

PROJECT: 8.1621301 ID. I-2102

STATE OF NORTH CAROLINA

DEPARTMENT OF TRANSPORTATION

DIVISION OF HIGHWAYS

GEOTECHNICAL UNIT

STRUCTURE SUBSURFACE INVESTIGATION

STATE PROJECT 8.1621301 I.D. NO. I-2102

F.A. PROJECT _____

COUNTY FORSYTH

PROJECT DESCRIPTION I-40 AT (SR 1101)

HARPER ROAD INTERCHANGE, APPROX.

0.9 MILES EAST OF THE YADKIN RIVER

SITE DESCRIPTION BRIDGE NO. 244 ON

SR 1101 (-LREV-) OVER I-40

For Letting

DRAWN BY: T.A. MECHUM

NOTE - THE INFORMATION CONTAINED HEREIN IS NOT IMPLIED OR GUARANTEED BY THE N.C. DEPARTMENT OF TRANSPORTATION AS BEING ACCURATE NOR IS IT CONSIDERED TO BE PART OF THE PLANS, SPECIFICATIONS, OR CONTRACT FOR THE PROJECT.

NOTE - BY HAVING REQUESTED THIS INFORMATION THE CONTRACTOR SPECIFICALLY WAIVES ANY CLAIMS FOR INCREASED COMPENSATION OR EXTENSION OF TIME BASED ON DIFFERENCES BETWEEN THE CONDITIONS INDICATED HEREIN AND THE ACTUAL CONDITIONS AT THE PROJECT SITE.

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	I-2102	1	19
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
8.1621301		P.E.	
		CONST.	

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THE SUBSURFACE INFORMATION AND THE SUBSURFACE INVESTIGATION ON WHICH IT IS BASED WAS MADE FOR THE PURPOSE OF STUDY, PLANNING AND DESIGN, AND NOT FOR CONSTRUCTION OR PAY PURPOSES. THE VARIOUS FIELD BORING LOGS, ROCK CORES, AND SOIL TEST DATA AVAILABLE MAY BE REVIEWED OR INSPECTED IN RALEIGH BY CONTACTING THE N.C. DEPARTMENT OF TRANSPORTATION, GEOTECHNICAL UNIT @ (919) 250-4088. NEITHER THE SUBSURFACE PLANS AND REPORTS, NOR THE FIELD BORING LOGS, ROCK CORES, OR SOIL TEST DATA IS PART OF THE CONTRACT.

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INVESTIGATED BY J.P. ROGERS PERSONNEL R.W. TODD

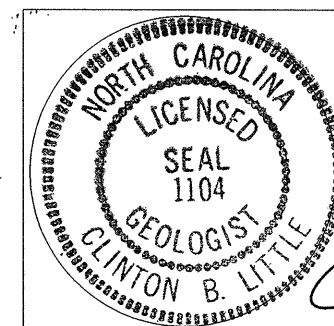
CHECKED BY C.B. LITTLE R.S. HINSON

SUBMITTED BY C.B. LITTLE M.L. SMITH

DATE OCTOBER 2003 C.C. MURRAY

J.E. ESTEP

D.K. BRATTON



10-22-03
C.B. Little
SIGNATURE

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
GEOTECHNICAL UNIT

ID	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
I-2102	8.1621301	2	19

SUBSURFACE INVESTIGATION

SOIL AND ROCK LEGEND, TERMS, SYMBOLS, AND ABBREVIATIONS

SOIL DESCRIPTION				GRADATION				ROCK DESCRIPTION				TERMS AND DEFINITIONS											
SOIL IS CONSIDERED TO BE THE UNCONSOLIDATED, SEMI-CONSOLIDATED OR WEATHERED EARTH MATERIALS WHICH CAN BE PENETRATED WITH A CONTINUOUS FLIGHT POWER AUGER, AND WHICH YIELDS LESS THAN 100 BLOWS PER FOOT ACCORDING TO STANDARD PENETRATION TEST (AASHTO T206, ASTM D-1586). SOIL CLASSIFICATION IS BASED ON THE HASHTO SYSTEM AND BASIC DESCRIPTIONS GENERALLY SHALL INCLUDE: CONSISTENCY, COLOR, TEXTURE, MOISTURE, AASHTO CLASSIFICATION, AND OTHER PERTINENT FACTORS SUCH AS MINERALOGICAL COMPOSITION, ANGULARITY, STRUCTURE, PLASTICITY, ETC. EXAMPLE: VERY STIFF, GRAY SILTY CLAY, MOIST WITH INTERBEDDED FINE SAND LAYERS, HIGHLY PLASTIC, A-7-6				WELL GRADED- INDICATES A GOOD REPRESENTATION OF PARTICLE SIZES FROM FINE TO COARSE UNIFORM- INDICATES THAT SOIL PARTICLES ARE ALL APPROXIMATELY THE SAME SIZE. (ALSO POORLY GRADED) GAP-GRADED- INDICATES A MIXTURE OF UNIFORM PARTICLES OF TWO OR MORE SIZES.				HARD ROCK IS NON-COASTAL PLAIN MATERIAL THAT WHEN TESTED, WOULD YIELD SPT REFUSAL, AN INFERRED ROCK LINE INDICATES THE LEVEL AT WHICH NON-COASTAL PLAIN MATERIAL WOULD YIELD SPT REFUSAL. SPT REFUSAL IS PENETRATION BY A SPLIT SPOON SAMPLER EQUAL TO OR LESS THAN 0.1 FOOT PER 60 BLOWS. IN NON-COASTAL PLAIN MATERIAL, THE TRANSITION BETWEEN SOIL AND ROCK IS OFTEN REPRESENTED BY A ZONE OF WEATHERED ROCK. ROCK MATERIALS ARE TYPICALLY DIVIDED AS FOLLOWS:				ALLUVIUM (ALLUV.) - SOILS WHICH HAVE BEEN TRANSPORTED BY WATER. AQUIFER - A WATER BEARING FORMATION OR STRATA. ARENACEOUS - APPLIED TO ROCKS THAT HAVE BEEN DERIVED FROM SAND OR THAT CONTAIN SAND. ARGILLACEOUS - APPLIED TO ALL ROCKS OR SUBSTANCES COMPOSED OF CLAY MINERALS, OR HAVING A NOTABLE PROPORTION OF CLAY IN THEIR COMPOSITION, AS SHALE, SLATE, ETC. ARTESIAN - GROUND WATER THAT IS UNDER SUFFICIENT PRESSURE TO RISE ABOVE THE LEVEL AT WHICH IT IS ENCOUNTERED, BUT WHICH DOES NOT NECESSARILY RISE TO OR ABOVE THE GROUND SURFACE. CALCAREOUS (CALC.) - SOILS WHICH CONTAIN APPRECIABLE AMOUNTS OF CALCIUM CARBONATE. COLLUVIUM - ROCK FRAGMENTS MIXED WITH SOIL DEPOSITED BY GRAVITY ON SLOPE OR AT BOTTOM OF SLOPE. CORE RECOVERY (REC.) - TOTAL LENGTH OF ALL MATERIAL RECOVERED IN THE CORE BARREL DIVIDED BY TOTAL LENGTH OF CORE RUN AND EXPRESSED AS A PERCENTAGE. DIKE - A TABULAR BODY OF IGNEOUS ROCK THAT CUTS ACROSS THE STRUCTURE OF ADJACENT ROCKS OR CUTS MASSIVE ROCK. DIP - THE ANGLE AT WHICH A STRATUM OR ANY PLANAR FEATURE IS INCLINED FROM THE HORIZONTAL. DIP DIRECTION (DIP AZIMUTH) - THE DIRECTION OR BEARING OF THE HORIZONTAL TRACE OF THE LINE OF DIP, MEASURED CLOCKWISE FROM NORTH. FAULT - A FRACTURE OR FRACTURE ZONE ALONG WHICH THERE HAS BEEN DISPLACEMENT OF THE SIDES RELATIVE TO ONE ANOTHER PARALLEL TO THE FRACTURE. FISSILE - A PROPERTY OF SPLITTING ALONG CLOSELY SPACED PARALLEL PLANES. FLOAT - ROCK FRAGMENTS ON SURFACE NEAR THEIR ORIGINAL POSITION AND DISLODGED FROM PARENT MATERIAL. FLOOD PLAIN (F.P.) - LAND BORDERING A STREAM, BUILT OF SEDIMENTS DEPOSITED BY THE STREAM. FORMATION (FM.) - A MAPPABLE GEOLOGIC UNIT THAT CAN BE RECOGNIZED AND TRACED IN THE FIELD. JOINT - FRACTURE IN ROCK ALONG WHICH NO APPRECIABLE MOVEMENT HAS OCCURRED. LEDGE - A SHELF-LIKE RIDGE OR PROJECTION OF ROCK WHOSE THICKNESS IS SMALL COMPARED TO ITS LATERAL EXTENT. LENS - A BODY OF SOIL OR ROCK THAT THINS OUT IN ONE OR MORE DIRECTIONS. MOTTLED (MOT.) - IRREGULARLY MARKED WITH SPOTS OF DIFFERENT COLORS. MOTTLING IN SOILS USUALLY INDICATES POOR AERATION AND LACK OF GOOD DRAINAGE. PERCHED WATER - WATER MAINTAINED ABOVE THE NORMAL GROUND WATER LEVEL BY THE PRESENCE OF AN INTERVENING IMPERVIOUS STRATUM. RESIDUAL SOIL - SOIL FORMED IN PLACE BY THE WEATHERING OF ROCK. ROCK QUALITY DESIGNATION (R.Q.D.) - A MEASURE OF ROCK QUALITY DESCRIBED BY: TOTAL LENGTH OF ROCK SEGMENTS EQUAL TO OR GREATER THAN 4 INCHES DIVIDED BY THE TOTAL LENGTH OF CORE RUN AND EXPRESSED AS A PERCENTAGE. SAPROLITE (SAP.) - RESIDUAL SOIL WHICH RETAINS THE RELIC STRUCTURE OR FABRIC OF THE PARENT ROCK. SILL - AN INTRUSIVE BODY OF IGNEOUS ROCK OF APPROXIMATELY UNIFORM THICKNESS AND RELATIVELY THIN COMPARED WITH ITS LATERAL EXTENT, WHICH HAS BEEN EMPLACED PARALLEL TO THE BEDDING OR SCHISTOSITY OF THE INTRUDED ROCKS. SLICKENSIDE - POLISHED AND STRIATED SURFACE THAT RESULTS FROM FRICTION ALONG A FAULT OR SLIP PLANE. STANDARD PENETRATION TEST (PENETRATION RESISTANCE) (SPT) - NUMBER OF BLOWS (N OR B.P.F.) OF A 140 LB. HAMMER FALLING 30 INCHES REQUIRED TO PRODUCE A PENETRATION OF 1 FOOT INTO SOIL WITH A 2 INCH OUTSIDE DIAMETER SPLIT SPOON SAMPLER. SPT REFUSAL IS LESS THAN 0.1 FOOT PENETRATION WITH 60 BLOWS. STRATA CORE RECOVERY (SREC) - TOTAL LENGTH OF STRATA MATERIAL RECOVERED DIVIDED BY TOTAL LENGTH OF STRATUM AND EXPRESSED AS A PERCENTAGE. STRATA ROCK QUALITY DESIGNATION (S.R.Q.D.) - A MEASURE OF ROCK QUALITY DESCRIBED BY: TOTAL LENGTH OF ROCK SEGMENTS WITHIN A STRATUM EQUAL TO OR GREATER THAN 10 CENTIMETERS DIVIDED BY THE TOTAL LENGTH OF STRATA AND EXPRESSED AS A PERCENTAGE. TOPSOIL (T.S.) - SURFACE SOILS USUALLY CONTAINING ORGANIC MATTER.											
SOIL LEGEND AND AASHTO CLASSIFICATION				MINERALOGICAL COMPOSITION				WEATHERING				ROCK HARDNESS											
GENERAL CLASS. GRANULAR MATERIALS (>35% PASSING #200) SILT-CLAY MATERIALS (>35% PASSING #200) ORGANIC MATERIALS GROUP CLASS. A-1, A-3, A-2, A-4, A-5, A-6, A-7, A-1, A-2, A-4, A-5, A-6, A-7 SYMBOL % PASSING LIQUID LIMIT PLASTIC INDEX GROUP INDEX USUAL TYPES OF MAJOR MATERIALS GEN. RATING AS A SUBGRADE				MINERAL NAMES SUCH AS QUARTZ, FELDSPAR, MICA, TALC, KAOLIN, ETC. ARE USED IN DESCRIPTIONS WHENEVER THEY ARE CONSIDERED OF SIGNIFICANCE. COMPRESSIBILITY PERCENTAGE OF MATERIAL GROUND WATER MISCELLANEOUS SYMBOLS				FRESH VERY SLIGHT (V. SLT.) SLIGHT (SLT.) MODERATE (MOD.) MODERATELY SEVERE (MOD. SEV.) SEVERE (SEV.) VERY SEVERE (V. SEV.) COMPLETE				VERY HARD HARD MODERATELY HARD MEDIUM HARD SOFT VERY SOFT											
CONSISTENCY OR DENSENESS				ABBREVIATIONS				EQUIPMENT USED ON SUBJECT PROJECT				FRACTURE SPACING											
PRIMARY SOIL TYPE COMPACTNESS OR CONSISTENCY RANGE OF STANDARD PENETRATION RESISTANCE (N-VALUE) RANGE OF UNCONFINED COMPRESSIVE STRENGTH (TONS/FT ²)				AR - AUGER REFUSAL BT - BORING TERMINATED CL - CLAY CPT - CONE PENETRATION TEST CSE - COARSE DMT - DILATOMETER TEST DPT - DYNAMIC PENETRATION TEST e - VOID RATIO f - FINE FOSS. - FOSSILIFEROUS FRAC. - FRACTURED FRAGS. - FRAGMENTS MED. - MEDIUM PMT - PRESSUREMETER TEST SD. - SAND, SANDY SL - SILT, SILTY SLL - SLIGHTLY TCR - TRICONE REFUSAL u - UNIT WEIGHT u _d - DRY UNIT WEIGHT W - MOISTURE CONTENT v - VERY VST - VANE SHEAR TEST				DRILL UNITS: MOBILE B- BK-51 CME-45 CME-550 PORTABLE HOIST OTHER OTHER				ADVANCING TOOLS: CLAY BITS 6" CONTINUOUS FLIGHT AUGER 8" HOLLOW AUGERS HARD FACED FINGER BITS TUNG-CARBIDE INSERTS CASING w/ ADVANCER TRICONE STEEL TEETH TRICONE TUNG-CARB. CORE BIT OTHER DRAG BIT & BENTONITE				HAMMER TYPE: AUTOMATIC MANUAL CORE SIZE: B N H HAND TOOLS: POST HOLE DIGGER HAND AUGER SOUNDING ROD VANE SHEAR TEST OTHER				TERM SPACING VERY WIDE MORE THAN 10 FEET WIDE 3 TO 10 FEET MODERATELY CLOSE 1 TO 3 FEET CLOSE 0.16 TO 1 FEET VERY CLOSE LESS THAN 0.16 FEET			
TEXTURE OR GRAIN SIZE				EQUIPMENT USED ON SUBJECT PROJECT				BEDDING				INDURATION											
U.S. STD. SIEVE SIZE OPENING (MM) 4 10 40 60 200 270 4.76 2.0 0.42 0.25 0.075 0.053 BOULDER (BLDR.) COBBLE (COB.) GRAVEL (GR.) COARSE SAND (CSE, SD.) FINE SAND (F. SD.) SILT (SL.) CLAY (CL.) GRAIN SIZE MM 305 75 2.0 0.25 0.05 0.005 IN. 12' 3'				DRILL UNITS: MOBILE B- BK-51 CME-45 CME-550 PORTABLE HOIST OTHER OTHER				TERM THICKNESS VERY THICKLY BEDDED > 4 FEET THICKLY BEDDED 1.5 - 4 FEET THINLY BEDDED 0.16 - 1.5 FEET VERY THINLY BEDDED 0.03 - 0.16 FEET THICKLY LAMINATED 0.008 - 0.03 FEET THINLY LAMINATED < 0.008 FEET				FOR SEDIMENTARY ROCKS, INDURATION IS THE HARDENING OF THE MATERIAL BY CEMENTING, HEAT, PRESSURE, ETC. FRIABLE RUBBING WITH FINGER FREES NUMEROUS GRAINS; GENTLE BLOW BY HAMMER DISINTEGRATES SAMPLE. MODERATELY INDURATED GRAINS CAN BE SEPARATED FROM SAMPLE WITH STEEL PROBE; BREAKS EASILY WHEN HIT WITH HAMMER. INDURATED GRAINS ARE DIFFICULT TO SEPARATE WITH STEEL PROBE; DIFFICULT TO BREAK WITH HAMMER. EXTREMELY INDURATED SHARP HAMMER BLOWS REQUIRED TO BREAK SAMPLE; SAMPLE BREAKS ACROSS GRAINS.											
SOIL MOISTURE - CORRELATION OF TERMS				FRACTURE SPACING				BEDDING				INDURATION											
SOIL MOISTURE SCALE (ATTERBERG LIMITS) FIELD MOISTURE DESCRIPTION GUIDE FOR FIELD MOISTURE DESCRIPTION LL - LIQUID LIMIT SATURATED - (SAT) USUALLY LIQUID; VERY WET, USUALLY FROM BELOW THE GROUND WATER TABLE PL - PLASTIC LIMIT WET - (W) SEMISOLID; REQUIRES DRYING TO ATTAIN OPTIMUM MOISTURE OM - OPTIMUM MOISTURE MOIST - (M) SOLID; AT OR NEAR OPTIMUM MOISTURE SL - SHRINKAGE LIMIT DRY - (D) REQUIRES ADDITIONAL WATER TO ATTAIN OPTIMUM MOISTURE				TERM SPACING VERY WIDE MORE THAN 10 FEET WIDE 3 TO 10 FEET MODERATELY CLOSE 1 TO 3 FEET CLOSE 0.16 TO 1 FEET VERY CLOSE LESS THAN 0.16 FEET				TERM THICKNESS VERY THICKLY BEDDED > 4 FEET THICKLY BEDDED 1.5 - 4 FEET THINLY BEDDED 0.16 - 1.5 FEET VERY THINLY BEDDED 0.03 - 0.16 FEET THICKLY LAMINATED 0.008 - 0.03 FEET THINLY LAMINATED < 0.008 FEET				FOR SEDIMENTARY ROCKS, INDURATION IS THE HARDENING OF THE MATERIAL BY CEMENTING, HEAT, PRESSURE, ETC. FRIABLE RUBBING WITH FINGER FREES NUMEROUS GRAINS; GENTLE BLOW BY HAMMER DISINTEGRATES SAMPLE. MODERATELY INDURATED GRAINS CAN BE SEPARATED FROM SAMPLE WITH STEEL PROBE; BREAKS EASILY WHEN HIT WITH HAMMER. INDURATED GRAINS ARE DIFFICULT TO SEPARATE WITH STEEL PROBE; DIFFICULT TO BREAK WITH HAMMER. EXTREMELY INDURATED SHARP HAMMER BLOWS REQUIRED TO BREAK SAMPLE; SAMPLE BREAKS ACROSS GRAINS.											
PLASTICITY				FRACTURE SPACING				BEDDING				INDURATION											
NONPLASTIC 0-5 VERY LOW PLASTICITY 6-15 SLIGHT MED. PLASTICITY 16-25 MEDIUM HIGH PLASTICITY 26 OR MORE HIGH				DRILL UNITS: MOBILE B- BK-51 CME-45 CME-550 PORTABLE HOIST OTHER OTHER				TERM THICKNESS VERY THICKLY BEDDED > 4 FEET THICKLY BEDDED 1.5 - 4 FEET THINLY BEDDED 0.16 - 1.5 FEET VERY THINLY BEDDED 0.03 - 0.16 FEET THICKLY LAMINATED 0.008 - 0.03 FEET THINLY LAMINATED < 0.008 FEET				FOR SEDIMENTARY ROCKS, INDURATION IS THE HARDENING OF THE MATERIAL BY CEMENTING, HEAT, PRESSURE, ETC. FRIABLE RUBBING WITH FINGER FREES NUMEROUS GRAINS; GENTLE BLOW BY HAMMER DISINTEGRATES SAMPLE. MODERATELY INDURATED GRAINS CAN BE SEPARATED FROM SAMPLE WITH STEEL PROBE; BREAKS EASILY WHEN HIT WITH HAMMER. INDURATED GRAINS ARE DIFFICULT TO SEPARATE WITH STEEL PROBE; DIFFICULT TO BREAK WITH HAMMER. EXTREMELY INDURATED SHARP HAMMER BLOWS REQUIRED TO BREAK SAMPLE; SAMPLE BREAKS ACROSS GRAINS.											
COLOR				FRACTURE SPACING				BEDDING				INDURATION											
DESCRIPTIONS MAY INCLUDE COLOR OR COLOR COMBINATIONS (TAN, RED, YEL-BRN, BLUE-GRAY) MODIFIERS SUCH AS LIGHT, DARK, STREAKED, ETC. ARE USED TO DESCRIBE APPEARANCE.				DRILL UNITS: MOBILE B- BK-51 CME-45 CME-550 PORTABLE HOIST OTHER OTHER				TERM THICKNESS VERY THICKLY BEDDED > 4 FEET THICKLY BEDDED 1.5 - 4 FEET THINLY BEDDED 0.16 - 1.5 FEET VERY THINLY BEDDED 0.03 - 0.16 FEET THICKLY LAMINATED 0.008 - 0.03 FEET THINLY LAMINATED < 0.008 FEET				FOR SEDIMENTARY ROCKS, INDURATION IS THE HARDENING OF THE MATERIAL BY CEMENTING, HEAT, PRESSURE, ETC. FRIABLE RUBBING WITH FINGER FREES NUMEROUS GRAINS; GENTLE BLOW BY HAMMER DISINTEGRATES SAMPLE. MODERATELY INDURATED GRAINS CAN BE SEPARATED FROM SAMPLE WITH STEEL PROBE; BREAKS EASILY WHEN HIT WITH HAMMER. INDURATED GRAINS ARE DIFFICULT TO SEPARATE WITH STEEL PROBE; DIFFICULT TO BREAK WITH HAMMER. EXTREMELY INDURATED SHARP HAMMER BLOWS REQUIRED TO BREAK SAMPLE; SAMPLE BREAKS ACROSS GRAINS.											

