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SHEET

38520.

### STATE OF NORTH CAROLINA

DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS GEOTECHNICAL ENGINEERING UNIT

# **STRUCTURE** SUBSURFACE INVESTIGATION

PROJ. REFERENCE NO. 38520.1.1 (B-4748) \_ F.A. PROJ.\_ COUNTY **FRANKLIN** PROJECT DESCRIPTION BRIDGE NO. 2 ON SR 1147 (HOLDEN ROAD) OVER HORSE CREEK

STATE STATE PROJECT REPERENCE NO. SHEBT TOTAL SHERTS N.C. 38520.1.1 (B-4748)

#### **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, CEOTECHNICAL ENGINEERING LUNT AT (19) 707-6850. NETHER THE SUSUFFACE 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 GEMERAL SOIL AND ROCK STRATA DESCRIPTIONS AND INDICATED BOUNDARIES ARE BASED ON A GEOTECHNICAL INTERPRETATION OF ALL AVAILABLE SUSSUPFACE DATA AND MAY NOT INCECSSARILY REFLECT THE ACTUAL SUBSURFACE CONDITIONS BETWEEN BORINGS OR BETWEEN SAMPLED STRATA WITHIN THE BOREHOLE, THE LABORATORY SAMPLE DATA AND THE IN SITU UN-PLACETEST DATA CAN BE RELIED ON ONLY TO THE DECREE OF RELIABILITY INMERSETH 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 MICHORISTOR CONDITIONS MICHORISTOR CONDITIONS MAY VARY CONSIDERABLY WITH TIME ACCORDING TO CLIMATIC CONDITIONS INCLUDING TEMPERATURES, PRECIPITATION, AND WIND, AS WELL AS OTHER NON-CLIMATIC CONDITIONS INCLUDING

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 PLANS AND DOCKMENTS FOR FINAL DESIGN INFORMATION ON THIS PROJECT, THE DEPARTMENT DOES NOT WARRANT OR CUARANTEE THE SUFFICIENCY OR ACCURACY OF THE INVESTIGATION MADE, NOR THE INTERPRETATIONS MADE, OR OPINION OF THE DEPARTMENT AS TO THE INVESTIGATION MADE, OR OPINION TO 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 TO BE.

**PERSONNEL** J.I. MILKOVITS, JR. J.R. MATULA

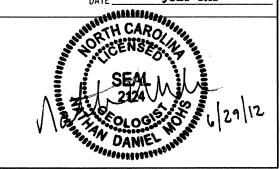
H.R. CONLEY

INVESTIGATED BY\_N.D. MOHS

N.T. ROBERSON

SUBMITTED BY\_ N.T. ROBERSON

JULY 2012



#### NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

#### DIVISION OF HIGHWAYS

GEOTECHNICAL ENGINEERING UNIT

## SUBSURFACE INVESTIGATION

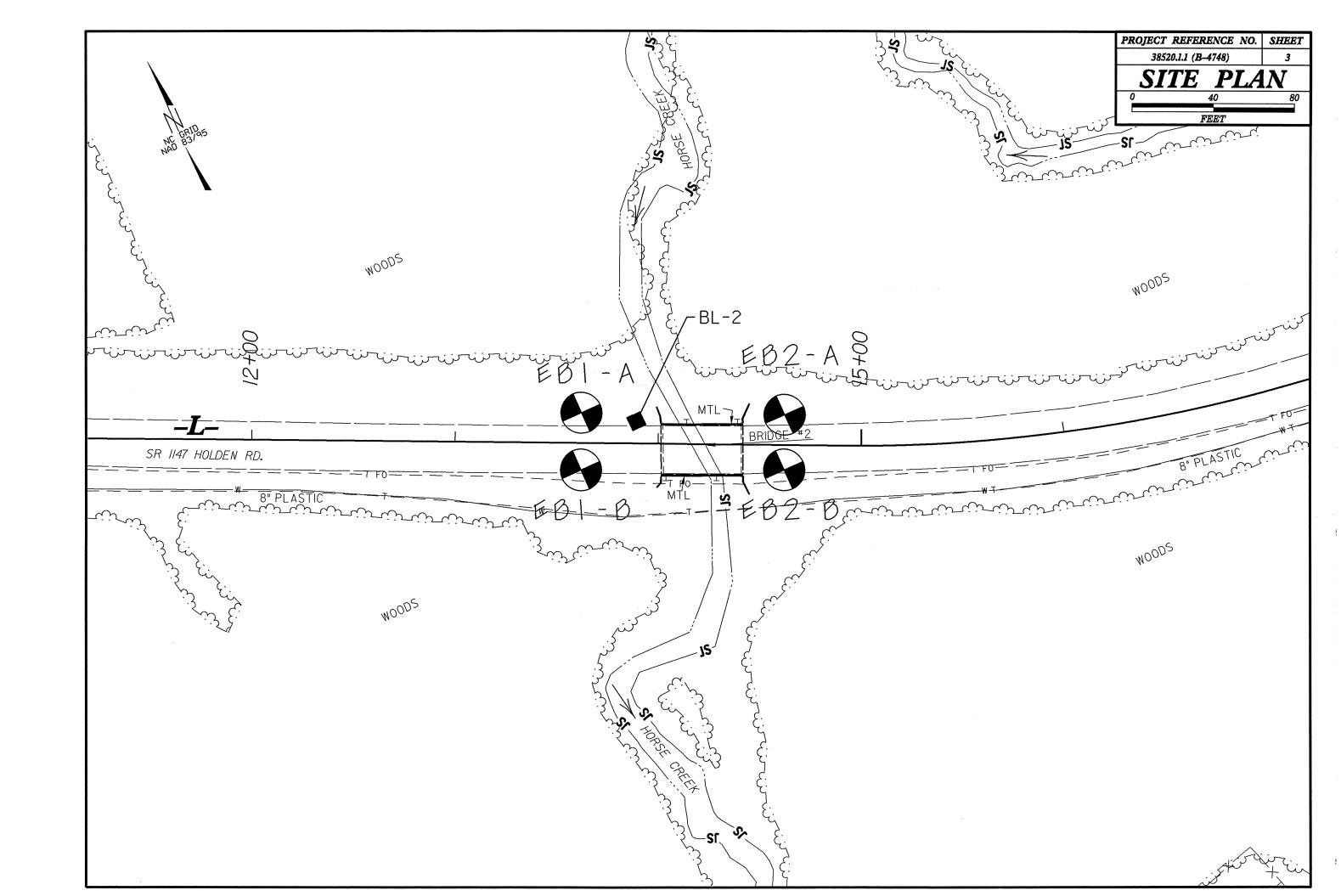
#### SOIL AND ROCK LEGEND, TERMS, SYMBOLS, AND ABBREVIATIONS

