CONTENTS SHEET NO.

320029

SF-

REFERENCE

DESCRIPTION TITLE SHEET LEGEND (SOIL & ROCK) 2 SITE PLAN 3 PROFILE - 4 BORE LOG 5

STATE OF NORTH CAROLINA

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

STRUCTURE SUBSURFACE INVESTIGATION

COUNTY EDGECOMBE

PROJECT DESCRIPTION CULVERT NO. 29 ON -L-(SR 1124) OVER CORN CREEK AT STA. 15+39

P4.R004. PROJEC

Ι	STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL Sheets
	N.C.	SF-320029	1	5

CAUTION NOTICE

THE SUBSURFACE INFORMATION AND THE SUBSURFACE INVESTIGATION ON WHICH IT IS BASED WERE MADE FOR THE PURPOSE OF STUDY, PLANNIKG AND DESIGN, AND NOT FOR CONSTRUCTION OR PAY PURPOSES. THE VARIOUS FIELD BORING LOGS, ROCK CORES AND SOLI TEST DATA AVAILABLE MAY BE REVEWED OR INSPECTED IN RALEICH BY CONTACTING THE N.C. DEPARTMENT OF TRANSPORTATION, GEOTECHNICAL ENGINEERING UNIT AT 1991 707-6860. THE SUBSIFACE PLANS AND REPORTS, FIELD BORING LOGS, ROCK CORES AND SOIL TEST DATA ARE NOT 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 UNPELACED TEST DATA CAN BE RELIED ON ONLY TO THE DEGREE OF RELIABILITY INHERENT IN THE STANDARD TEST METHOD. THE OBSERVED WATER LEVELS OR SOLI MOISTURE CONDITIONS INDICATED IN THE SUBSURFACE INVESTIGATIONS ARE AS RECORDED AT THE TIME OF THE INVESTIGATION. THESE WATER LEVELS OR SOLI MOISTURE CONDITIONS MAY YARY 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 OPHIONO OF THE DEPARTMENT AS TO THE TYPE OF MATERIALS AND CONSTRUCTIONS 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 THE PROJECT. THE CONTRACTOR SHALL HAVE NO CLAIM FOR ADDITIONAL COMPENSATION OF FOR ANY EXTENSION OF TIME FOR ANY REASON RESULTING FROM THE ACTUAL CONTENS ENCOUNTERED AT THE SITE DIFFERING FROM THOSE INDICATED IN THE SUBSURFACE INFORMATION.

- NOTES: I. THE INFORMATION CONTAINED HEREIN IS NOT IMPLIED OR CUARANTEED BY THE N.C.DEPARTMENT OF TRANSPORTATION AS ACCURATE NOR IS IT CONSIDERED PART OF THE PLANS, SPECIFICATIONS OR CONTRACT FOR THE PROJECT. 2. 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.

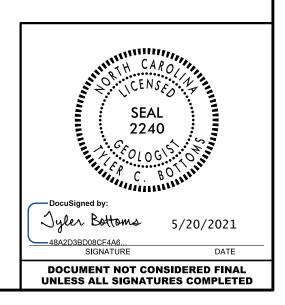
PERSONNEL

A.N. JONES

N.O. MOORE

D.G. PINTER

INVESTIGATED BY
DRAWN BY
CHECKED BY D.N. ARGENBRIGHT
SUBMITTED BY
DATE



NORTH CAROLINA DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS GEOTECHNICAL ENGINEERING UNIT SUBSURFACE INVESTIGATION