BENCH MARK: **DISC "TANGLEWOOD" ON BRIDGE WINGWALL, USGS, APPROX. LOCATION 22+05 -LREV- 5.0 RT.**
ELEVATION: **811.02'**

NOTES: **ELEVATIONS FOR BENT 1 BORINGS ESTIMATED FROM DTM**



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY GOVERNOR P.O. BOX 25201, RALEIGH, N.C. 27611-5201 LYNDON TIPPETT SECRETARY

October 21, 2003

STATE PROJECT: 8.1621301 (I-2102)
FEDERAL PROJECT: IR-40-3(62)182
COUNTY: Forsyth
DESCRIPTION: Bridge #50 on SR 1101 over I-40 between Peace Haven Rd and NC 158.
SUBJECT: Geotechnical Report - Bridge Foundation Investigation

SITE DESCRIPTION

This project is located in Forsyth County between the Yadkin River and Clemmons. The proposed two-span structure has a skew of 56 degrees, 40 minutes to line -LREV- with one span at 144.50' and one span at 140.00'. The proposed structure will be located in the same place as the existing structure.

Between May and August of 2003, the Geotechnical Engineering Unit performed 9 Standard Penetration Test (SPT) borings at the site. The USGS monument "Tanglewood" (elevation 811.02) was the benchmark used to run all collar elevations across the site. This benchmark is located at 22+05 -LREV-, 5.00' right.

Roadway fill soils/materials encountered are two to 12.00' feet thick and consist of asphalt (at Bent One), stiff silty clay (A-7) with rock fragments, and dense clayey sand (A-2-5) with gravel and boulders. Alluvial soils were not encountered within the project corridor. Residual soils are 58.00' to 68.00' thick and consist of medium stiff to very stiff sandy clay (A-7), medium dense to dense silty sand (A-2-4), and soft to very stiff sandy silt (A-4, A-5).

Weathered rock was encountered across the site between elevations 717.00' and 737.00'. Hard rock (auger refusal), where encountered, is near elevation 739.00'. Groundwater across the site is between elevations 771.00' and 774.00'.

FOUNDATION SUMMARY

End Bent One (EB1)

Roadway fill soils encountered at the boring performed at EB1-C are eight feet thick and consist of dense clayey sand (A-2-7) with gravel and boulders. The gravel and boulder layer was encountered starting at elevation 801.50' and extended downward to elevation 798.20'. The boulders could impede pile driving at this location. No other

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roadway fill soils were encountered at this bent. Residual soils at this location consist of very soft to very stiff silty and sandy clay (A-7), medium stiff to hard sandy silt (A-4, A-5) and medium dense to dense silty sand (A-2-4). The boring performed at EB1-C was the only boring on this bent to reach the bottom of the saprolitic soils (elev. 736.60').

Consistency (SPT) values increased markedly across the bent between elevations 755.00' and 765.00'. Weathered rock was encountered in the boring performed at EB1-C starting at elevation 736.60'. This boring (EB1-C) was terminated at elevation 735.90'. 24 hour groundwater levels at this location were between elevations 771.20' and 773.60'.

Bent One (B1)

The borings for this bent were performed in the paved shoulder of the eastbound lane of I-40. A two-foot layer of asphalt was encountered in each of the borings at this location. No other fill materials were encountered. Residual soils at this bent are 54.00' to 66.00' thick and consist of very soft to very stiff sandy and silty clay (A-7), medium stiff to hard sandy silt (A-4, A-5), and medium dense to very dense silty and clayey sand (A-2-4, A-2-6). Consistency (SPT) values increased markedly across the bent between elevations 755.00' and 760.00'.

Weathered rock was first encountered near elevation 733.00' and was interlayered with soil seams below that elevation. SPT refusal on crystalline rock was encountered in the boring performed at B1-C starting at elevation 727.80' with boring termination occurring at elevation 722.69'. Due to the time constraints of working in the interstate, the 24 hour groundwater level (elevation 774.20') was obtained from only one boring (B1-A) on this bent.

End Bent Two (EB2)

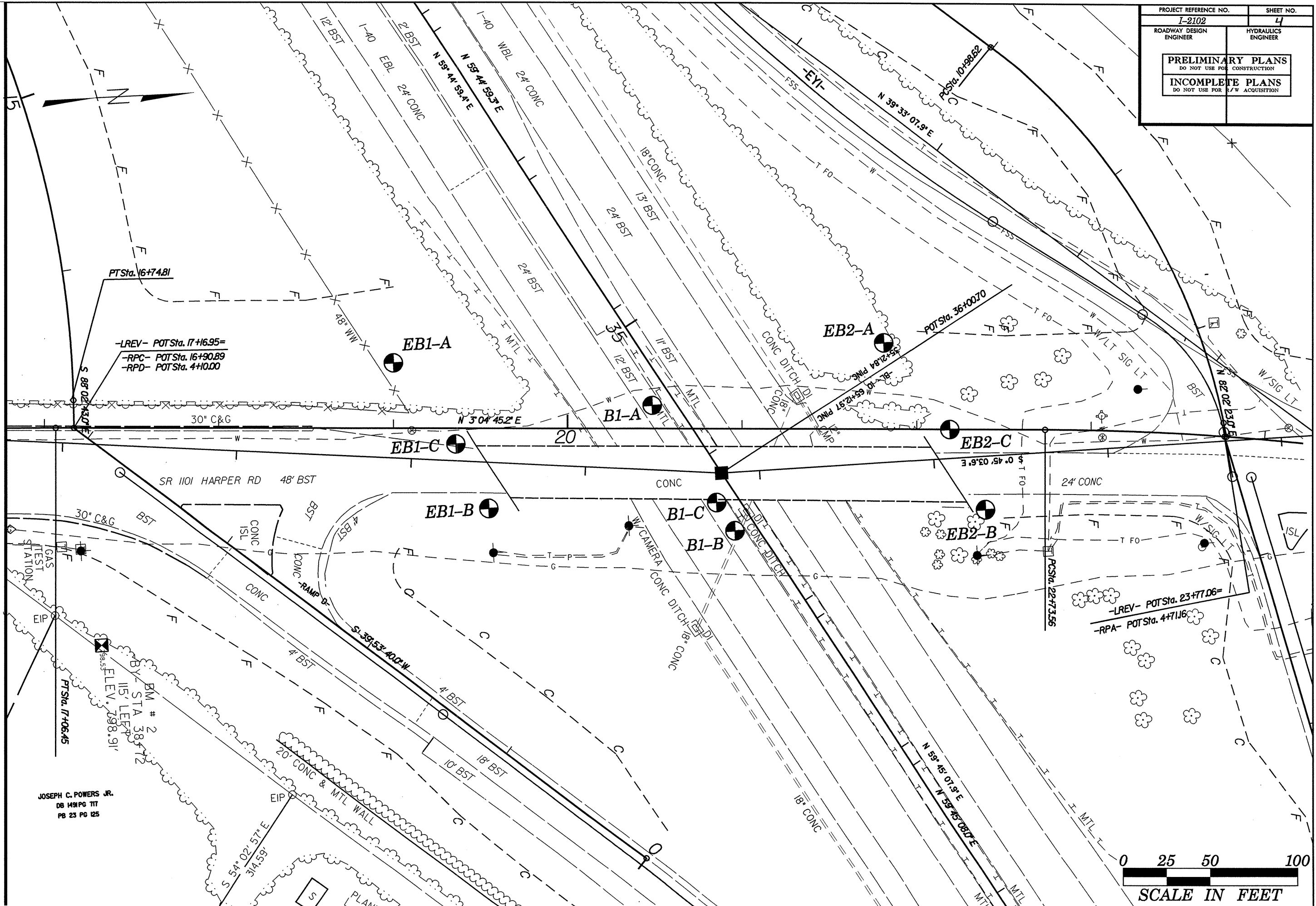
Roadway fill soils encountered across this bent are eight to 12.00' thick and consist of medium stiff to very stiff silty and sandy clay (A-7). Residual soils at this location are approximately 58.00' to 65.00' thick and consist of soft to stiff sandy and silty clay (A-7), soft to hard sandy silt (A-4, A-5), and medium dense to very dense silty sand (A-2-4). Consistency (SPT) values increased markedly across the bent between elevations 760.00' and 763.00'. Weathered rock was encountered in the boring performed at EB2-B starting near elevation 736.00'. SPT refusal occurred on hard, crystalline rock in the boring performed at EB2-C at elevation 740.00'. 24 hour groundwater levels at this location were between elevations 772.00' and 774.00'.