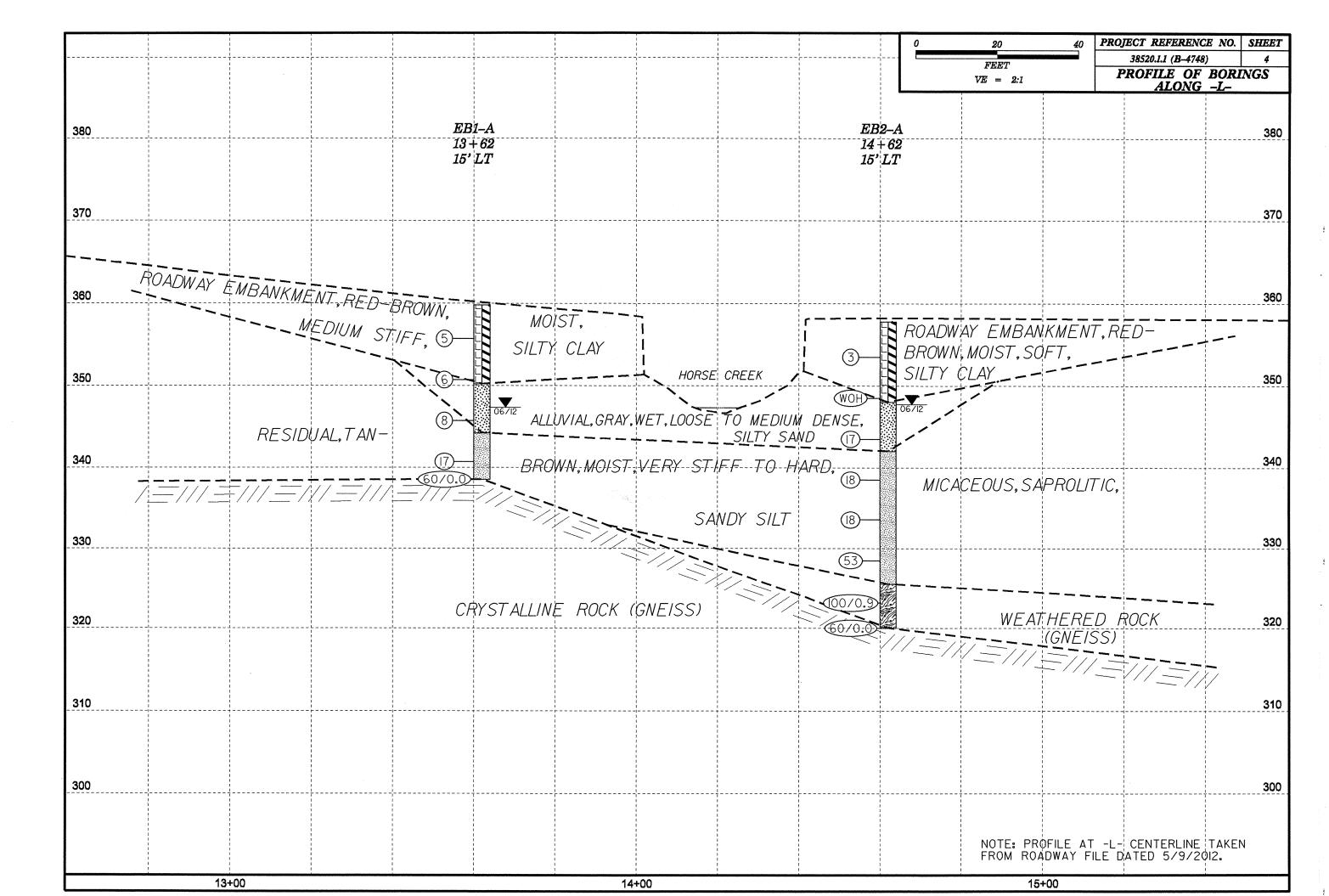
					,		GRADA		A LEGEND, IERM	13, 31 MBC	)LS, AN				
		SOIL DESCR	IPTION			WELL GRADED - INDICATES A	ROCK DESCRIPTION  HARD ROCK IS NON-COASTAL PLAIN MATERIAL THAT IF TESTED, WOULD YIELD SPT REFUSAL, AN INFERRED					TERMS AND DEFINITIONS			
		ONSOLIDATED, SEMI-CON ONTINUOUS FLIGHT POW		WEATHERED EARTH MATERIA VIELD LESS THAN	LS	UNIFORM - INDICATES THAT S	SOIL PARTICLES ARE ALL AP	PROXIMATELY THE	SAME SIZE. (ALSO	ROCK LINE I	NDICATES THE	LEVEL AT WHICH NON-COAS	STAL PLAIN MATERIAL WOULD I MPLER EQUAL TO OR LESS THA	YIELD SPT REFUSAL.	ALLUVIUM (ALLUV.) - SOILS THAT HAVE BEEN TRANSPORTED BY WATER.
100 BLOWS PER FO	OOT ACCORDING TO S	STANDARD PENETRATIO	TEST (AASHTO	T206, ASTM D-1586). SDIL ENERALLY SHALL INCLUDE:		GAP-GRADED - INDICATES A MI			DRE SIZES.	IN NON-COAS	STAL PLAIN MA		BETWEEN SOIL AND ROCK IS OF		ADUIFER - A WATER BEARING FORMATION OR STRATA.  ARENACEOUS - APPLIED TO ROCKS THAT HAVE BEEN DERIVED FROM SAND OR THAT CONTAIN SAND.
CONSISTENCY, COLO	OR, TEXTURE, MOISTU	RE, AASHTO CLASSIFICA JLARITY, STRUCTURE, PL	TION, AND OTHER	R PERTINENT FACTORS SUC	н	THE ANGULARITY OR ROUNDNE	ANGULARITY		EDMC. ANCHI AD	OF WEATHERS		ICALLY DIVIDED AS FOLLOW	Sı		ARGILLACEOUS - APPLIED TO ALL ROCKS OR SUBSTANCES COMPOSED OF CLAY MINERALS,
HS MINERALUGICAL		CLAY, WOST WITH INTERBEDDED				SUBANGULAR, SUBROUNDED, OR		MONHIED DI INC I	ERTO: HNOULHR,	WEATHERED ROCK (WR)		NON-COASTAL PLAIR	N MATERIAL THAT WOULD YIELD	O SPT N VALUES > 100	OR HAVING A NOTABLE PROPORTION OF CLAY IN THEIR COMPOSITION, AS SHALE, SLATE, ETC.
<u> </u>	SOIL LEGE	ND AND AASHT	O CLASSI	FICATION			MINERALOGICAL	COMPOSITION	N			BLOWS PER FOOT I	F TESTED. RAIN JGNEOUS AND METAMORPHI	C DOCK THAT	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
GENERAL	GRANULAR MATE	RIALS SILT	-CLAY MATERIAL	LS DEGANTO MATE	RIALS	MINERAL NAMES SUCH AS QUAR WHENEVER THEY ARE CONSIDER		KAOLIN, ETC. ARE US	SED IN DESCRIPTIONS	CRYSTALLINE ROCK (CR)	K Livi	WOULD YIELD SPT I	REFUSAL IF TESTED. ROCK TYP	E INCLUDES GRANITE,	GROUND SURFACE.
<b> </b>	(≤ 35% PASSING		35% PASSING #20	A-7 A-1, A-2 A-4, A-5	:1	WHENEVER THE PARE CONSIDER	COMPRESS	יוסוו ודע		NON-CRYSTALLI	NF Size	FINE TO COARSE GF	RAIN METAMORPHIC AND NON-CO	ASTAL PLAIN	CALCAREOUS (CALC.) - SOILS THAT CONTAIN APPRECIABLE AMOUNTS OF CALCIUM CARBONATE,  COLLUVIUM - ROCK FRAGMENTS MIXED WITH SOIL DEPOSITED BY GRAVITY ON SLOPE OR AT BOTTOM
0,100.	···	A-2-5 A-2-6 A-2-7	6	A-7-5 A-3 A-6, A-7		SLIGHTLY COMPRESS		LIQUID LIMIT L	LESS THAN 31	ROCK (NCR)	===		THAT WOULD YEILD SPT REFUS , SLATE, SANDSTONE, ETC.	SAL IF TESTED. ROCK TYPE	OF SLOPE.
