

PROJECT: 50000.1.STR20T1B ID: (P-5208E)

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

STATE	STATE PROJECT REFERENCE NO.	SHEET	TOTAL SHEETS
N.C.	50000.1.STR20T1B	1	15

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STRUCTURE
SUBSURFACE INVESTIGATION

PROJ. REFERENCE NO. 50000.1.STR20T1B(P-5208E) F.A. PROJ. ARRA
 COUNTY CABARRUS
 PROJECT DESCRIPTION CALDWELL PARK DRIVE EXTENSION
GRADE SEPARATION
 SITE DESCRIPTION BRIDGE ON -L- (CALDWELL PARK DRIVE
EXTENSION) OVER BACK CREEK

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 1991 TOL-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.

PERSONNEL

J. WILLIAMSON

J. BRANDSEN

M.B. MOSELEY

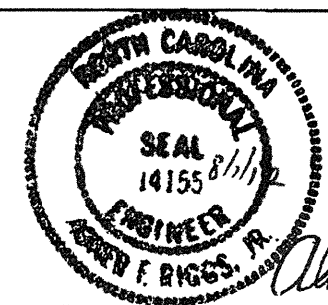
M.G. MOSELEY

INVESTIGATED BY S&ME, INC.

CHECKED BY A.F. RIGGS, JR.

SUBMITTED BY S&ME, INC.

DATE JUNE 2012



DRAWN BY: B. RATTI

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.

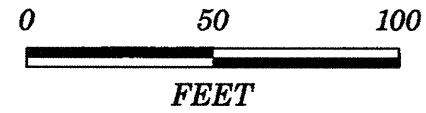
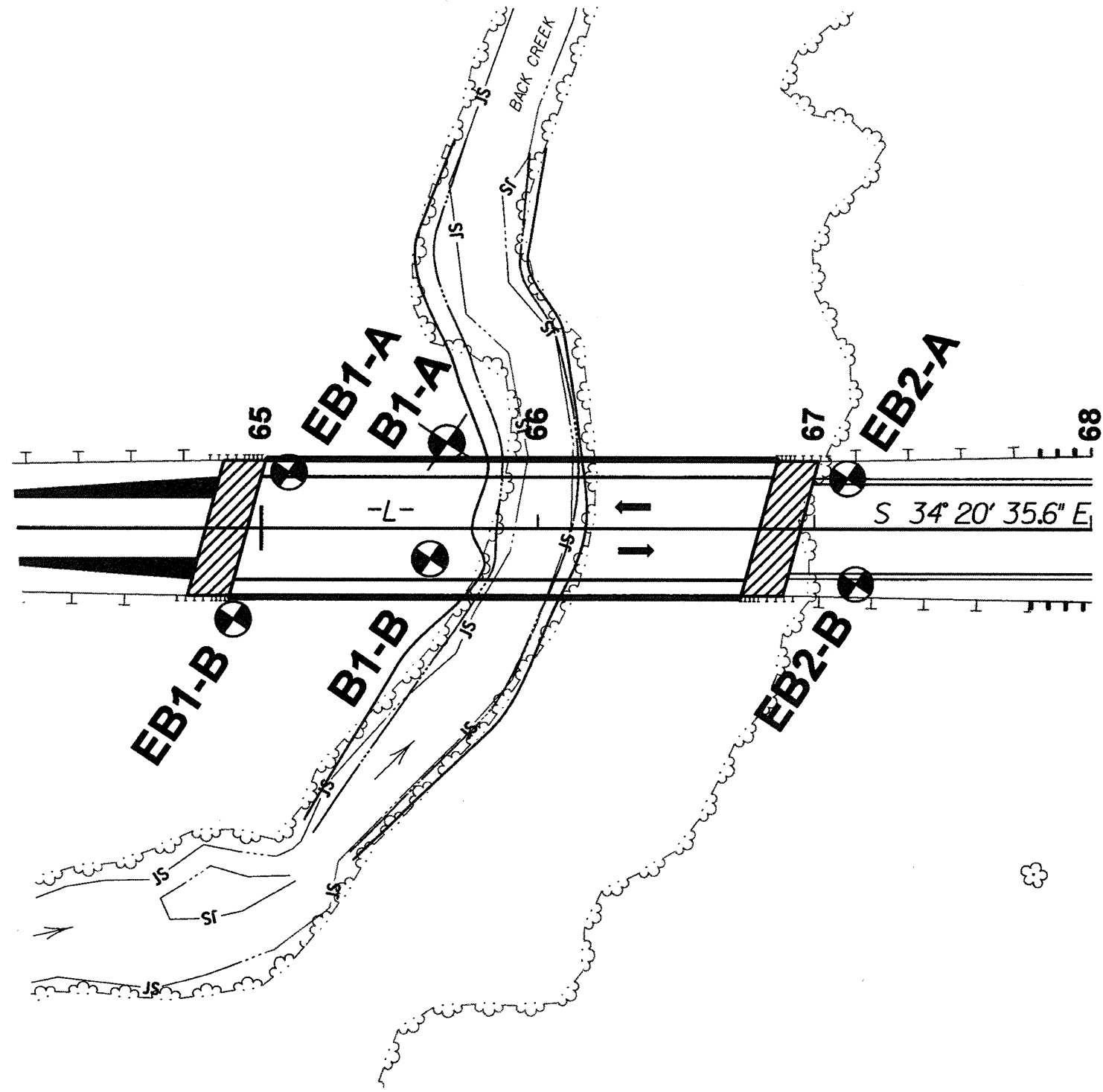
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
GEOTECHNICAL ENGINEERING UNIT