Respectfully submitted,

J. P. Rogers
Project Geologist
Geotechnical Unit, Matthews Field Office

cc: Pat Ivey, PE
Division 09 Engineer

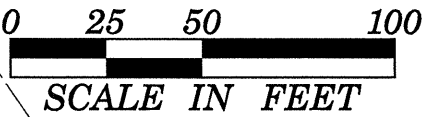
PROJECT REFERENCE NO.	SHEET NO.
I-2102	4
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION	

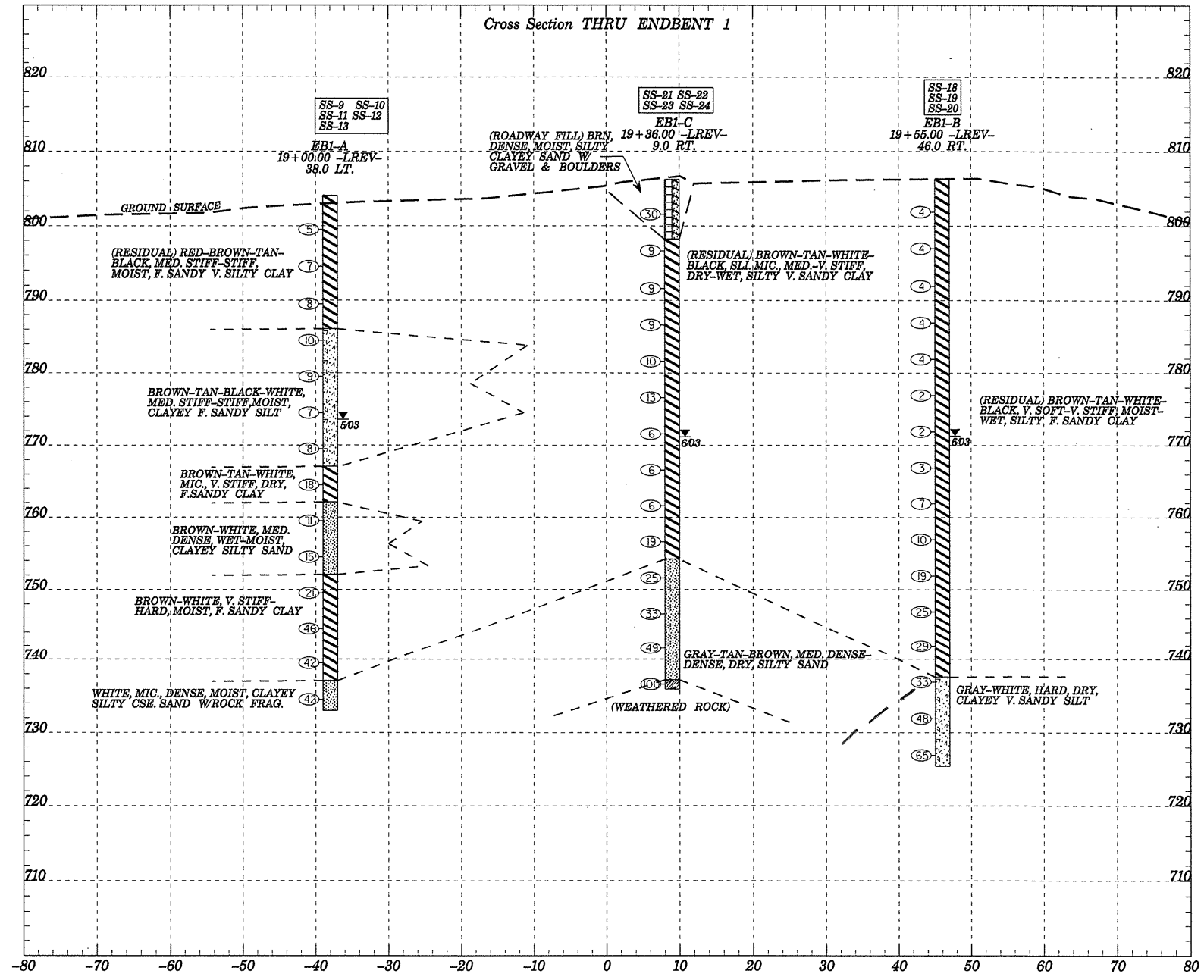


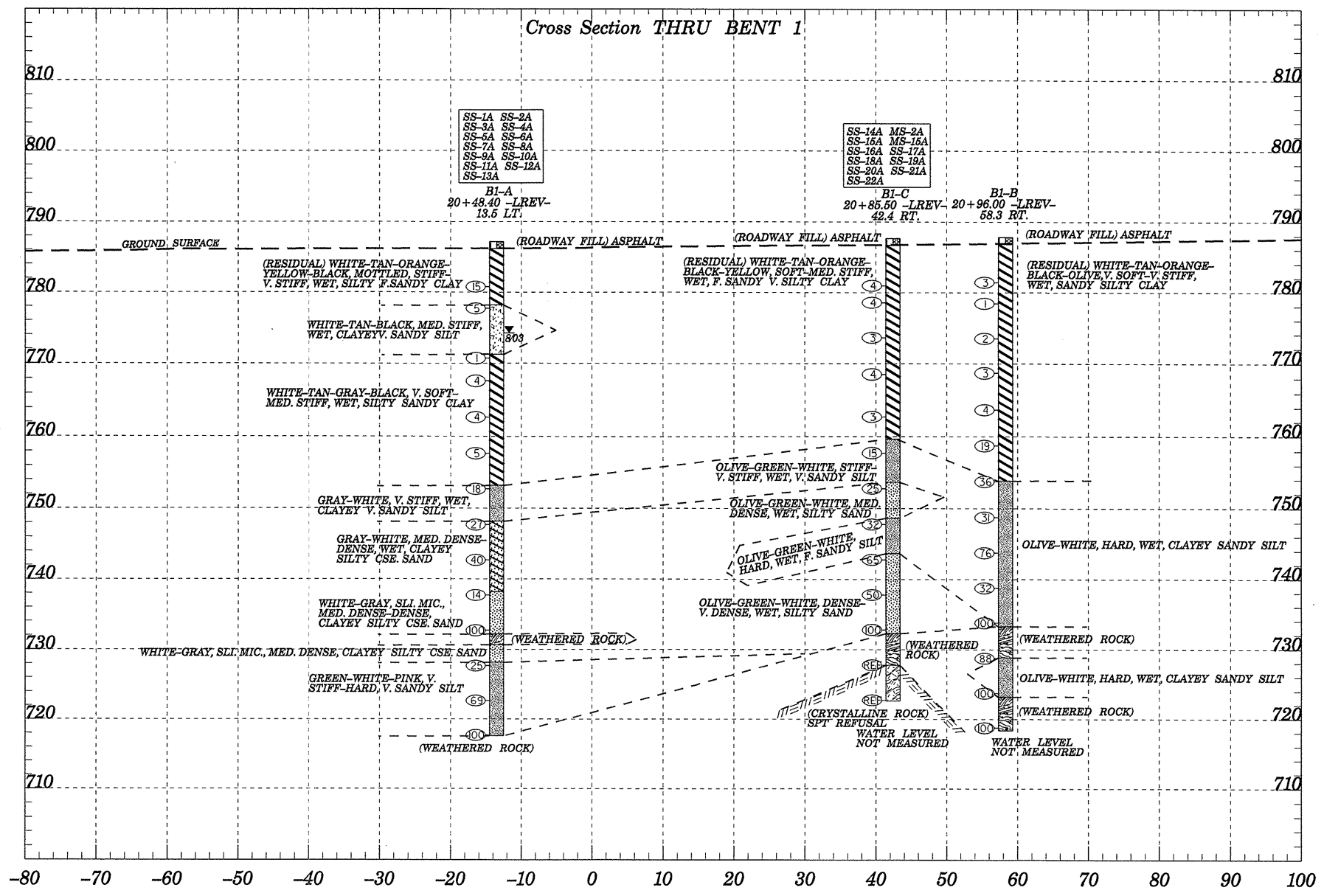
-LREV- POTSta. 17+6.95=
 -RPC- POTSta. 16+90.89
 -RPD- POTSta. 4+10.00

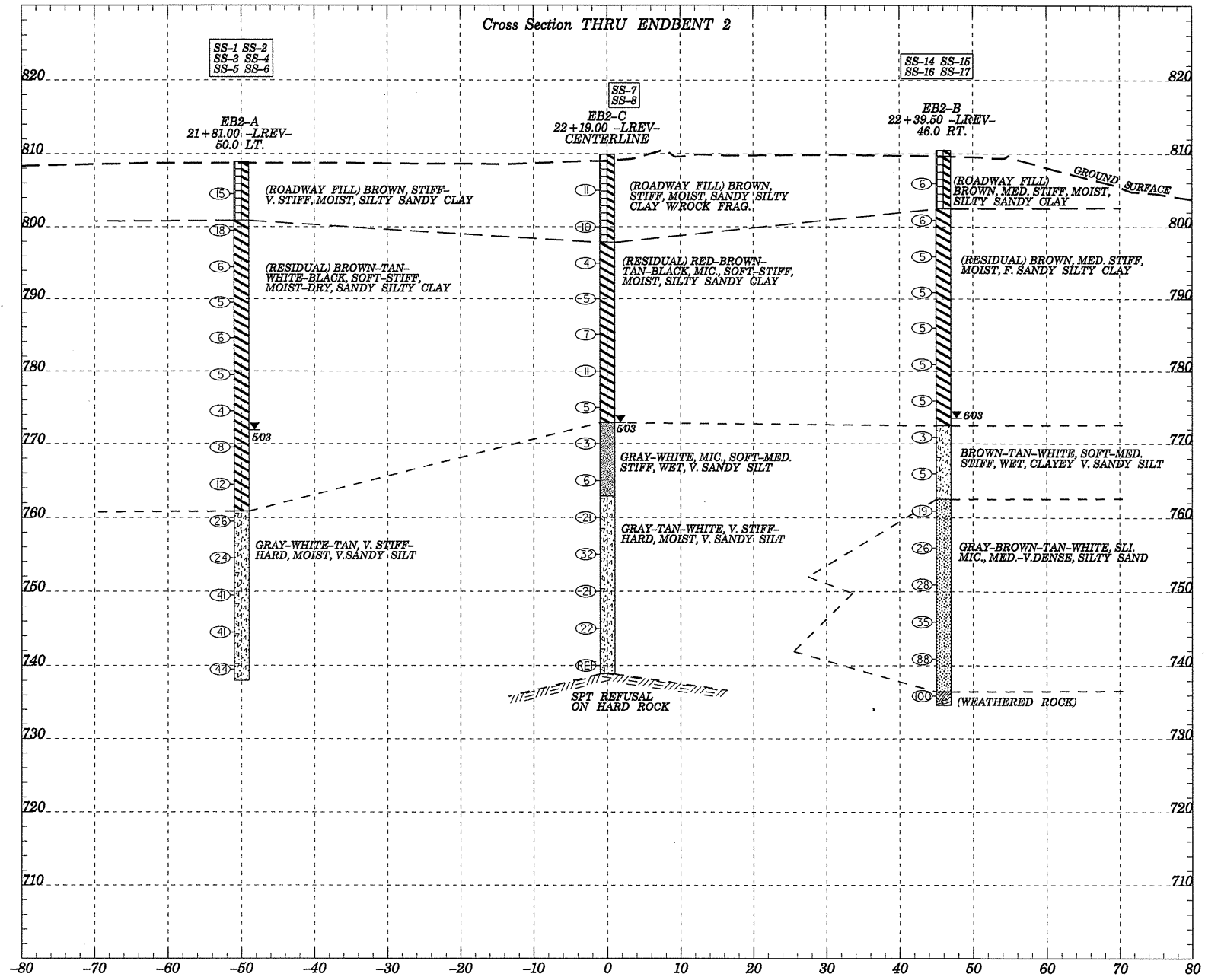
-LREV- POTSta. 23+77.06=
 -RPA- POTSta. 4+71.16

