7900-8 REFERENCE **CONTENTS**

DESCRIPTION

LEGEND (SOIL & ROCK)

SUPPLEMENTAL LEGEND (GSI)

TITLE SHEET

SITE PLAN

BORE LOGS SOIL TEST RESULTS

CROSS SECTIONS

SITE PHOTOGRAPHS

SHEET NO.

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4-5

6-II

67062

STATE OF NORTH CAROLINA

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

STRUCTURE SUBSURFACE INVESTIGATION

COUNTY ANSON

PROJECT DESCRIPTION BRIDGE NO. 14

OVER SOUTH FORK JONES CREEK ON US 52

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
V.C.	BR-0062	1	

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.

CENERAL 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 LABDRATORY SAMPLE DATA AND THE IN SITU (IN-PLACE) TEST DATA CAN BE RELIED ON ONLY TO THE DEGREE OF RELIABILITY INHERENT IN THE STANDARD TEST METHOD. THE OBSERVED WATER LEVELS OR SOIL MOISTURE CONDITIONS NIDICATED IN THE SUBSURFACE INVESTIGATIONS ARE AS RECORDED AT THE TIME OF THE INVESTIGATION. THESE WATER LEVELS OR SOIL MOISTURE CONDITIONS MAY VARY CONSIDERABLY WITH TIME ACCORDING TO CLIMATIC CONDITIONS INCLUDING TEMPERATURES, PRECIPITATION AND WIND, AS WELL AS OTHER NON-CLIMATIC FACTORS.

THE BIDDER OR CONTRACTOR IS CAUTIONED THAT DETAILS SHOWN ON THE SUBSURFACE PLANS ARE PRELIMINARY ONLY AND IN MANY CASES THE FINAL DESIGN DETAILS ARE DIFFERENT. FOR BIDDING AND CONSTRUCTION PURPOSES, REFER TO THE CONSTRUCTION PLANS 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 GLARANTEE 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 PERFORM INDEPENDENT SUBSURFACE INVESTIGATIONS AND MAKE INTERPRETATIONS AS NECESSARY TO CONFIRM CONDITIONS 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.

J. HOLLAND

R. MAFFIA

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BRIDGER DRILLING

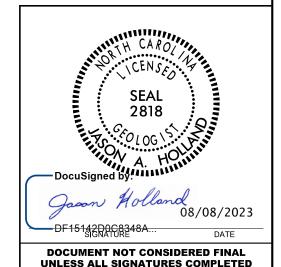
INVESTIGATED BY <u>J.</u> HOLLAND

DRAWN BY _ **J. HOLLAND**

SUBMITTED BY SCHNABEL ENG.

DATE _**JUNE** 2023





PROJECT REFERENCE NO. SHEET NO.

BR-0062

2

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS GEOTECHNICAL ENGINEERING UNIT

