

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	34749.1.1 (U-0209B)	1	7

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

**STRUCTURE
SUBSURFACE INVESTIGATION**

PROJ. REFERENCE NO. 34749.1.1 (U-0209B) F.A. PROJ. _____

COUNTY MECKLENBURG

PROJECT DESCRIPTION US 74 (INDEPENDENCE BLVD.) FROM
NC 24-27 (ALBEMARLE RD.) TO IDLEWILD RD.

SITE DESCRIPTION BORINGS AT PROPOSED MSE WALL & END
BENT TWO (-YI- STA. 28+18.50 +/-) FOR BRIDGE AT -YI-
(SHARON AMITY RD.) OVER -L- (US 74 INDEPENDENCE BLVD.)

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DATE JUNE 2012

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) 250-4088. NEITHER THE SUBSURFACE PLANS AND REPORTS, NOR THE FIELD BORING LOGS, ROCK CORES, OR SOIL TEST DATA ARE PART OF THE CONTRACT.

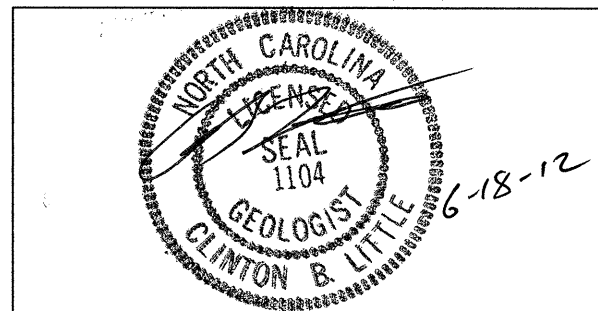
GENERAL SOIL AND ROCK STRATA DESCRIPTIONS AND INDICATED BOUNDARIES ARE BASED ON A GEOTECHNICAL INTERPRETATION OF ALL AVAILABLE SUBSURFACE DATA AND MAY NOT NECESSARILY REFLECT THE ACTUAL SUBSURFACE CONDITIONS BETWEEN BORINGS OR BETWEEN SAMPLED STRATA WITHIN THE BOREHOLE. THE LABORATORY SAMPLE DATA AND 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.

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.

DRAWN BY: J.K. McCLURE



NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
GEOTECHNICAL ENGINEERING UNIT
SOIL AND ROCK LEGEND, TERMS, SYMBOLS, AND ABBREVIATIONS

SOIL DESCRIPTION

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 (AASHTO T206, 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:
VERY STIFF, GRAY, SILTY CLAY, MOST WITH INTERBEDDED FINE SAND LAYERS, HIGHLY PLASTIC, A-7-6

GRADATION

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.

SOIL LEGEND AND AASHTO CLASSIFICATION													
GENERAL CLASS.	GRANULAR MATERIALS (≤ 35% PASSING #200)					SILT-CLAY MATERIALS (> 35% PASSING #200)					ORGANIC MATERIALS		
GROUP CLASS.	A-1		A-2			A-4		A-6		A-7	A-1, A-2	A-4, A-5	
SYMBOL	A-1-a	A-1-b	A-2-4	A-2-5	A-2-6	A-2-7	A-4	A-5	A-6	A-7	A-1, A-2	A-4, A-5	
% PASSING	10	10	10	10	10	10	10	10	10	10	10	10	
LIQUID LIMIT	6	6	10	10	10	10	10	10	10	10	10	10	
PLASTIC INDEX	6	6	10	10	10	10	10	10	10	10	10	10	
GROUP INDEX	0	0	0	0	0	0	0	0	0	0	0	0	
USUAL TYPES OF MAJOR MATERIALS	STONE FRAGS. GRAVEL, AND SAND		FINE SAND			SILTY OR CLAYEY GRAVEL AND SAND			SILTY SOILS		CLAYEY SOILS	MUCK, PEAT	
GEN. RATING AS A SUBGRADE	EXCELLENT TO GOOD					FAIR TO POOR					FAIR TO POOR	POOR	UNSUITABLE

MINERALOGICAL COMPOSITION

MINERAL NAMES SUCH AS QUARTZ, FELDSPAR, MICA, TALC, KAOLIN, ETC. ARE USED IN DESCRIPTIONS WHENEVER THEY ARE CONSIDERED OF SIGNIFICANCE.

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

	GRANULAR SOILS	SILT - CLAY SOILS	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

CONSISTENCY OR DENSENESS

PRIMARY SOIL TYPE	COMPACTNESS OR CONSISTENCY	RANGE OF STANDARD PENETRATION RESISTANCE (N-VALUE)	RANGE OF UNCONFINED COMPRESSIVE STRENGTH (TONS/F ²)
GENERALLY GRANULAR MATERIAL (NON-COHESIVE)	VERY LOOSE LOOSE MEDIUM DENSE DENSE VERY DENSE	<4 4 TO 10 10 TO 30 30 TO 50 >50	N/A
GENERALLY SILT-CLAY MATERIAL (COHESIVE)	VERY SOFT SOFT MEDIUM STIFF STIFF VERY STIFF HARD	<2 2 TO 4 4 TO 8 8 TO 15 15 TO 30 >30	<0.25 0.25 TO 0.50 0.5 TO 1.0 1 TO 2 2 TO 4 >4

MISCELLANEOUS SYMBOLS

	ROADWAY EMBANKMENT (RE) WITH SOIL DESCRIPTION		TEST BORING
	SOIL SYMBOL		AUGER BORING
	ARTIFICIAL FILL (AF) OTHER THAN ROADWAY EMBANKMENT		CORE BORING
	INFERRED SOIL BOUNDARY		MONITORING WELL
	INFERRED ROCK LINE		PIEZOMETER INSTALLATION
	ALLUVIAL SOIL BOUNDARY		SLOPE INDICATOR INSTALLATION
	DIP & DIP DIRECTION OF ROCK STRUCTURES		CONE PENETROMETER TEST
			SOUNDING ROD
			SPT N-VALUE
			SPT REFUSAL

TEXTURE OR GRAIN SIZE

U.S. STD. SIEVE SIZE	4	10	40	60	200	270
OPENING (MM)	4.76	2.00	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	
GRAIN SIZE IN. 12	3					

ABBREVIATIONS

AR - AUGER REFUSAL	MED. - MEDIUM	VST - VANE SHEAR TEST
BT - BORING TERMINATED	MICA - MICACEOUS	WEA. - WEATHERED
CL. - CLAY	MOD. - MODERATELY	γ - UNIT WEIGHT
CPT - CONE PENETRATION TEST	NP - NON PLASTIC	γ _d - DRY UNIT WEIGHT
CSE. - COARSE	ORG. - ORGANIC	
DMT - DILATOMETER TEST	PMT - PRESSUREMETER TEST	SAMPLE ABBREVIATIONS
DPT - DYNAMIC PENETRATION TEST	SAP. - SAPROLITIC	S - BULK
e - VOID RATIO	SD. - SAND, SANDY	SS - SPLIT SPOON
F - FINE	SL. - SILT, SILTY	ST - SHELBY TUBE
FOSS. - FOSSILIFEROUS	SLL. - SLIGHTLY	RS - ROCK
FRAC. - FRACTURED, FRACTURES	TCR - TRICONE REFUSAL	RT - RECOMPACTED TRIAXIAL
FRAGS. - FRAGMENTS	w - MOISTURE CONTENT	CBR - CALIFORNIA BEARING RATIO
HL. - HIGHLY	V - VERY	

SOIL MOISTURE - CORRELATION OF TERMS

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

EQUIPMENT USED ON SUBJECT PROJECT

DRILL UNITS:	ADVANCING TOOLS:	HAMMER TYPE:
<input type="checkbox"/> MOBILE B- _____	<input type="checkbox"/> CLAY BITS	<input checked="" type="checkbox"/> AUTOMATIC <input type="checkbox"/> MANUAL
<input type="checkbox"/> BK-51	<input type="checkbox"/> 6" CONTINUOUS FLIGHT AUGER	CORE SIZE:
<input type="checkbox"/> CME-45C	<input checked="" type="checkbox"/> 8" HOLLOW AUGERS	<input type="checkbox"/> -B _____
<input type="checkbox"/> CME-550	<input type="checkbox"/> HARD FACED FINGER BITS	<input type="checkbox"/> -N _____
<input checked="" type="checkbox"/> PORTABLE HOIST	<input checked="" type="checkbox"/> TUNG-CARBIDE INSERTS	<input type="checkbox"/> -H _____
<input type="checkbox"/> _____	<input type="checkbox"/> CASING <input type="checkbox"/> W/ ADVANCER	HAND TOOLS:
<input type="checkbox"/> _____	<input type="checkbox"/> TRICONE _____ * STEEL TEETH	<input type="checkbox"/> POST HOLE DIGGER
<input type="checkbox"/> _____	<input type="checkbox"/> TRICONE _____ * TUNG-CARB.	<input type="checkbox"/> HAND AUGER
<input type="checkbox"/> _____	<input type="checkbox"/> CORE BIT	<input type="checkbox"/> SOUNDING ROD
<input type="checkbox"/> _____		<input type="checkbox"/> VANE SHEAR TEST



PLASTICITY

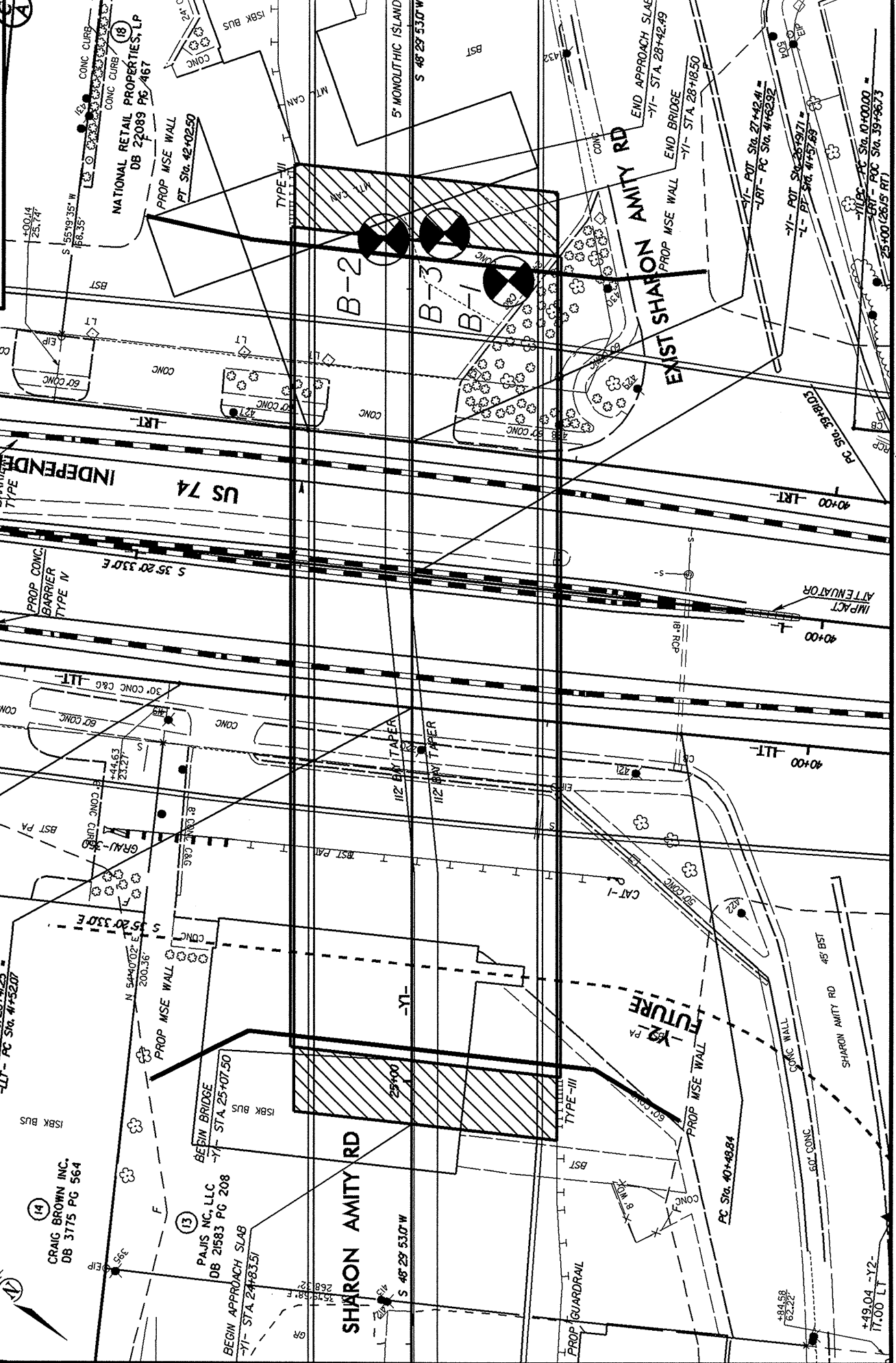
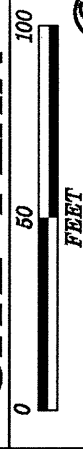
	PLASTICITY INDEX (PI)	DRY STRENGTH
NONPLASTIC	0-5	VERY LOW
LOW PLASTICITY	6-15	SLIGHT
MED. PLASTICITY	16-25	MEDIUM
HIGH PLASTICITY	26 OR MORE	HIGH

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.

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ROCK DESCRIPTION		TERMS AND DEFINITIONS	
<p>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:</p>		<p>ALLOUVIUM (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 (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 (N 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 (SREC.) - 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.</p>	
<p>WEATHERED ROCK (WR)</p>		<p>NON-COASTAL PLAIN MATERIAL THAT WOULD YIELD SPT N VALUES > 100 BLOWS PER FOOT IF TESTED.</p>	
<p>CRYSTALLINE ROCK (CR)</p>		<p>FINE TO COARSE GRAIN IGNEOUS AND METAMORPHIC ROCK THAT WOULD YIELD SPT REFUSAL IF TESTED. ROCK TYPE INCLUDES GRANITE, GNEISS, GABBRO, SCHIST, ETC.</p>	
<p>NON-CRYSTALLINE ROCK (NCR)</p>		<p>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.</p>	
<p>COASTAL PLAIN SEDIMENTARY ROCK (CP)</p>		<p>COASTAL PLAIN SEDIMENTS CEMENTED INTO ROCK, BUT MAY NOT YIELD SPT REFUSAL. ROCK TYPE INCLUDES LIMESTONE, SANDSTONE, CEMENTED SHELL BEDS, ETC.</p>	
WEATHERING			
<p>FRESH</p>	<p>ROCK FRESH, CRYSTALS BRIGHT, FEW JOINTS MAY SHOW SLIGHT STAINING. ROCK RINGS UNDER HAMMER IF CRYSTALLINE.</p>		
<p>VERY SLIGHT (V SL.)</p>	<p>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.</p>		
<p>SLIGHT (SL.)</p>	<p>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.</p>		
<p>MODERATE (MOD.)</p>	<p>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.</p>		
<p>MODERATELY SEVERE (MOD. SEV.)</p>	<p>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. <i>IF TESTED, WOULD YIELD SPT REFUSAL.</i></p>		
<p>SEVERE (SEV.)</p>	<p>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. <i>IF TESTED, YIELDS SPT N VALUES > 100 BPF.</i></p>		
<p>VERY SEVERE (V SEV.)</p>	<p>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. <i>IF TESTED, YIELDS SPT N VALUES < 100 BPF.</i></p>		
<p>COMPLETE</p>	<p>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.</p>		
ROCK HARDNESS			
<p>VERY HARD</p>	<p>CANNOT BE SCRATCHED BY KNIFE OR SHARP PICK. BREAKING OF HAND SPECIMENS REQUIRES SEVERAL HARD BLOWS OF THE GEOLOGIST'S PICK.</p>		
<p>HARD</p>	<p>CAN BE SCRATCHED BY KNIFE OR PICK ONLY WITH DIFFICULTY. HARD HAMMER BLOWS REQUIRED TO DETACH HAND SPECIMEN.</p>		
<p>MODERATELY HARD</p>	<p>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.</p>		
<p>MEDIUM HARD</p>	<p>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.</p>		
<p>SOFT</p>	<p>CAN BE GROVED 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.</p>		
<p>VERY SOFT</p>	<p>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 FINGERNAIL.</p>		
FRACTURE SPACING		BEDDING	
TERM	SPACING	TERM	THICKNESS
VERY WIDE	MORE THAN 10 FEET	VERY THICKLY BEDDED	> 4 FEET
WIDE	3 TO 10 FEET	THICKLY BEDDED	1.5 - 4 FEET
MODERATELY CLOSE	1 TO 3 FEET	THINLY BEDDED	0.16 - 1.5 FEET
CLOSE	0.16 TO 1 FEET	VERY THINLY BEDDED	0.03 - 0.16 FEET
VERY CLOSE	LESS THAN 0.16 FEET	THICKLY LAMINATED	0.008 - 0.03 FEET
		THINLY LAMINATED	< 0.008 FEET
INDURATION			
FOR SEDIMENTARY ROCKS, INDURATION IS THE HARDENING OF THE MATERIAL BY CEMENTING, HEAT, PRESSURE, ETC.			
<p>FRIABLE</p>	<p>RUBBING WITH FINGER FREES NUMEROUS GRAINS; GENTLE BLOW BY HAMMER DISINTEGRATES SAMPLE.</p>		
<p>MODERATELY INDURATED</p>	<p>GRAINS CAN BE SEPARATED FROM SAMPLE WITH STEEL PROBE; BREAKS EASILY WHEN HIT WITH HAMMER.</p>		
<p>INDURATED</p>	<p>GRAINS ARE DIFFICULT TO SEPARATE WITH STEEL PROBE; DIFFICULT TO BREAK WITH HAMMER.</p>		
<p>EXTREMELY INDURATED</p>	<p>SHARP HAMMER BLOWS REQUIRED TO BREAK SAMPLE; SAMPLE BREAKS ACROSS GRAINS.</p>		
		<p>BENCH MARK:</p> <hr/> <p style="text-align: right;">ELEVATION: _____ FT.</p>	
<p>NOTES: BORING ELEVATIONS OBTAINED FROM THE U0209B.LS.TIN.TIN FILE.</p>			





NCDOT GEOTECHNICAL ENGINEERING UNIT

BORELOG REPORT

WBS 34749.1.1	TIP U-0209B	COUNTY MECKLENBURG	GEOLOGIST Murray, C. C.
SITE DESCRIPTION US 74 (INDEPENDENCE BLVD.) FROM NC 24-27 (ALBEMARLE RD.) TO IDLEWILD RD.			GROUND WTR (ft)
BORING NO. B-1	STATION 28+03	OFFSET 37 ft RT	ALIGNMENT -Y1-
COLLAR ELEV. 770.5 ft	TOTAL DEPTH 26.5 ft	NORTHING 530,331	EASTING 1,472,307
DRILL RIG/HAMMER EFF./DATE HFO0072 CME-550 89% 09/02/2009		DRILL METHOD H.S. Augers	HAMMER TYPE Automatic
DRILLER Smith, C. L.	START DATE 06/07/12	COMP. DATE 06/07/12	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						
775																
770	770.5	0.0													770.5	GROUND SURFACE 0.0
765	766.5	4.0	3	3	4	7						M	M	TAN MED. STIFF TO STIFF MOIST LOW (PI=12) PLASTIC SANDY SILTY CLAY (A-6)	8.0	
	764.0	6.5	2	4	4	8						SS-1				
760	761.5	9.0	7	6	8	14						M	M	TAN STIFF TO SOFT MOIST CLAYEY SANDY SILT (A-5)	16.0	
	759.0	11.5	4	6	7	13						SS-2				
755	756.5	14.0	3	4	4	8						M	M	ARTIFICIAL FILL TAN MED. STIFF MOIST TO WET CLAYEY SANDY SILT (A-4)	22.5	
	754.0	16.5	2	3	2	4						SS-3				
750	751.5	19.0	2	3	2	5						M	W	RESIDUAL RED-TAN MED. STIFF TO STIFF MOIST TO WET SANDY SILTY CLAY (A-7) W/ PETROLEUM ODOR	26.5	
	748.0	22.5	1	3	4	7						M				
745	745.5	25.0	2	3	5	8						M	W	Boring Terminated at Elevation 744.0 ft IN MED. STIFF TO STIFF WET SANDY SILTY CLAY (A-7)		

NCDOT BORE SINGLE_U0209B_GEO_BH_HAZ_MAT BORINGS_MECKLENBURG.GPJ NC_DOT.GDT 6/15/12



NCDOT GEOTECHNICAL ENGINEERING UNIT

BORELOG REPORT

WBS 34749.1.1	TIP U-0209B	COUNTY MECKLENBURG	GEOLOGIST Murray, C. C.
SITE DESCRIPTION US 74 (INDEPENDENCE BLVD.) FROM NC 24-27 (ALBEMARLE RD.) TO IDLEWILD RD.			GROUND WTR (ft)
BORING NO. B-2	STATION 28+19	OFFSET 11 ft LT	ALIGNMENT -Y1-
COLLAR ELEV. 770.5 ft	TOTAL DEPTH 5.8 ft	NORTHING 530,285	EASTING 1,472,327
DRILL RIG/HAMMER EFF./DATE HFO0072 CME-550 89% 09/02/2009		DRILL METHOD H.S. Augers	HAMMER TYPE Automatic
DRILLER Smith, C. L.	START DATE 06/07/12	COMP. DATE 06/07/12	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					ELEV. (ft)	
775																
770	770.5	0.0												770.5	GROUND SURFACE 0.0	
			2	2	3	•	••	•••	••••			M				ARTIFICIAL FILL TAN MED. STIFF MOIST SANDY SILTY CLAY (A-6)
765	766.2	4.3	1	4	6	•	••	•••	••••			M		766.2	4.3	
						•	••	•••	••••					764.7	5.8	RESIDUAL RED STIFF MOIST SANDY SILTY CLAY (A-7) W/ PETROLEUM ODOR Boring Terminated at Elevation 764.7 ft IN STIFF MOIST SANDY SILTY CLAY (A-7)

NCDOT BORE SINGLE_U0209B_GEO_BH_HAZ_MAT BORINGS_MECKLENBURG.GPJ NC_DOT.GDT 6/15/12



NCDOT GEOTECHNICAL ENGINEERING UNIT BORELOG REPORT

WBS 34749.1.1	TIP U-0209B	COUNTY MECKLENBURG	GEOLOGIST Murray, C. C.
SITE DESCRIPTION US 74 (INDEPENDENCE BLVD.) FROM NC 24-27 (ALBEMARLE RD.) TO IDLEWILD RD.			GROUND WTR (ft)
BORING NO. B-3	STATION 28+21	OFFSET 12 ft RT	ALIGNMENT -Y1-
COLLAR ELEV. 770.4 ft	TOTAL DEPTH 25.5 ft	NORTHING 530,301	EASTING 1,472,310
DRILL RIG/HAMMER EFF./DATE HFO0072 CME-550 89% 09/02/2009		DRILL METHOD H.S. Augers	HAMMER TYPE Automatic
DRILLER Smith, C. L.	START DATE 06/07/12	COMP. DATE 06/07/12	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		
			0.5ft	0.5ft	0.5ft	0	25	50	75	100				ELEV. (ft)	DEPTH (ft)	
775																
770	770.4	0.0													770.4	GROUND SURFACE 0.0
765	766.4	4.0	2	5	15											ARTIFICIAL FILL TAN MED. STIFF TO V. STIFF MOIST CLAYEY SANDY SILT (A-5) W/ COBBLES NEAR SURFACE
	763.9	6.5	2	3	4											
760	761.4	9.0	6	6	8											
	758.9	11.5	9	7	10											
	756.4	14.0	7	6	7										759.4	ARTIFICIAL FILL TAN STIFF TO SOFT MOIST TO WET CLAYEY SANDY SILT (A-4)
755	753.9	16.5	4	4	5											
	751.4	19.0	3	2	3											
750	748.9	21.5	1	1	1										749.4	ARTIFICIAL FILL TAN MED. STIFF SAT. CLAYEY SANDY SILT (A-5)
	746.4	24.0	3	3	6										747.9	RESIDUAL RED STIFF WET SILTY CLAY (A-7) W/ STRONG PETROLEUM ODOR @ 24.0 Boring Terminated at Elevation 744.9 ft IN STIFF WET SANDY SILTY CLAY (A-7)
745			4	4	6										744.9	

NCDOT BORE SINGLE_U0209B_GEO_BH_HAZ_MAT BORINGS_MECKLENBURG.GPJ_NC_DOT_GDT_6/15/12

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAY
MATERIALS & TESTS UNIT
SOILS LABORATORY

T. I. P. No. U-0209B**REPORT ON SAMPLES OF SOILS FOR QUALITY**Project 34749 1.1 County MECKLENBURG Owner _____Date: Sampled 6/7/12 Received 6/11/12 Reported 6/13/12Sampled from _____ By CC MURRAYSubmitted by N WAINAINA _____ 1995 Standard Specifications780180 TO 780185
6/15/12**TEST RESULTS**

Proj. Sample No.		SS-1	SS-2	SS-3	SS-7	SS-8	SS-9
Lab. Sample No.		780180	780181	780182	780183	780184	780185
Retained #4 Sieve	%	1	5	1	-	3	2
Passing #10 Sieve	%	96	93	97	97	95	91
Passing #40 Sieve	%	86	89	92	90	87	85
Passing #200 Sieve	%	66	67	70	70	60	63

MINUS NO. 10 FRACTION

SOIL MORTAR - 100%							
Coarse Sand Ret - #60	%	17.3	9.9	10.9	12.5	17.9	12.3
Fine Sand Ret - #270	%	20.9	25.6	27.6	21.3	27.8	25.4
Silt 0.05 - 0.005 mm	%	45.7	50.5	49.5	54.1	42.3	46.3
Clay < 0.005 mm	%	16.1	14.1	12.1	12.1	12.1	16.1
Passing #40 Sieve	%	-	-	-	-	-	-
Passing #200 Sieve	%	-	-	-	-	-	-

L. L.		40	43	35	41	34	42
P. I.		12	10	4	7	3	8
AASHTO Classification		A-6(7)	A-5(7)	A-4(3)	A-5(6)	A-4(1)	A-5(5)
Station		28+03	28+03	28+03	28+21	28+21	28+21
Offset		37 RT	37 RT	37 RT	12 RT	12 RT	12 RT
Alignment		Y1	Y1	Y1	Y1	Y1	Y1
Location		B-1	B-1	B-1	B-3	B-3	B-3
Depth (Ft)		4.00	9.00	16.50	4.00	11.50	21.50
	to	5.50	10.50	18.00	5.50	13.00	22.50

cc: CC MURRAY

Soils Engineer

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

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STRUCTURE SUBSURFACE INVESTIGATION

PROJ. REFERENCE NO. 34749.1.1 F.A. PROJ. NHFSTP-0074(94)
 COUNTY MECKLENBURG
 PROJECT DESCRIPTION US 74 (INDEPENDENCE BLVD.)
NC 24-27 TO IDLEWILD ROAD

SITE DESCRIPTION BRIDGE NO. 1171 (STR1) ON -Y1-
(SHARON AMITY RD.) OVER US 74
(INDEPENDENCE BLVD.)

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) 250-4088. NEITHER THE SUBSURFACE PLANS AND REPORTS, NOR THE FIELD BORING LOGS, ROCK CORES, OR SOIL TEST DATA ARE PART OF THE CONTRACT.

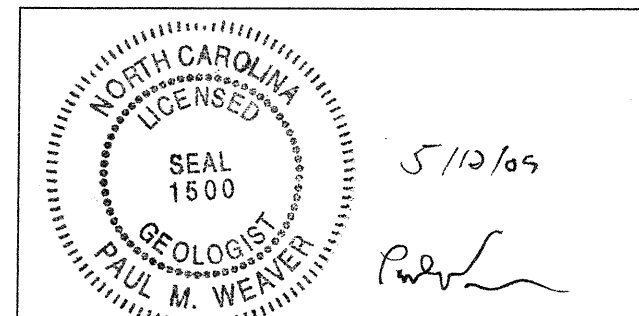
GENERAL SOIL AND ROCK STRATA DESCRIPTIONS AND INDICATED BOUNDARIES ARE BASED ON A GEOTECHNICAL INTERPRETATION OF ALL AVAILABLE SUBSURFACE DATA AND MAY NOT NECESSARILY REFLECT THE ACTUAL SUBSURFACE CONDITIONS BETWEEN BORINGS OR BETWEEN SAMPLED STRATA WITHIN THE BOREHOLE. THE LABORATORY SAMPLE DATA AND 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.