SYMBOL 00000	00000					MODERATELY COMPRI HIGHLY COMPRESSIB			EQUAL TO 31-50 GREATER THAN 50	COASTAL PLAIN SEDIMENTARY R			DIMENTS CEMENTED INTO ROCK, TYPE INCLUDES LIMESTONE, S		CORE RECOVERY (REC.) - TOTAL LENGTH OF ALL MATERIAL RECOVERED IN THE CORE BARREL DIVIDED BY TOTAL
% PASSING	00000						PERCENTAGE O			(CP)		SHELL BEDS, ETC.			LENGTH OF CORE RUN AND EXPRESSED AS A PERCENTAGE.  DIKE - A TABULAR BODY OF IGNEOUS ROCK THAT CUTS ACROSS THE STRUCTURE OF ADJACENT
* 10 58 MX * 40 30 MX	58 MX 51 MN			GRANULAR CLAY	MUCK, PEAT	ORGANIC MATERIAL	GRANULAR SILT - CLAY SOILS SOILS		OTHER MATERIAL				HERING		ROCKS OR CUTS MASSIVE ROCK.
		35 MX 35 MX 35 MX 36 M	N 36 MN 36 MN 3		, cn	TRACE OF ORGANIC MATTER	2 - 3% 3 - 5%	TRAC			ROCK FRESH, CI HAMMER IF CR'		TS MAY SHOW SLIGHT STAINING	ROCK RINGS UNDER	DIP - THE ANGLE AT WHICH A STRATUM OR ANY PLANAR FEATURE IS INCLINED FROM THE HORIZONTAL.
LIQUID LIMIT		41 MN 40 MX 41 MN 40 M				LITTLE ORGANIC MATTER MODERATELY ORGANIC	3 - 5% 5 - 12% 5 - 10% 12 - 20%	LITT SOME		VERY SLIGHT F	ROCK GENERALI	LY FRESH, JOINTS STAINED,	SOME JOINTS MAY SHOW THIN		DIP DIRECTION (DIP AZIMUTH) - THE DIRECTION OR BEARING OF THE HORIZONTAL TRACE OF
PLASTIC INDEX 6 N		10 MX 11 MN 11 MN 10 M		LITTLE OR	HIGHLY	HIGHLY DRGANIC	>10% >20%	HJGH			CRYSTALS ON 1 DF A CRYSTALI		SHINE BRIGHTLY. ROCK RINGS L	UNDER HAMMER BLOWS IF	THE LINE OF DIP, MEASURED CLOCKWISE FROM NORTH.
GROUP INDEX Ø		4 MX 8 M	X 12 MX 16 MX N	AMOUNTS OF	ORGANIC	<u></u>	GROUND			SLIGHT F	ROCK GENERALI	LY FRESH, JOINTS STAINED	AND DISCOLORATION EXTENDS		FAULT - A FRACTURE OR FRACTURE ZONE ALONG WHICH THERE HAS BEEN DISPLACEMENT OF THE SIDES RELATIVE TO DNE ANOTHER PARALLEL TO THE FRACTURE.
USUAL TYPES STONE I OF MAJOR GRAVEL	L, AND FINE SILI		ILTY CLAY			l .	EVEL IN BORE HOLE IMMED		RILLING				IN GRANITOID ROCKS SOME OCC RYSTALLINE ROCKS RING UNDER		FISSILE - A PROPERTY OF SPLITTING ALONG CLOSELY SPACED PARALLEL PLANES.
MATERIALS SAN GEN. RATING	ND SANU GRAV	VEL HIND SHIND S	UILS SUIL:	5		4	HATER LEVEL AFTER 24	_ HOURS		1			SCOLORATION AND WEATHERING		FLOAT - ROCK FRAGMENTS ON SURFACE NEAR THEIR ORIGINAL POSITION AND DISLODGED FROM
AS A	EXCELLENT TO (	GOOD	FAIR TO POOR	FAIR TO POOR	UNSUITABLE	∇PW     PERCHED WATER SATURATED ZONE, OR WATER BEARING STRATA			G STRATA			O ROCKS, MOST FELDSPARS ARE DULL AND DISCOLORED, SOME SHOW CLAY. ROCK HAS IND UNDER HAMMER BLOWS AND SHOWS SIGNIFICANT LOSS OF STRENGTH AS COMPARED			PARENT MATERIAL.
