

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	38555.1.1(B-4784)	1	11

**STATE OF NORTH CAROLINA**  
**DEPARTMENT OF TRANSPORTATION**  
**DIVISION OF HIGHWAYS**  
**GEOTECHNICAL ENGINEERING UNIT**

**STRUCTURE**  
**SUBSURFACE INVESTIGATION**

PROJ. REFERENCE NO. 38555.1.1(B-4784) F.A. PROJ. BRZ-1134(3)  
COUNTY PERSON  
PROJECT DESCRIPTION BRIDGE NO. 31 ON -L- (SR 1134) OVER  
ALDERIDGE CREEK AT STA. 12+41

**INVENTORY**

**CONTENTS**

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**CAUTION NOTICE**

THE SUBSURFACE INFORMATION AND THE SUBSURFACE INVESTIGATION ON WHICH IT IS BASED WERE 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 ENGINEERING UNIT AT (919) 707-6850. NEITHER THE SUBSURFACE PLANS AND REPORTS, NOR THE FIELD BORING LOGS, ROCK CORES, OR SOIL TEST DATA ARE PART OF THE CONTRACT.

GENERAL SOIL AND ROCK STRATA DESCRIPTIONS AND INDICATED BOUNDARIES ARE BASED ON A GEOTECHNICAL INTERPRETATION OF ALL AVAILABLE SUBSURFACE DATA AND MAY NOT NECESSARILY REFLECT THE ACTUAL SUBSURFACE CONDITIONS BETWEEN BORINGS OR BETWEEN SAMPLED STRATA WITHIN THE BOREHOLE. THE LABORATORY SAMPLE DATA AND THE IN SITU (IN-PLACE) TEST DATA CAN BE RELIED ON ONLY TO THE DEGREE OF RELIABILITY INHERENT IN THE STANDARD TEST METHOD. THE OBSERVED WATER LEVELS OR SOIL MOISTURE CONDITIONS INDICATED IN THE SUBSURFACE INVESTIGATIONS ARE AS RECORDED AT THE TIME OF THE INVESTIGATION. THESE WATER LEVELS OR SOIL MOISTURE CONDITIONS MAY VARY CONSIDERABLY WITH TIME ACCORDING TO CLIMATIC CONDITIONS INCLUDING TEMPERATURES, PRECIPITATION, AND WIND, AS WELL AS OTHER NON-CLIMATIC FACTORS.

THE BIDDER OR CONTRACTOR IS CAUTIONED THAT DETAILS SHOWN ON THE SUBSURFACE PLANS ARE PRELIMINARY ONLY AND IN MANY CASES THE FINAL DESIGN DETAILS ARE DIFFERENT. FOR BIDDING AND CONSTRUCTION PURPOSES, REFER TO THE CONSTRUCTION PLANS AND DOCUMENTS FOR FINAL DESIGN INFORMATION ON THIS PROJECT. THE DEPARTMENT DOES NOT WARRANT OR GUARANTEE THE SUFFICIENCY OR ACCURACY OF THE INVESTIGATION MADE, NOR THE INTERPRETATIONS MADE, OR OPINION OF THE DEPARTMENT AS TO THE TYPE OF MATERIALS AND CONDITIONS TO BE ENCOUNTERED. THE BIDDER OR CONTRACTOR IS CAUTIONED TO MAKE SUCH INDEPENDENT SUBSURFACE INVESTIGATIONS AS HE DEEMS NECESSARY TO SATISFY HIMSELF AS TO CONDITIONS TO BE ENCOUNTERED ON THIS PROJECT. THE CONTRACTOR SHALL HAVE NO CLAIM FOR ADDITIONAL COMPENSATION OR FOR AN EXTENSION OF TIME FOR ANY REASON RESULTING FROM THE ACTUAL CONDITIONS ENCOUNTERED AT THE SITE DIFFERING FROM THOSE INDICATED IN THE SUBSURFACE INFORMATION.

**PROJECT: 38555.1.1 ID: B-4784**

**PERSONNEL**

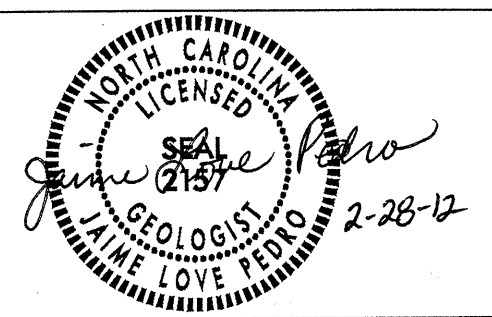
- C. S. CLAYTON
- S. M. SMITH
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INVESTIGATED BY S. P. BROWN

CHECKED BY N.T. ROBERSON

SUBMITTED BY J.L. PEDRO

DATE MARCH 2012



DRAWN BY: T.T. WALKER, J. L. PEDRO

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.