Regional
Geotechnical Design
Engineer

- PERSONNEL
- S. KITTS
 - D. HOWELL
 - R. TOOTHMAN
 - B. DUNCAN
 - W. WHICHARD
 - E. ESTEP
 - A. HAYES

INVESTIGATED BY T. WELLS, J. FREGOSI
 CHECKED BY J. VINSON
 SUBMITTED BY P. WEAVER
 DATE 4/10/09



PROJECT: 34749.1.1 ID: U-0209B

DRAWN BY: SLK

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.	SHEET NO.
34749.1.1	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, HIGHLY 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 (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 DISLOGGED 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, 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 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. <i>IF TESTED, WOULD YIELD SPT REFUSAL</i> 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. <i>IF TESTED, YIELDS SPT N VALUES > 100 BPF</i> 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. <i>IF TESTED, YIELDS SPT N VALUES < 100 BPF</i> 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 SOILS SILT-CLAY SOILS 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		FRESH VERY SLIGHT (V SL.) SLIGHT (SL.) MODERATE (MOD.) MODERATELY SEVERE (MOD. SEV.) SEVERE (SEV.) VERY SEVERE (V SEV.) COMPLETE			
GROUP CLASS. A-1, A-3, A-2, A-4, A-5, A-6, A-7, A-1, A-2, A-3, A-4, A-5, A-6, A-7		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		MISCELLANEOUS SYMBOLS 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 SOUNDING ROD TEST BORING AUGER BORING CORE BORING MONITORING WELL PIEZOMETER INSTALLATION SLOPE INDICATOR INSTALLATION SPT N-VALUE SPT REFUSAL							
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 ²)		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		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) 4 10 40 60 200 270 4.76 2.00 0.42 0.25 0.075 0.053		DRILL UNITS: <input checked="" type="checkbox"/> MOBILE B-57 <input type="checkbox"/> BK-51 <input type="checkbox"/> CME-45C <input type="checkbox"/> CME-550 <input type="checkbox"/> PORTABLE HOIST <input checked="" type="checkbox"/> ACKER MARK II		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 <input type="checkbox"/> STEEL TEETH <input checked="" type="checkbox"/> TRICONE 3 7/8" TUNG-CARB. <input type="checkbox"/> CORE BIT <input type="checkbox"/> _____		TERM SPACING MORE THAN 10 FEET 3 TO 10 FEET 1 TO 3 FEET 1 TO 1 FEET LESS THAN 0.16 FEET		TERM THICKNESS > 4 FEET 1.5 - 4 FEET 0.16 - 1.5 FEET 0.03 - 0.16 FEET 0.008 - 0.03 FEET < 0.008 FEET			
SOIL MOISTURE - CORRELATION OF TERMS		INDURATION		INDURATION							
SOIL MOISTURE SCALE (ATTERBERG LIMITS) FIELD MOISTURE DESCRIPTION GUIDE FOR FIELD MOISTURE DESCRIPTION		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.							
LL - LIQUID LIMIT PL - PLASTIC LIMIT OM - OPTIMUM MOISTURE SL - SHRINKAGE LIMIT		FRAGMENTS - FRAGMENTS									
PLASTICITY		COLOR									
NONPLASTIC LOW PLASTICITY MED. PLASTICITY HIGH PLASTICITY		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: BM NO. 2 -BY1- STA. 25+60.6' RT ELEVATION: 769.31 FT.					
						NOTES:					



Kleinfelder Southeast, Inc.
Greensboro North Carolina

SCALE:
1:24,000

DATE:
4/01/09

WBS PROJECT NO.
34749.1.1

TIP No.
U-0209B

SITE VICINITY MAP

Bridge No. 1171 (Str1) on -Y1- (Sharon Amity Road) over US 74 (Independence Boulevard), Mecklenburg County, North Carolina

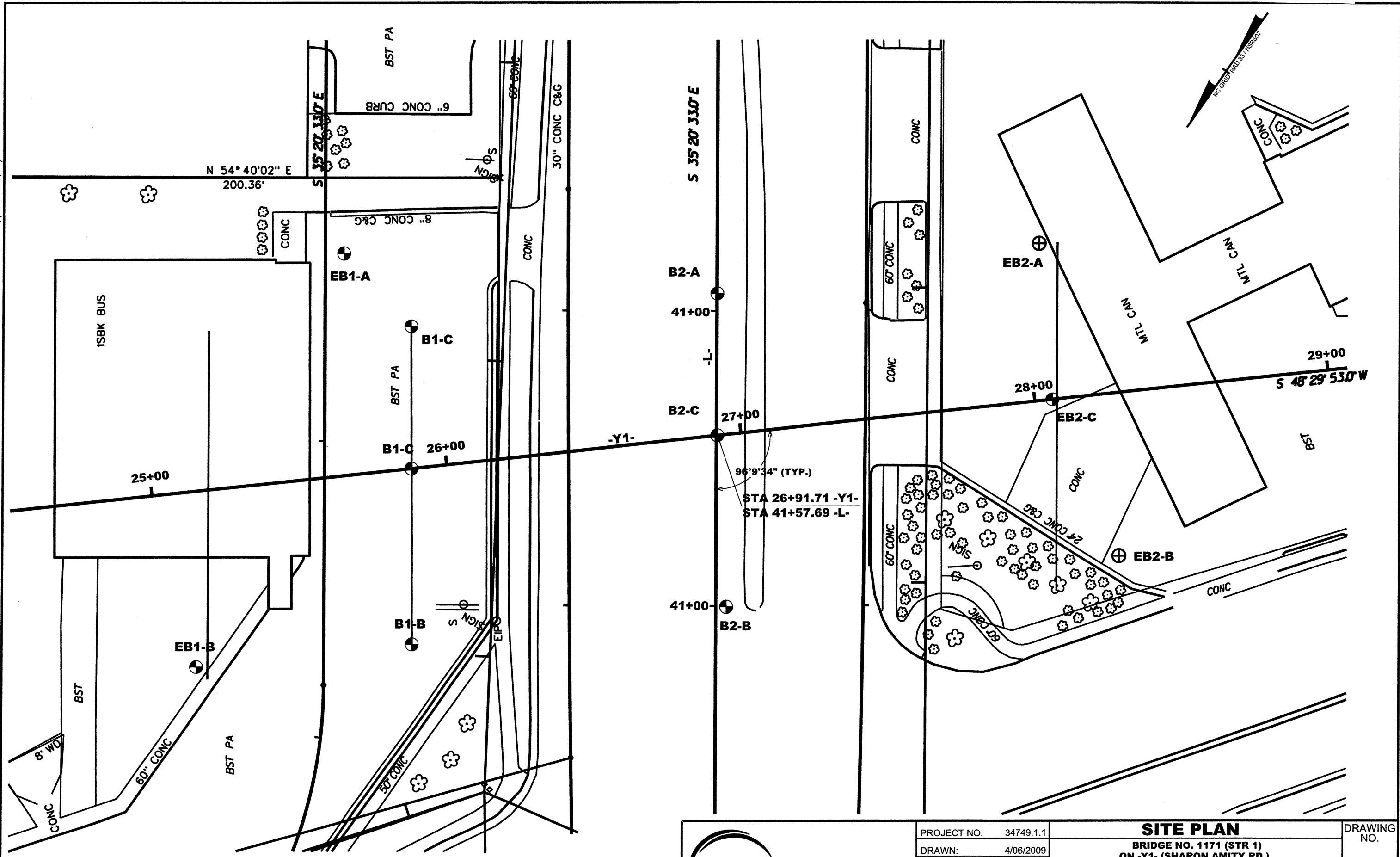
**USGS Quadrangle - Charlotte East, North Carolina
1967, Photo Revised 1988**

**DRAWING NUMBER:
1**

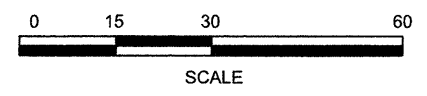
PLOTTED: \$(EDTIME,??)

CAD FILE: J:\share\0710\CADD\New Title & Legend Sheets\ LAYOUT: Model

ATTACHED IMAGES: \$(IMAGES)??
 ATTACHED XREFS: \$(XREFS)??
 OFFICE_NAME

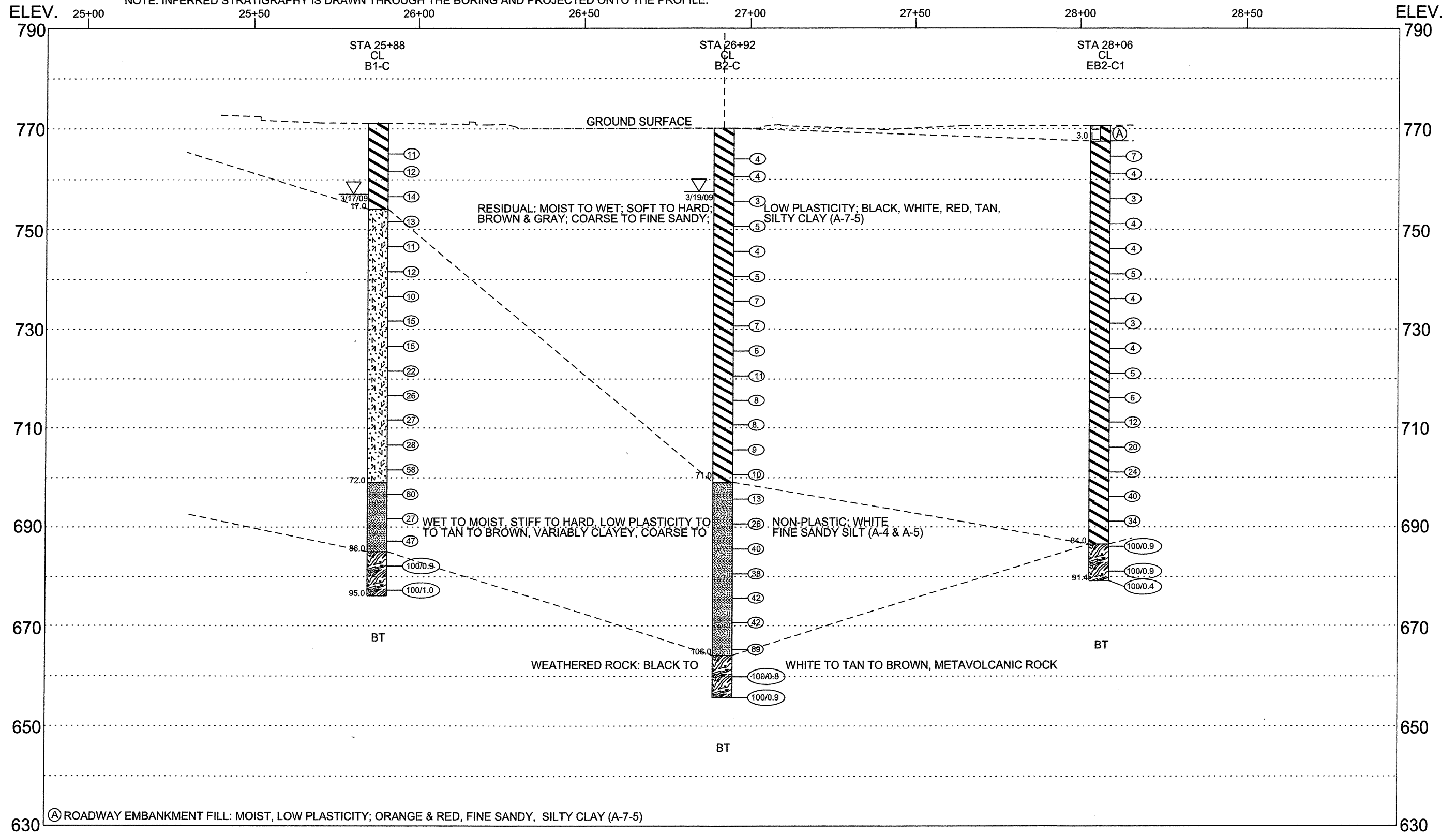


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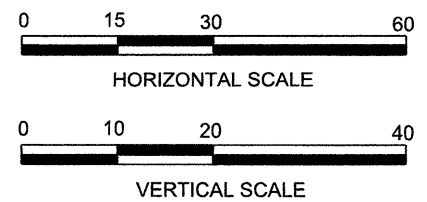
PROJECT NO.	34749.1.1	SITE PLAN		DRAWING NO.
DRAWN:	4/06/2009			
DRAWN BY:	SLK	BRIDGE NO. 1171 (STR 1) ON -Y1- (SHARON AMITY RD.) OVER US 74 (INDEPENDENCE BLVD.)		2
CHECKED BY:	PW	TIP NO. U-0209B	FEDERAL NO. NHFSTP-0074 (94)	
SCALE:	VERTICAL 1" = 30'	MECKLENBURG COUNTY NORTH CAROLINA		

*NOTE: PROFILE GROUNDLINE SURVEYED BY KLEINFELDER ALONG -Y15- CENTERLINE.
 *NOTE: INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING AND PROJECTED ONTO THE PROFILE.



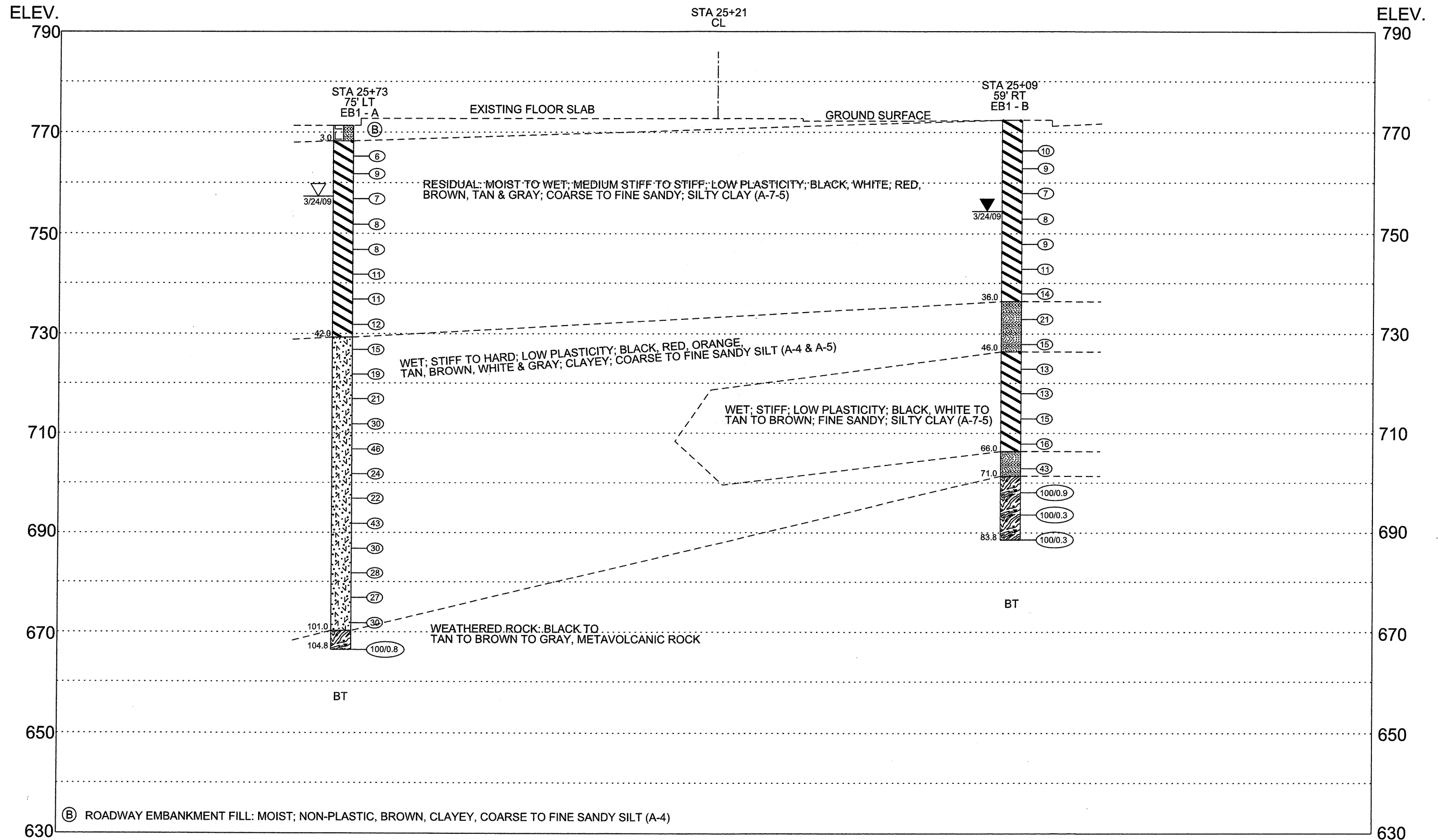
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FILE NAME:
101895_Y1-PROFILES.DGN



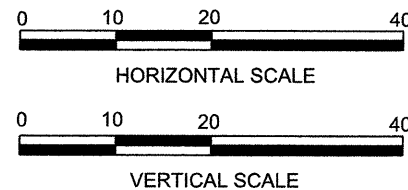
PROJECT NO. 34749.1.1	PROFILE ALONG CENTERLINE	DRAWING NO. 3
DRAWN: 04/10/2009		
DRAWN BY: SLK	BRIDGE NO. 1171 (STR 1) ON -Y1- (SHARON AMITY RD.) OVER US 74 (INDEPENDENCE BLVD.)	
CHECKED BY: PW	TIP NO. U-0209B FEDERAL NO. NHFSTP-0074 (94)	
SCALE: VERTICAL 1" = 20' HORIZONTAL 1" = 30'	MECKLENBURG COUNTY NORTH CAROLINA	

*NOTE: CROSS SECTION GROUNDLINE SURVEYED BY KLEINFELDER ALONG THE BENT.
 *NOTE: INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING AND PROJECTED ONTO THE SECTION.



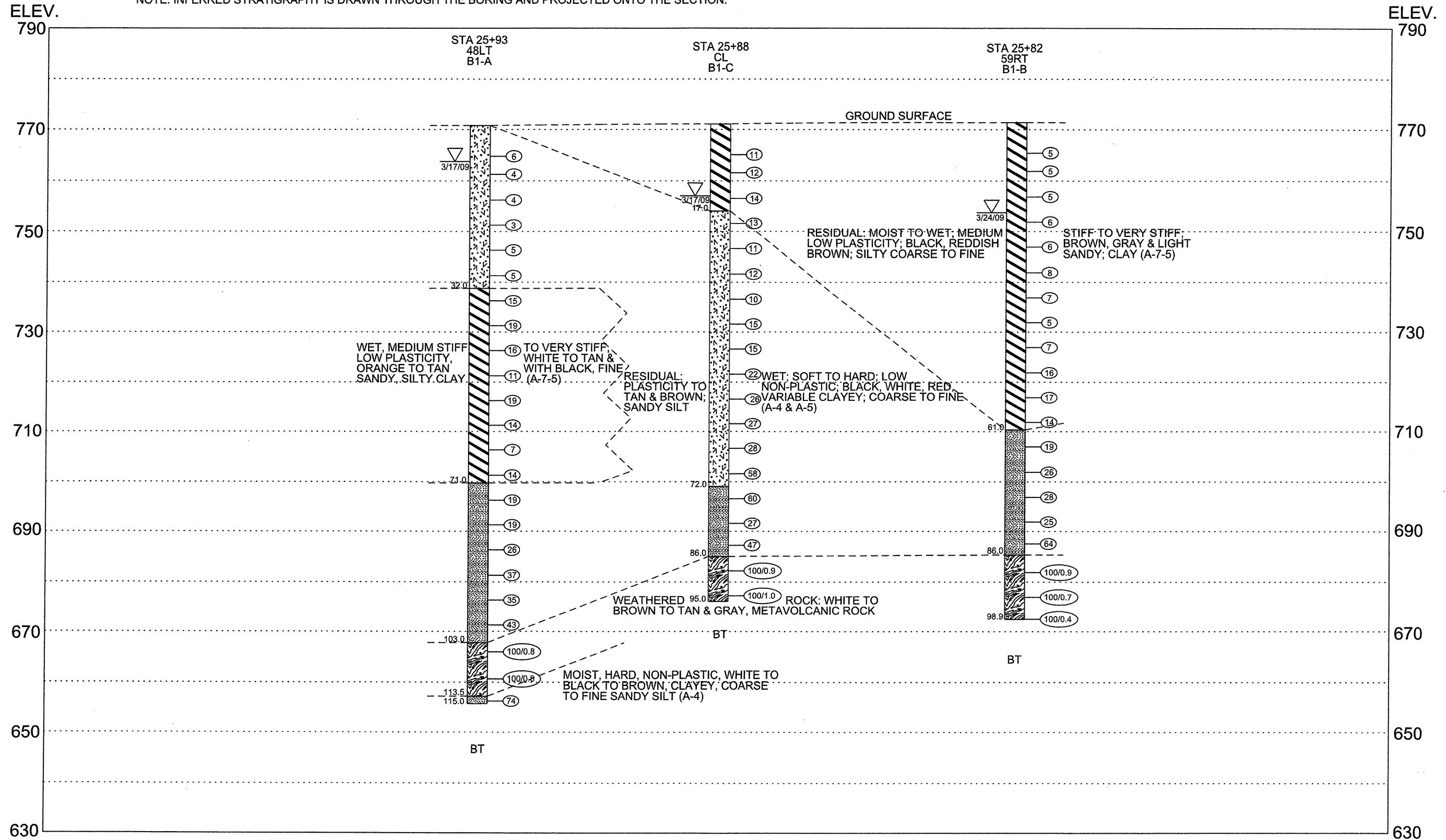
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FILE NAME:
101895_Y1-PROFILES.DGN



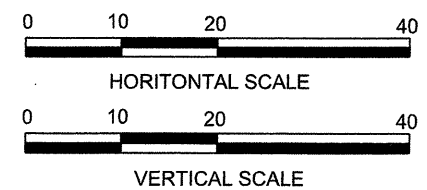
PROJECT NO. 34749.1.1	CROSS-SECTION ALONG END BENT 1	DRAWING NO. 4
DRAWN: 04/10/2009		
DRAWN BY: SLK	BRIDGE NO. 1171 (STR 1) ON -Y1- (SHARON AMITY RD.) OVER US 74 (INDEPENDENCE BLVD.)	
CHECKED BY: PW		
SCALE: VERTICAL 1" = 20' HORIZONTAL 1" = 20'	TIP NO. U-0209B	FEDERAL NO. NHFSTP-0074 (94)
MECKLENBURG COUNTY NORTH CAROLINA		

*NOTE: CROSS SECTION GROUNDLINE SURVEYED BY KLEINFELDER ALONG THE BENT.
 *NOTE: INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING AND PROJECTED ONTO THE SECTION.



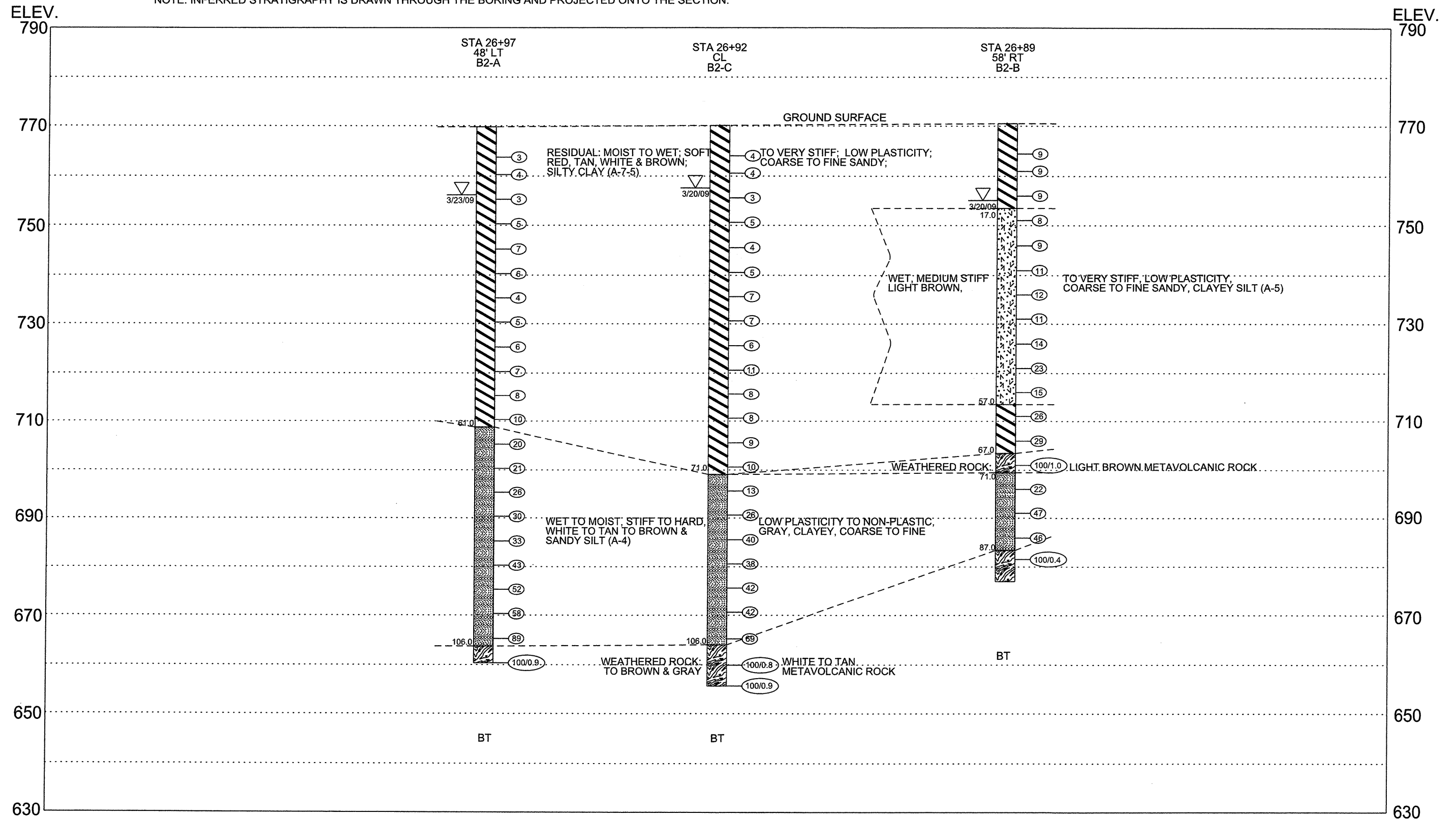
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FILE NAME:
101895_Y1-PROFILES.DGN



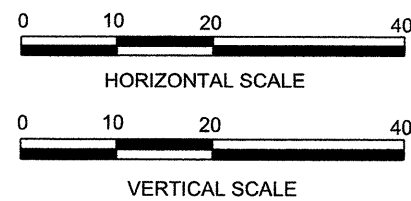
PROJECT NO. 34749.1.1	CROSS-SECTION ALONG BENT 1		DRAWING NO.
DRAWN: 04/10/2009	BRIDGE NO. 1171 (STR 1) ON -Y1- (SHARON AMITY RD.) OVER US 74 (INDEPENDENCE BLVD.)		5
DRAWN BY: SLK	TIP NO. U-0209B FEDERAL NO. NHFSTP-0074 (94)		
CHECKED BY: PW	MECKLENBURG COUNTY NORTH CAROLINA		
SCALE: VERTICAL 1" = 20' HORIZONTAL 1" = 20'			

*NOTE: CROSS SECTION GROUNDLINE SURVEYED BY KLEINFELDER ALONG THE BENT.
 *NOTE: INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING AND PROJECTED ONTO THE SECTION.



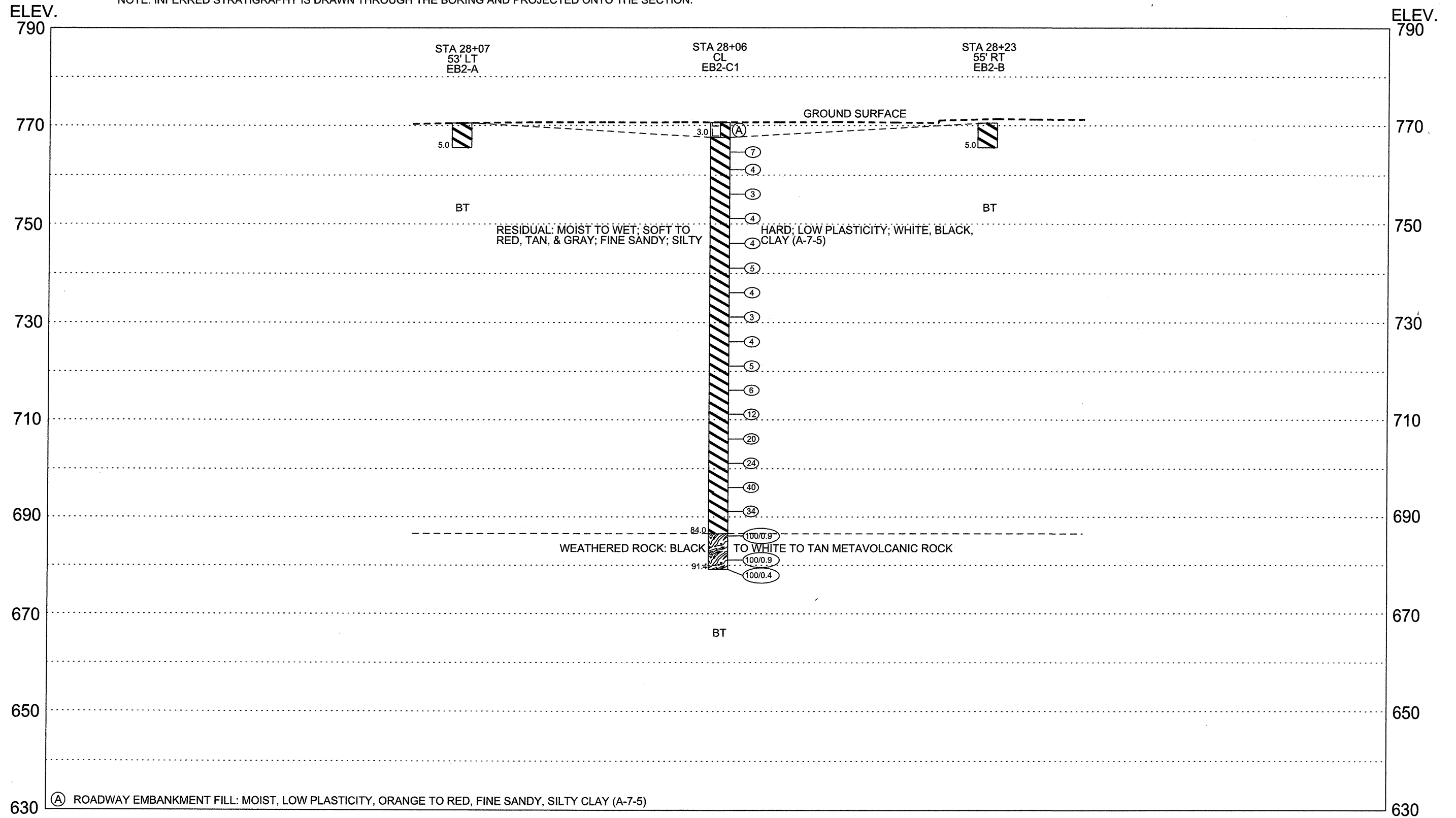
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FILE NAME:
101895_Y1-PROFILES.DGN



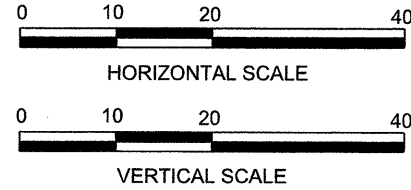
PROJECT NO. 34749.1.1	CROSS-SECTION ALONG BENT 2		DRAWING NO. 6
DRAWN: 04/10/2009	BRIDGE NO. 1171 (STR 1) ON -Y11- (SHARON AMITY RD.) OVER US 74 (INDEPENDENCE BLVD.)		
DRAWN BY: SLK	TIP NO. U-0209B	FEDERAL NO. NHFSTP-0074 (94)	MECKLENBURG COUNTY NORTH CAROLINA
CHECKED BY: PW			
SCALE: VERTICAL 1" = 20' HORIZONTAL 1" = 20'			

*NOTE: CROSS SECTION GROUNDLINE SURVEYED BY KLEINFELDER ALONG THE BENT.
 *NOTE: INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING AND PROJECTED ONTO THE SECTION.



