7902 REFERENCE

R004 P9 B

STATE OF NORTH CAROLINA

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

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STRUCTURE SUBSURFACE INVESTIGATION

COUNTY **ROWAN**

PROJECT DESCRIPTION BRIDGE NO. 235 OVER BEAVER CREEK ON SR 1322 (EBENEZER RD.)

STATE PROJECT REFERENCE NO. 14 **SF**-790235

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 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 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. ROSE
-	CG2 EXPLORATION
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DATE **SEPTEMBER 2022**



DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PROJECT REFERENCE NO. SHEET NO. SF-790235

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	<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 D1586). 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	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.
AS MINERALOGICAL COMPOSITION, ANGULARITY, STRUCTURE, PLASTICITY, ETC. FOR EXAMPLE, 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 >	ARGILLACEOUS - APPLIED TO ALL ROCKS OR SUBSTANCES COMPOSED OF CLAY MINERALS, OR HAVING 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.
LLASS. (\$ 35% PASSING "200) (> 35% PASSING "200)	MINERAL NAMES SUCH AS QUARTZ, FELDSPAR, MICA, TALC, KAQLIN, ETC. ARE USED IN DESCRIPTIONS WHEN THEY ARE CONSIDERED OF SIGNIFICANCE.	ROCK (CR) WOULD YIELD SPT REFUSAL IF TESTED. ROCK TYPE 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-2-6 A-2-7 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	ROCK TYPE INCLUDES PHYLLITE, SLATE, SANDSTONE, ETC.	OF SLOPE.
6000 do 000 de 1111 de	MODERATELY COMPRESSIBLE LL = 31 - 50 HIGHLY COMPRESSIBLE LL > 50	COASTAL PLAIN COASTAL PLAIN SEDIMENTS CEMENTED INTO ROCK, BUT MAY NOT YIELD 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.
7. PASSING 10 50 MX GRANULAR SILT- CLAY 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 50 MX 51 MN 50 MX 35 MX 35 MX 35 MX 35 MX 36 MN 36 MN 36 MN 36 MN 36 MN 50	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 SOUS 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
LL 48 MX 41 MN 40 MX 41 MN 40 MX 41 MN 40 MX 41 MN LITTLE OR LITTLE OR NP 10 MX 10 MX 10 MX 11 MN 11 MN 10 MX 10 MX 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,
CROLIP INDEX A A A A A A AMY S MY 12 MY 16 MY NO MY AMOUNTS OF URGANIL	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. 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
CEN RATING FAIR TO	─────────────────────────────────────	(MOD.) GRANITOID ROCKS, MOST FELDSPARS ARE DULL AND DISCOLORED, SOME SHOW CLAY. ROCK HAS	PARENT MATERIAL.
AS SUBGRADE EXCELLENT TO GOOD FAIR TO POOR POOR UNSUITABL	E → SPRING OR SEEP	DULL SOUND UNDER HAMMER BLOWS AND SHOWS SIGNIFICANT LOSS OF STRENGTH AS COMPARED 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		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	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 CONSISTENCY PENETRATION RESISTENCE COMPRESSUE 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	ITS LATERAL EXTENT.
GENERALLY VERY LOOSE	SOIL SYMBOL SOIL SYMBOL SUPE 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.
MATERIAL MEDIUM DENSE 10 TO 30 N/A	图	IF TESTED, WOULD YIELD SPT N VALUES > 100 BPF	MOTILED (MOT.) - IRREGULARLY MARKED WITH SPOTS OF DIFFERENT COLORS. MOTILING IN SOILS USUALLY INDICATES POOR AERATION AND LACK OF GOOD DRAINAGE.
(NON-COHESIVE) DENSE 30 TO 50 VERY DENSE > 50	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 SILT-CLAY MEDIUM STIFF 4 TO 8 0.5 TO 1.0	INFERRED ROCK LINE MONITORING WELL TEST BORING	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	WITH COLE	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 PIEZOMETER INSTALLATION 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 - UNCLASSIFIED EXCAVATION - UNCLASSIFIED EXCAVATION - UNSUITABLE WASTE	VERY HARD CANNOT BE SCRATCHED BY KNIFE OR SHARP PICK. BREAKING OF HAND SPECIMENS REQUIRES SEVERAL HARD BLOWS OF THE GEOLOGIST'S PICK.	SILL - AN INTRUSIVE BODY OF IGNEOUS ROCK OF APPROXIMATELY UNIFORM THICKNESS AND