SUBSURFACE INVESTIGATION

SOIL AND ROCK LEGEND, TERMS, SYMBOLS, AND ABBREVIATIONS

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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	<u>WELL GRADED</u> - INDICATES A GOOD REPRESENTATION OF PARTICLE SIZES FROM FINE TO COARSE. UNIFORMLY GRADED - INDICATES THAT SOIL PARTICLES ARE ALL APPROXIMATELY THE SAME SIZE.	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 DI586). SOIL CLASSIFICATION IS BASED ON THE AASHTO SYSTEM. BASIC DESCRIPTIONS GENERALLY INCLUDE THE FOLLOWING:	GAP-GRADED - 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 BLOWS IN NON-COASTAL PLAIN MATERIAL, THE TRANSITION BETWEEN SOIL AND ROCK IS OFTEN	AQUIFER - 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:	WEATHERED WIS-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	ANGULAR, SUBANGULAR, SUBROUNDED, OR ROUNDED.	ROCK (WR) 100 BLOWS PER FOOT IF TESTED.	ARTESIAN - GROUND WATER THAT IS UNDER SUFFICIENT PRESSURE TO RISE ABOVE THE LEVEL AT
GENERAL GRANULAR MATERIALS SILT-CLAY MATERIALS ORGANIC MATERIALS	MINERALOGICAL COMPOSITION	CRYSTALLINE FINE TO COARSE GRAIN IGNEOUS AND METAMORPHIC ROCK THAT	WHICH IT IS ENCOUNTERED, BUT WHICH DOES NOT NECESSARILY RISE TO OR ABOVE THE GROUND SURFACE.
ULASS. (\$\sum_{\substack} 35% PASSING *2000) (> 35% PASSING *2000)	MINERAL NAMES SUCH AS QUARTZ, FELDSPAR, MICA, TALC, KAOLIN, ETC. ARE USED IN DESCRIPTIONS WHEN THEY ARE CONSIDERED OF SIGNIFICANCE.	ROCK (CR) WOULD TIELD SPI REFOSAL IF TESTED, ROCK TIPE INCLUDES GRANITE, GNEISS, 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 CLASS. A-1-0 A-1-b A-2-4 A-2-5 A-2-6 A-2-7 A-7-4 A-3-4 A-3 A-6, A-7	COMPRESSIBILITY	NON-CRYSTALLINE FINE TO COARSE GRAIN METAMORPHIC AND NON-COASTAL PLAIN SEDIMENTARY ROCK THAT WOULD YEILD SPT REFUSAL IF TESTED.	COLLUVIUM - ROCK FRAGMENTS MIXED WITH SOIL DEPOSITED BY GRAVITY ON SLOPE OR AT BOTTOM
SYMBOL 000000000000000000000000000000000000	SLIGHTLY COMPRESSIBLE LL < 31 MODERATELY COMPRESSIBLE LL = 31 - 50	ROCK (NCR) ROCK TYPE INCLUDES PHYLLITE, SLATE, SANDSTONE, ETC. COASTAL PLAIN COASTAL PLAIN SEDIMENTS CEMENTED INTO ROCK, BUT MAY NOT YIELD	OF SLOPE.
7. PASSING	MODERATELY COMPRESSIBLE LL = 31 - 50 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 SIL1- MUCK,	PERCENTAGE OF MATERIAL	(CP) SHELL BEDS, ETC. WEATHERING	DIKE - A TABULAR BODY OF IGNEOUS ROCK THAT CUTS ACROSS THE STRUCTURE OF ADJACENT
#40 38 MX 58 MX 51 MN	GRANULAR SILT - CLAY ORGANIC MATERIAL SOILS SOILS OTHER MATERIAL	FRESH ROCK FRESH, CRYSTALS BRIGHT, FEW JOINTS MAY SHOW SLIGHT STAINING, ROCK RINGS UNDER	ROCKS OR CUTS MASSIVE ROCK.
MATERIAL	TRACE OF ORGANIC MATTER 2 - 3% 3 - 5% TRACE 1 - 10%	HAMMER IF CRYSTALLINE.	DIP - THE ANGLE AT WHICH A STRATUM OR ANY PLANAR FEATURE IS INCLINED FROM THE HORIZONTAL.
PASSING *40 40 MX 41 MN 50ILS WITH	LITTLE ORGANIC MATTER 3 - 5% 5 - 12% LITTLE 10 - 20% MODERATELY ORGANIC 5 - 10% 12 - 20% SOME 20 - 35%	VERY SLIGHT ROCK GENERALLY FRESH, JOINTS STAINED, SOME JOINTS MAY SHOW THIN CLAY COATINGS IF OPEN,	DIP DIRECTION (DIP AZIMUTH) - THE DIRECTION OR BEARING OF THE HORIZONTAL TRACE OF THE
PI 6 MX NP 10 MX 10 MX 11 MN 11 MN 10 MX 10 MX 11 MN 11 MN 11 MN 11 MN 11 MN MODERATE HIGHLY	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.	LINE OF DIP, MEASURED CLOCKWISE FROM NORTH,
GROUP INDEX 0 0 0 4 MX 8 MX 12 MX 16 MX NO MX AMOUNTS OF SOLIS	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 SIDES RELATIVE TO ONE ANOTHER PARALLEL TO THE FRACTURE.
USUAL TYPES STONE FRAGS. FINE SILTY OF 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.	FISSILE - A PROPERTY OF SPLITTING ALONG CLOSELY SPACED PARALLEL PLANES.
OF MAJOR GRAVEL, AND SAND GRAVEL AND SAND SOILS SOILS	STATIC WATER LEVEL AFTER 24 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 COOD FAIR TO POOR POOR UNSUITABLE		(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 SUBURADE PUUR	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 - 30 ; PI OF A-7-6 SUBGROUP IS > LL - 30	<u> </u>	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.
CONSISTENCY OR DENSENESS RANGE OF STANDARD RANGE OF UNCONFINED	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 COMPACTNESS 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
IN-VALUE) (TUNS/FT-)	WITH SOIL DESCRIPTION → OF ROCK STRUCTURES	SEVERE ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. ROCK FABRIC CLEAR AND EVIDENT BUT (SEV.) 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 SUPPLIANT TEST BORING SLOPE INDICATOR INSTALLATION	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.
GRANULAR MEDIUM DENSE 10 TO 30 N/A MATERIAL DENSE 30 TO 50	ARTIFICIAL FILL (AF) OTHER AUGER BORING CONE PENETROMETER	IF TESTED, WOULD YIELD SPT N VALUES > 100 BPF ALL ROCK EXCEPT QUARTY DISCOLORED OR STAINED, ROCK FARRIC FLEMENTS ARE DISCERNIBLE	MOTILED (MOT.) - IRREGULARLY MARKED WITH SPOTS OF DIFFERENT COLORS. MOTILING IN SOILS USUALLY INDICATES POOR AERATION AND LACK OF GOOD DRAINAGE.
(NON-COHESIVE) VERY DENSE > 50	THAN ROADWAY EMBANKMENT 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 VESTIGES OF ORIGINAL ROCK FABRIC REMAIN. <i>IF TESTED, WOULD YIELD SPT N VALUES < 100 BPF</i>	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	TEST BORING WELL TEST BORING WITH CORE	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 (COHESIVE) VERY STIFF 15 TO 30 2 TO 4	A PIEZOMETER ORY NAMEDIA	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
HARD > 30 > 4	TTT ALLUVIAL SOIL BOUNDARY ALLUVIAL SOIL BOUNDARY INSTALLATION SPT N-VALUE	ALSO AN EXAMPLE. ROCK HARDNESS	RUN AND EXPRESSED AS A PERCENTAGE.
TEXTURE OR GRAIN SIZE	RECOMMENDATION SYMBOLS	VERY HARD CANNOT BE SCRATCHED BY KNIFE OR SHARP PICK, BREAKING OF HAND SPECIMENS REQUIRES	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 - UNCLASSIFIED EXCAVATION - UNSUITABLE WASTE 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	SHALLOW STEET OF SHALLOW USED IN THE TOP 3 FEET OF	HARD CAN BE SCRATCHED BY KNIFE OR PICK ONLY WITH DIFFICULTY. HARD HAMMER BLOWS REQUIRED	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.) (SR.) (SR.) (CL.)	UNDERCUT ACCEPTABLE DEGRADABLE ROCK EMBANKMENT OR BACKFILL	TO DETACH HAND SPECIMEN. 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 0.005 SIZE IN. 12 3	AR - AUGER REFUSAL MED MEDIUM VST - VANE SHEAR TEST BT - BORING TERMINATED MICA MICACEOUS WEA WEATHERED	BY MODERATE BLOWS. MEDIUM CAN BE GROOVED OR GOUGED 0.05 INCHES DEEP BY FIRM PRESSURE OF KNIFE OR PICK POINT.	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