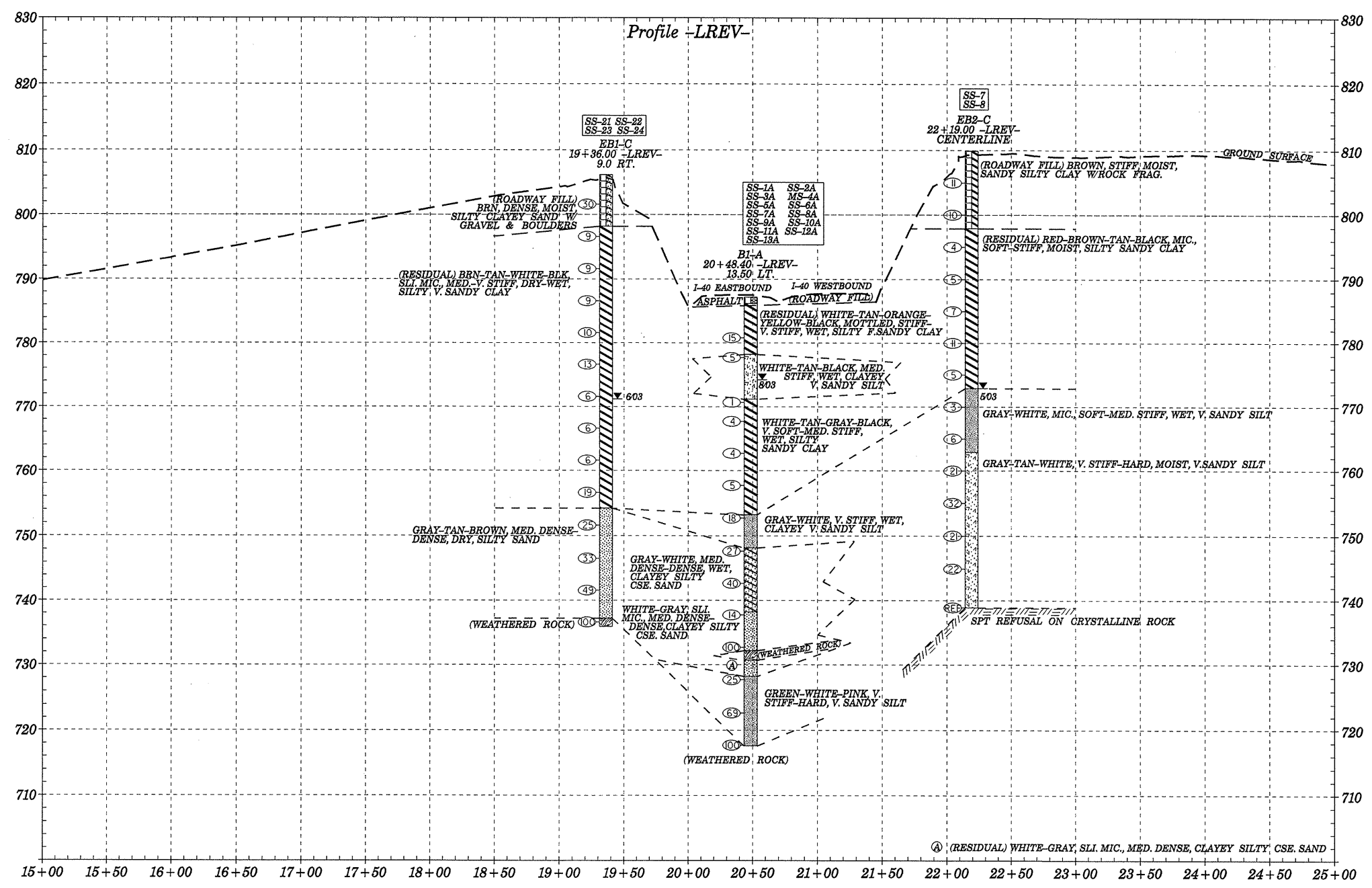
JOSEPH C. POWERS JR.
 DB 149 PG 117
 PB 23 PG 125











NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
 GEOTECHNICAL UNIT BORING LOG

PROJECT NO 8.1621301		ID I-2102		COUNTY FORSYTH		GEOLOGIST R.W. TODD								
SITE DESCRIPTION BRIDGE #244 ON SR 1101 (-LREV-) OVER I-40							GND WATER							
BORING NO EB1-A		NORTHING 0.00		EASTING 0.00		0 HR 64.00ft								
ALIGNMENT LREV		BORING LOCATION 19+00.000		OFFSET 38.00ft LT		24 HR 30.50ft								
COLLAR ELEV 804.10ft		TOTAL DEPTH 71.10ft		START DATE 5/29/03		COMPLETION DATE 05/30/03								
DRILL MACHINE CME-550			DRILL METHOD H.S. AUGERS			HAMMER TYPE AUTOMATIC								
SURFACE WATER DEPTH N/A			DEPTH TO ROCK N/A			Log EB1-A, Page 1 of 2								
ELEV	DEPTH	BLOW CT			PEN	BLOWS PER FOOT				SAMPLE NO	MOI	LOG	SOIL AND ROCK DESCRIPTION	
		6in	6in	6in	(ft)	0	25	50	75	100				
804.10													Ground Surface	
800.00	4.60	2	3	2	1.0	5					SS-9	M	(RESIDUAL) RED-BROWN-TAN-BLACK, MED. STIFF-STIFF, MOIST, F. SANDY V. SILTY CLAY	
	9.60	1	3	4	1.0	7						M		
790.00	14.60	2	4	4	1.0	8						M		
	19.60	3	4	6	1.0	10					SS-10	M	BROWN-TAN-BLACK-WHITE, MED. STIFF-STIFF, MOIST, CLAYEY F. SANDY SILT	
780.00	24.60	2	3	6	1.0	9						M		
	29.60	2	3	4	1.0	7						M		
770.00	34.60	2	3	5	1.0	8						M		
	39.60	7	8	10	1.0	18					SS-11	D	BROWN-TAN-WHITE, MIC., V. STIFF, DRY, F. SANDY CLAY	
760.00	44.60	4	4	7	1.0	11					SS-12	W	BROWN-WHITE, MED. DENSE, WET-MOIST, CLAYEY SILTY SAND	
	49.60	3	7	8	1.0	15						M		
752.10													Continued on the next page.	

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
 GEOTECHNICAL UNIT BORING LOG

PROJECT NO 8.1621301		ID I-2102		COUNTY FORSYTH		GEOLOGIST R.W. TODD								
SITE DESCRIPTION BRIDGE #244 ON SR 1101 (-LREV-) OVER I-40							GND WATER							
BORING NO EB1-A		NORTHING 0.00		EASTING 0.00		0 HR 64.00ft								
ALIGNMENT LREV		BORING LOCATION 19+00.000		OFFSET 38.00ft LT		24 HR 30.50ft								
COLLAR ELEV 804.10ft		TOTAL DEPTH 71.10ft		START DATE 5/29/03		COMPLETION DATE 05/30/03								
DRILL MACHINE CME-550			DRILL METHOD H.S. AUGERS			HAMMER TYPE AUTOMATIC								
SURFACE WATER DEPTH N/A			DEPTH TO ROCK N/A			Log EB1-A, Page 2 of 2								
ELEV	DEPTH	BLOW CT			PEN	BLOWS PER FOOT				SAMPLE NO	MOI	LOG	SOIL AND ROCK DESCRIPTION	
		6in	6in	6in	(ft)	0	25	50	75	100				
752.10														
750.00	54.60	4	9	12	1.0	21						M	BROWN-WHITE, V. STIFF-HARD, MOIST, F. SANDY CLAY	
	59.60	14	23	23	1.0	46						M		
740.00	64.60	10	20	22	1.0	42						M		
	69.60	8	18	24	1.0	42					SS-13	M	WHITE, MIC., DENSE, MOIST, CLAYEY SILTY CSE. SAND W/ ROCK FRAG.	
733.00													BORING TERMINATED AT ELEV. 733.0' IN WHITE, MIC., DENSE, MOIST, CLAYEY SILTY CSE. SAND W/ ROCK FRAG.	

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
 GEOTECHNICAL UNIT BORING LOG

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
 GEOTECHNICAL UNIT BORING LOG

PROJECT NO 8.1621301		ID I-2102		COUNTY FORSYTH		GEOLOGIST R.W. TODD								
SITE DESCRIPTION BRIDGE #244 ON SR 1101 (-LREV-) OVER I-40							GND WATER							
BORING NO EB1-C		NORTHING 0.00		EASTING 0.00		0 HR 37.00ft								
ALIGNMENT LREV		BORING LOCATION 19+36.000		OFFSET 9.00ft RT		24 HR 35.00ft								
COLLAR ELEV 806.20ft		TOTAL DEPTH 70.30ft		START DATE 6/10/03		COMPLETION DATE 06/10/03								
DRILL MACHINE CME-550			DRILL METHOD H.S. AUGERS			HAMMER TYPE AUTOMATIC								
SURFACE WATER DEPTH			DEPTH TO ROCK N/A			Log EB1-C, Page 1 of 2								
ELEV	DEPTH	BLOW CT			PEN (ft)	BLOWS PER FOOT					SAMPLE NO	LOG	SOIL AND ROCK DESCRIPTION	
		6in	6in	6in		0	25	50	75	100				
806.20														Ground Surface
	4.60	12	17	13	1.0									(ROADWAY FILL) BROWN, DENSE, MOIST, SILTY CLAYEY SAND W/ GRAVEL & BOULDERS
	800.00													
	9.60	1	4	5	1.0									(RESIDUAL) BROWN-TAN-WHITE-BLACK, SLI. MIC., MED.-V. STIFF, DRY-WET, SILTY V. SANDY CLAY
	14.60	2	4	5	1.0									
	19.60	4	3	6	1.0									
	24.60	3	5	5	1.0									
	29.60	3	6	7	1.0									
	34.60	2	3	3	1.0									
	39.60	2	4	2	1.0									
	44.60	2	3	3	1.0									
	49.60	3	8	11	1.0									
	754.20													Continued on the next page.

PROJECT NO 8.1621301		ID I-2102		COUNTY FORSYTH		GEOLOGIST R.W. TODD								
SITE DESCRIPTION BRIDGE #244 ON SR 1101 (-LREV-) OVER I-40							GND WATER							
BORING NO EB1-C		NORTHING 0.00		EASTING 0.00		0 HR 37.00ft								
ALIGNMENT LREV		BORING LOCATION 19+36.000		OFFSET 9.00ft RT		24 HR 35.00ft								
COLLAR ELEV 806.20ft		TOTAL DEPTH 70.30ft		START DATE 6/10/03		COMPLETION DATE 06/10/03								
DRILL MACHINE CME-550			DRILL METHOD H.S. AUGERS			HAMMER TYPE AUTOMATIC								
SURFACE WATER DEPTH			DEPTH TO ROCK N/A			Log EB1-C, Page 2 of 2								
ELEV	DEPTH	BLOW CT			PEN (ft)	BLOWS PER FOOT					SAMPLE NO	LOG	SOIL AND ROCK DESCRIPTION	
		6in	6in	6in		0	25	50	75	100				
754.20														
	54.60	6	12	13	1.0									GRAY-TAN-BROWN, MED. DENSE-DENSE, DRY, SILTY SAND
	59.60	9	15	18	1.0									
	64.60	10	21	28	1.0									
	69.60	51	49		0.7									
	735.90													(WEATHERED ROCK)
														BORING TERMINATED AT ELEV. 735.9' IN WEATHERED ROCK

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
 GEOTECHNICAL UNIT BORING LOG

PROJECT NO 8.1621301		ID I-2102		COUNTY FORSYTH		GEOLOGIST R.W. TODD								
SITE DESCRIPTION BRIDGE #244 ON SR 1101 (-LREV-) OVER I-40							GND WATER							
BORING NO EB1-B		NORTHING 0.00		EASTING 0.00		0 HR 45.00ft								
ALIGNMENT LREV		BORING LOCATION 19+55.000		OFFSET 46.00ft RT		24 HR 35.00ft								
COLLAR ELEV 806.30ft		TOTAL DEPTH 80.90ft		START DATE 6/11/03		COMPLETION DATE 06/11/03								
DRILL MACHINE CME-550			DRILL METHOD H.S. AUGERS			HAMMER TYPE AUTOMATIC								
SURFACE WATER DEPTH N/A			DEPTH TO ROCK N/A			Log EB1-B, Page 1 of 2								
ELEV	DEPTH	BLOW CT			PEN (ft)	BLOWS PER FOOT				SAMPLE NO	MOI	LOG	SOIL AND ROCK DESCRIPTION	
		6in	6in	6in		0	25	50	75					100
806.30													Ground Surface	
	4.40	1	1	3	1.0	4							SS-18	(RESIDUAL) BROWN-TAN-WHITE-BLACK, V. SOFT-V. STIFF, MOIST-WET, SILTY F. SANDY CLAY
	9.40	1	1	3	1.0	4							M	
	14.40	1	1	3	1.0	4							M	
	19.40	1	1	3	1.0	4							M	
	24.40	1	1	3	1.0	4							M	
	29.40	0	1	1	1.0	2							SS-19	
	34.40	0	1	1	1.0	2							W	
	39.40	0	0	3	1.0	3							W	
	44.40	2	3	4	1.0	7							W	
														Continued on the next page.

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
 GEOTECHNICAL UNIT BORING LOG

PROJECT NO 8.1621301		ID I-2102		COUNTY FORSYTH		GEOLOGIST R.W. TODD								
SITE DESCRIPTION BRIDGE #244 ON SR 1101 (-LREV-) OVER I-40							GND WATER							
BORING NO EB1-B		NORTHING 0.00		EASTING 0.00		0 HR 45.00ft								
ALIGNMENT LREV		BORING LOCATION 19+55.000		OFFSET 46.00ft RT		24 HR 35.00ft								
COLLAR ELEV 806.30ft		TOTAL DEPTH 80.90ft		START DATE 6/11/03		COMPLETION DATE 06/11/03								
DRILL MACHINE CME-550			DRILL METHOD H.S. AUGERS			HAMMER TYPE AUTOMATIC								
SURFACE WATER DEPTH N/A			DEPTH TO ROCK N/A			Log EB1-B, Page 2 of 2								
ELEV	DEPTH	BLOW CT			PEN (ft)	BLOWS PER FOOT				SAMPLE NO	MOI	LOG	SOIL AND ROCK DESCRIPTION	
		6in	6in	6in		0	25	50	75					100
	49.40	2	3	7	1.0	10								(RESIDUAL) BROWN-TAN-WHITE-BLACK, V. SOFT-V. STIFF, MOIST-WET, SILTY F. SANDY CLAY
	54.40	4	8	11	1.0	19								
	59.40	6	10	15	1.0	25								
	64.40	10	10	19	1.0	29								
	69.40	10	12	21	1.0	33							SS-20	GRAY-WHITE, HARD, DRY, CLAYEY V. SANDY SILT
	74.40	10	21	27	1.0	48							D	
	79.40	12	24	41	1.0	65							D	
														BORING TERMINATED AT ELEV. 725.4' IN GRAY-WHITE, HARD, DRY, CLAYEY V. SANDY SILT

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
GEOTECHNICAL UNIT BORING LOG

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
GEOTECHNICAL UNIT BORING LOG

SHEET 12

PROJECT NO 8.1621301		ID I-2102		COUNTY FORSYTH		GEOLOGIST C.C. MURRAY							
SITE DESCRIPTION BRIDGE #244 ON SR 1101 (-LREV-) OVER I-40							GND WATER						
BORING NO B1-A		NORTHING 0.00		EASTING 0.00		0 HR N/A							
ALIGNMENT LREV		BORING LOCATION 20+48.400		OFFSET 13.50ft LT		24 HR 13.00ft							
COLLAR ELEV 787.20ft		TOTAL DEPTH 69.60ft		START DATE 8/05/03		COMPLETION DATE 08/05/03							
DRILL MACHINE CME-550			DRILL METHOD BENTONITE/DRAG BIT			HAMMER TYPE AUTOMATIC							
SURFACE WATER DEPTH			DEPTH TO ROCK N/A			Log B1-A, Page 1 of 2							
ELEV	DEPTH	BLOW CT			PEN (ft)	BLOWS PER FOOT				SAMPLE NO	LOG	SOIL AND ROCK DESCRIPTION	
		6in	6in	6in		0	25	50	75				100
787.20													Ground Surface
													(ROADWAY FILL) ASPHALT
													(RESIDUAL) WHITE-TAN-ORANGE-YELLOW-BLACK MOTTLED, STIFF-V. STIFF, WET, SILTY F. SANDY CLAY
780.00	6.40	6	5	10	1.0					15			SS-1A W
	9.50	3	3	2	1.0					5			SS-2A W
													WHITE-TAN-BLACK, MED. STIFF, WET, CLAYEY V. SANDY SILT
	16.50	0	1	0	1.0					1			SS-3A W
	19.50	2	2	2	1.0					4			SS-4A W
													WHITE-TAN-GRAY-BLACK, V. SOFT-MED. STIFF, WET, SILTY SANDY CLAY
	24.50	2	2	2	1.0					4			SS-5A W
760.00													
	29.50	2	2	3	1.0					5			SS-6A W
	34.50	4	7	11	1.0					18			SS-7A W
750.00													GRAY-WHITE, V. STIFF, WET, CLAYEY V. SANDY SILT
	39.50	7	16	11	1.0					27			SS-8A W
													GRAY-WHITE, MED. DENSE-DENSE, WET, CLAYEY SILTY CSE. SAND
	44.50	11	24	16	1.0					49			SS-9A W
740.00													
	49.50	4	5	9	1.0					14			SS-10A W
													WHITE-GRAY, SLI. MIC., MED. DENSE-DENSE, CLAYEY SILTY CSE. SAND
732.20	54.50	37	54	46	0.9					100			SS-11A W
													Continued on the next page.