PROJECT REFERENCE NO. 50000.I.STR201B (P-5208E) SHEET NO. 2

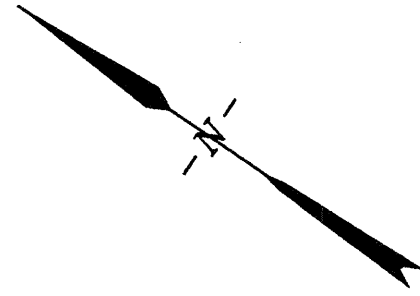
SUBSURFACE INVESTIGATION

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 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, HIGH 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)  NON-COASTAL PLAIN MATERIAL THAT WOULD YIELD SPT N VALUES > 100 BLOWS PER FOOT IF TESTED. CRYSTALLINE ROCK (CR)  FINE TO COARSE GRAIN IGNEOUS AND METAMORPHIC ROCK THAT WOULD YIELD SPT REFUSAL IF TESTED. ROCK TYPE INCLUDES GRANITE, GNEISS, GABBRO, SCHIST, ETC. NON-CRYSTALLINE ROCK (NCR)  FINE TO COARSE GRAIN METAMORPHIC AND NON-COASTAL PLAIN SEDIMENTARY ROCK THAT WOULD YIELD SPT REFUSAL IF TESTED. ROCK TYPE INCLUDES PHYLLITE, SLATE, SANDSTONE, ETC. COASTAL PLAIN SEDIMENTARY ROCK (CPS)  COASTAL PLAIN SEDIMENTS CEMENTED INTO ROCK, BUT MAY NOT YIELD SPT REFUSAL. ROCK TYPE INCLUDES LIMESTONE, SANDSTONE, CEMENTED SHELL BEDS, ETC.		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 DISLOGGED FROM PARENT MATERIAL. FLOOD PLAIN (FP) - LAND BORDERING A STREAM, BUILT OF SEDIMENTS DEPOSITED BY THE STREAM. FORMATION (FML) - 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, CRYSTALS BRIGHT, FEW JOINTS MAY SHOW SLIGHT STAINING, ROCK RINGS UNDER HAMMER IF CRYSTALLINE. VERY SLIGHT (V SL.) 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 (SL.) 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 DISCLORED. 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 DISCLORED, 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 DISCLORED OR STAINED. IN GRANITOID ROCKS, ALL FELDSPARS DULL AND DISCLORED 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 DISCLORED 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 DISCLORED 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.		SLIGHTLY COMPRESSIBLE LIQUID LIMIT LESS THAN 31 MODERATELY COMPRESSIBLE LIQUID LIMIT EQUAL TO 31-50 HIGHLY COMPRESSIBLE LIQUID LIMIT GREATER THAN 50		FRESH VERY SLIGHT (V SL.) SLIGHT (SL.) MODERATE (MOD.) MODERATELY SEVERE (MOD. SEV.) SEVERE (SEV.) VERY SEVERE (V SEV.) COMPLETE			
CONSISTENCY OR DENSENESS		GROUND WATER		MISCELLANEOUS SYMBOLS							
PRIMARY SOIL TYPE COMPACTNESS OR CONSISTENCY RANGE OF STANDARD PENETRATION RESISTANCE (N-VALUE) RANGE OF UNCONFINED COMPRESSIVE STRENGTH (TONS/FT ²)		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		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 WITH SPT DMT VST PWT AUGER BORING CORE BORING MONITORING WELL PIEZOMETER INSTALLATION SLOPE INDICATOR INSTALLATION CORE PENETROMETER TEST SOUNDING ROD					
TEXTURE OR GRAIN SIZE		ABBREVIATIONS		EQUIPMENT USED ON SUBJECT PROJECT							
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 MDO. - MODERATELY NP - NON PLASTIC ORG. - ORGANIC PMT - PRESSUREMETER TEST SAP. - SAPROLITIC SO. - 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		DRILL UNITS: <input type="checkbox"/> MOBILE B- <input type="checkbox"/> BK-51 <input type="checkbox"/> CME-45C <input type="checkbox"/> CME-550 <input type="checkbox"/> PORTABLE MOIST <input checked="" type="checkbox"/> DIEDRICH D-50		ADVANCING TOOLS: <input type="checkbox"/> CLAY BITS <input type="checkbox"/> 6" CONTINUOUS FLIGHT AUGER <input type="checkbox"/> 8" HOLLOW AUGERS <input type="checkbox"/> HARD FACED FINGER BITS <input type="checkbox"/> TUNG-CARBIDE INSERTS <input type="checkbox"/> CASING <input type="checkbox"/> W/ ADVANCER <input type="checkbox"/> TRICONE _____ STEEL TEETH <input type="checkbox"/> TRICONE _____ TUNG-CARB. <input checked="" type="checkbox"/> CORE BIT <input checked="" type="checkbox"/> 3/4" H.S.A.		HAMMER TYPE: <input checked="" type="checkbox"/> AUTOMATIC <input type="checkbox"/> MANUAL CORE SIZE: <input type="checkbox"/> -B- <input type="checkbox"/> -N- <input type="checkbox"/> -H- HAND TOOLS: <input type="checkbox"/> POST HOLE DIGGER <input type="checkbox"/> HAND AUGER <input type="checkbox"/> SOUNDING ROD <input type="checkbox"/> VANE SHEAR TEST			
SOIL MOISTURE - CORRELATION OF TERMS		FRACTURE SPACING		BEDDING							
SOIL MOISTURE SCALE (ATTERBERG LIMITS) FIELD MOISTURE DESCRIPTION GUIDE FOR FIELD MOISTURE DESCRIPTION		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							
PLASTICITY		INDURATION									
PLASTICITY INDEX (PI) DRY STRENGTH NONPLASTIC 0-5 VERY LOW LOW PLASTICITY 6-15 SLIGHT MED. PLASTICITY 16-25 MEDIUM HIGH PLASTICITY 26 OR MORE HIGH		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		BENCH MARK: BM #105 R/R SPIKE SET IN FIRST JOINT OF CONC. C&G EOP ON EAST SIDE OF PRIVATE DRIVE STA. 360+18.91 163.38' RT -BL- ELEVATION: 664.51 FT.		NOTES: FIAD - FILLED IN AFTER DRILLING ST-1 SHELBY TUBE SPT LAB RESULTS							
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.											



SKIEW ANGLE FOR BENTS 105° TYPICAL



BORING LOCATION PLAN
 BRIDGE ON CALDWELL PARK DRIVE EXTENSION -L-
 OVER BACK CREEK
 STATE PROJ NO. 50000.1.STR20T1B TIP NO. P5208E
 FEDERAL I.D. NO. ARRA
 CABARRUS COUNTY, NORTH CAROLINA



WWW.SMEINC.COM
 NC ENGINEER LICENSE #F-0176
 3201 SPRING FOREST RD., RALEIGH, NC 27616

SCALE: 1" = 50'