SUBGRADE	-7-E CURCEOUR I	10 - 11 - 21	DE 4-7-6 SU	JBGROUP IS > LL - 30		OMM SPRING O	SEEP			,	WITH FRESH RO	TH FRESH ROCK.			FLOOD PLAIN (FP) - LAND BORDERING A STREAM, BUILT OF SEDIMENTS DEPOSITED BY THE STREAM.
FI OF H		NSISTENCY OR			<u>'                                    </u>	<b>V</b>	MISCELLANEOL	JS SYMBOLS					R STAINED. IN GRANITOID ROCK! KAOLINIZATION. ROCK SHOWS SE		FORMATION (FM.) - A MAPPABLE GEOLOGIC UNIT THAT CAN BE RECOGNIZED AND TRACED IN
PRIMARY SOIL	COMPAG	TNESS OD RAI	GE OF STANDAR	RANGE OF UNCOM		ROADWAY EMBANK	CDT	DMT TEST BORING	TEST BORING	(MOD. SEV.) A	AND CAN BE EX		ST'S PICK. ROCK GIVES "CLUNK"		THE FIELD.
FRIMAN SOIL	CONSI	ISTENCY FENET	(N-VALUE)	(TDNS/FT2		WITH SOIL DESCR		PMT TEST BURING	W/ CORE	1			R STAINED. ROCK FABRIC CLEAR	AND EVIDENT BUT REDUCED	JDINT - FRACTURE IN ROCK ALONG WHICH NO APPRECIABLE MOVEMENT HAS OCCURRED.
GENERALL Y	VERY I		<4 4 TO 10			SOIL SYMBOL	• 🕀	AUGER BORING	SPT N-VALUE	(SEV.)	IN STRENGTH T	TO STRONG SOIL. IN GRANIT	OID ROCKS ALL FELDSPARS AR		LEDGE - A SHELF-LIKE RIDGE OR PROJECTION OF ROCK WHOSE THICKNESS IS SMALL COMPARED TO ITS LATERAL EXTENT.
GRANULAR MATERIAL	MEDIUN	M DENSE	10 TO 30	N/A		ARTIFICIAL FILL	(AF) OTHER - CORE BORING		(REF)— SPT REFUSAL			LDS SPT N VALUES > 100 L	AGMENTS OF STRONG ROCK USUALLY REMAIN. S SPT N VALUES > 100 BPF		LENS - A BODY OF SOIL OR ROCK THAT THINS OUT IN ONE OR MORE DIRECTIONS.
(NON-COHES	SIVE) DEN		30 TO 50 >50			THAN ROADWAY EI	MBANKMENT		<u> </u>				R STAINED. ROCK FABRIC ELEM		MOTTLED (MOT.) - IRREGULARLY MARKED WITH SPOTS OF DIFFERENT COLORS, MOTTLING IN SOILS USUALLY INDICATES POOR AERATION AND LACK OF GOOD DRAINAGE.
	VERY S	SDFT	⟨2	<0.25		INFERRED SOIL B	BOUNDARY "O	MONITORING WELL	-	F	REMAINING. SAF	PROLITE IS AN EXAMPLE OF	SOIL STATUS, WITH DNLY FRAGM ROCK WEATHERED TO A DEGRE	EE SUCH THAT ONLY MINOR	PERCHED WATER - WATER MAINTAINED ABOVE THE NORMAL GROUND WATER LEVEL BY THE PRESENCE OF A
GENERALLY SILT-CLAY	SOF MEDIUM	T M STIFF	2 TO 4 4 TO 8	Ø.25 TO Ø.		INFERRED ROCK L	LINE $\triangle$	PIEZOMETER INSTALLATION		1			REMAIN. IF TESTED, YIELDS S		INTERVENING IMPERVIOUS STRATUM.
MATERIAL	STIF	FF	8 TO 15 15 TO 30	0.5 TO 1. 1 TO 2		***** ALLUVIAL SOIL B	BOUNDARY	SLOPE INDICATOR				TO SOIL. ROCK FABRIC NOT DISCERNIBLE, OR DISCERNIBLE ONLY IN SMALL AND NCENTRATIONS, QUARTZ MAY BE PRESENT AS DIKES OR STRINGERS, SAPROLITE IS			RESIDUAL (RES.) SOIL - SOIL FORMED IN PLACE BY THE WEATHERING OF ROCK,  ROCK QUALITY DESIGNATION (ROD) - A MEASURE OF ROCK QUALITY DESCRIBED BY TOTAL LENGTH OF