DPENING (MM) 4.76 2.00 0.42 0.25 0.075 0.053	UNSUITABLE WASTE WEED IN THE TOP 3 FEET OF SHALLOW UNCLASSIFIED EXCAVATION - 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	UNDERCUT ACCEPTABLE DEGRADABLE ROCK EMBANKMENT OR BACKFILL	TO DETACH HAND SPECIMEN.	SLICKENSIDE - POLISHED AND STRIATED SURFACE THAT RESULTS FROM FRICTION ALONG A FAULT
(BLDR.) (COB.) (GR.) (CSE. SD.) (F SD.) (SL.) (CL.)	ABBREVIATIONS	MODERATELY CAN BE SCRATCHED BY KNIFE OR PICK, GOUGES OR GROOVES TO 0.25 INCHES DEEP CAN BE 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 0.05 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
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. HARD CAN BE EXCAVATED IN SMALL CHIPS TO PEICES 1 INCH MAXIMUM SIZE BY HARD BLOWS OF THE	A 140 LB. HAMMER FALLING 30 INCHES REQUIRED TO PRODUCE A PENETRATION OF 1 FOOT INTO SOIL WITH A 2 INCH OUTSIDE DIAMETER SPLIT SPOON SAMPLER. SPT REFUSAL IS PENETRATION EQUAL
SOIL MOISTURE - CORRELATION OF TERMS	\perp CPT - CONE PENETRATION TEST NP - NON PLASTIC $\gamma_{ m d}$ - 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 (ATTERBERG LIMITS) 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 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.
- SATURATED - USUALLY LIQUID; VERY WET, USUALLY	DPT - DYNAMIC PENETRATION TEST SAP SAPROLITIC S - BULK	PIECES CAN BE BROKEN BY FINGER PRESSURE.	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
(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 SOFT OR MORE IN THICKNESS CAN BE BROKEN BY FINGER PRESSURE. CAN BE SCRATCHED READILY BY	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.
PLASTIC	FOSS FOSSILIFEROUS SLI SLIGHTLY RS - ROCK FRAC FRACTURED, FRACTURES TCR - TRICONE REFUSAL RT - RECOMPACTED TRIAXIAL	FINGERNAIL.	TOPSOIL (TS.) - SURFACE SOILS USUALLY CONTAINING ORGANIC MATTER.
RANGE - WET - (W) SEMISOLID; REGUINES DATING TO	FRAC FRACTURED, FRACTURES TCR - TRICONE REFUSAL RT - RECOMPACTED TRIAXIAL FRAGS FRAGMENTS W - MOISTURE CONTENT CBR - CALIFORNIA BEARING	FRACTURE SPACING BEDDING	BENCH MARK: BM-2 N: 650102 E: 1527419
PLASTIC LIMIT ATTAIN OPTIMUM MOISTURE	HI HIGHLY V - VERY RATIO	TERM SPACING TERM THICKNESS	DETROIT THINKING BIN E. AT COOKE ET DET TO
	EQUIPMENT USED ON SUBJECT PROJECT	VERY WIDE MORE THAN 10 FEET VERY THICKLY BEDDED 4 FEET WIDE 3 TO 10 FEET THICKLY BEDDED 1.5 - 4 FEET	ELEVATION: 705.08 FEET
OM OPTIMUM MOISTURE - MOIST - (M) SOLID; AT OR NEAR OPTIMUM MOISTURE	DRILL UNITS: ADVANCING TOOLS: HAMMER TYPE:	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:
OM OPTIMUM MOISTURE - MUIST - (M) SULID; AT UR NEAR OPTIMUM MUISTURE SL SHRINKAGE LIMIT			
SL SHRINKAGE LIMIT REQUIRES ADDITIONAL WATER TO	CME-45C CLAY BITS X AUTOMATIC MANUAL	VERY CLOSE LESS THAN 0.16 FEET THICKLY LAMINATED 0.008 - 0.03 FEET	FIAD - FILLED IMMEDIATELY AFTER DRILLING
SL SHRINKAGE LIMIT - DRY - (D) REQUIRES ADDITIONAL WATER TO ATTAIN OPTIMUM MOISTURE	CME-45C CLAY BITS X AUTOMATIC MANUAL CME-55 CORE SIZE:	THINLY LAMINATED < 0.008 FEET	
SHRINKAGE LIMIT - DRY - (D) REQUIRES ADDITIONAL WATER TO ATTAIN OPTIMUM MOISTURE PLASTICITY	CME-45C CLAY BITS X AUTOMATIC MANUAL CME-55 6 CONTINUOUS FLIGHT AUGER CORE SIZE: B* HOLLOW AUGERS -B -H	THINLY LAMINATED < 0.008 FEET INDURATION	FIAD - FILLED IMMEDIATELY AFTER DRILLING - PAVEMENT/ABC STONE
SL_ SHRINKAGE LIMIT - DRY - (D) REQUIRES ADDITIONAL WATER TO ATTAIN OPTIMUM MOISTURE PLASTICITY PLASTICITY INDEX (PI) DRY STRENGTH	CME-45C	THINLY LAMINATED < 0.008 FEET INDURATION FOR SEDIMENTARY ROCKS, INDURATION IS THE HARDENING OF MATERIAL BY CEMENTING, HEAT, PRESSURE, ETC. PURDING, WITH EINIGED EDGES, NUMEROUS, CRAINS.	