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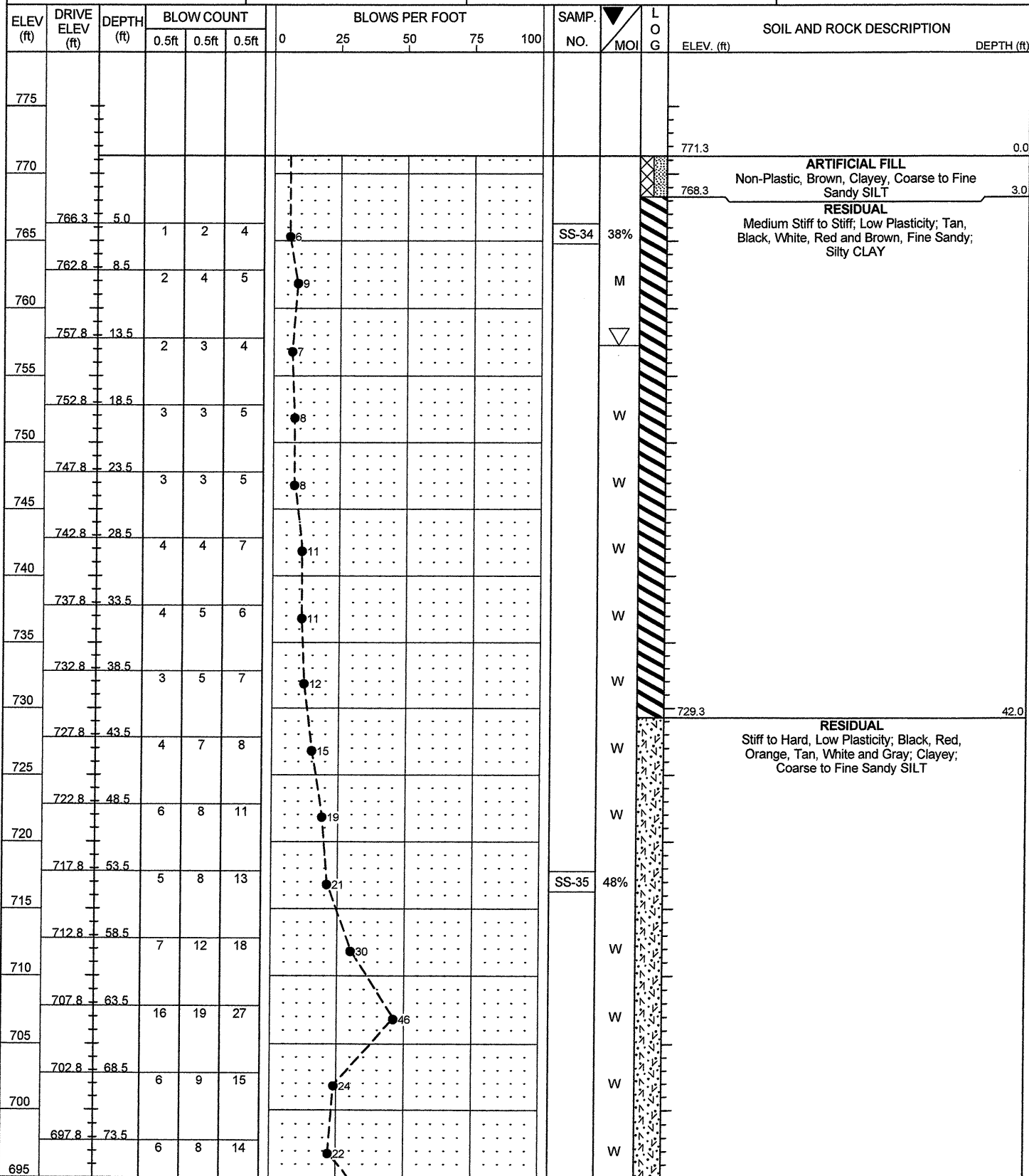
FILE NAME:
101895_Y1-PROFILES.DGN



PROJECT NO. 34749.1.1	CROSS-SECTION ALONG END BENT 2	DRAWING NO. 7
DRAWN: 04/10/2009	BRIDGE NO. 1171 (STR 1) ON -Y1- (SHARON AMITY RD.) OVER US 74 (INDEPENDENCE BLVD.)	
DRAWN BY: SLK	TIP NO. U-0209B	FEDERAL NO. NHFSTP-0074 (94)
CHECKED BY: PW	MECKLENBURG COUNTY NORTH CAROLINA	
SCALE: VERTICAL 1" = 20' HORIZONTAL 1" = 20'		



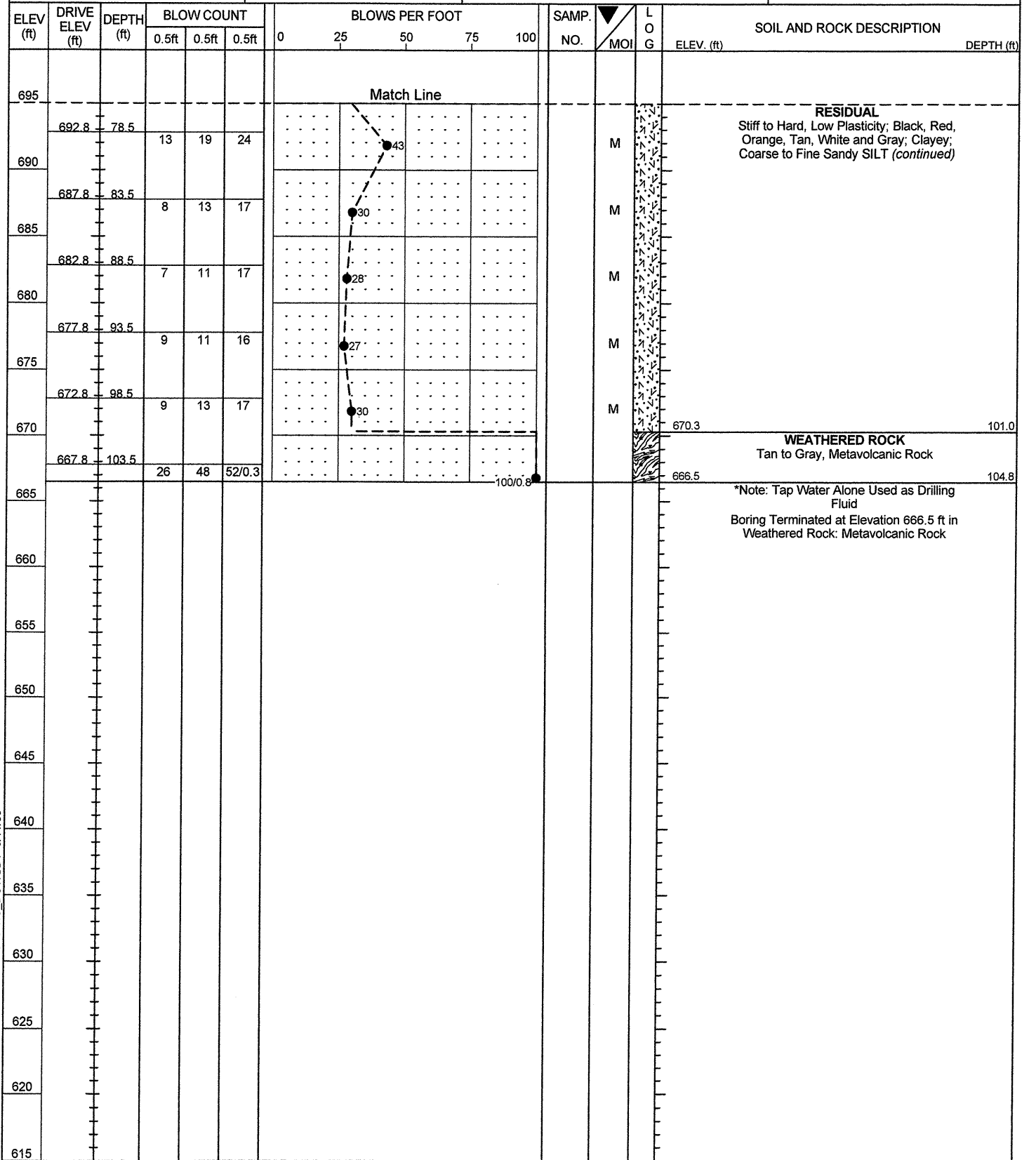
PROJECT NO. 34749.1.1	ID. U-0209B	COUNTY Mecklenburg	GEOLOGIST J. Fregosi
SITE DESCRIPTION Bridge No. 1171 (Str1) on -Y1- (Sharon Amity Rd.) over US 74 (Independence Blvd.)			GROUND WTR (ft)
BORING NO. EB1-A	STATION 25+73	OFFSET 75ft LT	ALIGNMENT -Y1-
COLLAR ELEV. 771.3 ft	TOTAL DEPTH 104.8 ft	NORTHING 530,400	EASTING 1,472,553
DRILL MACHINE Acker AD II		DRILL METHOD Wash Rotary	
START DATE 03/23/09		COMP. DATE 03/24/09	
SURFACE WATER DEPTH N/A		DEPTH TO ROCK N/A	



NCDOT BORE SINGLE 101895 PART 3.GPJ NC_DOT.GDT 5/11/09



PROJECT NO. 34749.1.1	ID. U-0209B	COUNTY Mecklenburg	GEOLOGIST J. Fregosi
SITE DESCRIPTION Bridge No. 1171 (Str1) on -Y1- (Sharon Amity Rd.) over US 74 (Independence Blvd.)			GROUND WTR (ft)
BORING NO. EB1-A	STATION 25+73	OFFSET 75ft LT	ALIGNMENT -Y1-
COLLAR ELEV. 771.3 ft	TOTAL DEPTH 104.8 ft	NORTHING 530,400	EASTING 1,472,553
DRILL MACHINE Acker AD II		DRILL METHOD Wash Rotary	
START DATE 03/23/09		COMP. DATE 03/24/09	
SURFACE WATER DEPTH N/A		DEPTH TO ROCK N/A	



NCDOT BORE SINGLE 101895 PART 3.GPJ NC_DOT.GDT 5/11/09

PROJECT NO. 34749.1.1	ID. U-0209B	COUNTY Mecklenburg	GEOLOGIST J. Fregosi
SITE DESCRIPTION Bridge No. 1171 (Str1) on -Y1- (Sharon Amity Rd.) over US 74 (Independence Blvd.)			GROUND WTR (ft)
BORING NO. EB1-B	STATION 25+09	OFFSET 59ft RT	ALIGNMENT -Y1-
COLLAR ELEV. 772.4 ft	TOTAL DEPTH 83.8 ft	NORTHING 530,543	EASTING 1,472,513
DRILL MACHINE Acker AD II	DRILL METHOD Wash Rotary	HAMMER TYPE 140 lb. Manual	
START DATE 03/23/09	COMP. DATE 03/23/09	SURFACE WATER DEPTH N/A	DEPTH TO ROCK 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					
775														772.4	0.0
770													RESIDUAL Medium Stiff to Stiff; Low Plasticity; White, Brown, Red, Tan and Gray; Coarse to Fine Sandy; Silty CLAY		
765	767.4	5.0	3	4	6						10	M			
760	763.9	8.5	3	4	5						9	M			
755	758.9	13.5	2	3	4						7	W			
750	753.9	18.5	2	4	4						8	W			
745	748.9	23.5	3	4	5						9	W			
740	743.9	28.5	4	4	7						11	W			
735	738.9	33.5	3	5	9						14	W			
730	733.9	38.5	6	9	12						21	W	RESIDUAL Stiff to Very Stiff, Low Plasticity, Red to Tan to Gray, Clayey, Coarse to Fine Sandy SILT	736.4	36.0
725	728.9	43.5	6	6	9						15	W			
720	723.9	48.5	4	6	7						13	W	RESIDUAL Stiff, Low Plasticity; Black, White to Tan to Brown; Fine Sandy; Silty CLAY	726.4	46.0
715	718.9	53.5	4	6	7						13	W			
710	713.9	58.5	5	6	9						15	W			
705	708.9	63.5	10	7	9						16	W			
700	703.9	68.5	9	17	26						43	W	RESIDUAL Hard, Low Plasticity, Tan to Brown, Clayey, Fine Sandy SILT	706.4	66.0
695	698.9	73.5	23	77/0.4								W	WEATHERED ROCK Black to Tan to Brown to Gray Metavolcanic Rock	701.4	71.0

NCDOT BORE SINGLE 101895 PART 3.GPJ NC_DOT_GDT 5/11/09

PROJECT NO. 34749.1.1	ID. U-0209B	COUNTY Mecklenburg	GEOLOGIST J. Fregosi
SITE DESCRIPTION Bridge No. 1171 (Str1) on -Y1- (Sharon Amity Rd.) over US 74 (Independence Blvd.)			GROUND WTR (ft)
BORING NO. EB1-B	STATION 25+09	OFFSET 59ft RT	ALIGNMENT -Y1-
COLLAR ELEV. 772.4 ft	TOTAL DEPTH 83.8 ft	NORTHING 530,543	EASTING 1,472,513
DRILL MACHINE Acker AD II	DRILL METHOD Wash Rotary	HAMMER TYPE 140 lb. Manual	
START DATE 03/23/09	COMP. DATE 03/23/09	SURFACE WATER DEPTH N/A	DEPTH TO ROCK 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					
695															
690	693.9	78.5											Match Line		
685	688.9	83.5											WEATHERED ROCK Black to Tan to Brown to Gray Metavolcanic Rock (continued)	688.6	83.8
680													*Note: Tap Water Alone Used as Drilling Fluid Boring Terminated at Elevation 688.6 ft in Weathered Rock: Metavolcanic Rock		
675															
670															
665															
660															
655															
650															
645															
640															
635															
630															
625															
620															
615															

NCDOT BORE SINGLE 101895 PART 3.GPJ NC_DOT_GDT 5/11/09

PROJECT NO. 34749.1.1	ID. U-0209B	COUNTY Mecklenburg	GEOLOGIST J. Fregosi
SITE DESCRIPTION Bridge No. 1171 (Str1) on -Y1- (Sharon Amity Rd.) over US 74 (Independence Blvd.)			GROUND WTR (ft)
BORING NO. B1-A	STATION 25+93	OFFSET 48ft LT	ALIGNMENT -Y1-
COLLAR ELEV. 770.8 ft	TOTAL DEPTH 115.0 ft	NORTHING 530,407	EASTING 1,472,521
DRILL MACHINE B-57 Truck	DRILL METHOD Wash Rotary	HAMMER TYPE 140 lb Automatic	
START DATE 03/16/09	COMP. DATE 03/17/09	SURFACE WATER DEPTH N/A	DEPTH TO ROCK 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					
775														
770													770.8	0.0
765	765.8	5.0	1	3	3					SS-37	60%			
760	762.3	8.5	1	2	2									
755	757.3	13.5	1	2	2									
750	752.3	18.5	1	1	2									
745	747.3	23.5	1	2	3									
740	742.3	28.5	2	2	3									
735	737.3	33.5	3	7	8					SS-38	37%		738.8	32.0
730	732.3	38.5	5	8	11									
725	727.3	43.5	4	5	11									
720	722.3	48.5	4	5	6									
715	717.3	53.5	3	7	12									
710	712.3	58.5	5	7	7									
705	707.3	63.5	2	2	5									
700	702.3	68.5	3	6	8									
695	697.3	73.5	5	8	11								699.8	71.0

PROJECT NO. 34749.1.1	ID. U-0209B	COUNTY Mecklenburg	GEOLOGIST J. Fregosi
SITE DESCRIPTION Bridge No. 1171 (Str1) on -Y1- (Sharon Amity Rd.) over US 74 (Independence Blvd.)			GROUND WTR (ft)
BORING NO. B1-A	STATION 25+93	OFFSET 48ft LT	ALIGNMENT -Y1-
COLLAR ELEV. 770.8 ft	TOTAL DEPTH 115.0 ft	NORTHING 530,407	EASTING 1,472,521
DRILL MACHINE B-57 Truck	DRILL METHOD Wash Rotary	HAMMER TYPE 140 lb Automatic	
START DATE 03/16/09	COMP. DATE 03/17/09	SURFACE WATER DEPTH N/A	DEPTH TO ROCK 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					
695														
690	692.3	78.5	3	8	11									
685	687.3	83.5	5	10	16									
680	682.3	88.5	8	16	21									
675	677.3	93.5	9	15	20									
670	672.3	98.5	9	18	25									
665	667.3	103.5	34	50	50/0.3								667.8	103.0
660	662.3	108.5	28	51	49/0.3									
655	657.3	113.5	15	28	46								657.3	113.5
650													655.8	115.0
645														
640														
635														
630														
625														
620														
615														

NCDOT BORE SINGLE 101895 PART 3.GPJ NC_DOT.GDT 5/11/09

NCDOT BORE SINGLE 101895 PART 3.GPJ NC_DOT.GDT 5/11/09

PROJECT NO. 34749.1.1		ID. U-0209B		COUNTY Mecklenburg		GEOLOGIST T. Wells										
SITE DESCRIPTION Bridge No. 1171 (Str1) on -Y1- (Sharon Amity Rd.) over US 74 (Independence Blvd.)						GROUND WTR (ft)										
BORING NO. B1-C		STATION 25+88		OFFSET CL		ALIGNMENT -Y1-										
COLLAR ELEV. 771.1 ft		TOTAL DEPTH 95.0 ft		NORTHING 530,446		EASTING 1,472,493										
DRILL MACHINE Acker AD II		DRILL METHOD Wash Rotary		HAMMER TYPE 140 lb. Manual												
START DATE 03/16/09		COMP. DATE 03/17/09		SURFACE WATER DEPTH N/A		DEPTH TO ROCK N/A										
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG MOI	LOG G	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100						
775																
770															771.1	0.0
765	766.1	5.0	3	4	7											
760	762.6	8.5	3	5	7											
755	757.6	13.5	3	6	8											
750	752.6	18.5	4	5	8										754.1	17.0
745	747.6	23.5	3	4	7											
740	742.6	28.5	4	5	7											
735	737.6	33.5	3	4	6											
730	732.6	38.5	3	6	9											
725	727.6	43.5	3	5	10											
720	722.6	48.5	10	9	13											
715	717.6	53.5	6	9	17											
710	712.6	58.5	6	10	17											
705	707.6	63.5	6	10	18											
700	702.6	68.5	13	22	36											
695	697.6	73.5	14	23	37										699.1	72.0

PROJECT NO. 34749.1.1		ID. U-0209B		COUNTY Mecklenburg		GEOLOGIST T. Wells										
SITE DESCRIPTION Bridge No. 1171 (Str1) on -Y1- (Sharon Amity Rd.) over US 74 (Independence Blvd.)						GROUND WTR (ft)										
BORING NO. B1-C		STATION 25+88		OFFSET CL		ALIGNMENT -Y1-										
COLLAR ELEV. 771.1 ft		TOTAL DEPTH 95.0 ft		NORTHING 530,446		EASTING 1,472,493										
DRILL MACHINE Acker AD II		DRILL METHOD Wash Rotary		HAMMER TYPE 140 lb. Manual												
START DATE 03/16/09		COMP. DATE 03/17/09		SURFACE WATER DEPTH N/A		DEPTH TO ROCK N/A										
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG MOI	LOG G	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100						
695																
690	692.6	78.5	12	12	15											
685	687.6	83.5	13	19	28											
680	682.6	88.5	39	61/0.4											100/0.9	
675	677.6	93.5	22	33	67										100/1.0	
670																
665																
660																
655																
650																
645																
640																
635																
630																
625																
620																
615																

NCDOT BORE SINGLE 101895 PART 3.GPJ NC_DOT_GDT_5/11/09

NCDOT BORE SINGLE 101895 PART 3.GPJ NC_DOT_GDT_5/11/09

Match Line

*Note: Tap Water with High Yield Bentonite Used as Drilling Fluid
Mud Wt. = 74lbs./cu. ft.
Boring Terminated at Elevation 676.1 ft in Weathered Rock: Metavolcanic Rock

PROJECT NO. 34749.1.1	ID. U-0209B	COUNTY Mecklenburg	GEOLOGIST T. Wells
SITE DESCRIPTION Bridge No. 1171 (Str1) on -Y1- (Sharon Amity Rd.) over US 74 (Independence Blvd.)			GROUND WTR (ft)
BORING NO. B1-B	STATION 25+82	OFFSET 59ft RT	ALIGNMENT -Y1-
COLLAR ELEV. 771.4 ft	TOTAL DEPTH 98.9 ft	NORTHING 530,494	EASTING 1,472,458
DRILL MACHINE B-57 Truck	DRILL METHOD Wash Rotary	HAMMER TYPE 140 lb Automatic	
START DATE 03/24/09	COMP. DATE 03/24/09	SURFACE WATER DEPTH N/A	DEPTH TO ROCK 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						
775															771.4	0.0
770														RESIDUAL Medium Stiff to Very Stiff, Low Plasticity, Black, Reddish Brown, Gray and Light Brown; Silty; Course to Fine Sandy Clay		
765	766.4	5.0		2	2	3										
760	762.9	8.5		1	2	3						SS-40	35%			
755	757.9	13.5		1	2	3										
750	752.9	18.5		2	2	4										
745	747.9	23.5		2	3	3										
740	742.9	28.5		2	3	5										
735	737.9	33.5		2	2	5										
730	732.9	38.5		1	2	3										
725	727.9	43.5		2	2	5										
720	722.9	48.5		4	7	9										
715	717.9	53.5		3	7	10										
710	712.9	58.5		3	6	8										
705	707.9	63.5		3	7	12										
700	702.9	68.5		5	10	16						SS-41	28%			
695	697.9	73.5		6	11	17										

PROJECT NO. 34749.1.1	ID. U-0209B	COUNTY Mecklenburg	GEOLOGIST T. Wells
SITE DESCRIPTION Bridge No. 1171 (Str1) on -Y1- (Sharon Amity Rd.) over US 74 (Independence Blvd.)			GROUND WTR (ft)
BORING NO. B1-B	STATION 25+82	OFFSET 59ft RT	ALIGNMENT -Y1-
COLLAR ELEV. 771.4 ft	TOTAL DEPTH 98.9 ft	NORTHING 530,494	EASTING 1,472,458
DRILL MACHINE B-57 Truck	DRILL METHOD Wash Rotary	HAMMER TYPE 140 lb Automatic	
START DATE 03/24/09	COMP. DATE 03/24/09	SURFACE WATER DEPTH N/A	DEPTH TO ROCK 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						
695																
690	692.9	78.5		5	9	16										
685	687.9	83.5		20	25	39										
680	682.9	88.5		27	40	60/0.4										
675	677.9	93.5		34	52	48/0.2										
670	672.9	98.5		100/0.4												
665																
660																
655																
650																
645																
640																
635																
630																
625																
620																
615																

NCDOT BORE SINGLE 101895 PART 3.GPJ NC_DOT.GDT 5/11/09

NCDOT BORE SINGLE 101895 PART 3.GPJ NC_DOT.GDT 5/11/09

Match Line

RESIDUAL
Very Stiff to Hard, Non-Plastic, Gray and Brown, Coarse to Fine Sandy SILT
(continued)

WEATHERED ROCK
Gray Metavolcanic Rock

Note: Tap Water with High Yield Bentonite Used as Drilling Fluid
Mud Wt. = 73lbs/cu. ft.
Boring Terminated at Elevation 672.5 ft in Weathered Rock: Metavolcanic Rock

PROJECT NO. 34749.1.1	ID. U-0209B	COUNTY Mecklenburg	GEOLOGIST T. Wells
SITE DESCRIPTION Bridge No. 1171 (Str1) on -Y1- (Sharon Amity Rd.) over US 74 (Independence Blvd.)			GROUND WTR (ft)
BORING NO. B2-A	STATION 26+97	OFFSET 48ft LT	ALIGNMENT -Y1-
COLLAR ELEV. 769.8 ft	TOTAL DEPTH 109.4 ft	NORTHING 530,338	EASTING 1,472,443
DRILL MACHINE B-57 Truck	DRILL METHOD Wash Rotary	HAMMER TYPE 140 lb Automatic	
START DATE 03/22/09	COMP. DATE 03/23/09	SURFACE WATER DEPTH N/A	DEPTH TO ROCK 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				
770												769.8	0.0
765	764.8	5.0											
760	761.3	8.5	WOH	1	2								
755	756.3	13.5	WOH	1	2								
750	751.3	18.5		1	2	3							
745	746.3	23.5		1	3	4							
740	741.3	28.5		1	3	3				SS-42	45%		
735	736.3	33.5		1	2	2							
730	731.3	38.5		1	2	3							
725	726.3	43.5		1	2	4							
720	721.3	48.5		1	3	4							
715	716.3	53.5		1	4	4							
710	711.3	58.5		2	5	5						708.8	61.0
705	706.3	63.5		5	7	13							
700	701.3	68.5		5	9	12				SS-43	31%		
695	696.3	73.5		5	10	16							
690	691.3	78.5		7	12	18							

PROJECT NO. 34749.1.1	ID. U-0209B	COUNTY Mecklenburg	GEOLOGIST T. Wells
SITE DESCRIPTION Bridge No. 1171 (Str1) on -Y1- (Sharon Amity Rd.) over US 74 (Independence Blvd.)			GROUND WTR (ft)
BORING NO. B2-A	STATION 26+97	OFFSET 48ft LT	ALIGNMENT -Y1-
COLLAR ELEV. 769.8 ft	TOTAL DEPTH 109.4 ft	NORTHING 530,338	EASTING 1,472,443
DRILL MACHINE B-57 Truck	DRILL METHOD Wash Rotary	HAMMER TYPE 140 lb Automatic	
START DATE 03/22/09	COMP. DATE 03/23/09	SURFACE WATER DEPTH N/A	DEPTH TO ROCK 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				
690													
685	686.3	83.5		8	13	20							
680	681.3	88.5		11	19	24							
675	676.3	93.5		16	24	28							
670	671.3	98.5		15	22	36							
665	666.3	103.5		23	35	54							
660	661.3	108.5		32	68/0.4							106.0	109.4
655													
650													
645													
640													
635													
630													
625													
620													
615													
610													

NCDOT BORE SINGLE 101895 PART 3.GPJ NC_DOT_GDT 5/11/09

NCDOT BORE SINGLE 101895 PART 3.GPJ NC_DOT_GDT 5/11/09

*Note: Tap Water with High Yield Bentonite Used as Drilling Fluid
Mud Wt. = 76 lbs/cu. ft.
Boring Terminated at Elevation 660.4 ft in Weathered Rock: Metavolcanic Rock

PROJECT NO. 34749.1.1	ID. U-0209B	COUNTY Mecklenburg	GEOLOGIST J. Fregosi
SITE DESCRIPTION Bridge No. 1171 (Str1) on -Y1- (Sharon Amity Rd.) over US 74 (Independence Blvd.)			GROUND WTR (ft)
BORING NO. B2-C	STATION 26+92	OFFSET CL	ALIGNMENT -Y1-
COLLAR ELEV. 770.1 ft	TOTAL DEPTH 114.4 ft	NORTHING 530,377	EASTING 1,472,415
DRILL MACHINE B-57 Truck	DRILL METHOD Wash Rotary	HAMMER TYPE 140 lb Automatic	
START DATE 03/18/09	COMP. DATE 03/19/09	SURFACE WATER DEPTH N/A	DEPTH TO ROCK 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				
775														
770													RESIDUAL Soft to Stiff; Low Plasticity; Red, Tan, White and Brown; Coarse to Fine Sandy; Silty CLAY	0.0
765	765.1	5.0	1	2	2							M		
760	761.6	8.5	1	2	2							M		
755	756.6	13.5	1	1	2							M		
750	751.6	18.5	1	2	3							W		
745	746.6	23.5	1	2	2							W		
740	741.6	28.5	1	2	3							W		
735	736.6	33.5	2	3	4							W		
730	731.6	38.5	2	3	4							W		
725	726.6	43.5	2	2	4							W		
720	721.6	48.5	4	5	6							W		
715	716.6	53.5	2	3	5							W		
710	711.6	58.5	2	4	4							W		
705	706.6	63.5	3	4	5							W		
700	701.6	68.5	3	5	5							W		
695	696.6	73.5	3	6	7							W		

