9-16

SHEET **DESCRIPTION** TITLE SHEET LEGEND SITE PLAN PROFILE 5-8 CROSS SECTIONS

BORE LOGS, CORE LOGS

& CORE PHOTOGRAPHS SITE PHOTOGRAPHS

STATE OF NORTH CAROLINA

DEPARTMENT OF TRANSPORTATION **DIVISION OF HIGHWAYS** GEOTECHNICAL ENGINEERING UNIT

STRUCTURE SUBSURFACE INVESTIGATION

PROJ. REFERENCE NO. 40151.1.1 (B-4959) F.A. PROJ. *BRZ-2719(1)* COUNTY GUILFORD PROJECT DESCRIPTION BRIDGE NO. 193 OVER BUFFALO CREEK ON SR 2719

STATE STATE PROJECT REPERSION NO. MILET TOTAL N.C. 40151.1.1 (B-4959)

CAUTION NOTICE

THE SUBSURFACE REGENATION AND THE SUBSURFACE INVESTIGATION ON WACH IT IS BASED WERE MADE FOR THE PURPOSE OF STUDY, PLANNIC AND DESIGN, AND NOT FOR CONSTRUCTION OF PAY PURPOSES, THE VARBUS FELD BORNE LOOS, MODE COMES, AND SON TEST DATA ANALABLE WAT BE REVERED OR INSPECTED IN RALEDH BY CONTACTING THE N.C. DEPARTMENT OF TRANSPORTATION, GEOTECHOROL REMOMERSING UNIT AT 1991 TOT-6850. NEITHER THE SUBSURFACE PLANS AND REPORTS, NOR THE FIELD BORNE LOGS, ROCK COMES, OR SOR TEST DATA ARE PART OF THE CONTRACT.

CEMERAL SOR AND MOCK STRATA DESCRIPTIONS AND MONCATED BOUNDARDS ARE BASED ON A GEOTECHNICAL INTERPRETATION OF ALL AVAILABLE. SUBSUMFACE DATA AND MAY NOT MECESSARILY METHED THE ACTUAL SUBSURFACE CONDITIONS ECTHECH BOHNDS OR BETHECH SAMPLED STRATA A RETIRM THE BOREVOLL THE LADORATORY SAMPLE DATA AND THE WIS THU NPLACEL TEST DATA CAN BE RELED ON ONLY TO THE DEGREE OF FELLABLITY INSERENT IN THE STANDARD TEST METHOD. THE OBSERVED WATER LEVELS OF SOL MOSTUME CONDITIONS INDICATED IN THE SUBJECT OF INVESTICATIONS ARE AS RECORDED AT THE TIME OF THE HINESTGATION, THESE MATER LEVELS OR SOR MOSTLINE CONDITIONS MAY WARE CONSIDERABLY WINT THE ACCORDING TO CLANATIC CONDITIONS INCLIDING TEMPERATURES, PRECENTATION, AND RIND, AS WELL AS OTHER HON-CLINATIC FACTORS.

THE BODGE OF CONTRACTOR IS CAUTIONED THAT DETAILS SHOWN ON THE SUBSURFACE PLANS ARE PRELIMENARY ONLY AND IN MANY CASES THE FIRM. DESIGN DETAILS ARE DIFFERENT, FOR BODGING AND CONSTRUCTION PLANDAGES, REFER TO THE CONSTRUCTION PLANS AND DOCUMENTS FOR FINAL DESIGN REGISTATION ON THIS PROJECT. THE CEPARITHEMS DOES NOT BARRIANT OF GUARANTEE THE SUFFICIENCY OF ACCURACY OF THE INVESTIGATION MADE, NOT THE RETEMPLETATIONS MADE, OF OPINION OF THE DEPARTMENT AS TO THE TYPE OF MATERIALS AND CONSTITUENT ON ENCOUNTERED, THE BODGE OF CONTRACTOR IS CAUTOMED TO MAKE SUCH RECONSTRUCTED ON THE PROJECT. THE CONTRACTOR SHALL MAKE NO CLAIM FOR MODIFICATION OF FOR AN EXTENSION OF THE SUBSURFACE REFORMATION.

PERSONNEL B. Richards, E.I.

	-	J. Rich
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	INVESTIGATED BY	ECS Carolinas, LLP
	CHECKED BY	J. Hoskins, III, P.E.
		ECS Carolinas, LLP
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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, SPECFICATIONS, 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 HEREN 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