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

DIVISION OF HIGHWAYS  
GEOTECHNICAL ENGINEERING UNIT

SUBSURFACE INVESTIGATION

SOIL AND ROCK LEGEND, TERMS, SYMBOLS, AND ABBREVIATIONS

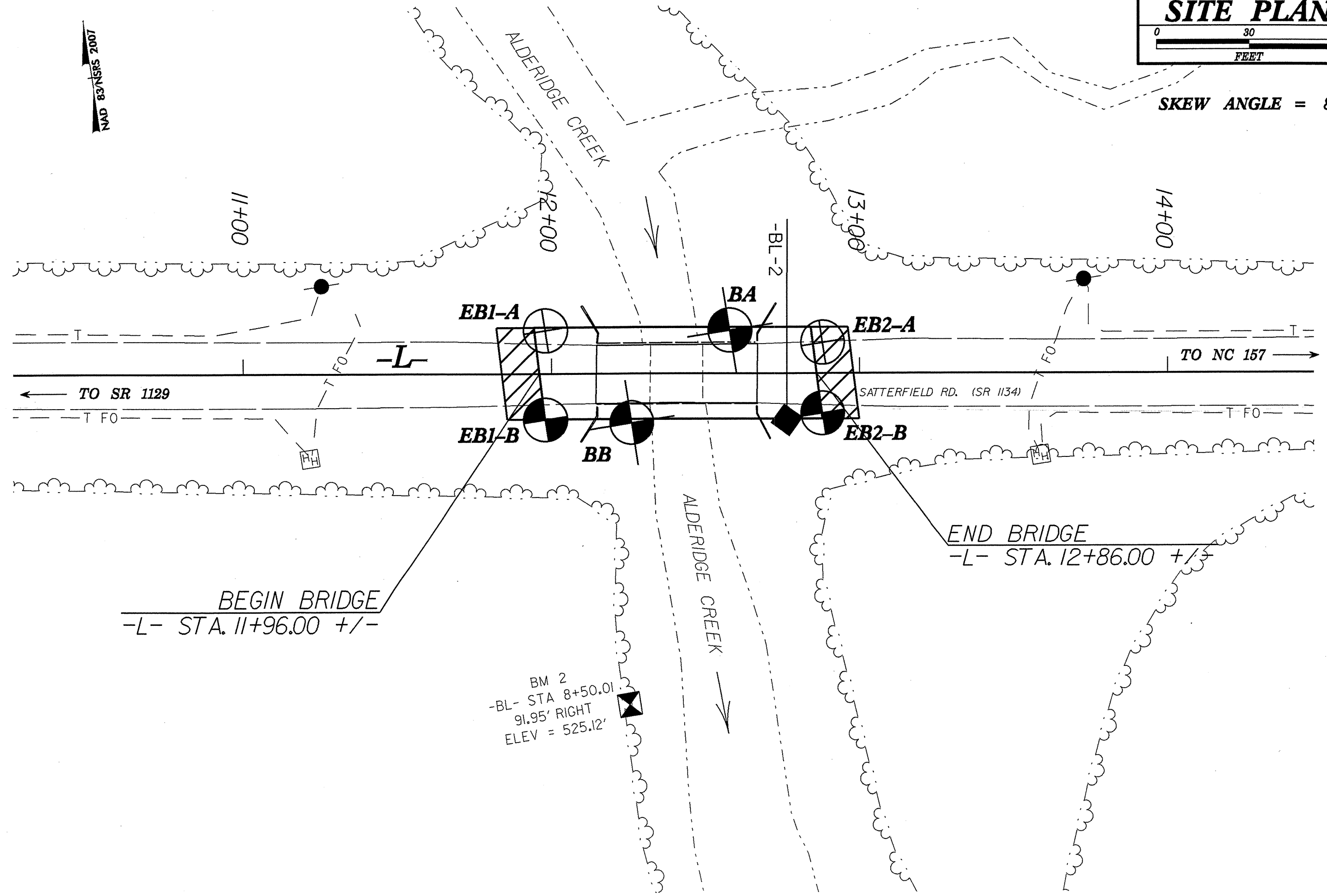
PROJECT REFERENCE NO. 38555.11(B-4784)	SHEET NO. 2
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SOIL DESCRIPTION				GRADATION				ROCK DESCRIPTION				TERMS AND DEFINITIONS															
SOIL IS CONSIDERED TO BE THE UNCONSOLIDATED, SEMI-CONSOLIDATED, OR WEATHERED EARTH MATERIALS THAT CAN BE PENETRATED WITH A CONTINUOUS FLIGHT POWER AUGER, AND YIELD LESS THAN 100 BLOWS PER FOOT ACCORDING TO STANDARD PENETRATION TEST (ASTM D-1586). SOIL CLASSIFICATION IS BASED ON THE AASHTO SYSTEM. BASIC DESCRIPTIONS GENERALLY SHALL INCLUDE: CONSISTENCY, COLOR, TEXTURE, MOISTURE, AASHTO CLASSIFICATION, AND OTHER PERTINENT FACTORS SUCH AS MINERALOGICAL COMPOSITION, ANGULARITY, STRUCTURE, PLASTICITY, ETC. EXAMPLE: <i>VERY STIFF, GRAY, SILTY CLAY, MOST WITH INTERBEDDED FINE SAND LAYERS, HEAVY PLASTIC, A-7-6</i>				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. ANGULARITY OF GRAINS THE ANGULARITY OR ROUNDNESS OF SOIL GRAINS IS DESIGNATED BY THE TERMS: ANGULAR, SUBANGULAR, SUBROUNDED, OR ROUNDED.				HARD ROCK IS NON-COASTAL PLAIN MATERIAL THAT IF 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: WEATHERED ROCK (WR) CRYSTALLINE ROCK (CR) NON-CRYSTALLINE ROCK (NCR) COASTAL PLAIN SEDIMENTARY ROCK (CP)				ALLUVIUM (ALLUV.) - SOILS THAT 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 THAT 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 (FP) - 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 (RES.) SOIL - SOIL FORMED IN PLACE BY THE WEATHERING OF ROCK. ROCK QUALITY DESIGNATION (RQD) - 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 THAT 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, THAT 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 IN OR BPF 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 PENETRATION EQUAL TO OR LESS THAN 0.1 FOOT PER 60 BLOWS. STRATA CORE RECOVERY (SCREC) - TOTAL LENGTH OF STRATA MATERIAL RECOVERED DIVIDED BY TOTAL LENGTH OF STRATUM AND EXPRESSED AS A PERCENTAGE. STRATA ROCK QUALITY DESIGNATION (SRQD) - A MEASURE OF ROCK QUALITY DESCRIBED BY TOTAL LENGTH OF ROCK SEGMENTS WITHIN A STRATUM EQUAL TO OR GREATER THAN 4 INCHES DIVIDED BY THE TOTAL LENGTH OF STRATA AND EXPRESSED AS A PERCENTAGE. TOPSOIL (TS) - SURFACE SOILS USUALLY CONTAINING ORGANIC MATTER.															
SOIL LEGEND AND AASHTO CLASSIFICATION				MINERALOGICAL COMPOSITION				WEATHERING																			
GENERAL CLASS. GRANULAR MATERIALS (<= 35% PASSING #200) SILT-CLAY MATERIALS (> 35% PASSING #200) ORGANIC MATERIALS				MINERAL NAMES SUCH AS QUARTZ, FELDSPAR, MICA, TALC, KAOLIN, ETC. ARE USED IN DESCRIPTIONS WHENEVER THEY ARE CONSIDERED OF SIGNIFICANCE.				FRESH ROCK FRESH, CRYSTALLINE BRIGHT, FEW JOINTS MAY SHOW SLIGHT STAINING, ROCK RINGS UNDER HAMMER IF CRYSTALLINE. VERY SLIGHT (V SLI.) ROCK GENERALLY FRESH, JOINTS STAINED, SOME JOINTS MAY SHOW THIN CLAY COATINGS IF OPEN. CRYSTALS ON A BROKEN SPECIMEN FACE SHINE BRIGHTLY. ROCK RINGS UNDER HAMMER BLOWS IF OF A CRYSTALLINE NATURE. SLIGHT (SLI.) ROCK GENERALLY FRESH, JOINTS STAINED AND DISCOLORATION EXTENDS INTO ROCK UP TO 1 INCH. OPEN JOINTS MAY CONTAIN CLAY. IN GRANITOID ROCKS SOME OCCASIONAL FELDSPAR CRYSTALS ARE DULL AND DISCOLORED. CRYSTALLINE ROCKS RING UNDER HAMMER BLOWS. MODERATE (MOD.) SIGNIFICANT PORTIONS OF ROCK SHOW DISCOLORATION AND WEATHERING EFFECTS. IN GRANITOID ROCKS, MOST FELDSPARS ARE DULL AND DISCOLORED, SOME SHOW CLAY. ROCK HAS DULL SOUND UNDER HAMMER BLOWS AND SHOWS SIGNIFICANT LOSS OF STRENGTH AS COMPARED WITH FRESH ROCK. MODERATELY SEVERE (MOD. SEV.) ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. IN GRANITOID ROCKS, ALL FELDSPARS DULL AND DISCOLORED AND A MAJORITY SHOW KAOLINIZATION. ROCK SHOWS SEVERE LOSS OF STRENGTH AND CAN BE EXCAVATED WITH A GEOLOGIST'S PICK. ROCK GIVES "CLUNK" SOUND WHEN STRUCK. IF TESTED, WOULD YIELD SPT REFUSAL. SEVERE (SEV.) ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. ROCK FABRIC CLEAR AND EVIDENT BUT REDUCED IN STRENGTH TO STRONG SOIL. IN GRANITOID ROCKS ALL FELDSPARS ARE KAOLINIZED TO SOME EXTENT. SOME FRAGMENTS OF STRONG ROCK USUALLY REMAIN. IF TESTED, YIELDS SPT N VALUES > 100 BPF. VERY SEVERE (V SEV.) ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. ROCK FABRIC ELEMENTS ARE DISCERNIBLE BUT THE MASS IS EFFECTIVELY REDUCED TO SOIL STATUS, WITH ONLY FRAGMENTS OF STRONG ROCK REMAINING. SAPROLITE IS AN EXAMPLE OF ROCK WEATHERED TO A DEGREE SUCH THAT ONLY MINOR VESTIGES OF THE ORIGINAL ROCK FABRIC REMAIN. IF TESTED, YIELDS SPT N VALUES < 100 BPF. COMPLETE ROCK REDUCED TO SOIL. ROCK FABRIC NOT DISCERNIBLE, OR DISCERNIBLE ONLY IN SMALL AND SCATTERED CONCENTRATIONS. QUARTZ MAY BE PRESENT AS DIKES OR STRINGERS. SAPROLITE IS ALSO AN EXAMPLE.				COMPRESSIBILITY SLIGHTLY COMPRESSIBLE LIQUID LIMIT LESS THAN 31 MODERATELY COMPRESSIBLE LIQUID LIMIT EQUAL TO 31-50 HIGHLY COMPRESSIBLE LIQUID LIMIT GREATER THAN 50				PERCENTAGE OF MATERIAL ORGANIC MATERIAL GRANULAR SILT-CLAY OTHER MATERIAL TRACE OF ORGANIC MATTER 2 - 3% 3 - 5% TRACE 1 - 10% LITTLE ORGANIC MATTER 3 - 5% 5 - 12% LITTLE 10 - 20% MODERATELY ORGANIC 5 - 10% 12 - 20% SOME 20 - 35% HIGHLY ORGANIC >10% >20% HIGHLY 35% AND ABOVE				GROUND WATER WATER LEVEL IN BORE HOLE IMMEDIATELY AFTER DRILLING STATIC WATER LEVEL AFTER 24 HOURS PERCHED WATER, SATURATED ZONE, OR WATER BEARING STRATA SPRING OR SEEP				WEATHERING FRESH ROCK FRESH, CRYSTALLINE BRIGHT, FEW JOINTS MAY SHOW SLIGHT STAINING, ROCK RINGS UNDER HAMMER IF CRYSTALLINE. VERY SLIGHT (V SLI.) ROCK GENERALLY FRESH, JOINTS STAINED, SOME JOINTS MAY SHOW THIN CLAY COATINGS IF OPEN. CRYSTALS ON A BROKEN SPECIMEN FACE SHINE BRIGHTLY. ROCK RINGS UNDER HAMMER BLOWS IF OF A CRYSTALLINE NATURE. SLIGHT (SLI.) ROCK GENERALLY FRESH, JOINTS STAINED AND DISCOLORATION EXTENDS INTO ROCK UP TO 1 INCH. OPEN JOINTS MAY CONTAIN CLAY. IN GRANITOID ROCKS SOME OCCASIONAL FELDSPAR CRYSTALS ARE DULL AND DISCOLORED. CRYSTALLINE ROCKS RING UNDER HAMMER BLOWS. MODERATE (MOD.) SIGNIFICANT PORTIONS OF ROCK SHOW DISCOLORATION AND WEATHERING EFFECTS. IN GRANITOID ROCKS, MOST FELDSPARS ARE DULL AND DISCOLORED, SOME SHOW CLAY. ROCK HAS DULL SOUND UNDER HAMMER BLOWS AND SHOWS SIGNIFICANT LOSS OF STRENGTH AS COMPARED WITH FRESH ROCK. MODERATELY SEVERE (MOD. SEV.) ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. IN GRANITOID ROCKS, ALL FELDSPARS DULL AND DISCOLORED AND A MAJORITY SHOW KAOLINIZATION. ROCK SHOWS SEVERE LOSS OF STRENGTH AND CAN BE EXCAVATED WITH A GEOLOGIST'S PICK. ROCK GIVES "CLUNK" SOUND WHEN STRUCK. IF TESTED, WOULD YIELD SPT REFUSAL. SEVERE (SEV.) ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. ROCK FABRIC CLEAR AND EVIDENT BUT REDUCED IN STRENGTH TO STRONG SOIL. IN GRANITOID ROCKS ALL FELDSPARS ARE KAOLINIZED TO SOME EXTENT. SOME FRAGMENTS OF STRONG ROCK USUALLY REMAIN. IF TESTED, YIELDS SPT N VALUES > 100 BPF. VERY SEVERE (V SEV.) ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. ROCK FABRIC ELEMENTS ARE DISCERNIBLE BUT THE MASS IS EFFECTIVELY REDUCED TO SOIL STATUS, WITH ONLY FRAGMENTS OF STRONG ROCK REMAINING. SAPROLITE IS AN EXAMPLE OF ROCK WEATHERED TO A DEGREE SUCH THAT ONLY MINOR VESTIGES OF THE ORIGINAL ROCK FABRIC REMAIN. IF TESTED, YIELDS SPT N VALUES < 100 BPF. COMPLETE ROCK REDUCED TO SOIL. ROCK FABRIC NOT DISCERNIBLE, OR DISCERNIBLE ONLY IN SMALL AND SCATTERED CONCENTRATIONS. QUARTZ MAY BE PRESENT AS DIKES OR STRINGERS. SAPROLITE IS ALSO AN EXAMPLE.			
CONSISTENCY OR DENSENESS				MISCELLANEOUS SYMBOLS				ROCK HARDNESS																			
PRIMARY SOIL TYPE COMPACTNESS OR CONSISTENCY RANGE OF STANDARD PENETRATION RESISTANCE (N-VALUE) RANGE OF UNCONFINED COMPRESSIVE STRENGTH (TONS/FT <sup>2</sup> )				ROADWAY EMBANKMENT (RE) WITH SOIL DESCRIPTION SOIL SYMBOL ARTIFICIAL FILL (AF) OTHER THAN ROADWAY EMBANKMENT INFERRED SOIL BOUNDARY INFERRED ROCK LINE ALLUVIAL SOIL BOUNDARY DIP & DIP DIRECTION OF ROCK STRUCTURES				TEST BORING AUGER BORING CORE BORING MONITORING WELL PIEZOMETER INSTALLATION SLOPE INDICATOR INSTALLATION CONE PENETROMETER TEST SOUNDING ROD				VERY HARD CANNOT BE SCRATCHED BY KNIFE OR SHARP PICK. BREAKING OF HAND SPECIMENS REQUIRES SEVERAL HARD BLOWS OF THE GEOLOGIST'S PICK. HARD CAN BE SCRATCHED BY KNIFE OR PICK ONLY WITH DIFFICULTY. HARD HAMMER BLOWS REQUIRED TO DETACH HAND SPECIMEN. MODERATELY HARD CAN BE SCRATCHED BY KNIFE OR PICK. GOUGES OR GROOVES TO 0.25 INCHES DEEP CAN BE EXCAVATED BY HARD BLOW OF A GEOLOGIST'S PICK. HAND SPECIMENS CAN BE DETACHED BY MODERATE BLOWS. MEDIUM HARD CAN BE GROOVED OR GOUGED 0.05 INCHES DEEP BY FIRM PRESSURE OF KNIFE OR PICK POINT. CAN BE EXCAVATED IN SMALL CHIPS TO PIECES 1 INCH MAXIMUM SIZE BY HARD BLOWS OF THE POINT OF A GEOLOGIST'S PICK. SOFT CAN BE GROOVED OR GOUGED READILY BY KNIFE OR PICK. CAN BE EXCAVATED IN FRAGMENTS FROM CHIPS TO SEVERAL INCHES IN SIZE BY MODERATE BLOWS OF A PICK POINT. SMALL, THIN PIECES CAN BE BROKEN BY FINGER PRESSURE. VERY SOFT CAN BE CARVED WITH KNIFE. CAN BE EXCAVATED READILY WITH POINT OF PICK. PIECES 1 INCH OR MORE IN THICKNESS CAN BE BROKEN BY FINGER PRESSURE. CAN BE SCRATCHED READILY BY FINGER NAIL.															
TEXTURE OR GRAIN SIZE				ABBREVIATIONS				FRACTURE SPACING				BEDDING															
U.S. STD. SIEVE SIZE OPENING (MM) 4 10 40 60 200 270 4.76 2.00 0.42 0.25 0.075 0.053				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, FRACTURES FRAGS. - FRAGMENTS HI - HIGHLY				MED. - MEDIUM MICA - MICACEOUS MOD. - MODERATELY NP - NON PLASTIC ORG. - ORGANIC PMT - PRESSUREMETER TEST SAP. - SAPROLITIC SD. - SAND, SANDY SL - SILT, SILTY SLI. - SLIGHTLY TCR - TRICONE REFUSAL w - MOISTURE CONTENT V - VERY				VST - VANE SHEAR TEST WEA. - WEATHERED ? - UNIT WEIGHT ? - DRY UNIT WEIGHT SAMPLE ABBREVIATIONS S - BULK SS - SPLIT SPOON ST - SHELBY TUBE RS - ROCK RT - RECOMPACTED TRIAXIAL CBR - CALIFORNIA BEARING RATIO				VERY HARD CANNOT BE SCRATCHED BY KNIFE OR SHARP PICK. BREAKING OF HAND SPECIMENS REQUIRES SEVERAL HARD BLOWS OF THE GEOLOGIST'S PICK. HARD CAN BE SCRATCHED BY KNIFE OR PICK ONLY WITH DIFFICULTY. HARD HAMMER BLOWS REQUIRED TO DETACH HAND SPECIMEN. MODERATELY HARD CAN BE SCRATCHED BY KNIFE OR PICK. GOUGES OR GROOVES TO 0.25 INCHES DEEP CAN BE EXCAVATED BY HARD BLOW OF A GEOLOGIST'S PICK. HAND SPECIMENS CAN BE DETACHED BY MODERATE BLOWS. MEDIUM HARD CAN BE GROOVED OR GOUGED 0.05 INCHES DEEP BY FIRM PRESSURE OF KNIFE OR PICK POINT. CAN BE EXCAVATED IN SMALL CHIPS TO PIECES 1 INCH MAXIMUM SIZE BY HARD BLOWS OF THE POINT OF A GEOLOGIST'S PICK. SOFT CAN BE GROOVED OR GOUGED READILY BY KNIFE OR PICK. CAN BE EXCAVATED IN FRAGMENTS FROM CHIPS TO SEVERAL INCHES IN SIZE BY MODERATE BLOWS OF A PICK POINT. SMALL, THIN PIECES CAN BE BROKEN BY FINGER PRESSURE. VERY SOFT CAN BE CARVED WITH KNIFE. CAN BE EXCAVATED READILY WITH POINT OF PICK. PIECES 1 INCH OR MORE IN THICKNESS CAN BE BROKEN BY FINGER PRESSURE. CAN BE SCRATCHED READILY BY FINGER NAIL.											
SOIL MOISTURE - CORRELATION OF TERMS				EQUIPMENT USED ON SUBJECT PROJECT				INDURATION																			
SOIL MOISTURE SCALE (ATTERBERG LIMITS) FIELD MOISTURE DESCRIPTION GUIDE FOR FIELD MOISTURE DESCRIPTION				DRILL UNITS: MOBILE B- BK-51 CME-45C CME-550 PORTABLE HOIST CME-45B				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				HAMMER TYPE: AUTOMATIC MANUAL CORE SIZE: -B -N, WD4 -H HAND TOOLS: POST HOLE DIGGER HAND AUGER SOUNDING ROD VANE SHEAR TEST				TERM SPACING THICKNESS VERY WIDE MORE THAN 10 FEET > 4 FEET WIDE 3 TO 10 FEET 1.5 - 4 FEET MODERATELY CLOSE 1 TO 3 FEET 0.16 - 1.5 FEET CLOSE 0.16 TO 1 FEET 0.03 - 0.16 FEET VERY CLOSE LESS THAN 0.16 FEET < 0.008 FEET											
PLASTICITY				FRAGILE				INDURATED				EXTREMELY INDURATED															
PLASTICITY INDEX (PI) DRY STRENGTH				FRAGILE 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.																							
NONPLASTIC 0-5 VERY LOW LOW PLASTICITY 6-15 SLIGHT MED. PLASTICITY 16-25 MEDIUM HIGH PLASTICITY 26 OR MORE HIGH																											
COLOR																											
DESCRIPTIONS MAY INCLUDE COLOR OR COLOR COMBINATIONS (TAN, RED, YELLOW-BROWN, BLUE-GRAY). MODIFIERS SUCH AS LIGHT, DARK, STREAKED, ETC. ARE USED TO DESCRIBE APPEARANCE.																											
												BENCH MARK: ELEVATION: FT. NOTES: GEU USED GPK FILE DATED 11/4/11 AND TIN FILE DATED 1/26/12 TO GENERATE CROSS SECTIONS AND PROFILE.															

