Ŕ REFERENCE

CONTENTS

DESCRIPTION

LEGEND (SOIL & ROCK)

TITLE SHEET

SITE PLAN

BORE LOGS SITE PHOTOGRAPH

PROFILE

SHEET NO.

5-8

48

STATE OF NORTH CAROLINA

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

STRUCTURE SUBSURFACE INVESTIGATION

COUNTY **SAMPSON**

PROJECT DESCRIPTION BRIDGE NO. 72 ON SR 1206 (WRIGHT BRIDGE ROAD) OVER GREAT COHARIE CREEK AT -L- STATION 16+99

STATE PROJECT REFERENCE NO. 9 B-6049

CAUTION NOTICE

THE SUBSURFACE INFORMATION AND THE SUBSURFACE INVESTIGATION ON WHICH IT IS BASED WERE MADE FOR THE PURPOSE OF STUDY, PLANNING AND DESIGN, AND NOT FOR CONSTRUCTION OR PAY PURPOSES. THE VARIOUS FIELD BORING LOGS, ROCK CORES AND SOIL TEST DATA AVAILABLE MAY BE REVIEWED OR INSPECTED IN RALEIGH BY CONTACTING THE N. C. DEPARTMENT OF TRANSPORTATION, GEOTECHNICAL ENGINEERING UNIT AT (1991) 707-6850. THE SUBSURFACE 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 (IN-PLACE) TEST DATA CAN BE RELIED ON ONLY TO THE DEGREE OF RELIABILITY INHERENT IN THE STANDARD TEST METHOL. THE OBSERVED WATER LEVELS OR SOIL MOISTURE CONDITIONS INDICATED IN THE SUBSURFACE CINVESTIGATIONS ARE AS RECORDED AT THE TIME OF THE INVESTIGATION. THESE WATER LEVELS OR SOIL MOISTURE CONDITIONS INDICATED IN THE SUBSURFACE OR INVESTIGATIONS AND A STANDARD 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, 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 THE 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.

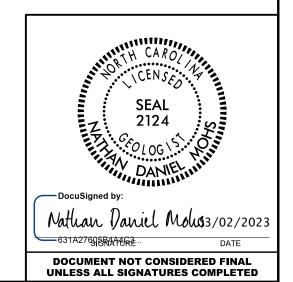
- NOTES:

 1. THE INFORMATION CONTAINED HEREIN IS NOT IMPLIED OR GUARANTEED 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.

C. STEPHENS, GIT M. STANBURY, PG BRIDGER DRILLING INVESTIGATED BY N. MOHS, LG DRAWN BY __C. STEPHENS, GIT CHECKED BY S. JOHNSON, PE, PG SUBMITTED BY N. MOHS, LG DATE JANUARY 2023





PROJECT REFERENCE NO. SHEET NO.