	CL CLAY MOD MODERATELY γ - UNIT WEIGHT	HARD 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 SOIL MOISTURE SCALE FIELD MOISTURE COURSE TO A MOISTURE DECEMBRISHED TRANSPORTED TO A MOISTURE DECEMBRISHED TO A MOIST	CPT - CONE PENETRATION TEST NP - NON PLASTIC $\gamma_{ m d}$ - DRY UNIT WEIGHT CSE COARSE ORG ORGANIC	POINT OF A GEOLOGIST'S PICK.	TO OR LESS THAN 0.1 FOOT PER 60 BLOWS.
	DMT - DILATOMETER TEST PMT - PRESSUREMETER TEST SAMPLE ABBREVIATIONS	SOFT CAN BE GROVED OR GOUGED READILY BY KNIFE OR PICK, CAN BE EXCAVATED IN FRAGMENTS FROM CHIPS TO SEVERAL INCHES IN SIZE BY MODERATE BLOWS OF A PICK POINT, SMALL, THIN	STRATA CORE RECOVERY (SREC.) - TOTAL LENGTH OF STRATA MATERIAL RECOVERED DIVIDED BY TOTAL LENGTH OF STRATUM AND EXPRESSED AS A PERCENTAGE.
(ATTERBERG LIMITS) DESCRIPTION OF THE MOISTONE DESCRIPTION			
(ATTERBERG LIMITS) DESCRIPTION SUBJECT OF THE STATE OF STREET OF S	DPT - DYNAMIC PENETRATION TEST SAP SAPROLITIC S - BULK	PIECES CAN BE BROKEN BY FINGER PRESSURE.	STRATA RUCK QUALITY DESIGNATION (SKUD) - A MEASURE OF HOUK QUALITY DESCRIBED BY TOTAL
- SATURATED - USUALLY LIQUID; VERY WET, USUALLY (SAT.) FROM BELOW THE GROUND WATER TABLE	DPT - DYNAMIC PENETRATION TEST SAP SAPROLITIC S - BULK e - VOID RATIO SD SAND, SANDY SS - SPLIT SPOON F - FINE SL SILT, SILTY ST - SHELBY TUBE	VERY CAN BE CARVED WITH KNIFE. CAN BE EXCAVATED READILY WITH POINT OF PICK. PIECES 1 INCH	STRATA ROCK QUALITY DESIGNATION (SROD) - A MEASURE OF ROCK QUALITY DESCRIBED BY TOTAL LENGTH OF ROCK SEGMENTS WITHIN A STRATUM EQUAL TO OR GREATER THAN 4 INCHES DIVIDED BY THE TOTAL LENGTH OF STRATA AND EXPRESSED AS A PERCENTAGE.
- SATURATED - USUALLY LIQUID; VERY WET, USUALLY FROM BELOW THE GROUND WATER TABLE PLASTIC - COMMERCIAL DE DECIMINES DEVINES TO	DPT - DYNAMIC PENETRATION TEST SAP SAPROLITIC S - BULK e - VOID RATIO SD SAND, SANDY SS - SPLIT SPOON F - FINE SL SLIT, SILTY ST - SHELBY TUBE FOSS FOSSILIFEROUS SLI SLIGHTLY RS - ROCK	VERY CAN BE CARVED WITH KNIFE. CAN BE EXCAVATED READILY WITH POINT OF PICK. PIECES 1 INCH	SHAIR NOUR UDALITY DESIGNATION CONDUCT A MEASURE OF MUCK UDALITY DESCRIBED BY TUTAL LENGTH OF ROCK SEGMENTS MITHIN A STRATUM EQUAL TO 0 OR GREATER THAN 4 INCHES DIVIDED BY THE TOTAL LENGTH OF STRATA AND EXPRESSED AS A PERCENTAGE. TOPSOIL (TS.) - SURFACE SOILS USUALLY CONTAINING ORGANIC MATTER.
- SATURATED - USUALLY LIQUID; VERY WET, USUALLY FROM BELOW THE GROUND WATER TABLE LIQUID LIMIT PLASTIC - WET - (W) SEMISOLID; REQUIRES DRYING TO	DPT - DYNAMIC PENETRATION TEST SAP, - SAPROLITIC S - BULK e - VOID RATIO SD, - SAND, SANDY SS - SPLIT SPOON F - FINE SL SILT, SILTY ST - SHELBY TUBE FOSS FOSSILIFEROUS SLI SLIGHTLY RS - ROCK FRAC FRACTURED, FRACTURES TCR - TRICONE REFUSAL FRAGS FRAGMENTS W - MOISTURE CONTENT CRR - CALIFORNIA BEARING	VERY CAN BE CARVED WITH KNIFE. CAN BE EXCAVATED READILY WITH POINT OF PICK, PIECES 1 INCH OR MORE IN THICKNESS CAN BE BROKEN BY FINGER PRESSURE. CAN BE SCRATCHED READILY BY FINGERNAIL. FRACTURE SPACING BEDDING	THE TOTAL LENGTH OF STRATA AND EXPRESSED AS A PERCENTAGE.
- SATURATED - USUALLY LIQUID; VERY WET, USUALLY FROM BELOW THE GROUND WATER TABLE PLASTIC - WET - (W) SEMISOLID; REQUIRES DRYING TO	DPT - DYNAMIC PENETRATION TEST SAP SAPROLITIC S - BULK e - VOID RATIO SD SAND, SANDY SS - SPLIT SPOON F - FINE SL SILT, SILTY ST - SHELBY TUBE FOSS FOSSILIFEROUS SLI SLIGHTLY RS - ROCK FRACT FRACTURED, FRACTURES TCR - TRICONE REFUSAL RT - RECOMPACTED TRIAXIAL FRAGS FRAGMENTS W- MOISTURE CONTENT CBR - CALIFORNIA BEARING HI HIGHLY V - VERY RATIO	VERY SOFT CAN BE CARVED WITH KNIFE. CAN BE EXCAVATED READILY WITH POINT OF PICK, PIECES 1 INCH OR MORE IN THICKNESS CAN BE BROKEN BY FINGER PRESSURE. CAN BE SCRATCHED READILY BY FINGERNAIL. FRACTURE SPACING BEDDING IERM SPACING IERM IHICKNESS	THE TOTAL LENGTH OF STRATA AND EXPRESSED AS A PERCENTAGE. TOPSOIL (TS.) - SURFACE SOILS USUALLY CONTAINING ORGANIC MATTER. BENCH MARK: BM-I (N:416759.314, E:16949.430) -L- STA. 19+32.74, 39.27′ RIGHT
PLASTIC LIMIT OM OPTIMUM MOISTURE - SATURATED - USUALLY LIQUID; VERY WET, USUALLY FROM BELOW THE GROUND WATER TABLE - WET - (W) SEMISOLID; REQUIRES DRYING TO ATTAIN OPTIMUM MOISTURE - MOIST - (M) SOLID; AT OR NEAR OPTIMUM MOISTURE	DPT - DYNAMIC PENETRATION TEST SAP SAPROLITIC S - BULK e - VOID RATIO SD SAND, SANDY SS - SPLIT SPOON F - FINE SL SILT, SILTY ST - SHELBY TUBE FOSS FOSSILIFEROUS SLI SLIGHTLY RS - ROCK FRACT FRACTURED, FRACTURES TCR - TRICONE REFUSAL FRAGS FRAGMENTS W- MOISTURE CONTENT HI HIGHLY V - VERY RATIO EQUIPMENT USED ON SUBJECT PROJECT	VERY CAN BE CARVED WITH KNIFE. CAN BE EXCAVATED READILY WITH POINT OF PICK, PIECES 1 INCH SOFT OR MORE IN THICKNESS CAN BE BROKEN BY FINGER PRESSURE. CAN BE SCRATCHED READILY BY FINGERNAIL. FRACTURE SPACING TERM SPACING VERY WIDE MORE THAN 10 FEET VERY THICKLY BEDDED 1.5 - 4 FEET WIDE 3 TO 10 FEET THICKLY BEDDED 1.5 - 4 FEET	THE TOTAL LENGTH OF STRATA AND EXPRESSED AS A PERCENTAGE. TOPSOIL (TS.) - SURFACE SOILS USUALLY CONTAINING ORGANIC MATTER. BENCH MARK: BM-I (N:416759.314, E:16949.430) -L- STA. 19+32.74, 39.27′ RIGHT
PLASTIC RANGE (PI) PL PLASTIC LIMIT OM OPTIMUM MOISTURE SL SHRINKAGE LIMIT OM OPTIMUM MOISTURE SHRINKAGE LIMIT	DPT - DYNAMIC PENETRATION TEST SAP SAPROLITIC S - BULK e - VOID RATIO SD SAND, SANDY SS - SPLIT SPOON F - FINE SL SILT, SILTY ST - SHELBY TUBE FOSS FOSSILIFEROUS SLI SLIGHTLY RS - ROCK FRAC FRACTURED, FRACTURES TCR - TRICONE REFUSAL FRAGS FRAGMENTS W- MOISTURE CONTENT HI HIGHLY V - VERY RATIO EQUIPMENT USED ON SUBJECT PROJECT DRILL UNITS: ADVANCING TOOLS: HAMMER TYPE:	VERY CAN BE CARVED WITH KNIFE. CAN BE EXCAVATED READILY WITH POINT OF PICK, PIECES 1 INCH SOFT OR MORE IN THICKNESS CAN BE BROKEN BY FINGER PRESSURE, CAN BE SCRATCHED READILY BY FINGERNAIL. FRACTURE SPACING TERM SPACING 1ERM VERY WIDE MORE THAN 10 FEET VERY THICKLY BEDDED 4 FEET	THE TOTAL LENGTH OF STRATA AND EXPRESSED AS A PERCENTAGE. TOPSOIL (TS.) - SURFACE SOILS USUALLY CONTAINING ORGANIC MATTER. BENCH MARK: BM-I (N:416759.314, E:16949.430) -L- STA. 19+32.74, 39.27′ RIGHT
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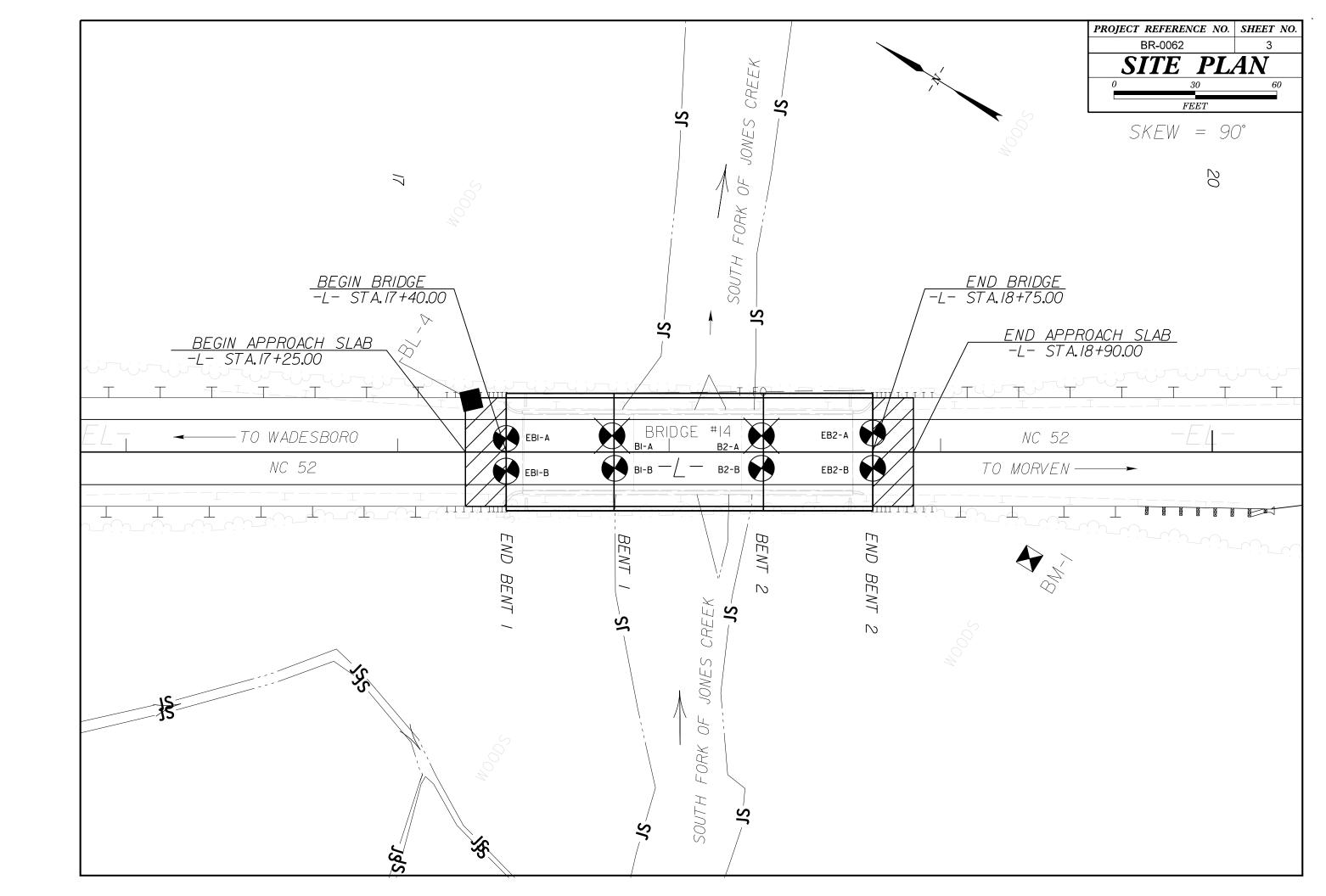
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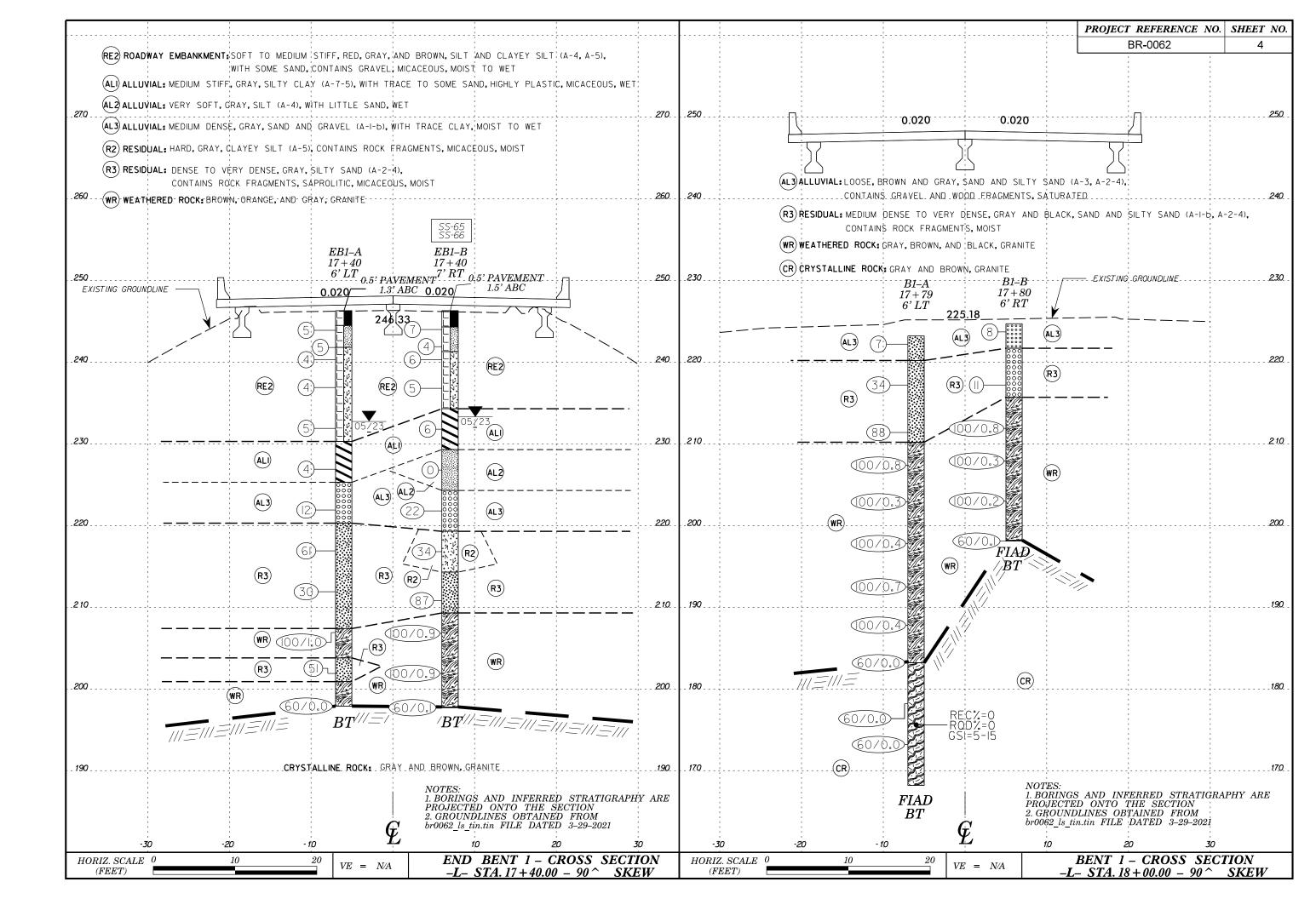
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS GEOTECHNICAL ENGINEERING UNIT