NCDOT BORE SINGLE 101895 PART 3.GPJ NC_DOT_GDT 5/11/09

PROJECT NO. 34749.1.1	ID. U-0209B	COUNTY Mecklenburg	GEOLOGIST J. Fregosi
SITE DESCRIPTION Bridge No. 1171 (Str1) on -Y1- (Sharon Amity Rd.) over US 74 (Independence Blvd.)			GROUND WTR (ft)
BORING NO. B2-C	STATION 26+92	OFFSET CL	ALIGNMENT -Y1-
COLLAR ELEV. 770.1 ft	TOTAL DEPTH 114.4 ft	NORTHING 530,377	EASTING 1,472,415
DRILL MACHINE B-57 Truck	DRILL METHOD Wash Rotary	HAMMER TYPE 140 lb Automatic	
START DATE 03/18/09	COMP. DATE 03/19/09	SURFACE WATER DEPTH N/A	DEPTH TO ROCK 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				
695														
690	691.6	78.5	5	9	17							W	RESIDUAL Stiff to Hard, Non-Plastic, White to Tan to Brown, Clayey, Coarse to Fine Sandy SILT (continued)	
685	686.6	83.5	8	16	24							M		
680	681.6	88.5	8	15	23							M		
675	676.6	93.5	12	16	26							M		
670	671.6	98.5	10	17	25							M		
665	666.6	103.5	20	28	41							M		
660	661.6	108.5	21	45	55/0.3								WEATHERED ROCK White to Tan to Brown Metavolcanic Rock	106.0
655	656.6	113.5	35	65/0.4										114.4

NCDOT BORE SINGLE 101895 PART 3.GPJ NC_DOT_GDT 5/11/09

Note: Tap Water with High Yield Bentonite Used as Drilling Fluid
Mut Wt. = 82lbs/cu. ft.
Boring Terminated at Elevation 655.7 ft in Weathered Rock: Metavolcanic Rock

PROJECT NO. 34749.1.1		ID. U-0209B		COUNTY Mecklenburg		GEOLOGIST T. Wells							
SITE DESCRIPTION Bridge No. 1171 (Str1) on -Y1- (Sharon Amity Rd.) over US 74 (Independence Blvd.)							GROUND WTR (ft)						
BORING NO. B2-B		STATION 26+89		OFFSET 58ft RT		ALIGNMENT -Y1-							
COLLAR ELEV. 770.5 ft		TOTAL DEPTH 93.5 ft		NORTHING 530,423		EASTING 1,472,379							
DRILL MACHINE Acker AD II		DRILL METHOD Wash Rotary		HAMMER TYPE 140 lb. Manual									
START DATE 03/18/09		COMP. DATE 03/19/09		SURFACE WATER DEPTH N/A		DEPTH TO ROCK 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				
775													
770													0.0
765	765.5	5.0	2	4	5						W		
760	762.0	8.5	2	3	6						W		
755	757.0	13.5	2	4	5						W		
750	752.0	18.5	3	3	5					SS-44	49%	RESIDUAL Medium Stiff to Very Stiff, Low Plasticity, Light Brown, Coarse to Fine Sandy, Clayey SILT	17.0
745	747.0	23.5	3	3	6						W		
740	742.0	28.5	3	5	6						W		
735	737.0	33.5	3	5	7						W		
730	732.0	38.5	3	4	7						W		
725	727.0	43.5	4	5	9						W		
720	722.0	48.5	8	10	13						W		
715	717.0	53.5	5	7	8						W		
710	712.0	58.5	7	11	15						W		57.0
705	707.0	63.5	7	11	18					SS-45	35%	RESIDUAL Very Stiff, Low Plasticity, Light Brown, Fine, Sandy, Silty CLAY	
700	702.0	68.5	25	33	67							WEATHERED ROCK Light Brown Metavolcanic Rock	67.0
	697.0	73.5	13	10	12						W	RESIDUAL Very Stiff to Hard, Non-Plastic, Brown and Gray, Clayey, Coarse to Fine Sandy SILT	71.0
695													100/1.0

NCDOT BORE SINGLE 101895 PART 3.GPJ NC_DOT_GDT 5/11/09

PROJECT NO. 34749.1.1		ID. U-0209B		COUNTY Mecklenburg		GEOLOGIST T. Wells							
SITE DESCRIPTION Bridge No. 1171 (Str1) on -Y1- (Sharon Amity Rd.) over US 74 (Independence Blvd.)							GROUND WTR (ft)						
BORING NO. B2-B		STATION 26+89		OFFSET 58ft RT		ALIGNMENT -Y1-							
COLLAR ELEV. 770.5 ft		TOTAL DEPTH 93.5 ft		NORTHING 530,423		EASTING 1,472,379							
DRILL MACHINE Acker AD II		DRILL METHOD Wash Rotary		HAMMER TYPE 140 lb. Manual									
START DATE 03/18/09		COMP. DATE 03/19/09		SURFACE WATER DEPTH N/A		DEPTH TO ROCK 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				
695													
690	692.0	78.5	15	21	26						W	RESIDUAL Very Stiff to Hard, Non-Plastic, Brown and Gray, Clayey, Coarse to Fine Sandy SILT (continued)	
685	687.0	83.5	13	19	27						W		
680	682.0	88.5	100/0.4									WEATHERED ROCK Light Brown Metavolcanic Rock	87.0
675													93.5
670													
665													
660													
655													
650													
645													
640													
635													
630													
625													
620													
615													

NCDOT BORE SINGLE 101895 PART 3.GPJ NC_DOT_GDT 5/11/09

Match Line

Note: Tap Water with High Yield Bentonite
Used As Drilling Fluid
Mud Wt. = 74 lbs/cu. ft.
Boring Terminated at Elevation 677.0 ft in
Weathered Rock: Metavolcanic Rock



PROJECT NO. 34749.1.1	ID. U-0209B	COUNTY Mecklenburg	GEOLOGIST T. Wells
SITE DESCRIPTION Bridge No. 1171 (Str1) on -Y1- (Sharon Amity Rd.) over US 74 (Independence Blvd.)			GROUND WTR (ft)
BORING NO. EB2-A	STATION 28+07	OFFSET 53ft LT	ALIGNMENT -Y1-
COLLAR ELEV. 770.5 ft	TOTAL DEPTH 5.0 ft	NORTHING 530,261	EASTING 1,472,364
DRILL MACHINE N/A	DRILL METHOD Hand Auger	HAMMER TYPE N/A	
START DATE 03/25/09	COMP. DATE 03/25/09	SURFACE WATER DEPTH N/A	DEPTH TO ROCK 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					
775															
770														RESIDUAL Low Plasticity, Brown, Coarse to Fine Sandy Silty CLAY with Trace Petroleum Odor	0.0
765														Boring Terminated at Elevation 765.5 ft in Residual Soil: Silty Clay	5.0
760															
755															
750															
745															
740															
735															
730															
725															
720															
715															
710															
705															
700															
695															

NCDOT BORE SINGLE 101895 PART 3.GPJ NC_DOT.GDT 5/11/09



PROJECT NO. 34749.1.1	ID. U-0209B	COUNTY Mecklenburg	GEOLOGIST T. Wells
SITE DESCRIPTION Bridge No. 1171 (Str1) on -Y1- (Sharon Amity Rd.) over US 74 (Independence Blvd.)			GROUND WTR (ft)
BORING NO. EB2-C	STATION 28+06	OFFSET CL	ALIGNMENT -Y1-
COLLAR ELEV. 770.6 ft	TOTAL DEPTH 5.0 ft	NORTHING 530,302	EASTING 1,472,329
DRILL MACHINE N/A	DRILL METHOD Hand Auger	HAMMER TYPE N/A	
START DATE 03/25/09	COMP. DATE 03/25/09	SURFACE WATER DEPTH N/A	DEPTH TO ROCK 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					
775															
770														RESIDUAL Low Plasticity, Brown, Coarse to Fine Sandy Silty CLAY with Trace Petroleum Odor	0.0
765														Boring Terminated at Elevation 765.6 ft in Residual Soil: Silty Clay	5.0
760															
755															
750															
745															
740															
735															
730															
725															
720															
715															
710															
705															
700															
695															

NCDOT BORE SINGLE 101895 PART 3.GPJ NC_DOT.GDT 5/11/09

PROJECT NO. 34749.1.1	ID. U-0209B	COUNTY Mecklenburg	GEOLOGIST J. Fregosi
SITE DESCRIPTION Bridge No. 1171 (Str1) on -Y1- (Sharon Amity Rd.) over US 74 (Independence Blvd.)			GROUND WTR (ft)
BORING NO. EB2-C1	STATION 28+06	OFFSET CL	ALIGNMENT -Y1-
COLLAR ELEV. 770.6 ft	TOTAL DEPTH 91.4 ft	NORTHING 530,302	EASTING 1,472,329
DRILL MACHINE B-57 Truck	DRILL METHOD H.S.A	HAMMER TYPE 140 lb Automatic	
START DATE 03/30/09	COMP. DATE 03/30/09	SURFACE WATER DEPTH N/A	DEPTH TO ROCK N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG MOI	LOG G	SOIL AND ROCK DESCRIPTION	DEPTH (ft)
			0.5ft	0.5ft	0.5ft	0	25	50	75	100					
775															
770														ARTIFICIAL FILL Low-Plasticity, Orange to Red, Fine Sandy, Silty CLAY	0.0
765	765.6	5.0	2	3	4									RESIDUAL Soft to Hard; Low Plasticity; White, Black, Red, Tan and Gray; Fine Sandy; Silty CLAY	3.0
760	762.1	8.5	2	2	2										
755	757.1	13.5	1	1	2										
750	752.1	18.5	1	2	2										
745	747.1	23.5	1	2	2										
740	742.1	28.5	2	2	3										
735	737.1	33.5	1	1	3										
730	732.1	38.5	1	1	2										
725	727.1	43.5	1	1	3										
720	722.1	48.5	1	2	3										
715	717.1	53.5	2	2	4										
710	712.1	58.5	3	4	8										
705	707.1	63.5	5	8	12										
700	702.1	68.5	6	10	14										
695	697.1	73.5	9	16	24										

NCDOT BORE SINGLE 101895 PART 3.GPJ NC_DOT.GDT 5/11/09

PROJECT NO. 34749.1.1	ID. U-0209B	COUNTY Mecklenburg	GEOLOGIST J. Fregosi
SITE DESCRIPTION Bridge No. 1171 (Str1) on -Y1- (Sharon Amity Rd.) over US 74 (Independence Blvd.)			GROUND WTR (ft)
BORING NO. EB2-C1	STATION 28+06	OFFSET CL	ALIGNMENT -Y1-
COLLAR ELEV. 770.6 ft	TOTAL DEPTH 91.4 ft	NORTHING 530,302	EASTING 1,472,329
DRILL MACHINE B-57 Truck	DRILL METHOD H.S.A	HAMMER TYPE 140 lb Automatic	
START DATE 03/30/09	COMP. DATE 03/30/09	SURFACE WATER DEPTH N/A	DEPTH TO ROCK N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG MOI	LOG G	SOIL AND ROCK DESCRIPTION	DEPTH (ft)
			0.5ft	0.5ft	0.5ft	0	25	50	75	100					
695															
690	692.1	78.5	8	15	19									RESIDUAL Soft to Hard; Low Plasticity; White, Black, Red, Tan and Gray; Fine Sandy; Silty CLAY (continued)	
685	687.1	83.5	24	40	60/0.4									WEATHERED ROCK Black to White to Tan Metavolcanic Rock	84.0
680	682.1	88.5	27	34	66/0.4										
	679.6	91.0	100/0.4												91.4
675															
670															
665															
660															
655															
650															
645															
640															
635															
630															
625															
620															
615															

NCDOT BORE SINGLE 101895 PART 3.GPJ NC_DOT.GDT 5/11/09

Match Line

Boring Terminated at Elevation 679.2 ft



PROJECT NO. 34749.1.1	ID. U-0209B	COUNTY Mecklenburg	GEOLOGIST T. Wells
SITE DESCRIPTION Bridge No. 1171 (Str1) on -Y1- (Sharon Amity Rd.) over US 74 (Independence Blvd.)			GROUND WTR (ft)
BORING NO. EB2-B	STATION 28+23	OFFSET 55ft RT	ALIGNMENT -Y1-
COLLAR ELEV. 770.5 ft	TOTAL DEPTH 5.0 ft	NORTHING 530,332	EASTING 1,472,280
DRILL MACHINE N/A	DRILL METHOD Hand Auger	HAMMER TYPE N/A	
START DATE 03/25/09	COMP. DATE 03/25/09	SURFACE WATER DEPTH N/A	DEPTH TO ROCK N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG MOI	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100					ELEV. (ft)
775															
770														770.5	GROUND SURFACE 0.0
765										765.5	RESIDUAL Low-Plasticity, Brown, Coarse to Fine Sandy, Silty CLAY with Trace of Petroleum Odor 5.0
760															Boring Terminated at Elevation 765.5 ft in Residual Soil: Silty Clay
755															
750															
745															
740															
735															
730															
725															
720															
715															
710															
705															
700															
695															

NCDOT BORE SINGLE 101895 PART 3.GPJ NC_DOT_GDT 5/1/09

NCDOT Project No. 334749.1.1 TIP No. U-0209B
Bridge No. 1171 (Str1) on -Y1- (Sharon Amity Road) over US 74 (Independence Boulevard)
Mecklenburg County, North Carolina
SUMMARY OF LABORATORY TEST DATA

Boring Number	Sample Depth (ft.)	Sample No.*	Natural Moisture Content (%)	AASHTO Class (Group Index)	N-Value (blows/ft.)	Atterberg Limits			Gradation Results							
						L.L.	P.L.	P.I.	Pass #10 Sieve	Pass #40 Sieve	Pass #200 Sieve	Retained #270 Sieve	Coarse Sand (%)	Fine Sand (%)	Silt (%)	Clay (%)
EB1-A	5.0-6.5	SS-34	38.5	A-7-5 (10)	6	54	43	11	100	99	71	31	7	24	45	24
EB1-A	53.5-55.0	SS-35	48.5	A-5 (9)	21	54	46	8	100	99	71	32	6	26	48	20
EB1-B	53.5-55.0	SS-36	37.5	A-7-5 (7)	13	46	35	11	100	99	61	41	9	32	39	20
B1-A	5.0-6.5	SS-37	59.6	A-5 (3)	6	46	40	6	100	100	57	46	10	36	44	10
B1-A	33.5-35.0	SS-38	37.0	A-7-5 (13)	15	51	40	11	100	98	82	21	3	18	47	32
B1-C	18.5-20.0	SS-39	61.4	A-5 (12)	13	60	50	10	100	99	76	26	3	23	46	28
B1-B	8.5-10.0	SS-40	35.2	A-7-5 (8)	5	44	33	11	100	99	69	41	9	32	35	24
B1-B	68.5-70.0	SS-41	28.1	A-4 (0)	26	35	NP	NP	100	88	43	58	24	34	26	16
B2-A	28.5-30.0	SS-42	44.7	A-7-5 (12)	6	49	35	14	100	99	75	27	6	21	41	32
B2-A	68.5-70.0	SS-43	31.2	A-4 (4)	21	38	30	8	100	95	58	45	12	33	39	16
B2-B	18.5-20.0	SS-44	49.0	A-5 (13)	8	51	43	8	100	100	95	7	0	7	61	32
B2-B	63.5-65.0	SS-45	34.7	A-6 (8)	29	40	29	11	100	100	74	28	2	26	50	22

SS = Split-Barrel Sample (ASTM-D-1586) ST = Shelby Tube (Undisturbed) Sample

G = Grab Sample

NP -- Non Plastic

NA-- Non Applicable

Page: 1 of 1

KLEINFELDER, INC.
GREENSBORO, NORTH CAROLINA
Trigon Job Number: 101895

NCDOT CERTIFIED TECHNICIAN PERFORMING LAB TESTING:



Patrick Norville, NCDOT Certification No. 109-02-1003

SITE PHOTOGRAPHS
State Project No. 34749.1.1 TIP No. U-0209B
Bridge No. 1171 (Str1) on -Y1- (Sharon Amity Road)
Over US 74 (Independence Blvd.)
Mecklenburg County, North Carolina
Page 1 of 3



Photograph 1 – View Looking Upstation
From EB1-C to EB2-C

SITE PHOTOGRAPHS
State Project No. 34749.1.1 TIP No. U-0209B
Bridge No. 1171 (Str1) on -Y1- (Sharon Amity Road)
Over US 74 (Independence Blvd.)
Mecklenburg County, North Carolina
Page 2 of 3



Photograph 3 – View Left to Right Across Bent-1



Photograph 2 – View Left to Right Across End Bent-1



Photograph 4 – View Left to Right Across Bent-2

SITE PHOTOGRAPHS
State Project No. 34749.1.1 TIP No. U-0209E
Bridge No. 1171 (Str1) on -Y1- (Sharon Amity Ro
Over US 74 (Independence Blvd.)
Mecklenburg County, North Carolina
Page 3 of 3



Photograph 3 – View Left to Right Across End Bent-2

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

STRUCTURE
SUBSURFACE INVESTIGATION

CONTENTS

SHEET	DESCRIPTION
1	TITLE SHEET
2	NCDOT LEGEND SHEET
3	SITE VICINITY MAP (DRAWING NO. 1)
4	SITE PLAN (DRAWING NO. 2)
5-8	SUBSURFACE PROFILE AND CROSS SECTIONS (DRAWING NOS. 3-6)
9-14	FINAL BORING LOGS & CORING LOGS
15	SUMMARY OF SOIL LABORATORY TEST DATA
16	SITE PHOTOGRAPHS

PROJ. REFERENCE NO. 34749.1.1 F.A. PROJ. NHFSTP-0074(94)
COUNTY MECKLENBURG
PROJECT DESCRIPTION US 74 (INDEPENDENCE BLVD.)
NC 24-27 TO IDLEWILD ROAD

SITE DESCRIPTION BRIDGE NO. 1173 (STR3) ON -Y18-
(CONFERENCE DR.) OVER US 74 (INDEPENDENCE BLVD.)

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) 250-4088. 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.

Regional
Geotechnical Design
Engineer

PERSONNEL

S. KITTS

D. HOWELL

R. TOOTHMAN

B. DUNCAN

C. HEUN

K. HICKS

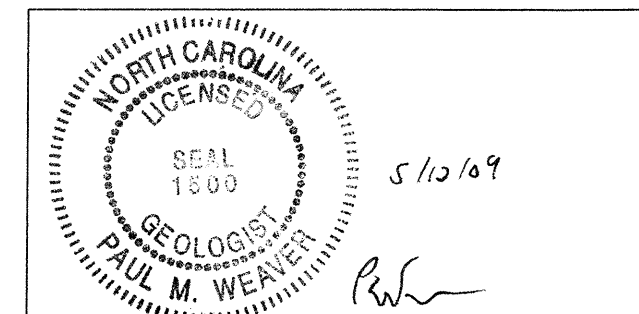
A. HAYES

INVESTIGATED BY T. WELLS, J. FREGOSI

CHECKED BY J. VINSON

SUBMITTED BY P. WEAVER

DATE 4/1/09



PROJECT: 34749.1.1 ID: U-0209B

DRAWN BY: SLK

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

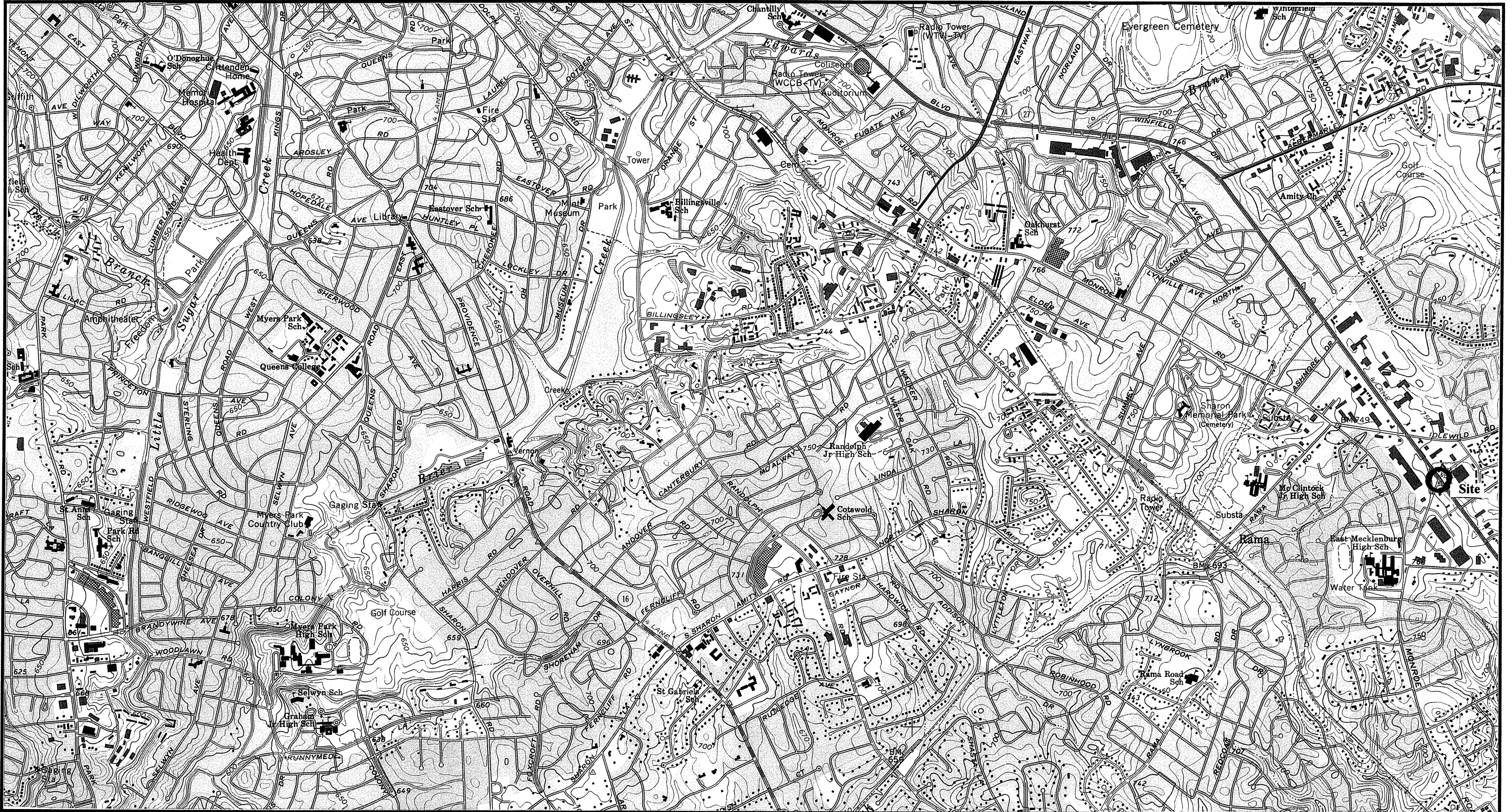
GEOTECHNICAL ENGINEERING UNIT

SUBSURFACE INVESTIGATION

SOIL AND ROCK LEGEND, TERMS, SYMBOLS, AND ABBREVIATIONS

PROJECT REFERENCE NO. U-0209B SHEET NO. 2

Main content table with columns: SOIL DESCRIPTION, GRADATION, ROCK DESCRIPTION, TERMS AND DEFINITIONS. Includes sub-sections like SOIL LEGEND AND AASHTO CLASSIFICATION, CONSISTENCY OR DENSENESS, TEXTURE OR GRAIN SIZE, SOIL MOISTURE - CORRELATION OF TERMS, PLASTICITY, COLOR, MISCELLANEOUS SYMBOLS, ABBREVIATIONS, EQUIPMENT USED ON SUBJECT PROJECT, FRACTURE SPACING, BEDDING, INDURATION.



Kleinfelder Southeast, Inc.
Greensboro North Carolina

SCALE:
1:24,000

DATE:
4/01/09

WBS PROJECT NO.
34749.1.1

TIP No.
U-0209B

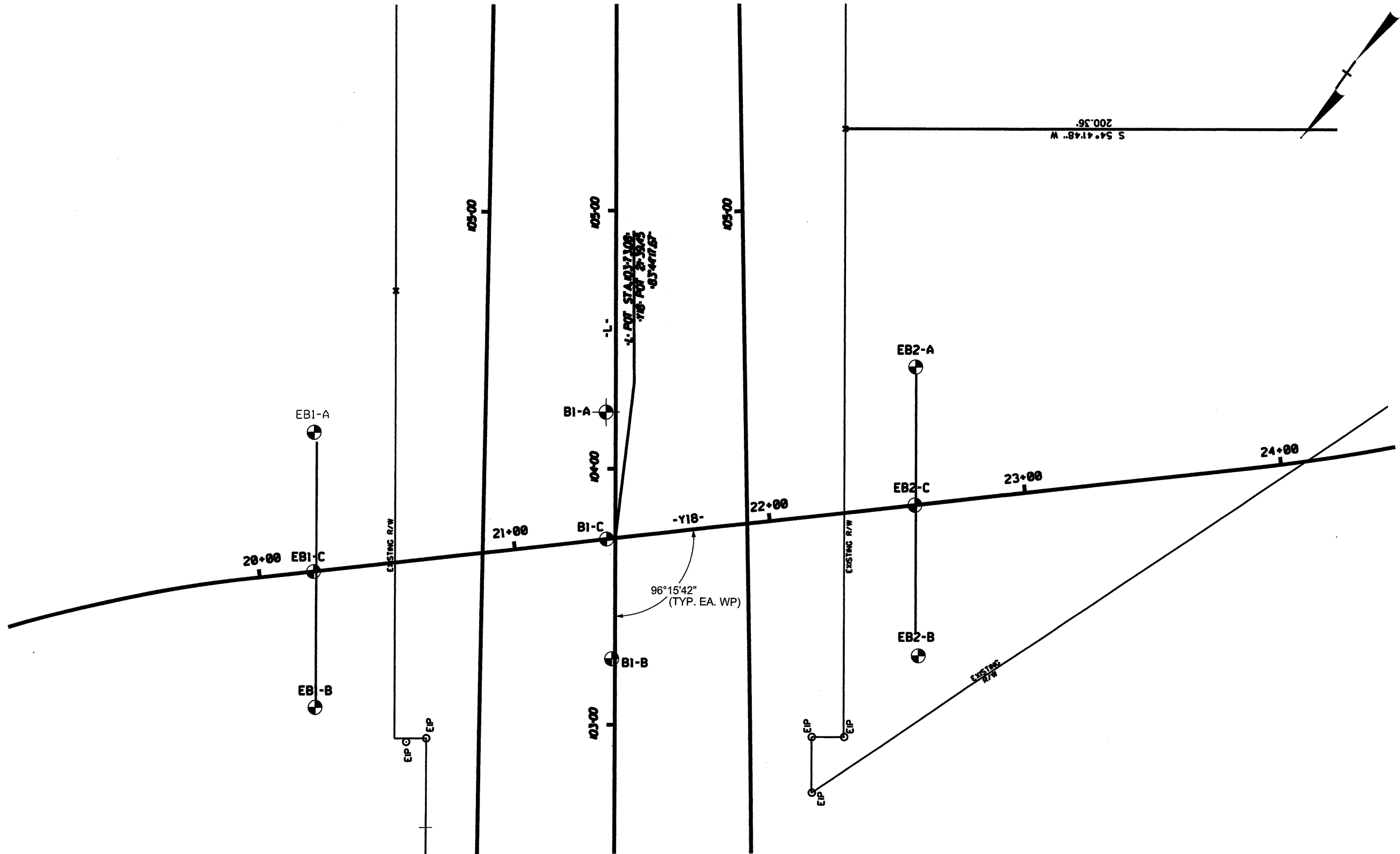
SITE VICINITY MAP

Bridge No. 1173 (Str3) on -Y18- (Conference Drive) over US 74 (Independence Boulevard), Mecklenburg County, North Carolina

**USGS Quadrangle - Charlotte East, North Carolina
1967, Photo Revised 1988**

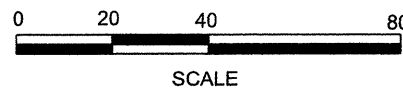
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1