SHRINKAGE LIMIT - DRY - (D) REQUIRES ADDITIONAL WATER TO ATTAIN OPTIMUM MOISTURE - DRY - (D) REQUIRES ADDITIONAL WATER TO ATTAIN OPTIMUM MOISTURE - DRY - (D) REQUIRES ADDITIONAL WATER TO ATTAIN OPTIMUM MOISTURE - DRY - (D) REQUIRES ADDITIONAL WATER TO ATTAIN OPTIMUM MOISTURE - DRY - (D) REQUIRES ADDITIONAL WATER TO ATTAIN OPTIMUM MOISTURE - DRY - (D) REQUIRES ADDITIONAL WATER TO ATTAIN OPTIMUM MOISTURE - DRY - (D) REQUIRES ADDITIONAL WATER TO ATTAIN OPTIMUM MOISTURE - DRY - (D) - DRY - (D) REQUIRES ADDITIONAL WATER TO ATTAIN OPTIMUM MOISTURE - DRY - (D) - DRY - (D)	CME-45C CLAY BITS X AUTOMATIC MANUAL CME-55 6' CONTINUOUS FLIGHT AUGER CORE SIZE: B' HOLLOW AUGERS B-B -H X CME-550 HARD FACED FINGER BITS X -N Q2 -HAND TODIS: HAND TODIS:	THINLY LAMINATED < 0.008 FEET INDURATION FOR SEDIMENTARY ROCKS, INDURATION IS THE HARDENING OF MATERIAL BY CEMENTING, HEAT, PRESSURE, ETC.	
OPTINUM MOISTURE SHRINKAGE LIMIT - DRY - (D) REQUIRES ADDITIONAL WATER TO ATTAIN OPTINUM MOISTURE	CME-45C CLAY BITS X AUTOMATIC MANUAL CME-55 B* HOLLOW AUGERS X CME-550 HARD FACED FINGER BITS X -N Q2 VANE SHEAR TEST CASING W/ ADVANCER CME-45C TUNGCARBIDE INSERTS HAND TOOLS: POST HOLE DIGGER	THINLY LAMINATED < 0.008 FEET INDURATION FOR SEDIMENTARY ROCKS, INDURATION IS THE HARDENING OF MATERIAL BY CEMENTING, HEAT, PRESSURE, ETC. RIABLE RUBBING WITH FINGER FREES NUMEROUS GRAINS; GENTLE BLOW BY HAMMER DISINTEGRATES SAMPLE. MODERATELY INDURATED GRAINS CAN BE SEPARATED FROM SAMPLE WITH STEEL PROBE;	
OPTINUM MOISTURE SHRINKAGE LIMIT - DRY - (D) REQUIRES ADDITIONAL WATER TO ATTAIN OPTINUM MOISTURE	CME-45C CLAY BITS X AUTOMATIC MANUAL GOVERNMENT OF THE PORTABLE HOIST CASING W/ ADVANCER CME-55 CLAY BITS X AUTOMATIC MANUAL CORE SIZE: BOUND OF THE PORTABLE HOIST X ON Q2 HAND FACED FINGER BITS X ON Q2 HAND TOOLS: POST HOLE DIGGER HAND AUGER TRICORE SIZE: AND OF THE PORTABLE HOIST AUTOMATIC MANUAL CORE SIZE: AND OF THE PORTABLE HAND TOOLS: POST HOLE DIGGER HAND AUGER	THINLY LAMINATED < 0.008 FEET INDURATION FOR SEDIMENTARY ROCKS, INDURATION IS THE HARDENING OF MATERIAL BY CEMENTING, HEAT, PRESSURE, ETC. RUBBING WITH FINGER FREES NUMEROUS GRAINS; GENTLE BLOW BY HAMMER DISINTEGRATES SAMPLE. MODERATELY INDURATED GRAINS CAN BE SEPARATED FROM SAMPLE WITH STEEL PROBE; BREAKS EASILY WHEN HIT WITH HAMMER. GRAINS ARE DISEIGNED TO SEPARATE WITH STEEL PROBE.	
OF IMMM MUSTURE SHRINKAGE LIMIT - DRY - (D) REQUIRES ADDITIONAL WATER TO ATTAIN OPTIMUM MOISTURE	CME-45C CLAY BITS X AUTOMATIC MANUAL CME-55 B* HOLLOW AUGERS X CME-550 HARD FACED FINGER BITS X -N Q2 VANE SHEAR TEST CASING W/ ADVANCER PORTABLE HOIST TRICONE STEEL TEETH HAND AUGER X D-50 TRICONE TRUGCARB. SOUNDING ROD	THINLY LAMINATED < 0.008 FEET INDURATION FOR SEDIMENTARY ROCKS, INDURATION IS THE HARDENING OF MATERIAL BY CEMENTING, HEAT, PRESSURE, ETC. RIABLE RUBBING WITH FINGER FREES NUMEROUS GRAINS; GENTLE BLOW BY HAMMER DISINTEGRATES SAMPLE. MODERATELY INDURATED GRAINS CAN BE SEPARATED FROM SAMPLE WITH STEEL PROBE;	
DPTIMUM MOISTURE SHRINKAGE LIMIT - DRY - (D) REQUIRES ADDITIONAL WATER TO ATTAIN OPTIMUM MOISTURE PLASTICITY	CME-45C CLAY BITS X AUTOMATIC MANUAL CME-55 B' HOLLOW AUGERS X CME-550 HARD FACED FINGER BITS VANE SHEAR TEST CASING W/ ADVANCER PORTABLE HOIST TRICONE STEEL TEETH TRICONE STEEL TEETH HAND TOOLS: POST HOLE DIGGER HAND AUGER TRICONE STEEL TEETH HAND AUGER COMMAND AUGER POST HOLE DIGGER HAND AUGER COMMAND AU	THINLY LAMINATED < 0.008 FEET INDURATION FOR SEDIMENTARY ROCKS, INDURATION IS THE HARDENING OF MATERIAL BY CEMENTING, HEAT, PRESSURE, ETC. FRIABLE RUBBING WITH FINGER FREES NUMEROUS GRAINS; GENTLE BLOW BY HAMMER DISINTEGRATES SAMPLE. GRAINS CAN BE SEPARATED FROM SAMPLE WITH STEEL PROBE; BREAKS EASILY WHEN HIT WITH HAMMER. INDURATED GRAINS ARE DIFFICULT TO SEPARATE WITH STEEL PROBE;	