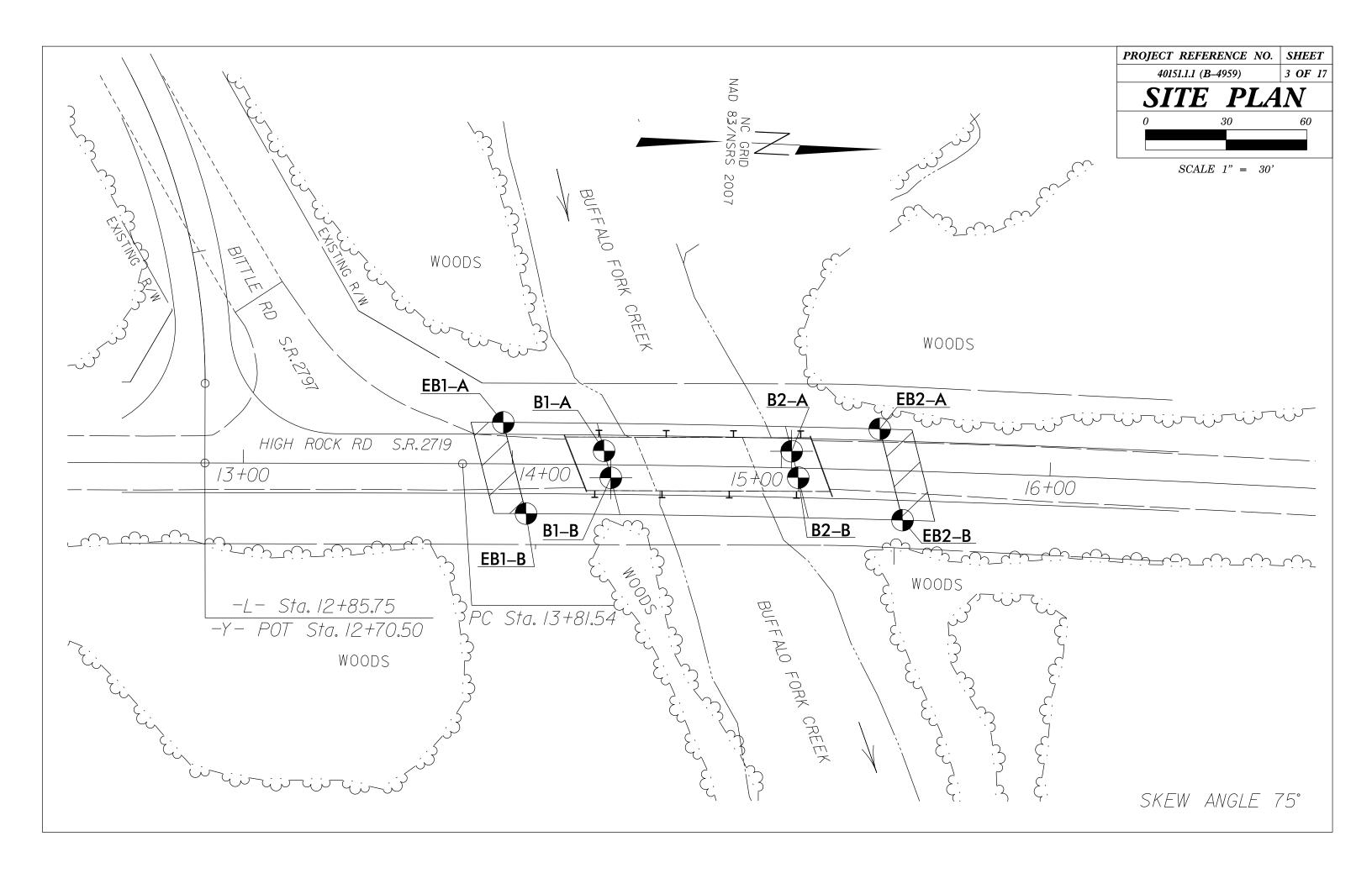
		k LEGEND, IEKM	is, si mbuls,			
SOIL DESCRIPTION	GRADATION WELL GRADED - INDICATES A GOOD REPRESENTATION OF PARTICLE SIZES FRO	OM FINE TO COARSE.	HARD ROCK IS NON		DESCRIPTION T IF TESTED, WOULD YIELD SPT REFUSAL. AN INFERRED	TERMS AND DEFINITIONS
SOIL IS CONSIDERED TO BE THE UNCONSOLIDATED, SEMI-CONSOLIDATED, OR WEATHERED EARTH MATERIALS THAT CAN BE PENETRATED WITH A CONTINUOUS FLIGHT POWER AUGER, AND YIELD LESS THAN	UNIFORM - INDICATES THAT SOIL PARTICLES ARE ALL APPROXIMATELY THE SPORLY GRADED)	SAME SIZE. (ALSO	ROCK LINE INDICAT	ES THE LEVEL AT WHICH NON-C	OASTAL PLAIN MATERIAL WOULD YIELD SPT REFUSAL. SAMPLER EQUAL TO OR LESS THAN 0.1 FOOT PER 60 BLOWS.	ALLUVIUM (ALLUV.) - SOILS THAT HAVE BEEN TRANSPORTED BY WATER. AQUIFER - A WATER BEARING FORMATION OR STRATA.
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:	GAP-GRADED - INDICATES A MIXTURE OF UNIFORM PARTICLES OF TWO OR MOR	RE SIZES.	IN NON-COASTAL P	LAIN MATERIAL. THE TRANSITIO	ON BETWEEN SOIL AND ROCK IS OFTEN REPRESENTED BY A ZONE	
CONSISTENCY, COLOR, TEXTURE, MOISTURE, AASHTO CLASSIFICATION, AND OTHER PERTINENT FACTORS SUCH	ANGULARITY OF GRAINS		OF WEATHERED ROO ROCK MATERIALS A	CK. RE TYPICALLY DIVIDED AS FOLL	.OwS:	ARGILLACEOUS - APPLIED TO ALL ROCKS OR SUBSTANCES COMPOSED OF CLAY MINERALS,
AS MINERALOGICAL COMPOSITION, ANGULARITY, STRUCTURE, PLASTICITY, ETC. EXAMPLE: VERY STIFF, GRAY, SUTY CLAY, MOST WITH INTERBEDGED FINE SAND LAYERS, HIGHLY PLASTIC, A-7-6	THE ANGULARITY OR ROUNDNESS OF SOIL GRAINS IS DESIGNATED BY THE TE SUBANGULAR, SUBROUNDED, OR ROUNDED.	ERMS: ANGULAR.	WEATHERED	NON-COASTAL PL	_AIN MATERIAL THAT WOULD YIELD SPT N VALUES > 100	OR HAVING A NOTABLE PROPORTION OF CLAY IN THEIR COMPOSITION, AS SHALE, SLATE, ETC.
SOIL LEGEND AND AASHTO CLASSIFICATION	MINERALOGICAL COMPOSITION	J	ROCK (WR)	BLOWS PER FOO	T IF TESTED.	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
CENEDAL CRANIII AR MATERIAL C CILT.CLAY MATERIAL C	MINERAL NAMES SUCH AS QUARTZ, FELDSPAR, MICA, TALC, KAOLIN, ETC. ARE USE		CRYSTALLINE ROCK (CR)		GRAIN IGNEOUS AND METAMORPHIC ROCK THAT PT REFUSAL IF TESTED. ROCK TYPE INCLUDES GRANITE,	GROUND SURFACE.
CLASS. (≤ 35% PASSING "200) (> 35% PASSING "200) ORGANIC MATERIALS	WHENEVER THEY ARE CONSIDERED OF SIGNIFICANCE.		UNEISS, GABBRO, SCHIST, ETC.			CALCAREOUS (CALC.) - SOILS THAT CONTAIN APPRECIABLE AMOUNTS OF CALCIUM CARBONATE.
GROUP A-1 A-3 A-2 A-4 A-5 A-6 A-7 A-1, A-2 A-4, A-5	COMPRESSIBILITY		NON-CRYSTALLINE ROCK (NCR)	SEDIMENTARY RO	ICK THAT WOULD YEILD SPT REFUSAL IF TESTED. ROCK TYPE	COLLUVIUM - ROCK FRAGMENTS MIXED WITH SOIL DEPOSITED BY GRAVITY ON SLOPE OR AT BOTTOM
CLASS. A-1-a A-1-b A-2-4 A-2-5 A-2-6 A-2-7 A-7-6 A-3 A-6, A-7	SLIGHTLY COMPRESSIBLE LIQUID LIMIT LI MODERATELY COMPRESSIBLE LIQUID LIMIT EI		COASTAL PLAIN		ITE, SLATE, SANDSTONE, ETC. SEDIMENTS CEMENTED INTO ROCK, BUT MAY NOT YIELD	OF SLOPE.
SYMBOL 000000000000000000000000000000000000	HIGHLY COMPRESSIBLE LIQUID LIMIT G	REATER THAN 50	SEDIMENTARY ROCK	SPT REFUSAL. R	OCK TYPE INCLUDES LIMESTONE, SANDSTONE, CEMENTED	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.
Z PASSING SILT- MUCK,	PERCENTAGE OF MATERIAL		- 1017	SHELL BEDS, ETC	 ATHERING	DIKE - A TABULAR BODY OF IGNEOUS ROCK THAT CUTS ACROSS THE STRUCTURE OF ADJACENT
" 40 30 MX 50 MX 51 MN SOILS COLS PEAT	ORGANIC MATERIAL GRANULAR SILT - CLAY SOILS SOILS O	THER MATERIAL	FRESH ROCK F	BESH CRYSTALS BRIGHT FEW IG	DINTS MAY SHOW SLIGHT STAINING, ROCK RINGS UNDER	ROCKS OR CUTS MASSIVE ROCK.
" 200 15 MX 25 MX 10 MX 35 MX 35 MX 35 MX 35 MX 36 MN 36 MN 36 MN 36 MN	TRACE OF ORGANIC MATTER 2 - 3% 3 - 5% TRACE LITTLE ORGANIC MATTER 3 - 5% 5 - 12% LITTLE			R IF CRYSTALLINE.	SINTS THE SHOW SELECT STRINGLINGS THESE SHOELD	<u>DIP</u> - THE ANGLE AT WHICH A STRATUM OR ANY PLANAR FEATURE IS INCLINED FROM THE HORIZONTAL.
10010 LIMIT	MODERATELY ORGANIC 5 - 10% 12 - 20% SOME				ED, SOME JOINTS MAY SHOW THIN CLAY COATINGS IF OPEN,	DIP DIRECTION (DIP AZIMUTH) - THE DIRECTION OR BEARING OF THE HORIZONTAL TRACE OF
LITTLE OR HIGHLY	HIGHLY ORGANIC >10% >20% HIGHL	Y 35% AND ABOVE		RYSTALLINE NATURE.	CE SHINE BRIGHTLY. ROCK RINGS UNDER HAMMER BLOWS IF	THE LINE OF DIP, MEASURED CLOCKWISE FROM NORTH.
AMOUNTS OF SOILS	GROUND WATER				ED AND DISCOLORATION EXTENDS INTO ROCK UP TO	FAULT - A FRACTURE OR FRACTURE ZONE ALONG WHICH THERE HAS BEEN DISPLACEMENT OF THE SIDES RELATIVE TO ONE ANOTHER PARALLEL TO THE FRACTURE.
USUAL TYPES STONE FRAGS. FINE SILTY OR CLAYEY SILTY CLAYEY ORGANIC OF MAJOR GRAVEL, AND SAND GRAVEL AND SAND SOILS SOILS MATTER	WATER LEVEL IN BORE HOLE IMMEDIATELY AFTER DR	ILLING			AY. IN GRANITOID ROCKS SOME OCCASIONAL FELDSPAR CRYSTALLINE ROCKS RING UNDER HAMMER BLOWS.	FISSILE - A PROPERTY OF SPLITTING ALONG CLOSELY SPACED PARALLEL PLANES.
MATERIALS SAND SHITE HITE SHITE STATE STATE	STATIC WATER LEVEL AFTER 24 HOURS		MODERATE SIGNIF	CANT PORTIONS OF ROCK SHOW	DISCOLORATION AND WEATHERING EFFECTS. IN	FLOAT - ROCK FRAGMENTS ON SURFACE NEAR THEIR ORIGINAL POSITION AND DISLODGED FROM
GEN. RATING AS A EXCELLENT TO GOOD FAIR TO POOR POOR UNSUITABL	PERCHED WATER, SATURATED ZONE, OR WATER BEARING	STRATA			E DULL AND DISCOLORED, SOME SHOW CLAY, ROCK HAS D SHOWS SIGNIFICANT LOSS OF STRENGTH AS COMPARED	PARENT MATERIAL.
SUBGRADE	SPRING OR SEEP			RESH ROCK.	5 3.16.13 315.11 15.11 15.53 3. 3. 3. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1.	FLOOD PLAIN (FP) - LAND BORDERING A STREAM, BUILT OF SEDIMENTS DEPOSITED BY THE STREAM.
PI OF A-7-5 SUBGROUP IS ≤ LL - 30 ; PI OF A-7-6 SUBGROUP IS > LL - 30 CONSISTENCY OR DENSENESS	MISCELLANEOUS SYMBOLS				OR STAINED. IN GRANITOID ROCKS, ALL FELDSPARS DULL W KAOLINIZATION. ROCK SHOWS SEVERE LOSS OF STRENGTH	FORMATION (FM.) - A MAPPABLE GEOLOGIC UNIT THAT CAN BE RECOGNIZED AND TRACED IN
RANGE OF STANDARD RANGE OF UNCONFINED		TEST BORING	(MOD. SEV.) AND CA	N BE EXCAVATED WITH A GEOLO	GIST'S PICK. ROCK GIVES "CLUNK" SOUND WHEN STRUCK.	THE FIELD.
PRIMARY SOIL TYPE COMPACTNESS OR CONSISTENCY PENETRATION RESISTENCE COMPRESSIVE STRENGTH (N-VALUE) (TONS/FT ²)	ROADWAY EMBANKMENT (RE) WITH SOIL DESCRIPTION Port pmt TEST BORING	W/ CORE		TED, WOULD YIELD SPT REFUSAL		JOINT - FRACTURE IN ROCK ALONG WHICH NO APPRECIABLE MOVEMENT HAS OCCURRED.
GENERALLY VERY LOOSE <4	SOIL SYMBOL AUGER BORING	SPT N-VALUE			O OR STAINED. ROCK FABRIC CLEAR AND EVIDENT BUT REDUCED NITOID ROCKS ALL FELDSPARS ARE KAOLINIZED TO SOME	LEDGE - A SHELF-LIKE RIDGE OR PROJECTION OF ROCK WHOSE THICKNESS IS SMALL COMPARED TO