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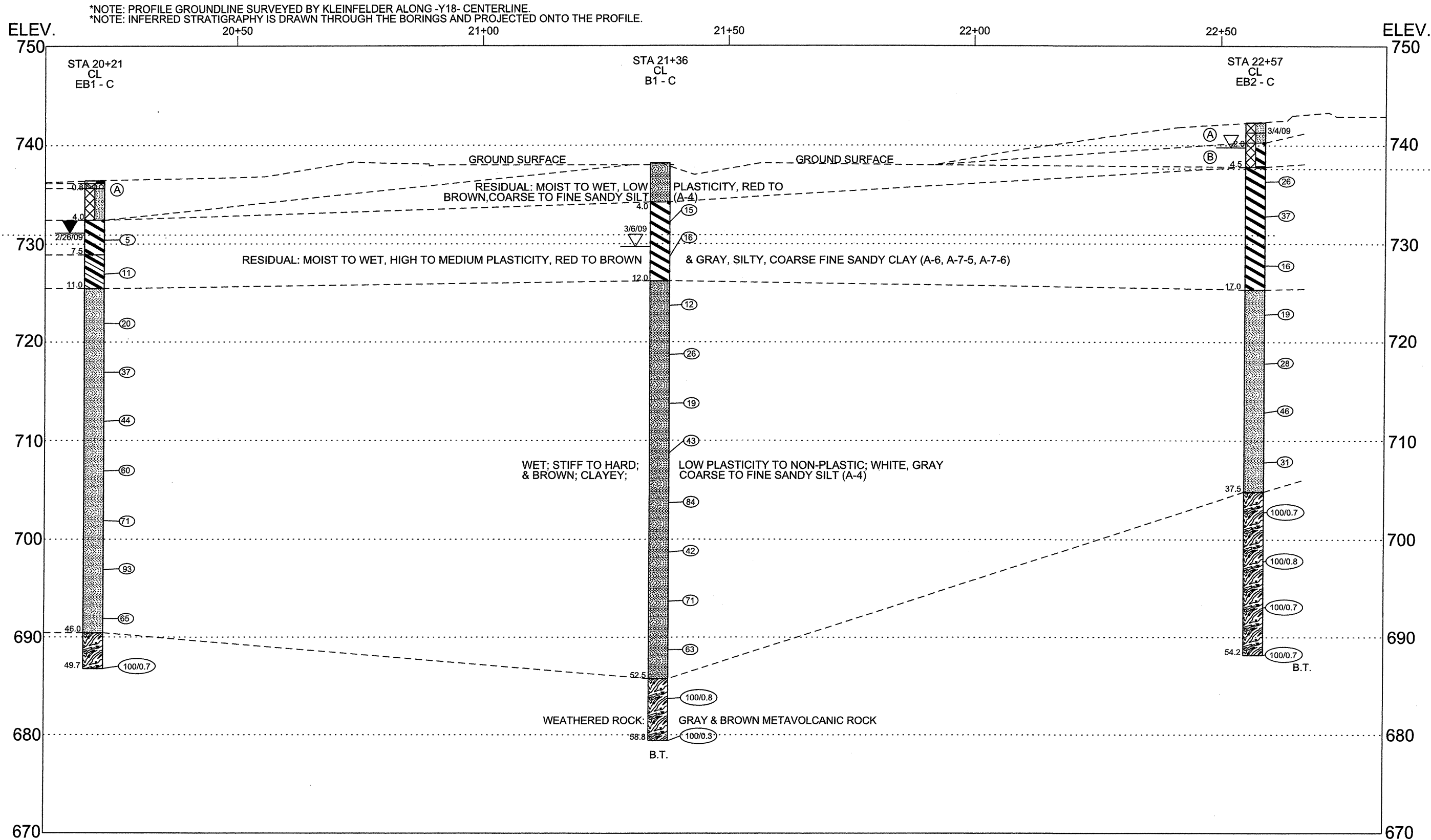
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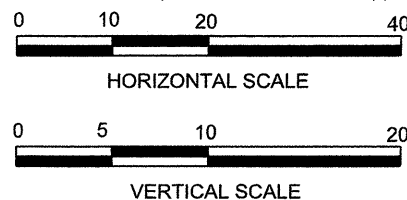
PROJECT NO. 34749.1.1
 DRAWN: 04/03/2009
 DRAWN BY: SLK
 CHECKED BY: PW
 SCALE: 1" = 40'

SITE PLAN
 BRIDGE NO. 1173 (STR 3)
 ON -Y18- (CONFERENCE DR.)
 OVER US 74 (INDEPENDENCE BLVD.)
 TIP NO. U-0209B FEDERAL NO. NHFSTP-0074 (94)
MECKLENBURG COUNTY
NORTH CAROLINA

DRAWING NO.
2



- (A) ARTIFICIAL FILL; WET, LOW PLASTICITY TO NON-PLASTIC, RED TO BROWN, COARSE TO FINE SANDY SILT (A-4)
- (B) ARTIFICIAL FILL: MOIST, MEDIUM PLASTICITY, GRAY, COARSE TO FINE SANDY, SILTY CLAY (A-6, A-7-5 AND A-7-6)(DECAYED PLANT MATERIAL)



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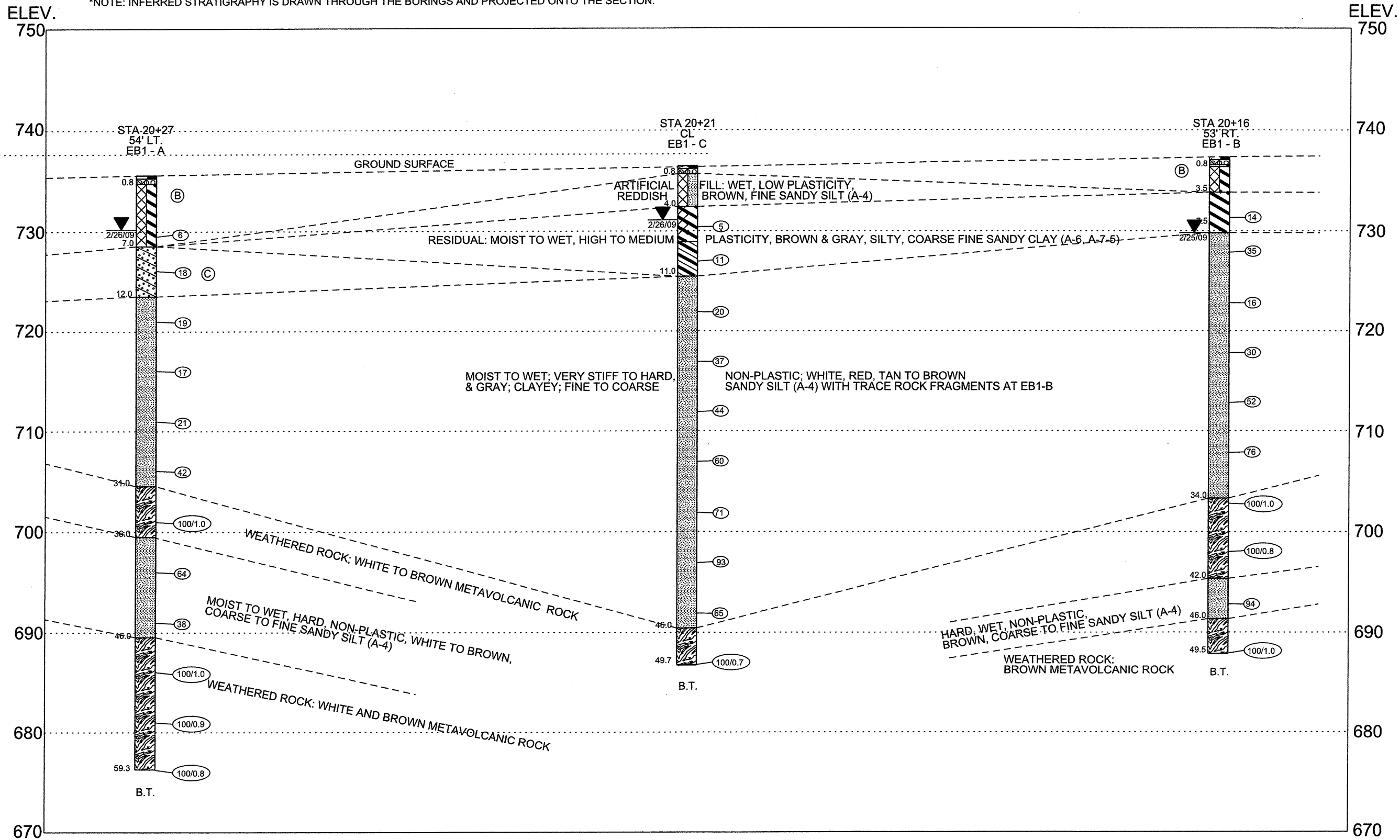


PROJECT NO.	34749.1.1
DRAWN:	04/03/2009
DRAWN BY:	SLK
CHECKED BY:	PW
SCALE:	VERTICAL 1" = 10' HORIZONTAL 1" = 20'

PROFILE ALONG CENTERLINE	
BRIDGE NO. 1173 (STR 3)	
ON -Y18- (CONFERENCE DR.)	
OVER US 74 (INDEPENDENCE BLVD.)	
TIP NO. U-0209B	FEDERAL NO. NHFSTP-0074 (94)
MECKLENBURG COUNTY	
NORTH CAROLINA	

DRAWING NO.	3
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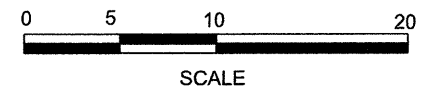
*NOTE: CROSS SECTION GROUNDLINE SURVEYED BY KLEINFELDER ALONG THE BENT.
 *NOTE: INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS AND PROJECTED ONTO THE SECTION.



- (B) ARTIFICIAL FILL: WET, MEDIUM STIFF, MEDIUM PLASTICITY, REDDISH BROWN TO BROWN, SILTY, FINE TO COARSE SANDY CLAY (A-7-6)
- (C) RESIDUAL: MOIST, MEDIUM DENSE, MEDIUM PLASTICITY, WHITE TO GRAY, CLAYEY, FINE TO COARSE SAND WITH TRACE SILT (A-2-7)

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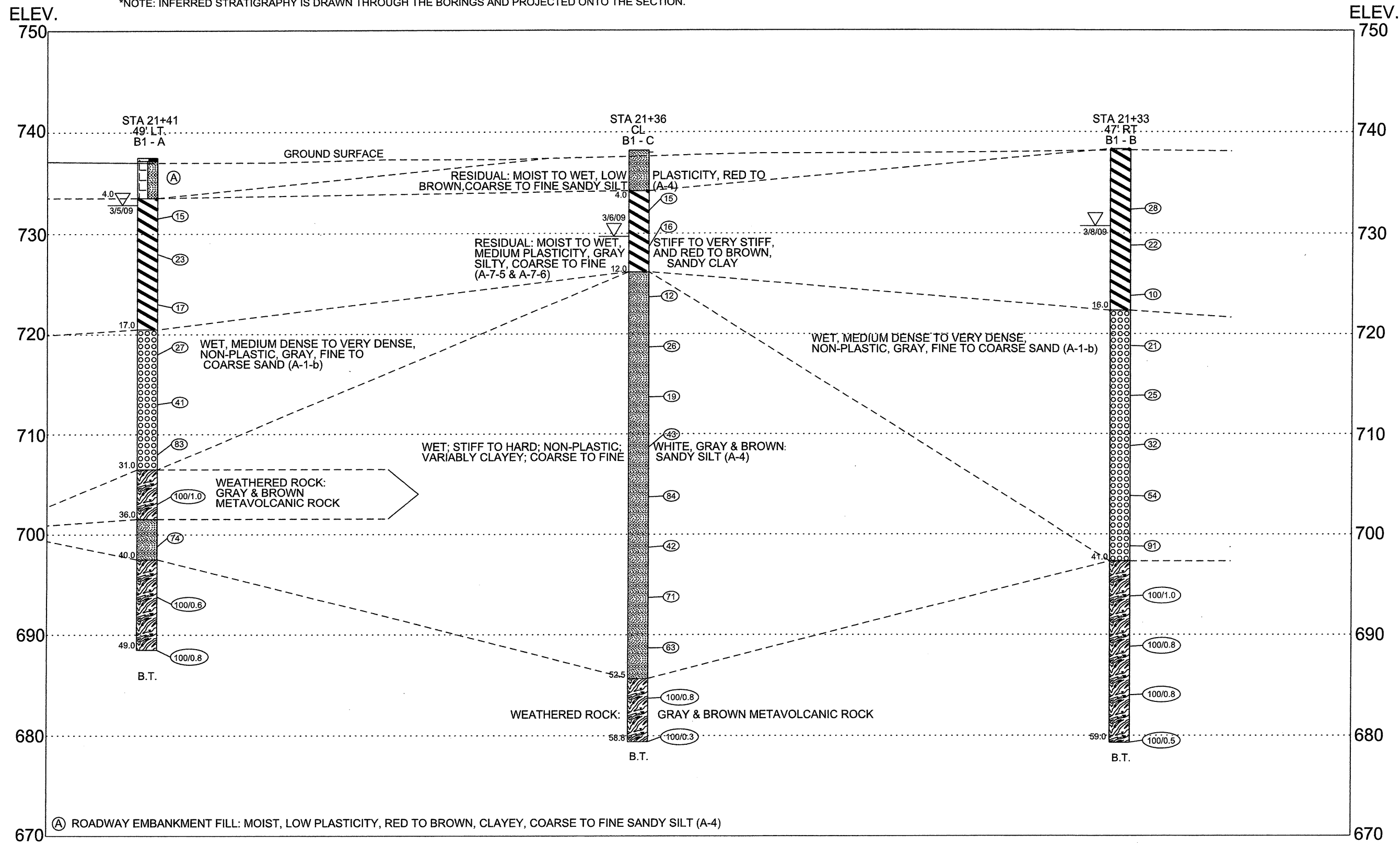


PROJECT NO.	34749.1.1
DRAWN:	04/03/2009
DRAWN BY:	SLK
CHECKED BY:	PW
SCALE:	VERTICAL 1" = 10' HORIZONTAL 1" = 10'

CROSS-SECTION ALONG END BENT 1	
BRIDGE NO. 1173 (STR 3) ON -Y18- (CONFERENCE DR.) OVER US 74 (INDEPENDENCE BLVD.)	
TIP NO. U-0209B	FEDERAL NO. NHFSTP-0074 (94)
MECKLENBURG COUNTY NORTH CAROLINA	

DRAWING NO.
4

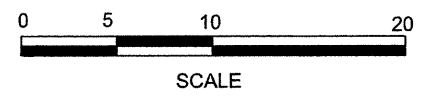
*NOTE: CROSS SECTION GROUNDLINE SURVEYED BY KLEINFELDER ALONG THE BENT.
 *NOTE: INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS AND PROJECTED ONTO THE SECTION.



(A) ROADWAY EMBANKMENT FILL: MOIST, LOW PLASTICITY, RED TO BROWN, CLAYEY, COARSE TO FINE SANDY SILT (A-4)

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FILE NAME:
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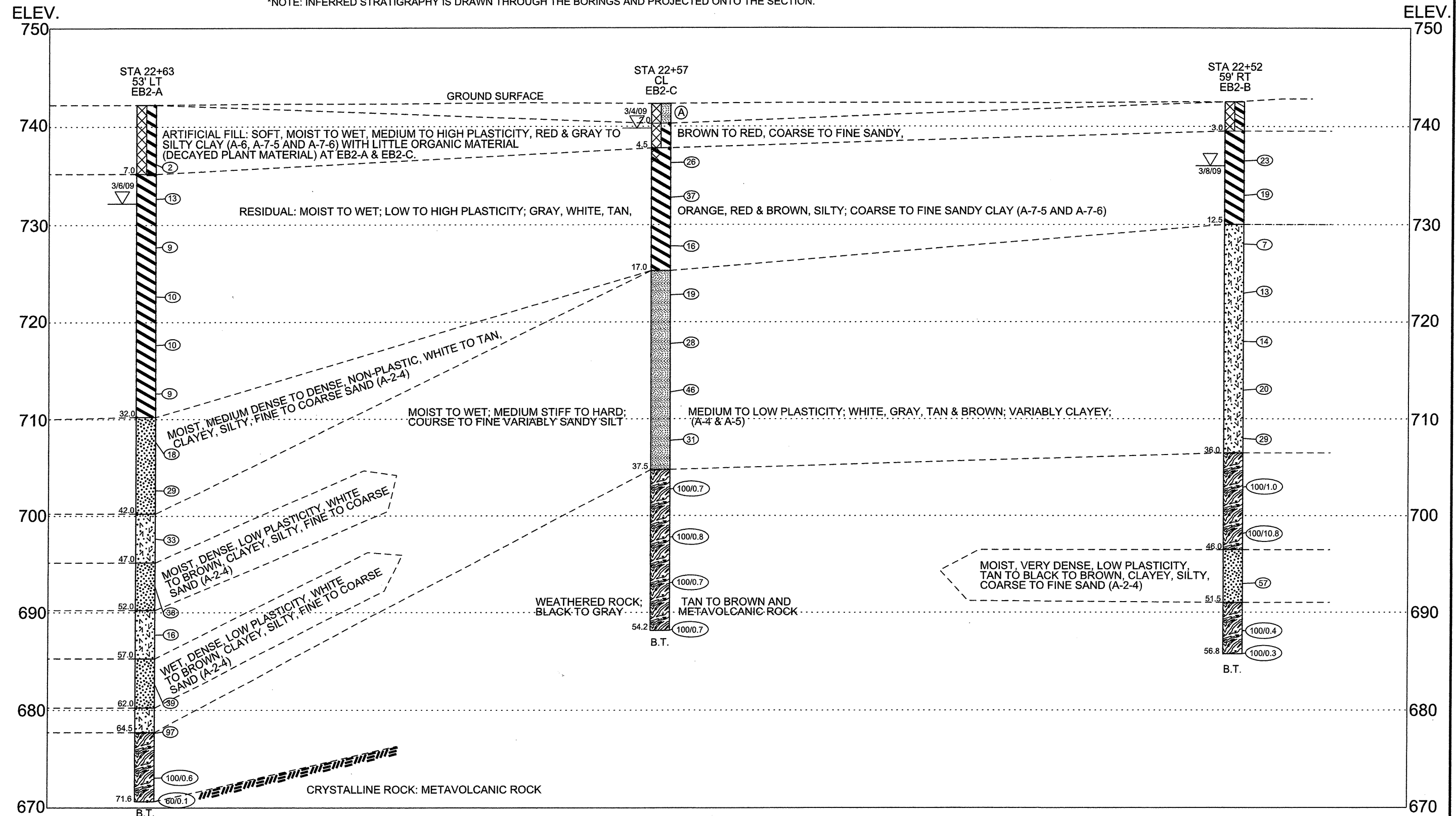


PROJECT NO.	34749.1.1
DRAWN:	04/03/2009
DRAWN BY:	SLK
CHECKED BY:	PW
SCALE:	VERTICAL 1" = 10' HORIZONTAL 1" = 10'

CROSS-SECTION ALONG BENT 1
BRIDGE NO. 1173 (STR 3)
ON -Y18- (CONFERENCE DR.)
OVER US 74 (INDEPENDENCE BLVD.)
TIP NO. U-0209B FEDERAL NO. NHFSTP-0074 (94)
MECKLENBURG COUNTY
NORTH CAROLINA

DRAWING NO.
5

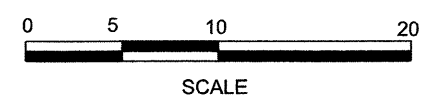
*NOTE: CROSS SECTION GROUNDLINE SURVEYED BY KLEINFELDER ALONG THE BENT.
 *NOTE: INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS AND PROJECTED ONTO THE SECTION.



(A) ARTIFICIAL FILL: NON-PLASTIC, RED TO BROWN, COARSE TO FINE SANDY SILT (A-4)

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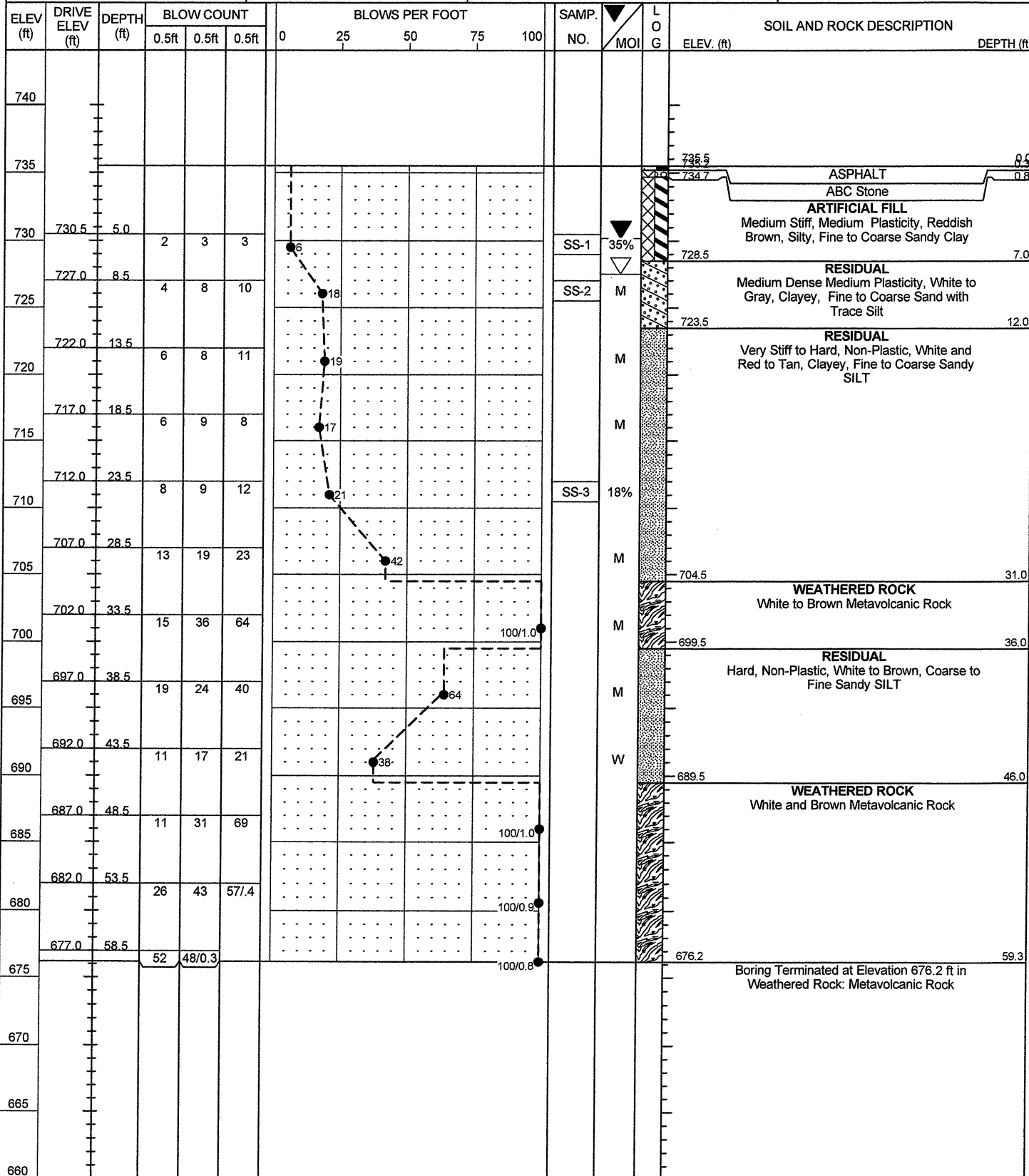


PROJECT NO.	34749.1.1
DRAWN:	04/03/2009
DRAWN BY:	SLK
CHECKED BY:	PW
SCALE:	VERTICAL 1" = 10' HORIZONTAL 1" = 10'

CROSS-SECTION ALONG END BENT 2	
BRIDGE NO. 1173 (STR 3) ON -Y18- (CONFERENCE DR.) OVER US 74 (INDEPENDENCE BLVD.)	
TIP NO. U-0209B	FEDERAL NO. NHFSTP-0074 (94)
MECKLENBURG COUNTY NORTH CAROLINA	

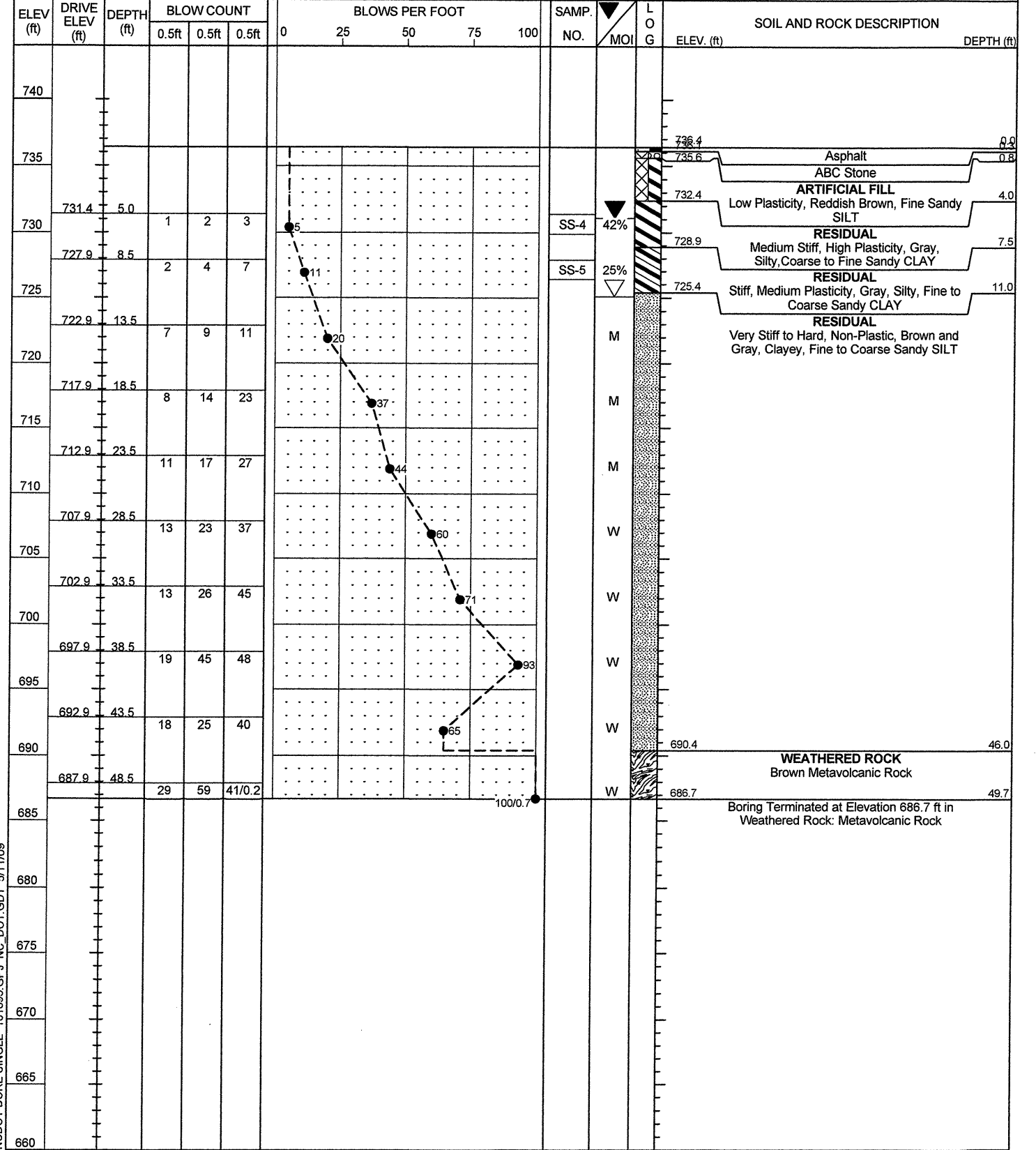
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PROJECT NO. 34747.1.1	ID. U-0209B	COUNTY Mecklenburg	GEOLOGIST J. Fregosi
SITE DESCRIPTION Bridge No. 1173 (Str3) on -Y18- (Conference Dr.) over US 74 (Independence Blvd.)			GROUND WTR (ft)
BORING NO. EB1-A	STATION 20+27	OFFSET 54ft LT	ALIGNMENT -Y18-
COLLAR ELEV. 735.5 ft	TOTAL DEPTH 59.3 ft	NORTHING 525,342	EASTING 1,476,130
DRILL MACHINE Acker AD II	DRILL METHOD HSA	HAMMER TYPE 140 lb. Manual	
START DATE 02/25/09	COMP. DATE 02/25/09	SURFACE WATER DEPTH N/A	DEPTH TO ROCK N/A



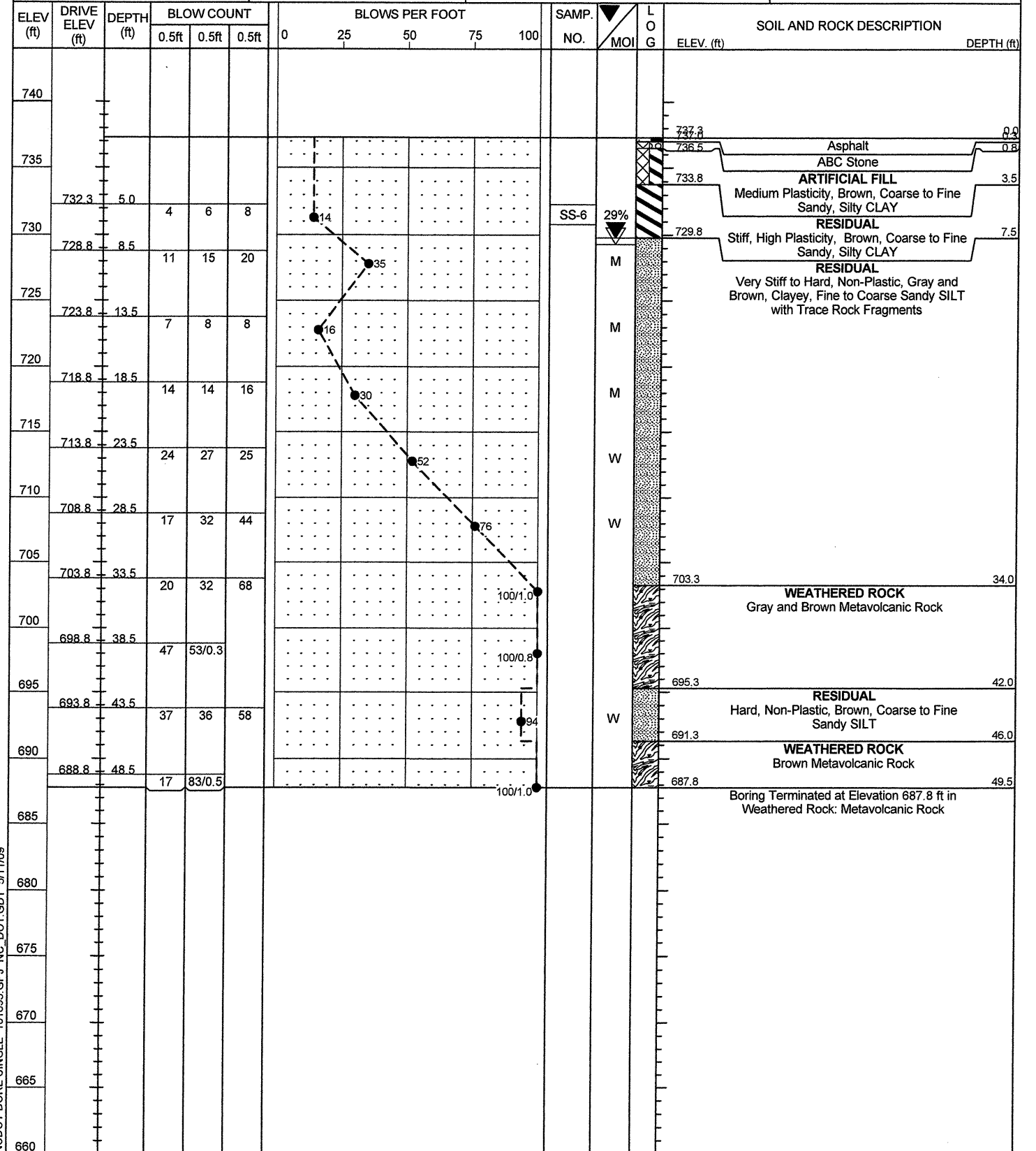
NCDOT BORE SINGLE 101895.GPJ NC_DOT.GDT 5/11/09