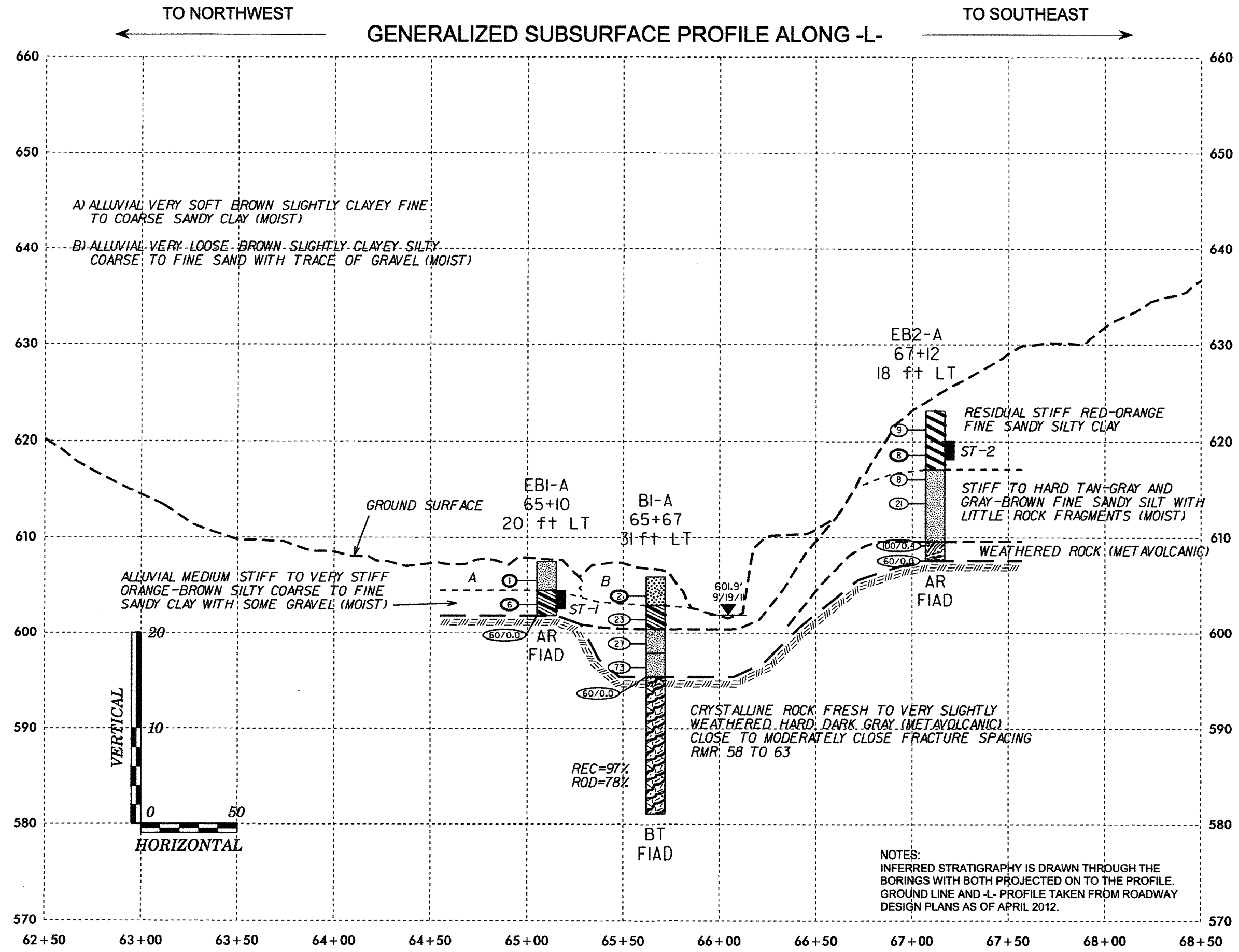
DATE: JUNE 2012

JOB NO:

APPROVED BY: AFR

DRAWN BY: BTR

SHEET: 3



NOTES:
 INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ON TO THE PROFILE. GROUND LINE AND -L- PROFILE TAKEN FROM ROADWAY DESIGN PLANS AS OF APRIL 2012.

GENERALIZED SUBSURFACE PROFILE ALONG -L-
 BRIDGE ON CALDWELL PARK DRIVE EXTENSION -L-
 OVER BACK CREEK
 STATE PROJ. NO. 50000.1.STR20T1B TIP NO. P5208E
 FEDERAL I.D. NO. ARRA
 CABARRUS COUNTY, NORTH CAROLINA

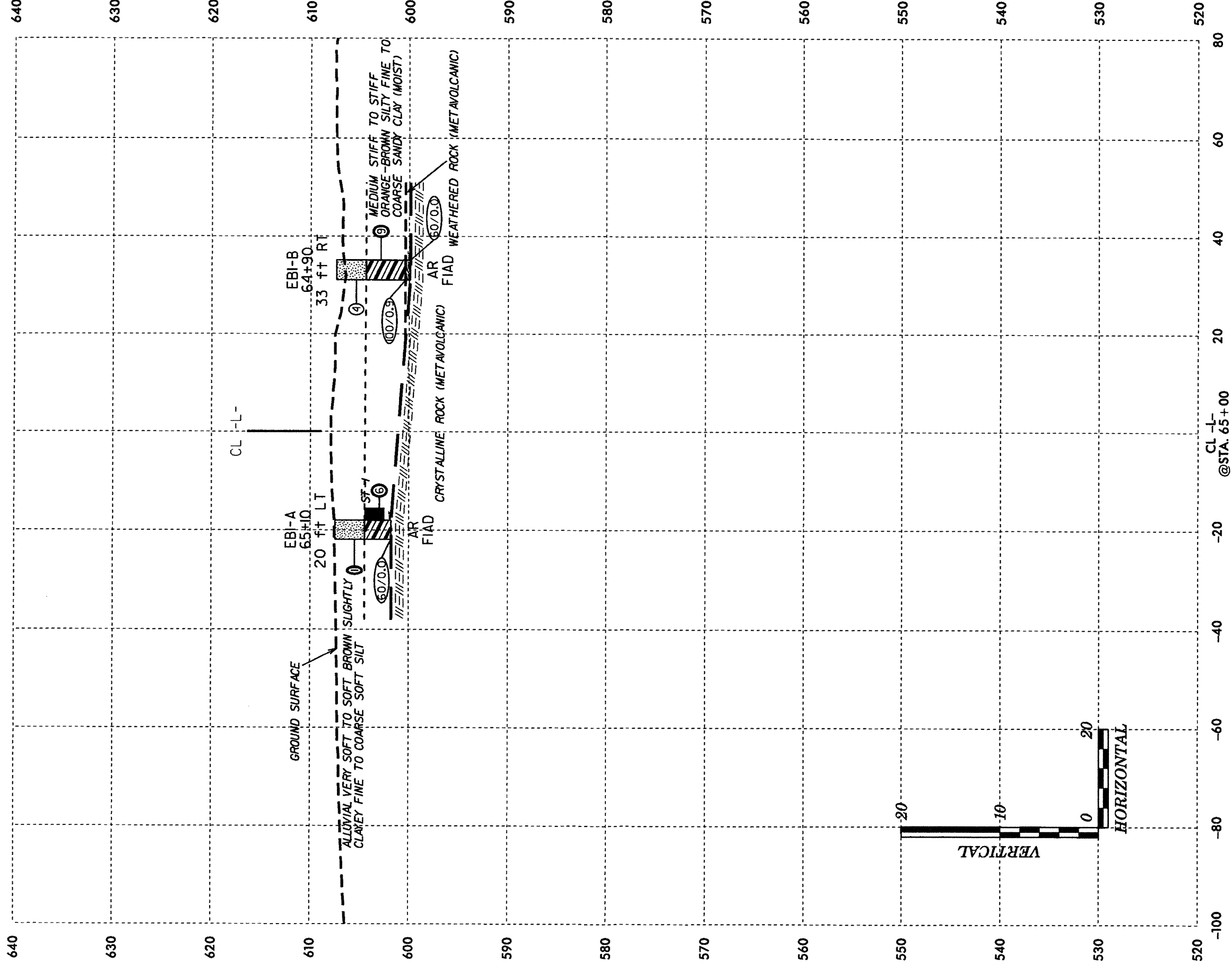
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 WWW.SMEINC.COM
 NC ENGINEER LICENSE # 0176
 3201 SPRING FOREST RD, RALEIGH, NC 27616