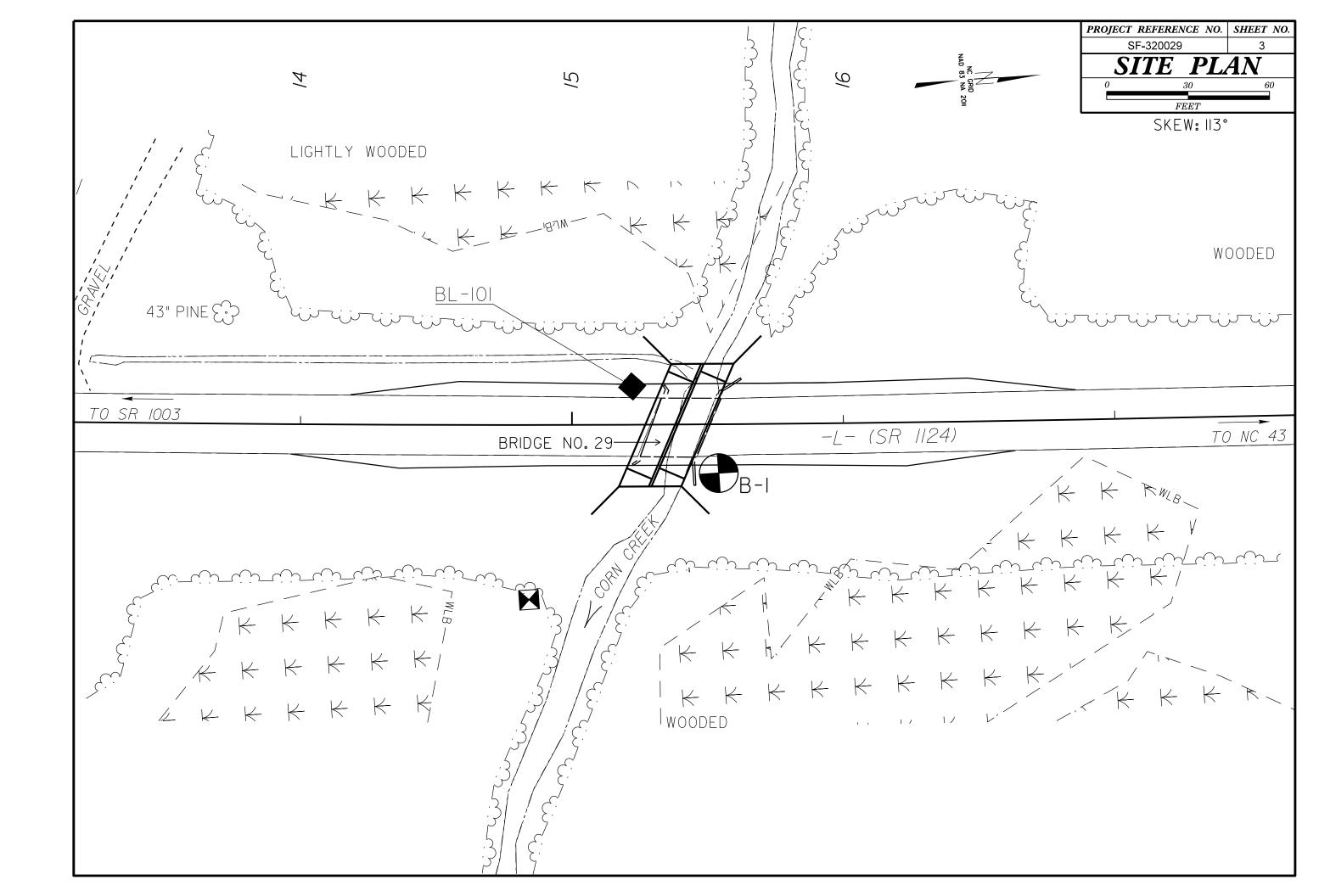
SOIL AND ROCK LEGEND, TERMS, SYMBOLS, AND ABBREVIATIONS