B-6049

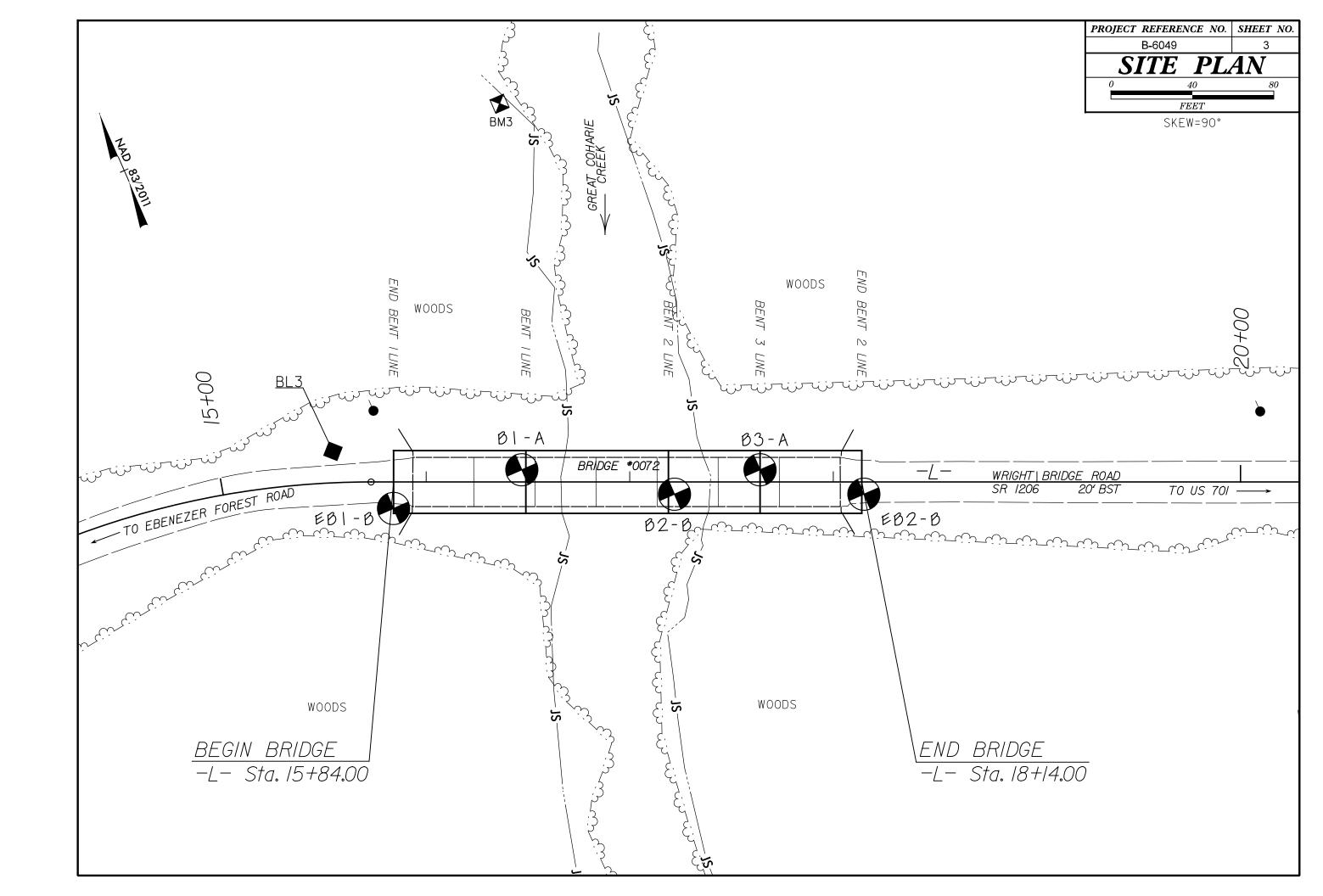
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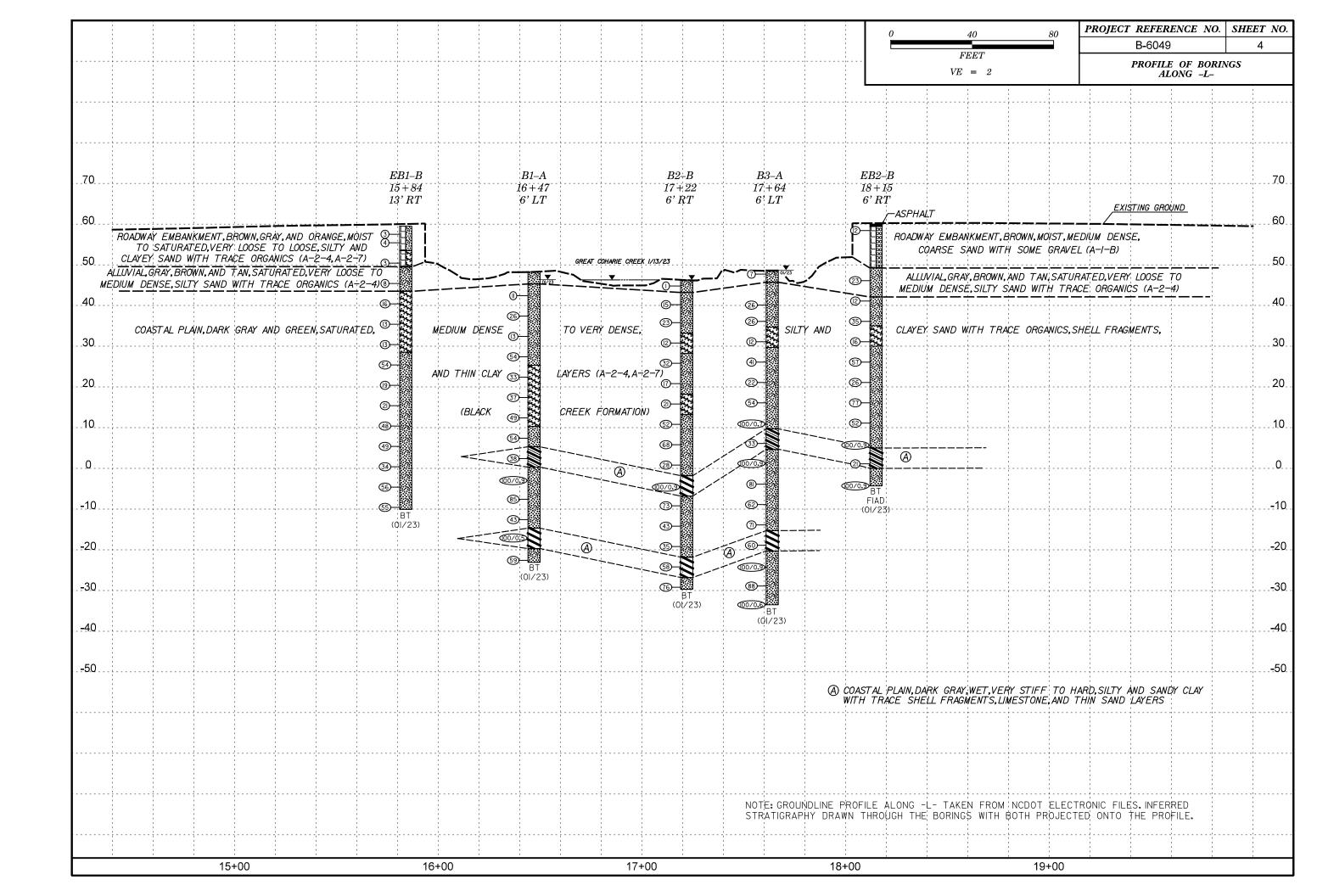
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS GEOTECHNICAL ENGINEERING UNIT