PROJECT NO 8.1621301		ID I-2102		COUNTY FORSYTH		GEOLOGIST C.C. MURRAY							
SITE DESCRIPTION BRIDGE #244 ON SR 1101 (-LREV-) OVER I-40							GND WATER						
BORING NO B1-A		NORTHING 0.00		EASTING 0.00		0 HR N/A							
ALIGNMENT LREV		BORING LOCATION 20+48.400		OFFSET 13.50ft LT		24 HR 13.00ft							
COLLAR ELEV 787.20ft		TOTAL DEPTH 69.60ft		START DATE 8/05/03		COMPLETION DATE 08/05/03							
DRILL MACHINE CME-550			DRILL METHOD BENTONITE/DRAG BIT			HAMMER TYPE AUTOMATIC							
SURFACE WATER DEPTH			DEPTH TO ROCK N/A			Log B1-A, Page 2 of 2							
ELEV	DEPTH	BLOW CT			PEN (ft)	BLOWS PER FOOT				SAMPLE NO	LOG	SOIL AND ROCK DESCRIPTION	
		6in	6in	6in		0	25	50	75				100
732.20													
730.00													(WEATHERED ROCK)
	59.50	7	10	15	1.0					25			SS-12A W
													WHITE-GRAY, SLI. MIC., MED. DENSE, CLAYEY SILTY CSE. SAND
	64.50	21	31	38	1.0					89			SS-13A W
													GREEN-WHITE-PINK, V. STIFF-HARD, V. SANDY SILT
717.60	69.50	100			0.1					100			BORING TERMINATED AT ELEV. 717.6' ON WEATHERED ROCK

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
 GEOTECHNICAL UNIT BORING LOG

PROJECT NO 8.1621301		ID I-2102		COUNTY FORSYTH		GEOLOGIST C.C. MURRAY						
SITE DESCRIPTION BRIDGE #244 ON SR 1101 (-LREV-) OVER I-40							GND WATER					
BORING NO B1-C		NORTHING 0.00		EASTING 0.00		0 HR N/A	24 HR N/A					
ALIGNMENT LREV		BORING LOCATION 20+85.500		OFFSET 42.40ft RT								
COLLAR ELEV 787.69ft		TOTAL DEPTH 65.00ft		START DATE 8/06/03		COMPLETION DATE 08/06/03						
DRILL MACHINE CME-550			DRILL METHOD BENTONITE/DRAG BIT			HAMMER TYPE AUTOMATIC						
SURFACE WATER DEPTH			DEPTH TO ROCK N/A			Log B1-C, Page 1 of 2						
ELEV	DEPTH	BLOW CT			PEN (ft)	BLOWS PER FOOT				SAMPLE NO	LOG	SOIL AND ROCK DESCRIPTION
		6in	6in	6in		0	25	50	75			
787.69												Ground Surface
												(ROADWAY FILL) ASPHALT
780.00	6.70	1	2	2	1.0	4						(RESIDUAL) WHITE-ORANGE-BLACK-YELLOW, SOFT-MED. STIFF, WET, F. SANDY SILTY CLAY
	9.10	1	2	2	1.0	4						
	14.10	2	1	2	1.0	3						
770.00	19.10	1	2	2	1.0	4						
	24.90	1	2	1	1.0	3						
760.00	29.90	3	6	9	1.0	15						
	34.90	8	11	14	1.0	25						
750.00	39.90	7	11	21	1.0	32						
	44.90	27	32	33	1.0	65						
740.00	49.90	18	22	28	1.0	50						
732.69	54.90	49	43	57	1.0	100						
												Continued on the next page

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
 GEOTECHNICAL UNIT BORING LOG

13/19

PROJECT NO 8.1621301		ID I-2102		COUNTY FORSYTH		GEOLOGIST C.C. MURRAY						
SITE DESCRIPTION BRIDGE #244 ON SR 1101 (-LREV-) OVER I-40							GND WATER					
BORING NO B1-C		NORTHING 0.00		EASTING 0.00		0 HR N/A	24 HR N/A					
ALIGNMENT LREV		BORING LOCATION 20+85.500		OFFSET 42.40ft RT								
COLLAR ELEV 787.69ft		TOTAL DEPTH 65.00ft		START DATE 8/06/03		COMPLETION DATE 08/06/03						
DRILL MACHINE CME-550			DRILL METHOD BENTONITE/DRAG BIT			HAMMER TYPE AUTOMATIC						
SURFACE WATER DEPTH			DEPTH TO ROCK N/A			Log B1-C, Page 2 of 2						
ELEV	DEPTH	BLOW CT			PEN (ft)	BLOWS PER FOOT				SAMPLE NO	LOG	SOIL AND ROCK DESCRIPTION
		6in	6in	6in		0	25	50	75			
732.69												
	59.90	60			0.0							(WEATHERED ROCK)
	64.90	60			0.0							(CRYSTALLINE ROCK) SPT REFUSAL
												BORING TERMINATED AT ELEV. 722.69' IN CRYSTALLINE ROCK.

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
GEOTECHNICAL UNIT BORING LOG

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
GEOTECHNICAL UNIT BORING LOG

PROJECT NO 8.1621301		ID I-2102		COUNTY FORSYTH		GEOLOGIST C.C. MURRAY							
SITE DESCRIPTION BRIDGE #244 ON SR 1101 (-LREV-) OVER I-40							GND WATER						
BORING NO B1-B		NORTHING 0.00		EASTING 0.00		0 HR N/A							
ALIGNMENT LREV		BORING LOCATION 20+96.000		OFFSET 58.30ft RT		24 HR N/A							
COLLAR ELEV 787.86ft		TOTAL DEPTH 69.50ft		START DATE 8/07/03		COMPLETION DATE 08/07/03							
DRILL MACHINE CME-550			DRILL METHOD BENTONITE/DRAG BIT			HAMMER TYPE AUTOMATIC							
SURFACE WATER DEPTH			DEPTH TO ROCK N/A			Log B1-B, Page 1 of 2							
ELEV	DEPTH	BLOW CT			PEN	BLOWS PER FOOT				SAMPLE	LOG	SOIL AND ROCK DESCRIPTION	
		6in	6in	6in	(ft)	0	25	50	75	100	NO	MOI	
787.86						Ground Surface							
													(ROADWAY FILL) ASPHALT
													(RESIDUAL) WHITE-TAN-ORANGE-BLACK-OLIVE, V. SOFT-V. STIFF, WET, SANDY SILTY CLAY
780.00	6.40	1	1	2	1.0								
	9.40	0	0	1	1.0								
	14.40	1	1	1	1.0								
770.00	19.10	1	1	2	1.0								
	24.10	1	2	2	1.0								
760.00	29.10	5	8	11	1.0								
	34.10	8	16	20	1.0								
750.00	39.10	10	15	16	1.0								OLIVE-WHITE, HARD, WET, CLAYEY SANDY SILT
	44.10	20	34	42	1.0								
740.00	49.10	8	12	20	1.0								
	54.10	23	51	49	0.9								
732.86													
													Continued on the next page.

PROJECT NO 8.1621301		ID I-2102		COUNTY FORSYTH		GEOLOGIST C.C. MURRAY							
SITE DESCRIPTION BRIDGE #244 ON SR 1101 (-LREV-) OVER I-40							GND WATER						
BORING NO B1-B		NORTHING 0.00		EASTING 0.00		0 HR N/A							
ALIGNMENT LREV		BORING LOCATION 20+96.000		OFFSET 58.30ft RT		24 HR N/A							
COLLAR ELEV 787.86ft		TOTAL DEPTH 69.50ft		START DATE 8/07/03		COMPLETION DATE 08/07/03							
DRILL MACHINE CME-550			DRILL METHOD BENTONITE/DRAG BIT			HAMMER TYPE AUTOMATIC							
SURFACE WATER DEPTH			DEPTH TO ROCK N/A			Log B1-B, Page 2 of 2							
ELEV	DEPTH	BLOW CT			PEN	BLOWS PER FOOT				SAMPLE	LOG	SOIL AND ROCK DESCRIPTION	
		6in	6in	6in	(ft)	0	25	50	75	100	NO	MOI	
732.86													
730.00	59.10	25	37	51	1.0								(WEATHERED ROCK)
	64.10	21	68	32	0.6								OLIVE-WHITE, HARD, WET, CLAYEY SANDY SILT
718.36	69.10	100			0.4								(WEATHERED ROCK)
													BORING TERMINATED AT ELEV. 718.36 IN WEATHERED ROCK

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
GEOTECHNICAL UNIT BORING LOG

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
GEOTECHNICAL UNIT BORING LOG

PROJECT NO 8.1621301		ID I-2102		COUNTY FORSYTH		GEOLOGIST R.W. TODD								
SITE DESCRIPTION BRIDGE #244 ON SR 1101 (-LREV-) OVER I-40							GND WATER							
BORING NO EB2-A		NORTHING 0.00		EASTING 0.00		0 HR 47.00ft	24 HR 37.00ft							
ALIGNMENT LREV		BORING LOCATION 21+81.000		OFFSET 50.00ft LT										
COLLAR ELEV 808.90ft		TOTAL DEPTH 70.90ft		START DATE 5/20/03		COMPLETION DATE 05/21/03								
DRILL MACHINE CME-550			DRILL METHOD H.S. AUGERS			HAMMER TYPE AUTOMATIC								
SURFACE WATER DEPTH N/A			DEPTH TO ROCK N/A			Log EB2-A, Page 1 of 2								
ELEV	DEPTH	BLOW CT			PEN (ft)	BLOWS PER FOOT					SAMPLE NO	LOG	SOIL AND ROCK DESCRIPTION	
		6in	6in	6in		0	25	50	75	100				
808.90														Ground Surface
	4.40	4	6	9	1.0							SS-1	M	(ROADWAY FILL) BROWN, STIFF-V. STIFF, MOIST, SILTY SANDY CLAY
	9.40	4	8	10	1.0							SS-2	M	(RESIDUAL) BROWN-TAN-WHITE-BLACK, SOFT-STIFF, MOIST-DRY, SANDY SILTY CLAY
	14.40	2	3	3	1.0							SS-3	M	
	19.40	1	2	3	1.0							M	M	
	24.40	2	2	4	1.0							M	M	
	29.40	1	2	3	1.0							M	M	
	34.40	1	2	2	1.0							M	M	
	39.40	2	3	5	1.0							SS-4	D	
	44.40	3	4	8	1.0							SS-5	M	
	760.90													Continued on the next page.

PROJECT NO 8.1621301		ID I-2102		COUNTY FORSYTH		GEOLOGIST R.W. TODD								
SITE DESCRIPTION BRIDGE #244 ON SR 1101 (-LREV-) OVER I-40							GND WATER							
BORING NO EB2-A		NORTHING 0.00		EASTING 0.00		0 HR 47.00ft	24 HR 37.00ft							
ALIGNMENT LREV		BORING LOCATION 21+81.000		OFFSET 50.00ft LT										
COLLAR ELEV 808.90ft		TOTAL DEPTH 70.90ft		START DATE 5/20/03		COMPLETION DATE 05/21/03								
DRILL MACHINE CME-550			DRILL METHOD H.S. AUGERS			HAMMER TYPE AUTOMATIC								
SURFACE WATER DEPTH N/A			DEPTH TO ROCK N/A			Log EB2-A, Page 2 of 2								
ELEV	DEPTH	BLOW CT			PEN (ft)	BLOWS PER FOOT					SAMPLE NO	LOG	SOIL AND ROCK DESCRIPTION	
		6in	6in	6in		0	25	50	75	100				
	49.40	6	10	16	1.0							SS-6	M	GRAY-WHITE-TAN, V. STIFF-HARD, MOIST, V. SANDY SILT
	54.40	7	7	17	1.0							M	M	
	59.40	10	17	24	1.0							M	M	
	64.40	12	20	21	1.0							M	M	
	69.40	12	21	23	1.0									
	738.00													BORING TERMINATED AT ELEV. 738.0 IN GRAY-TAN-WHITE, HARD, MOIST, V. SANDY SILT

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
GEOTECHNICAL UNIT BORING LOG

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
GEOTECHNICAL UNIT BORING LOG

PROJECT NO 8.1621301		ID I-2102		COUNTY FORSYTH		GEOLOGIST R.W. TODD								
SITE DESCRIPTION BRIDGE #244 ON SR 1101 (-LREV-) OVER I-40							GND WATER							
BORING NO EB2-C		NORTHING 0.00		EASTING 0.00		0 HR 57.00ft								
ALIGNMENT LREV		BORING LOCATION 22+19.000		OFFSET 0.00ft		24 HR 37.00ft								
COLLAR ELEV 809.90ft		TOTAL DEPTH 71.00ft		START DATE 5/28/03		COMPLETION DATE 05/28/03								
DRILL MACHINE CME-550			DRILL METHOD H.S. AUGERS			HAMMER TYPE AUTOMATIC								
SURFACE WATER DEPTH N/A			DEPTH TO ROCK 71.00ft			Log EB2-C, Page 1 of 2								
ELEV	DEPTH	BLOW CT			PEN (ft)	BLOWS PER FOOT					SAMPLE NO	LOG	SOIL AND ROCK DESCRIPTION	
		6in	6in	6in		0	25	50	75	100				
809.90														Ground Surface
	4.90	4	5	6	1.0									(ROADWAY FILL) BROWN, STIFF, MOIST, SANDY SILTY CLAY W/ ROCK FRAG.
	9.90	2	4	6	1.0									
	14.90	2	2	2	1.0									(RESIDUAL) RED-BROWN-TAN-BLACK, MIC., SOFT-STIFF, MOIST, SILTY SANDY CLAY
	19.90	1	2	3	1.0									
	24.90	2	3	4	1.0									
	29.90	3	4	7	1.0									
	34.90	1	2	3	1.0									
	39.90	1	1	2	1.0									
	44.90	2	3	3	1.0									
762.90														
Continued on the next page.														