SOIL DESCRIPTION	GRADATION	ROCK DESCRIPTION	TERMS AND DEFINITIONS
SOIL IS CONSIDERED UNCONSOLIDATED, SEMI-CONSOLIDATED, OR WEATHERED EARTH MATERIALS THAT CAN BE PENETRATED WITH A CONTINUOUS FLICHT POWER AUGER AND YIELD LESS THAN 100 BLOWS PER FOOT ACCORDING TO THE STANDARD PENETRATION TEST (AASHTO T 206, ASTM DI586), SOIL CLASSIFICATION IS BASED ON THE AASHTO SYSTEM, BASIC DESCRIPTIONS GENERALLY INCLUDE THE FOLLOWING;	WELL GRADED - INDICATES A GOOD REPRESENTATION OF PARTICLE SIZES FROM FINE TO COARSE. UNIFORMLY GRADED - INDICATES THAT SOIL PARTICLES ARE ALL APPROXIMATELY THE SAME SIZE. GAP-GRADED - INDICATES A MIXTURE OF UNIFORM PARTICLE SIZES OF TWO OR MORE SIZES.	HARD ROCK IS NON-COASTAL PLAIN MATERIAL THAT WOULD YIELD SPT REFUSAL IF TESTED. 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	ALLUVIUM (ALLUV.) - SOILS THAT HAVE BEEN TRANSPORTED BY WATER. ADUIFER - A WATER BEARING FORMATION OR STRATA.
CONSISTENCY, COLOR, TEXTURE, MOISTURE, AASHTO CLASSIFICATION, AND OTHER PERTINENT FACTORS SUCH AS MINERALOGICAL COMPOSITION, ANGULARITY, STRUCTURE, PLASTICITY, ETC. FOR EXAMPLE,	ANGULARITY OF GRAINS	REPRESENTED BY A ZONE OF WEATHERED ROCK. ROCK MATERIALS ARE TYPICALLY DIVIDED AS FOLLOWS:	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
VERY STIFF, GRAY, SILTY CLAY, MOIST WITH INTERBEDDED FINE SAND LAYERS, HIGHLY PLASTIC, A-7-6	THE ANGULARITY OR ROUNDNESS OF SOIL GRAINS IS DESIGNATED BY THE TERMS: ANGULAR, SUBANGULAR, SUBROUNDED, OR ROUNDED.	WEATHERED NON-COASTAL PLAIN MATERIAL THAT WOULD YIELD SPT N VALUES >	A NOTABLE PROPORTION OF CLAY IN THEIR COMPOSITION, SUCH AS SHALE, SLATE, ETC.
SOIL LEGEND AND AASHTO CLASSIFICATION	MINERALOGICAL COMPOSITION	ROCK (WR) 100 BLOWS PER FOOT 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 GROUND
GENERAL GRANULAR MATERIALS SILT-CLAY MATERIALS ORGANIC MATERIALS CLASS. (≤ 35% PASSING *200) (> 35% PASSING *200) ORGANIC MATERIALS	MINERAL NAMES SUCH AS QUARTZ, FELDSPAR, MICA, TALC, KAOLIN, ETC.	CRYSTALLINE FINE TO COARSE GRAIN IGNEOUS AND METAMORPHIC ROCK THAT	SURFACE.
GROUP A-1 A-3 A-2 A-4 A-5 A-6 A-7 A-1, A-2 A-4, A-5	ARE USED IN DESCRIPTIONS WHEN THEY ARE CONSIDERED OF SIGNIFICANCE.		CALCAREOUS (CALC.) - SOILS THAT CONTAIN APPRECIABLE AMOUNTS OF CALCIUM CARBONATE.
CLASS. A-1-8 A-1-b A-2-4 A-2-5 A-2-6 A-2-7 A-7-5 A-7-6 A-7-7		BOCK (ALCE) SEDIMENTARY ROCK THAT WOULD YEILD SPT REFUSAL IF TESTED.	COLLUVIUM - ROCK FRAGMENTS MIXED WITH SOIL DEPOSITED BY GRAVITY ON SLOPE OR AT BOTTOM
SYMBOL COCCORDING COCCO	SLIGHTLY COMPRESSIBLE LL < 31 MODERATELY COMPRESSIBLE LL = 31 - 50	COASTAL PLAIN COASTAL PLAIN SEDIMENTS CEMENTED INTO ROCK, BUT MAY NOT YIELD	OF SLOPE. CORE RECOVERY (REC.) - TOTAL LENGTH OF ALL MATERIAL RECOVERED IN THE CORE BARREL DIVIDED
7. PASSING SILT-		SEDIMENTARY ROCK SOUTHER SEDIMENTARY ROCK SEDIMENTARY ROCK SANDSTONE, CEMENTED SHELL BEDS, ETC.	BY TOTAL LENGTH OF CORE RUN AND EXPRESSED AS A PERCENTAGE.
*10 50 MX *40 30 MX 50 MX 51 MN 50 LS 50 L	PERCENTAGE OF MATERIAL	WEATHERING	DIKE - A TABULAR BODY OF IGNEOUS ROCK THAT CUTS ACROSS THE STRUCTURE OF ADJACENT ROCKS OR CUTS MASSIVE ROCK.