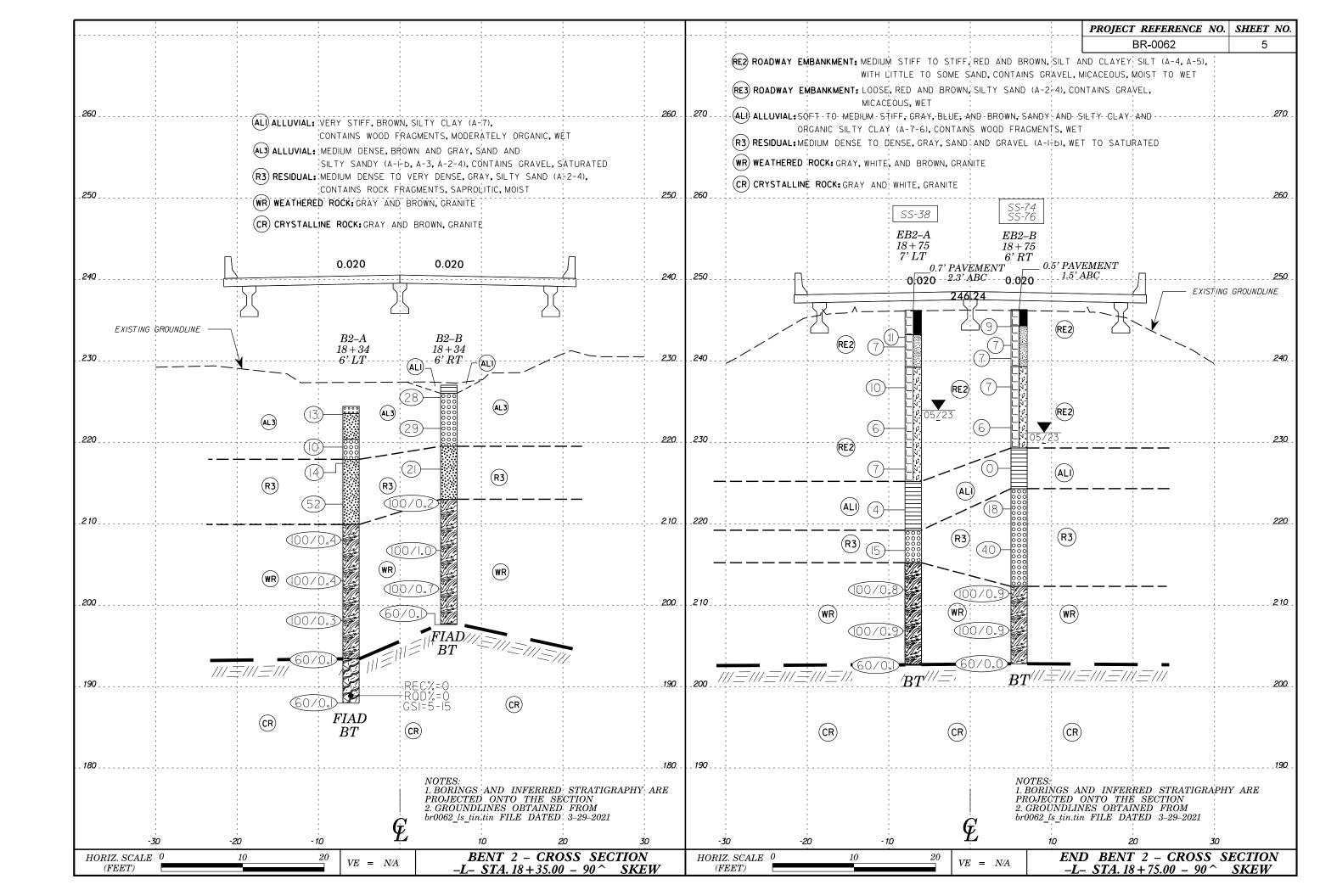
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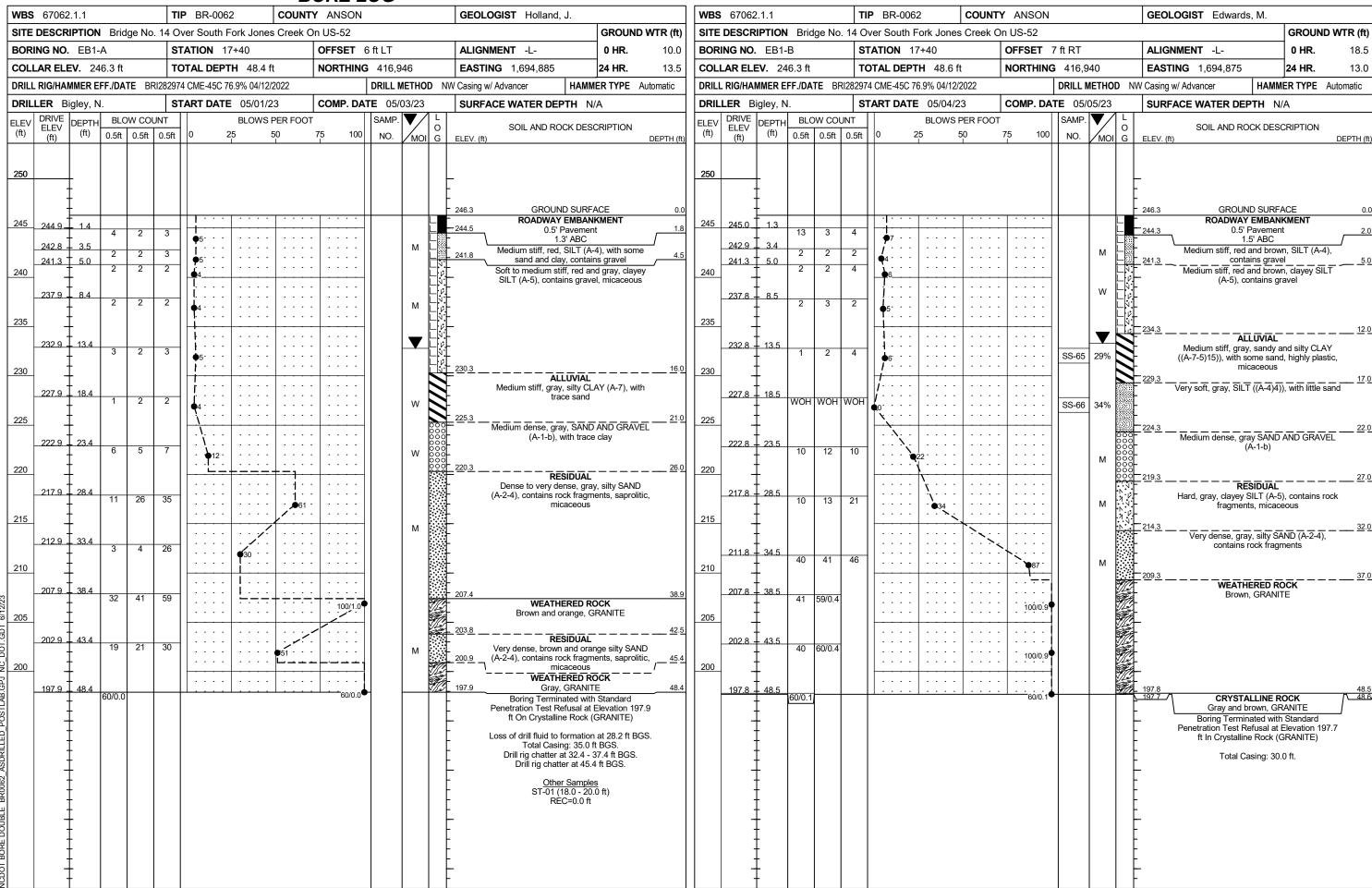
SUPPLEMENTAL LEGEND, GEOLOGICAL STRENGTH INDEX (GSI) TABLES