PROJECT REFERENCE NO.	SHEET
38555.1.1(B-4784)	3
<b>SITE PLAN</b>	

NAD 83/NSRS 2007

**SKEW ANGLE = 83°**



**BEGIN BRIDGE**  
-L- STA. 11+96.00 +/-

BM 2  
-BL- STA 8+50.01  
91.95' RIGHT  
ELEV = 525.12'

**END BRIDGE**  
-L- STA. 12+86.00 +/-

← TO SR 1129

TO NC 157 →

SATTERFIELD RD. (SR 1134)

11+00

12+00

13+00

14+00

EB1-A

BA

EB2-A

EB1-B

BB

EB2-B

-BL-2

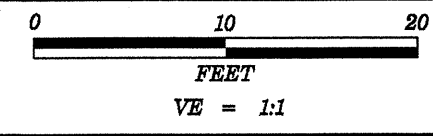
-L-

PH

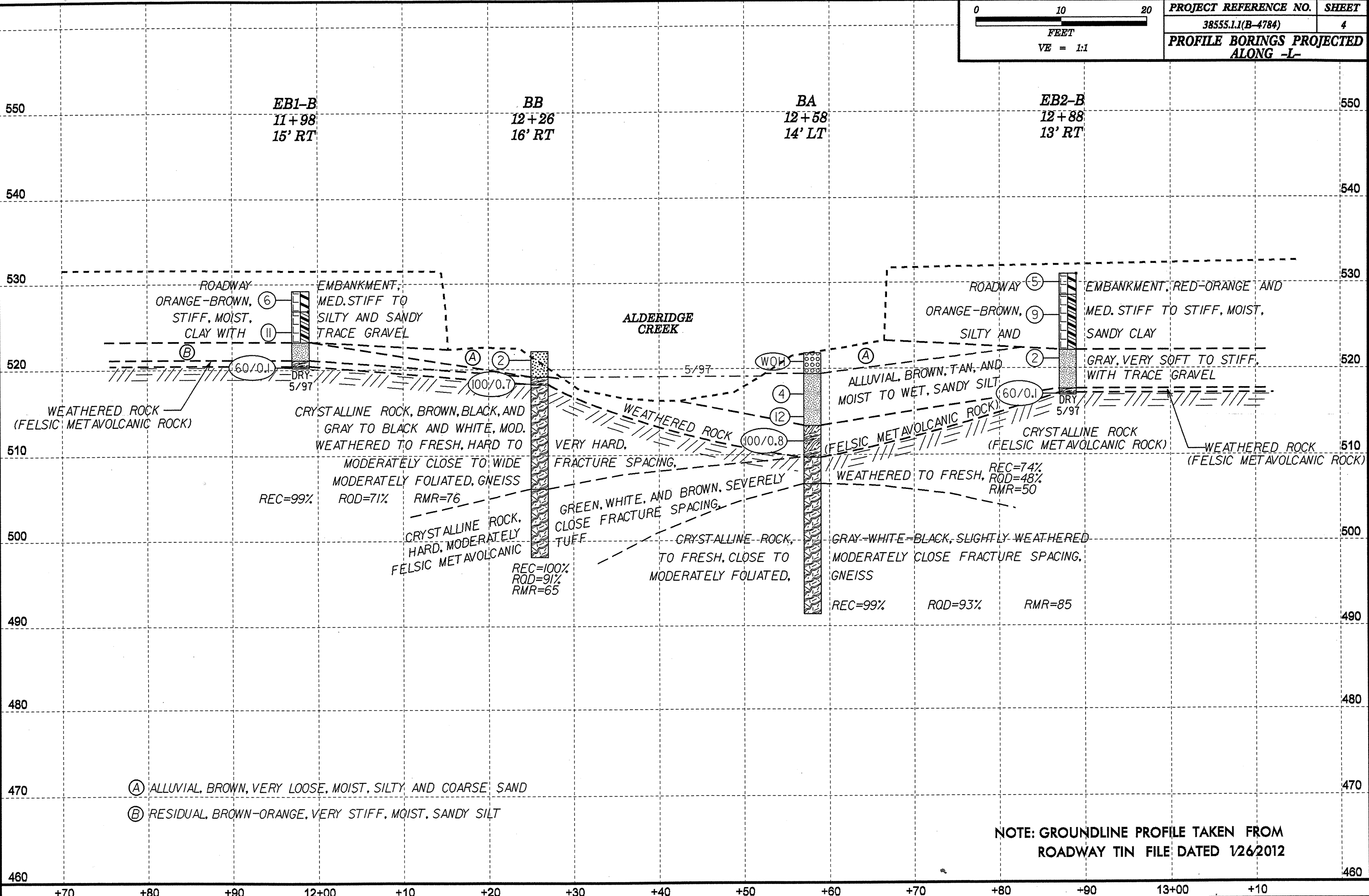
PH

ALDERIDGE CREEK

ALDERIDGE CREEK



PROJECT REFERENCE NO.	SHEET
38555.1.1(B-4784)	4
PROFILE BORINGS PROJECTED ALONG -L-	



NOTE: GROUNDLINE PROFILE TAKEN FROM ROADWAY TIN FILE DATED 1/26/2012





**NCDOT GEOTECHNICAL ENGINEERING UNIT**  
**BORELOG REPORT**

WBS 38555.1.1		TIP B-4784		COUNTY PERSON		GEOLOGIST Clayton, C.S.									
SITE DESCRIPTION BRIDGE NO. 31 ON -L- (SR 1134) OVER ALDERIDGE CREEK							GROUND WTR (ft)								
BORING NO. EB1-A		STATION 11+98		OFFSET 14 ft LT		ALIGNMENT -L-									
COLLAR ELEV. 530.6 ft		TOTAL DEPTH 10.2 ft		NORTHING 919,204		EASTING 1,998,914									
DRILL RIG/HAMMER EFF./DATE CME-45B			DRILL METHOD Solid Augers			HAMMER TYPE Automatic									
DRILLER Smith, S.M.		START DATE 05/13/97		COMP. DATE 05/14/97		SURFACE WATER DEPTH N/A									
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	L O G	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100					
535															
530															
525															

WBS 38555.1.1		TIP B-4784		COUNTY PERSON		GEOLOGIST Clayton, C.S.									
SITE DESCRIPTION BRIDGE NO. 31 ON -L- (SR 1134) OVER ALDERIDGE CREEK							GROUND WTR (ft)								
BORING NO. EB1-B		STATION 11+98		OFFSET 15 ft RT		ALIGNMENT -L-									
COLLAR ELEV. 529.2 ft		TOTAL DEPTH 9.0 ft		NORTHING 919,176		EASTING 1,998,910									
DRILL RIG/HAMMER EFF./DATE CME-45B			DRILL METHOD H.S. Augers			HAMMER TYPE Automatic									
DRILLER Smith, S.M.		START DATE 05/13/97		COMP. DATE 05/13/97		SURFACE WATER DEPTH N/A									
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	L O G	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100					
530	529.2	0.0													
525	525.4	3.8													
	520.4	8.8													