NM 62 NM 62 NM 62 NM 62 NM 62 XM 61 XM 62 XM 61 XM 62 XM 61 XM 64	ORGANIC MATERIAL SOILS OTHER MATERIAL TRACE OF ORGANIC MATTER 2 - 3% 3 - 5% TRACE 1 - 10%	FRESH ROCK FRESH, CRYSTALS BRIGHT, FEW JOINTS MAY SHOW SLIGHT STAINING. ROCK RINGS UNDER HAMMER IF CRYSTALLINE.	DIP - THE ANGLE AT WHICH A STRATUM OR ANY PLANAR FEATURE IS INCLINED FROM THE
MATERIAL PASSING *40 SOILS VITH	LITTLE ORGANIC MATTER 3 - 5% 5 - 12% LITTLE 10 - 20%	VERY SLIGHT ROCK GENERALLY FRESH, JOINTS STAINED, SOME JOINTS MAY SHOW THIN CLAY COATINGS IF OPEN.	HORIZONTAL.
LL — — — 40 MX 41 MN LITTLE OR LITTLE OR LITCLEY	MODERATELY ORGANIC 5 - 10% 12 - 20% SOME 20 - 35% HIGHLY ORGANIC > 10% > 20% HIGHLY 35% AND ABOVE	(V SLI.) CRYSTALS ON A BROKEN SPECIMEN FACE SHINE BRIGHTLY. ROCK RINGS UNDER HAMMER BLOWS IF OF A CRYSTALLINE NATURE.	DIP DIRECTION (DIP AZIMUTH) - THE DIRECTION OR BEARING OF THE HORIZONTAL TRACE OF THE LINE OF DIP, MEASURED CLOCKWISE FROM NORTH.
GROUP INDEX 0 0 0 4 MX 8 MX 12 MX 16 MX NO MX AMOUNTS OF SOLLS	GROUND WATER	SLIGHT ROCK GENERALLY FRESH, JOINTS STAINED AND DISCOLORATION EXTENDS INTO ROCK UP TO	FAULT - A FRACTURE OR FRACTURE ZONE ALONG WHICH THERE HAS BEEN DISPLACEMENT OF THE
USUAL TYPES STONE FRAGS. FINE SILTY OR CLAYEY SILTY CLAYEY MATTER	✓ WATER LEVEL IN BORE HOLE IMMEDIATELY AFTER DRILLING	(SLI.) 1 INCH. OPEN JOINTS MAY CONTAIN CLAY. IN GRANITOID ROCKS SOME OCCASIONAL FELDSPAR CRYSTALS ARE DULL AND DISCOLORED. CRYSTALLINE ROCKS RING UNDER HAMMER BLOWS.	SIDES RELATIVE TO ONE ANOTHER PARALLEL TO THE FRACTURE. <u>FISSILE</u> - A PROPERTY OF SPLITTING ALONG CLOSELY SPACED PARALLEL PLANES.
OF MAJOR GRAVEL, AND SAND GRAVEL AND SAND SOILS SOILS	▼STATIC WATER LEVEL AFTER <u>24</u> HOURS	MODERATE SIGNIFICANT PORTIONS OF ROCK SHOW DISCOLORATION AND WEATHERING EFFECTS. IN	FLOAT - ROCK FRAGMENTS ON SURFACE NEAR THEIR ORIGINAL POSITION AND DISLODGED FROM
GEN. RATING EXCELLENT TO GOOD FAIR TO POOR POOR VISUITABLE	∇PW PERCHED WATER, SATURATED ZONE, OR WATER BEARING STRATA	(MOD.) 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	PARENT MATERIAL.
	- O-M- SPRING OR SEEP	WITH FRESH ROCK.	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
PI OF A-7-5 SUBGROUP IS ≤ LL - 30 ;PI OF A-7-6 SUBGROUP IS > LL - 30 CONSISTENCY OR DENSENESS	MISCELLANEOUS SYMBOLS	MODERATELY ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. IN GRANITOID ROCKS, ALL FELDSPARS DULL SEVERE AND DISCOLORED AND A MAJORITY SHOW KAOLINIZATION. ROCK SHOWS SEVERE LOSS OF STRENGTH	FIELD.
COMPACTNESS OF RANGE OF STANDARD RANGE OF UNCONFINED	I∏ 25 (025	(MOD.SEV.) AND CAN BE EXCAVATED WITH A GEOLOGIST'S PICK. ROCK GIVES "CLUNK" SOUND WHEN STRUCK.	JOINT - FRACTURE IN ROCK ALONG WHICH NO APPRECIABLE MOVEMENT HAS OCCURRED.
PRIMARY SOIL TYPE CONFIDENCES ON PENETRATION RESISTENCE COMPRESSIVE STRENGTH CONSISTENCY (N-VALUE) (TONS/FT ²)	ROADWAY EMBANKMENT (RE) 25/025 DIP & DIP DIRECTION WITH SOIL DESCRIPTION	IF TESTED, WOULD YIELD SPT REFUSAL SEVERE ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. ROCK FABRIC CLEAR AND EVIDENT BUT	LEDGE - A SHELF-LIKE RIDGE OR PROJECTION OF ROCK WHOSE THICKNESS IS SMALL COMPARED TO ITS LATERAL EXTENT.
GENERALLY VERY LOOSE < 4	SOIL SYMBOL	(SEV.) REDUCED IN STRENGTH TO STRONG SOIL. IN GRANITOID ROCKS ALL FELDSPARS ARE KAOLINIZED TO SOME EXTENT. SOME FRAGMENTS OF STRONG ROCK USUALLY REMAIN.	LENS - A BODY OF SOIL OR ROCK THAT THINS OUT IN ONE OR MORE DIRECTIONS.