AASHTO LRFD Figure 10.4.6.4-1 $-$ Determination of GSI for Join	nted Ro	ock Mass (Marinos and Hoek, 2	2000)			AASHTO LRFD Figure 10.4.6.4-2 — Determination of GSI for Tectonically Deformed Heterogeneous Rock Masses (Marinos and Hoek, 2000)
GEOLOGICAL STRENGTH INDEX (GSI)FOR JOINTED ROCKS (Hoek and Marınos, 2000)		aces		σ Φ	S O O	GSI FOR HETEROGENEOUS ROCK MASSES SUCH AS FLYSCH (Marinos. P and Hoek E., 2000)
From the lithology, structure and surface conditions of the discontinuities, estimate the average value of GSI. Do not try to be too precise. Quoting a range from 33 to 37 is more realistic than stating that GSI = 35. Note that the table does not apply to structurally controlled failures. Where weak planar structural planes are present in an unfavorable orientation with respect to the excavation face, these will dominate the rock mass behaviour. The shear strength of surfaces in rocks that are prone to deterioration as a result of changes in moisture content will be reduced if water is present. When working with rocks in the fair to very poor categories, a shift to the right may be made for wet conditions. Water pressure is dealt with by effective stress analysis.	SURFACE CONDITIONS	VERY G00D Very rough, fresh unweathered surfaces 600D Rough, slightly weathered, iron stained surfaces	FAIR Smooth, moderately weathered and altered surfaces	POOR Slickensided, highly weathered surfac with compact coatings or fillings or angular fragments	VERY POOR Slickensided, highly weathered surfac with soft clay coatings or fillings	From a description of the lithology, structure and surface conditions (particularly of the bedding planes), choose a box in the chart. Locate the position in the box that corresponds to the condition of the discontinuities and estimate the average value of GSI from the contours. Do not attempt to be too precise. Grown controlled failures. Where unfavourably oriented continuous weak planar discontinuities are present; these will dominate the behaviour of the rock mass. The strength of some rock masses is reduced by the presence of groundwater and this can be allowed for by a slight shift to the right in the columns for failures. We would be a surface of controlled failures. Water presence of groundwater and this can be allowed for not change the value of plain we appropriate of the rock masses. NERY GOOD - Rough, slightly we approach to the rock mass. The strength of some rock masses is reduced by the presence of groundwater and this can be allowed for not change the value of the rock masses. The strength of some rock masses is reduced by the presence of groundwater and this can be allowed for not change the value of the rock masses. NERY GOOD - Rough, slightly we approach to the rock masses is reduced by the presence of groundwater and this can be allowed for not change the value of the rock masses is reduced by the presence of continuous water present and this can be allowed for not change the value of the rock masses is reduced by the presence of groundwater and this can be allowed for plain the columns for plain the rock masses in the condition of the rock masses. NERY GOOD - Rough, and the rock masses is reduced by the presence of groundwater and this can be allowed for plain the rock masses. The strength and the rock masses are rocked by the presence of groundwater and this can be allowed for plain the rock masses. NEW A COOD - Rough the rock masses are rocked by the presence of groundwater and this continuous water for the rock masses are rocked by the presence of groundwater and this continuous water
STRUCTURE		DECREASING SU	JRFACE QU		>	COMPOSITION AND STRUCTURE
INTACT OR MASSIVE - intact rock specimens or massive in situ rock with few widely spaced discontinuities BLOCKY - well interlocked un-	 PIECES 	90 80		N/A	N/A	A. Thick bedded, very blocky sandstone The effect of pelitic coatings on the bedding planes is minimized by the confinement of the rock mass. In shallow tunnels or slopes these bedding planes may cause structurally controlled instability. A. Thick bedded, very blocky sandstone 70 A 60
disturbed rock mass consisting of cubical blocks formed by three intersecting discontinuity sets VERY BLOCKY - interlocked, partially disturbed mass with multi-faceted angular blocks	OCKING OF ROCK	70 60	0			B. Sand- stone with thin inter- layers of siltstone amounts C. Sand- stone and stone and stone and siltstone or silty shale with sand- stone layers layers B. Weak sultstone or clayey shale with sandstone layers
formed by 4 or more joint sets BLOCKY/DISTURBED/SEAMY - folded with angular blocks formed by many intersecting discontinuity sets. Persistence of bedding planes or schistosity	 ASING INTERLOO		40	30		C.D.E. and G - may be more or less folded than illustrated but this does not change the strength. Tectonic deformation, faulting and loss of continuity moves these categories to F and H.
DISINTEGRATED - poorly inter- locked, heavily broken rock mass with mixture of angular and rounded rock pieces	I —— DECREA I			20		G. Undisturbed silty or clayey shale with or without a few very thin sandstone layers G. Undisturbed silty or clayey shale formed silty or clayey shale forming a chaotic structure with pockets of clay. Thin layers of this sandstone are transformed
LAMINATED/SHEARED - Lack of blockiness due to close spacing of weak schistosity or shear planes	\vec{V}	N/A N/A			10	sandstone are transformed into small rock pieces. Means deformation after tectonic disturbance