GRANULAR LUUSE 4 TO 10	N	_	EXTEN	. SOME FRAGMENTS OF STRONG	ROCK USUALLY REMAIN.	ITS LATERAL EXTENT. <u>LENS</u> - A BODY OF SOIL OR ROCK THAT THINS OUT IN ONE OR MORE DIRECTIONS.
MATERIAL DENSE 30 TO 50	ARTIFICIAL FILL (AF) OTHER ————————————————————————————————————	REF SPT REFUSAL		TED, YIELDS SPT N VALUES > 10	I OR STAINED, ROCK FABRIC ELEMENTS ARE DISCERNIBLE BUT	MOTTLED (MOT.) - IRREGULARLY MARKED WITH SPOTS OF DIFFERENT COLORS, MOTTLING IN
VERY DENSE >50	INFERRED SOIL BOUNDARY MW MONITORING WELL		(V SEV.) THE MA	SS IS EFFECTIVELY REDUCED T	O SOIL STATUS, WITH ONLY FRAGMENTS OF STRONG ROCK	SOILS USUALLY INDICATES POOR AERATION AND LACK OF GOOD DRAINAGE.
VERY SOFT <2 <0.25 GENERALLY SOFT 2 TO 4 0.25 TO 0.50	_ DIE 70METER				OF ROCK WEATHERED TO A DEGREE SUCH THAT ONLY MINOR RIC REMAIN. <i>IF TESTED</i> , <u>YIELDS SPT N VALUES < 100 BPF</u>	PERCHED WATER - WATER MAINTAINED ABOVE THE NORMAL GROUND WATER LEVEL BY THE PRESENCE OF A INTERVENING IMPERVIOUS STRATUM.
SILT-CLAY MEDIUM STIFF 4 TO 8 0.5 TO 1.0	INSTALLATION				NOT DISCERNIBLE, OR DISCERNIBLE ONLY IN SMALL AND	RESIDUAL (RES.) SOIL - SOIL FORMED IN PLACE BY THE WEATHERING OF ROCK.
MATERIAL STIFF 8 TO 15 1 TO 2 (COHESIVE) VERY STIFF 15 TO 30 2 TO 4	SLOPE INDICATOR		SCATTE	RED CONCENTRATIONS. QUARTZ N	MAY BE PRESENT AS DIKES OR STRINGERS. SAPROLITE IS	ROCK QUALITY DESIGNATION (ROD) - A MEASURE OF ROCK QUALITY DESCRIBED BY TOTAL LENGTH OF
HARD >30 >4	25/025 DIP & DIP DIRECTION OF		ALSO A	N EXAMPLE.	LIADDNECC	ROCK SEGMENTS EQUAL TO OR GREATER THAN 4 INCHES DIVIDED BY THE TOTAL LENGTH OF CORE RUN ALL EXPRESSED AS A PERCENTAGE.
TEXTURE OR GRAIN SIZE	ROCK STRUCTURES (A) CONE PENETROMET	TER TEST			HARDNESS	SAPROLITE (SAP.) - RESIDUAL SOIL THAT RETAINS THE RELIC STRUCTURE OR FABRIC OF THE
U.S. STD. SIEVE SIZE 4 10 40 60 200 270	SOUNDING ROD			IT BE SCRATCHED BY KNIFE OR IAL HARD BLOWS OF THE GEOLOG	SHARP PICK. BREAKING OF HAND SPECIMENS REQUIRES	PARENT ROCK.
OPENING (MM) 4.76 2.00 0.42 0.25 0.075 0.053	ABBREVIATIONS				K ONLY WITH DIFFICULTY, HARD HAMMER BLOWS REQUIRED	SILL - AN INTRUSIVE BODY OF IGNEOUS ROCK OF APPROXIMATELY UNIFORM THICKNESS AND RELATIVELY THIN COMPARED WITH ITS LATERAL EXTENT, THAT HAS BEEN EMPLACED PARALLEL
BOULDER COBBLE GRAVEL COARSE FINE SILT CLAY	AR - AUGER REFUSAL MED MEDIUM	VST - VANE SHEAR TEST	TO DE	TACH HAND SPECIMEN.		TO THE BEDDING OR SCHISTOSITY OF THE INTRUDED ROCKS.
(BLDR.) (COB.) (GR.) (SE. SD.) (F SD.) (SL.) (CL.)	BT - BORING TERMINATED MICA MICACEOUS CL CLAY MOD MODERATELY	WEA WEATHERED 7 - UNIT WEIGHT			K. GOUGES OR GROOVES TO 0.25 INCHES DEEP CAN BE LOGIST'S PICK. HAND SPECIMENS CAN BE DETACHED	SLICKENSIDE - POLISHED AND STRIATED SURFACE THAT RESULTS FROM FRICTION ALONG A FAULT OR SLIP PLANE.
GRAIN MM 305 75 2.0 0.25 0.05 0.005 SIZE IN 12 3	CPT - CONE PENETRATION TEST NP - NON PLASTIC	$\dot{\gamma}_{\!\scriptscriptstyle d}$ - DRY UNIT WEIGHT		DERATE BLOWS.	CHES DEEP BY FIRM PRESSURE OF KNIFE OR PICK POINT.	STANDARD PENETRATION TEST (PENETRATION RESISTANCE) (SPT) - NUMBER OF BLOWS (N OR BPF) OF
SOIL MOISTURE - CORRELATION OF TERMS	CSE COARSE ORG ORGANIC DMT - DILATOMETER TEST PMT - PRESSUREMETER TEST	SAMPLE ABBREVIATIONS			TO PEICES 1 INCH MAXIMUM SIZE BY HARD BLOWS OF THE	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
COLL MOISTURE COLLE FIELD MOISTURE	DPT - DYNAMIC PENETRATION TEST SAP SAPROLITIC	S - BULK		OF A GEOLOGIST'S PICK.		THAN 0.1 FOOT PER 60 BLOWS.
(ATTERBERG LIMITS) OBSCRIPTION GUIDE FOR FIELD MOISTURE DESCRIPTION	e - VOID RATIO SD SAND, SANDY F - FINE SL SILT, SILTY	SS - SPLIT SPOON ST - SHELBY TUBE			BY KNIFE OR PICK. CAN BE EXCAVATED IN FRAGMENTS SIZE BY MODERATE BLOWS OF A PICK POINT. SMALL, THIN	STRATA CORE RECOVERY (SREC.) - TOTAL LENGTH OF STRATA MATERIAL RECOVERED DIVIDED BY TOTAL LENGTH
- SATURATED - USUALLY LIQUID; VERY WET, USUALLY	FOSS FOSSILIFEROUS SLI SLIGHTLY	RS - ROCK		S CAN BE BROKEN BY FINGER P		OF STRATUM AND EXPRESSED AS A PERCENTAGE. STRATA ROCK QUALITY DESIGNATION (SROD) - A MEASURE OF ROCK QUALITY DESCRIBED BY
LL _ LIQUID LIMIT(SAT.) FROM BELOW THE GROUND WATER TABLE	FRAC FRACTURED, FRACTURES FRAGS FRAGMENTS TCR - TRICONE REFUSAL W - MOISTURE CONTENT	RT - RECOMPACTED TRIAXIAL CBR - CALIFORNIA BEARING	7 CM1 C		EXCAVATED READILY WITH POINT OF PICK. PIECES 1 INCH EN BY FINGER PRESSURE. CAN BE SCRATCHED READILY BY	TOTAL LENGTH OF ROCK SEGMENTS WITHIN A STRATUM EQUAL TO OR GREATER THAN 4 INCHES DIVIDED BY TH
PLASTIC SEMISOLIDA REGULDES ORYING TO	HI HIGHLY V - VERY	RATIO	FINGE	RNAIL.		TOTAL LENGTH OF STRATA AND EXPRESSED AS A PERCENTAGE.
HANDE - WEI - (W) ATTAIN OPTIMUM MOISTURE	EQUIPMENT USED ON SUBJECT PR	ROJECT		IRE SPACING	BEDDING	TOPSOIL (TS.) - SURFACE SOILS USUALLY CONTAINING ORGANIC MATTER.
PLL + PLASTIC LIMIT -	DRILL UNITS: ADVANCING TOOLS:	HAMMER TYPE:	TERM	SPACING	TERM THICKNESS VERY THICKLY BEDDED > 4 FEET	BENCH MARK: (BM-I) R/R SPIKE IN 15" SWEET GUM - BL STA. 20+47.16, 89' RT
OM OPTIMUM MOISTURE - MOIST - (M) SOLID; AT OR NEAR OPTIMUM MOISTURE		X AUTOMATIC MANUAL	VERY WIDE WIDE	MORE THAN 10 FEET 3 TO 10 FEET	THICKLY BEDDED 1.5 - 4 FEET	NORTH 874,65 EAST 1,818,869 APPROXL- STA. 9+07.16, 41.5' RT. ELEVATION: 648.29 FT
SL SHRINKAGE LIMIT	MOBILE B- 6° CONTINUOUS FLIGHT AUGER	0005 0175	MODERATELY CLOS		THINLY BEDDED 0.16 - 1.5 FEET VERY THINLY BEDDED 0.03 - 0.16 FEET	
REQUIRES ADDITIONAL WATER TO - DRY - (D) ATTAIN OPTIMUM MOISTURE	Dv-51	CORE SIZE:	CLOSE VERY CLOSE	0.16 TO 1 FEET LESS THAN 0.16 FEET	THICKLY LAMINATED 0.008 - 0.03 FEET	NOTES:
	- O HOLLOW HODERS	в		INI	THINLY LAMINATED < 0.008 FEET URATION	-
PLASTICITY	- CME-45C HARD FACED FINGER BITS		FOR SEDIMENTARY ROO		ING OF THE MATERIAL BY CEMENTING, HEAT, PRESSURE, ETC.	†
PLASTICITY INDEX (PI) DRY STRENGTH NONPLASTIC 0-5 VERY LOW	CME-550 TUNGCARBIDE INSERTS	н			WITH FINGER FREES NUMEROUS GRAINS;	
LOW PLASTICITY 6-15 SLIGHT	CASING W/ ADVANCER	HAND TOOLS:	FRIABLE		BLOW BY HAMMER DISINTEGRATES SAMPLE.	
MED. PLASTICITY 16-25 MEDIUM HIGH PLASTICITY 26 OR MORE HIGH	PORTABLE HOIST TRICONE STEEL TEETH	POST HOLE DIGGER	MODERATEL		CAN BE SEPARATED FROM SAMPLE WITH STEEL PROBE; EASILY WHEN HIT WITH HAMMER.	
COLOR	X CME-550X TRICONE TUNGCARB.	HAND AUGER				
DESCRIPTIONS MAY INCLUDE COLOR OR COLOR COMBINATIONS (TAN, RED, YELLOW-BROWN, BLUE-GRAY).	CORE BIT	SOUNDING ROD	INDURATED		ARE DIFFICULT TO SEPARATE WITH STEEL PROBE; T TO BREAK WITH HAMMER.	
MODIFIERS SUCH AS LIGHT, DARK, STREAKED, ETC. ARE USED TO DESCRIBE APPEARANCE.	X 6" HOLLOW STEM AUGER	VANE SHEAR TEST	EXTREMELY		NAMMER BLOWS REQUIRED TO BREAK SAMPLE;	
			LA THEFIEL I		BREAKS ACROSS GRAINS.	