PROJECT NO. 34747.1.1	ID. U-0209B	COUNTY Mecklenburg	GEOLOGIST T. Wells
SITE DESCRIPTION Bridge No. 1173 (Str3) on -Y18- (Conference Dr.) over US 74 (Independence Blvd.)			GROUND WTR (ft)
BORING NO. EB1-C	STATION 20+21	OFFSET CL	ALIGNMENT -Y18-
COLLAR ELEV. 736.4 ft	TOTAL DEPTH 49.7 ft	NORTHING 525,386	EASTING 1,476,099
DRILL MACHINE Acker AD II	DRILL METHOD HSA	HAMMER TYPE 140 lb. Manual	
START DATE 02/24/09	COMP. DATE 02/25/09	SURFACE WATER DEPTH N/A	DEPTH TO ROCK N/A



NCDOT BORE SINGLE 101895.GPJ NC_DOT.GDT 5/11/09

PROJECT NO. 34747.1.1	ID. U-0209B	COUNTY Mecklenburg	GEOLOGIST T. Wells
SITE DESCRIPTION Bridge No. 1173 (Str3) on -Y18- (Conference Dr.) over US 74 (Independence Blvd.)			GROUND WTR (ft)
BORING NO. EB1-B	STATION 20+16	OFFSET 53ft RT	ALIGNMENT -Y18-
COLLAR ELEV. 737.3 ft	TOTAL DEPTH 49.5 ft	NORTHING 525,429	EASTING 1,476,067
DRILL MACHINE Acker AD II	DRILL METHOD HSA	HAMMER TYPE 140 lb. Manual	
START DATE 02/24/09	COMP. DATE 02/24/09	SURFACE WATER DEPTH N/A	DEPTH TO ROCK N/A



PROJECT NO. 34747.1.1	ID. U-0209B	COUNTY Mecklenburg	GEOLOGIST T.Wells
SITE DESCRIPTION Bridge No. 1173 (Str3) on -Y18- (Conference Dr.) over US 74 (Independence Blvd.)			GROUND WTR (ft)
BORING NO. B1-A	STATION 21+41	OFFSET 49ft LT	ALIGNMENT -Y18-
COLLAR ELEV. 737.5 ft	TOTAL DEPTH 49.0 ft	NORTHING 525,270	EASTING 1,476,042
DRILL MACHINE Acker AD II	DRILL METHOD Wash Rotary/ HQ Core	HAMMER TYPE 140 lb. Manual	
START DATE 03/04/09	COMP. DATE 03/05/09	SURFACE WATER DEPTH N/A	DEPTH TO ROCK 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					
740															
735															
730															
725															
720															
715															
710															
705															
700															
695															
690															
685															
680															
675															
670															
665															
660															

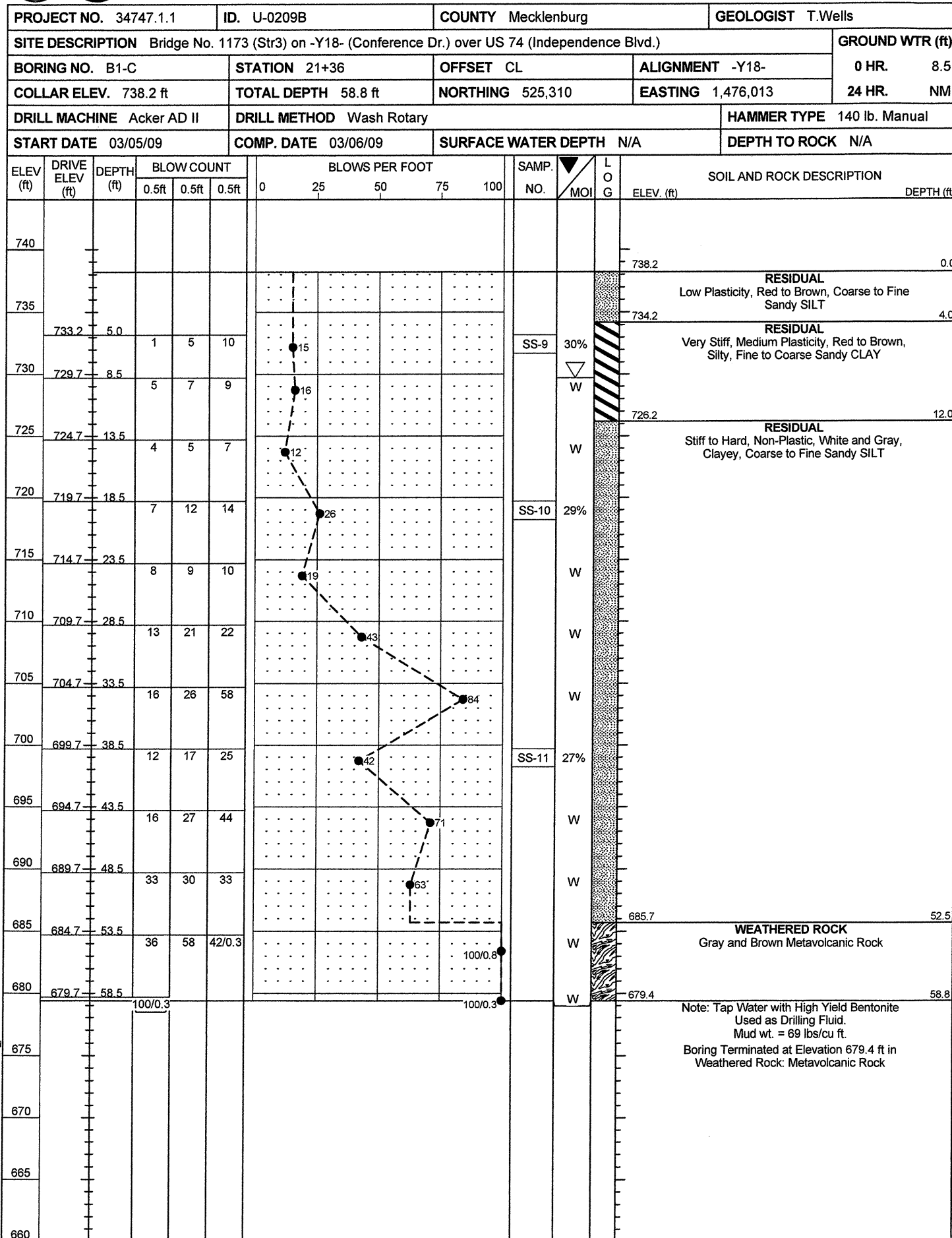
NCDOT BORE SINGLE 101895.GPJ NC_DOT_GDT_5/11/09

PROJECT NO. 34747.1.1	ID. U-0209B	COUNTY Mecklenburg	GEOLOGIST T.Wells
SITE DESCRIPTION Bridge No. 1173 (Str3) on -Y18- (Conference Dr.) over US 74 (Independence Blvd.)			GROUND WTR (ft)
BORING NO. B1-A	STATION 21+41	OFFSET 49ft LT	ALIGNMENT -Y18-
COLLAR ELEV. 737.5 ft	TOTAL DEPTH 49.0 ft	NORTHING 525,270	EASTING 1,476,042
DRILL MACHINE Acker AD II	DRILL METHOD Wash Rotary/ HQ Core	HAMMER TYPE 140 lb. Manual	
START DATE 03/04/09	COMP. DATE 03/05/09	SURFACE WATER DEPTH N/A	DEPTH TO ROCK N/A

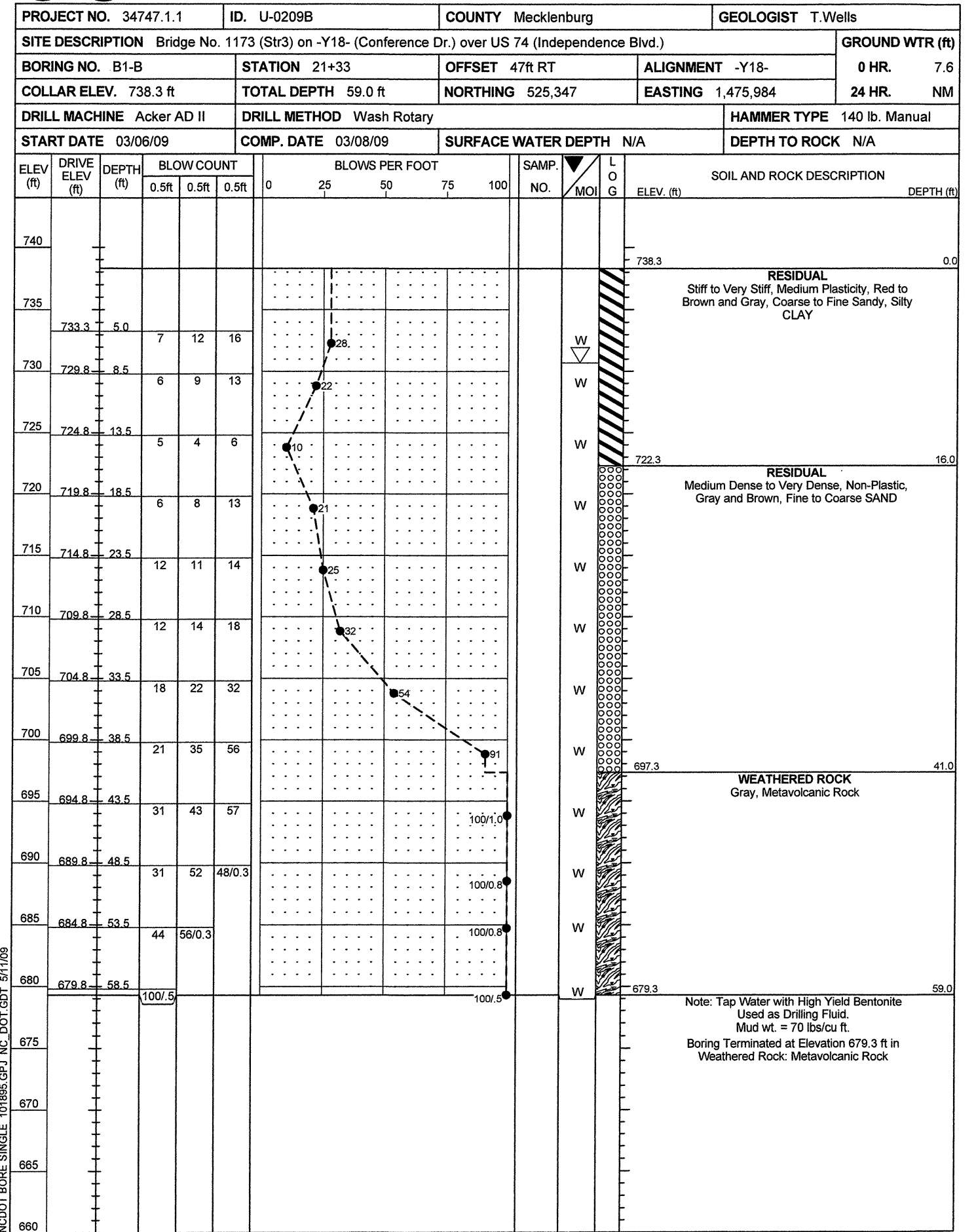
ELEV (ft)	RUN ELEV (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	RUN		SAMP. NO.	STRATA		LOG	DESCRIPTION AND REMARKS	DEPTH (ft)
					REC. (ft)	ROD (ft)		REC. (%)	ROD (%)			
703	703.0	34.5	3.2	0:13/0.2	(0.0)	N/A		(0.0)	N/A		Begin Coring @ 34.5 ft	
700	699.8	37.7		2:40	0%			0%			WEATHERED ROCK (continued)	36.0
	698.3	39.2		2:40							RESIDUAL	
				2:10							Hard, Non Plastic, Gray and Brown, Coarse to Fine Sandy SILT	
				N=74								40.0
695	694.8	42.7	3.5	1:05	(0.0)	N/A		(0.0)	N/A		WEATHERED ROCK	
	693.7	43.8		2:50	0%			0%			Brown and Gray Metavolcanic Rock	
				2:15								
				2:10								
690	689.8	47.7	3.9	N=100/0.6	(0.0)	N/A						49.0
				1:00	0%							
				3:00								
				2:15								
				1:50								
				N=100/0.6								
685											Coring Terminated at Elevation 689.5 ft in Weathered Rock: Metavolcanic Rock	
680												
675												
670												
665												
660												
655												
650												
645												
640												
635												
630												
625												

NCDOT CORE SINGLE 101895.GPJ NC_DOT_GDT_5/11/09

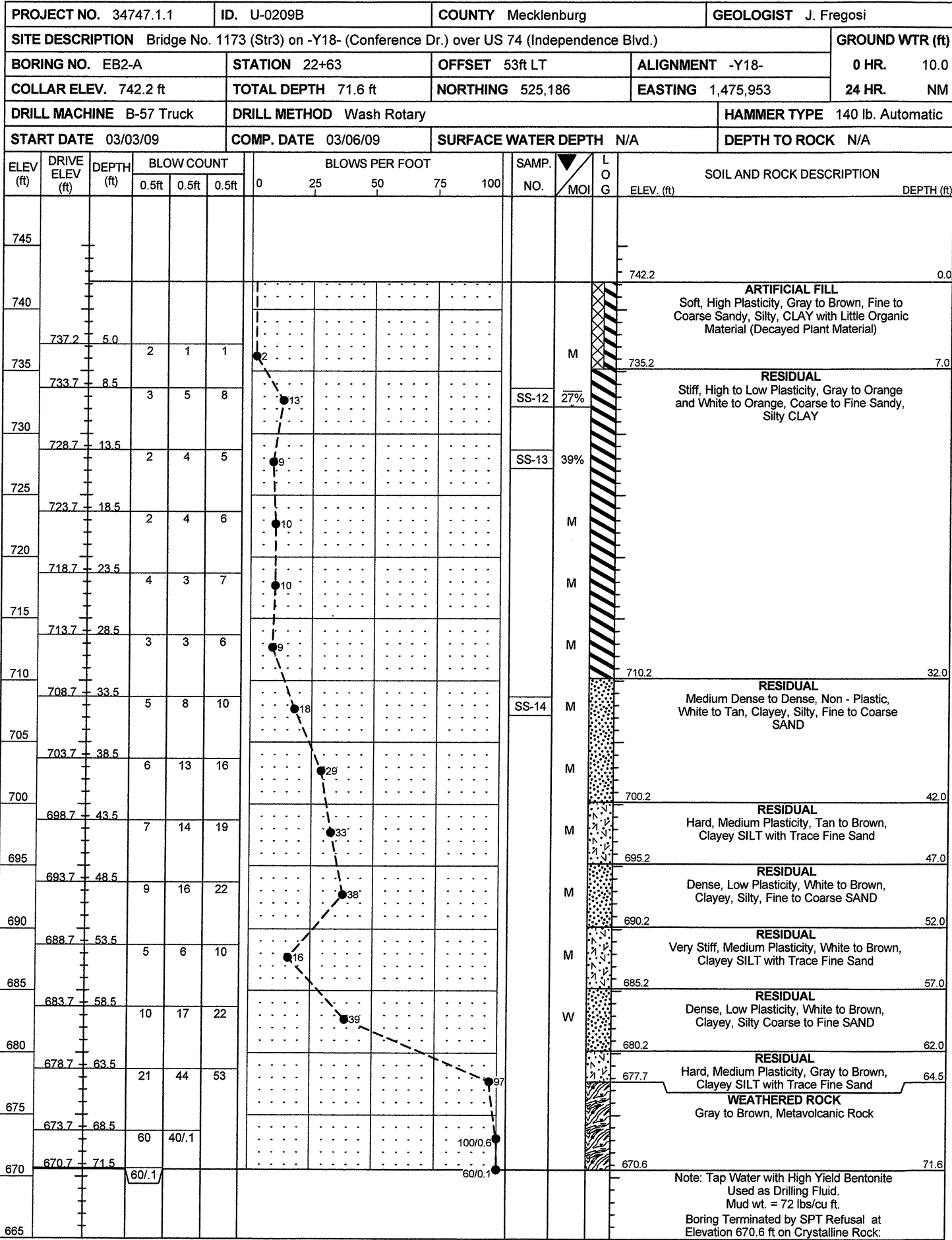
Note: Tap Water with High Yield Bentonite Used as Drilling Fluid
Mud wt/ = 71 lbs/cu. ft.
Boring Terminated at Elevation 688.5 ft in Weathered Rock: Metavolcanic Rock



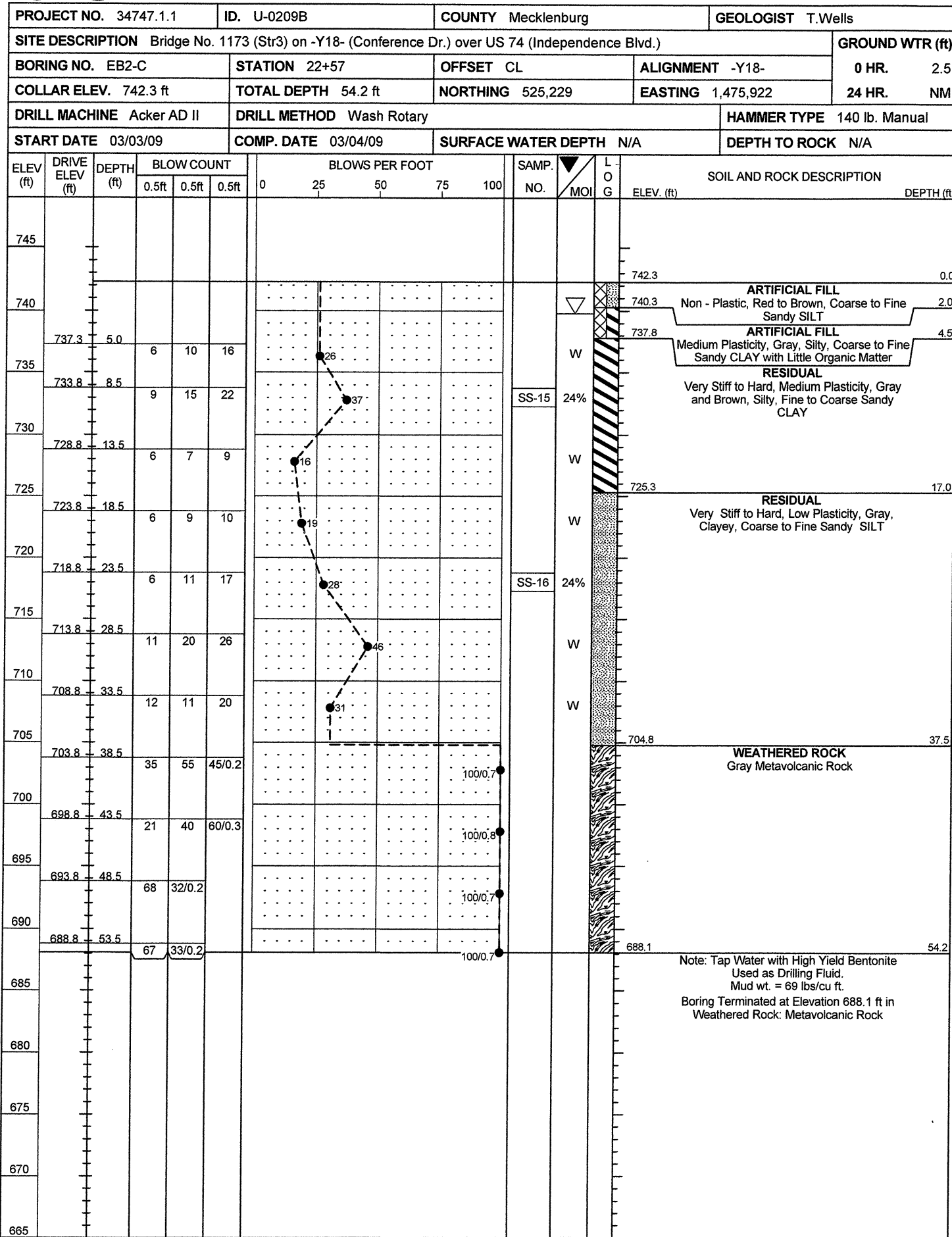
NCDOT BORE SINGLE 101895.GPJ NC_DOT.GDT 5/11/09



NCDOT BORE SINGLE 101895.GPJ NC_DOT.GDT 5/11/09



NCDOT BORE SINGLE 101895.GPJ NC_DOT.GDT 5/11/09



NCDOT BORE SINGLE 101895.GPJ NC_DOT.GDT 5/11/09



PROJECT NO. 34747.1.1	ID. U-0209B	COUNTY Mecklenburg	GEOLOGIST J. Fregosi
SITE DESCRIPTION Bridge No. 1173 (Str3) on -Y18- (Conference Dr.) over US 74 (Independence Blvd.)			GROUND WTR (ft)
BORING NO. EB2-B	STATION 22+52	OFFSET 59ft RT	ALIGNMENT -Y18-
COLLAR ELEV. 742.5 ft	TOTAL DEPTH 56.8 ft	NORTHING 525,277	EASTING 1,475,887
DRILL MACHINE B-57 Truck	DRILL METHOD Wash Rotary	HAMMER TYPE 140 lb. Automatic	
START DATE 03/06/09	COMP. DATE 03/08/09	SURFACE WATER DEPTH N/A	DEPTH TO ROCK 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					
745															
														742.5	0.0
740														739.5	3.0
		737.5	5.0	6	9	14									
735		734.0	8.5	6	9	10									
		729.0	13.5	2	3	4								730.0	12.5
730		724.0	18.5	3	6	7									
725		719.0	23.5	3	5	9									
720		714.0	28.5	6	7	13									
715		709.0	33.5	6	10	19									
710		704.0	38.5	48	28	72								706.5	36.0
705		699.0	43.5	70	30	0.3									
700		694.0	48.5	17	18	39								696.5	46.0
695		689.0	53.5											691.0	51.5
690		686.0	56.5											685.7	56.8
685															
680															
675															
670															
665															

NCDOT BORE SINGLE 101885.GPJ NC_DOT_GDT 5/11/09

Note: Tap Water with High Yield Bentonite Used as Drilling Fluid.
Mud wt. = 71 lbs/cu ft.
Boring Terminated at Elevation 685.7 ft in Weathered Rock: Metavolcanic Rock

NCDOT Project No. 334749.1.1 TIP No. U-0209B
Bridge No. 1173 (Str3) on -Y18- (Conference Drive) over US 74 (Independence Boulevard)
Mecklenburg County, North Carolina
SUMMARY OF LABORATORY TEST DATA

Boring Number	Sample Depth (ft.)	Sample No.*	Natural Moisture Content (%)	AASHTO Class (Group Index)	N-Value (blows/ft.)	Atterberg Limits			Gradation Results							
						L.L.	P.L.	P.I.	Pass #10 Sieve	Pass #40 Sieve	Pass #200 Sieve	Retained #270 Sieve	Coarse Sand (%)	Fine Sand (%)	Silt (%)	Clay (%)
EB1-A	5.0-6.5	SS-1	35.4	A-7-6 (14)	6	46	24	22	98	85	69	32	17	14	25	44
EB1-A	8.5-10.0	SS-2	-	A-2-7 (1)	18	42	20	22	91	53	31	70	51	17	8	24
EB1-A	23.5-25.0	SS-3	17.9	A-4 (0)	21	27	NP	NP	100	74	37	66	39	27	24	10
EB1-C	5.0-6.5	SS-4	41.6	A-7-5 (32)	5	66	31	35	100	95	82	20	9	11	18	62
EB1-C	8.5-10.0	SS-5	24.8	A-6 (4)	11	37	20	17	100	80	44	59	34	25	28	13
EB1-B	5.0-6.5	SS-6	29.2	A-7-5 (28)	14	61	34	27	100	96	86	18	6	12	25	57
B1-A	5.0-6.5	SS-7	20.0	A-7-6 (14)	15	44	25	19	99	91	76	26	12	13	18	57
B1-A	23.5-25.0	SS-8	-	A-1-b (0)	41	26	NP	NP	91	37	6	96	72	25	1	2
B1-C	5.0-6.5	SS-9	29.9	A-7-5 (17)	15	63	38	25	99	84	66	34	22	12	16	50
B1-C	18.5-20.0	SS-10	28.6	A-4 (0)	26	27	NP	NP	100	95	52	54	9	45	36	10
B1-C	38.5-40.0	SS-11	27.2	A-4 (0)	42	29	NP	NP	98	82	43	61	26	35	24	15
EB2-A	8.5-10.0	SS-12	27.1	A-7-6 (26)	13	61	27	34	98	86	71	30	15	14	16	55
EB2-A	13.5-15.0	SS-13	38.8	A-7-5 (8)	9	45	34	11	100	95	68	36	11	25	43	21
EB2-A	33.5-35.0	SS-14	-	A-2-4 (0)	18	32	27	5	96	63	33	71	44	26	18	12
EB2-C	8.5-10.0	SS-15	23.9	A-7-6 (16)	37	50	26	24	99	88	69	33	17	16	18	49
EB2-C	23.5-25.0	SS-16	24.4	A-4 (1)	28	35	28	7	100	87	47	57	21	36	31	12

SS = Split-Barrel Sample (ASTM-D-1586) ST = Shelby Tube (Undisturbed) Sample
 G = Grab Sample
 NP -- Non Plastic NA-- Non Applicable

TRIGON | KLEINFELDER, INC.
GREENSBORO, NORTH CAROLINA
 Trigon Job Number: 101895

NCDOT CERTIFIED TECHNICIAN PERFORMING LAB TESTING:


 Patrick Norville, NCDOT Certification No. 109-02-1003

SITE PHOTOGRAPHS
State Project No. 34749.1.1 TIP No. U-0209B
Bridge No. 1173 (Str3) on -Y18- (Conference Dr.)
Over US 74 (Independence Blvd.)
Mecklenburg County, North Carolina
Page 1 of 2

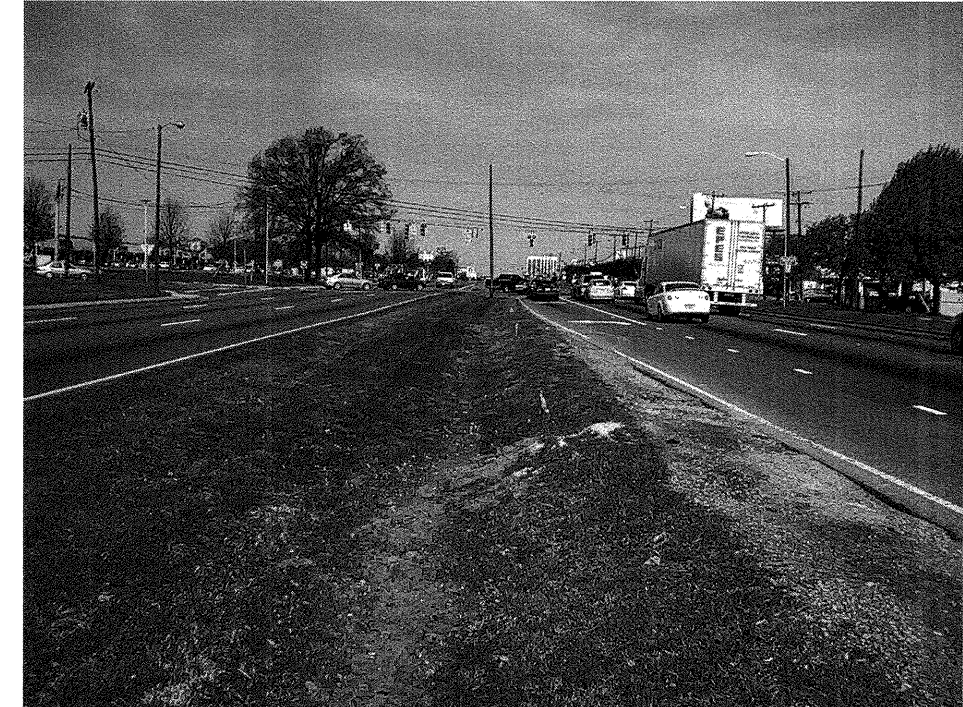


Photograph 1 – View Looking Upstation
From EB1-C to EB2-C



Photograph 2 – View Left to Right Across End Bent-1

SITE PHOTOGRAPHS
State Project No. 34749.1.1 TIP No. U-0209B
Bridge No. 1173 (Str3) on -Y18- (Conference Dr.)
Over US 74 (Independence Blvd.)
Mecklenburg County, North Carolina
Page 2 of 2



Photograph 3 – View Left to Right Across Bent-1



Photograph 4 – View Right to Left Across End Bent-2

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

STRUCTURE
SUBSURFACE INVESTIGATION

CONTENTS

SHEET	DESCRIPTION
1	TITLE SHEET
2	NCDOT LEGEND SHEET
3	SITE VICINITY MAP (DRAWING NO. 1)
4	SITE PLAN (DRAWING NO. 2)
5-8	SUBSURFACE PROFILE AND CROSS SECTIONS (DRAWING NOS. 3-6)
9-15	FINAL BORING LOGS
16	SUMMARY OF SOIL LABORATORY TEST DATA
17	SITE PHOTOGRAPHS

PROJ. REFERENCE NO. 34749.1.1 F.A. PROJ. NHSTP-0074(94)
 COUNTY MECKLENBURG
 PROJECT DESCRIPTION US 74 (INDEPENDENCE BLVD.)
NC 24-27 TO IDLEWILD ROAD
 SITE DESCRIPTION BRIDGE NO. 1172 (STR2) ON -Y15-
(IDLEWILD RD.) OVER US 74 (INDEPENDENCE BLVD.)