APPROVED BY: AFR	DRAWN BY: BTR
SCALE: VERT. 1" = 10' HOR. 1" = 50'	DATE: JUNE 2012
JOB NO:	SHEET: 4

CROSS SECTION THROUGH END BENT 1

TO NORTHWEST ←

→ TO NORTHEAST



NOTES:
 INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH
 BOTH PROJECTED ON TO THE CROSS SECTION GROUND LINE
 AND -L- CROSS SECTION TAKEN FROM TIN FILE "p5208g_ls_tin.dgn"

CROSS SECTION THROUGH END BENT 1

BRIDGE ON CALDWELL PARK DRIVE EXTENSION -L-
 OVER BACK CREEK
 STATE PROJ NO. 50000.1.STR20T1B TIP NO. P5208E
 FEDERAL I.D. NO. ARRA
 CABARRUS COUNTY, NORTH CAROLINA



WWW.SMEINC.COM

NC ENGINEER LICENSE #F-0176
 3201 SPRING FOREST RD, RALEIGH, NC 27616

SCALE: VERT. 1" = 10'
 HOR. 1" = 20'

DATE: JUNE 2012

JOB NO:

APPROVED BY: AFR

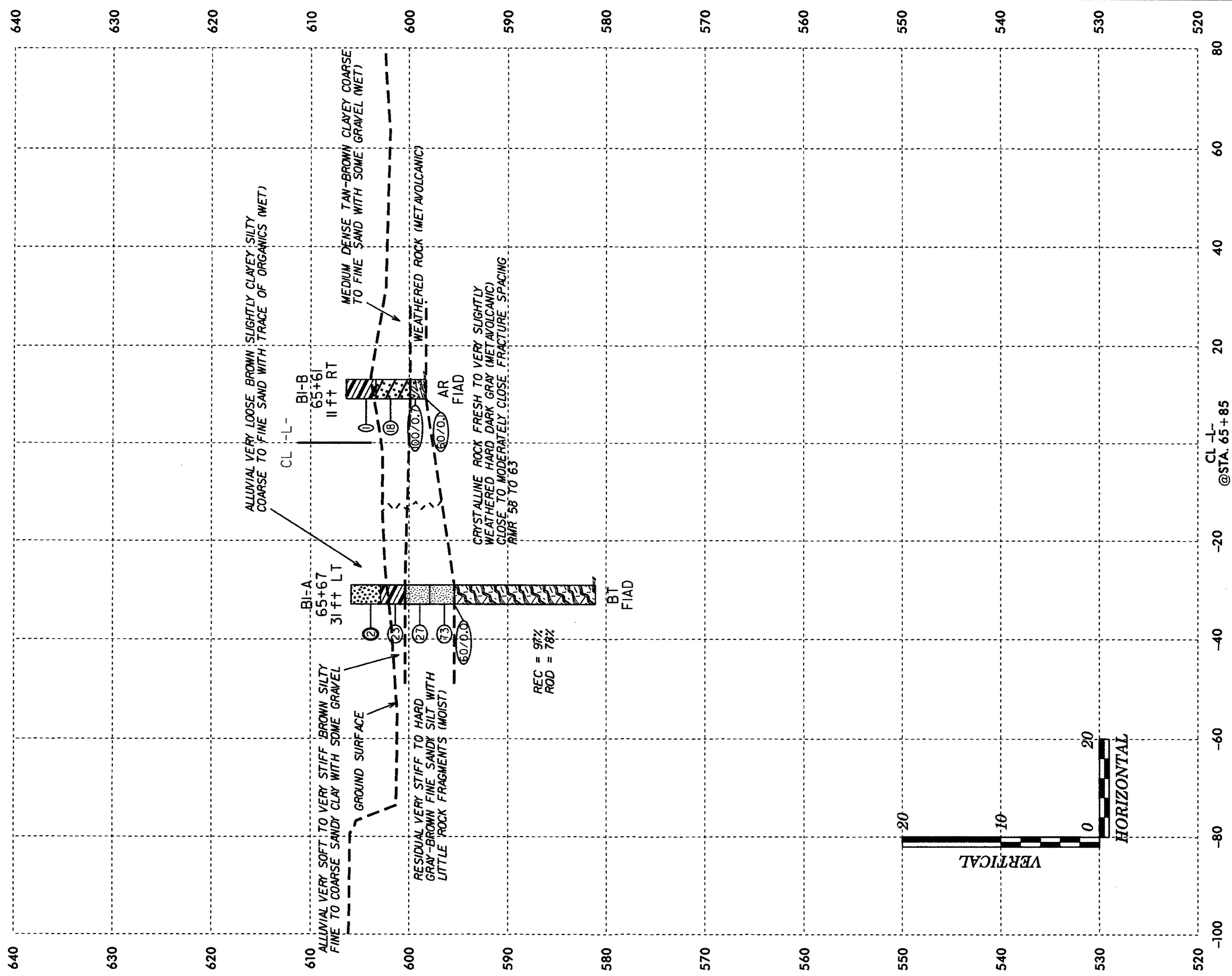
DRAWN BY: BTR

SHEET: 5

CROSS SECTION THROUGH INTERIOR BENT 1

← TO NORTHWEST

TO NORTHEAST →



NOTES:
 INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH
 BOTH PROJECTED ON TO THE CROSS SECTION GROUND LINE
 AND -L- CROSS SECTION TAKEN FROM TIN FILE "p5208g_ls_tin.dgn"

CROSS SECTION THROUGH INTERIOR BENT 1

BRIDGE ON CALDWELL PARK DRIVE EXTENSION -L-
 OVER BACK CREEK
 STATE PROJ NO. 50000.1-STR20T1B TIP NO. P5208E
 FEDERAL I.D. NO. ARRA
 CABARRUS COUNTY, NORTH CAROLINA