NCDOT BORE DOUBLE B4784\_GEO\_BH\_BRD0031.GPJ NC\_DOT\_GDT 2/20/12

WBS 38555.1.1	TIP B-4784	COUNTY PERSON	GEOLOGIST Clayton, C.S.
SITE DESCRIPTION BRIDGE NO. 31 ON -L- (SR 1134) OVER ALDERIDGE CREEK			GROUND WTR (ft)
BORING NO. BB	STATION 12+26	OFFSET 16 ft RT	ALIGNMENT -L-
COLLAR ELEV. 522.1 ft	TOTAL DEPTH 24.0 ft	NORTHING 919,170	EASTING 1,998,937
DRILL RIG/HAMMER EFF./DATE CME-45B		DRILL METHOD NW Casing W/SPT & Core	HAMMER TYPE Automatic
DRILLER Smith, S.M.	START DATE 05/16/97	COMP. DATE 05/16/97	SURFACE WATER DEPTH N/A

WBS 38555.1.1	TIP B-4784	COUNTY PERSON	GEOLOGIST Clayton, C.S.
SITE DESCRIPTION BRIDGE NO. 31 ON -L- (SR 1134) OVER ALDERIDGE CREEK			GROUND WTR (ft)
BORING NO. BB	STATION 12+26	OFFSET 16 ft RT	ALIGNMENT -L-
COLLAR ELEV. 522.1 ft	TOTAL DEPTH 24.0 ft	NORTHING 919,170	EASTING 1,998,937
DRILL RIG/HAMMER EFF./DATE CME-45B		DRILL METHOD NW Casing W/SPT & Core	HAMMER TYPE Automatic
DRILLER Smith, S.M.	START DATE 05/16/97	COMP. DATE 05/16/97	SURFACE WATER DEPTH N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100						
525																
	522.1	0.0													522.1	GROUND SURFACE
520			WOH	1	1									M		ALLUVIAL BROWN, SILTY SAND
	519.0	3.1													519.1	
															518.2	WEATHERED ROCK (GNEISS)
515														RS-1		CRYSTALLINE ROCK BROWN, BLACK, AND GRAY TO BLACK AND WHITE, MODERATELY WEATHERED TO FRESH, HARD TO VERY HARD, MODERATELY CLOSE TO WIDE FRACTURE SPACING, MODERATELY FOLIATED, GNEISS
510														RS-2		
505															506.1	REC=99% RQD=71%
																RMR=76
																GREEN-WHITE, SLIGHTLY WEATHERED TO FRESH, HARD, CLOSE TO MODERATELY CLOSE FRACTURE SPACING, METAVOLCANIC TUFF
500														RS-3		
															498.1	REC=100% RQD=91%
																RMR=65
																Boring Terminated at Elevation 498.1 ft in CRYSTALLINE ROCK (METAVOLCANIC TUFF)

ELEV (ft)	RUN ELEV (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	RUN		SAMP. NO.	STRATA		LOG	DESCRIPTION AND REMARKS	DEPTH (ft)
					REC. (%)	RQD (%)		REC. (%)	RQD (%)			
518.2	518.2	3.9	2.1	4:01/1.0	(2.1)	(2.0)		(12.0)	(8.6)		Begin Coring @ 3.9 ft	
	516.1	6.0		9:26/1.1	100%	95%					CRYSTALLINE ROCK	3.9
515			2.9	7:48/1.0	(2.8)	(2.8)	RS-1				BROWN, BLACK, AND GRAY TO BLACK AND WHITE, MODERATELY WEATHERED TO FRESH, HARD TO VERY HARD, MODERATELY CLOSE TO WIDE FRACTURE SPACING, MODERATELY FOLIATED, GNEISS	
	513.2	8.9		7:38/1.0	97%	97%						
			5.1	5:31/1.1	(5.1)	(3.8)						
510				3:48/1.0	100%	75%						
			5.0	3:01/1.0								
	508.1	14.0		3:12/1.0			RS-2					
			5.0	2:00/1.0	(4.5)	(2.9)						
505				1:32/1.0	90%	58%						
			5.0	1:47/1.0								
	503.1	19.0		2:13/1.0				(7.5)	(6.8)		GREEN-WHITE, SLIGHTLY WEATHERED TO FRESH, HARD, CLOSE TO MODERATELY CLOSE FRACTURE SPACING, METAVOLCANIC TUFF	16.0
			5.0	2:44/1.0			RS-3					
			5.0	1:53/1.0	(5.0)	(3.9)						
				2:16/1.0	100%	78%						
500				2:15/1.0								
	498.1	24.0		2:40/1.0								
				4:30/1.0								
											Boring Terminated at Elevation 498.1 ft in CRYSTALLINE ROCK (METAVOLCANIC TUFF)	24.0

NCDOT BORE DOUBLE B4784\_GEO\_BH\_BRDG0031.GPJ NC\_DOT\_GDT\_2/27/12

NCDOT BORE DOUBLE B4784\_GEO\_BH\_BRDG0031.GPJ NC\_DOT\_GDT\_2/27/12

WBS 38555.1.1		TIP B-4784		COUNTY PERSON		GEOLOGIST Clayton, C.S.										
SITE DESCRIPTION BRIDGE NO. 31 ON -L- (SR 1134) OVER ALDERIDGE CREEK							GROUND WTR (ft)									
BORING NO. BA		STATION 12+58		OFFSET 14 ft LT		ALIGNMENT -L-										
COLLAR ELEV. 521.8 ft		TOTAL DEPTH 30.4 ft		NORTHING 919,195		EASTING 1,998,973										
DRILL RIG/HAMMER EFF./DATE CME-45B				DRILL METHOD NW Casing W/SPT & Core		HAMMER TYPE Automatic										
DRILLER Smith, S.M.		START DATE 05/14/97		COMP. DATE 05/14/97		SURFACE WATER DEPTH N/A										
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG MOI	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100						
525																
	521.8	0.0													521.8	0.0
520			WOH	WOH	WOH											
	518.0	3.8	1	2	2										519.4	2.4
515																
	515.4	6.4	1	4	8										513.4	8.4
	512.9	8.9	19	45	55/0.3										509.7	12.1
510																
															506.6	15.2
505																
500																
495															491.4	30.4
Boring Terminated at Elevation 491.4 ft in CRYSTALLINE ROCK (GNEISS)																

WBS 38555.1.1		TIP B-4784		COUNTY PERSON		GEOLOGIST Clayton, C.S.						
SITE DESCRIPTION BRIDGE NO. 31 ON -L- (SR 1134) OVER ALDERIDGE CREEK							GROUND WTR (ft)					
BORING NO. BA		STATION 12+58		OFFSET 14 ft LT		ALIGNMENT -L-						
COLLAR ELEV. 521.8 ft		TOTAL DEPTH 30.4 ft		NORTHING 919,195		EASTING 1,998,973						
DRILL RIG/HAMMER EFF./DATE CME-45B				DRILL METHOD NW Casing W/SPT & Core		HAMMER TYPE Automatic						
DRILLER Smith, S.M.		START DATE 05/14/97		COMP. DATE 05/14/97		SURFACE WATER DEPTH N/A						
ELEV (ft)	RUN ELEV (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	RUN		SAMP. NO.	STRATA		LOG	DESCRIPTION AND REMARKS	DEPTH (ft)
					REC. (%)	RQD (%)		REC. (%)	RQD (%)			
509.7												
	509.7	12.1	3.1	1:31/1.0 2:02/1.0 2:05/1.0	(2.3) 74%	(1.5) 48%		(2.3) 74%	(1.5) 48%		Begin Coring @ 12.1 ft CRYSTALLINE ROCK	12.1
	506.6	15.2		0:24/0.1 2:00/1.0 4:27/1.0 4:42/1.0 3:31/1.0 4:16/1.0	(4.9) 98%	(4.7) 94%		(15.0) 99%	(14.2) 93%		GREEN-BROWN, SEVERELY TO VERY SLIGHTLY WEATHERED, MODERATELY HARD, MODERATELY CLOSE FRACTURE SPACING, METAVOLCANIC TUFF	15.2
505			5.0									
	501.6	20.2										
500			5.0	4:30/1.0 3:02/1.0 2:32/1.0 3:27/1.0 4:46/1.0	(5.0) 100%	(4.8) 96%						
	496.6	25.2										
495			2.0	5:16/1.0 7:15/1.0	(2.0) 100%	(2.0) 100%						
	494.6	27.2										
	491.4	30.4	3.2	0:42/0.2 5:19/1.0 7:50/1.0 9:14/1.0	(3.1) 97%	(2.7) 84%						
Boring Terminated at Elevation 491.4 ft in CRYSTALLINE ROCK (GNEISS)												



**NCDOT GEOTECHNICAL ENGINEERING UNIT**  
**BORELOG REPORT**

WBS 38555.1.1	TIP B-4784	COUNTY PERSON	GEOLOGIST Clayton, C.S.
SITE DESCRIPTION BRIDGE NO. 31 ON -L- (SR 1134) OVER ALDERIDGE CREEK			GROUND WTR (ft)
BORING NO. EB2-A	STATION 12+88	OFFSET 10 ft LT	ALIGNMENT -L-
COLLAR ELEV. 531.7 ft	TOTAL DEPTH 14.8 ft	NORTHING 919,186	EASTING 1,999,002
DRILL RIG/HAMMER EFF./DATE CME-45B		DRILL METHOD Solid Augers	HAMMER TYPE Automatic
DRILLER Smith, S.M.	START DATE 05/13/97	COMP. DATE 05/13/97	SURFACE WATER DEPTH N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)
			0.5ft	0.5ft	0.5ft	0	25	50	75	100				
535														
													531.7	0.0
530														ROADWAY EMBANKMENT RED-ORANGE-BROWN, SILTY CLAY WITH TRACE GRAVEL
525														
520													522.0	9.7
														ALLUVIAL GRAY-BROWN, SANDY SILT
													518.4	13.3
													516.9	14.8
														WEATHERED ROCK (FELSIC METAVOLCANIC ROCK) Boring Terminated by Auger Refusal at Elevation 516.9 ft on CRYSTALLINE ROCK (FELSIC METAVOLCANIC ROCK)

WBS 38555.1.1	TIP B-4784	COUNTY PERSON	GEOLOGIST Clayton, C.S.
SITE DESCRIPTION BRIDGE NO. 31 ON -L- (SR 1134) OVER ALDERIDGE CREEK			GROUND WTR (ft)
BORING NO. EB2-B	STATION 12+88	OFFSET 13 ft RT	ALIGNMENT -L-
COLLAR ELEV. 531.0 ft	TOTAL DEPTH 14.1 ft	NORTHING 919,164	EASTING 1,998,999
DRILL RIG/HAMMER EFF./DATE CME-45B		DRILL METHOD H.S. Augers	HAMMER TYPE Automatic
DRILLER Smith, S.M.	START DATE 05/13/97	COMP. DATE 05/13/97	SURFACE WATER DEPTH N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)
			0.5ft	0.5ft	0.5ft	0	25	50	75	100				
535														
													531.0	0.0
530														ROADWAY EMBANKMENT RED-ORANGE, SILTY CLAY
													528.5	2.5
														ORANGE-BROWN, SANDY CLAY
525														
													522.1	8.9
														ALLUVIAL BROWN-GRAY, SANDY SILT
520													517.6	13.4
													517.1	13.9
													516.9	14.1
														WEATHERED ROCK (FELSIC METAVOLCANIC ROCK) CRYSTALLINE ROCK (FELSIC METAVOLCANIC ROCK) Boring Terminated by Auger Refusal at Elevation 516.9 ft in CRYSTALLINE ROCK (FELSIC METAVOLCANIC ROCK)