(COHESIVE)	HAR		>30	2 TO 4		25/025 DIP & DIP DIRECT	ION OF INSTALLATION			ALSO AN EXAMPLE.					ROCK SEGMENTS EQUAL TO OR GREATER THAN 4 INCHES DIVIDED BY THE TOTAL LENGTH OF CORE RUN A
	Т	EXTURE OR G	RAIN SIZE			ROCK STRUCTURES	s 🙆	CONE PENETROME	TER TEST			ROCK H	IARDNESS		EXPRESSED AS A PERCENTAGE.
U.S. STD. SIEVE S	SIZE	4 10 4	0 60	200 270			•	SOUNDING ROD				CRATCHED BY KNIFE OR SHA D BLOWS OF THE GEOLOGIST	ARP PICK. BREAKING OF HAND S T'S PICK.	SPECIMENS REQUIRES	SAPROLITE (SAP.) - RESIDUAL SOIL THAT RETAINS THE RELIC STRUCTURE OR FABRIC OF THE PARENT ROCK.
OPENING (MM)	···	4.76 2.00 0	.42 0.25	0.075 0.053			ABBREVIA	ATIONS		HARD	CAN BE SCRAT	TCHED BY KNIFE OR PICK O	NLY WITH DIFFICULTY. HARD H	AMMER 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			FINE SILT	CLAY	AR - AUGER REFUSAL	MED MEDIUM	1110110	VST - VANE SHEAR TEST	1		AND SPECIMEN.			TO THE BEDDING OR SCHISTOSITY OF THE INTRUDED ROCKS.
(BLDR.)	(COB.)			(F SD.) (SL.)	(CL*)	BT - BORING TERMINATED CL CLAY	MICA MICACE MOD MODERA		WEA WEATHERED	HARD	EXCAVATED B	Y HARD BLOW OF A GEOLOG	GOUGES OR GROOVES TO 0.25 I SIST'S PICK. HAND SPECIMENS O		SLICKENSIDE - POLISHED AND STRIATED SURFACE THAT RESULTS FROM FRICTION ALONG A FAULT OR
GRAIN MM 3 SIZE IN.		2.0	0.25 0.05		0.005	CPT - CONE PENETRATION			7d- DRY UNIT WEIGHT	BY MODERA		ODERATE BLOWS. BE GROOVED OR GOUGED 0.05 INCHES DEEP BY FIRM PRESSURE OF KNIFE OR PICK POINT.		WATER OR DIOW POINT	STANDARD PENETRATION TEST (PENETRATION RESISTANCE) (SPT) - NUMBER OF BLOWS (N OR BPF) OF
SOTI MOISTURE - CORRELATION OF TERMS						CSE COARSE DMT - DILATOMETER TEST	HARD	CAN BE EXCA	VATED IN SMALL CHIPS TO	PEICES 1 INCH MAXIMUM SIZE		A 140 LB. HAMMER FALLING 30 INCHES REQUIRED TO PRODUCE A PENETRATION OF 1 FOOT INTO SOIL WIT A 2 INCH DUTSIDE DIAMETER SPLIT SPOON SAMPLER, SPT REFUSAL IS PENETRATION EQUAL TO OR LESS			
SOIL MOISTURE SCALE FIELD MOISTURE SHIPE FOR FIFLD MOISTURE DESCRIPTION OF VOID PATIO							ION TEST SAP SAPROLI SD SAND, SAN		SAMPLE ABBREVIATIONS S - BULK SS - SPLIT SPOON	1		GEOLOGIST'S PICK. ED OR GOUGED READILY BY	KNIFE OR PICK. CAN BE EXCAN	VATED IN FRAGMENTS	THAN 0.1 FOOT PER 60 BLOWS.
(ATTERBERG	G LIMITS)	DESCRIPTION				F - FINE	SL SILT, SILT	TY	ST - SHELBY TUBE	1	FROM CHIPS	TO SEVERAL INCHES IN SIZE	E BY MODERATE BLOWS OF A P		STRATA CORE RECOVERY (SREC.) - TOTAL LENGTH OF STRATA MATERIAL RECOVERED DIVIDED BY TOTAL LENGTH OF STRATAM AND EXPRESSED AS A PERCENTAGE.
		- SATURATED - (SAT.)		LY LIQUID; VERY WET, US BELOW THE GROUND WAT		FOSS FOSSILIFEROUS FRAC FRACTURED, FRACTU	SLI SLIGHTL' URES TCR - TRICONE		RS - ROCK RT - RECOMPACTED TRIAXIAL	1		BE BROKEN BY FINGER PRES	SURE. CAVATED READILY WITH POINT :	OF PICK PIECES 1 INCH	STRATA ROCK QUALITY DESIGNATION (SROD) - A MEASURE OF ROCK QUALITY DESCRIBED BY