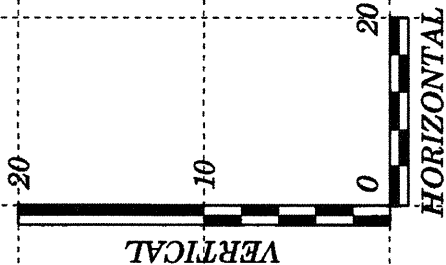
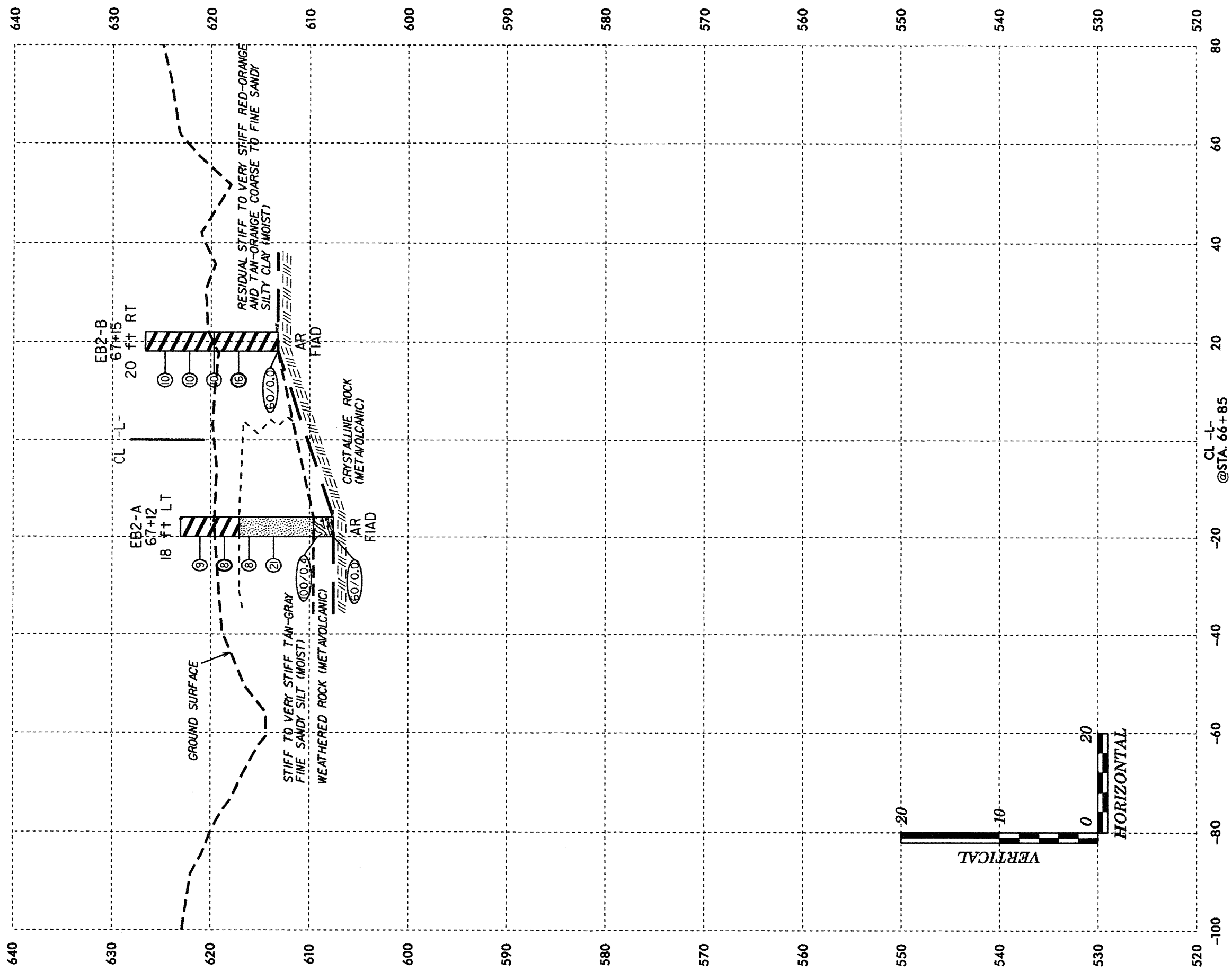
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 NC ENGINEER LICENSE # 0176
 3201 SPRING FOREST RD., RALEIGH, NC 27616

SCALE: VERT. 1" = 10' HOR. 1" = 20'	APPROVED BY: AFR
DATE: JUNE 2012	DRAWN BY: BTR
JOB NO:	SHEET: 6

CROSS SECTION THROUGH END BENT 2

TO NORTHWEST

TO NORTHEAST



NOTES:
 INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH
 BOTH PROJECTED ON TO THE CROSS SECTION GROUND LINE
 AND -L- CROSS SECTION TAKEN FROM TIN FILE "p5208g_ls_tin.dgn"

CROSS SECTION THROUGH END BENT 2

BRIDGE ON CALDWELL PARK DRIVE EXTENSION -L-
 OVER BACK CREEK
 STATE PROJ NO. 50000.1 STR20T1B TIP NO. P5208E
 FEDERAL I.D. NO. ARRA
 CABARRUS COUNTY, NORTH CAROLINA



WWW.SMEINC.COM
 NC ENGINEER LICENSE #F-0176
 3201 SPRING FOREST RD, RALEIGH, NC 27616

SCALE: VERT. 1" = 10' HOR. 1" = 20'	APPROVED BY: AFR
DATE: JUNE 2012	DRAWN BY: BTR
JOB NO:	SHEET: 7

WBS 50000.1.STR20T1B		TIP P-5208E		COUNTY CABARRUS		GEOLOGIST J. Williamson										
SITE DESCRIPTION Bridge over Back Creek on Caldwell Park Drive Extension							GROUND WTR (ft)									
BORING NO. EB1-A		STATION 65+10		OFFSET 20 ft LT		ALIGNMENT -L-										
COLLAR ELEV. 607.5 ft		TOTAL DEPTH 5.7 ft		NORTHING 572,011		EASTING 1,498,900										
DRILL RIG/HAMMER EFF./DATE SME R-2 Diedrich D-50 87% 6/2/2011				DRILL METHOD H.S. Augers		HAMMER TYPE Automatic										
DRILLER M. MOSELEY		START DATE 02/01/12		COMP. DATE 02/01/12		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						
610																
	606.5	1.0														
605	604.0	3.5	1	1	0						SS-1	15%			604.5	
	601.8	5.7	1	2	4						SS-2	30%			601.8	
		60/0.0														

WBS 50000.1.STR20T1B		TIP P-5208E		COUNTY CABARRUS		GEOLOGIST J. Williamson										
SITE DESCRIPTION Bridge over Back Creek on Caldwell Park Drive Extension							GROUND WTR (ft)									
BORING NO. EB1-B		STATION 64+90		OFFSET 33 ft RT		ALIGNMENT -L-										
COLLAR ELEV. 607.4 ft		TOTAL DEPTH 7.5 ft		NORTHING 571,998		EASTING 1,498,845										
DRILL RIG/HAMMER EFF./DATE SME R-2 Diedrich D-50 87% 6/2/2011				DRILL METHOD H.S. Augers		HAMMER TYPE Automatic										
DRILLER M. MOSELEY		START DATE 02/01/12		COMP. DATE 02/01/12		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						
610																
	606.4	1.0														
605	603.9	3.5	2	2	2							M			604.4	
	601.4	6.0	2	2	7						SS-3	17%			601.4	
600	599.9	7.5	8	11	89/0.4										600.4	
		60/0.0														