PROJECT NO 8.1621301		ID I-2102		COUNTY FORSYTH		GEOLOGIST R.W. TODD								
SITE DESCRIPTION BRIDGE #244 ON SR 1101 (-LREV-) OVER I-40							GND WATER							
BORING NO EB2-C		NORTHING 0.00		EASTING 0.00		0 HR 57.00ft								
ALIGNMENT LREV		BORING LOCATION 22+19.000		OFFSET 0.00ft		24 HR 37.00ft								
COLLAR ELEV 809.90ft		TOTAL DEPTH 71.00ft		START DATE 5/28/03		COMPLETION DATE 05/28/03								
DRILL MACHINE CME-550			DRILL METHOD H.S. AUGERS			HAMMER TYPE AUTOMATIC								
SURFACE WATER DEPTH N/A			DEPTH TO ROCK 71.00ft			Log EB2-C, Page 2 of 2								
ELEV	DEPTH	BLOW CT			PEN (ft)	BLOWS PER FOOT					SAMPLE NO	LOG	SOIL AND ROCK DESCRIPTION	
		6in	6in	6in		0	25	50	75	100				
	49.90	5	8	13	1.0									
	54.90	7	13	19	1.0									
	59.90	9	9	12	1.0									
	64.90	8	9	13	1.0									
	69.90	10	18	82	0.6									
740.00														
738.90														
BORING TERMINATED AT ELEV. 738.5' ON HARD ROCK (SPT REFUSAL)														

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
GEOTECHNICAL UNIT BORING LOG

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
GEOTECHNICAL UNIT BORING LOG

PROJECT NO 8.1621301		ID I-2102		COUNTY FORSYTH		GEOLOGIST R.W. TODD						
SITE DESCRIPTION BRIDGE #244 ON SR 1101 (-LREV-) OVER I-40						GND WATER						
BORING NO EB2-B		NORTHING 0.00		EASTING 0.00		0 HR 51.00ft						
ALIGNMENT LREV		BORING LOCATION 22+39.500		OFFSET 46.00ft RT		24 HR 37.00ft						
COLLAR ELEV 810.50ft		TOTAL DEPTH 75.90ft		START DATE 6/12/03		COMPLETION DATE 06/12/03						
DRILL MACHINE CME-550			DRILL METHOD H.S. AUGERS			HAMMER TYPE AUTOMATIC						
SURFACE WATER DEPTH				DEPTH TO ROCK N/A								
Log EB2-B, Page 1 of 2												
ELEV	DEPTH	BLOW CT			PEN (ft)	BLOWS PER FOOT				SAMPLE NO	LOG	SOIL AND ROCK DESCRIPTION
		6in	6in	6in		0	25	50	75			
810.50												Ground Surface
	4.60	2	3	3	1.0							
	9.60	1	2	4	1.0					SS-14	M	(ROADWAY FILL) BROWN, MED. STIFF, MOIST, SILTY SANDY CLAY
	14.60	1	2	3	1.0					SS-15	M	(RESIDUAL) BROWN, MED. STIFF, MOIST, F. SANDY SILTY CLAY
	19.60	2	2	3	1.0						M	
	24.60	2	2	3	1.0						M	
	29.60	1	2	3	1.0						M	
	34.60	1	2	3	1.0						M	
	39.60	1	2	1	1.0					SS-16	W	BROWN-TAN-WHITE, SOFT-MED. STIFF, WET, CLAYEY V. SANDY SILT
	44.60	1	2	3	1.0						W	
												Continued on the next page

PROJECT NO 8.1621301		ID I-2102		COUNTY FORSYTH		GEOLOGIST R.W. TODD						
SITE DESCRIPTION BRIDGE #244 ON SR 1101 (-LREV-) OVER I-40						GND WATER						
BORING NO EB2-B		NORTHING 0.00		EASTING 0.00		0 HR 51.00ft						
ALIGNMENT LREV		BORING LOCATION 22+39.500		OFFSET 46.00ft RT		24 HR 37.00ft						
COLLAR ELEV 810.50ft		TOTAL DEPTH 75.90ft		START DATE 6/12/03		COMPLETION DATE 06/12/03						
DRILL MACHINE CME-550			DRILL METHOD H.S. AUGERS			HAMMER TYPE AUTOMATIC						
SURFACE WATER DEPTH				DEPTH TO ROCK N/A								
Log EB2-B, Page 2 of 2												
ELEV	DEPTH	BLOW CT			PEN (ft)	BLOWS PER FOOT				SAMPLE NO	LOG	SOIL AND ROCK DESCRIPTION
		6in	6in	6in		0	25	50	75			
762.50												
760.00	49.60	5	7	12	1.0							
	54.60	5	10	16	1.0					SS-17	M	GRAY-BROWN-TAN-WHITE, SLI. MIC., MED.-V. DENSE, SILTY SAND
	59.60	6	11	17	1.0						D	
750.00	64.60	21	17	18	1.0						D	
	69.60	35	50	38	1.0						D	
	74.60	29	47	53	0.2						D	
734.60												(WEATHERED ROCK)
												BORING TERMINATED AT ELEV. 734.6' IN WEATHERED ROCK

SOIL AND ROCK TEST RESULTS

PROJECT: 8.1621301 I-2102

COUNTY: FORSYTH

SITE DESCRIPTION: BRIDGE NO. 244 ON SR 1101 OVER I-40

SOIL SAMPLE DATA

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS	N	LL	P.I.	% BY WEIGHT				% PASSING SIEVES			MOISTURE %
								C. SAND	F. SAND	SILT	CLAY	10	40	200	
SS-9	38.0 LT.	19+00.0 (EB1-A)	4.60-6.10	A-7-5(24)	5	60	22	3.5	14.8	47.2	34.5	100	99	86	
SS-10	38.0 LT.	19+00.0 (EB1-A)	19.60-21.10	A-5(7)	10	52	8	5.1	37.2	39.5	18.3	100	98	67	
SS-11	38.0 LT.	19+00.0 (EB1-A)	39.60-41.10	A-7-5(4)	18	43	8	15.0	43.2	33.6	8.1	100	94	50	
SS-12	38.0 LT.	19+00.0 (EB1-A)	44.60-46.10	A-2-4(0)	11	40	NP	33.7	35.1	21.0	10.2	93	71	35	
SS-13	38.0 LT.	19+00.0 (EB1-A)	69.60-71.10	A-2-5(0)	42	45	4	41.8	23.1	24.9	10.2	81	55	32	
SS-21	9.0 RT.	19+36.0 (EB1-C)	4.60-6.10	A-2-7(2)	36	47	23	33.4	19.7	13.6	33.2	63	47	32	
SS-22	9.0 RT.	19+36.0 (EB1-C)	9.60-11.10	A-7-5(4)	9	55	13	30.1	22.4	26.7	20.8	85	65	45	
SS-23	9.0 RT.	19+36.0 (EB1-C)	39.60-41.10	A-7-6(6)	6	44	16	27.8	17.4	29.8	24.9	87	68	51	
SS-24	9.0 RT.	19+36.0 (EB1-C)	54.60-56.10	A-2-5(0)	25	48	7	47.1	28.5	16.1	8.3	100	64	30	
SS-18	46.0 RT.	19+55.0 (EB1-B)	4.40-5.90	A-7-5(11)	4	54	16	9.8	32.0	33.3	24.9	97	92	65	
SS-19	46.0 RT.	19+55.0 (EB1-B)	29.40-30.90	A-7-5(14)	2	54	16	5.6	30.5	36.9	27.0	100	98	73	
SS-20	46.0 RT.	19+55.0 (EB1-B)	69.40-70.90	A-5(1)	33	41	9	29.7	33.6	20.0	16.6	100	83	43	
SS-1A	36.5 RT.	20+38.0 (B1-A)	6.40-7.90	A-7-5(5)	15	45	11	14.2	34.8	30.6	20.3	94	88	54	
SS-2A	36.5 RT.	20+38.0 (B1-A)	9.50-11.00	A-5(5)	5	50	9	17.7	34.6	33.5	14.2	100	92	55	
SS-3A	36.5 RT.	20+38.0 (B1-A)	16.50-18.00	A-7-5(16)	1	56	20	7.7	26.4	39.4	26.4	100	97	72	
SS-4A	36.5 RT.	20+38.0 (B1-A)	19.50-21.00	A-7-5(24)	4	54	17	0.2	34.0	39.4	26.4	100	100	100	
SS-5A	36.5 RT.	20+38.0 (B1-A)	24.50-26.00	A-7-5(4)	4	49	13	34.6	21.4	31.8	12.2	100	84	48	
SS-6A	36.5 RT.	20+38.0 (B1-A)	29.50-31.00	A-7-5(9)	5	54	15	13.4	36.6	35.7	14.2	100	95	61	
SS-7A	36.5 RT.	20+38.0 (B1-A)	34.50-36.00	A-4(0)	18	40	10	37.4	21.0	21.3	20.3	78	55	37	
SS-8A	36.5 RT.	20+38.0 (B1-A)	39.50-41.00	A-2-6(1)	27	38	16	44.2	24.6	17.0	14.2	68	46	25	
SS-9A	36.5 RT.	20+38.0 (B1-A)	45.50-47.00	A-2-6(0)	40	40	11	45.2	22.8	17.8	14.2	64	43	23	
SS-10A	36.5 RT.	20+38.0 (B1-A)	49.50-51.00	A-2-4(0)	14	38	NP	46.2	25.0	18.6	10.2	98	64	32	
SS-11A	36.5 RT.	20+38.0 (B1-A)	54.50-56.00	A-2-4(0)	100	30	NP	47.3	32.5	14.1	6.1	100	67	27	
SS-12A	36.5 RT.	20+38.0 (B1-A)	59.50-61.00	A-4(0)	25	39	NP	29.5	41.1	21.3	8.1	100	84	37	
SS-13A	36.5 RT.	20+38.0 (B1-A)	64.50-66.00	A-4(0)	69	30	NP	23.5	43.5	23.8	9.2	100	89	43	
SS-14A	13.5 RT.	20+73.0 (B1-C)	6.70-8.20	A-7-5(27)	4	67	31	5.9	27.5	42.2	24.4	100	98	76	
MS-14A	13.5 RT.	20+73.0 (B1-C)	6.70-8.20												59.9
SS-15A	13.5 RT.	20+73.0 (B1-C)	9.10-10.60	A-7-5(18)	4	61	22	6.7	30.7	40.2	22.4	100	98	71	
MS-15A	13.5 RT.	20+73.0 (B1-C)	9.10-10.60												50.9
SS-16A	13.5 RT.	20+73.0 (B1-C)	19.10-20.60	A-7-5(43)	4	78	42	4.1	14.9	48.5	32.6	100	98	87	
SS-17A	13.5 RT.	20+73.0 (B1-C)	29.90-31.40	A-4(0)	15	32	NP	20.1	47.2	25.5	7.1	100	92	41	
SS-18A	13.5 RT.	20+73.0 (B1-C)	34.90-36.40	A-2-4(0)	25	31	NP	30.8	48.2	14.9	6.1	98	82	28	
SS-19A	13.5 RT.	20+73.0 (B1-C)	39.90-41.40	A-4(0)	32	34	NP	20.8	48.2	21.9	9.2	96	88	40	
SS-20A	13.5 RT.	20+73.0 (B1-C)	44.90-46.60	A-2-4(0)	65	25	NP	30.3	45.6	18.0	6.1	96	79	33	
SS-21A	13.5 RT.	20+73.0 (B1-C)	49.90-51.40	A-2-4(0)	50	26	NP	31.1	46.0	15.8	7.1	95	77	30	
SS-22A	13.5 RT.	20+73.0 (B1-C)	54.90-56.40	A-2-4(0)	100	25	NP	29.1	51.2	14.6	5.1	95	78	28	

SOIL AND ROCK TEST RESULTS

PROJECT: 8.1621301 I-2102
 COUNTY: FORSYTH
 SITE DESCRIPTION: BRIDGE NO. 244 ON SR 1101 OVER I-40

SOIL SAMPLE DATA

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS	N	L.L.	P.I.	% BY WEIGHT				% PASSING SIEVES			MOISTURE %
								C. SAND	F. SAND	SILT	CLAY	10	40	200	
SS-1	50.0 LT.	21+81.0 (EB2-A)	4.40-5.90	A-7-5(16)	15	51	20	9.7	16.0	23.8	50.6	96	91	74	
SS-2	50.0 LT.	21+81.0 (EB2-A)	9.40-10.90	A-7-5(30)	18	65	27	3.0	13.1	35.3	48.5	100	99	88	
SS-3	50.0 LT.	21+81.0 (EB2-A)	14.40-15.90	A-7-5(16)	6	54	14	4.2	21.2	48.2	26.3	100	98	83	
SS-4	50.0 LT.	21+81.0 (EB2-A)	39.40-40.90	A-7-5(8)	8	53	11	8.9	35.0	42.0	14.2	100	97	64	
SS-5	50.0 LT.	21+81.0 (EB2-A)	44.40-45.90	A-7-5(8)	12	55	14	12.7	37.0	38.1	12.1	100	95	59	
SS-6	50.0 LT.	21+81.0 (EB2-A)	49.40-50.90	A-5(1)	26	45	8	28.9	36.8	26.2	8.1	100	84	41	
SS-7	CL	22+19.0 (EB2-C)	29.90-31.40	A-7-5(3)	11	48	17	42.1	13.7	27.9	16.2	87	56	41	
SS-8	CL	22+19.0 (EB2-C)	39.90-41.40	A-4(0)	3	40	7	43.9	24.6	23.5	8.1	100	66	37	
SS-14	46.0 RT.	22+39.5 (EB2-B)	4.60-6.10	A-7-6(15)	6	48	22	10.8	22.6	22.9	43.6	96	90	69	
SS-15	46.0 RT.	22+39.5 (EB2-B)	9.60-11.10	A-7-5(17)	6	58	18	4.2	27.0	37.7	31.2	100	99	77	
SS-16	46.0 RT.	22+39.5 (EB2-B)	39.60-41.10	A-5(5)	3	50	6	13.5	35.5	32.3	18.7	100	92	61	
SS-17	46.0 RT.	22+39.5 (EB2-B)	49.60-51.10	A-2-4(0)	19	38	9	38.2	34.7	18.8	8.3	98	73	34	

PROJECT: 8.1621301 ID. I-2102

STATE OF NORTH CAROLINA

DEPARTMENT OF TRANSPORTATION

DIVISION OF HIGHWAYS

GEOTECHNICAL UNIT

STRUCTURE SUBSURFACE INVESTIGATION

STATE	STATE PROJECT REFERENCE NO.	SHEET	TOTAL SHEETS
N.C.	I-2102	1	10
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
8.1621301		P.E.	
		CONST.	