	LIQUID LIMIT			DEEDW THE ORIGINAL WAY		FRAGS FRAGMENTS HI HIGHLY			CBR ~ CALIFORNIA BEARING RATIO	SOFT	OR MORE IN T		BY FINGER PRESSURE. CAN BE		TOTAL LENGTH OF ROCK SEGMENTS WITHIN A STRATUM EQUAL TO OR GREATER THAN 4 INCHES DIVIDED BY TOTAL LENGTH OF STRATA AND EXPRESSED AS A PERCENTAGE.
PLASTIC RANGE <		- WET - (W)		OLID:REQUIRES DRYING ' N OPTIMUM MOISTURE	ro		JIPMENT USED ON	SUBJECT PE		-	FINGERNAIL. ACTURE S	PACING	BEDDI	NG	TOPSOIL (TS.) - SURFACE SOILS USUALLY CONTAINING ORGANIC MATTER.
(PI) PLL + P	PLASTIC LIMIT		HITHI	W OFTIMOM MOISTURE					HAMMER TYPE:	TERM	HO TONE O	SPACING	TERM	THICKNESS	BENCH MARK: BL2:-L- STA. 13+89, 15' LT
0.1	PTIMUM MOISTURE	- MOIST - (M)	SOLI	D: AT OR NEAR OPTIMUM		DRILL UNITS:	ADVANCING TOOLS:		X AUTOMATIC MANUAL	VERY WIDE WIDE MODERATELY CLO		IORE THAN 10 FEET	THICKLY BEDDED THINLY BEDDED VERY THINLY BEDDED THICKLY LAMINATED	> 4 FEET 1.5 - 4 FEET 0.16 - 1.5 FEET 0.03 - 0.16 FEET 0.008 - 0.03 FEET	BENCH PIRING DEE: E OTR. 10.00, 10 ET
	SHRINKAGE LIMIT					MOBILE B	CLAY BITS	-				3 TO 10 FEET SE 1 TD 3 FEET			ELEVATION: 358.8 FT
		DDV (D)		RES ADDITIONAL WATER	то	l —		CONTINUOUS FLIGHT AUGER HOLLOW AUGERS	CORE SIZE:	CLOSE	0	LIG TO 1 FEET			NOTES:
		- DRY - (D)	ATTAIN	N OPTIMUM MOISTURE		BK-51	X 8" HOLLOW AUGERS			VERY CLOSE	t L	ESS THAN 0.16 FEET	THINLY LAMINATED		
		PLASTIC	ITY			CME-45C	HARD FACED FING	ER BITS	n	FOD 0553	Du DOO:		RATION	THE LIEST DESCRIPTION	4
LUCKINI ASSES		PLASTICITY IND	EX (PI)	DRY STRENGTH			X TUNGCARBIDE INS	IGCARBIDE INSERTS	HAND TOOLS:	FUR SEDIMENTAR	HY RUCKS, INDU		THE HARDENING OF THE MATERIAL BY CEMENTING, HEAT, PRESSURE, ETC.  RUBBING WITH FINGER FREES NUMEROUS GRAINS;  GENTLE BLOW BY HAMMER DISINTEGRATES SAMPLE.		
NONPLASTIC LOW PLASTICITY		Ø-5 6-15		VERY LOW SLIGHT	LIGHT	X CME-550	CASING W/			FRIA					
MED. PLASTICITY HIGH PLASTICITY		16-25 26 OR MO	BE	MEDIUM HIGH		PORTABLE HOIST	TRICONE	STEEL TEETH	POST HOLE DIGGER	MODE	RATELY INDUR		BE SEPARATED FROM SAMPLE	WITH STEEL PROBE;	
- Enoritativi	-			, ,,,,,,		l	TRICONE	* TUNGCARB.	HAND AUGER	1.552		BREAKS EAS	SILY WHEN HIT WITH HAMMER.		
			COLOR  OR COMBINATIONS (TAN, RED, YELLOW-BROWN, BLUE-GRAY).			1	CORE BIT	-	SOUNDING ROD	INDUI	RATED		DIFFICULT TO SEPARATE WITH TO BREAK WITH HAMMER.	H STEEL PROBE;	
1				ED, YELLUW-BRUWN, BLUE ESCRIBE APPEARANCE.	-UKAT).				VANE SHEAR TEST	FYTR	EMELY INDURA		MER BLOWS REQUIRED TO BREAM	K SAMPLE;	
										L			EAKS ACROSS GRAINS.		