SUBSURFACE INVESTIGATION

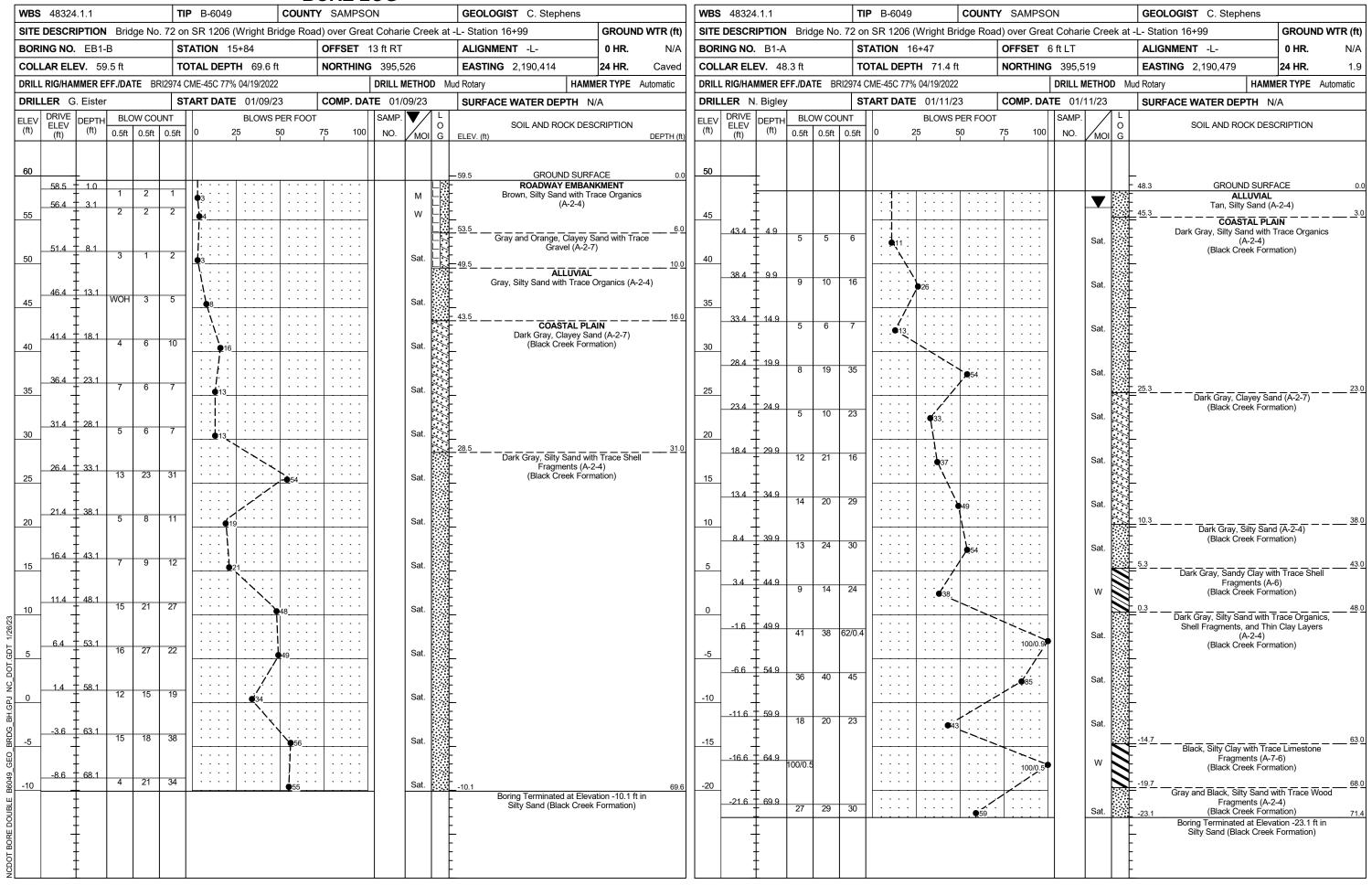
SOIL AND ROCK LEGEND, TERMS, SYMBOLS, AND ABBREVIATIONS