SHEET NO.

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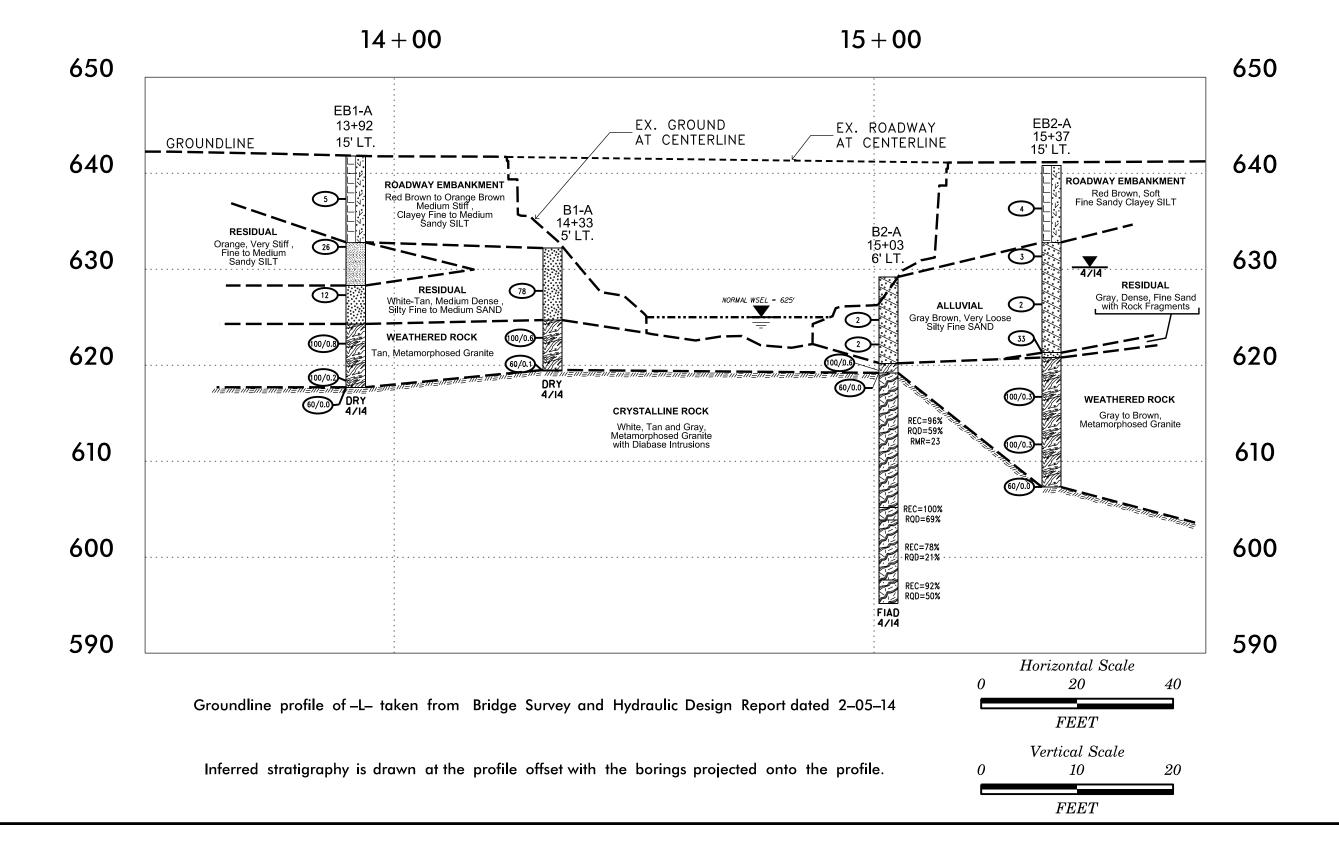
PROJECT REFERENCE NO.

40151.1.1 (B-4959)



STATE PROJECT REFERENCE NO.	SHEET NO.	SHEETS
40151.1.1 (B-4959)	4	17
		NG.

PROFILE OF "A" BORINGS

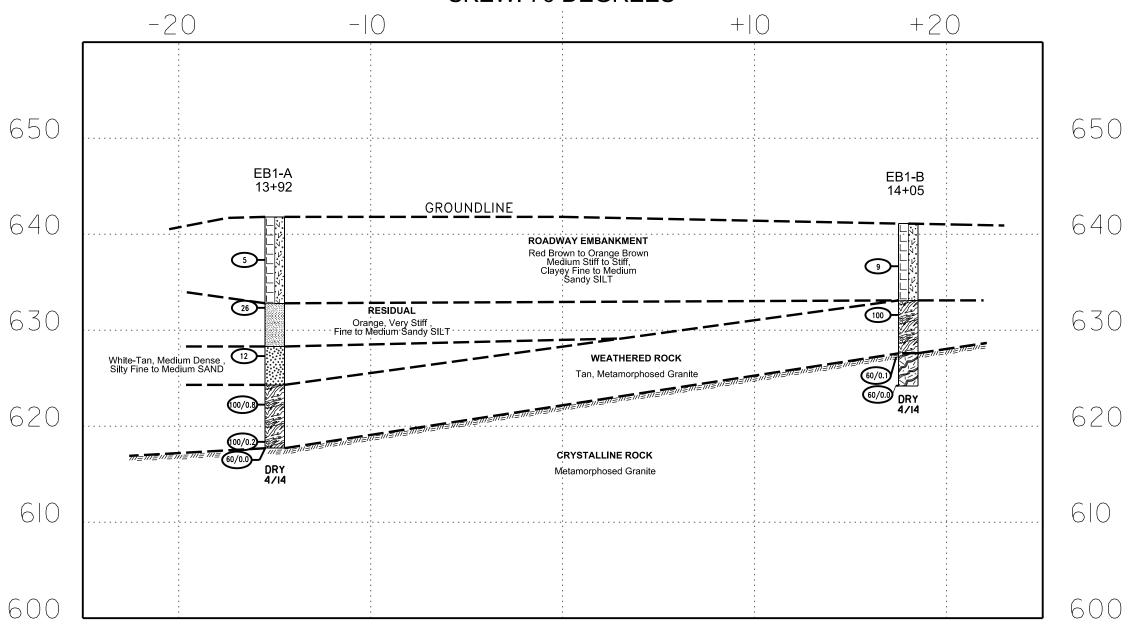


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 STATE PROJECT REFERENCE NO.
 SHEET STATE STATE

BRIDGE NO. 193

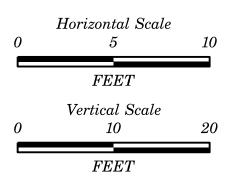
CROSS SECTION THROUGH EB-1

-L-14+01 SKEW: 76 DEGREES



Inferred stratigraphy is drawn at the bent with the borings projected onto the cross section.