CAUTION NOTICE

THE SUBSURFACE INFORMATION AND THE SUBSURFACE INVESTIGATION ON WHICH IT IS BASED WAS MADE FOR THE PURPOSE OF STUDY, PLANNING AND DESIGN, AND NOT FOR CONSTRUCTION OR PAY PURPOSES. THE VARIOUS FIELD BORING LOGS, ROCK CORES, AND SOIL TEST DATA AVAILABLE MAY BE REVIEWED OR INSPECTED IN RALEIGH BY CONTACTING THE N. C. DEPARTMENT OF TRANSPORTATION, GEOTECHNICAL UNIT @ (919) 250-4088. NEITHER THE SUBSURFACE PLANS AND REPORTS, NOR THE FIELD BORING LOGS, ROCK CORES, OR SOIL TEST DATA IS PART OF THE CONTRACT.

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STATE PROJECT 8.1621301 I.D. NO. I-2102

F.A. PROJECT _____

COUNTY FORSYTH

PROJECT DESCRIPTION I-40 AT (SR 1101)

HARPER ROAD INTERCHANGE, APPROX. 0.9 MILES

EAST OF THE YADKIN RIVER

SITE DESCRIPTION RETAINING WALL 1

PILE PANEL WALL RT. OF STA.'S 4+00 TO 6+00

-REVC-

INVESTIGATED BY J.P. ROGERS PERSONNEL R.W. TODD

CHECKED BY C.B. LITTLE R.S. HINSON

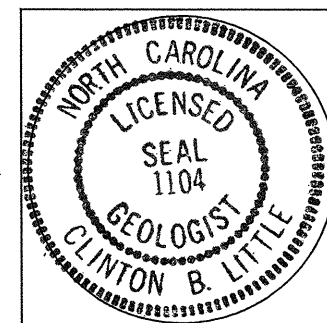
SUBMITTED BY C.B. LITTLE M.L. SMITH


DATE MAY 2003

DRAWN BY: J.K. McCLURE

NOTE - THE INFORMATION CONTAINED HEREIN IS NOT IMPLIED OR GUARANTEED BY THE N. C. DEPARTMENT OF TRANSPORTATION AS BEING ACCURATE NOR IT IS CONSIDERED TO BE PART OF THE PLANS, SPECIFICATIONS, OR CONTRACT FOR THE PROJECT.

NOTE - BY HAVING REQUESTED THIS INFORMATION THE CONTRACTOR SPECIFICALLY WAIVES ANY CLAIMS FOR INCREASED COMPENSATION OR EXTENSION OF TIME BASED ON DIFFERENCES BETWEEN THE CONDITIONS INDICATED HEREIN AND THE ACTUAL CONDITIONS AT THE PROJECT SITE.



SEAL 5-23-03

 SIGNATURE

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

DIVISION OF HIGHWAYS
GEOTECHNICAL UNIT

SUBSURFACE INVESTIGATION

SOIL AND ROCK LEGEND, TERMS, SYMBOLS, AND ABBREVIATIONS

Table with 4 columns: ID (I-2102), STATE PROJECT NO. (8.1621301), SHEET NO. (2), TOTAL SHEETS (10)

Main body of the document containing: SOIL DESCRIPTION, GRADATION, ROCK DESCRIPTION, TERMS AND DEFINITIONS, SOIL LEGEND AND AASHTO CLASSIFICATION, MINERALOGICAL COMPOSITION, COMPRESSIBILITY, PERCENTAGE OF MATERIAL, WEATHERING, GROUND WATER, MISCELLANEOUS SYMBOLS, ABBREVIATIONS, EQUIPMENT USED ON SUBJECT PROJECT, FRACTURE SPACING, BEDDING, INDURATION, PLASTICITY, COLOR, SOIL MOISTURE - CORRELATION OF TERMS, TEXTURE OR GRAIN SIZE, CONSISTENCY OR DENSITY, MISCELLANEOUS SYMBOLS, and ROCK HARDNESS.

PROJECT REFERENCE NO.	SHEET NO.
1-2102	3
R/W SHEET NO.	8
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

SCOTT H. FLEMING
AND WIFE
GAYLE A. FLEMING
DB 284 PG 3886
PB 24 PG 30

HOWARD CARVIU
AND WIFE
CYNTHIA J. CARVIU
DB 1988 PG 854
PB 24 PG 30

J. STERLING WHITE
AND WIFE
LUCIE M. WHITE
DB 1827 PG 855
PB 25 PG 74

DALLAS C. ECCLES JR.
AND WIFE
DORIS B. ECCLES
DB 1843 PG 1068
PB 24 PG 30

ROBERT B. SUTTON JR.
AND WIFE
VICKIE S. SUTTON
DB 1362 PG 235
PB 24 PG 30

JAMES WALTER ETCHSON
AND WIFE
DAHLGREN C. ETCHSON
DB 1229 PG 196
PB 24 PG 30

SHAMROCK UNITED PROPERTIES, INC.
DB 1467 PG 219

GARDEN SPRING DRIVE
 PI Sta 10+97.83
 $\Delta = 25^{\circ} 33' 11.3" (LT)$
 $D = 38' 11" 49.9'$
 $L = 66.90'$
 $T = 34.01'$
 $R = 150.00'$

CURTIS R. LITTLE
AND WIFE
LYNNE M. LITTLE
DB 1998 PG 2784
PB 25 PG 74

RAMP 'B'
 PIs Sta 11+33.35
 $\Theta_s = 2^{\circ} 32' 47.3"$
 $L_s = 200.00'$
 $LT = 133.35'$
 $ST = 66.68'$

RAMP 'B'
 PI Sta 4+93.30
 $\Delta = 14^{\circ} 51' 13.4" (LT)$
 $D = 2^{\circ} 32' 47.3"$
 $L = 583.30'$
 $T = 293.30'$
 $R = 2,250.00'$

RAMP 'C'
 PIs Sta 4+08.46
 $\Theta_s = 1^{\circ} 25' 56.6"$
 $L_s = 200.00'$
 $LT = 133.34'$
 $ST = 66.67'$

RAMP 'C'
 PI Sta 5+85.60
 $\Delta = 3^{\circ} 09' 51.5" (RT)$
 $D = 1^{\circ} 25' 56.6"$
 $L = 220.91'$
 $T = 110.48'$
 $R = 4,000.00'$

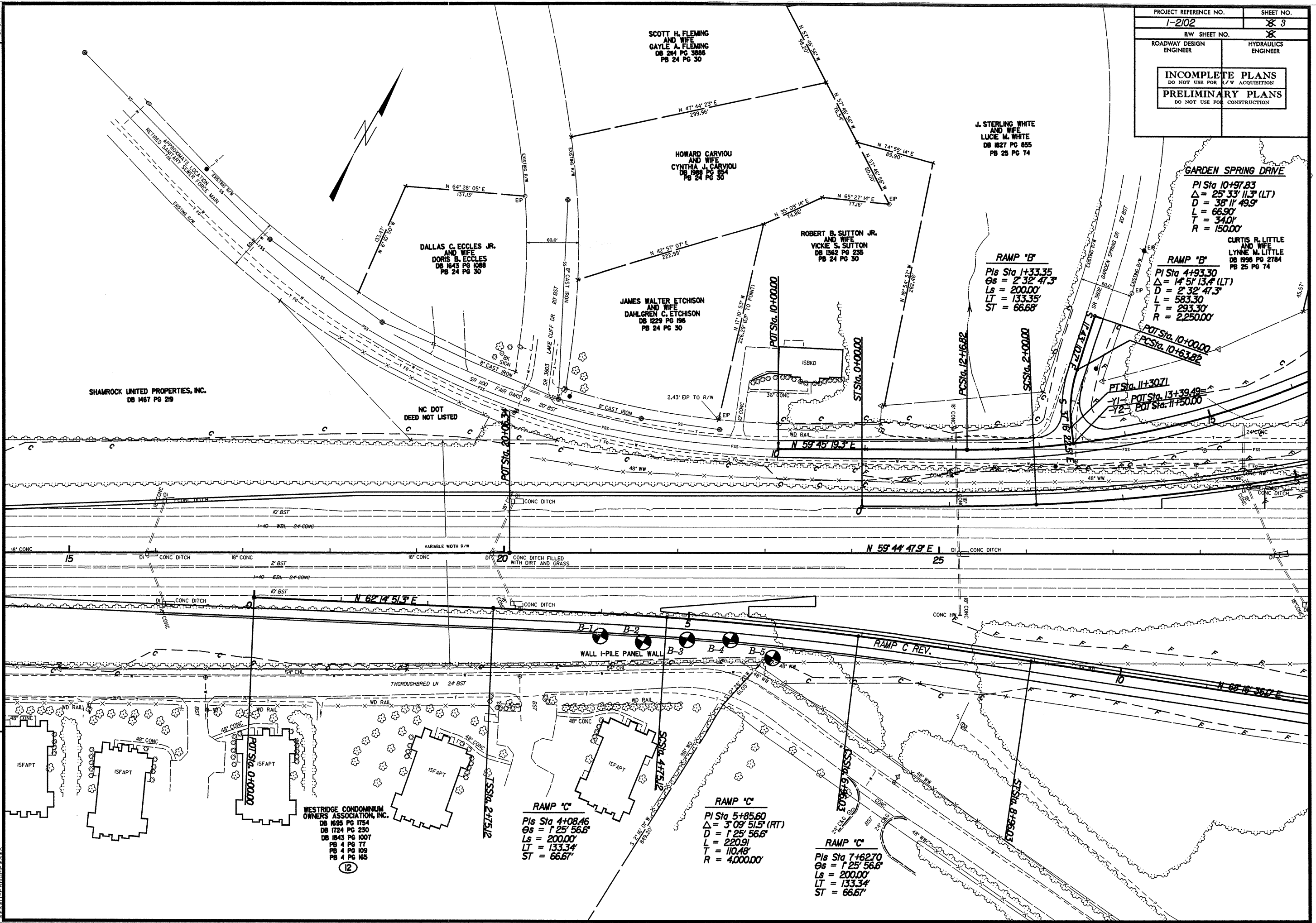
RAMP 'C'
 PIs Sta 7+62.70
 $\Theta_s = 1^{\circ} 25' 56.6"$
 $L_s = 200.00'$
 $LT = 133.34'$
 $ST = 66.67'$

WESTRIDGE CONDOMINIUM
OWNERS ASSOCIATION, INC.
DB 1695 PG 1754
DB 1724 PG 230
DB 1843 PG 1007
PB 4 PG 77
PB 4 PG 109
PB 4 PG 165