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 FLIGHT POWER AUGER AND YIELD LESS THAN 100 BLOWS PER FOOT	WELL GRADED - INDICATES A GOOD REPRESENTATION OF PARTICLE SIZES FROM FINE TO COARSE.	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.	ALLUVIUM (ALLUV.) - SOILS THAT HAVE BEEN TRANSPORTED BY WATER.		
ACCORDING TO THE STANDARD PENETRATION TEST (AASHTO T 206, ASTM D1586). SOIL CLASSIFICATION	<u>UNIFORMLY GRADED</u> - INDICATES THAT SOIL PARTICLES ARE ALL APPROXIMATELY THE SAME SIZE, <u>GAP-GRADED</u> - INDICATES A MIXTURE OF UNIFORM PARTICLE SIZES OF TWO OR MORE SIZES.	SPT REFUSAL IS PENETRATION BY A SPLIT SPOON SAMPLER EQUAL TO OR LESS THAN 0.1 FOOT PER 60	<u>AQUIFER</u> - A WATER BEARING FORMATION OR STRATA.		
IS BASED ON THE AASHTO SYSTEM. BASIC DESCRIPTIONS GENERALLY INCLUDE THE FOLLOWING: CONSISTENCY, COLOR, TEXTURE, MOISTURE, AASHTO CLASSIFICATION, AND OTHER PERTINENT FACTORS SUCH	ANGULARITY OF GRAINS	BLOWS IN NON-COASTAL PLAIN MATERIAL, THE TRANSITION BETWEEN SOIL AND ROCK IS OFTEN REPRESENTED BY A ZONE OF WEATHERED ROCK,	ARENACEOUS - APPLIED TO ROCKS THAT HAVE BEEN DERIVED FROM SAND OR THAT CONTAIN SAND.		
AS MINERALOGICAL COMPOSITION, ANGULARITY, STRUCTURE, PLASTICITY, ETC. FOR EXAMPLE,	THE ANGULARITY OR ROUNDNESS OF SOIL GRAINS IS DESIGNATED BY THE TERMS:	ROCK MATERIALS ARE TYPICALLY DIVIDED AS FOLLOWS:	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	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. (\$\leq 35% \text{ Passing *200}) (> 35% \text{ Passing *200}) ORGANIC MATERIALS	MINERAL NAMES SUCH AS QUARTZ, FELDSPAR, MICA, TALC, KAOLIN, ETC.	CRYSTALLINE CRYSTALLINE WOULD YIELD SPT REFUSAL IF TESTED, ROCK TYPE INCLUDES GRANITE,	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.	ROCK (CR) GNEISS, GABBRO, SCHIST, ETC.	CALCAREOUS (CALC.) - SOILS THAT CONTAIN APPRECIABLE AMOUNTS OF CALCIUM CARBONATE.		
CLASS. A-1-a A-1-b A-2-4 A-2-5 A-2-6 A-2-7 A-7-5 A-3 A-6, A-7	COMPRESSIBILITY	NON-CRYSTALLINE NON-CRYSTALLINE FINE TO COARSE GRAIN METAMORPHIC AND NON-COASTAL PLAIN SEDIMENTARY ROCK THAT WOULD YELLD STR REFUSAL IF TESTED.	COLLUVIUM - ROCK FRAGMENTS MIXED WITH SOIL DEPOSITED BY GRAVITY ON SLOPE OR AT BOTTOM		
SYMBOL 0000d0000d	SLIGHTLY COMPRESSIBLE LL < 31 MODERATELY COMPRESSIBLE LL = 31 - 50	ROCK TYPE INCLUDES PHYLLITE, SLATE, SANDSTONE, ETC. COASTAL PLAIN COASTAL PLAIN SEDIMENTS CEMENTED INTO ROCK, BUT MAY NOT YIELD	OF SLOPE.		
X PASSING 0000	HIGHLY COMPRESSIBLE LL > 50	SEDIMENTARY ROCK SPT REFUSAL, ROCK 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.		
*10 50 MX GRANULAR SILI- MUCK,	PERCENTAGE OF MATERIAL	(CP) SHELL BEDS, ETC. WEATHERING	DIKE - A TABULAR BODY OF IGNEOUS ROCK THAT CUTS ACROSS THE STRUCTURE OF ADJACENT		
*40 30 MX 50 MX 51 MN SOILS PEAT SOILS SOI	GRANULAR SILT - CLAY ORGANIC MATERIAL SOILS SOILS OTHER MATERIAL		ROCKS OR CUTS MASSIVE ROCK.		
MATERIAL	ORGANIC MATERIAL SOILS 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.	$\overline{ ext{DIP}}$ - THE ANGLE AT WHICH A STRATUM OR ANY PLANAR FEATURE IS INCLINED FROM THE		
PASSING *40 SOILS WITH	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 48 MX 41 MN 18 MX 41 MN 11 TITLE OR HIGHLY PI 6 MX NP 18 MX 18 MX 11 MN 11 MN 18 MX 18 MX 11 MN	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	<u>DIP DIRECTION (DIP AZIMUTH)</u> - THE DIRECTION OR BEARING OF THE HORIZONTAL TRACE OF THE LINE OF DIP, MEASURED CLOCKWISE FROM NORTH.		
GROUP INDEX Ø Ø Ø 4 MX 8 MX 12 MX 16 MX NO MX AMOUNTS OF	GROUND WATER	OF A CRYSTALLINE NATURE.	FAULT - A FRACTURE OR FRACTURE ZONE ALONG WHICH THERE HAS BEEN DISPLACEMENT OF THE		