The vertical scale hereon is exagerated for visual clarity. Please see scale bar.



40151.1.1 (B-4959) BRIDGE NO.193 650 640 630 620 610 600 590 $Horizontal\ Scale$ Vertical Scale *20*

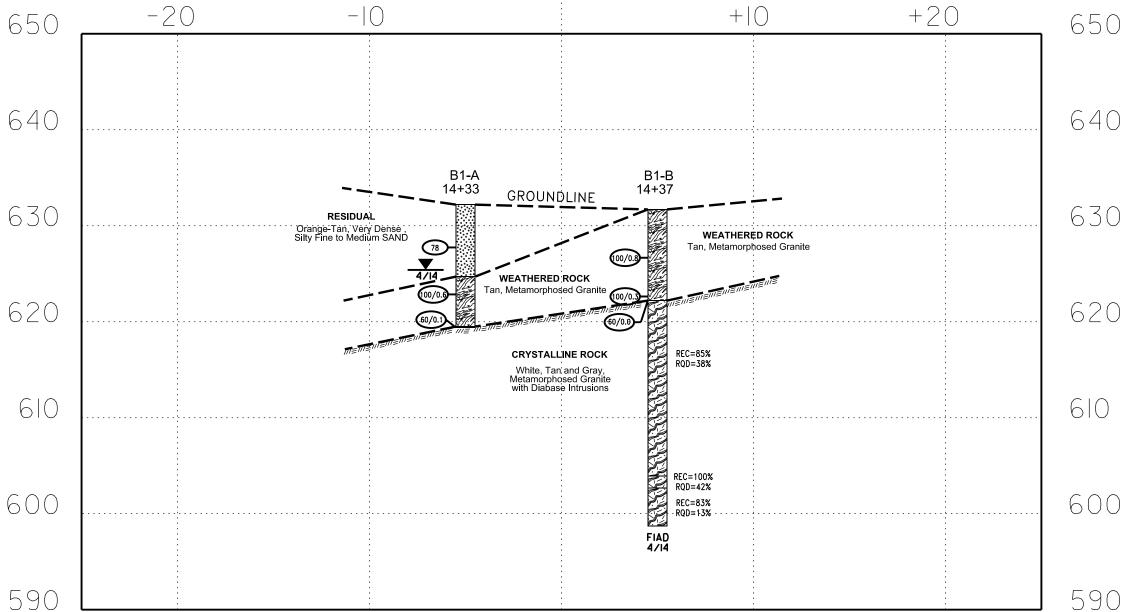
FEET

10

FEET

CROSS SECTION THROUGH B-1

-L-14+35 SKEW: 75 DEGREES



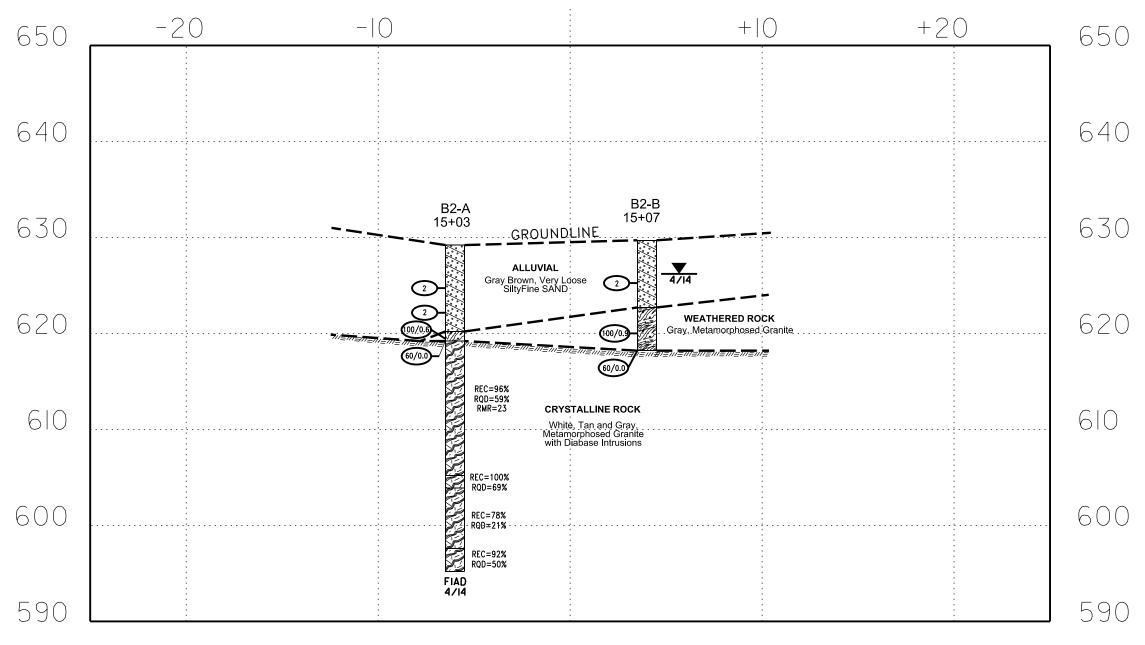
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BRIDGE NO.193

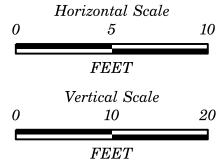
CROSS SECTION THROUGH B-2

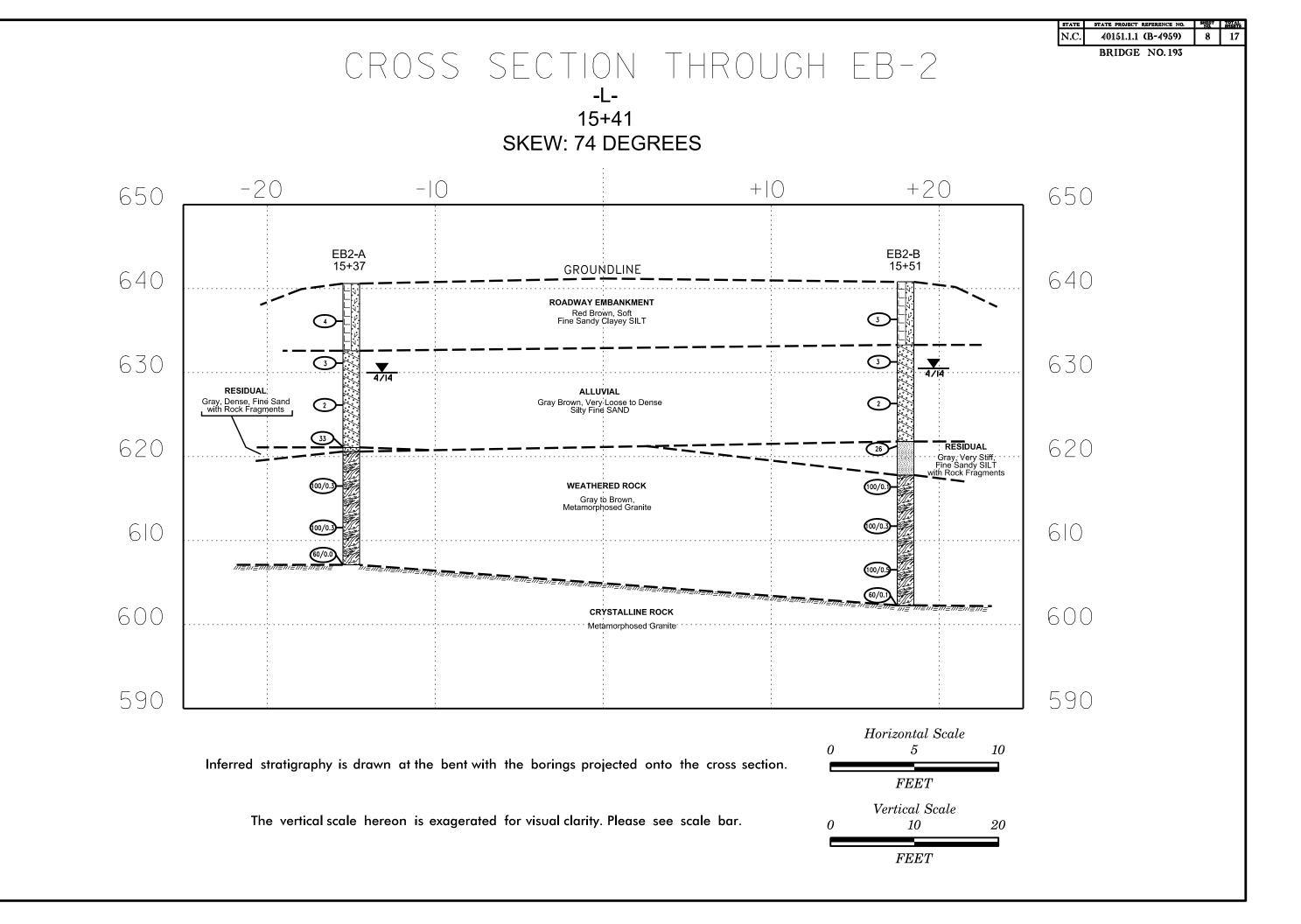
-L-15+05 SKEW: 75 DEGREES



Inferred stratigraphy is drawn at the bent with the borings projected onto the cross section.