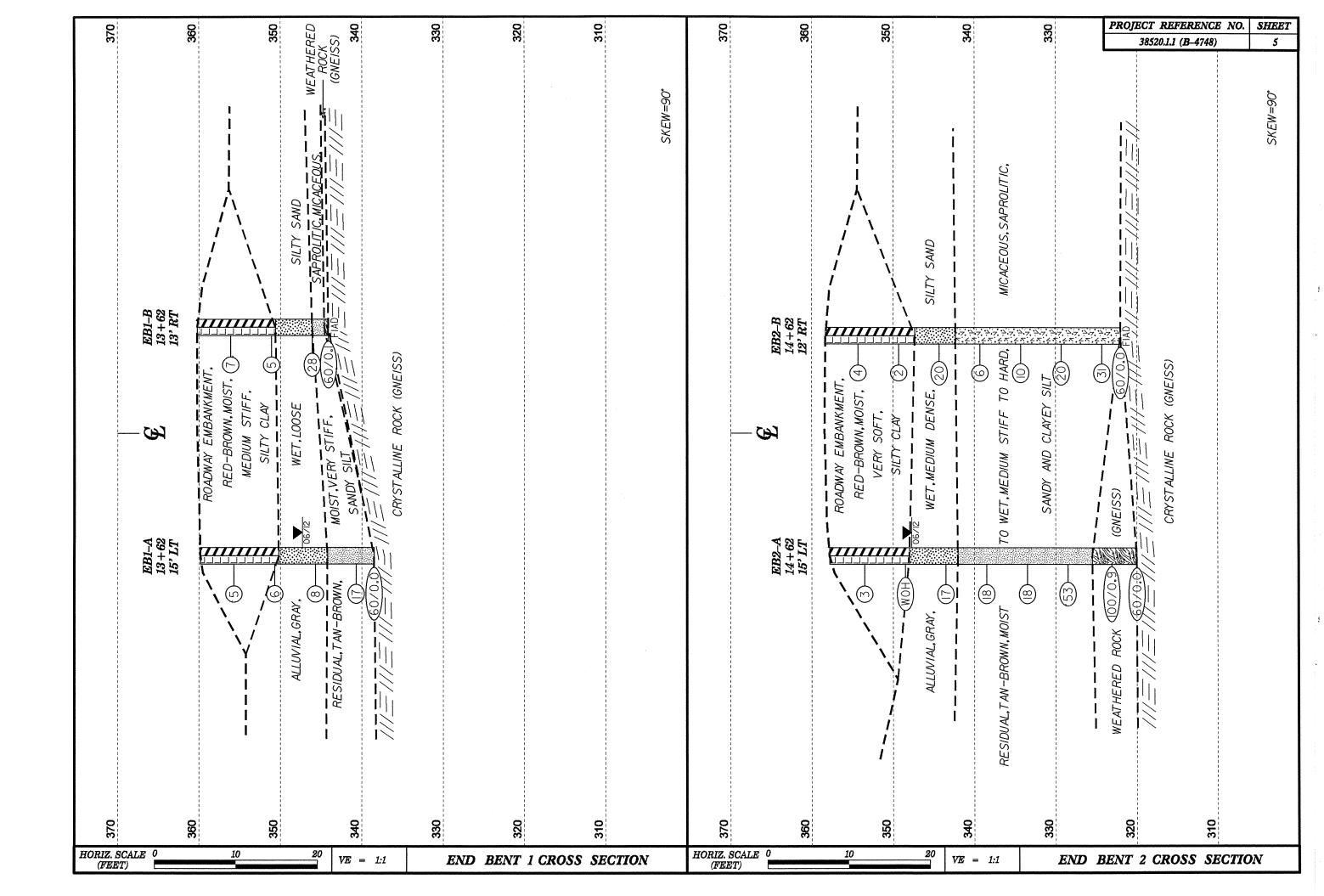
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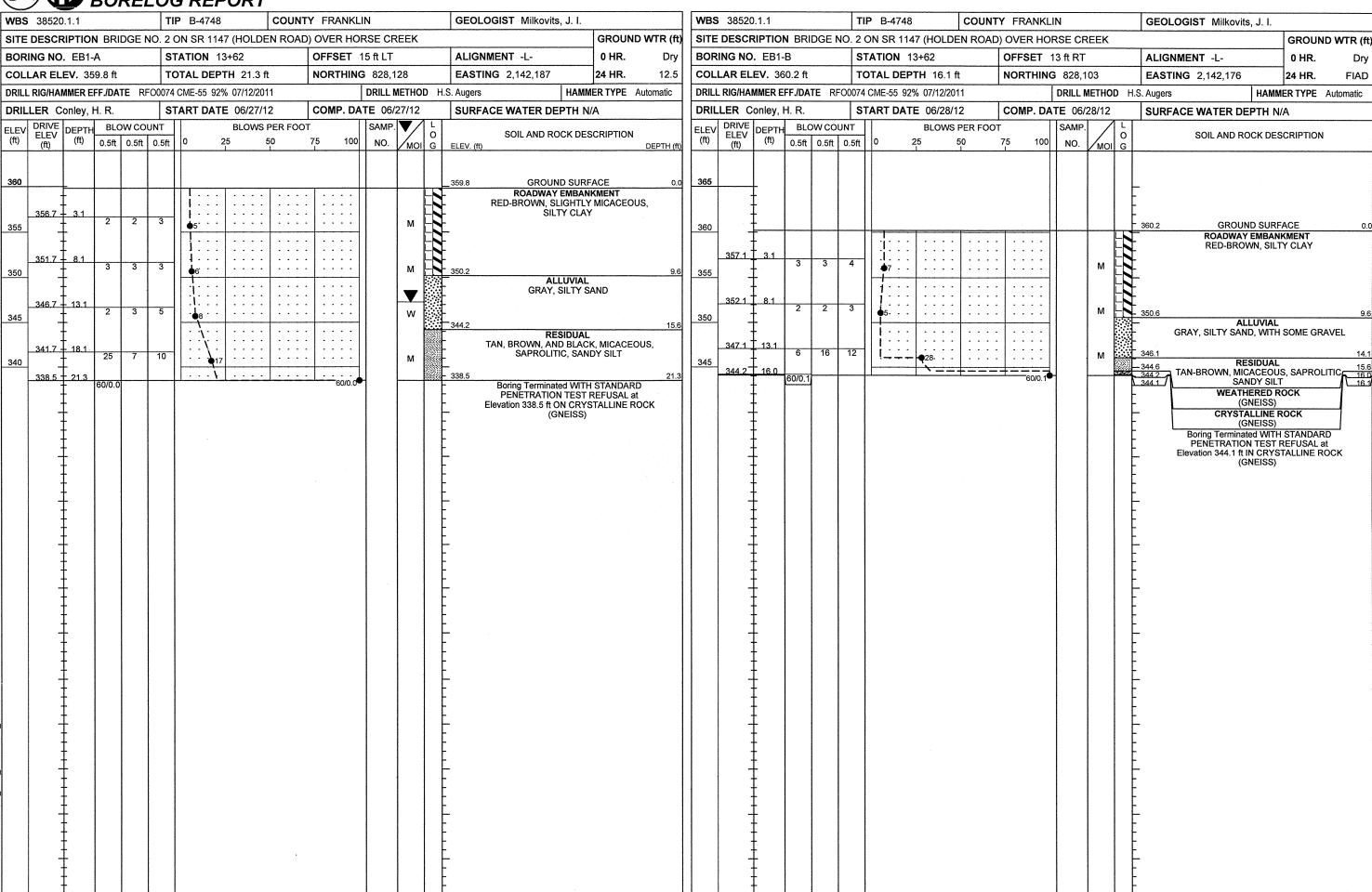
38520.I.I (B-4748)