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) 250-4088. NEITHER THE SUBSURFACE PLANS AND REPORTS, NOR THE FIELD BORING LOGS, ROCK CORES, OR SOIL TEST DATA ARE PART OF THE CONTRACT.

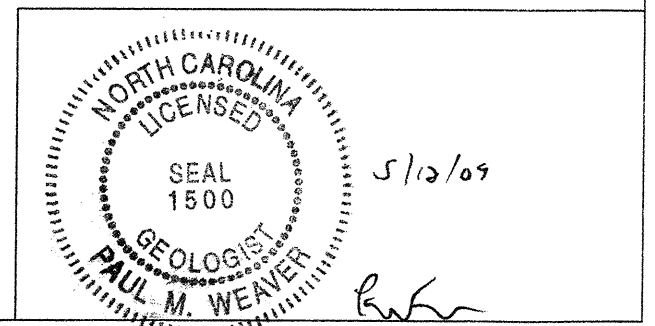
GENERAL SOIL AND ROCK STRATA DESCRIPTIONS AND INDICATED BOUNDARIES ARE BASED ON A GEOTECHNICAL INTERPRETATION OF ALL AVAILABLE SUBSURFACE DATA AND MAY NOT NECESSARILY REFLECT THE ACTUAL SUBSURFACE CONDITIONS BETWEEN BORINGS OR BETWEEN SAMPLED STRATA WITHIN THE BOREHOLE. THE LABORATORY SAMPLE DATA AND 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.

Regional
Geotechnical Design
Engineer

- PERSONNEL
- S. KITTS
 - D. HOWELL
 - R. TOOTHMAN
 - B. DUNCAN
 - W. WHICHARD
 - E. ESTEP
 - A. HAYES

INVESTIGATED BY T. WELLS, J. FREGOSI
 CHECKED BY J. VINSON
 SUBMITTED BY P. WEAVER
 DATE 4/09/09

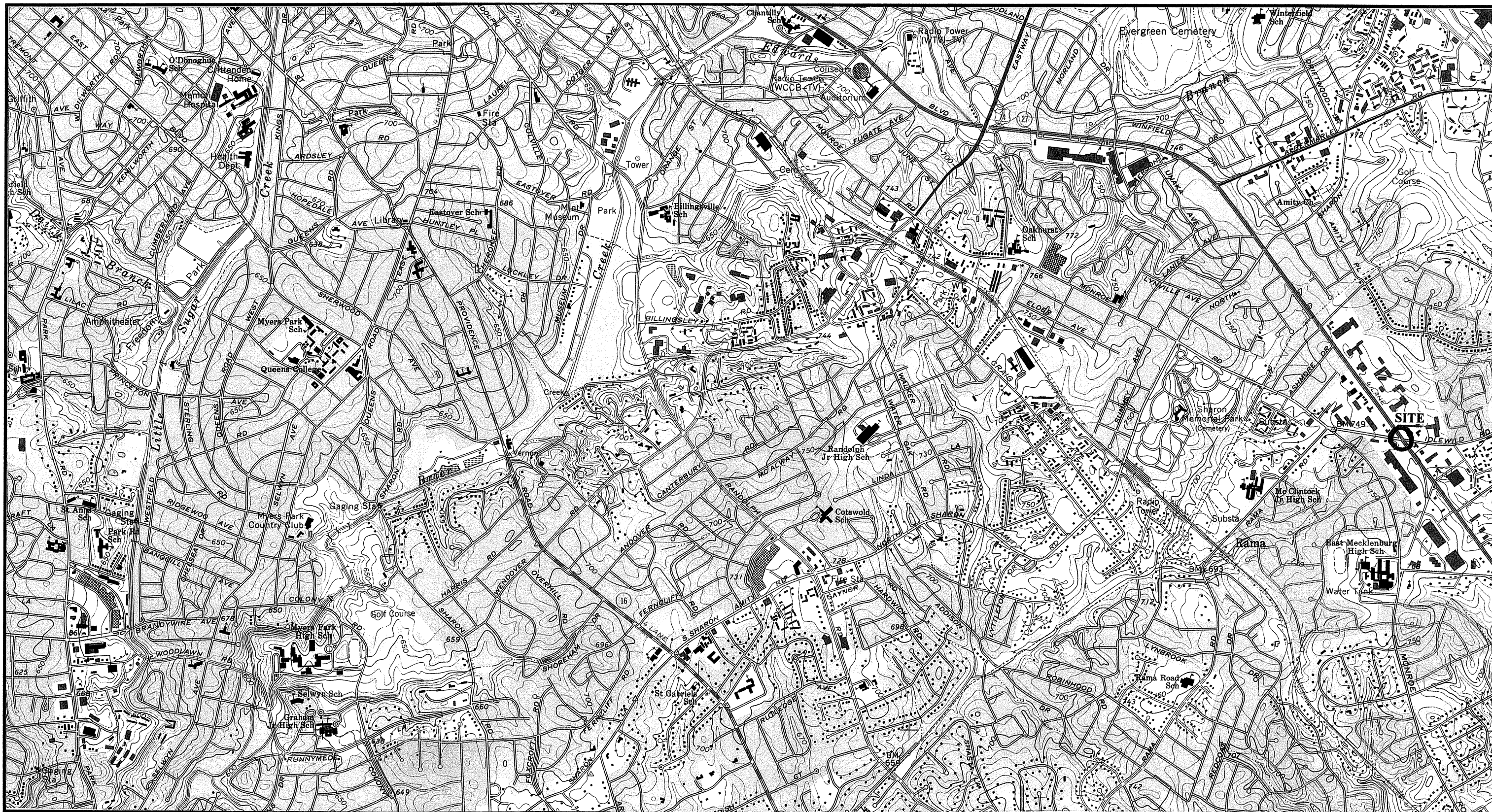


PROJECT: 34749.1.1 ID: U-0209B

DRAWN BY: SLK

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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.



Kleinfelder Southeast, Inc.
Greensboro North Carolina

SCALE:
1:24,000

DATE:
4/01/09

WBS PROJECT NO.
34749.1.1

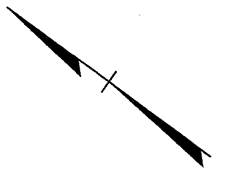
TIP No.
U-0209B

SITE VICINITY MAP

Bridge No. 1172 (Str2) on -Y15- (Idlewild Road) over US 74 (Independence Boulevard), Mecklenburg County, North Carolina

**USGS Quadrangle - Charlotte East, North Carolina
1967, Photo Revised 1988**

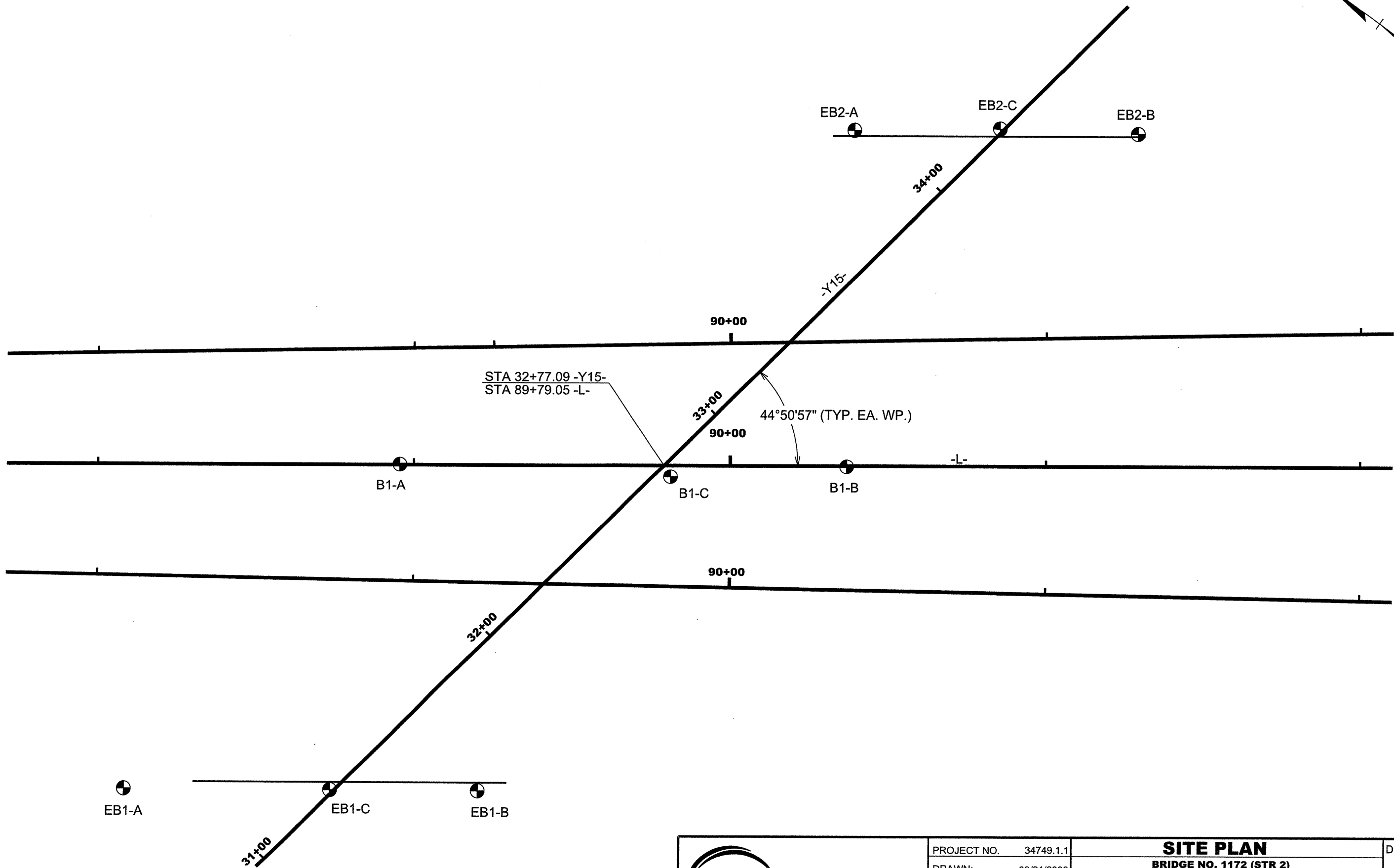
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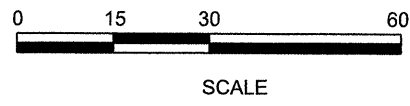
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ATTACHED XREFS: \$(XREFS)??
OFFICE_NAME



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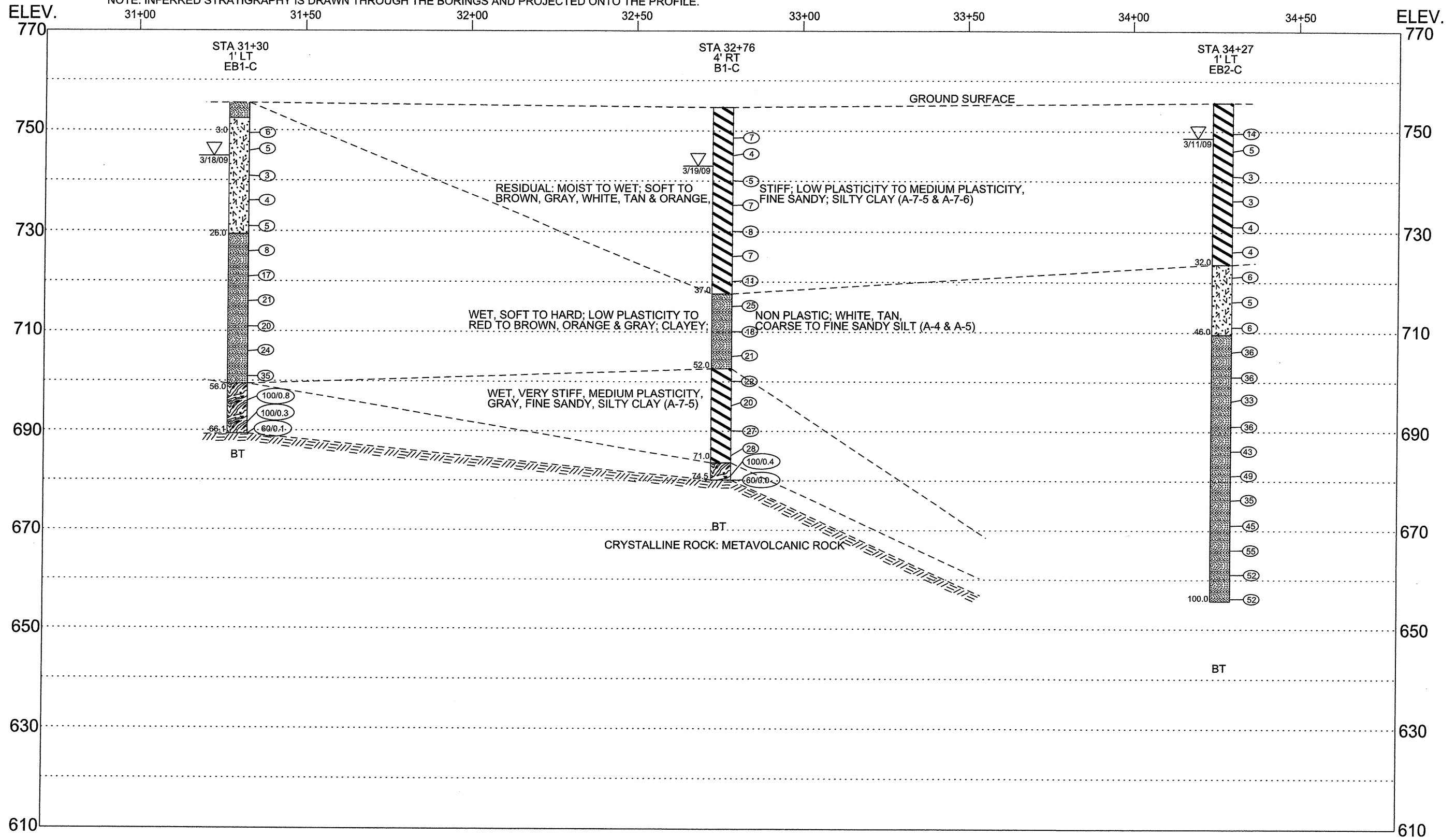


PROJECT NO.	34749.1.1
DRAWN:	03/21/2009
DRAWN BY:	SLK
CHECKED BY:	PW
SCALE:	1" = 30'

SITE PLAN	
BRIDGE NO. 1172 (STR 2)	
ON -Y15- (IDLEWILD RD.)	
OVER US 74 (INDEPENDENCE BLVD.)	
TIP NO. U-0209B	FEDERAL NO. NHFSTP-0074 (94)
MECKLENBURG COUNTY	
NORTH CAROLINA	

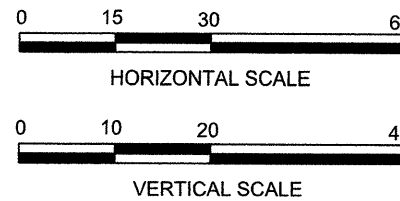
DRAWING NO.	2
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*NOTE: PROFILE GROUNDLINE SURVEYED BY KLEINFELDER ALONG -Y15- CENTERLINE.
 *NOTE: INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS AND PROJECTED ONTO THE PROFILE.



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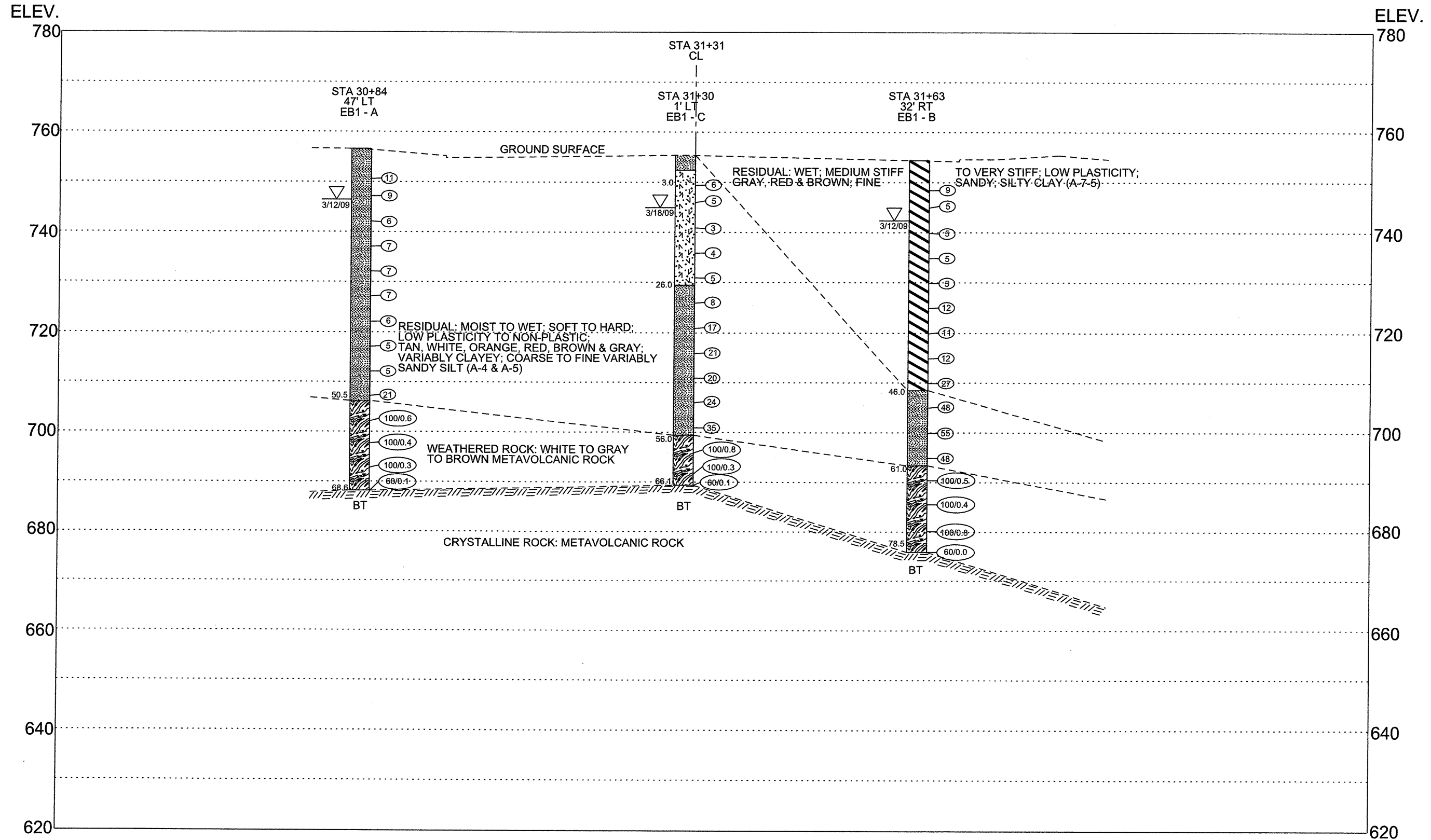


PROJECT NO. 34749.1.1
 DRAWN: 03/21/2009
 DRAWN BY: SLK
 CHECKED BY: PW
 SCALE: VERTICAL 1" = 20'
 HORIZONTAL 1" = 30'

PROFILE ALONG CENTERLINE
BRIDGE NO. 1172 (STR 2)
ON -Y15- (IDLEWILD RD.)
OVER US 74 (INDEPENDENCE BLVD.)
TIP NO. U-0209B FEDERAL NO. NHFSTP-0074 (94)
MECKLENBURG COUNTY
NORTH CAROLINA

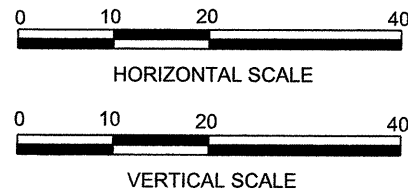
DRAWING NO.
3

*NOTE: CROSS SECTION GROUNDLINE SURVEYED BY KLEINFELDER ALONG THE BENT.
 *NOTE: INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS AND PROJECTED ONTO THE SECTION.



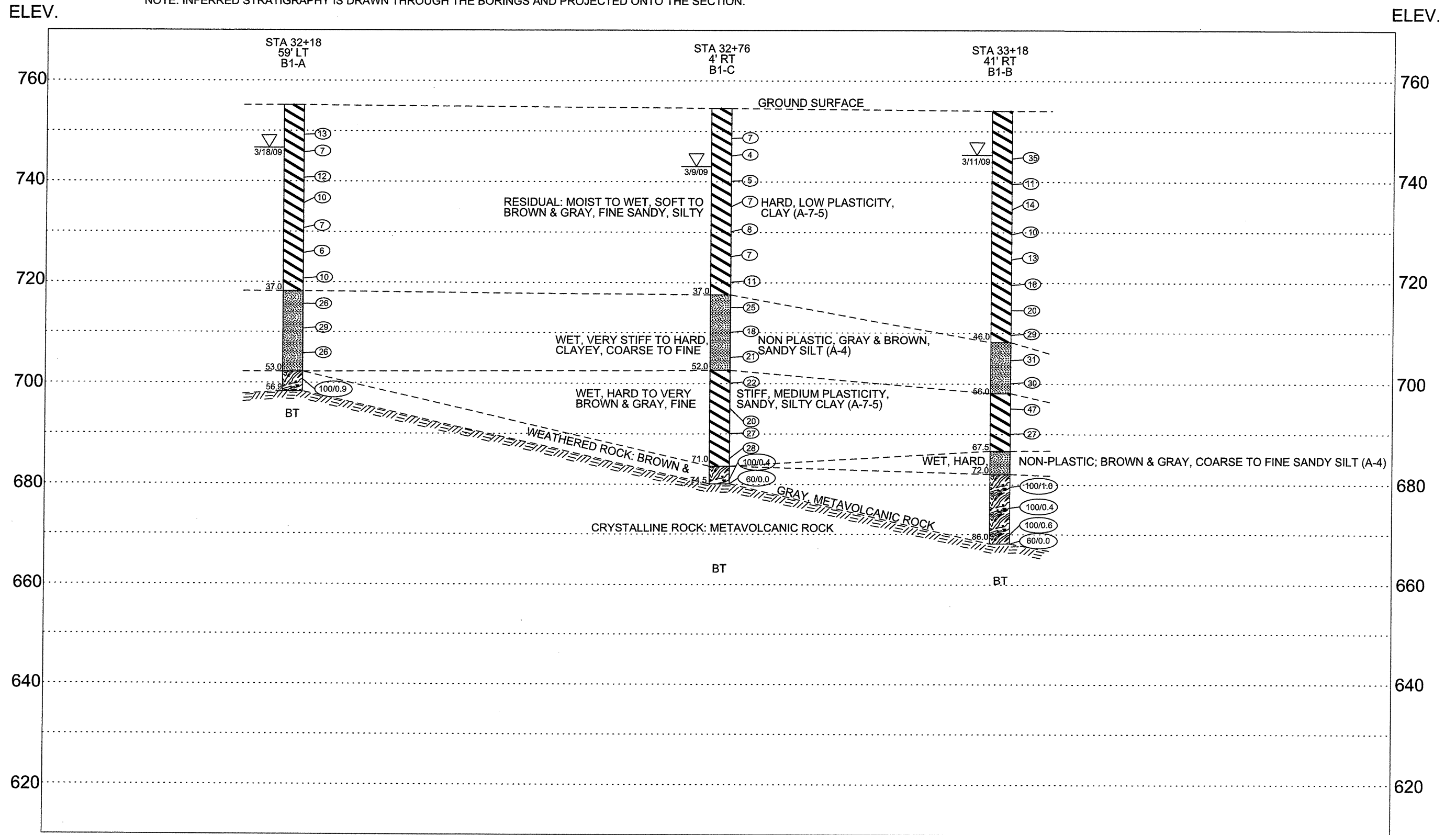
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FILE NAME:
101895_Y15-PROFILES.DGN



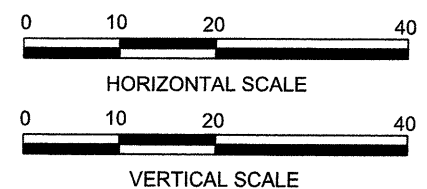
PROJECT NO. 34749.1.1	CROSS-SECTION ALONG END BENT 1	DRAWING NO. 4
DRAWN: 03/21/2009		
DRAWN BY: SLK	BRIDGE NO. 1172 (STR 2) ON -Y15- (IDLEWILD RD.) OVER US 74 (INDEPENDENCE BLVD.)	
CHECKED BY: PW		
SCALE: VERTICAL 1" = 20' HORIZONTAL 1" = 20'	TIP NO. U-0209B	FEDERAL NO. NHFSTP-0074 (94)
	MECKLENBURG COUNTY NORTH CAROLINA	

*NOTE: CROSS SECTION GROUNDLINE SURVEYED BY KLEINFELDER ALONG THE BENT.
 *NOTE: INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS AND PROJECTED ONTO THE SECTION.



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FILE NAME:
101895_Y15-PROFILES.DGN

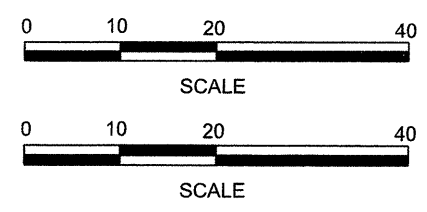
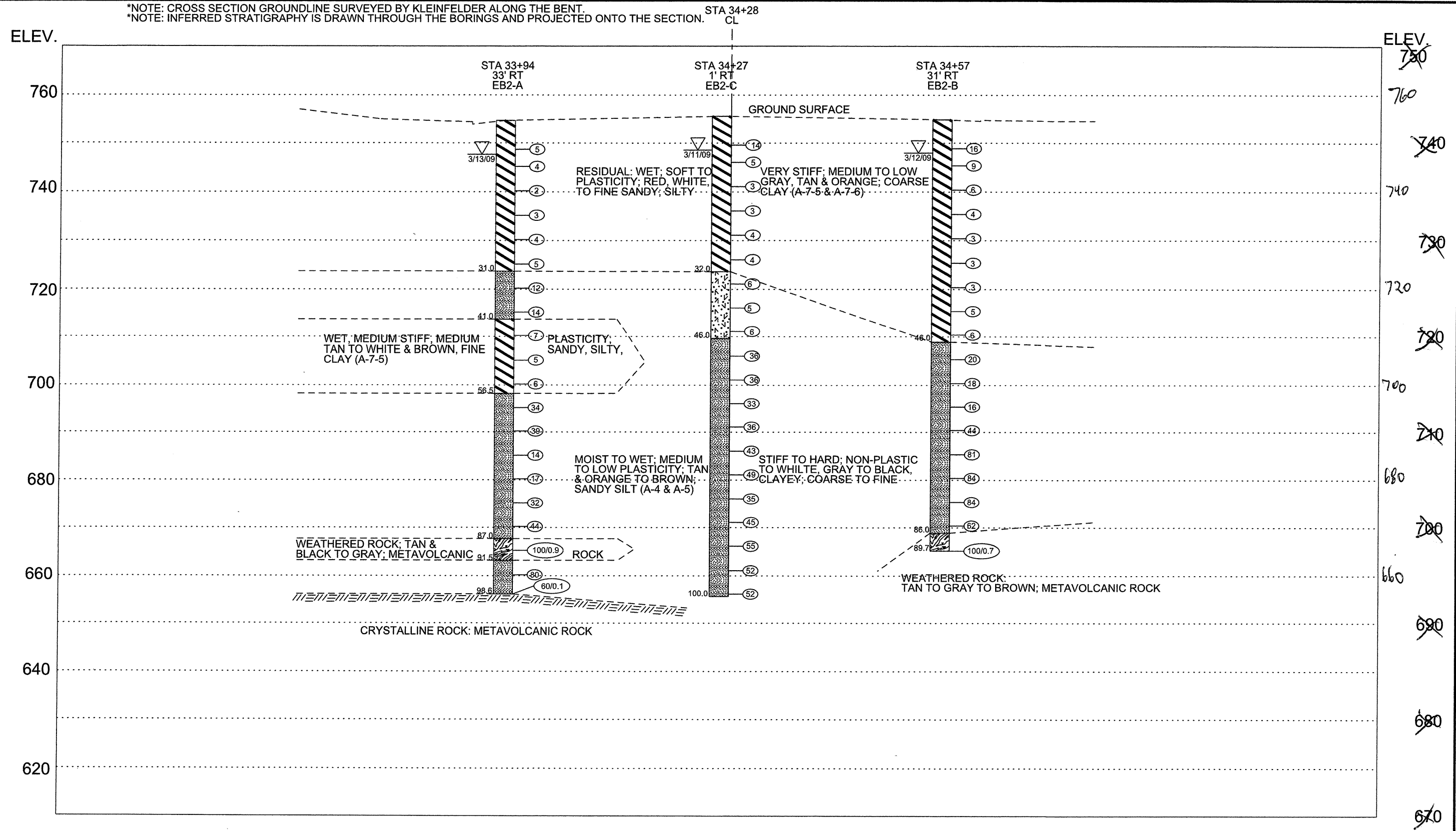


PROJECT NO.	34749.1.1
DRAWN:	04/10/2009
DRAWN BY:	SLK
CHECKED BY:	PW
SCALE:	VERTICAL 1" = 20' HORIZONTAL 1" = 20'

CROSS-SECTION ALONG BENT 1	
BRIDGE NO. 1172 (STR 2) ON -Y15- (IDLEWILD RD.) OVER US 74 (INDEPENDENCE BLVD.)	
TIP NO. U-0209B	FEDERAL NO. NHFSTP-0074 (94)
MECKLENBURG COUNTY NORTH CAROLINA	

DRAWING NO.
5

*NOTE: CROSS SECTION GROUNDLINE SURVEYED BY KLEINFELDER ALONG THE BENT.
 *NOTE: INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS AND PROJECTED ONTO THE SECTION.