The vertical scale hereon is exagerated for visual clarity. Please see scale bar.





WBS 40151.1.1 TIP B-4959 COUNTY GUILFORD	GEOLOGIST B. Richards, E.I.		WBS 40151.1.1	TIP B-4959	COUNTY GUIL	FORD	GEOLOGIST B. Richards	, E.I.
SITE DESCRIPTION Bridge No. 193 Over Buffalo Creek on SR 2719		GROUND WTR (ft)	SITE DESCRIPTION Br	ridge No. 193 Over Buffalo Cre	ek on SR 2719		·	GROUND WTR (ft)
BORING NO. EB1-A STATION 13+97 OFFSET 15 ft L	ft LT ALIGNMENT -L-	0 HR. Dry	BORING NO. EB1-B	STATION 14+05	OFFSE	T 18 ft RT	ALIGNMENT -L-	0 HR. Dry
COLLAR ELEV. 641.8 ft TOTAL DEPTH 24.1 ft NORTHING 875	875,128 EASTING 1,818,780 2	24 HR. Dry	COLLAR ELEV. 641.11	ft TOTAL DEPTH 1	6.9 ft NORTH	IING 875,138	EASTING 1,818,814	24 HR. Dry
DRILL RIG/HAMMER EFF./DATE AME9553 CME-550X 72% 04/01/2011 DRIL	DRILL METHOD H.S. Augers HAMMER	ER TYPE Automatic	DRILL RIG/HAMMER EFF./D	DATE AME9553 CME-550X 72% ()4/01/2011	DRILL METHOD	AMMER TYPE Automatic	
-	COMP. DATE 03/31/14 SURFACE WATER DEPTH N/A DRILLER B. Boyce START DA				31/14 COMP.	DATE 03/31/14	SURFACE WATER DEPTH	I N/A
FIFV FIFV	SAMP. C C SOIL AND ROCK DESCRIPTION OF COMMON COMMO	CRIPTION DEPTH (ft)	1 === · E E// = -· · · ·	LOW COUNT BLC ft 0.5ft 0.5ft 0 25	OWS PER FOOT 50 75	SAMP. L		DESCRIPTION
(it) (it) (it) 0.5ft 0.5ft 0.5ft 0 25 50 75 100 NC 645 646 638.3 3.5 1 2 3	MOI G ELEV. (ft) 641.8 GROUND SURFACE ROADWAY EMBANKIN Red Brown to Orange Brown, I Clayey Fine to Medium Sandy W	DEPTH (ft) ACE 0.0 KMENT 1, Medium Stiff, ady SILT (A-5) Medium Sandy 13.5 2, Silty Fine to -2-4) 17.5 DCK 1 Granite 24.1 Standard Elevation 617.7 ad Granite)	645 646 637.6 + 3.5 632.6 + 8.5 632.6 + 8.5 627.6 + 13.5 600 625 624.2 16.9 600	4 5 · • • • · · · · · · · · · · · · · · ·				URFACE 0.1 BANKMENT by Clayey SILT, with ents (A-5) 8.0 ED ROCK orphosed Granite 13.5 NE ROCK orphosed Granite 4 with Standard at Elevation 624.2 phosed Granite)

WBS 40151.1.1		NTY GUILFORD	GEOLOGIST B. Richards, E	= 1	WBS 40151.1.1	1	TIP B-4959	COUNTY GUILF	ORD		GEOLOGIST B. Richard	1e F I
SITE DESCRIPTION Bridge No.			acocoaisi B. Hichards, E	GROUND WTR (ft)			193 Over Buffalo Creek		OND		GLOLOGIST B. HICHAR	GROUND WTR (ft)
BORING NO. B1-A	STATION 14+34	OFFSET 5 ft LT	ALIGNMENT -L-		BORING NO. B		STATION 14+37		5 # DT		ALIGNMENT -L-	0 HR. N/A
COLLAR ELEV. 632.2 ft			+	⊣ ′∣							EASTING 1,818,799	
	TOTAL DEPTH 12.8 ft	NORTHING 875,166	EASTING 1,818,789	24 HR. 6.8			TOTAL DEPTH 33.0				24 HR. FIAD	
DRILL RIG/HAMMER EFF./DATE AME	1	DRILL METHOD		MMER TYPE Automatic			E9553 CME-550X 72% 04/0					HAMMER TYPE Automatic
DRILLER B. Boyce	START DATE 03/31/14 NT BLOWS PER FOO	COMP. DATE 03/31/14 OT	SURFACE WATER DEPTH	N/A	DRILLER B. Bo	<u> </u>	START DATE 04/01/	714 COMP. D	SAMP.		SURFACE WATER DEPT	H N/A
ELEV CHIP CHIP CHIP CHIP CHIP CHIP CHIP CHIP	I	400	SOIL AND ROCK DE	ESCRIPTION DEPTH (ft)	ELEV DRIVE ELEV (ft) (ft)	ft) 0.5ft 0.5ft 0		50 75 10		MOI G		K DESCRIPTION
(ii)		y Wior G	ELEV. (II)	DEF IH (II)					11	7 MOI G		
635					635							
+			- -		+						-	
 			632.2 GROUND SUF	\L	‡_	\bot				900		SURFACE 0.0
630			Orange Tan, Very Dens Medium SAND	se, Silty Fine to	630				-		Tan, Metamor	RED ROCK phosed Granite
628.7 + 3.5 16 34	44		-	(/ = //	628.2 1 3	3.5 32 39 61	61/0.3		11		% - 	
625				7.5	625			100/0	8			
623.7 + 8.5 94 6/0.1			- 624.7 - WEATHERED - White to Tan Metamor	ROCK	623.2 8 622.2 9	1.5			I I			
+		100/0.6	White to Fair Metamor	priose Granite	T T	9.5 100/0.3 60/0.0			3 8		622.2 CRYSTAL	9.5 LINE ROCK
620 619.5 12.7 60/0.1		60/0.1	619.5 -619.4_/\ CRYSTALLINE	12.7 ROCK /_12.8/	620				RS-1		White and Tan Met	amorphosed Granite
1 1 1 1 1 1		00/0.1	White and Tan Metamo	orphose Granite	1 1 ±				.			
			Boring Terminated w Penetration Test Refusal a	at Elevation 619.4	615				11			
			ft in CR (Metamorpho	osed Granite)	1 1 ±							
			_		1 1				.			
					610		 		-			
			<u>-</u>		‡			.	1 1		-	
			<u>-</u>		605				∐			
			- -		‡			.				27.8 LINE ROCK 29.0
			- -		600			.	:		≨L \ Gray L	Diabase LINE ROCK
			- -		1					Ş.	≨ I– 598.7	amorphosed Granite 33.0
			- -		‡							t Elevation 598.7 ft in phosed Granite)
			-		‡						-	
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SHEET 11 OF 17

WBS	40151	.1.1			TIP	B-495	9	C	OUNT	Υ (SUILFOF	RD		GEOLOGIST B. Richa	rds, E.I							
SITE	DESCR	IPTION	l Brid	lge No. 19	93 Ove	er Buff	alo Creel	k on S	R 271	9						GROUN	ID WTR (ft)					
BOR	ING NO.	B1-B	,		STA	TION	14+37			OF	FSET 5	ft RT		ALIGNMENT -L-		0 HR.	N/A					
COL	LAR ELE	EV. 63	31.7 ft		тот	AL DEI	PTH 33.	.0 ft		NO	RTHING	875,169		EASTING 1,818,799 24 HR. FI								
DRILI	L RIG/HAI	MMER E	FF./DA	TE AMES	553 CI	ME-550	X 72% 04	/01/201	1			DRILL METHOD	H.S	S. Augers HAMMER TYPE Automatic								
DRIL	LER B	. Boyce)		STAI	RT DA	TE 04/0	1/14		СО	MP. DA	ΓΕ 04/01/14		SURFACE WATER DEPTH N/A								
COR	E SIZE	NQ			TOTA	AL RUI	N 23.5 f	t														
ELEV	RUN ELEV	DEPTH		DRILL RATE	REC.	JN RQD	SAMP.	REC.	ATA RQD	ЬΟ			D	ESCRIPTION AND REMARK	3							
(ft)	(ft)	(ft)	(ft)	(Min/ft)	(ft) %	(ft) %	NO.	(ft) %	(ft) %	Ğ	ELEV. (f	t)		ESOTH HON AND HEMAIN			DEPTH (ft)					
622.16	622.2	9.5	0.5	4 40/0 5	(0.0)	(4.0)		(45.0)	(0.0)		<u></u>			Begin Coring @ 9.5 ft								
620	022.2	9.5	3.5	1:43/0.5 N=60/0.0 1:43/0.5 3:55/1.0 4:02/1.0 3:05/1.0	(2.9) 83%	(1.8) 51%	RS-1	(15.6) 85%	(6.9) 38%		622.2			CRYSTALLINE ROCK by Weathered, Hard, Moderate								
	618.7 -	13.0	5.0	3:55/1.0 4:02/1.0	(3.5)	(1.1)	\no-1/	1			-	Jointing, Joint A	Angles	30-70 degrees, Metamorpho	sed Grai	nite (RMR=	=28)					
	-	_	0.0	3:05/1.0 5:06/1.0	70%	22%					_											
615	613.7 -	18.0		5:06/1.0 3:54/1.0 3:39/1.0 1:17/1.0							_											
	-		5.0	N 2'U2/ I U /	(4.8) 96%	(2.3) 46%					_											
610	_	Ŀ		2:59/1.0 3:40/1.0 4:39/1.0 4:35/1.0	3070	1070					_											
	608.7 -	23.0	5.0	4:27/1.0 4:31/1.0	(4.6)	(1.7)					_											
	-	<u> </u>	"."	3:22/1.0 3:30/1.0	92%	34%					_											
605	603.7 -	28.0		3:42/1.0 2:51/1.0							603.9						27.8					
	-	<u> </u>	5.0	3:40/1.0 2:42/1.0	(4.2) 84%	(1.3) 26%		(1.2) \100%/	(0.5) 42%		602.7	Grav, Moderate	ely We	CRYSTALLINE ROCK athered, Very Hard, Moderate	ly Fracti	ıred, Mode	29.0					
600	_	_		3:08/1.0 3:08/1.0	0170	2070		(3.3)	(0.5) 13%		-	J	lointing	, Joint Angles 20-80 degrees CRYSTALLINE ROCK	Diabase	·						
	598.7 -	33.0		3:01/1.0				05 /6	13 /6		- 598.7	White and Tan,	Slight	ly Weathered, Hard, Moderate	ely Fracti	ured, Mode	erate33.0					
	-	_									_			ingles 30-70 degrees, Metam t Elevation 598.7 ft in CR (Me			ite)					
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CORE PHOTOGRAPHS