SHEET NO.









# NCDOT GEOTECHNICAL ENGINEERING UNIT BORELOG REPORT

COLLAR ELEV. 357.8 ft         TOTAL DEPTH 37.8 ft         NORTHING 828,086         EASTING 2,142,278         24 HR.         10.1         COLLAR ELEV. 358.3 ft           DRILL RIG/HAMMER EFF./DATE         RF00074 CME-55 92% 07/12/2011         DRILL METHOD H.S. Augers         HAMMER TYPE Automatic         DRILL RIG/HAMMER EFF./DATE RF000	STATION 14+62   TOTAL DEPTH 36.3 ft   0074 CME-55 92% 07/12/2011   START DATE 06/28/12   BLOWS PER FO	OFFSET 12 ft RT NORTHING 828,062 DRILL METHOD COMP. DATE 06/28/12	SURFACE WATER DEPTH N/A SOIL AND ROCK DESCRIPTIO
COLLAR ELEV. 357.8 ft  TOTAL DEPTH 37.8 ft  NORTHING 828,086  EASTING 2,142,278  24 HR. 10.1  DRILL RIG/HAMMER EFF./DATE RF00074 CME-55 92% 07/12/2011  DRILLER Conley, H. R.  START DATE 06/27/12  COMP. DATE 06/27/12  SURFACE WATER DEPTH N/A  ELEV (ft)  DEPTH BLOW COUNT (ft) 0.5ft 0	TOTAL DEPTH 36.3 ft 0074 CME-55 92% 07/12/2011  START DATE 06/28/12  IT BLOWS PER FO	NORTHING 828,062   DRILL METHOD     COMP. DATE 06/28/12   SAMP.   L O	H.S. Augers HAMMER TYPE SURFACE WATER DEPTH N/A SOIL AND ROCK DESCRIPTIO
DRILL RIG/HAMMER EFF./DATE RF00074 CME-55 92% 07/12/2011   DRILL METHOD H.S. Augers   HAMMER TYPE   Automatic	0074 CME-55 92% 07/12/2011    START DATE 06/28/12  IT   BLOWS PER FO	DRILL METHOD  COMP. DATE 06/28/12  OOT SAMP. L	H.S. Augers HAMMER TYPE  SURFACE WATER DEPTH N/A  SOIL AND ROCK DESCRIPTIO
RILLER Conley, H. R.   START DATE   06/27/12   COMP. DATE   06/27/12   SURFACE WATER DEPTH N/A    EV   DRIVE   (ft)   0.5ft	START DATE 06/28/12  BLOWS PER FO	COMP. DATE 06/28/12   OOT	SURFACE WATER DEPTH N/A SOIL AND ROCK DESCRIPTIO
DRIVE   DEPTH   BLOW COUNT   BLOWS PER FOOT   SAMP.   V   O   SOIL AND ROCK DESCRIPTION   DEPTH (ft)   O   STILL OF (ft)   O   O   O   O   O   O   O   O   O	BLOWS PER FO	OOT SAMP.	SOIL AND ROCK DESCRIPTIO
	.5ft 0 25 50		SOIL AND ROCK DESCRIPTIO
T 357.8 GROUND SURFACE 0.0			F 358.3 GROUND SURFACE
	3		ROADWAY EMBANKMENT TAN-BROWN, MICACEOUS, SILTY
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	4	M	+
349.5 8.3 WOH	1 2	M	347.3
ALLUVIAL GRAY, SILTY SAND WITH SOME GRAVEL  345 345 3 13.0 1 12 8	8	:: ::::  	ALLUVIAL GRAY, SILTY SAND WITH SOME G
9 11 6			342.3  RESIDUAL  TAN-BROWN, HIGHLY MICACEO
339.5 + 18.3   6   8   10     18       W   -   SANDY SILT   2   2   4	4 6	M N	SAPROLÍTIC, CLAYEY SILT
34.5 23.3 5 8 10 · · · · · · · · · · · · · · · · · ·	6 10		; <u> </u>
329.5 + 28.3	11		
15 26 27   · · · ·   · · · · ·   · · · · ·   · · · · ·   · · · · ·   M   - · · · ·   M   - · · · ·   · · · · ·   · · · · ·   M   - · · · · · · · · · · · · · · · · · ·	20	M   A   A   A   A   A   A   A   A   A	<del>}</del>
324.5 33.3 40 60/0.4	19	1 11 1 12 1	322.0
60/0.0 Boring Terminated WITH STANDARD		60/0.0	Boring Terminated WITH STANDA PENETRATION TEST REFUSAL Elevation 322.0 ft ON CRYSTALLINE
PENETRATION TEST REFUSAL at Elevation 320.0 ft ON CRYSTALLINE ROCK (GNEISS)			(GNEISS)
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