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FILE NAME:
101895_Y15-PROFILES.DGN



PROJECT NO. 34749.1.1	CROSS-SECTION ALONG END BENT 2	DRAWING NO. 6
DRAWN: 03/21/2009	BRIDGE NO. 1172 (STR 2) ON -Y15- (IDLEWILD RD. OVER US 74 (INDEPENDENCE BLVD.)	
DRAWN BY: SLK	TIP NO. U-0209B FEDERAL NO. NHFSTP-0074 (94)	
CHECKED BY: PW	MECKLENBURG COUNTY NORTH CAROLINA	
SCALE: VERTICAL 1" = 20' HORIZONTAL 1" = 20'		

PROJECT NO. 34749.1.1		ID. U-0209B		COUNTY Mecklenburg		GEOLOGIST T. Wells											
SITE DESCRIPTION Bridge No. 1172 (Str 2) on -Y15- (Idlewild Rd.) over US 74 (Independence Blvd)							GROUND WTR (ft)										
BORING NO. EB1-A	STATION 30+84	OFFSET 47ft LT	ALIGNMENT -Y15-			0 HR. 10.2											
COLLAR ELEV. 756.6 ft	TOTAL DEPTH 68.6 ft	NORTHING 526,524	EASTING 1,475,022			24 HR. NM											
DRILL MACHINE Acker AD II	DRILL METHOD Wash Rotary	HAMMER TYPE 140 lb. Manual															
START DATE 03/12/09	COMP. DATE 03/12/09	SURFACE WATER DEPTH N/A	DEPTH TO ROCK 68.6														
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG MOI	LOG G	SOIL AND ROCK DESCRIPTION	DEPTH (ft)		
			0.5ft	0.5ft	0.5ft	0	25	50	75	100							
760																756.6	0.0
755																	
750	751.6	5.0	3	4	7												
745	748.1	8.5	3	4	5												
740	743.1	13.5	2	2	4												
735	738.1	18.5	2	2	5												
730	733.1	23.5	2	3	4												
725	728.1	28.5	2	3	4												
720	723.1	33.5	2	2	4												
715	718.1	38.5	2	2	3												
710	713.1	43.5	2	2	3												
705	708.1	48.5	5	9	12												
700	703.1	53.5	36	85	15/0.1												
695	698.1	58.5															
690	693.1	63.5															
685	688.1	68.5															
680																	

Note: Tap Water with High Yield Bentonite Used as Drilling Fluid, Mud wt. = 70lbs/cu. ft.
Boring Terminated by SPT Refusal at Elevation 688.0 ft on Crystalline Rock: Metavolcanic Rock

PROJECT NO. 34749.1.1		ID. U-0209B		COUNTY Mecklenburg		GEOLOGIST J. Fregosi											
SITE DESCRIPTION Bridge No. 1172 (Str 2) on -Y15- (Idlewild Rd.) over US 74 (Independence Blvd)							GROUND WTR (ft)										
BORING NO. EB1-C	STATION 31+30	OFFSET 1ft LT	ALIGNMENT -Y15-			0 HR. 10.5											
COLLAR ELEV. 755.4 ft	TOTAL DEPTH 66.1 ft	NORTHING 526,471	EASTING 1,475,059			24 HR. NM											
DRILL MACHINE B-57 Truck	DRILL METHOD Wash Rotary	HAMMER TYPE 140 lb. Automatic															
START DATE 03/17/09	COMP. DATE 03/18/09	SURFACE WATER DEPTH N/A	DEPTH TO ROCK 66.1														
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG MOI	LOG G	SOIL AND ROCK DESCRIPTION	DEPTH (ft)		
			0.5ft	0.5ft	0.5ft	0	25	50	75	100							
760																755.4	0.0
755																	
750	750.4	5.0	2	2	4												
745	746.9	8.5	1	2	3												
740	741.9	13.5	1	2	1												
735	736.9	18.5	1	2	2												
730	731.9	23.5	1	2	3												
725	726.9	28.5	2	3	5												
720	721.9	33.5	4	7	10												
715	716.9	38.5	7	10	11												
710	711.9	43.5	9	10	10												
705	706.9	48.5	6	10	14												
700	701.9	53.5	10	15	20												
695	696.9	58.5	22	48	52/0.3												
690	691.9	63.5															
685	689.4	66.0															
680																	

Note: Tap Water with High Yield Bentonite Used as Drilling Fluid, Mud Wt= 71 lbs/cu. ft.
Boring Terminated by SPT Refusal at Elevation 689.3 ft on Crystalline Rock: Metavolcanic Rock

NCDOT BORE SINGLE 101895 PART 2.GPJ NC DOT.GDT 5/11/09

NCDOT BORE SINGLE 101895 PART 2.GPJ NC DOT.GDT 5/11/09

PROJECT NO. 34749.1.1	ID. U-0209B	COUNTY Mecklenburg	GEOLOGIST T. Wells
SITE DESCRIPTION Bridge No. 1172 (Str 2) on -Y15- (Idlewild Rd.) over US 74 (Independence Blvd)			GROUND WTR (ft)
BORING NO. EB1-B	STATION 31+63	OFFSET 32ft RT	ALIGNMENT -Y15-
COLLAR ELEV. 754.4 ft	TOTAL DEPTH 78.5 ft	NORTHING 526,428	EASTING 147,089
DRILL MACHINE Acker AD II	DRILL METHOD Wash Rotary	HAMMER TYPE 140 lb. Manual	
START DATE 03/11/09	COMP. DATE 03/12/09	SURFACE WATER DEPTH N/A	DEPTH TO ROCK 78.5

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					
755														754.4	0.0
750	749.4	5.0	2	4	5							W	RESIDUAL Medium Stiff to Very Stiff; Low Plasticity; Gray, Red and Brown; Fine Sandy; Silty CLAY		
745	745.9	8.5	2	2	3							W			
740	740.9	13.5	2	2	3							W			
735	735.9	18.5	2	2	3							W			
730	730.9	23.5	2	2	3							W			
725	725.9	28.5	3	5	7							SS-20 44%			
720	720.9	33.5	3	4	7							W			
715	715.9	38.5	3	5	7							W			
710	710.9	43.5	5	10	17							W			
705	705.9	48.5	22	21	27							SS-21 13%	RESIDUAL Hard, Non-Plastic, Brown and Gray, Fine to Coarse Sandy SILT with Trace Clay	46.0	
700	700.9	53.5	16	20	35							W			
695	695.9	58.5	19	22	26							W			
690	690.9	63.5	100		100/0.5								WEATHERED ROCK Gray, Metavolcanic Rock	61.0	
685	685.9	68.5	100/0.4												
680	680.9	73.5	56	44/0.3											
675	675.9	78.5	60/0.0											78.5	

Note: Tap Water with High Yield Benonite

NCDOT BORE SINGLE 101895 PART 2.GPJ NC_DOT.GDT 5/11/09

PROJECT NO. 34749.1.1	ID. U-0209B	COUNTY Mecklenburg	GEOLOGIST T. Wells
SITE DESCRIPTION Bridge No. 1172 (Str 2) on -Y15- (Idlewild Rd.) over US 74 (Independence Blvd)			GROUND WTR (ft)
BORING NO. EB1-B	STATION 31+63	OFFSET 32ft RT	ALIGNMENT -Y15-
COLLAR ELEV. 754.4 ft	TOTAL DEPTH 78.5 ft	NORTHING 526,428	EASTING 147,089
DRILL MACHINE Acker AD II	DRILL METHOD Wash Rotary	HAMMER TYPE 140 lb. Manual	
START DATE 03/11/09	COMP. DATE 03/12/09	SURFACE WATER DEPTH N/A	DEPTH TO ROCK 78.5

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				
675														675
670													Match Line	
665														
660														
655														
650														
645														
640														
635														
630														
625														
620														
615														
610														
605														
600														
595														

Used as Drilling Fluid Mud wt = 71 lbs/cu. ft.
Boring Terminated by SPT Refusal at
Elevation 675.9 ft on Crystalline Rock:
Metavolcanic Rock

NCDOT BORE SINGLE 101895 PART 2.GPJ NC_DOT.GDT 5/11/09

PROJECT NO. 34749.1.1		ID. U-0209B		COUNTY Mecklenburg		GEOLOGIST T. Wells										
SITE DESCRIPTION Bridge No. 1172 (Str 2) on -Y15- (Idlewild Rd.) over US 74 (Independence Blvd)							GROUND WTR (ft)									
BORING NO. B1-A		STATION 32+18		OFFSET 59ft LT		ALIGNMENT -Y15-										
COLLAR ELEV. 755.2 ft		TOTAL DEPTH 56.9 ft		NORTHING 526,513		EASTING 1,475,156										
DRILL MACHINE Acker AD II		DRILL METHOD Wash Rotary		HAMMER TYPE 140 lb. Manual												
START DATE 03/17/09		COMP. DATE 03/18/09		SURFACE WATER DEPTH N/A		DEPTH TO ROCK 56.9										
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG MOI	LOG G	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100						
760																
755																755.2 0.0
750	750.2	5.0	2	5	8											
745	746.7	8.5	1	3	4											
740	741.7	13.5	2	5	7											
735	736.7	18.5	4	4	6											
730	731.7	23.5	2	3	4											
725	726.7	28.5	2	2	4											
720	721.7	33.5	2	3	7											
715	716.7	38.5	9	13	13											
710	711.7	43.5	9	11	18											
705	706.7	48.5	7	11	15											
700	701.7	53.5	16	11	89/0.4											
695																
690																
685																
680																

NCDOT BORE SINGLE 101895 PART 2.GPJ NC_DOT.GDT 5/11/09

Note: Tap Water with High Yield Bentonite Used as Drilling Fluid, Mud wt. = 72 lbs/cu. ft. Boring Terminated with Tricon Refusal at Elevation 698.3 ft on Crystalline Rock: Metavolcanic Rock

Note: Rods Broke in Hole; Unable to Perform SPT at Refusal

PROJECT NO. 34749.1.1		ID. U-0209B		COUNTY Mecklenburg		GEOLOGIST T. Wells										
SITE DESCRIPTION Bridge No. 1172 (Str 2) on -Y15- (Idlewild Rd.) over US 74 (Independence Blvd)							GROUND WTR (ft)									
BORING NO. B1-C		STATION 32+76		OFFSET 4ft RT		ALIGNMENT -Y15-										
COLLAR ELEV. 754.6 ft		TOTAL DEPTH 74.5 ft		NORTHING 526,441		EASTING 1,475,202										
DRILL MACHINE Acker AD II		DRILL METHOD Wash Rotary		HAMMER TYPE 140 lb. Manual												
START DATE 03/09/09		COMP. DATE 03/09/09		SURFACE WATER DEPTH N/A		DEPTH TO ROCK 74.5										
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG MOI	LOG G	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100						
755																
750	749.6	5.0	3	3	4											
745	746.1	8.5	2	2	2											
740	741.1	13.5	2	2	3											
735	736.1	18.5	2	2	5											
730	731.1	23.5	2	3	5											
725	726.1	28.5	2	3	4											
720	721.1	33.5	3	4	7											
715	716.1	38.5	7	9	16											
710	711.1	43.5	4	7	11											
705	706.1	48.5	5	8	13											
700	701.1	53.5	6	9	13											
695	696.1	58.5	7	7	13											
690	691.1	63.5	9	11	16											
685	686.1	68.5	16	13	15											
680	681.4	73.2														
680	680.1	74.5	100/0.4													
675																

NCDOT BORE SINGLE 101895 PART 2.GPJ NC_DOT.GDT 5/11/09

Note: Tap Water with High Yield Bentonite Used as Drilling Fluid, Mud wt = 72 lbs/cu. ft. Boring Terminated by SPT Refusal at Elevation 680.1 ft on Crystalline Rock: Metavolcanic Rock

PROJECT NO. 34749.1.1		ID. U-0209B		COUNTY Mecklenburg		GEOLOGIST T. Wells									
SITE DESCRIPTION Bridge No. 1172 (Str 2) on -Y15- (Idlewild Rd.) over US 74 (Independence Blvd)							GROUND WTR (ft)								
BORING NO. B1-B		STATION 33+18		OFFSET 41ft RT		ALIGNMENT -Y15-									
COLLAR ELEV. 754.1 ft		TOTAL DEPTH 86.0 ft		NORTHING 526,397		EASTING 1,475,237									
DRILL MACHINE Acker AD II		DRILL METHOD Wash Rotary		HAMMER TYPE 140 lb. Manual											
START DATE 03/10/09		COMP. DATE 03/11/09		SURFACE WATER DEPTH N/A		DEPTH TO ROCK 86.0									
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG MOI	LOG ELEV. (ft)	SOIL AND ROCK DESCRIPTION	DEPTH (ft)
			0.5ft	0.5ft	0.5ft	0	25	50	75	100					
755														754.1	0.0
750															
745	745.6	8.5	11	12	23										
740	740.6	13.5	4	5	6										
735	735.6	18.5	3	6	8										
730	730.6	23.5	3	4	6										
725	725.6	28.5	5	6	7										
720	720.6	33.5	4	7	9										
715	715.6	38.5	6	8	12										
710	710.6	43.5	7	13	16										
705	705.6	48.5	10	13	18										
700	700.6	53.5	12	13	17										
695	695.6	58.5	12	20	27										
690	690.6	63.5	8	11	16										
685	685.6	68.5	21	39	45										
680	680.6	73.5	20	34	66										
675	675.6	78.5													

NCDOT BORE SINGLE 101895 PART 2.GPJ NC_DOT.GDT 5/11/09

PROJECT NO. 34749.1.1		ID. U-0209B		COUNTY Mecklenburg		GEOLOGIST T. Wells									
SITE DESCRIPTION Bridge No. 1172 (Str 2) on -Y15- (Idlewild Rd.) over US 74 (Independence Blvd)							GROUND WTR (ft)								
BORING NO. B1-B		STATION 33+18		OFFSET 41ft RT		ALIGNMENT -Y15-									
COLLAR ELEV. 754.1 ft		TOTAL DEPTH 86.0 ft		NORTHING 526,397		EASTING 1,475,237									
DRILL MACHINE Acker AD II		DRILL METHOD Wash Rotary		HAMMER TYPE 140 lb. Manual											
START DATE 03/10/09		COMP. DATE 03/11/09		SURFACE WATER DEPTH N/A		DEPTH TO ROCK 86.0									
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG MOI	LOG ELEV. (ft)	SOIL AND ROCK DESCRIPTION	DEPTH (ft)
			0.5ft	0.5ft	0.5ft	0	25	50	75	100					
675															
670	670.6	83.5	63	37	0.1										
665	668.1	86.0													
660															
655															
650															
645															
640															
635															
630															
625															
620															
615															
610															
605															
600															
595															

NCDOT BORE SINGLE 101895 PART 2.GPJ NC_DOT.GDT 5/11/09

Match Line

WEATHERED ROCK
Gray Metavolcanic Rock (continued)

Note: Tap Water with High Yield Bentonite Used as Drilling Fluid, Mud wt. = 70 lbs/cu. ft. Boring Terminated by SPT Refusal at Elevation 668.1 ft on Crystalline Rock: Metavolcanic Rock



PROJECT NO. 34749.1.1	ID. U-0209B	COUNTY Mecklenburg	GEOLOGIST J. Fregosi
SITE DESCRIPTION Bridge No. 1172 (Str 2) on -Y15- (Idlewild Rd.) over US 74 (Independence Blvd)			GROUND WTR (ft)
BORING NO. EB2-A	STATION 33+94	OFFSET 33ft LT	ALIGNMENT -Y15-
COLLAR ELEV. 754.7 ft	TOTAL DEPTH 98.6 ft	NORTHING 526,464	EASTING 1,475,320
DRILL MACHINE B-57 Truck	DRILL METHOD Wash Rotary	HAMMER TYPE 140 lb. Automatic	
START DATE 03/12/09	COMP. DATE 03/13/09	SURFACE WATER DEPTH N/A	DEPTH TO ROCK 98.6

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					
755														754.7	0.0
750	749.7	5.0									SS-25	55%		RESIDUAL Soft to Medium Stiff; Medium to Low Plasticity; White to Tan, Gray and Red to Brown; Fine Sandy; Silty CLAY	
745	746.2	8.5	2	2	3										
740	741.2	13.5	1	2	2										
735	736.2	18.5	1	1	1						SS-26	58%			
730	731.2	23.5	1	1	1										
725	726.2	28.5	1	2	3										
720	721.2	33.5	2	4	8										
715	716.2	38.5	4	5	9										
710	711.2	43.5	2	3	4										
705	706.2	48.5	1	2	3										
700	701.2	53.5	1	2	4										
695	696.2	58.5	9	15	19										
690	691.2	63.5	9	14	25										
685	686.2	68.5	3	5	9										
680	681.2	73.5	4	6	11										
675	676.2	78.5	10	11	21										

NCDOT BORE SINGLE 101895 PART 2.GPJ NC_DOT.GDT 5/11/09



PROJECT NO. 34749.1.1	ID. U-0209B	COUNTY Mecklenburg	GEOLOGIST J. Fregosi
SITE DESCRIPTION Bridge No. 1172 (Str 2) on -Y15- (Idlewild Rd.) over US 74 (Independence Blvd)			GROUND WTR (ft)
BORING NO. EB2-A	STATION 33+94	OFFSET 33ft LT	ALIGNMENT -Y15-
COLLAR ELEV. 754.7 ft	TOTAL DEPTH 98.6 ft	NORTHING 526,464	EASTING 1,475,320
DRILL MACHINE B-57 Truck	DRILL METHOD Wash Rotary	HAMMER TYPE 140 lb. Automatic	
START DATE 03/12/09	COMP. DATE 03/13/09	SURFACE WATER DEPTH N/A	DEPTH TO ROCK 98.6

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					
675															
670	671.2	83.5	20	23	21									RESIDUAL Stiff to Hard; Low Plasticity; Tan to White, Gray to Black, and Brown; Clayey; Coarse to Fine Sandy SILT (continued)	
665	666.2	88.5	46	54/0.4											
660	661.2	93.5	17	28	52										
655	656.2	98.5	60/0.1												
650															
645															
640															
635															
630															
625															
620															
615															
610															
605															
600															
595															

NCDOT BORE SINGLE 101895 PART 2.GPJ NC_DOT.GDT 5/11/09

Match Line

Note: Tap Water with High Yield Bentonite Used as Drilling Fluid, Mud wt. = 69lbs/cu. ft.
Boring Terminated by SPT Refusal at Elevation 656.1 ft on Crystalline Rock: Metavolcanic Rock



PROJECT NO. 34749.1.1	ID. U-0209B	COUNTY Mecklenburg	GEOLOGIST J. Fregosi
SITE DESCRIPTION Bridge No. 1172 (Str 2) on -Y15- (Idlewild Rd.) over US 74 (Independence Blvd)			GROUND WTR (ft)
BORING NO. EB2-C	STATION 34+27	OFFSET 1ft LT	ALIGNMENT -Y15-
COLLAR ELEV. 755.6 ft	TOTAL DEPTH 100.0 ft	NORTHING 526,420	EASTING 1,475,352
DRILL MACHINE B-57 Truck	DRILL METHOD Wash Rotary	HAMMER TYPE 140 lb. Automatic	
START DATE 03/10/09	COMP. DATE 03/11/09	SURFACE WATER DEPTH N/A	DEPTH TO ROCK 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				
760														
755													RESIDUAL Soft to Stiff, Medium to Low Plasticity, White to Tan and Gray to Orange, Fine Sandy, Silty Clay	0.0
750	750.6	5.0	4	6	8									
745	747.1	8.5	1	2	3									
740	742.1	13.5	1	1	2									
735	737.1	18.5	1	1	2									
730	732.1	23.5	1	1	3									
725	727.1	28.5	1	1	3									
720	722.1	33.5	1	2	4									
715	717.1	38.5	2	2	3									
710	712.1	43.5	1	2	4									
705	707.1	48.5	10	14	22									
700	702.1	53.5	8	14	22									
695	697.1	58.5	8	13	20									
690	692.1	63.5	10	15	21									
685	687.1	68.5	14	19	24									
680	682.1	73.5	15	20	29									



PROJECT NO. 34749.1.1	ID. U-0209B	COUNTY Mecklenburg	GEOLOGIST J. Fregosi
SITE DESCRIPTION Bridge No. 1172 (Str 2) on -Y15- (Idlewild Rd.) over US 74 (Independence Blvd)			GROUND WTR (ft)
BORING NO. EB2-C	STATION 34+27	OFFSET 1ft LT	ALIGNMENT -Y15-
COLLAR ELEV. 755.6 ft	TOTAL DEPTH 100.0 ft	NORTHING 526,420	EASTING 1,475,352
DRILL MACHINE B-57 Truck	DRILL METHOD Wash Rotary	HAMMER TYPE 140 lb. Automatic	
START DATE 03/10/09	COMP. DATE 03/11/09	SURFACE WATER DEPTH N/A	DEPTH TO ROCK 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				
680														
675	677.1	78.5	8	13	22								RESIDUAL Hard, Non-Plastic to Low Plasticity, White to Tan to Brown, Clayey, Coarse to Fine Sandy SILT (continued)	
670	672.1	83.5	15	19	26									
665	667.1	88.5	17	23	32									
660	662.1	93.5	20	23	29									
655	657.1	98.5	12	22	30									
650														
645														
640														
635														
630														
625														
620														
615														
610														
605														
600														

NCDOT BORE SINGLE 101885 PART 2.GPJ NC_DOT.GDT 5/11/09

NCDOT BORE SINGLE 101885 PART 2.GPJ NC_DOT.GDT 5/11/09

Note: Tap Water with High Yield Bentonite Used as Drilling Fluid, Mud wt. = 71 lbs/cu. ft. Boring Terminated at Elevation 655.6 ft in Residual Soil: Sandy Silt

PROJECT NO. 34749.1.1	ID. U-0209B	COUNTY Mecklenburg	GEOLOGIST J. Fregosi
SITE DESCRIPTION Bridge No. 1172 (Str 2) on -Y15- (Idlewild Rd.) over US 74 (Independence Blvd)			GROUND WTR (ft)
BORING NO. EB2-B	STATION 34+57	OFFSET 31ft RT	ALIGNMENT -Y15-
COLLAR ELEV. 755.0 ft	TOTAL DEPTH 89.7 ft	NORTHING 526,383	EASTING 1,475,376
DRILL MACHINE B-57 Truck	DRILL METHOD Wash Rotary	HAMMER TYPE 140 lb. Automatic	
START DATE 03/11/09	COMP. DATE 03/12/09	SURFACE WATER DEPTH N/A	DEPTH TO ROCK N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG MOI	SOIL AND ROCK DESCRIPTION	DEPTH (ft)
			0.5ft	0.5ft	0.5ft	0	25	50	75	100				
755													755.0	0.0
750	750.0	5.0											RESIDUAL Soft to Very Stiff; Medium to Low Plasticity; Red, White to Gray, and Tan to Orange; Coarse to Fine Sandy; Silty CLAY	
745	746.5	8.5	4	6	10									
740	741.5	13.5	2	4	5									
735	736.5	18.5	1	2	2									
730	731.5	23.5	1	1	2									
725	726.5	28.5	1	1	2									
720	721.5	33.5	1	1	2									
715	716.5	38.5	2	2	3									
710	711.5	43.5	3	2	4									
705	706.5	48.5	5	12	8									
700	701.5	53.5	5	8	10									
695	696.5	58.5	5	7	9									
690	691.5	63.5	8	18	26									
685	686.5	68.5	17	20	51									
680	681.5	73.5	15	30	54									
675	676.5	78.5	14	28	56									

PROJECT NO. 34749.1.1	ID. U-0209B	COUNTY Mecklenburg	GEOLOGIST J. Fregosi
SITE DESCRIPTION Bridge No. 1172 (Str 2) on -Y15- (Idlewild Rd.) over US 74 (Independence Blvd)			GROUND WTR (ft)
BORING NO. EB2-B	STATION 34+57	OFFSET 31ft RT	ALIGNMENT -Y15-
COLLAR ELEV. 755.0 ft	TOTAL DEPTH 89.7 ft	NORTHING 526,383	EASTING 1,475,376
DRILL MACHINE B-57 Truck	DRILL METHOD Wash Rotary	HAMMER TYPE 140 lb. Automatic	
START DATE 03/11/09	COMP. DATE 03/12/09	SURFACE WATER DEPTH N/A	DEPTH TO ROCK N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG MOI	SOIL AND ROCK DESCRIPTION	DEPTH (ft)
			0.5ft	0.5ft	0.5ft	0	25	50	75	100				
675														
670	671.5	83.5	22	30	32									
665	666.5	88.5	26	66	34/0.2									
660														
655														
650														
645														
640														
635														
630														
625														
620														
615														
610														
605														
600														
595														

NCDOT BORE SINGLE 101895 PART 2.GPJ NC_DOT_GDT_5/11/09


NCDOT BORE SINGLE 101895 PART 2.GPJ NC_DOT_GDT_5/11/09

NCDOT Project No. 334749.1.1 TIP No. U-0209B
Bridge No. 1172 (Str2) on -Y15- (Idlewild Road) over US 74 (Independence Boulevard)
Mecklenburg County, North Carolina
SUMMARY OF LABORATORY TEST DATA

Boring Number	Sample Depth (ft.)	Sample No.*	Natural Moisture Content (%)	AASHTO Class (Group Index)	N-Value (blows/ft.)	Atterberg Limits			Gradation Results							
						L.L.	P.L.	P.I.	Pass #10 Sieve	Pass #40 Sieve	Pass #200 Sieve	Retained #270 Sieve	Coarse Sand (%)	Fine Sand (%)	Silt (%)	Clay (%)
EB1-A	18.5-20.0	SS-17	45.7	A-4 (0)	7	36	NP	NP	100	100	57	47	5	42	43	10
EB1-C	5.0-6.5	SS-18	47.2	A-5 (12)	6	53	43	10	100	100	82	21	1	20	51	28
EB1-C	18.5-20.0	SS-19	48.3	A-5 (3)	4	43	NP	NP	100	100	79	25	1	24	60	15
EB1-B	28.5-30.0	SS-20	44.0	A-7-5 (14)	12	56	41	15	100	100	75	29	0	29	55	16
EB1-B	48.5-50.0	SS-21	12.6	A-4 (0)	48	22	NP	NP	100	76	38	65	37	28	27	8
B1-C	8.5-10.0	SS-22	66.2	A-7-5 (19)	4	64	52	12	100	99	90	12	2	10	56	32
B1-C	58.5-60.0	SS-23	43.7	A-7-5 (12)	20	52	35	17	100	97	67	36	6	30	49	15
B1-B	48.5-50.0	SS-24	28.9	A-4 (0)	31	29	NP	NP	100	88	45	57	24	33	32	11
EB2-A	5.0-6.5	SS-25	54.9	A-7-5 (29)	5	72	51	21	100	99	92	10	2	8	41	49
EB2-A	13.5-15.0	SS-26	57.9	A-7-5 (20)	2	59	45	14	100	99	91	10	2	8	57	33
EB2-C	8.5-10.0	SS-27	49.5	A-7-5 (16)	5	58	46	12	100	98	85	16	3	13	50	34
EB2-C	33.5-35.0	SS-28	33.9	A-5 (4)	6	43	34	9	100	81	57	45	25	20	41	14
EB2-C	48.5-50.0	SS-29	22.8	A-4 (0)	36	25	NP	NP	100	99	52	50	8	42	40	10
EB2-C	58.5-60.0	SS-30	24.2	A-4 (1)	33	34	27	7	100	84	46	56	26	30	29	15
EB2-B	18.5-20.0	SS-31	55.9	A-7-5 (21)	4	57	40	17	100	97	87	15	5	10	50	35
EB2-B	38.5-40.0	SS-32	41.3	A-7-5 (10)	5	47	33	14	100	94	70	32	10	22	52	16
EB2-B	63.5-65.0	SS-33	21.2	A-4 (0)	44	28	NP	NP	100	93	45	58	21	37	31	11

SS = Split-Barrel Sample (ASTM-D-1586) ST = Shelby Tube (Undisturbed) Sample
 G = Grab Sample
 NP -- Non Plastic NA-- Non Applicable

KLEINFELDER
GREENSBORO, NORTH CAROLINA
 Trigon Job Number: 101895

NCDOT CERTIFIED TECHNICIAN PERFORMING LAB TESTING: 
 Patrick Norville, NCDOT Certification No. 109-02-1003

SITE PHOTOGRAPHS
State Project No. 34749.1.1 TIP No. U-0209B
Bridge No. 1172 (Str2) on -Y15- (Idlewild Road)
Over US 74 (Independence Blvd.)
Mecklenburg County, North Carolina
Page 1 of 2



Photograph 1 – View Looking Upstation
From EB1-C to EB2-C

SITE PHOTOGRAPHS
State Project No. 34749.1.1 TIP No. U-0209B
Bridge No. 1172 (Str2) on -Y15- (Idlewild Road)
Over US 74 (Independence Blvd.)
Mecklenburg County, North Carolina
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Photograph 3 – View Left to Right Across Bent-1



Photograph 2 – View Left to Right Across End Bent-1



Photograph 4 – View Left to Right Across End Bent-2