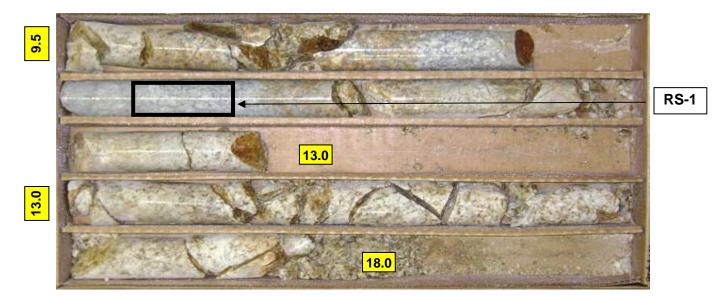
WBS No. 40151.1.1

TIP No. B-4959

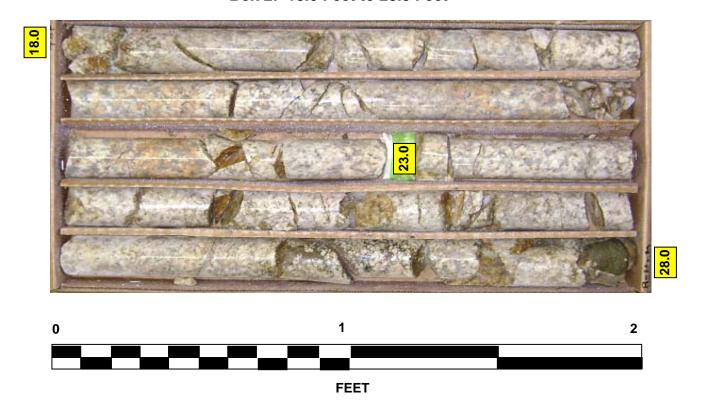
Project Description: Bridge No. 193 Over Buffalo Creek on SR-2719
Guilford County, North Carolina

B1-B

Box 1: 9.0 Feet to 18.0 Feet



Box 2: 18.0 Feet to 28.0 Feet



Box 3: 28.0 Feet to 33.0 Feet



WBS 40151.1.1		TI	P B-4959		COUNTY	Y GUILFO	RD		GEC	OLOGIST B. Richards,	, E.I.		WBS 401	51.1.1			TII	IP B-4959	COUNT	Y GUILFO	RD		GEOLOGIST B. Richar	ds, E.I.
SITE DESCRIPTION	ON Bridg	e No. 193 (Over Buffal	o Creek or	SR 2719	9			•		GRO	OUND WTR (ft)	SITE DESC	RIPTIO	N Brid	dge No.	. 193 (Over Buffalo Creek	on SR 271	9				GROUND WTR (ft
BORING NO. B2	2-A	s	TATION 1	5+04		OFFSET	6 ft LT		ALIC	GNMENT -L-	0 н	IR. N/A	BORING N	0. B2-	-B		ST	TATION 15+07		OFFSET	4 ft RT		ALIGNMENT -L-	0 HR. 4.8
COLLAR ELEV.	629.2 ft	т	OTAL DEPT	H 34.0 ft	t	NORTHIN	G 875,	,236	EAS	STING 1,818,786	24 H	I R. FIAD	COLLAR E	LEV. 6	629.7 ft		тс	OTAL DEPTH 11.5	5 ft	NORTHING	 			24 HR. 3.5
DRILL RIG/HAMMER	R EFF./DAT	E AME9553	CME-550X	72% 04/01/2			DRILL	METHOD	H.S. Auge	ers HA	AMMER TY	PE Automatic	DRILL RIG/H	AMMER	EFF./DA	TE AM	ME9553	3 CME-550X 72% 04/0	01/2011	ı				HAMMER TYPE Automatic
DRILLER B. Boy	/ce	S	TART DATE	04/01/1	4	COMP. DA	ATE 04	1/01/14	SUF	RFACE WATER DEPTH	I N/A		DRILLER	B. Boy	ce		ST	TART DATE 03/31	/14	COMP. DA	TE 03/31/14 SURFACE WATER DEPTH			ΓΗ N/A
ELEV DRIVE DEP	TH BLOV	W COUNT		BLOWS F	PER FOOT		SAMF	P. 🔻 1	; [SOIL AND ROCK D	DESCRIPTI	IONI	ELEV DRIVI	DEPT	H BLC	OW COL	UNT	BLOW	S PER FOOT				SOIL AND BOO	K DESCRIPTION
(ft) ELEV (ft	0.5ft	0.5ft 0.5ft	0 2	25 5	50	75 100	NO.	MOI	ELEV.	(ft)	DESCRIPTI	DEPTH (ft)	(ft) (ft)	(ft)	0.5ft	0.5ft	0.5ft	0 25	50	75 100	NO.	MOI G		A DESCRIPTION
630									629.2	GROUND SU	LIDEACE	0.0	630										629.7 GROUND	SURFACE
			1					**		ALLUVI	/IAL	O.AND		‡								////		UVIAL ayey Fine SAND (A-2-7)
625.7 + 3.5	5							· %%		Gray-Brown, Very Loos (A-2-6	se, Silty Fin 6)	e SAND	626.2	3.5	WOL	1								, ,
+	WOH	1 1	2			1	1	Sat.	<u> </u>				625	‡	WOIT	'	'	↑ 2				 	-	
623.2 1 6.0	WOH Y	WOH 2	2					Sat.	<u> </u>				601.6	, ‡				'	: :				622.7 WEATHE	RED ROCK
620 620.7 - 8.5	5 1	15 85/0.1	<u> </u>	· · · ·		· · · · ·		\\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\	620.2	WEATHEREI	D BOCK	9.0 10.0	620	8.5	14	86/0.4	1			100/0.9	 		ZA .	rphosed Granite
619.2 10.	60/0.0					100/0.6	T		3 010.2	Brown, Metamorph	hosed Grar		618.2	11.5	60/0.0					60/0.0	i	The state of the s	618.2	11 ted with Standard
615									605.2	CRYSTALLIN White and Tan Metam		Granite		‡	00/0.0								Penetration Test Ref	usal at Elevation 618.2 lorphosed Granite)
+						1	11		*					‡									It on on (wetan	orpriosed Granite)
									}					‡									‡	
610									‡					‡									<u> </u>	
							 RS-2		}					‡									‡	
605							110-2		605.2			24.0		‡									‡	
+					1		11		603.9	CRYSTALLIN ☐ Gray Diab	NE ROCK	25.3		‡									F	
‡									#	CRYSTALLIN	NE ROCK			‡									-	
600							[4	White and Tan Metam	norpnosea (aranite		‡									-	
‡									597.6			31.6		‡									F	
‡									595.2	Gray Diak	abase	34.0		Ŧ									F	
									F	Boring Terminated at E CR (Metamorpho	Elevation 59 osed Granite	95.2 ft in e)		Ŧ									F	
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SHEET 14 OF 17