NCDOT BORE DOUBLE P5208E_GEO.GPJ NC_DOT_GDT_6/13/12

WBS 50000.1.STR20T1B		TIP P-5208E		COUNTY CABARRUS		GEOLOGIST J. Williamson									
SITE DESCRIPTION Bridge over Back Creek on Caldwell Park Drive Extension						GROUND WTR (ft)									
BORING NO. B1-A		STATION 65+67		OFFSET 31 ft LT		ALIGNMENT -L-									
COLLAR ELEV. 605.9 ft		TOTAL DEPTH 24.8 ft		NORTHING 571,970		EASTING 1,498,941									
DRILL RIG/HAMMER EFF./DATE SME R-2 Diedrich D-50 87% 6/2/2011				DRILL METHOD SPT Core Boring		HAMMER TYPE Automatic									
DRILLER M. MOSELEY		START DATE 02/01/12		COMP. DATE 02/01/12		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					
610														GROUND SURFACE	0.0
605	604.9	1.0	1	1	1						SS-4	19%	ALLUVIAL		
	602.4	3.5	9	13	10						M		Brown Slightly Clayey Silty Coarse to Fine SAND with Trace of Organics	3.0	
600	599.9	6.0	8	11	16						M		Brown Silty Fine to Coarse Sandy CLAY with Some Gravel	5.5	
	597.4	8.5	36	43	30						M		RESIDUAL		
	595.4	10.5	60/0.0								M		Gray-Brown Fine Sandy SILT	8.0	
595													Gray-Brown Fine Sandy SILT with Little Rock Fragments	10.5	
													CRYSTALLINE ROCK (Metavolcanic)		
590											RS-1				
585											RS-2				
													Boring Terminated at Elevation 581.1 ft in Crystalline Rock (Metavolcanic)	24.8	
													1) Advanced 3-1/4" H.S. Augers to 11.0 feet 2) Advanced NQ2 Core from 10.5 feet to 24.8 feet		

NCDOT BORE DOUBLE P5208E_GEO.GPJ NC_DOT.GDT 6/13/12

WBS 50000.1.STR20T1B		TIP P-5208E		COUNTY CABARRUS		GEOLOGIST J. Williamson						
SITE DESCRIPTION Bridge over Back Creek on Caldwell Park Drive Extension						GROUND WTR (ft)						
BORING NO. B1-A		STATION 65+67		OFFSET 31 ft LT		ALIGNMENT -L-						
COLLAR ELEV. 605.9 ft		TOTAL DEPTH 24.8 ft		NORTHING 571,970		EASTING 1,498,941						
DRILL RIG/HAMMER EFF./DATE SME R-2 Diedrich D-50 87% 6/2/2011				DRILL METHOD SPT Core Boring		HAMMER TYPE Automatic						
DRILLER M. MOSELEY		START DATE 02/01/12		COMP. DATE 02/01/12		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 (%)			
595.4	595.4	10.5	4.3	N=60/0.0 2:00/1.0 6:00/1.0 2:30/1.0 3:00/1.0 1:00/0.3	(4.2)	(3.1)		(13.8)	(11.2)		Begin Coring @ 10.5 ft CRYSTALLINE ROCK	10.5
	591.1	14.8	5.0	2:15/1.0 2:30/1.0 1:45/1.0 2:30/1.0	(5.0)	(4.0)	RS-1				Very Slight to Freshly Weathered Hard Dark Gray (Metavolcanic) with Close to Moderately Close Fracture Spacing with 10 Joints @ 60°, 10 Joints @ 30° to 45°, and 1 Joint @ 15° RS-1 qu=4124 ksf Axial R1=12, R2=17, R3=10, R4=20, R5=4 RMR= 63 Rock Type E R1-7, R2=17, R3=10, R4=20, R5=4 RMR=58 Rock Type E	
	586.1	19.8	5.0	2:00/1.0 2:30/1.0 2:30/1.0 2:00/1.0	(4.6)	(4.1)	RS-2					
	581.1	24.8	2.0	2:00/1.0							Boring Terminated at Elevation 581.1 ft in Crystalline Rock (Metavolcanic)	24.8
											1) Advanced 3-1/4" H.S. Augers to 11.0 feet 2) Advanced NQ2 Core from 10.5 feet to 24.8 feet	

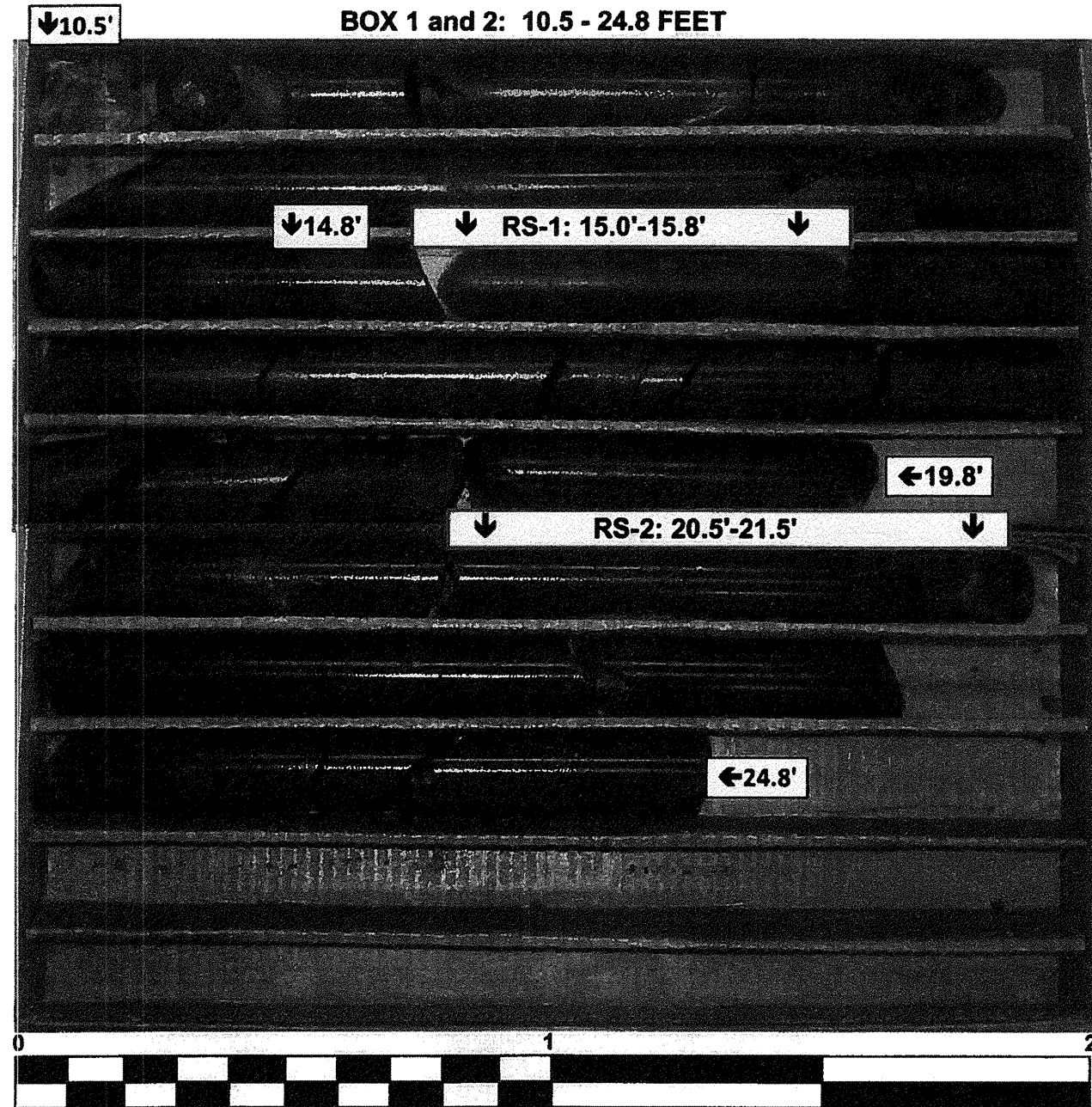
NCDOT CORE SINGLE P5208E_GEO.GPJ NC_DOT.GDT 6/13/12