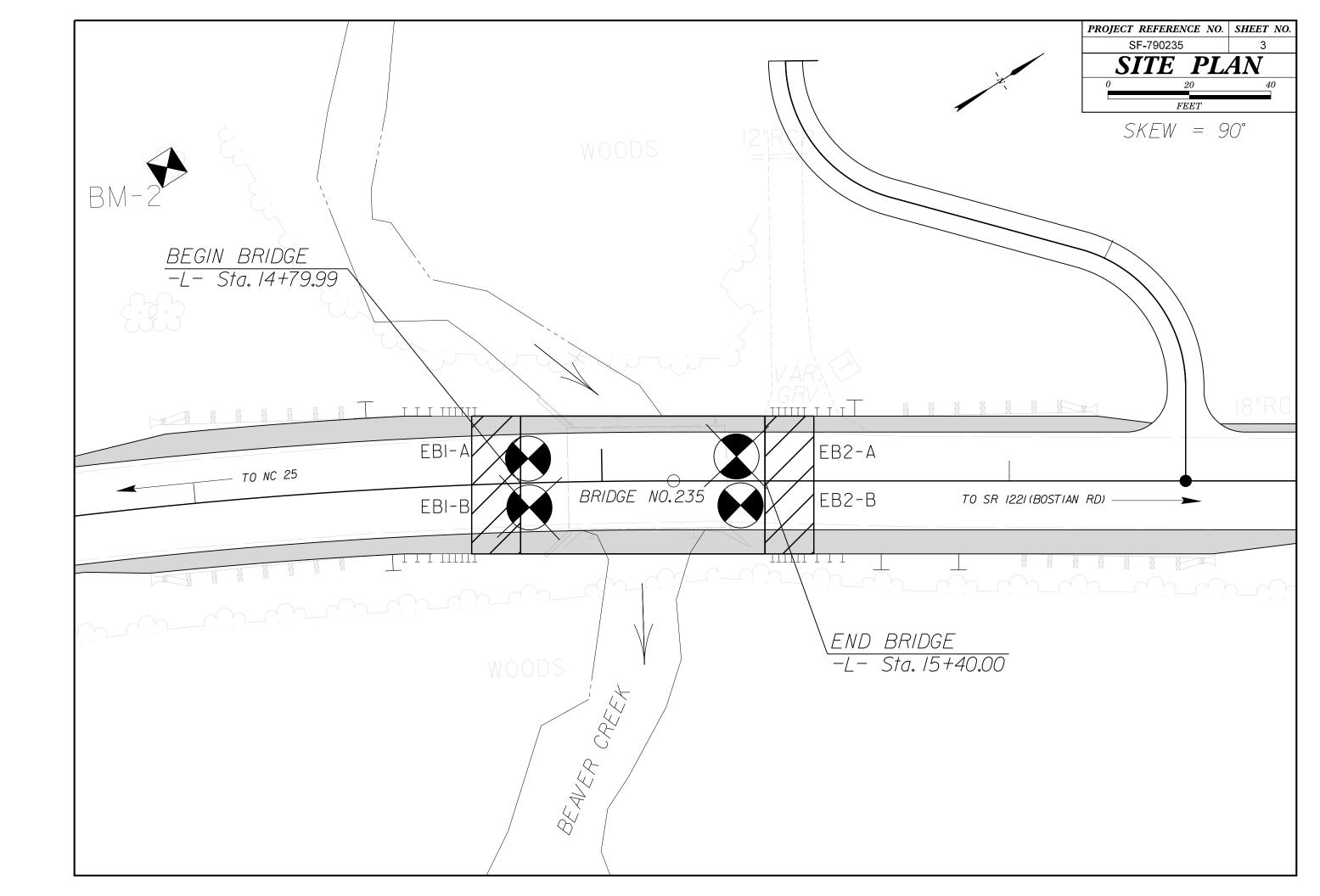
PROJECT REFERENCE NO.	SHEET NO.
SF-790235	2A