ORGANIC SULLS		SLIGHT 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	SIDES RELATIVE TO ONE ANOTHER PARALLEL TO THE FRACTURE.		
USUAL 17PES STUNE PROBES. FINE SILTY OR CLAYEY SILTY CLAYEY MATTER	▼ WATER LEVEL IN BORE HOLE IMMEDIATELY AFTER DRILLING	CRYSTALS ARE DULL AND DISCOLORED. CRYSTALLINE ROCKS RING UNDER HAMMER BLOWS.	FISSILE - A PROPERTY OF SPLITTING ALONG CLOSELY SPACED PARALLEL PLANES.		
MATERIALS SAND 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 UNSUITABLE	<u> </u>	(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.		
AS SUBGRADE POUR	SPRING OR SEEP	WITH FRESH ROCK.	FLOOD PLAIN (FP) - LAND BORDERING A STREAM, BUILT OF SEDIMENTS DEPOSITED BY THE STREAM.		
PI OF A-7-5 SUBGROUP IS ≤ LL - 3Ø; PI OF A-7-6 SUBGROUP IS > LL - 3Ø CONSISTENCY OR DENSENESS	-	MODERATELY ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. IN GRANITOID ROCKS, ALL FELDSPARS DULL	FORMATION (FM.) - A MAPPABLE GEOLOGIC UNIT THAT CAN BE RECOGNIZED AND TRACED IN THE FIELD.		
DANCE OF CTANDARD BANCE OF UNCONSTRUCT	MISCELLANEOUS SYMBOLS	SEVERE AND DISCOLORED AND A MAJORITY SHOW KAOLINIZATION, ROCK SHOWS SEVERE LOSS OF STRENGTH (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 COMPACINESS OR PENETRATION RESISTENCE COMPRESSIVE STRENGTH	ROADWAY EMBANKMENT (RE) 25/025 DIP & DIP DIRECTION	IF TESTED, WOULD YIELD SPT REFUSAL	LEDGE - A SHELF-LIKE RIDGE OR PROJECTION OF ROCK WHOSE THICKNESS IS SMALL COMPARED TO		
(N-VALUE) (TUNS/FT-)	WITH SOIL DESCRIPTION OF ROCK STRUCTURES	SEVERE 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	ITS LATERAL EXTENT.		
GENERALLY VERY LOOSE < 4 LOOSE 4 TO 10	SOIL SYMBOL SOIL SYMBOL SOIL SYMBOL SUPPL INDICATOR INSTALLATION	(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.		
MEDIUM DENSE 10 TO 30 N/A	I 附	IF TESTED, WOULD YIELD SPT N VALUES > 100 BPF	MOTTLED (MOT.) - IRREGULARLY MARKED WITH SPOTS OF DIFFERENT COLORS, MOTTLING IN SOILS USUALLY INDICATES POOR AERATION AND LACK OF GOOD DRAINAGE.		
NON-COHESIVE DENSE 3Ø TO 5Ø	ARTIFICIAL FILL (AF) OTHER THAN ROADWAY EMBANKMENT AUGER BORING CONE PENETROMETER TEST	VERY ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED, ROCK FABRIC ELEMENTS ARE DISCERNIBLE SEVERE BUT MASS IS EFFECTIVELY REDUCED TO SOIL STATUS, WITH ONLY FRAGMENTS OF STRONG ROCK	PERCHED WATER - 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	TEGT DODING	VESTIGES OF ORIGINAL ROCK FABRIC REMAIN. <u>IF TESTED, WOULD YIELD SPT N VALUES < 100 BPF</u>	RESIDUAL (RES.) SOIL - SOIL FORMED IN PLACE BY THE WEATHERING OF ROCK.		
SILT-CLAY MEDIUM STIFF 4 TO 8 Ø.5 TO 1.Ø MATERIAL STIFF 8 TO 15 1 TO 2	INFERRED ROCK LINE "OMONITORING WELL WITH CORE	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	ROCK QUALITY DESIGNATION (RQD) - A MEASURE OF ROCK QUALITY DESCRIBED BY TOTAL LENGTH OF		
(COHESIVE) VERY STIFF 15 TO 3Ø 2 TO 4	ALLUVIAL SOIL BOUNDARY	ALSO AN EXAMPLE.	ROCK SEGMENTS EQUAL TO OR GREATER THAN 4 INCHES DIVIDED BY THE TOTAL LENGTH OF CORE RUN AND EXPRESSED AS A PERCENTAGE.		
HARD > 30 > 4		ROCK HARDNESS	SAPROLITE (SAP.) - RESIDUAL SOIL THAT RETAINS THE RELIC STRUCTURE OR FABRIC OF THE PARENT		
TEXTURE OR GRAIN SIZE	RECOMMENDATION SYMBOLS	VERY HARD CANNOT BE SCRATCHED BY KNIFE OR SHARP PICK, BREAKING OF HAND SPECIMENS REQUIRES	ROCK.		
U.S. STD. SIEVE SIZE 4 10 40 60 200 270	UNCLASSIFIED EXCAVATION - UNCLASSIFIED EXCAVATION - UNCLASSIFIED EXCAVATION - ACCEPTABLE, BUT NOT TO BE	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	LICED IN THE TOP 2 FEET OF	HARD CAN BE SCRATCHED BY KNIFE OR PICK ONLY WITH DIFFICULTY, HARD HAMMER BLOWS REQUIRED 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.		