P-5208E Bridge over Back Creek on Caldwell Park Drive Extension

CORE PHOTOGRAPHS

EB1-A

BOX 1 and 2: 10.5 - 24.8 FEET



WBS 50000.1.STR20T1B		TIP P-5208E		COUNTY CABARRUS		GEOLOGIST J. Williamson								
SITE DESCRIPTION Bridge over Back Creek on Caldwell Park Drive Extension							GROUND WTR (ft)							
BORING NO. B1-B		STATION 65+61		OFFSET 11 ft RT		ALIGNMENT -L-								
COLLAR ELEV. 606.4 ft		TOTAL DEPTH 8.1 ft		NORTHING 571,951		EASTING 1,498,903								
DRILL RIG/HAMMER EFF./DATE SME R-2 Diedrich D-50 87% 6/2/2011		DRILL METHOD H.S. Augers		HAMMER TYPE Automatic										
DRILLER M. MOSELEY		START DATE 02/01/12		COMP. DATE 02/01/12		SURFACE WATER DEPTH N/A								
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG	SOIL AND ROCK DESCRIPTION	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100				
610														
605	605.4	1.0	1	1	0									606.4 GROUND SURFACE 0.0
	602.8	3.5	10	12	6									603.4 ALLUVIAL Brown Silty Coarse to Fine Sandy CLAY 3.0
600	600.4	6.0	15	71	29/0.2									599.9 Tan-Brown Clayey Coarse to Fine SAND with Some Gravel 6.5
	598.4	8.0	60/0.1							100/0.7				598.4 WEATHERED ROCK (Metavolcanic) 8.0
														598.3 CRYSTALLINE ROCK (Metavolcanic) 8.7
														Boring Terminated with Standard Penetration Test Refusal at Elevation 598.3 ft in Crystalline Rock (Metavolcanic)
														1) Advanced 3-1/4" H.S. Augers to 8.0 feet



WBS 50000.1.STR20T1B		TIP P-5208E		COUNTY CABARRUS		GEOLOGIST J. Williamson					
SITE DESCRIPTION Bridge over Back Creek on Caldwell Park Drive Extension							GROUND WTR (ft)				
BORING NO.	STATION	OFFSET	ALIGNMENT				0 HR. Dry				
EB2-A	67+12	18 ft LT	-L-				24 HR. FIAD				
COLLAR ELEV.	TOTAL DEPTH	NORTHING	EASTING								
623.1 ft	15.5 ft	571,843	1,499,012								
DRILL RIG/HAMMER EFF./DATE SME R-2 Diedrich D-50 87% 6/2/2011		DRILL METHOD H.S. Augers		HAMMER TYPE Automatic							
DRILLER M. MOSELEY		START DATE 01/31/12	COMP. DATE 01/31/12	SURFACE WATER DEPTH N/A							
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT					SAMP. NO.	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)
			0.5ft	0.5ft	0.5ft	0	25				
625											
	622.1	1.0	3	4	5					623.1	0.0
620	619.6	3.5	3	3	5						
	617.1	6.0	3	3	5					617.1	6.0
615	614.6	8.5	4	7	14						
610	609.6	13.5	100/0.4							609.6	13.5
	607.6	15.5	60/0.0							607.6	15.5
<p>WEATHERED ROCK (Metavolcanic)</p> <p>Boring Terminated with Standard Penetration Test Refusal at Elevation 607.6 ft on Crystalline Rock (Metavolcanic)</p> <p>1) Advanced 3-1/4" H.S. Augers to 15.5 feet</p> <p>Other Samples: ST-2 (3.0 - 5.0)</p>											

WBS 50000.1.STR20T1B		TIP P-5208E		COUNTY CABARRUS		GEOLOGIST J. Williamson					
SITE DESCRIPTION Bridge over Back Creek on Caldwell Park Drive Extension							GROUND WTR (ft)				
BORING NO.	STATION	OFFSET	ALIGNMENT				0 HR. Dry				
EB2-B	67+15	20 ft RT	-L-				24 HR. FIAD				
COLLAR ELEV.	TOTAL DEPTH	NORTHING	EASTING								
626.7 ft	13.5 ft	571,819	1,498,983								
DRILL RIG/HAMMER EFF./DATE SME R-2 Diedrich D-50 87% 6/2/2011		DRILL METHOD H.S. Augers		HAMMER TYPE Automatic							
DRILLER M. MOSELEY		START DATE 01/31/12	COMP. DATE 01/31/12	SURFACE WATER DEPTH N/A							
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT					SAMP. NO.	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)
			0.5ft	0.5ft	0.5ft	0	25				
630											
	626.7	0.0								626.7	0.0
625	625.7	1.0	2	4	6						
	623.2	3.5	4	4	6						
620	620.7	6.0	2	5	5						
	618.2	8.5	6	8	8						
615											
	613.2	13.5	60/0.0							613.2	13.5
<p>RESIDUAL Red-Orange Silty Fine Sandy CLAY</p> <p>Boring Terminated with Standard Penetration Test Refusal at Elevation 613.2 ft on Crystalline Rock (Gneiss)</p> <p>1) Advanced 3-1/4" H.S. Augers to 13.5 feet</p>											

NCDOT BORE DOUBLE P5208E GEO.GPJ NC_DOT.GDT 6/13/12

SUMMARY OF LABORATORY TEST DATA
Soil Classification and Gradation



Quality Assurance

S&ME, Inc. Raleigh, 3201 Spring Forest Road, Raleigh, North Carolina 27616			
S&ME Project #:	1051-11-285	Date Report:	2/18/2012
State Project No.:	50000.1.STR20T1B	County:	Cabarrus
Federal ID No.:	ARRA	TIP No.:	P-5208E
Project Name:	Caldwell Park Drive Extension Grade Separation		
Client Name:	Simpson Engineers	Client Address:	Raleigh, North Carolina