OCRUMENT LOOSE 4 TO 10 GRANULAR MEDIUM DENSE 10 TO 30 N/A		IF TESTED, WOULD YIELD SPT N VALUES > 100 BPF	MOTTLED (MOT.) - IRREGULARLY MARKED WITH SPOTS OF DIFFERENT COLORS. MOTTLING IN SOILS
(NON-COHESIVE) DENSE 30 TO 50 VERY DENSE > 50		VERY ALL ROCK EXCEPT OUARTZ DISCOLORED OR STAINED, ROCK FABRIC ELEMENTS ARE DISCERNIBLE SEVERE BUT MASS IS EFFECTIVELY REDUCED TO SOIL STATUS, WITH ONLY FRAGMENTS OF STRONG ROCK	USUALLY INDICATES POOR AERATION AND LACK OF GOOD DRAINAGE. <u>PERCHED WATER</u> - WATER MAINTAINED ABOVE THE NORMAL GROUND WATER LEVEL BY THE PRESENCE
VERY SOFT < 2 < 0.25	INFERRED SOIL BOUNDARY - CORE BORING • SOUNDING ROD	(V SEV.) REMAINING. SAPROLITE IS AN EXAMPLE OF ROCK WEATHERED TO A DEGREE THAT ONLY MINOR	OF AN INTERVENING IMPERVIOUS STRATUM.
GENERALLY SOFT 2 TO 4 0.25 TO 0.5 SILT-CLAY MEDIUM STIFF 4 TO 8 0.5 TO 1.0		VESTIGES OF ORIGINAL ROCK FABRIC REMAIN. <u>IF TESTED, WOULD YIELD SPT N VALUES < 100 BPF</u> COMPLETE ROCK REDUCED TO SOIL. ROCK FABRIC 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		SCATTERED CONCENTRATIONS. QUARTZ MAY BE PRESENT AS DIKES OR STRINGERS. SAPROLITE IS	ROCK QUALITY DESIGNATION (ROD) - 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
(COHESIVE) VERY STIFF 15 TO 30 2 TO 4 HARD > 30 > 4	TTTTT ALLUVIAL SOIL BOUNDARY A PIEZUMETER OF SPT N-VALUE	ALSO AN EXAMPLE.	RUN AND EXPRESSED AS A PERCENTAGE.
TEXTURE OR GRAIN SIZE	RECOMMENDATION SYMBOLS	ROCK HARDNESS	SAPROLITE (SAP.) - RESIDUAL SOIL THAT RETAINS THE RELIC STRUCTURE OR FABRIC OF THE PARENT ROCK.
U.S. STD. SIEVE SIZE 4 10 40 60 200 270	UNDERCUT UNCLASSIFIED EXCAVATION - UNSUITABLE WASTE UNCLASSIFIED EXCAVATION - UNSUITABLE WASTE	SEVERAL HARD BLOWS OF THE GEOLOGIST'S PICK.	SILL - AN INTRUSIVE BODY OF IGNEOUS ROCK OF APPROXIMATELY UNIFORM THICKNESS AND
OPENING (MM) 4.76 2.00 0.42 0.25 0.075 0.053 DOW DED COARSE FINE OUT CLARSE FINE OUT OUT	SHALLOW UNCLASSIFIED EXCAVATION - EMPANYMENT OF PACKETU	HARD CAN BE SCRATCHED BY KNIFE OR PICK ONLY WITH DIFFICULTY. HARD HAMMER BLOWS REOUIRED TO DETACH HAND SPECIMEN.	RELATIVELY THIN COMPARED WITH ITS LATERAL EXTENT, THAT HAS BEEN EMPLACED PARALLEL TO THE BEDDING OR SCHISTOSITY OF THE INTRUDED ROCKS.
BUULDER LUBBLE GRAVEL SAND SAND SLLI LLAY		MODERATELY CAN BE SCRATCHED BY KNIFE OR PICK. GOUGES OR GROOVES TO 0.25 INCHES DEEP CAN BE	SLICKENSIDE - POLISHED AND STRIATED SURFACE THAT RESULTS FROM FRICTION ALONG A FAULT
(USE. SU.) (F SU.)	ABBREVIATIONS AR - AUGER REFUSAL MED MEDIUM VST - VANE SHEAR TEST	HARD EXCAVATED BY HARD BLOW OF A GEOLOGIST'S PICK. HAND SPECIMENS CAN BE DETACHED BY MODERATE BLOWS.	OR SLIP PLANE. STANDARD PENETRATION TEST (PENETRATION RESISTANCE)(SPT) - NUMBER OF BLOWS (N OR BPF) OF
GRAIN MM 305 75 2.0 0.25 0.05 0.005 SIZE IN. 12 3	BT - BORING TERMINATED MICA MICACEOUS WEA WEATHERED	MEDIUM CAN BE GROOVED OR GOUGED 0.05 INCHES DEEP BY FIRM PRESSURE OF KNIFE OR PICK POINT.	A 140 LB. HAMMER FALLING 30 INCHES REQUIRED TO PRODUCE A PENETRATION OF 1 FOOT INTO SOIL
SOIL MOISTURE - CORRELATION OF TERMS	CLCLAY MODMODERATELY γ -UNIT WEIGHT CPT - CONE PENETRATION TEST NP - NON PLASTIC γ_{a} -DRY UNIT WEIGHT	HARD CAN BE EXCAVATED IN SMALL CHIPS TO PEICES I INCH MAXIMUM SIZE BY HARD BLOWS OF THE POINT OF A GEOLOGIST'S PICK.	WITH A 2 INCH OUTSIDE DIAMETER SPLIT SPOON SAMPLER. SPT REFUSAL IS PENETRATION EQUAL TO OR LESS THAN 0.1 FOOT PER 60 BLOWS.