BOULDER COBBLE GRAVEL COARSE FINE SILT CLAY (BLDR.) (COB.) (GR.) SAND SAND (SL.) (CL.)	SHALLOW UNDERCUT UNCLASSIFIED EXCAVATION - EMBANKMENT OR BACKFILL	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		
(BLDR.) (COB.) (GR.) (CSE. SD.) (F SD.) (SL.) (CL.)	ABBREVIATIONS	HARD EXCAVATED BY HARD BLOW OF A GEOLOGIST'S PICK, HAND SPECIMENS CAN BE DETACHED	OR SLIP PLANE.		
GRAIN MM 305 75 2.0 0.25 0.005	AR - AUGER REFUSAL MED MEDIUM VST - VANE SHEAR TEST	BY MODERATE BLOWS.	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		
SIZE IN. 12 3	BT - BORING TERMINATED MICA MICACEOUS WEA WEATHERED CL CLAY MOD MODERATELY 7 - UNIT WEIGHT	MEDIUM CAN BE GROOVED OR GOUGED 0.05 INCHES DEEP BY FIRM PRESSURE OF KNIFE OR PICK POINT. CAN BE EXCAVATED IN SMALL CHIPS TO PEICES 1 INCH MAXIMUM SIZE BY HARD BLOWS OF THE	WITH A 2 INCH OUTSIDE DIAMETER SPLIT SPOON SAMPLER, SPT REFUSAL IS PENETRATION EQUAL		
SOIL MOISTURE - CORRELATION OF TERMS	CPT - CONE PENETRATION TEST NP - NON PLASTIC $\dot{\gamma}_{ m d}$ - DRY UNIT WEIGHT	POINT OF A GEOLOGIST'S PICK.	TO OR LESS THAN 0.1 FOOT PER 60 BLOWS.		
SOIL MOISTURE SCALE FIELD MOISTURE GUIDE FOR FIELD MOISTURE DESCRIPTION	CSE COARSE ORG ORGANIC DMT - DILATOMETER TEST PMT - PRESSUREMETER TEST SAMPLE ABBREVIATIONS	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 (SRQD) - 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.		
LL LIQUID LIMIT	FOSS FOSSILIFEROUS SLI SLIGHTLY RS - ROCK	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.		
PLASTIC SEMISOLID; REQUIRES DRYING TO	FRAC FRACTURED, FRACTURES TCR - TRICONE REFUSAL RT - RECOMPACTED TRIAXIAL	FRACTURE SPACING BEDDING			
(PI) PLASTIC LIMITATTAIN OPTIMUM MOISTURE	FRAGS FRAGMENTS	TERM SPACING TERM THICKNESS	BENCH MARK: BL-3, N: 395564.0010, E: 2190397.4840		
	EQUIPMENT USED ON SUBJECT PROJECT	VERY WIDE MORE THAN 10 FEET VERY THICKLY BEDDED 4 FEET	ELEVATION: 58.97 FEET		
OM OPTIMUM MOISTURE - MOIST - (M) SOLID; AT OR NEAR OPTIMUM MOISTURE	DRILL UNITS: ADVANCING TOOLS: HAMMER TYPE:	WIDE 3 TO 10 FEET THICKLY BEDDED 1.5 - 4 FEET MODERATELY CLOSE 1 TO 3 FEET THINLY BEDDED 0.16 - 1.5 FEET			
SL _ SHRINKAGE LIMIT	X CME-45C CLAY BITS X AUTOMATIC MANUAL	CLOSE Ø.16 TO 1 FOOT VERY THINLY BEDDED Ø.03 - Ø.16 FEET	NOTES:		
- DRY - (D) REQUIRES ADDITIONAL WATER TO ATTAIN OPTIMUM MOISTURE	6' CONTINUOUS FLIGHT AUGER	VERY CLOSE LESS THAN Ø.16 FEET THICKLY LAMINATED Ø.008 - 0.03 FEET THINLY LAMINATED < 0.008 FEET	FIAD - FILLED IMMEIDATELY AFTER DRILLING		
	CURE_55 S* HOLLOW AUGERS CURE_SIZE:	INDURATION			
PLASTICITY		FOR SEDIMENTARY ROCKS, INDURATION IS THE HARDENING OF MATERIAL BY CEMENTING, HEAT, PRESSURE, ETC.			
PLASTICITY INDEX (PI) DRY STRENGTH NON PLASTIC 0-5 VERY LOW	CME-550 HARD FACED FINGER BITS TUNG,-CARBIDE INSERTS	DURBTING WITH EINGED EDEES NUMEROUS CRAINS.			
SLIGHTLY PLASTIC 6-15 SLIGHT	│ │ VANE SHEAR TEST │ └── │	FRIABLE GENTLE BLOW BY HAMMER DISINTEGRATES SAMPLE,			
MODERATELY PLASTIC 16-25 MEDIUM HIGHLY PLASTIC 26 OR MORE HIGH	X CASING W/ ADVANCER POST HOLE DIGGER	MODERATELY INDURATED GRAINS CAN BE SEPARATED FROM SAMPLE WITH STEEL PROBE;			
	PORTABLE HOIST X TRICONE 215/6 'STEEL TEETH HAND AUGER	BREAKS EASILY WHEN HIT WITH HAMMER.			
COLOR	TRICONE TUNGCARB. SOUNDING ROD	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).	CORE BIT VANE SHEAR TEST	SHARP HAMMER BLOWS REQUIRED TO BREAK SAMPLE;			
MODIFIERS SUCH AS LIGHT, DARK, STREAKED, ETC. ARE USED TO DESCRIBE APPEARANCE.		EXTREMELY INDURATED SHARP HAMMER BLOWS REGULTED TO BREAK SAMPLE; SAMPLE BREAKS ACROSS GRAINS.	DATE: 8-15-1-		