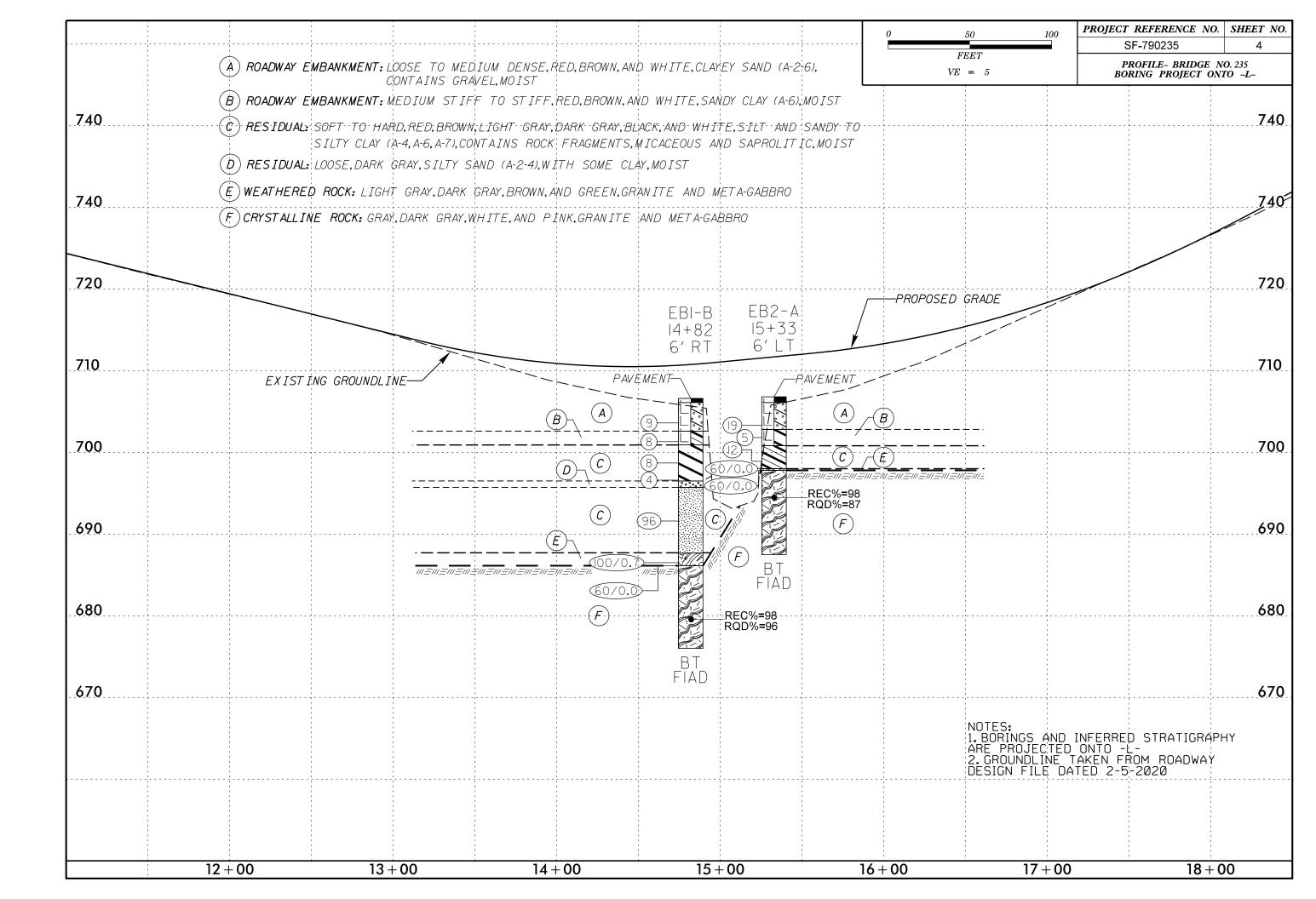
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS GEOTECHNICAL ENGINEERING UNIT