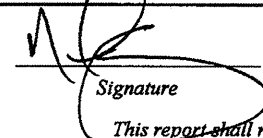
Boring No.	Sample No.	Sample Depth (ft)	AASHTO Classification	Total % Passing					Total Mortar Fraction (%)				LL	PL	PI	Organic Content %	Moisture Content %
				Sieve #					Coarse Sand	Fine Sand	Silt	Clay					
				10	40	60	200	270									
EB1-A	SS-1	1 - 2.5	A-4 (0)	88	55	47	35.8	31.9	47	17	24	12	24	16	8	ND	15.2
EB1-A	ST-1	3 - 5	A-6 (2)	100	83	71	48.6	42.5	29	29	23	19	27	16	11	ND	18.7
EB1-A	SS-2	3.5 - 5	A-6 (10)	93	84	80	69.0	61.2	14	20	42	24	40	24	16	ND	30.4
EB1-B	SS-3	3.5 - 5	A-6 (0)	95	61	48	37.1	34.0	49	15	18	18	26	15	11	ND	16.9
B1-A	SS-4	1 - 2.5	A-2-4 (0)	99	85	62	24.8	20.2	37	43	12	8	21	18	3	ND	19.1
EB2-A	ST-2	3 - 5	A-7-6 (13)	100	95	93	78.7	69.6	7	23	34	36	41	25	16	ND	25.0
EB2-A	SS-5	3.5 - 5	A-7-5 (27)	99	99	98	94.2	86.2	2	12	45	41	57	34	23	ND	43.0
EB2-B	SS-6	8.5 - 10	A-7-5 (13)	99	94	89	79.1	73.4	10	16	44	30	45	30	15	ND	17.1

References / Comments / Deviations: ND=Not Determined.

AASHTO T88: Particle Size Analysis of Soils as Modified by the NCDOT AASHTO T89: Determining the Liquid Limit of Soils

AASHTO T90: Determining the Plastic Limit & Plasticity Index of Soils AASHTO T265: Laboratory Determination of Moisture Content of Soils

AASHTO M145: The Classification of Soils and Soil Aggregate Mixtures for Highway Construction Purposes

<u>Mal Krajan, ET</u> <i>Technician Name:</i>	 <i>Signature</i>	<u>104-01-0703</u> <i>Certification #</i>	<u>Abner F. Riggs, Jr., P.E.</u> <i>Technical Responsibility:</i>	<u>Senior Engineer</u> <i>Position</i>
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**UNCONFINED COMPRESSION
(ASTM D7012 Method C)**

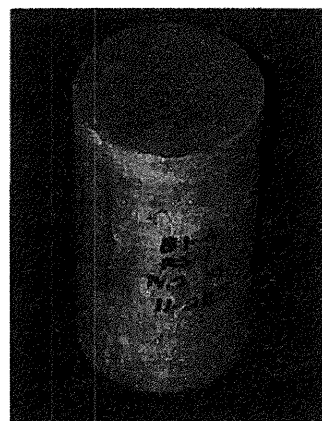


S&ME, Inc. - Knoxville 1413 Topside Road, Louisville, TN 37777

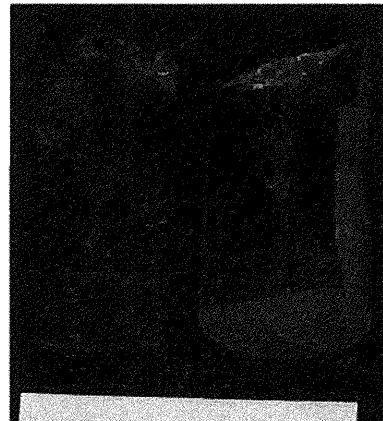
Project: 50000.1.STR20T1B **TIP No.** P-5208E
Description: Bridge over Back Creek on Caldwell Park Drive Ext.
County: Cabarrus
F.A. No.: ARRA
S&ME Job No.: 1051-11-285
Date: 2/22/2012
Tested By: Jason B. Burgess

Sample No.	Boring Location	Depth (ft)	Recovery %	RQD %	Rock Type	Specimen Dimension, in.		Area (in ²)	Bulk Density (lb/ft ³)	Loading Rate (psi/sec)	Max. Load (lb)	Strength (psi)	Moisture (%)
						Length	Diameter						
RS-1	B1-A	15.0-15.8	100	80	Metavolcanic	4.33	1.98	3.08	174.1	95	88,200	28,636	0.0
RS-2	B1-A	20.5-21.5	92	82	Metavolcanic	4.41	1.98	3.08	174.3	87	37,760	12,260	0.1

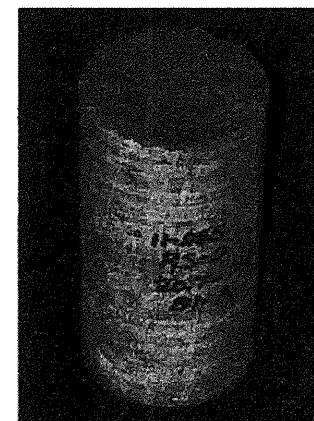
NOTES: Bulk Density includes any moisture that is within the specimen.



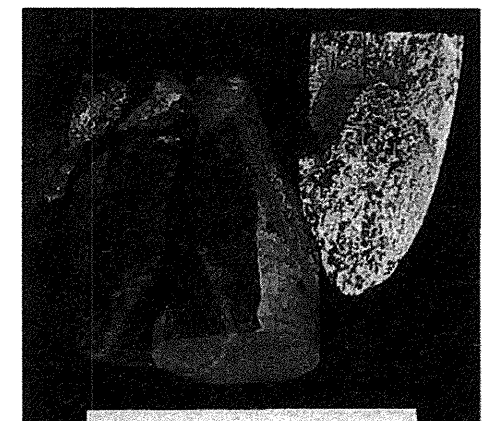
Bridge over Back Creek
on Caldwell Park Drive
1051-11-285
B-1A RS-1



Bridge over Back Creek
on Caldwell Park Drive
1051-11-285
B-1A RS-1



Bridge over Back Creek
on Caldwell Park Drive
1051-11-285
B-1A RS-2



Bridge over Back Creek
on Caldwell Park Drive
1051-11-285
B-1A RS-2

PHOTOGRAPHIC RECORD
Bridge over Back Creek on Caldwell Park Drive Extension



Photograph No. 1: This photograph was taken at the North approach looking South along the center line of -L- alignment.



Photograph No. 2: This photograph was taken from the left side of the -L- alignment looking West across Bent No. 1.



Photograph No. 3: This photograph was taken from the right side of the -L- alignment looking East across Bent No.1.



Photograph No. 4: This photograph was taken from the center line of -L- looking East downstream along Back Creek.

PHOTOGRAPHIC RECORD
Bridge over Back Creek on Caldwell Park Drive Extension



Photograph No. 5: This photograph was taken from the center line of -L- looking West upstream along Back Creek.



Photograph No.6: This photograph was taken at the South approach looking North along the center line of -L- alignment.