REVISIONS

8/17/95

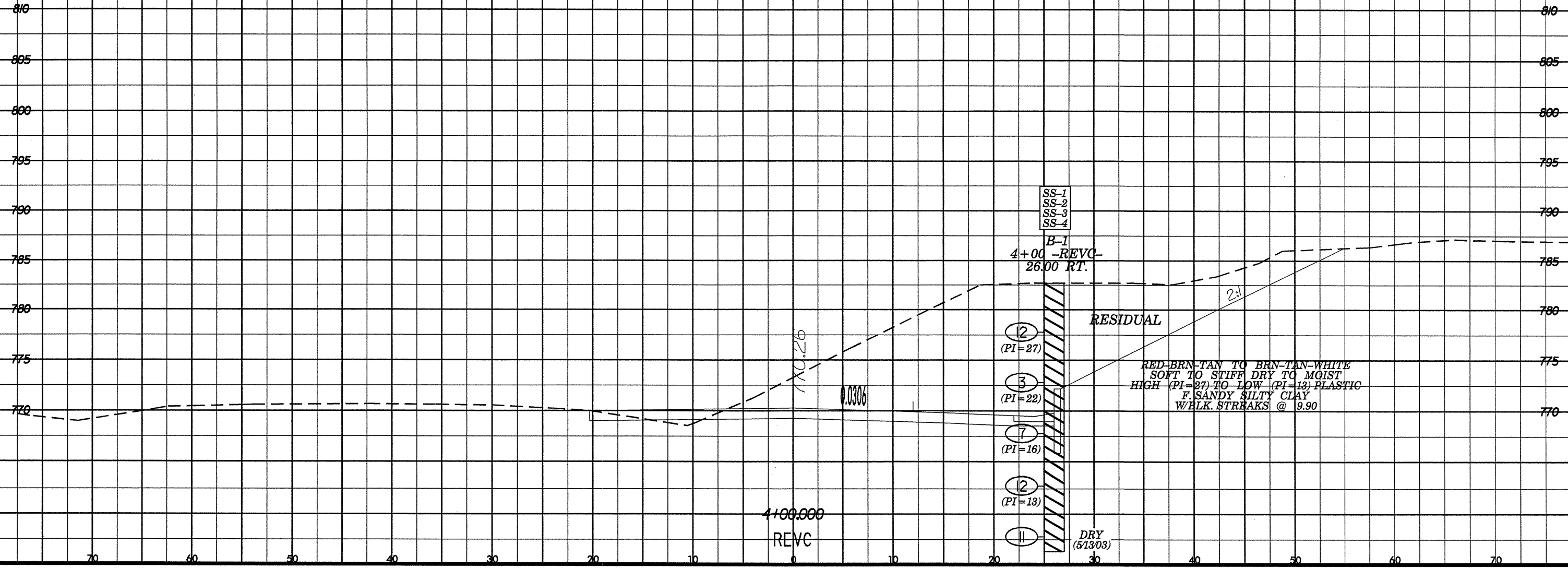
SYSTEMS
DCGN
USERNAME



8/23/51

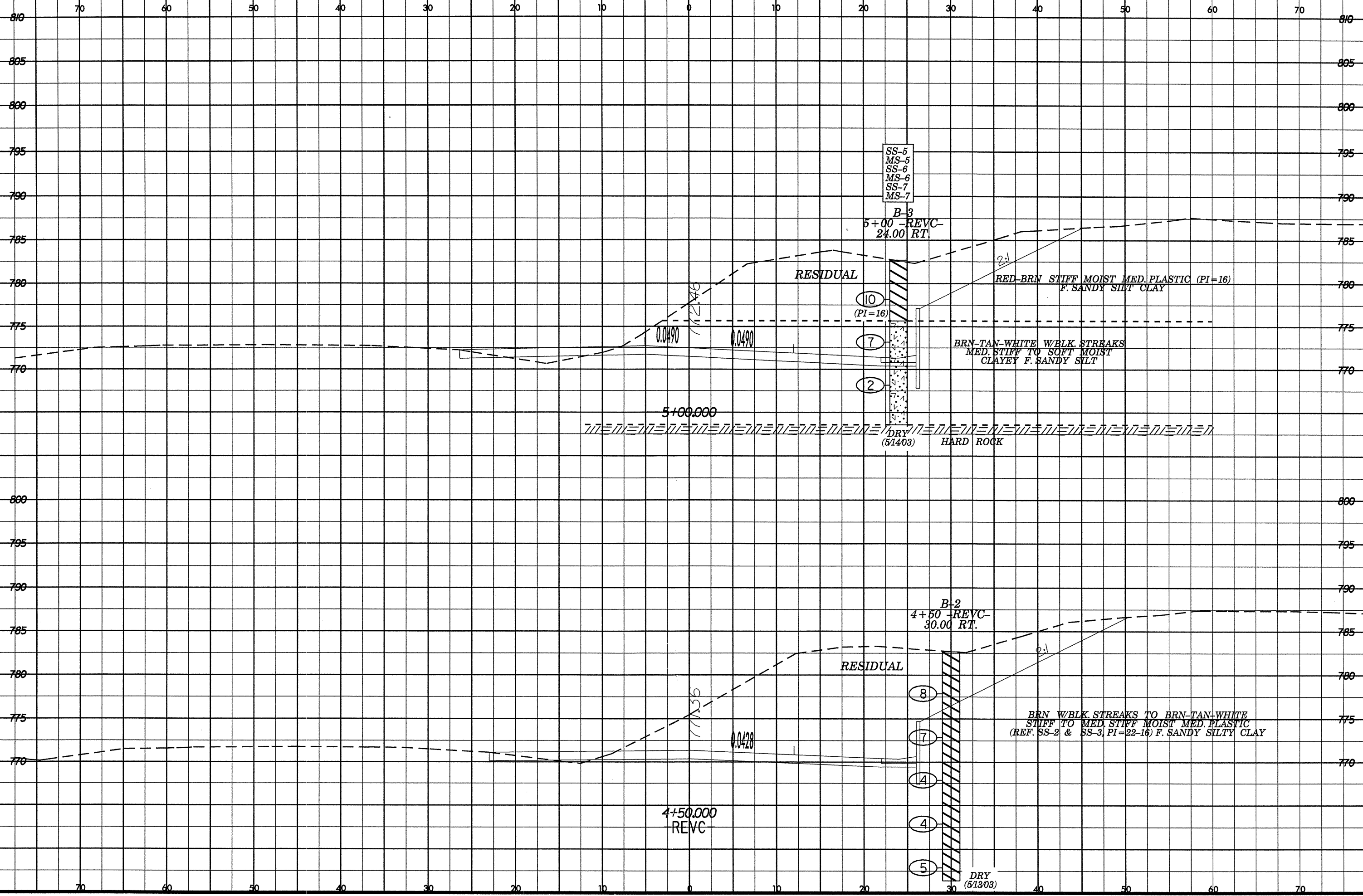


70 60 50 40 30 20 10 0 10 20 30 40 50 60 70



SYSTEM TIME 8/23/51

8/23/13



*****SYTIME*****
*****USER*****

8/23/93



70 60 50 40 30 20 10 0 10 20 30 40 50 60 70

805 805

800 800

795 795

790 790

785 785

780 780

775 775

770 770

805 805

800 800

795 795

790 790

785 785

780 780

775 775

770 770

70 60 50 40 30 20 10 0 10 20 30 40 50 60 70

SYSTEMS

SS-8
SS-9
SS-10
MS-10
SS-11

B-5
6+00 -REVC-
36.00 RT.

RESIDUAL

BRN-TAN W/BLK STREAKS MED. STIFF
MOIST CLAYEY F. SANDY SILT

(5)

BRN-TAN-BLACK-WHITE MED. STIFF MOIST
LOW PLASTIC (PI=11) SILTY SANDY CLAY

(6)
(PI=11)

BRN-TAN-WHITE MED. STIFF TO STIFF
MOIST CLAYEY F. SANDY SILT

(7)

(14)

DRY (51403)
HARD ROCK

774.367

0.0490
774.68

0.0490

6+00.000

SS-12
MS-12

B-4
5+50 -REVC-
20.00 RT.

RESIDUAL

RED-BRN-TAN SOFT TO STIFF MOIST MIC.
F. SANDY SILTY CLAY
(REF. SS-1, POSSIBLE HIGH PLASTIC, PI=27)

(4)

BRN-TAN-WHITE-BLACK MED. DENSE
MOIST SILTY SAND

(11)

(12)

(100)

WEATHERED ROCK

5+50.000

REVC

DRY (51403)
HARD ROCK

0.0490
773.58

0.0490

2:1

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
 GEOTECHNICAL UNIT BORING LOG

SHEET 1 OF 1

PROJECT NO. 8.1621301		ID. I-2102		COUNTY FORSYTH		GEOLOGIST TODD R.W.									
SITE DESCRIPTION RETAINING WALL 1 @ I-40/SR 1101 INTERCHANGE							GROUND WATER								
BORING NO. B-1		BORING LOCATION 4+00.00		OFFSET 26.00		ALIGNMENT REVC									
COLLAR ELEVATION 782.67		NORTHING 829362.2476		EASTING 1583291.5074		24 HR. DRY 23.0									
TOTAL DEPTH 26.4		DRILL MACHINE CME-550		DRILL METHOD H.S. AUGERS		HAMMER TYPE AUTOMATIC									
START DATE 5/13/03		COMPLETION DATE 5/13/03		SURFACE WATER DEPTH		DEPTH TO ROCK									
ELEV. (FT.)	DEPTH (FT.)	BLOW COUNT			PEN. (FT.)	BLOWS PER FOOT				SAMPLE NUMBER	MOI.	LOG	SOIL AND ROCK DESCRIPTION		
		0.5'	0.5'	0.5'		0	25	50	75					100	
782.68														(RESIDUAL) RED-BRN-TAN TO BRN-TAN-WHITE SOFT TO STIFF HIGH (PI=27) TO LOW (PI=13) PLASTIC F. SANDY SILTY CLAY W/BLK. STREAKS @ 9.90	
780.00	4.9	3	5	7	1								SS-1		D
775.00	9.9	2	1	2	1								SS-2		M
770.00	14.9	3	3	4	1								SS-3		M
765.00	19.9	4	5	7	1								SS-4		M
760.00	24.9	4	5	6	1										
755.00															
750.00															
745.00															
740.00															
735.00															
730.00															
725.00															
720.00															
715.00															
710.00															
705.00															

NOTE: COLLAR ELEVATION
 TAKEN FROM .DTM GROUND
 SURFACE

TERMINATED BORING AT
 ELEV. 756.27 IN STIFF
 F. SANDY SILTY CLAY

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
 GEOTECHNICAL UNIT BORING LOG

SHEET 1 OF 1

PROJECT NO. 8.1621301		ID. I-2102		COUNTY FORSYTH		GEOLOGIST TODD R.W.								
SITE DESCRIPTION RETAINING WALL 1 @ I-40/SR 1101 INTERCHANGE							GROUND WATER							
BORING NO. B-2		BORING LOCATION 4+50.00		OFFSET 30.00		ALIGNMENT REVC								
COLLAR ELEVATION 782.67		NORTHING 829381.2156		EASTING 1583337.6586		24 HR. DRY 23.0								
TOTAL DEPTH 26.3		DRILL MACHINE CME-550		DRILL METHOD H.S. AUGERS		HAMMER TYPE AUTOMATIC								
START DATE 5/13/03		COMPLETION DATE 5/13/03		SURFACE WATER DEPTH		DEPTH TO ROCK								
ELEV. (FT.)	DEPTH (FT.)	BLOW COUNT			PEN. (FT.)	BLOWS PER FOOT				SAMPLE NUMBER	MOI.	LOG	SOIL AND ROCK DESCRIPTION	
		0.5'	0.5'	0.5'		0	25	50	75					100
782.67														(RESIDUAL) BRN W/BLK STREAKS TO BRN-TAN-WHITE STIFF TO MED. STIFF MED. PLASTIC (PI=22-16) F. SANDY SILTY CLAY
780.00	4.8	1	3	5	1								M	
775.00	9.8	1	3	4	1								M	
770.00	14.8	1	2	2	1								M	
765.00	19.8	2	2	2	1								W	
760.00	24.8	2	3	2	1								W	
755.00														
750.00														
745.00														
740.00														
735.00														
730.00														
725.00														
720.00														
715.00														
710.00														
705.00														

NOTE: COLLAR ELEVATION
 TAKEN FROM .DTM GROUND
 SURFACE

TERMINATED BORING AT
 ELEV. 756.37 IN MED.
 STIFF F. SANDY SILTY

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION GEOTECHNICAL UNIT BORING LOG

SHEET 1 OF 1

PROJECT NO. 8.1621301		ID. I-2102		COUNTY FORSYTH		GEOLOGIST TODD R.W.								
SITE DESCRIPTION RETAINING WALL 1 @ I-40/SR 1101 INTERCHANGE							GROUND WATER							
BORING NO. B-3		BORING LOCATION 5+00.00		OFFSET 24.00		ALIGNMENT REVC								
COLLAR ELEVATION 782.65		NORTHING 829408.6189		EASTING 1583379.5280		24 HR. DRY 17.0								
TOTAL DEPTH 19.1		DRILL MACHINE CME-550		DRILL METHOD H.S. AUGERS		HAMMER TYPE AUTOMATIC								
START DATE 5/14/03		COMPLETION DATE 5/14/03		SURFACE WATER DEPTH		DEPTH TO ROCK 19.1								
ELEV. (FT.)	DEPTH (FT.)	BLOW COUNT			PEN. (FT.)	BLOWS PER FOOT				SAMPLE NUMBER	MOI.	LOG	SOIL AND ROCK DESCRIPTION	
		0.5'	0.5'	0.5'		0	25	50	75					100
782.66														(RESIDUAL) RED-BRN STIFF MED. PLASTIC (PI=16) F. SANDY SILTY CLAY
780.00	4.5	1	4	6	1	X-10							SS-5 MS-5	M 40.2
775.00	9.5	4	4	3	1	X-7							SS-6 MS-6	M 41.0
770.00	14.5	1	1	1	1	X-2							SS-7 MS-7	M 57.1
765.00														BRN-TAN-WHITE W/BLK STREAKS MED. STIFF TO SOFT CLAYEY F. SANDY SILT
760.00														
755.00														
750.00														
745.00														
740.00														
735.00														
730.00														
725.00														
720.00														
715.00														
710.00														
705.00														

NOTE: COLLAR ELEVATION
TAKEN FROM DTM GROUND
SURFACE

AUGER REFUSAL AT ELEV.
763.55 ON HARD ROCK

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION GEOTECHNICAL UNIT BORING LOG

SHEET 1 OF 1

PROJECT NO. 8.1621301		ID. I-2102		COUNTY FORSYTH		GEOLOGIST TODD R.W.								
SITE DESCRIPTION RETAINING WALL 1 @ I-40/SR 1101 INTERCHANGE							GROUND WATER							
BORING NO. B-4		BORING LOCATION 5+50.00		OFFSET 20.00		ALIGNMENT REVC								
COLLAR ELEVATION 782.82		NORTHING 829433.7156		EASTING 1583422.6406		24 HR. DRY 18.0								
TOTAL DEPTH 21.2		DRILL MACHINE CME-550		DRILL METHOD H.S. AUGERS		HAMMER TYPE AUTOMATIC								
START DATE 5/14/03		COMPLETION DATE 5/14/03		SURFACE WATER DEPTH		DEPTH TO ROCK 21.2								
ELEV. (FT.)	DEPTH (FT.)	BLOW COUNT			PEN. (FT.)	BLOWS PER FOOT				SAMPLE NUMBER	MOI.	LOG	SOIL AND ROCK DESCRIPTION	
		0.5'	0.5'	0.5'		0	25	50	75					100
782.83														(RESIDUAL) RED-BRN-TAN SOFT TO STIFF MIC. F. SANDY SILTY CLAY (REF. SS-1, POSSIBLE HIGH PLASTIC, PI=27)
780.00	4.8	1	1	3	1	X-4								
775.00	9.8	1	4	7	1	X-11								
770.00	14.8	4	5	7	1	X-12								BRN-TAN-WHITE-BLACK MED. DENSE SILTY SAND
765.00														WEATHERED ROCK
760.00	19.8	100			0.4									
755.00														
750.00														
745.00														
740.00														
735.00														
730.00														
725.00														
720.00														
715.00														
710.00														
705.00														

NOTE: COLLAR ELEVATION
TAKEN FROM DTM GROUND
SURFACE

AUGER REFUSAL AT ELEV.
761.62 ON HARD ROCK

**NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
GEOTECHNICAL UNIT BORING LOG**

SHEET 1 OF 1

PROJECT NO. 8.1621301	ID. I-2102	COUNTY FORSYTH	GEOLOGIST TODD R.W.
SITE DESCRIPTION RETAINING WALL 1 @ I-40/SR 1101 INTERCHANGE			GROUND WATER
BORING NO. B-5	BORING LOCATION 6+00.00	OFFSET 36.00	ALIGNMENT REVC
COLLAR ELEVATION 786.71			0 HR.
NORTHING 829440.0978		EASTING 1583474.4127	24 HR.DRY 20.0
TOTAL DEPTH 21.6	DRILL MACHINE CME-550	DRILL METHOD H.S. AUGERS	HAMMER TYPE AUTOMATIC
START DATE 5/14/03	COMPLETION DATE 5/14/03	SURFACE WATER DEPTH	DEPTH TO ROCK 21.6

ELEV. (FT.)	DEPTH (FT.)	BLOW COUNT			PEN. (FT.)	BLOWS PER FOOT					SAMPLE NUMBER	MOL.	LOG	SOIL AND ROCK DESCRIPTION	
		0.5'	0.5'	0.5'		0	25	50	75	100					
786.72															
785.00	4.4	2	2	4	1	X 6						SS-8	M	(RESIDUAL) BRN-TAN W/BLK. STREAKS MED. STIFF CLAYEY F. SANDY SILT	
780.00	9.4	1	3	3	1	X 6						SS-9	M	BRN-TAN-BLACK-WHITE MED. STIFF LOW PLASTIC (PI=11) SILTY SANDY CLAY	
775.00	14.4	1	3	4	1	X 7						SS-10 MS-10	M 49.3	BRN-TAN-WHITE MED. STIFF TO STIFF CLAYEY F. SANDY SILT	
770.00	19.4	2	4	10	1	X 14						SS-11	M		
765.00															
760.00															
755.00															
750.00															
745.00															
740.00															
735.00															
730.00															
725.00															
720.00															
715.00															
710.00															

NOTE: COLLAR ELEVATION
TAKEN FROM .DTM GROUND
SURFACE

AUGER REFUSAL AT ELEV.
765.11 ON HARD ROCK