NCDOT BORE DOUBLE B4784\_GEO\_BH\_BRD00031.GPJ NC\_DOT.GDT 2/20/12

**PROJ. NO. - 38555.1.1**  
**ID NO. - B-4784**  
**COUNTY - PERSON**

**EB1-B**

<b>SOIL TEST RESULTS</b>															
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C.SAND	F.SAND	SILT	CLAY	10	40	200		
SS-1	15 RT	11+98	0.5-1.5	A-7-5(25)	65	32	17.4	9.5	20.6	52.5	96	84	72	-	-
SS-2	15 RT	11+98	3.8-5.3	A-6(6)	35	14	27.5	14.1	26.1	32.3	97	78	59	-	-
S-3	15 RT	11+98	6.5-8.0	A-4(2)	31	9	27.1	14.7	29.9	28.3	80	64	49	-	-

**BB**

<b>SOIL TEST RESULTS</b>															
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C.SAND	F.SAND	SILT	CLAY	10	40	200		
SS-8	16 RT	12+26	0.0-1.5	A-2-4(0)	19	NP	35.6	33.1	23.2	8.1	100	91	35	-	-

<b>ROCK TEST RESULTS</b>							
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	ROCK TYPE	UNIT WT LB/FT <sup>3</sup>	UNCONFINED COMP. STRENGTH, KSI	SECTION MOD. @ 40% MPSI
RS-1	16 RT	12+26	5.6-6.0	GNEISS	171.2	20	3.63
RS-2	16 RT	12+26	13.0-13.5	GNEISS	171.3	9.5	2.42
RS-3	16 RT	12+26	19.5-20.2	METAVOLCANIC	171.8	9.9	7.42

**BA**

<b>SOIL TEST RESULTS</b>															
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C.SAND	F.SAND	SILT	CLAY	10	40	200		
SS-6	14 LT	12+58	0.0-1.5	A-1-b(0)	15	NP	81.6	9.9	5.5	3.0	98	36	9	-	-
SS-7	14 LT	12+58	3.8-5.3	A-4(0)	19	3	24.6	34.5	26.7	14.1	100	92	45	-	-

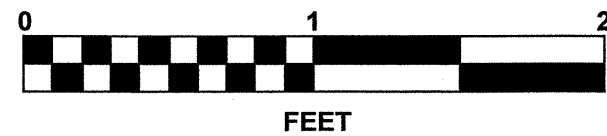
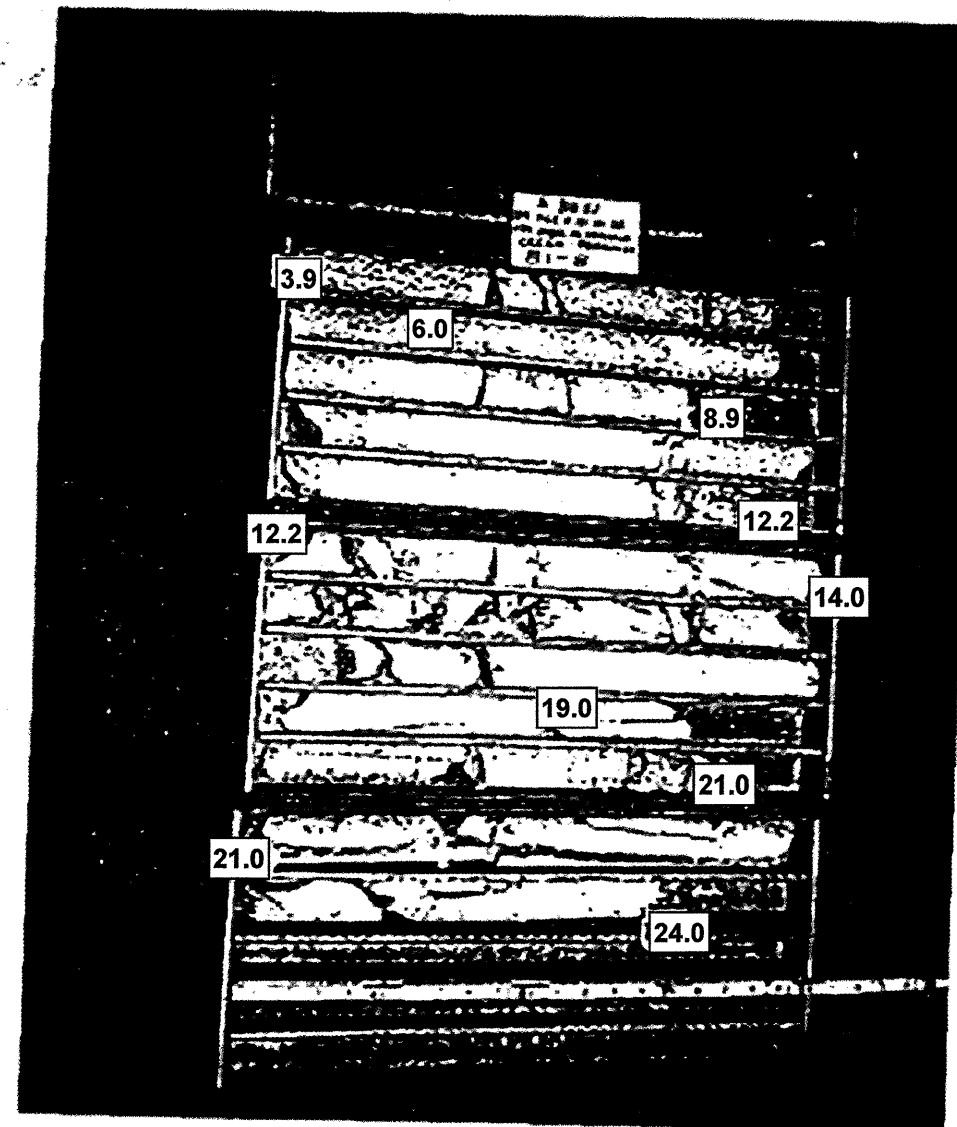
<b>ROCK TEST RESULTS</b>							
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	ROCK TYPE	UNIT WT LB/FT <sup>3</sup>	UNCONFINED COMP. STRENGTH, KSI	SECTION MOD. @ 40% MPSI
RS-4	14 LT	12+58	13.0-13.5	METAVOLCANIC	183.5	4.6	1.89
RS-5	14 LT	12+58	21.5-22.0	GNEISS	170.2	21.9	3.59
RS-6	14 LT	12+58	29.7-30.4	GNEISS	169.9	19.4	4.05

**EB2-B**

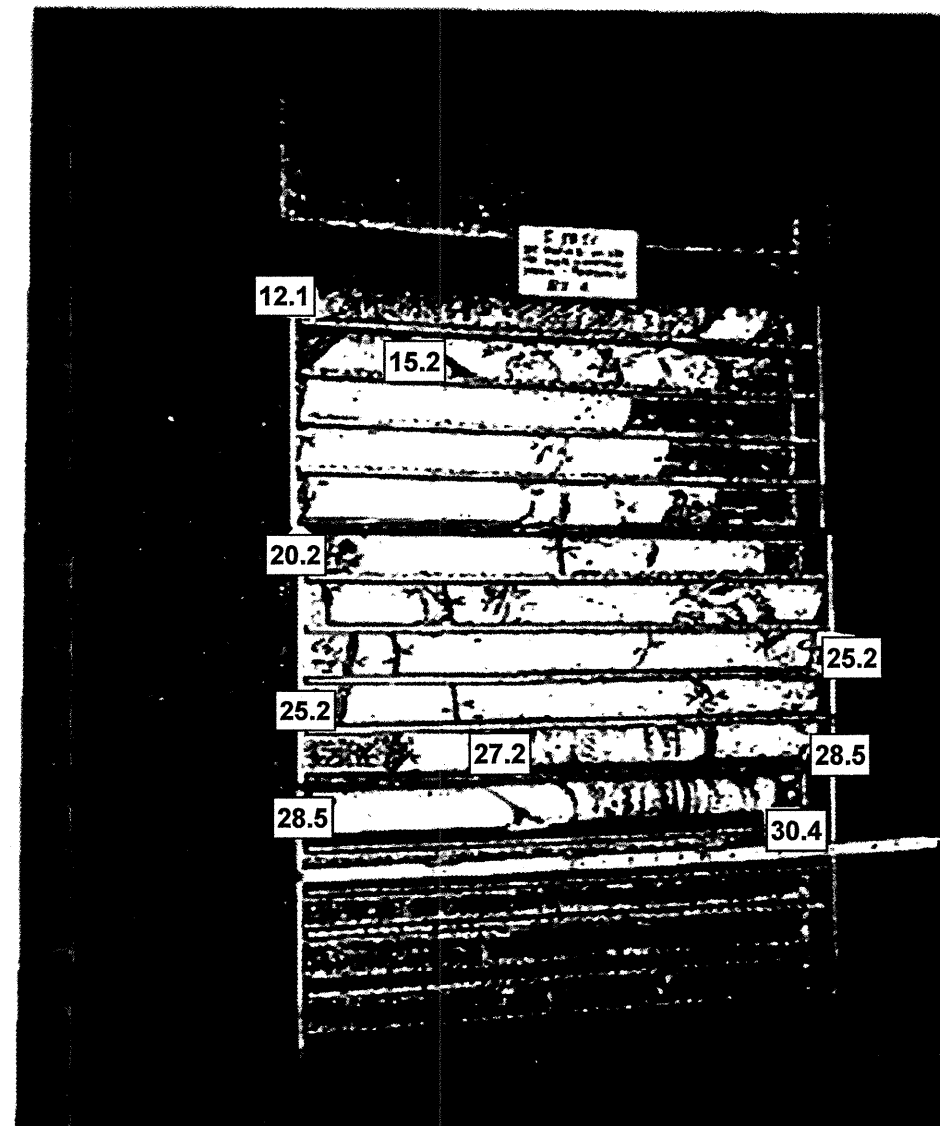
<b>SOIL TEST RESULTS</b>															
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C.SAND	F.SAND	SILT	CLAY	10	40	200		
SS-4	13 RT	12+88	0.0-1.5	A-7-5(20)	58	28	20.0	9.9	23.6	46.5	95	81	69	-	-
SS-5	13 RT	12+88	8.9-10.4	A-4(3)	27	7	6.3	25.5	48.1	20.2	100	98	74	30.1	-

# CORE PHOTOGRAPHS

**BB**  
BOXES 1 - 3: 3.9 - 24.0 FEET



**BA**  
BOXES 1 - 3: 12.1 - 30.4 FEET



*NOTE: Core photos were copied from a previous report dated 7/23/1997. The original boxes are no longer available.*





NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

DIVISION OF HIGHWAYS  
GEOTECHNICAL ENGINEERING UNIT

SUBSURFACE INVESTIGATION

SOIL AND ROCK LEGEND, TERMS, SYMBOLS, AND ABBREVIATIONS

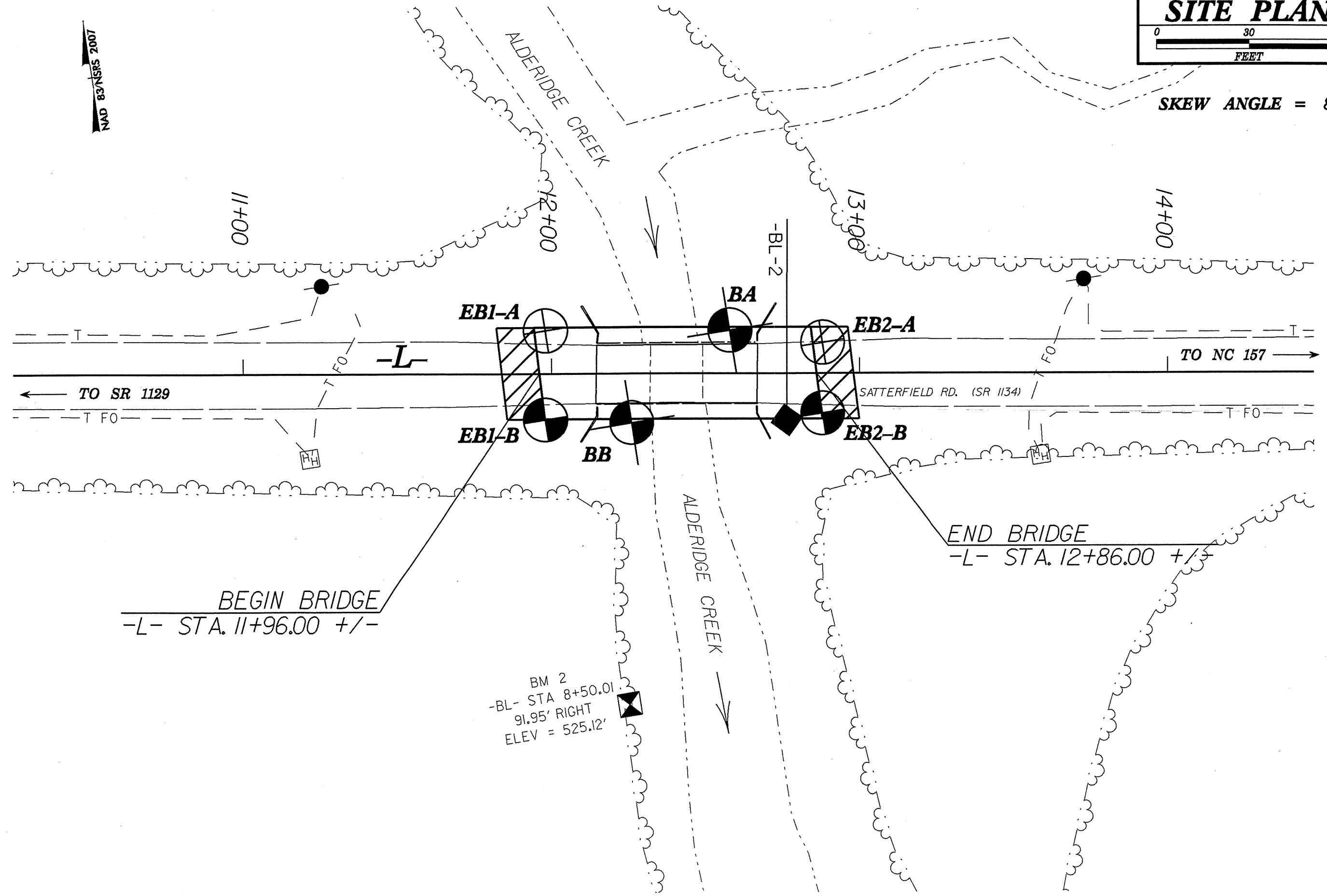
PROJECT REFERENCE NO. 38555.11(B-4784)	SHEET NO. 2
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SOIL DESCRIPTION				GRADATION				ROCK DESCRIPTION				TERMS AND DEFINITIONS											
SOIL IS CONSIDERED TO BE THE UNCONSOLIDATED, SEMI-CONSOLIDATED, OR WEATHERED EARTH MATERIALS THAT CAN BE PENETRATED WITH A CONTINUOUS FLIGHT POWER AUGER, AND YIELD LESS THAN 100 BLOWS PER FOOT ACCORDING TO STANDARD PENETRATION TEST (ASTM D-1586). SOIL CLASSIFICATION IS BASED ON THE AASHTO SYSTEM. BASIC DESCRIPTIONS GENERALLY SHALL INCLUDE: CONSISTENCY, COLOR, TEXTURE, MOISTURE, AASHTO CLASSIFICATION, AND OTHER PERTINENT FACTORS SUCH AS MINERALOGICAL COMPOSITION, ANGULARITY, STRUCTURE, PLASTICITY, ETC. EXAMPLE: <i>VERY STIFF, GRAY, SILTY CLAY, MOST WITH INTERBEDDED FINE SAND LAYERS, HEAVY PLASTIC, A-7-6</i>				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. THE ANGULARITY OR ROUNDNESS OF SOIL GRAINS IS DESIGNATED BY THE TERMS: ANGULAR, SUBANGULAR, SUBROUNDED, OR ROUNDED.				HARD ROCK IS NON-COASTAL PLAIN MATERIAL THAT IF 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:  WEATHERED ROCK (WR)  CRYSTALLINE ROCK (CR)  NON-CRYSTALLINE ROCK (NCR)  COASTAL PLAIN SEDIMENTARY ROCK (CPS)				ALLUVIUM (ALLUV.) - SOILS THAT 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 THAT 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 (FP) - 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 (RES.) SOIL - SOIL FORMED IN PLACE BY THE WEATHERING OF ROCK. ROCK QUALITY DESIGNATION (RQD) - 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 THAT 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, THAT 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 IN OR BPF 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 PENETRATION EQUAL TO OR LESS THAN 0.1 FOOT PER 60 BLOWS. STRATA CORE RECOVERY (SCREC) - TOTAL LENGTH OF STRATA MATERIAL RECOVERED DIVIDED BY TOTAL LENGTH OF STRATUM AND EXPRESSED AS A PERCENTAGE. STRATA ROCK QUALITY DESIGNATION (SRQD) - A MEASURE OF ROCK QUALITY DESCRIBED BY TOTAL LENGTH OF ROCK SEGMENTS WITHIN A STRATUM EQUAL TO OR GREATER THAN 4 INCHES DIVIDED BY THE TOTAL LENGTH OF STRATA AND EXPRESSED AS A PERCENTAGE. TOPSOIL (TS) - SURFACE SOILS USUALLY CONTAINING ORGANIC MATTER.											
SOIL LEGEND AND AASHTO CLASSIFICATION				MINERALOGICAL COMPOSITION				WEATHERING															
GENERAL CLASS. GRANULAR MATERIALS (<= 35% PASSING #200) SILT-CLAY MATERIALS (> 35% PASSING #200) ORGANIC MATERIALS				MINERAL NAMES SUCH AS QUARTZ, FELDSPAR, MICA, TALC, KAOLIN, ETC. ARE USED IN DESCRIPTIONS WHENEVER THEY ARE CONSIDERED OF SIGNIFICANCE.				FRESH ROCK FRESH, CRYSTALLINE BRIGHT, FEW JOINTS MAY SHOW SLIGHT STAINING, ROCK RINGS UNDER HAMMER IF CRYSTALLINE. VERY SLIGHT (V SLI.) ROCK GENERALLY FRESH, JOINTS STAINED, SOME JOINTS MAY SHOW THIN CLAY COATINGS IF OPEN, CRYSTALS ON A BROKEN SPECIMEN FACE SHINE BRIGHTLY. ROCK RINGS UNDER HAMMER BLOWS IF OF A CRYSTALLINE NATURE. SLIGHT (SLI.) ROCK GENERALLY FRESH, JOINTS STAINED AND DISCOLORATION EXTENDS INTO ROCK UP TO 1 INCH. OPEN JOINTS MAY CONTAIN CLAY. IN GRANITOID ROCKS SOME OCCASIONAL FELDSPAR CRYSTALS ARE DULL AND DISCOLORED. CRYSTALLINE ROCKS RING UNDER HAMMER BLOWS. MODERATE (MOD.) SIGNIFICANT PORTIONS OF ROCK SHOW DISCOLORATION AND WEATHERING EFFECTS. IN GRANITOID ROCKS, MOST FELDSPARS ARE DULL AND DISCOLORED, SOME SHOW CLAY. ROCK HAS DULL SOUND UNDER HAMMER BLOWS AND SHOWS SIGNIFICANT LOSS OF STRENGTH AS COMPARED WITH FRESH ROCK. MODERATELY SEVERE (MOD. SEV.) ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. IN GRANITOID ROCKS, ALL FELDSPARS DULL AND DISCOLORED AND A MAJORITY SHOW KAOLINIZATION. ROCK SHOWS SEVERE LOSS OF STRENGTH AND CAN BE EXCAVATED WITH A GEOLOGIST'S PICK. ROCK GIVES "CLUNK" SOUND WHEN STRUCK. IF TESTED, WOULD YIELD SPT REFUSAL. SEVERE (SEV.) ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. ROCK FABRIC CLEAR AND EVIDENT BUT REDUCED IN STRENGTH TO STRONG SOIL. IN GRANITOID ROCKS ALL FELDSPARS ARE KAOLINIZED TO SOME EXTENT. SOME FRAGMENTS OF STRONG ROCK USUALLY REMAIN. IF TESTED, YIELDS SPT N VALUES > 100 BPF. VERY SEVERE (V SEV.) ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. ROCK FABRIC ELEMENTS ARE DISCERNIBLE BUT THE MASS IS EFFECTIVELY REDUCED TO SOIL STATUS, WITH ONLY FRAGMENTS OF STRONG ROCK REMAINING. SAPROLITE IS AN EXAMPLE OF ROCK WEATHERED TO A DEGREE SUCH THAT ONLY MINOR VESTIGES OF THE ORIGINAL ROCK FABRIC REMAIN. IF TESTED, YIELDS SPT N VALUES < 100 BPF. COMPLETE ROCK REDUCED TO SOIL. ROCK FABRIC NOT DISCERNIBLE, OR DISCERNIBLE ONLY IN SMALL AND SCATTERED CONCENTRATIONS. QUARTZ MAY BE PRESENT AS DIKES OR STRINGERS. SAPROLITE IS ALSO AN EXAMPLE.				COMPRESSIBILITY SLIGHTLY COMPRESSIBLE LIQUID LIMIT LESS THAN 31 MODERATELY COMPRESSIBLE LIQUID LIMIT EQUAL TO 31-50 HIGHLY COMPRESSIBLE LIQUID LIMIT GREATER THAN 50				PERCHED WATER, SATURATED ZONE, OR WATER BEARING STRATA							
PERCENTAGE OF MATERIAL				GROUND WATER				MISCELLANEOUS SYMBOLS															
ORGANIC MATERIAL GRANULAR SOILS SILT-CLAY SOILS OTHER MATERIAL				ROADWAY EMBANKMENT (RE) WITH SOIL DESCRIPTION SOIL SYMBOL ARTIFICIAL FILL (AF) OTHER THAN ROADWAY EMBANKMENT INFERRED SOIL BOUNDARY INFERRED ROCK LINE ALLUVIAL SOIL BOUNDARY DIP & DIP DIRECTION OF ROCK STRUCTURES				TEST BORING W/ CORE AUGER BORING CORE BORING MONITORING WELL PIEZOMETER INSTALLATION SLOPE INDICATOR INSTALLATION CONE PENETROMETER TEST SOUNDING ROD															
CONSISTENCY OR DENSENESS				ABBREVIATIONS				ROCK HARDNESS															
PRIMARY SOIL TYPE COMPACTNESS OR CONSISTENCY RANGE OF STANDARD PENETRATION RESISTANCE (N-VALUE) RANGE OF UNCONFINED COMPRESSIVE STRENGTH (TONS/FT <sup>2</sup> )				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, FRACTURES FRAGS. - FRAGMENTS HI. - HIGHLY				VST - VANE SHEAR TEST WEA. - WEATHERED UNIT WEIGHT DRY UNIT WEIGHT SAMPLE ABBREVIATIONS S - BULK SS - SPLIT SPOON ST - SHELBY TUBE RS - ROCK RT - RECOMPACTED TRIAXIAL CBR - CALIFORNIA BEARING RATIO				VERY HARD CANNOT BE SCRATCHED BY KNIFE OR SHARP PICK. BREAKING OF HAND SPECIMENS REQUIRES SEVERAL HARD BLOWS OF THE GEOLOGIST'S PICK. HARD CAN BE SCRATCHED BY KNIFE OR PICK ONLY WITH DIFFICULTY. HARD HAMMER BLOWS REQUIRED TO DETACH HAND SPECIMEN. MODERATELY HARD CAN BE SCRATCHED BY KNIFE OR PICK. GOUGES OR GROOVES TO 0.25 INCHES DEEP CAN BE EXCAVATED BY HARD BLOW OF A GEOLOGIST'S PICK. HAND SPECIMENS CAN BE DETACHED BY MODERATE BLOWS. MEDIUM HARD CAN BE GROOVED OR GOUGED 0.05 INCHES DEEP BY FIRM PRESSURE OF KNIFE OR PICK POINT. CAN BE EXCAVATED IN SMALL CHIPS TO PIECES 1 INCH MAXIMUM SIZE BY HARD BLOWS OF THE POINT OF A GEOLOGIST'S PICK. SOFT CAN BE GROOVED OR GOUGED READILY BY KNIFE OR PICK. CAN BE EXCAVATED IN FRAGMENTS FROM CHIPS TO SEVERAL INCHES IN SIZE BY MODERATE BLOWS OF A PICK POINT. SMALL, THIN PIECES CAN BE BROKEN BY FINGER PRESSURE. VERY SOFT CAN BE CARVED WITH KNIFE. CAN BE EXCAVATED READILY WITH POINT OF PICK. PIECES 1 INCH OR MORE IN THICKNESS CAN BE BROKEN BY FINGER PRESSURE. CAN BE SCRATCHED READILY BY FINGER NAIL.											
TEXTURE OR GRAIN SIZE				EQUIPMENT USED ON SUBJECT PROJECT				FRACTURE SPACING				BEDDING											
U.S. STD. SIEVE SIZE OPENING (MM) BOULDER (BLDR.) COBBLE (COB.) GRAVEL (GR.) COARSE SAND (CSE, SD.) FINE SAND (F SD.) SILT (SL.) CLAY (CL.)				DRILL UNITS: MOBILE B- BK-51 CME-45C CME-550 PORTABLE HOIST CME-45B				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											
SOIL MOISTURE - CORRELATION OF TERMS				HAMMER TYPE: AUTOMATIC MANUAL CORE SIZE: -B -N, WD4 -H HAND TOOLS: POST HOLE DIGGER HAND AUGER SOUNDING ROD VANE SHEAR TEST				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: ELEVATION: FT. NOTES: GEU USED GPK FILE DATED 11/4/11 AND TIN FILE DATED 1/26/12 TO GENERATE CROSS SECTIONS AND PROFILE.											
PLASTICITY				INDURATION																			
PLASTICITY INDEX (PI) DRY STRENGTH																							
NONPLASTIC LOW PLASTICITY MED. PLASTICITY HIGH PLASTICITY																							
COLOR																							
DESCRIPTIONS MAY INCLUDE COLOR OR COLOR COMBINATIONS (TAN, RED, YELLOW-BROWN, BLUE-GRAY). MODIFIERS SUCH AS LIGHT, DARK, STREAKED, ETC. ARE USED TO DESCRIBE APPEARANCE.																							