SOIL MOISTURE SCALE FIELD MOISTURE (ATTERBERG LIMITS) DESCRIPTION GUIDE FOR FIELD MOISTURE DESCRIPTION	CSE COARSE ORG ORGANIC DMT - DILATOMETER TEST PMT - PRESSUREMETER TEST <u>SAMPLE ABBREVIATIONS</u>	SOFT CAN BE GROVED OR GOUGED READILY BY KNIFE OR PICK. CAN BE EXCAVATED IN FRAGMENTS	STRATA CORE RECOVERY (SREC.) - TOTAL LENGTH OF STRATA MATERIAL RECOVERED DIVIDED BY TOTAL LENGTH OF STRATUM AND EXPRESSED AS A PERCENTAGE.
	DPT - DYNAMIC PENETRATION TEST SAP SAPROLITIC S - BULK	FROM CHIPS TO SEVERAL INCHES IN SIZE BY MODERATE BLOWS OF A PICK POINT. SMALL, THIN PIECES CAN BE BROKEN BY FINGER PRESSURE.	STRATA ROCK QUALITY DESIGNATION (SROD) - A MEASURE OF ROCK QUALITY DESCRIBED BY TOTAL
- SATURATED - USUALLY LIQUID; VERY WET, USUALLY (SAT.) FROM BELOW THE GROUND WATER TABLE	e - VOID RATIO SD SAND, SANDY SS - SPLIT SPOON F - FINE SL SILT, SILTY ST - SHELBY TUBE	VERY CAN BE CARVED WITH KNIFE, CAN BE EXCAVATED READILY WITH POINT OF PICK, PIECES 1 INCH	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.
	FOSS FOSSILIFEROUS SLI SLIGHTLY RS - ROCK FRACT FRACTURED, FRACTURES TCR - TRICONE REFUSAL RT - RECOMPACTED TRIAXIAL	SOFT OR MORE IN THICKNESS CAN BE BROKEN BY FINGER PRESSURE. CAN BE SCRATCHED READILY BY FINGERNAIL.	TOPSOIL (TS.) - SURFACE SOILS USUALLY CONTAINING ORGANIC MATTER.
BANGE - WET - (W) SEMISULID; REQUIRES DRYING TO	FRAGS FRAGMENTS W - MOISTURE CONTENT CBR - CALIFORNIA BEARING	FRACTURE SPACING BEDDING	BENCH MARK: BL-101
	HI HIGHLY V - VERY RATIO	TERM SPACING TERM THICKNESS VERY WIDE MORE THAN 10 FEET VERY THICKLY BEDDED 4 FEET	N: 762043.7170
OM _ OPTIMUM MOISTURE - MOIST - (M) SOLID; AT OR NEAR OPTIMUM MOISTURE	EQUIPMENT USED ON SUBJECT PROJECT DRILL UNITS: ADVANCING TOOLS: HAMMER TYPE:	WIDE 3 TO 10 FEET THICKLY BEDDED 1.5 - 4 FEET	E: 2372520.3320 ELEVATION: 88.31 FEET
SL SHRINKAGE LIMIT		MODERATELY CLOSE 1 TO 3 FEET THINLY BEDDED 0.16 - 1.5 FEET CLOSE 0.16 TO 1 FOOT VERY THINLY BEDDED 0.03 - 0.16 FEET	NOTES:
- DRY - (D) REQUIRES ADDITIONAL WATER TO ATTAIN OPTIMUM MOISTURE		VERY CLOSE LESS THAN 0.16 FEET THICKLY LAMINATED 0.008 - 0.03 FEET THINLY LAMINATED < 0.008 FEET	
PLASTICITY	CME-55 CME-55 CME-55 CME S12E: CME S	INDURATION	
PLASTICITY INDEX (PI) DRY STRENGTH	X CME-550 HARD FACED FINGER BITS Image: CME-100 minipage	FOR SEDIMENTARY ROCKS, INDURATION IS THE HARDENING OF MATERIAL BY CEMENTING, HEAT, PRESSURE, ETC.	
NON PLASTIC 0-5 VERY LOW	VANE SHEAD TEST	FRIABLE RUBBING WITH FINGER FREES NUMEROUS GRAINS; GENTLE BLOW BY HAMMER DISINTEGRATES SAMPLE.	
SLIGHTLY PLASTIC 6-15 SLIGHT MODERATELY PLASTIC 16-25 MEDIUM	VANE SHEAR TEST X CASING W/ ADVANCER HAND TOOLS:	CRAINS CAN BE SERARATER FROM CAMPLE MITH STEEL PROPE	
HIGHLY PLASTIC 26 OR MORE HIGH	PORTABLE HOIST X TRICONE 2 15/6 STEEL TEETH HAND AUGER	MODERATELY INDURATED GRAINS CHN BE SEPARATED FROM SAMPLE WITH STEEL PROBE; BREAKS EASILY WHEN HIT WITH HAMMER.	
COLOR		INDURATED GRAINS ARE DIFFICULT TO SEPARATE WITH STEEL PROBE; DIFFICULT TO BREAK WITH HAMMER.	
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.		EXTREMELY INDURATED SAMPLE BREAKS ACROSS GRAINS.	DATE: 8-15-14