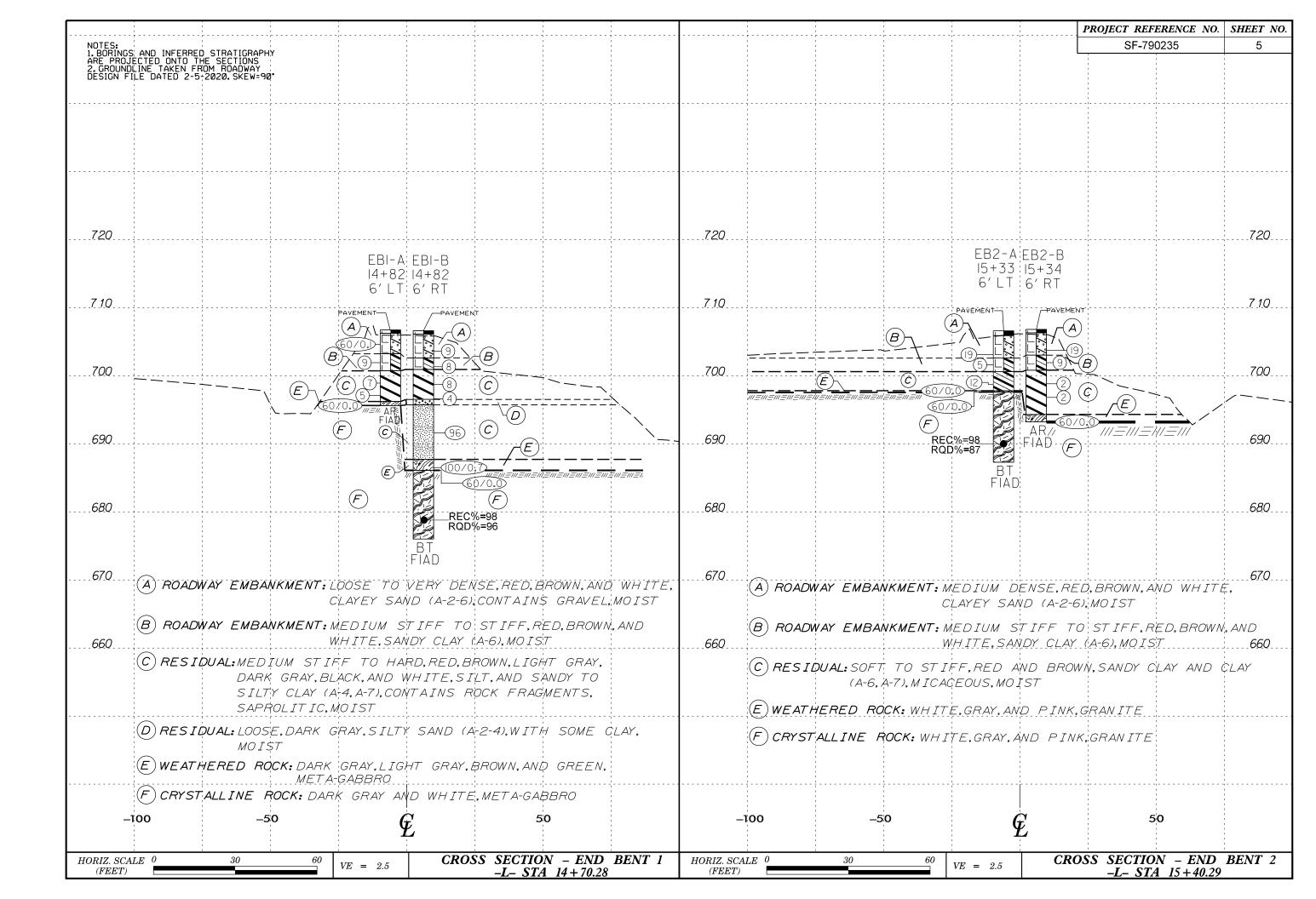
SUBSURFACE INVESTIGATION

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 Def	ormed Heterogeneous Rock	Masses (Marı	nos and Hoek	, 2000)
GEOLOGICAL STRENGTH INDEX (GSI)FOR JOINTED ROCKS (Hoek and Marınos, 2000)		0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		σ Φ	S O C O S	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 GOOD Very rough, fresh unweathered surface: 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. Quoting a range from 33 to 37 is more realistic than giving GSI = 35. Note that the Hoek-Brown criterion does not apply to structurally 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 fair, poor and very poor conditions. Water pressure does not change the value of GSI and it is dealt with by using effective stress analysis.	VERY GOOD - Very Rough, fresh unweathered surfaces GOOD - Rough, slightly weathered surfaces	FAIR - Smooth, moderately weathered and altered surfaces	POOR - Very smooth, occasionally slickensided surfaces with compact coatings or fillings with angular fragments	VERY POOR - Very smooth, slicken- sided or highly weathered surfaces with soft claim coathors or fillings
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.	70 A			
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 stone with siltstone layers of siltstone siltstone siltstone siltstone siltstone siltstone siltstone siltstone layers siltstone siltston	50 B 40	C	D/E	
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 INTERLOC		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.		30	F/ 20	
DISINTEGRATED - poorly inter- locked, heavily broken rock mass with mixture of angular and rounded rock pieces	 			20		G. Undisturbed silty or clayey shale with or without a few very thin sandstone layers While H. Tectonically deformed silty or clayey shale forming a chaotic structure with pockets of clay. Thin layers of		4	F	10
LAMINATED/SHEARED - Lack of blockiness due to close spacing of weak schistosity or shear planes	— IJ -	N/A N/A			10					







WRS	BP9.R	004			TII	P SF-790235	1	ORE L Y ROWAN				GEOLOGIST J. Rose			
			BRIT	GF N		OVER BEAVER CRE			NF7FR	RD)		J. 1056		GROUND	WTR (ff
	ING NO.			JUL IV		ATION 14+82	0/10	OFFSET 6				ALIGNMENT -L-		0 HR.	Dry
	LAR ELE				_	OTAL DEPTH 11.1 ft	•	NORTHING		38		EASTING 1,527,527		24 HR.	FIAD
				F CG		ME-550X 74% 04/08/2022		HORTIMA	DRILL M) HS		НАММЕ	ER TYPE A	
	LER J.		1./0/11	_ 002		ART DATE 09/22/2		COMP. DA			11.0	SURFACE WATER DE			atomatic
LEV	DRIVE	DEPTH	BLC	W CO			PER FOO	l	SAMP.	V /	L				
(ft)	ELEV (ft)	(ft)	'——	0.5ft			50	75 100	NO.	моі	O G	SOIL AND RO	CK DESC	CRIPTION	DEPTH (
710 705	- 704.7	- - - - - 2.0	60/0.1							M		- 706.7 GROUN 706.2 ROADWAY - ASP	ID SURFA EMBANI HALT 0.4 STONE 0.	KMENT	- C
700	702.9 <u> </u>	- 3.8 - 6.8 - 8.6	4 4 3	3	4 2	• • • • • • • • • • • • • • • • • • •				M M M		RED AND BROW	WN, CLA A-2-6), SOME G N, SAND SIDUAL ID LIGHT	RAVEL Y CLAY (A-	6) j
	698.1	-	3 60/0.0		2			60/0.0	-	М		RED, BROWN, AN AND SANDY CLA CONTAINS R WEATH DARK GRAY Boring Termin Penetration Test R ft on CRYS	ID LIGHT AY (A-7), SOCK FRA ERED RO META-C nated with efusal at I	SAPROLITION SAMENTS DCK GABBRO I Standard Elevation 69 ROCK	C, — 11/11 — —
		-										-			