										<u> </u>	KE L	.UG							
WBS	67062	.1.1			Т	IP BR-	0062		COUN	TY /	NSON				GEOLOG	IST Maffia,	R.		
SITE	DESCR	IPTION	Bric	lge No	. 14 C	over Sou	ıth Fo	rk Jone	s Creek	On U	S-52							GROUND	WTR (ft)
BORI	NG NO.	B1-A			s	TATION	17+	+79		OF	FSET	6 ft LT			ALIGNME	NT -L-		0 HR.	N/A
COLL	AR ELE	V . 22	23.2 ft		Т	OTAL D	EPTH	f 55.01	ft	NC	RTHING	3 416,9	913		EASTING	1,694,906		24 HR.	FIAD
DRILL	RIG/HAI	MER E	FF./DA	TE BF	RI42142	24 CME-4	5C 83.	4% 08/24	/2022			DRILL I	METHO	D N	W Casing w/ A	dvancer	HAMM	ER TYPE	Automatic
DRIL	L ER R	adford,	М.		s	TART D	ATE	05/02/2	23	CC	MP. DA	TE 05/	03/23		SURFACE	E WATER DE	PTH 2.2	2ft	
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLC 0.5ft	0.5ft	JNT 0.5ft	0	25		PER FOC	75	100	SAMP. NO.	MOI	L O G	ELEV. (ft)	SOIL AND RO	OCK DESC	CRIPTION	DEPTH (ft)
225	- - - -	- - - - -											•		- - - - 	WATER SU	IRFACE (0 ND SURFA		. – – –
	223.2	0.0	2	4	3	1.7			1				Sat.		223.2	Al	LLUVIAL		0.0
220	218.2	- - - - 5.0	11	16	18		· · · · · · · · · · · · · · · · · · ·	- 1 - 1 - 34					Julia				wood fragr ESIDUAL	nents	3.0
215	_	_						· · · `		•			М		-				
210	212.4 - -	- - 10.8 - -	21	45	43		· · · · · · · · · · · · · · · · · · ·		· `. `, · · · · · · · · ·		. • 88. □			· ·	- - - - 210.2			-	<u> 13.0</u>
	208.2	15.0					[. [-	WEATH Gray and I	HERED RC brown, GR		
205		- ····· - -	30	70/0.3			· · ·				100/0.8				- - -	,	,		
200	203.2	20.0 - -	100/0.3	3			· ·				100/0.3				- - -				
105	198.2	25.0 -	100/0.4	1							100/0.4				- - -				
195	193.2 -	- 30.0 -	58	42/0.2							100/0.7				- - -				
190	188.2 -	- - - 35.0 -	100/0.4	1			· · ·				100/0.4				- - - -				
185	183.2	- - 40.0	60/0.0	-			· ·				60/0.0				- - 183.2	CRYST	ALLINE RO	<u>о</u> ск	40.0
180	178.2	- - - 45.0	60/0.0	-			· ·				60/0.0				- - - -	REC RQI	C=0% (0.0') D=0% (0.0') SSI=5-15)	
175	- - 173.2	- - - - - 50.0								- -					- - - -				
170			60/0.0								60/0.0				- - - - 168.2				55.0
	- - - - - - -	-														Total C Initial SPT re	Rock (GR. mudline: 23 casing: 60.0 fusal at 40. al at 50.0 ft	ANITE) 3.3 ft. 0 ft. 0 ft BGS. BGS.	

COLLAR ELEV. 223.2 ft TOTAL DEPTH 55.0 ft NORTHING 416,913 EASTING 1,694,906 24 HR. FIAD		67062				L	BR-00			OUNT						GEOLO	GIST Ma	ffia, R.			
COLLAR ELEV. 223.2 ft TOTAL DEPTH 55.0 ft NORTHING 416,913 EASTING 1,694,906 24 HR. FIAD	SITE	DESCR	IPTION	Brid	ge No. 1				nes C	reek C										ł	ND WTR (ft)
DRILL RIG/HAMMER EFF, DATE BRI421424 CME-45C 83.4% 08/24/2022 DRILL METHOD NW Casing w/ Advancer HAMMER TYPE Automatic DRILLER Radford, M. START DATE 05/02/23 COMP. DATE 05/03/23 SURFACE WATER DEPTH 2.2ft	BOR	ING NO	. B1-A			-					OFFS	SET 6	ft L	-						0 HR.	N/A
START DATE 05/02/23 COMP. DATE 05/03/23 SURFACE WATER DEPTH 2.2ft											NOR					<u> </u>					FIAD
TOTAL RUN 5.0 ft TOTAL RUN 5.0 ft	DRIL	L RIG/HA	MMER E	FF./DA	TE BRI42	21424 C	ME-450	83.4% 08	/24/202	2			DRIL	L METH	OD NV	Casing w/	Advancer		HAMM	ER TYPE	Automatic
RUN City RUN RUN City	DRIL	LER R	adford,	M.		STAI	RT DA	TE 05/0	2/23		COM	P. DAT	E (5/03/23	3	SURFAC	CE WATER	R DEPT	H 2.2	2ft	
173.2 50.0 5.0 0.53/1.0 (0.0) (0.0	COR		NQ		T			N 5.0 ft	0.75												
173.2	ELEV (ft)	ELEV			RATE	REC. (ft) %	RQD (ft) %		REC. (ft)	RQD (ft) %	0	ELEV. (ft))		С	DESCRIPTION	ON AND RE	MARKS			DEPTH (ft
1:31/1.0 1:31/1.0 1:27/1.0 168.2 55.0 1:52/1.0 168.2 55.0 1:52/1.0 168.2 REC=0% (0.0') RQD=0% (0.0') GSI=5-15 Boring Terminated at Elevation 168.2 ft In Crystalline Rock (GRANITE) Deck to mudline: 23.3 ft. Total Casing: 60.0 ft. Initial SPT refusal at 40.0 ft BGS. Bit refusal at 50.0 ft BGS.	173.2		50.0	5.0						(0.0)						CRYS	TALLINE R	OCK			
168.2	170		-		1:31/1.0	0%	0%		0%	0%											
Boring Terminated at Elevation 168.2 ft In Crystalline Rock (GRANITE) Deck to mudline: 23.3 ft. Total Casing: 60.0 ft. Initial SPT refusal at 40.0 ft BGS. Bit refusal at 50.0 ft BGS.		168.2	55.0									168.2				RG	QD=0% (0.0'				55.0
Deck to mudline: 23.3 ft. Total Casing: 60.0 ft. Initial SPT refusal at 40.0 ft BGS. Bit refusal at 50.0 ft BGS.			‡									,	\B	orina Ter	minated			Crvstallir	ne Rock	(GRANIT	
			+ + + + + + + + + + + + + + + + + + +										В	oring Ter		Deck to Total Initial SPT r Bit refus	o mudline: 23 Casing: 60.0 refusal at 40 sal at 50.0 ft	3.3 ft. 0 ft. .0 ft BGS BGS.	š.	(GRANIT	E)
		-																			