SHEET NO.

project reference no.

2



		PROFILE	THROUG	H BORIN	g proje	ECTED 4	LONG -L		SF -320029 ROADWAY DESIGN ENGINEER INCOMPLETE PLA DO NOT USE FOR K/W ACQUIST	4 AULICS INEER
					B· I5+	54				
90 					18′	RT				MPLETE
		VERY SOF MOIST	T ORANGE AND GRA TO WET (ROADWAY	Y SANDY CLAY, EMBANKMENT)		VERY 05/21 MC	SOFT ORANGE AND IST TO WET (ROAI	GRAY SANDY CLAY DWAY EMBANKMENT)	•	
80		 VER	Y SOFT GRAY SAND	Y SILT WITH		TRACE ORGAN	NICS AND GRAVEL	WET (ALLUVIAL)		8
	LOOSE	TO MEDIUM DENSE GRA	AY AND BLUE SILTY	SAND WITH TRAC		SHELL FRAG	MENT\$ AND GRAVEL	• SATURATED (YOR)	 <town formation<br=""></town>)
70		S OF	T GRAY AND BLUE	SANDY SILT WITH	4		AND GRAVEL, WET	(YORKTOWN FORMA	T I ON)	
			SEGRAYANDBL-UE-	S-I-L-T-YSANDW-I-TH			•SATURATED(-YOF	₭ ŦŌ₩NFORMA-T I-ON ;)		·
60			SOFT TO STI	FF GRAY AND BLUE		SILTY CLAY	• WET (YORKTOWN	FORMATION)		6
		VERY-LOOSE-1	O-LOOSE-GRAY-AND)- BLUE SIL-TY-SAN		°°° °°° °°° °°° °°° °°°	FRAGMENTSSAT	URATED(YORK-TOWN	- F-ORMA T-I ON ⁻⁾	
	NOTE: GROUNDLINE PROFIL TAKEN FROM CULVERT SURV DESIGN REPORT DATED 4/2 NOTE: INFERRED STRATIGE THROUGH THE BORINGS WIT PROJECTED ONTO THE PRO	i i i i								
50	PROJECTED ONTO THE PRO	ILE								5
1	14		15	5			16			1