SHEET 6

14					1				BORE L	.OG				
	BP9.R			205		P SF-7			TY ROWAN		DC ,		GEOLOGIST J. Rose	0001010 1175 11
				JGE N				R CREEK ON	<u> </u>		KU.)		ALICAIMENT :	GROUND WTR (f
	NG NO.				_	TATION			OFFSET		00		ALIGNMENT -L-	0 HR. Dr
	AR ELE					OTAL D			NORTHING	1			EASTING 1,527,537	24 HR. FIAI
			F./DAII	E CG2	<u> </u>			5/10/2022	20112 24	DRILL N) SP	, · · · · · · · · · · · · · · · · · · ·	AMMER TYPE Automatic
	LER J. DRIVE		При	W CO		IARIDA		09/23/22 LOWS PER FO	COMP. DA	SAMP.		1 L T	SURFACE WATER DEPTH	N/A
ELEV (ft)	ELEV (ft)	DEPTH (ft)		0.5ft		0	25	50 50	וכ 75 100	NO.	MOI	0	SOIL AND ROCK ELEV. (ft)	DESCRIPTION DEPTH
710	()	-) WICI		LLLV. (it)	
	-	-											- - 706.6 GROUND S - 706.1 ROADWAY EM	
705	704.6	2.0	9	5	4						١.,		- ASPHAL	_T 0.4'
	702.3	4.3				1					M		ABC STO - 702.6 RED, BROWN, AND	WHITE, CLAYEY
700	699.7	- - 6.9	4	4	4	. 68					М		700.9 \ SAND (A	WHITE, SANDY
	-	-	3	4	4	- 8					М		CLAY ((A-6)
	697.6 -	- 9.0 -	2	1	3	4 4	.				М		- 696.5 RED AND BROWN,	CLAY (A-7), WITH 10
695	_						=+=						SOME SAND, CO FRAGM	ENTS [
	692.7 -	- 13.9	22	39	57						1		DARK GRAY, SILTY S SOME (
690	-	-	~~	39	"					6 	M		DARK GRAY, BLACK, (A-4), SAPI	, AND WHITE, SILT
	-						.		<i>!</i>				-	
	687.7 -	- 18.9 -	41	34	100/0.2		: :					7/3	- 687.7 WEATHERE	
685	-								. 100/0.7				- OOO. TO DARK GRAY, BROV - META-GA	VIN, AND GREEN, /
	-	-					.						CRYSTALLI META-GABBRO, D	
	-						:						WHITE, VERY SLIGH	HT WEATHERING,
680	-								. 				HARD TO VERY HAP FELDSPAR HEALED J	JOÍNTS, CONTAINS
	-	_					.						PYRITE INFILLED) FRACTURES
		<u> </u>								Ц			676.0 REC=989 RQD=969	% (9.9') 30 % (9.7')
	-												- Boring Terminated at	Elevation 676.0 ft in
	-												- CRYŠTALLINE ROCK -	(META-GABBRO)
	-												- -	
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GEOTECHNICAL BORING REPORT CORE LOG

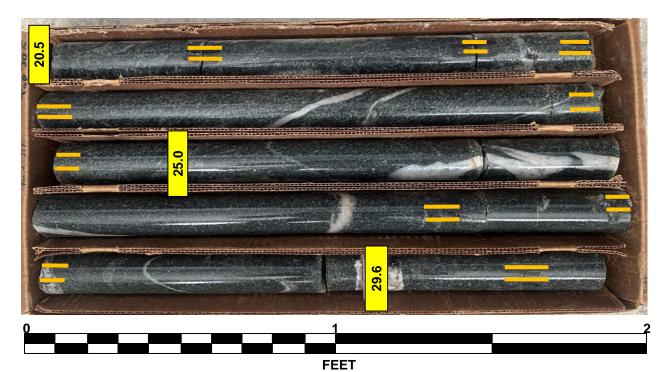
								C	ORE	LOG							
WBS	BP9.R004			TIP	SF-79	0235	С	OUNT	Y ROWAN	1			GEOLOG	IST J. Rose	,		
SITE	DESCRIPTION	BRID	OGE NO.	235 O	VER B	EAVER C	REEK	ON S	R 1322 (EE	ENEZE	R RD.)					GROUI	ND WTR (ft)
BOR	ING NO. EB1-E	3		STA	TION	14+82			OFFSET	6 ft RT			ALIGNME	ENT -L-		0 HR.	Dry
COL	LAR ELEV. 70	6.6 ft		TOT	AL DE	PTH 30.	6 ft		NORTHIN	G 650,	132		EASTING	1,527,537		24 HR.	FIAD
DRILI	L RIG/HAMMER EF	F./DATI	E CG204	16 Diedr	rich D50	87% 05/10	/2022		1			SPT	Core Boring		HAMN	ER TYPE	Automatic
	LER J. Kiker					TE 09/2			COMP. D	ATE 09	9/23/22		SURFACE	E WATER DE	PTH N	'A	
	E SIZE NQ		DDILL			N 10.1 f		ATA									
(ft)	RUN ELEV (ft) DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	REC. (ft) %	JN RQD (ft) %	SAMP. NO.	REC. (ft)	RQD (ft)	L O G			DE	ESCRIPTION	N AND REMA	RKS		
686.08 685 680		4.5	9:32 8:34 10:39 9:7:20/0.5 10:18 17:20 15:50 19:20 9:25/0.6 24:12	(4.3) 96% (4.6) 100%	(4.2) 93% (4.5) 98% (1.0) \(100%)				686.1	WE F	ATHERII HEALED	NG, HA JOINTS	CRYST/ O, DARK GF RD TO VEF S, CONTAIN	ring @ 20.5 f ALLINE ROCK RAY AND WH RY HARD, QU IS PYRITE INF GSI: 75-85 On 676.0 ft in CA-GABBRO)	TE, VERY ARTZ ANI ILLED FR	D FELDSF ACTURES	30.6