									UKE							
WBS	67062	2.1.1			TI	IP BR-006	2	COUNT	Y ANSC	N				GEOLOGIST Holland, J.		
SITE	DESCR	IPTION	I Brid	ge No	. 14 C	ver South F	ork Jones	Creek C	n US-52						GROUND	WTR (ft)
BOR	ING NO.	. B1-B	1		S	TATION 1	7+80		OFFSE	Г 6	ft RT			ALIGNMENT -L-	0 HR.	24.2
COL	LAR ELI	EV . 22	24.7 ft		T	OTAL DEPT	H 26.6 ft	t	NORTH	ING	416,90	06		EASTING 1,694,897	24 HR.	FIAD
DRILI	RIG/HA	MMER E	FF./DA	TE BR	RI42142	24 CME-45C 8	3.4% 08/24/2	2022			DRILL M	IETHO	D NW	/ Casing w/ Advancer HAMM	ER TYPE A	Automatic
DRIL	LER R	adford,	М.		S	TART DATE	05/04/2	3	COMP.	DAT	E 05/0)4/23		SURFACE WATER DEPTH 1.	5ft	
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)		0.5ft			BLOWS F	PER FOOT			SAMP. NO.	MOI	L O G	SOIL AND ROCK DES		DEPTH (ft
225 220 215 210	224.7 =	6.5	6 20 100/0.3		5 63/0.3	•8 · · · · · · · · · · · · · · · · · · ·			100/			Sat.	0000	WATER SURFACE ((.224.7 GROUND SURF. ALLUVIAL Loose, brown, SAND (A-3), RESIDUAL Medium dense, gray and bla GRAVEL (A-1 215.7 WEATHERED RO Gray, brown, and, black	CE contains grav	
205	203.2	21.5	100/0.2						100/					. 198.2		26.5
			60/0.1						60/	J.1				Gray and brown, GF Boring Terminated with Penetration Test Refusal at ft In Crystalline Rock (0 Deck to mudline: 2 Total Casing: 30 Drill fluid color change to gra Rig Chatter at 9.0 f Rig chatter at 22.0 i Split spoon sample at 6.5 ft no recovery.	ANITE Standard Elevation 198 GRANITE) 1.8 ft. 0 ft. y a 9.0 ft BGS it BGS.	S.

SHEET 8

N/A

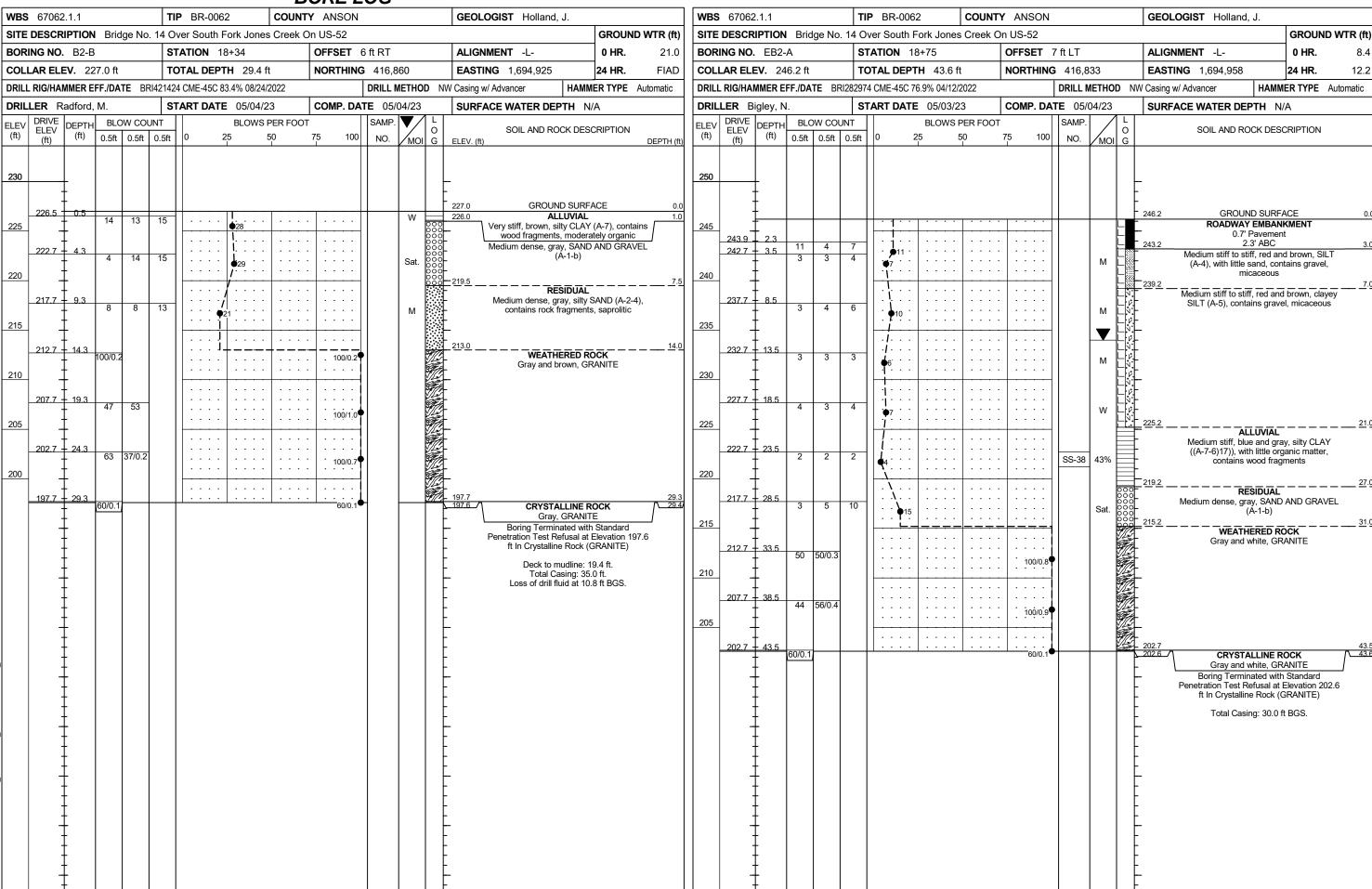
FIAD

DEPTH (ft)

GROUND WTR (ft)