GEOTECHNICAL BORING REPORT BORE LOG

					D	ORE L	UG		
VBS BP4.R0	04.1		ТІ	IP SF-320029	COUNTY	EDGECON	/BE	GEOLOGIST Jones, A. N.	
ITE DESCRIP	TION Cul	vert No.	29 on	-L- (SR 1124) over Co	orn Creek				GROUND WTR (ft)
BORING NO.	B-1		ST	TATION 15+54		OFFSET 1	8 ft RT	ALIGNMENT -L-	0 HR. N/A
OLLAR ELEV	/. 88.4 ft		т	OTAL DEPTH 36.2 ft	:	NORTHING	762,073	EASTING 2,372,554	24 HR. 2.3
RILL RIG/HAMIM	ER EFF./DA	TE RFO	0067 C	ME-550X 88% 10/22/202	:0		DRILL METHOD W		ERTYPE Automatic
RILLER Pint			_	TART DATE 05/06/2		COMP. DAT			٨
		OW COU			PER FOOT		SAMP.	SURFACE WATER DEPTH N/	1
LEV DRIVE (ft) (ft) D	EPTH BL (ft) 0.5f			4		75 100	NO. MOI G	SOIL AND ROCK DESC ELEV. (ft)	CRIPTION DEPTH (f
90									
- F								- 88.4 GROUND SURFA	
85 +								ORANGE AND GRAY SA	
83.7 +	4.7							_	
+	woi	HWOH	WOH	1 ••••• • • • • • • •				ALLUVIAL	5.
80 7								GRAY SANDY SILT WIT	
78.7	9.7							-	
+	2	7	8	1				_ 77.9 _ COASTAL PLA	10. N
76.2 T	12.2	2	4					- GRAY AND BLUE SILTY S	SAND WITH
	14 7			$ \begin{vmatrix} \mathbf{\phi}_{6} & \cdots & \cdots & \cdots \\ \mathbf{\phi}_{k} & \cdots & \cdots & \cdots & \cdots \\ \mathbf{\phi}_{k} & \cdots & \cdots & \cdots & \cdots \\ \mathbf{\phi}_{k} & \cdots & \mathbf{\phi}_{k} & \cdots & \mathbf{\phi}_{k} \\ \mathbf{\phi}_{k} & \cdots & \mathbf{\phi}_{k} & \mathbf{\phi}_{k} \\ \mathbf{\phi}_{k} & \mathbf{\phi}_{k} & \mathbf{\phi}_{k} & \mathbf{\phi}_{k} \\ \mathbf{\phi}_{k} & \mathbf{\phi}_{k} & \mathbf{\phi}_{k} & \mathbf{\phi}_{k} \\ \mathbf{\phi}_{k} & \mathbf{\phi}_{k} & \mathbf{\phi}_{k} & \mathbf{\phi}_{k$				TRACE SHELL FRAGM	ENTS AND ∕ORKTOWN /— ¹⁴
+	WO	H 1	2	$ _{\phi_3} \cdot \cdot \cdot _{\cdot \cdot \cdot \cdot \cdot}$) i
70 71.2 T	17.2 WOI	Н 1	3					- GRAY AND BLUE SANDY - TRACE MICA AND GRA	
	19.7		-	$\left \begin{array}{c c c c c c c c c c c c c c c c c c c$					
+	2	4	2					TRACE MICA, SATU	
5 66.2 T	22.2	1	2					- - 65.2	23.
	24.7] • • • • • • • • • • • • • • • • • •				GRAY AND BLUE SILTY	CLAY, WET
	5	5	5					-	
, F				./				- 	<u>28</u> .
- +	29.7] /	<u> </u>			GRAY AND BLUE SILTY S SHELL FRAGMENTS, SA	SAND WITH
+	1	1	1						
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	34.7			$] \begin{vmatrix} 1 & \cdots & 1 \\ 1 & \cdots & 1 \\ $				-	
+	3	3	4	1				52.2	36.
								Boring Terminated at Eleva Loose Silty Sar	

SHEET 5 OF 5