PROJECT REFERENCE NO.	SHEET
38555.1.1(B-4784)	3
<b>SITE PLAN</b>	

NAD 83/NSRS 2007

**SKEW ANGLE = 83°**



**BEGIN BRIDGE**  
-L- STA. 11+96.00 +/-

BM 2  
-BL- STA 8+50.01  
91.95' RIGHT  
ELEV = 525.12'

**END BRIDGE**  
-L- STA. 12+86.00 +/-

← TO SR 1129

TO NC 157 →

SATTERFIELD RD. (SR 1134)

11+00

12+00

13+00

14+00

**EB1-A**

**BA**

**EB2-A**

**EB1-B**

**BB**

**EB2-B**

-BL-2

-L-

-L-

T F0

T F0

PH

PH

ALDERIDGE CREEK







**NCDOT GEOTECHNICAL ENGINEERING UNIT**  
**BORELOG REPORT**

WBS 38555.1.1		TIP B-4784		COUNTY PERSON		GEOLOGIST Clayton, C.S.									
SITE DESCRIPTION BRIDGE NO. 31 ON -L- (SR 1134) OVER ALDERIDGE CREEK							GROUND WTR (ft)								
BORING NO. EB1-A		STATION 11+98		OFFSET 14 ft LT		ALIGNMENT -L-									
COLLAR ELEV. 530.6 ft		TOTAL DEPTH 10.2 ft		NORTHING 919,204		EASTING 1,998,914									
DRILL RIG/HAMMER EFF./DATE CME-45B			DRILL METHOD Solid Augers			HAMMER TYPE Automatic									
DRILLER Smith, S.M.		START DATE 05/13/97		COMP. DATE 05/14/97		SURFACE WATER DEPTH N/A									
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	L O G	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100					
535															
530															
525															

WBS 38555.1.1		TIP B-4784		COUNTY PERSON		GEOLOGIST Clayton, C.S.									
SITE DESCRIPTION BRIDGE NO. 31 ON -L- (SR 1134) OVER ALDERIDGE CREEK							GROUND WTR (ft)								
BORING NO. EB1-B		STATION 11+98		OFFSET 15 ft RT		ALIGNMENT -L-									
COLLAR ELEV. 529.2 ft		TOTAL DEPTH 9.0 ft		NORTHING 919,176		EASTING 1,998,910									
DRILL RIG/HAMMER EFF./DATE CME-45B			DRILL METHOD H.S. Augers			HAMMER TYPE Automatic									
DRILLER Smith, S.M.		START DATE 05/13/97		COMP. DATE 05/13/97		SURFACE WATER DEPTH N/A									
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	L O G	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100					
530	529.2	0.0													
525	525.4	3.8													
	520.4	8.8													

NCDOT BORE DOUBLE B4784\_GEO\_BH\_BRD0031.GPJ NC\_DOT\_GDT 2/20/12





WBS 38555.1.1	TIP B-4784	COUNTY PERSON	GEOLOGIST Clayton, C.S.
SITE DESCRIPTION BRIDGE NO. 31 ON -L- (SR 1134) OVER ALDERIDGE CREEK			GROUND WTR (ft)
BORING NO. BA	STATION 12+58	OFFSET 14 ft LT	ALIGNMENT -L-
COLLAR ELEV. 521.8 ft	TOTAL DEPTH 30.4 ft	NORTHING 919,195	EASTING 1,998,973
DRILL RIG/HAMMER EFF./DATE CME-45B		DRILL METHOD NW Casing W/SPT & Core	HAMMER TYPE Automatic
DRILLER Smith, S.M.	START DATE 05/14/97	COMP. DATE 05/14/97	SURFACE WATER DEPTH N/A

WBS 38555.1.1	TIP B-4784	COUNTY PERSON	GEOLOGIST Clayton, C.S.
SITE DESCRIPTION BRIDGE NO. 31 ON -L- (SR 1134) OVER ALDERIDGE CREEK			GROUND WTR (ft)
BORING NO. BA	STATION 12+58	OFFSET 14 ft LT	ALIGNMENT -L-
COLLAR ELEV. 521.8 ft	TOTAL DEPTH 30.4 ft	NORTHING 919,195	EASTING 1,998,973
DRILL RIG/HAMMER EFF./DATE CME-45B		DRILL METHOD NW Casing W/SPT & Core	HAMMER TYPE Automatic
DRILLER Smith, S.M.	START DATE 05/14/97	COMP. DATE 05/14/97	SURFACE WATER DEPTH N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100					
525															
	521.8	0.0												521.8	0.0
520			WOH	WOH	WOH										
	518.0	3.8	1	2	2									519.4	2.4
515															
	515.4	6.4	1	4	8									513.4	8.4
	512.9	8.9	19	45	55/0.3									509.7	12.1
510															
														506.6	15.2
505															
500															
495														491.4	30.4

ELEV (ft)	RUN ELEV (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	RUN		SAMP. NO.	STRATA		LOG	DESCRIPTION AND REMARKS	DEPTH (ft)
					REC. (%)	RQD (%)		REC. (%)	RQD (%)			
509.7												
	509.7	12.1	3.1	1:31/1.0 2:02/1.0 2:05/1.0	(2.3) 74%	(1.5) 48%	RS-4	(2.3) 74%	(1.5) 48%		Begin Coring @ 12.1 ft CRYSTALLINE ROCK	12.1
	506.6	15.2		0:24/0.1 2:00/1.0 4:27/1.0 4:42/1.0 3:31/1.0 4:16/1.0	(4.9) 98%	(4.7) 94%		(15.0) 99%	(14.2) 93%		GREEN-BROWN, SEVERELY TO VERY SLIGHTLY WEATHERED, MODERATELY HARD, MODERATELY CLOSE FRACTURE SPACING, METAVOLCANIC TUFF	15.2
505			5.0									
	501.6	20.2										
500			5.0	4:30/1.0 3:02/1.0 2:32/1.0 3:27/1.0 4:46/1.0	(5.0) 100%	(4.8) 96%	RS-5					
	496.6	25.2										
495			2.0	5:16/1.0 7:15/1.0	(2.0) 100%	(2.0) 100%						
	494.6	27.2										
	491.4	30.4	3.2	0:42/0.2 5:19/1.0 7:50/1.0 9:14/1.0	(3.1) 97%	(2.7) 84%	RS-6					

**NCDOT GEOTECHNICAL ENGINEERING UNIT**  
**BORELOG REPORT**

WBS 38555.1.1	TIP B-4784	COUNTY PERSON	GEOLOGIST Clayton, C.S.
SITE DESCRIPTION BRIDGE NO. 31 ON -L- (SR 1134) OVER ALDERIDGE CREEK			GROUND WTR (ft)
BORING NO. EB2-A	STATION 12+88	OFFSET 10 ft LT	ALIGNMENT -L-
COLLAR ELEV. 531.7 ft	TOTAL DEPTH 14.8 ft	NORTHING 919,186	EASTING 1,999,002
DRILL RIG/HAMMER EFF./DATE CME-45B		DRILL METHOD Solid Augers	HAMMER TYPE Automatic
DRILLER Smith, S.M.	START DATE 05/13/97	COMP. DATE 05/13/97	SURFACE WATER DEPTH N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)
			0.5ft	0.5ft	0.5ft	0	25	50	75	100				
535														
													531.7	0.0
530														ROADWAY EMBANKMENT RED-ORANGE-BROWN, SILTY CLAY WITH TRACE GRAVEL
525														
520													522.0	9.7
														ALLUVIAL GRAY-BROWN, SANDY SILT
													518.4	13.3
													516.9	14.8
														WEATHERED ROCK (FELSIC METAVOLCANIC ROCK) Boring Terminated by Auger Refusal at Elevation 516.9 ft on CRYSTALLINE ROCK (FELSIC METAVOLCANIC ROCK)