HAMMER TYPE Automatic

DRILLER Radford, M. START DATE 05/01/23 COMP. DATE 05/02/23 SURFACE WATER DEPTH 0.7ft ELEV (ft) (ft) (ft) (ft) (ft) (ft) (ft) (ft)	ODOLIND ME
BORING NO. B2-A	
COLLAR ELEV. 224.4 ft TOTAL DEPTH 36.4 ft NORTHING 416,867 EASTING 1,694,935 DRILL RIG/HAMMER EFF,/DATE BRI421424 CME-45C 83.4% 08/24/2022 DRILL METHOD NW Casing w/ Advancer HAMMER TYPE Automatic DRILLER Radford, M. START DATE 05/01/23 COMP. DATE 05/02/23 SURFACE WATER DEPTH 0.7ft ELEV (ft) (ft) (ft) (7ft) (ft) (7ft) (7ft) (7ft) (7ft) (ft) (7ft) (ft) (ft) (ft) (ft) (ft) (ft) (ft) (GROUND W
DRILL RIG/HAMMER EFF./DATE BRI421424 CME-45C 83.4% 08/24/2022 DRILL METHOD NW Casing w/ Advancer HAMMER TYPE Automatic DRILLER Radford, M. START DATE 05/01/23 COMP. DATE 05/02/23 SURFACE WATER DEPTH 0.7ft ELEV (ft) DRIVE (LEV (ft) (ft) 0.5ft 0.ft NO. MOI G ELEV. (ft) DEPTH (ft) RATE RATE RATE RATE RATE RATE RATE RATE	0 HR.
DRILLER Radford, M. START DATE 05/01/23 COMP. DATE 05/02/23 SURFACE WATER DEPTH 0.7ft	24 HR.
ELEV DRIVE ELEV (ft) (MMER TYPE Auto
CRYSTALLINE ROCK CRYSTALLINE	0.7ft
230 Begin Coring @ 31.1 ft 193.3 193.3 + 31.1 5.0 0:19/1.0 (0.0) (0.0) (0.0) CRYSTALLINE ROCK	
230 Begin Coring @ 31.1 ft 193.3 193.3 + 31.1 5.0 0:19/1.0 (0.0) (0.0) (0.0) CRYSTALLINE ROCK	
193.3 + 31.1 5.0 0:19/1.0 (0.0) (0.0) (0.0) (0.0) CRYSTALLINE ROCK	D
† Brown and gray, GRANITE	
225 234 4 0.0 WATER SURFACE (05/01/23)	
225 WATER SURFACE (05/01/23) 0:41/1.0 0:45/1.0 0:45/1.0 0:45/1.0 0:45/1.0	
Porting Terminated with Standard Penetration Test Po	usal at Elevation
Deck to mudline: 22.0 ft. Total Casing: 55.0 ft.	
220 220.4	
Rock core from 31.1 to 36.1 ft BGS. 218.4	
10.4	
Medium dense to very dense, gray, silty SAND (A-2-4), contains rock fragments	
$\begin{array}{ c c c c c c c c c c c c c c c c c c c$	
208.4 16.0	
208.4	
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	
- 100/0.3	
193.4 31.0 31.0 31.0 31.0 31.0 31.0 31.0 4 CRYSTALLINE ROCK	
195 193.4 31.0 60/0.1 190.03 100/0.3 100/0.3 100/0.1 193.4 CRYSTALLINE ROCK Brown and gray, GRANITE REC=0% (0.0') RQD=0% (0.0') GSI=5-15 36.4	
190	
RQD=0% (0.0°) GSI=5-15	
188.1 36.3	
Penetration Test Refusal at Elevation 188.0 - ft In Crystalline Rock (GRANITE)	
Deck to mudline: 22.0 ft. Total Casing: 55.0 ft. Deck to mudline: 22.0 ft. Total Casing: 55.0 ft. Deck to mudline: 22.0 ft. Total Casing: 55.0 ft	
193.4 31.0 500.1	



WBS	67062	.1.1			TII	P BR-0062		COUNTY	ANSON				GEOLOGIST Edwards, M.	
SITE	DESCR	IPTION	Brid	ge No	. 14 O	ver South F	ork Jones	Creek O	n US-52					GROUND WTR (ft)
BOR	ING NO.	EB2-	В		ST	TATION 18	+75		OFFSET	6 ft RT			ALIGNMENT -L-	0 HR. 18.5
COL	LAR ELE	V . 24	6.3 ft		TC	OTAL DEPT	H 43.5 ft	:	NORTHIN				EASTING 1,694,947	24 HR. 15.0
DRILI	L RIG/HAI	MER E	FF./DA	TE BF	RI28297	4 CME-45C 76	.9% 04/12/2	2022		DRILL I	METHO	D Mu	ud Rotary HAMM	ER TYPE Automatic
DRIL	.LER Bi	gley, N				TART DATE	05/04/2	3	COMP. D			4	SURFACE WATER DEPTH N	/A
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	0.5ft	0.5ft	JNT 0.5ft	0 2		PER FOOT	75 100	SAMP.	моі	O G	SOIL AND ROCK DESC ELEV. (ft)	CRIPTION DEPTH (ft)
250	-	- -										-	<u>-</u>	
245	245.2	1.1							1				246.3 GROUND SURFA	
245	245.2	- 1.1 -	5	5	4	. •9		<u> </u>	+ : : : :	1		-		
0.40	242.9 241.3	3.4 5.0	4	3	4	• • • • • • • • • • • • • • • • • • •					М		1.5' ABC Medium stiff to stiff, red an (A-4), with some sand, columicaceous	
240	237.8 -	- - - 8.5				.					w		239.3 Loose, red and brown, silty contains gravel, mic Medium stiff, red and brow	aceous /
235	- -	- - -	2	3	4	∳ 7 · · · · · · · · · · · · · · · · · · ·				SS-74			((A-5)1)), contains gravel	
	232.8 -	- - 13.5 -	1	2	4	6					W			
230	227.8 -	- - - 18.5											229.3 ALLUVIAL Very soft, gray and brown,	
225	- -	- - -	WOH	WOH	WOH	(°				SS-76	35%		CLAY ((A-7-6)17)), with little	organic matter
220	222.8 - -	- - 23.5 -	3	7	11	18						0000000	RESIDUAL Medium dense to dense, gray, (A-1-b)	
220	217.8 -	- - - 28.5 -	7	14	26						w	000000	- : :	
215	212.8 -	- - - - 33.5					· · i ·					00000	- - -	
	- 212.0	- 33.3	12	47	53/0.4		: : <u> </u> -	 -	100/0				WEATHERED RO	
210	207.8 -	- - - 38.5							- 100/0.9				Gray and brown, GF	RANITE
205	-	- - -	27	73/0.4					100/0.9	•			-	
	- 202.8 -	- - 43.5				· · · ·	 		<u> </u>				202.8	43.5
		- 43.5 	60/0.0						60/0.0				Boring Terminated with Penetration Test Refusal at ft On Crystalline Rock (Total Casing: 30.	n Standard Elevation 202.8 GRANITE)



BRIDGE NO. 14 OVER SOUTH FORK JONES CREEK ON US 52

						SOIL 1	EST RE	SULTS	3						
SAMPLE	STATION	OEESET	DEPTH INTERVAL	AASHTO		P.I.		% BY	WEIGHT		% PAS	SING (SI	EVES)	%	%
NO.	STATION	OFFSET	DEFIN INTERVAL	CLASS.	L.L	F.I.	C. SAND	F. SAND	SILT	CLAY	10	40	200	MOISTURE	ORGANIC
SS-65	17+40	7' RT	13.5 - 15.0	A-7-5(15)	57	27	29.6	12.4	23.6	34.3	80.4	62.0	48.0	29	-
SS-66	17+40	7' RT	18.5 - 20.0	A-4(4)	26	6	2.2	12.0	70.8	15.1	99.5	99.0	88.0	34.0	-
SS-38	18+75	7' LT	23.5 - 25.0	A-7-6(17)	43	15	1.8	6.4	49.5	42.3	98.5	98.0	93.0	43.0	6.9
SS-74	18+75	6' RT	8.5 - 10.0	A-5(1)	49	3	36.2	22.9	26.6	14.3	70.7	52.0	32.0	28.0	-
SS-76	18+75	6' RT	18.5 - 20.0	A-7-6(17)	42	16	1.4	9.3	48.5	40.8	100.0	99.0	92.0	35.0	-

SITE PHOTOGRAPHS BRIDGE NO. 14 OVER SOUTH FORK JONES CREEK ON US 52



View of US 52 looking southeast.



View of US 52 looking northwest.



View of Bridge 14 over South Fork Jones Creek looking northeast.