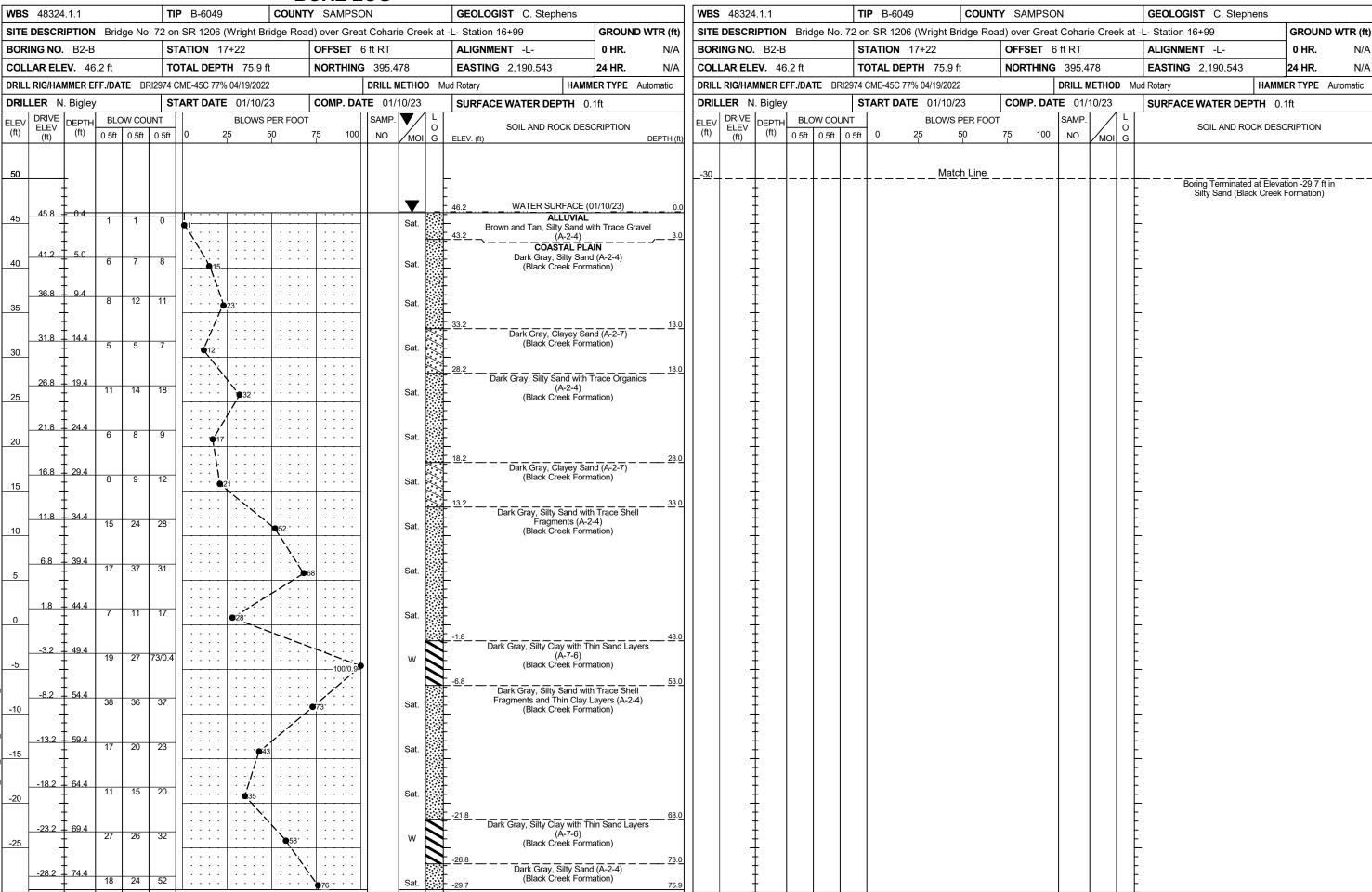




GEOTECHNICAL BORING REPORT BORE LOG



GEOTECHNICAL BORING REPORT BORE LOG



GEOTECHNICAL BORING REPORT BORE LOG

	BORE LO		I I I I I	
WBS 48324.1.1	TIP B-6049 COUNTY SAMPSON	GEOLOGIST C. Stephens		SAMPSON GEOLOGIST C. Stephens
	72 on SR 1206 (Wright Bridge Road) over Great Co		SITE DESCRIPTION Bridge No. 72 on SR 1206 (Wright Bridge R	
BORING NO. B3-A	STATION 17+64 OFFSET 6 ft L		BORING NO. B3-A STATION 17+64	OFFSET 6 ft LT ALIGNMENT -L- 0 HR. N/A NODTUND 0.00 470 5.40 700 0.4 400 500 0.4 400 500 0.4 400 500
COLLAR ELEV. 48.7 ft	TOTAL DEPTH 82.2 ft NORTHING 39		COLLAR ELEV. 48.7 ft TOTAL DEPTH 82.2 ft	NORTHING 395,472
DRILL RIG/HAMMER EFF./DATE BR		L METHOD Mud Rotary HAMMER TYPE Automatic	DRILL RIG/HAMMER EFF./DATE BRI2974 CME-45C 77% 04/19/2022	DRILL METHOD Mud Rotary HAMMER TYPE Automatic
DRILLER N. Bigley FLEV DRIVE DEPTH BLOW COL	START DATE 01/12/23 COMP. DATE	P. V L	DRILLER N. Bigley START DATE 01/12/23 FLEV DRIVE DEPTH BLOW COUNT BLOWS PER FO	COMP. DATE 01/12/23 SURFACE WATER DEPTH N/A
ELEV (ft) DRIVE ELEV (ft) DEPTH BLOW COL		I '/ I O I SOIL AND ROCK DESCRIPTION	ELEV (ft)	OT SAMP. C SOIL AND ROCK DESCRIPTION NO. MOI G
50 48.7 + 0.0		■ 48.7 GROUND SURFACE 0.0		Dark Gray, Silty Sand with Thin Clay Layers
	4 • • • • • • • • • • • • • • • • • •	Sat. ALLUVIAL Brown and Tan, Silty Sand (A-2-4)	-32.9 81.6 90 10/0.1	
45 +		COASTAL PLAIN 3.0	+ 00 100.	100/0.6 Boring Terminated at Elevation -33.5 ft in Silty Sand (Black Creek Formation)
		Dark Gray, Silty Sand with Trace Organics (A-2-4) (Black Creek Formation)		
40 41.1 7.6 15 13	13			
+ 10	26	Sat. Sat.		
37.1 + 11.6 11 13	13			
35	26	Sat. 34.714.0		
32.1 16.6		Dark Gray, Clayey Sand (A-2-7) (Black Creek Formation)		
30 7 16.6 4 5	7	Sat.		
+		29.7		
27.1 21.6		(A-2-4)		
25	25	Sat. (Stack Greak Formulation)		
‡				
22.1 26.6 6 7	15	Sat.		
20				
17.1 31.6 9 19				
15	35 •54 ·· · · · ·	Sat		
12.1 36.6 20 75		Sat. Sat.		
10 1	100/0.7	9.7		
7.1 41.6		Shell and Limestone Fragments (A-6) (Black Creek Formation)		
5 7 8 11	22	W 4.7 44.0		
		Dark Gray and Green, Silty Sand with Trace Organics and Shell Fragments (A-2-4)		
2.1 46.6 24 76/0.4		Sat. (Black Creek Formation)		
	100/0.99			
57,957, -2.9 51.6 10 07				
12 27	54 981	Sat. Sat.		
				<u> </u>
2 -7.9 56.6 22 32		Sat.		
-10 <u></u>				
H -12.9 61.6				
0 -12.9 61.6 11 36 EM -15	35 71	Sat	±	
	:::: :::: :::/: :::/	Dark Gray, Silty Clay with Thin Sand Layers (A-7-6)		
-17.9 T 66.6 21 28 28 20 20 20 21 28		(Black Creek Formation)		
		-20.3		
-22.9 71.6 24 38		(A-2-4)		[-
24 38 <u>-25</u>	52/0.4	Sat. (Diack Creek Pormation)	±	
				<u> </u>
-27.9 T 76.6 24 42	46	Sat.		
일 -30 T				