WBS 38555.1.1	TIP B-4784	COUNTY PERSON	GEOLOGIST Clayton, C.S.
SITE DESCRIPTION BRIDGE NO. 31 ON -L- (SR 1134) OVER ALDERIDGE CREEK			GROUND WTR (ft)
BORING NO. EB2-B	STATION 12+88	OFFSET 13 ft RT	ALIGNMENT -L-
COLLAR ELEV. 531.0 ft	TOTAL DEPTH 14.1 ft	NORTHING 919,164	EASTING 1,998,999
DRILL RIG/HAMMER EFF./DATE CME-45B		DRILL METHOD H.S. Augers	HAMMER TYPE Automatic
DRILLER Smith, S.M.	START DATE 05/13/97	COMP. DATE 05/13/97	SURFACE WATER DEPTH N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100					
535															
													531.0	0.0	
530	531.0	0.0				2	2	3				SS-4	M		ROADWAY EMBANKMENT RED-ORANGE, SILTY CLAY
													528.5	2.5	
														ORANGE-BROWN, SANDY CLAY	
525	527.1	3.9				3	4	5					M		
													522.1	8.9	
														ALLUVIAL BROWN-GRAY, SANDY SILT	
520	522.1	8.9				1	1	1				SS-5	30%		
													517.6	13.4	
													517.1	13.9	
													516.9	14.1	
														WEATHERED ROCK (FELSIC METAVOLCANIC ROCK) CRYSTALLINE ROCK (FELSIC METAVOLCANIC ROCK) Boring Terminated by Auger Refusal at Elevation 516.9 ft in CRYSTALLINE ROCK (FELSIC METAVOLCANIC ROCK)	

NCDOT BORE DOUBLE B4784\_GEO\_BH\_BRD00031.GPJ NC\_DOT.GDT 2/20/12

**PROJ. NO. - 38555.1.1**  
**ID NO. - B-4784**  
**COUNTY - PERSON**

**EB1-B**

<b>SOIL TEST RESULTS</b>															
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C.SAND	F.SAND	SILT	CLAY	10	40	200		
SS-1	15 RT	11+98	0.5-1.5	A-7-5(25)	65	32	17.4	9.5	20.6	52.5	96	84	72	-	-
SS-2	15 RT	11+98	3.8-5.3	A-6(6)	35	14	27.5	14.1	26.1	32.3	97	78	59	-	-
S-3	15 RT	11+98	6.5-8.0	A-4(2)	31	9	27.1	14.7	29.9	28.3	80	64	49	-	-

**BB**

<b>SOIL TEST RESULTS</b>															
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C.SAND	F.SAND	SILT	CLAY	10	40	200		
SS-8	16 RT	12+26	0.0-1.5	A-2-4(0)	19	NP	35.6	33.1	23.2	8.1	100	91	35	-	-

<b>ROCK TEST RESULTS</b>							
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	ROCK TYPE	UNIT WT LB/FT <sup>3</sup>	UNCONFINED COMP. STRENGTH, KSI	SECTION MOD. @ 40% MPSI
RS-1	16 RT	12+26	5.6-6.0	GNEISS	171.2	20	3.63
RS-2	16 RT	12+26	13.0-13.5	GNEISS	171.3	9.5	2.42
RS-3	16 RT	12+26	19.5-20.2	METAVOLCANIC	171.8	9.9	7.42

**BA**

<b>SOIL TEST RESULTS</b>															
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C.SAND	F.SAND	SILT	CLAY	10	40	200		
SS-6	14 LT	12+58	0.0-1.5	A-1-b(0)	15	NP	81.6	9.9	5.5	3.0	98	36	9	-	-
SS-7	14 LT	12+58	3.8-5.3	A-4(0)	19	3	24.6	34.5	26.7	14.1	100	92	45	-	-

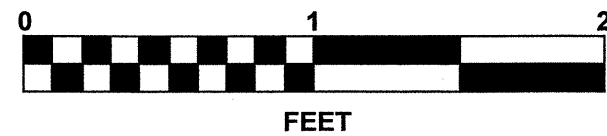
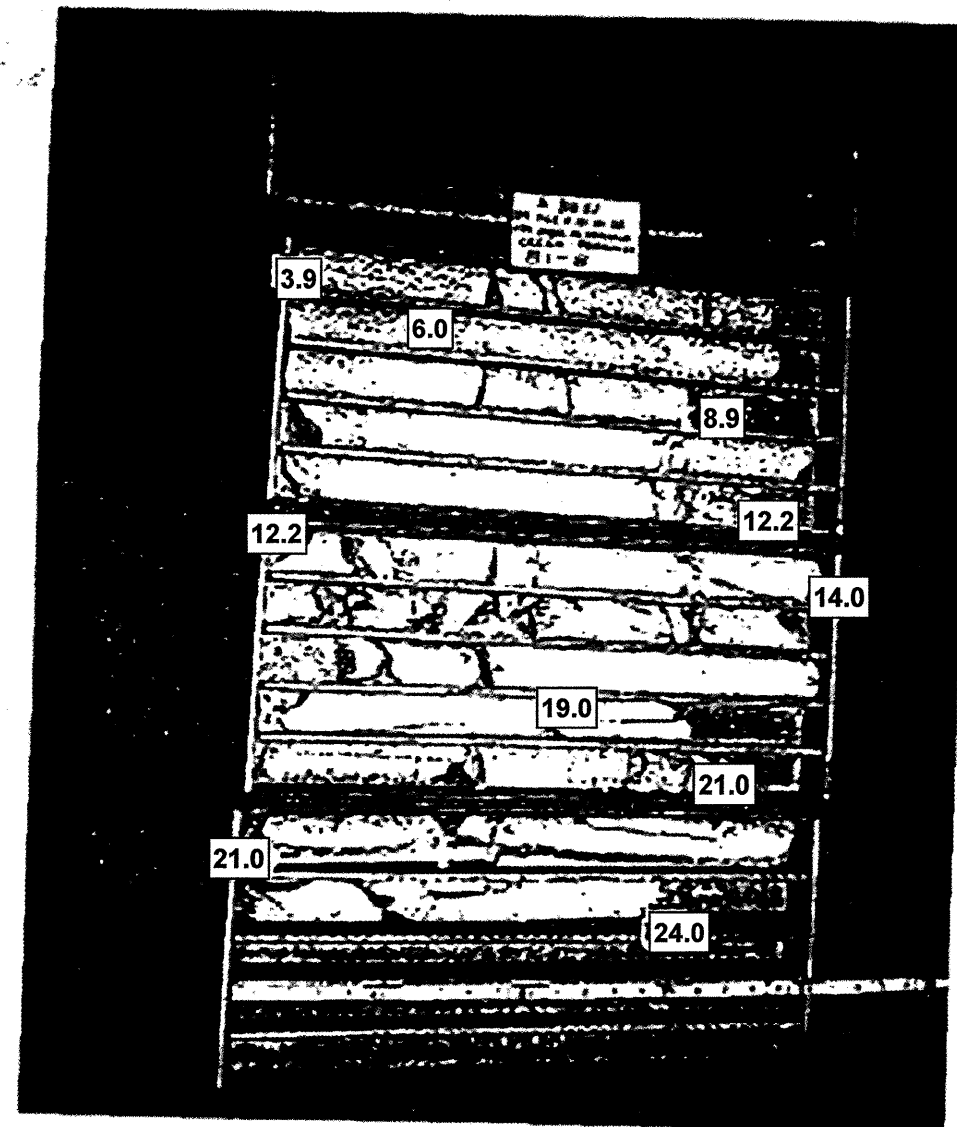
<b>ROCK TEST RESULTS</b>							
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	ROCK TYPE	UNIT WT LB/FT <sup>3</sup>	UNCONFINED COMP. STRENGTH, KSI	SECTION MOD. @ 40% MPSI
RS-4	14 LT	12+58	13.0-13.5	METAVOLCANIC	183.5	4.6	1.89
RS-5	14 LT	12+58	21.5-22.0	GNEISS	170.2	21.9	3.59
RS-6	14 LT	12+58	29.7-30.4	GNEISS	169.9	19.4	4.05

**EB2-B**

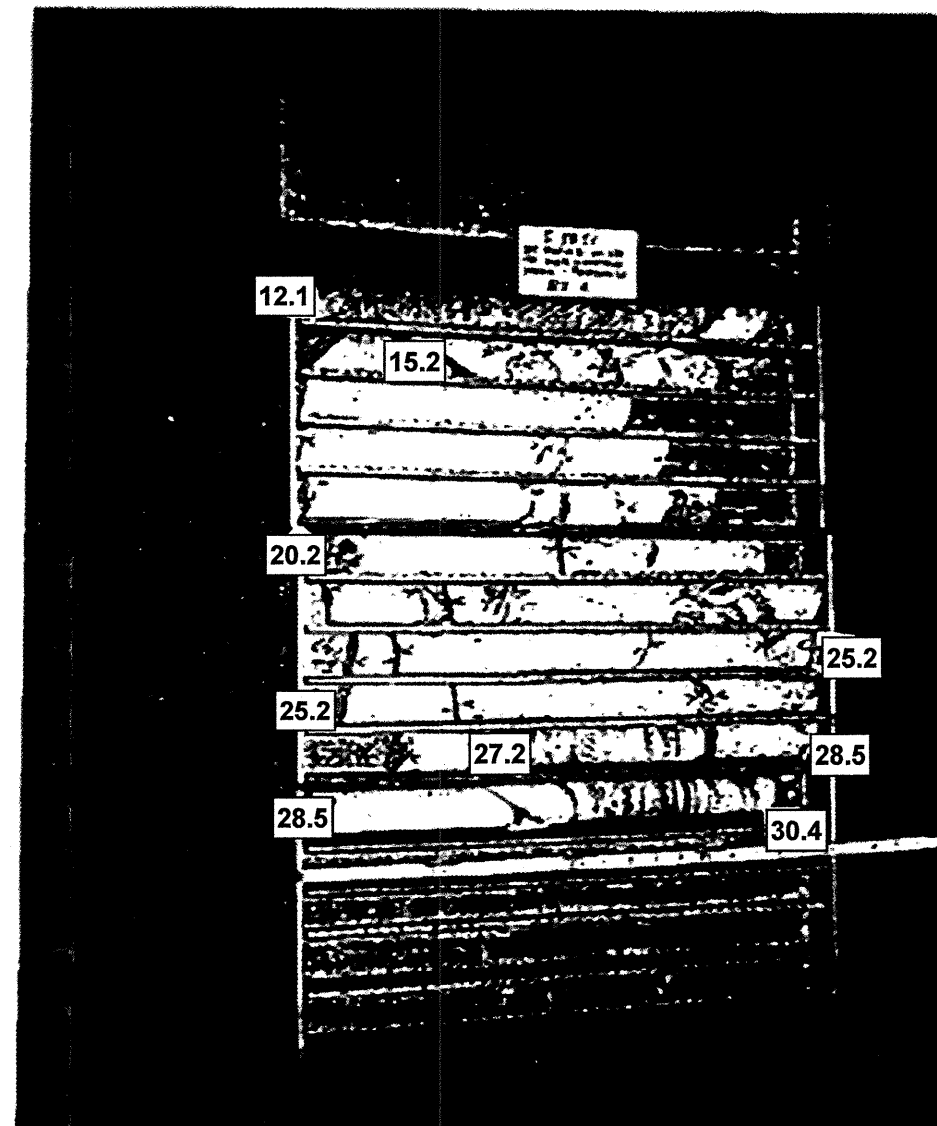
<b>SOIL TEST RESULTS</b>															
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C.SAND	F.SAND	SILT	CLAY	10	40	200		
SS-4	13 RT	12+88	0.0-1.5	A-7-5(20)	58	28	20.0	9.9	23.6	46.5	95	81	69	-	-
SS-5	13 RT	12+88	8.9-10.4	A-4(3)	27	7	6.3	25.5	48.1	20.2	100	98	74	30.1	-

# CORE PHOTOGRAPHS

**BB**  
BOXES 1 - 3: 3.9 - 24.0 FEET



**BA**  
BOXES 1 - 3: 12.1 - 30.4 FEET



*NOTE: Core photos were copied from a previous report dated 7/23/1997. The original boxes are no longer available.*