel or fine sand, to weathered rock at 33.5'

[1] The Endbent One borings were projected normal to the skewed bent, onto the plane of the bent. This operation placed the EB1-B boring to the right of the zero point when it is actually left of –L- at the boring location.

Boring EB1-B (*). The "B(*)" Boring was drilled at a location equivalent to -L-19+75, 12.0' RT., elevation 776.0, prior to construction of the present roadway. The boring was started in residual red stiff A-7 clayey sand, which changed to A-3 sand after 8.5'. The boring stayed in micaceous residual sand, gravel or fine sand, to weathered rock at 33'.

Groundwater:

Groundwater was found at 23.0 feet below land surface (elev, 752) at both 1984 borings.

Rock Surface:

Refusal was reached only at the EB1-B (*) boring, at elevation 738.2. The B(*) boring was stopped in weathered rock at 735' on the B side. The new borings were stopped at the top of residual soil.

INTERIOR BENT ONE (B1)

The B1 bent is on the west shoulder of the interstate, which here is also the I-40 westbound ramp to Business 40. The 1984 drill-holes were collared at the shoulder of what was then the westbound lane of I-40, before construction of business 40. It was decided that new shoulder borings would not be drilled.

Boring B1A(*) The A(*) boring was completed at equivalent 20+45, 31.00 Lt, elevation 784'.

Soil stratigraphy: A 23' interval roadway fill consisting of loose silty micaceous fine sand was found above 38' of medium dense micaceous silty sand. Weathered rock was drilled from 62', (elevation 723), to 72', elevation 713.

Boring B1B(*) The B(*) boring was completed at equivalent –L-20+47, 2.00 LT., elevation 784''.

Soil stratigraphy: An 18' interval of roadway fill consisting of slightly clayey and micaceous fine sandy silt, A-4 or A-5, was found above a 35' interval of residual micaceous loose or stiff fine sand or silt soil. At 53' depth, (732' elevation), 4' of weathered rock was followed by 5' of dense sand then weathered rock to refusal at 70', (714.80).

Groundwater

Water was measured at 778 and 772 in 1984.

Rock surface

Refusal was reached in the B1B(*) boring only.

INTERIOR BENT TWO (B2)

Bent Two falls in a narrow median between the I-40 east bound lane and the I-40 westbound lane. When the original borings were done, the location was on the east shoulder of the eastbound lane, as the present I-40 eastbound lane did not exist. The two 1984 borings were incorporated with two new borings to the north to populate the cross section of Bent Two.

Boring B2A(*) The A(*) boring was completed at equivalent –L-21+65, 30' LT., elevation 784'.

Soil stratigraphy: From the surface to 32.5', stiff red brown micaceous sandy silt roadway fill was found over medium dense highly micaceous residual sand. From 57.5' (727.4'), to ' to 64.25', (elev. 720.65) weathered rock was drilled.

Boring B2B(*) at this bent was completed at equivalent –L-21+64, 0 RT., elevation 785.3'.

Soil stratigraphy: From 0 to 28' stiff, red, micaceous fine sandy silt roadway fill was drilled then from 28' to 64' residual micaceous medium dense or stiff fine sand to silt. Weathered rock was drilled from 64', (elevation720') to 69.15' (elevation 714.8').

Boring B2A The A boring, (2003 campaign), was collared at –L-21+64, 15' RT., elevation 785'.

Soil stratigraphy: From the surface to 7', stiff red brown micaceous sandy silt roadway fill was found above very stiff wet micaceous A-7 clay roadway fill down to 22' depth. From 22' to 26' stiff white micaceous clayey fine sandy silt fill was found. At elevation 759.28' stiff wet high PI structureless A-7 clay was drilled. From 41' (744), to 60', (elev. 725) residual dense wet micaceous silty coarse to fine A-2-5 sand was drilled. At 60' weathered rock was encountered, followed by dragbit refusal at 62.3', (723' elevation).