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SHEET 8

STEDISSCRIPTION Bridge No. 72 on SR 1206 (Winght Bridge Road) over Great Coharie Creek at 4 Station 16+99 GROUNDW	WBS	48324	L 1 1			ТП	P B-6049	COUNT	Y SAMPSO)N		GEOLOGIST C. Ste	nhens		
BORING NO. EB2-8	WBS 48324.1.1 SITE DESCRIPTION Bridge No. 7								e Creek a	· ·					
COLLAR ELEV. 60.0 TOTAL DEPTH 64.3 NORTHING 395.441 EASTING 2.190.628 24 HR						<u>, </u>	lage Road	,				-	-l		
DRILLER N. Bigley START DATE 01/13/23 COMP. DATE 01/13/23 SURFACE WATER DEPTH N/A								/1		2	4	FIAD			
DRILLER N. Bigley START DATE 01/13/23 COMP. DATE 01/13/23 SURFACE WATER DEPTH N/A						NOICHING									
ELEV CRIVE CRIVE					. IL DI				COMP DA						Automatic
EIGN CHAPTER CONTROL OF THE CONTROL												SURFACE WATER D	EPIN N	/A	
State		ELEV										SOIL AND	ROCK DES	CRIPTION	
State															
Sat	60											60.0 GRO	JND SURF.	ACE	0.0
Brown, Coarse Sand with Trace Gravel		59.4	0.6	9	7	5	12				м	59.4 ROADW		KMENT	<u>Γ0.6</u>
Solution			Ŧ					: : : :				Brown, Coarse	Sand with	Trace Grav	rel .
47.1 12.9 8 11 12 23	55	_	F						ļ · · · ·			_	(A-1-b)		
47.1 12.9 8 11 12 23		-	‡				: : : ' : : : : :					-			
47.1 12.9 8 11 12 23	50		‡) -			
47.1 12.9 8 11 12		-	‡						1						10.8
42 1 17 9 9 7 5 42 1 Sat. 37 1 22 9 13 18 17 36	-	47.1	12.9	Ω	11	12								and (A-2-4)	١
Add	45	_	‡	"	''	'2	23				Sat.	_			
Add			4-0				:::/: ::::					- 42.4			17.9
37.1 22.9 13 18 17 33.5 Sat. Sat. 35.0 Dark Gray, Clayey Sand (A-2-7) (Black Creek Formation) 30	40	42.1	17.9	9	7	5	12 · · · · · · · · · · · · · · · · · · ·				Sat.	CO			17.8
35	40	-	‡						1			Dark Gra (Black	, Slity Sand Creek Form	a (A-2-4) ation)	
35 35 35 35 35 35 35 35		37.1	22.9	10	10	17						-			
32.1 27.9 5 6 10	35	-	<u> </u>	13	18	1/					Sat.	35.0	· _	- — — — -	25.0
30		-	<u> </u>				:::: /::::					Dark Gray, (Black	Clayey Saı Creek Form	nd (A-2-7) ation)	
30 Dark Gray and Green, Silty Sand with Trace Organics (A-2-4) (Black Creek Formation) 27 1 32 9 17 24 33 28 11 15 28 Sat. Sat. Sat. Sat. Sat. Sat. Dark Gray and Green, Silty Sand with Trace Organics (A-2-4) (Black Creek Formation) Sat. Sat.		32.1	27.9	5	6	10	16				Sat.				
25	30	-	<u> </u>										reen, Silty S	Sand with T	30.0
25		27.1	32.9									Org (Black	janics (A-2- Creek Form	4) ation)	
20	25		F	17	24	33		5 7···			Sat.	(=		,	
20		-	F				/								
20 17.1 42.9 17 41 36 18.1 Sat. 19.1	-	22.1	37.9	8	11	15		: : : :			Sat				
15	20	_	F				20				Oat.	<u>-</u>			
15		17 1	429					\				-			
10	15			17	41	36			77		Sat.	-			
10		-	‡					/.				-			
10	-	12.1	47.9	8	14	38		; <i>/</i>			0-4				
5	10	-	‡					■ 52 · · ·			Sal.	-			
5		- -	+ - - - - - - - - - -					: : : ` :	`_`:::			-			
Dark Gray, Sandy Clay with Trace Shell and Limestone Fragments (A-6) (Black Creek Formation) 0 Dark Gray, Sandy Clay with Trace Shell and Limestone Fragments (A-6) (Black Creek Formation) 0 Dark Gray, Sitty Sand with Trace Organics (A-2-4) (Black Creek Formation) Sat. 4.3 Boring Terminated at Elevation -4.3 ft in Sitty	5		52.9	16	45	55/0.4					Sat.	5.0			EF (
0 21 57.9 9 10 11 021 W (Black Creek Formation) -2.9 62.9 22 42 58/0.4		-	‡						100/0.9			Dark Gray, Sand	y Clay with	Trace Shell	<u>55.0</u> and
0		2.1	57.9	Δ	10	11					 	Limestor (Black	ı с гладтеп Creek Form	is (A-b) lation)	
-2.9 62.9 (A-2-4) (Black Creek Formation) Sat. 4.3 Boring Terminated at Elevation -4.3 ft in Silty	0	_	‡	"	10	''	021				W	0.0	·		60.0
22 42 58/0.4			†				:::: :::`:`	**************************************	[: : : :]	(A-2-4)		IICS
		-2.9 	62.9	22	42	58/0.4		· · · · · · ·	<u> </u>		Sat.	- -4.3			64.3
		-	<u> </u>						⁻ 100/0.9			Boring TerminateSand (Bla	d at Elevati ck Creek Fo	on -4.3 ft in ormation)	Silty
			‡									<u> </u>		,	
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SITE PHOTOGRAPH

Bridge No. 72 on SR 1206 (Wright Bridge Rd.) over Great Coharie Creek