WBS	40151	.1.1			TIP	B-495	i9	C	OUNT	Υ	UILFOR	RD	GEOLOGIST B. Ri	chards, E	.l.	
SITE	DESCR	IPTION	l Brid	lge No. 19	93 Ove	er Buff	alo Creel	on S	R 271	9					GROUN	ND WTR (ft)
BORI	NG NO.	B2-A	ı		STAT	ΠΟΝ	15+04			OF	FSET (6 ft LT	ALIGNMENT -L-		0 HR.	N/A
COLL	AR ELI	EV. 62	29.2 ft		TOT	AL DEI	PTH 34.	.0 ft		NO	RTHING	875,236	EASTING 1,818,78	6	24 HR.	FIAD
DRILL	RIG/HAI	MMER E	FF./DA	TE AME9	553 CI	ME-550	X 72% 04	/01/201	1			DRILL METHOD H.S	S. Augers	Automatic		
DRILL	L ER B	. Воусе)		STAF	RT DA	TE 04/0	1/14		СО	MP. DA	TE 04/01/14	SURFACE WATER I			
CORE	SIZE	NQ			TOTA	AL RUI	V 24.0 f	t								
ELEV	RUN ELEV	DEPTH		DRILL RATE	REC.	JN RQD	SAMP.	STR REC. (ft) %	RATA RQD	0 -		[DESCRIPTION AND REMA	ARKS		
(ft)	(ft)	(ft)	(ft)	(Min/ft)	(ft) %	(ft) %	NO.	(ft) %	(ft) %	Ğ	ELEV. (1					DEPTH (ft
619.15	619.2	10.0	4.0	0:26/1.0	(2.7)	(1.4)		(10 E)	(0.0)		619.2		Begin Coring @ 10.0	ft		10.0
	-	- 10.0	4.0	2:26/1.0 N=60/0.0 2:26/1.0 3:15/1.0 2:42/1.0 3:11/1.0	(3.7) 93%	35%		(13.5) 96%	(8.2) 59%		- ^{019.2}	White and Tan, S	Slightly Weathered, Hard to	Very Hard	l, Moderatel	y
615	615.2	14.0	5.0	3:15/1.0 2:42/1.0	(4.0)	(0.0)					-	Fractured, Slight N	to Moderate Jointing, Join Metamorphosed Granite (R	MR=23)	-70 degrees	,
	-	_	5.0	3:04/1.0	(4.9) 98%	(2.9) 58%					-					
	C10.0.	100		3:04/1.0 3:05/1.0 4:09/1.0 4:09/1.0 3:50/1.0							-					
610	610.2	19.0	5.0	3:50/1.0 4:09/1.0 4:05/1.0	(4.9)	(3.9)					-					
	-	<u> </u>		4:20/1.0	98%	78%	RS-2				=					
605	605.2	24.0		4:01/1.0 3:50/1.0							605.2					24.0
	-	-	5.0	2:21/1.0 3:11/1.0	(3.7) 74%	(1.4) 28%		(1.3) (100%)	(0.9) 69%		603.9	Gray, Slightly Wea	CRYSTALLINE ROC athered, Very Hard, Modera	ately Fractu	ıred, Modera	25.3
	-	F		2:24/1.0 2:05/1.0				(4.9) 78%	(1.3) 21%		=	Jointin	g, Joint Angles 25-65 degr CRYSTALLINE ROC		se	
600	600.2	29.0	5.0	1:53/1.0 2:39/1.0	(4.7)	(2.2)		7070	2170		_	White and Tan, S	Slightly Weathered, Hard to Moderate Jointing, Join	Very Hard	d, Moderately	y
	-	F		2:49/1.0 3:05/1.0	94%	44%		(0.0)	(4.0)		- 597.6	Tractured, Slight	Metamorphosed Gran	ite	-70 degrees	31.6
	595.2	34.0		2:19/1.0 3:01/1.0				(2.2) 92%	(1.2) 50%		- 595.2	Gray, Slightly Wea	CRYSTALLINE ROC athered, Very Hard, Modera	ately Fractu	ıred, Modera	ate34.0
	-										-		g, Joint Angles 25-65 degrated at Elevation 595.2 ft in CR			ite)
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CORE PHOTOGRAPHS

WBS No. 40151.1.1

TIP No. B-4959

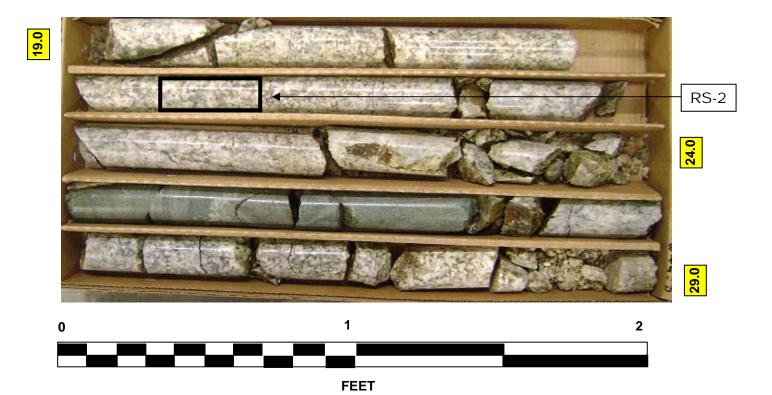
Project Description: Bridge No. 193 Over Buffalo Creek on SR-2719
Guilford County, North Carolina

B2-A

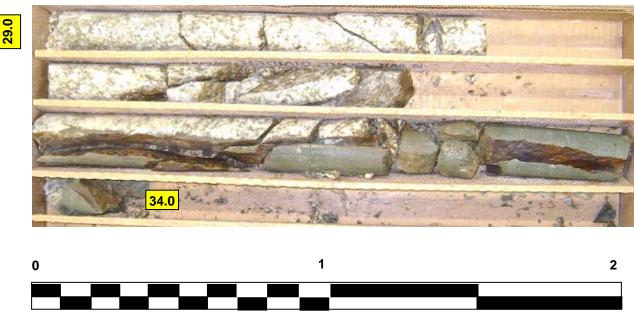
Box 1: 10.0 Feet to 19.0 Feet



Box 2: 19.0 Feet to 29.0 Feet



Box 3: 29.0 Feet to 34.0 Feet



FEET

WBS 40151.1.1 TIP B-4959 COUNT	Y GUILFORD	GEOLOGIST B. Richards, E.I.	WBS 40151.1.1 TIP B-4959 C	OUNTY GUILFORD	GEOLOGIST B. Richards, E.I.
SITE DESCRIPTION Bridge No. 193 Over Buffalo Creek on SR 271	9	GROUND WTR (ft)	SITE DESCRIPTION Bridge No. 193 Over Buffalo Creek on S	R 2719	GROUND WTR (ft)
BORING NO. EB2-A STATION 15+36	OFFSET 15 ft LT	ALIGNMENT -L- 0 HR. 12.0	BORING NO. EB2-B STATION 15+46	OFFSET 18 ft RT	ALIGNMENT -L- 0 HR. 12.1
COLLAR ELEV. 640.6 ft TOTAL DEPTH 33.5 ft	NORTHING 875,268	EASTING 1,818,776 24 HR. 10.6	COLLAR ELEV. 640.8 ft TOTAL DEPTH 38.6 ft	NORTHING 875,278	EASTING 1,818,810 24 HR. 10.3
DRILL RIG/HAMMER EFF./DATE AME9553 CME-550X 72% 04/01/2011	DRILL METHOD H.	S. Augers HAMMER TYPE Automatic	DRILL RIG/HAMMER EFF./DATE AME9553 CME-550X 72% 04/01/201	1 DRILL METHOD	H.S. Augers HAMMER TYPE Automatic
DRILLER B. Boyce START DATE 03/31/14	COMP. DATE 03/31/14	SURFACE WATER DEPTH N/A	DRILLER B. Boyce START DATE 03/31/14	COMP. DATE 03/31/14	SURFACE WATER DEPTH N/A
BLOW PER FOOT BLOW S PER FOOT BLOW S PER FOOT BLOW S PER FOOT BLOW S PER FOOT S S S S S S S S S S S S S S S S S S	75 100 SAMP. V L O O MOI G	SOIL AND ROCK DESCRIPTION ELEV. (ft) DEPTH (ft)	Column	75 100 SAMP. L O NO. MOI G	
635 637.1 3.5 2 1 3 4	W L 22 L	640.6 GROUND SURFACE 0.0 ROADWAY EMBANKMENT Red Brown, Soft, Fine Sandy Clayey SILT (A-5) 632.6 8.0 ALLUVIAL Brown, Very Loose, Silty Fine SAND (A-2-6) 621.1 RESIDUAL Gray, Dense, Fine SAND, with Rock Fragments (A-2-4) WEATHERED ROCK Gray to Brown, Metamorphosed Granite 607.1 80ring Terminated with Standard	637.3 3.5 WOH 1 2 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	W L V	ROUND SURFACE ROADWAY EMBANKMENT Red Brown, Soft, Fine Sandy Clayey SILT (A-5) ALLUVIAL Brown, Very Loose, Silty Fine SAND (A-2-6) RESIDUAL Gray, Very Stiff, Fine Sandy SILT, with Rock Fragments (A-4) WEATHERED ROCK Tan to Green, Metamorphosed Granite
610 612.1 28.5 100/0.3 60/0.0	100/0.3 •	Boring Terminated with Standard Penetration Test Refusal at Elevation 607.1 ft on CR (Metamorphosed Granite) (Note: 0.5' Topsoil)	610 612.3 28.5 100/0.3 100/0.5 100/0.5	100/0.3	602.3 CRYSTALLINE ROCK Green Metamorphosed Granite Boring Terminated with Standard Penetration Test Refusal at Elevation 602.2 ft in CR (Metamorphosed Granite) (Note: 0.4' Topsoil)

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40151.1.1 (B-4959)
Bridge NO. 193 on SR 2719 over Buffalo Creek
Guilford County