CORE PHOTOGRAPHIC RECORD SF-790235

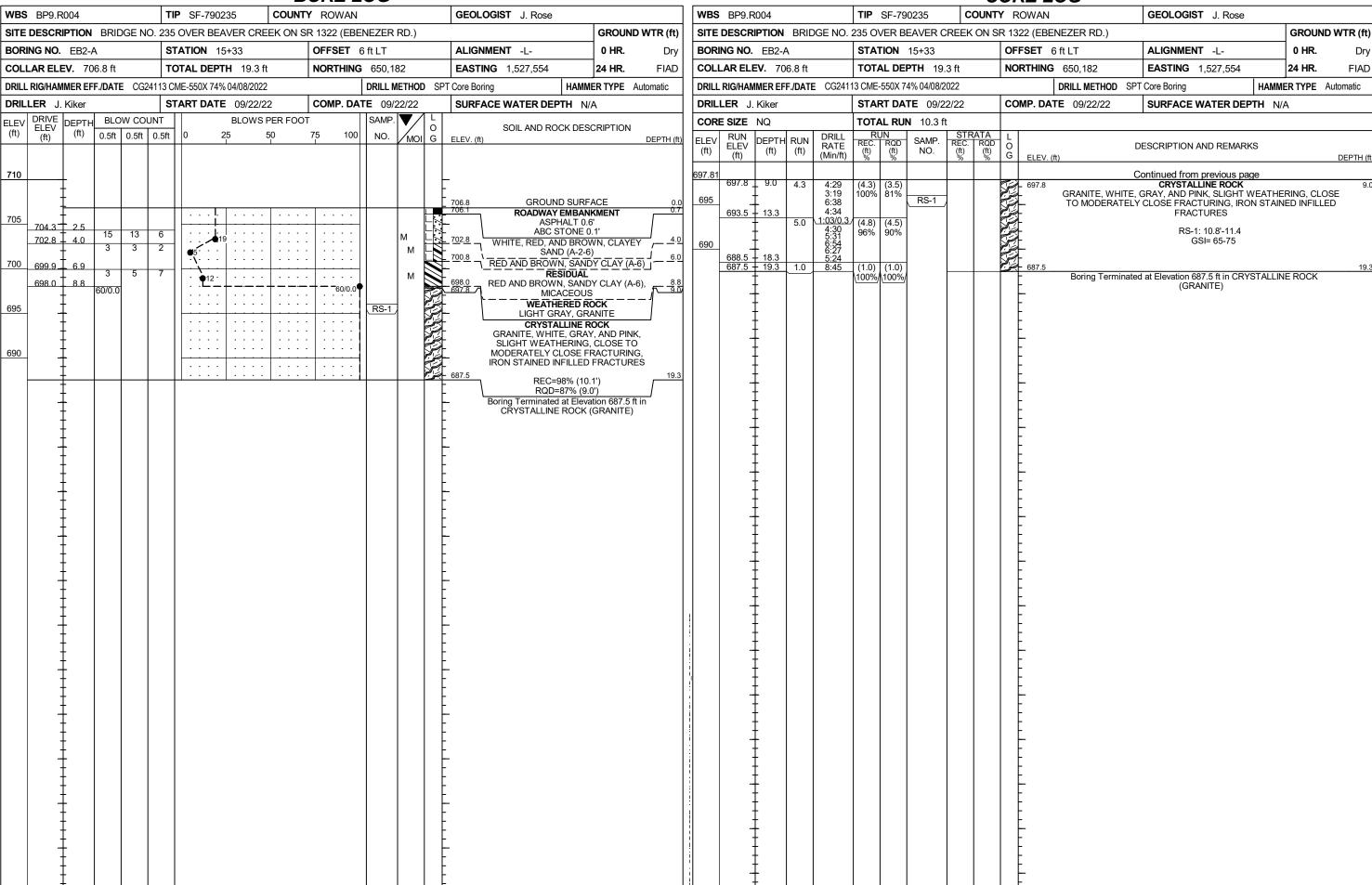
BRIDGE NO. 235 OVER BEAVER CREEK ON SR 1322

EB1-B

BOX 1 of 1: 20.5 - 30.6 FEET



GEOTECHNICAL BORING REPORT CORE LOG



CORE PHOTOGRAPHIC RECORD SF-790235

BRIDGE NO. 235 OVER BEAVER CREEK ON SR 1322

EB2-A

BOX 1 of 1: 9.0 - 19.3 ft



(ft) (ft) (ft) 0.5ft 0.5ft 0.5ft 0 25 50 75 100 NO. MOI G ELEV. (ft) DEPTH (ft) 710							B	ORE L	<u>O</u> G						
SORING NO. EB2-B STATION 15+34 OFFSET 6 ft RT ALIGNMENT L- O HR. Dry	WBS B	P9.R004			TII	P SF-790235	COUNT	Y ROWAN				GEOLOGIST J. Rose			
COLLAR ELEV. 706.8 ft TOTAL DEPTH 13.6 ft NORTHING 650,176 EASTING 1,527,565 24 HR. FIAD	SITE DES	SCRIPTION	BRID	OGE N	O. 235	OVER BEAVER CRE	EK ON S	R 1322 (EBE	NEZER	RD.)				GROUN	D WTR (fi
DRILL RIGHAMMER EFF, DATE CG20446 Diedrich D50 87% 05/10/2022 DRILL METHOD H.S. Augers HAMMER TYPE Automatic	BORING	NO. EB2-	В		ST	ATION 15+34		OFFSET 6	ft RT			ALIGNMENT -L-		0 HR.	Dr
DRILLER J. Kiker START DATE 09/23/22 COMP. DATE 09/23/22 SURFACE WATER DEPTH N/A	COLLAR	RELEV. 70	06.8 ft		TC	OTAL DEPTH 13.6 ft		NORTHING	650,17	76		EASTING 1,527,565		24 HR.	FIA
DRIVE CITY CITY	ORILL RIG	HAMMER EF	FF./DATI	E CG2	20446 Di	edrich D50 87% 05/10/202	22		DRILL M	ETHO	H.S.	Augers	HAMME	R TYPE	Automatic
City City	DRILLER	R J. Kiker			ST	ART DATE 09/23/2	2	COMP. DA	ΓE 09/2	23/22		SURFACE WATER DEF	PTH N/A	4	
705 704.7 2.1	(#) EL	LEV DELL.	٠					I		MOI	0		OCK DESC	RIPTION	DEPTH
	710 PR EL (ft) 710 705 700 695	RIVE LEV (ft) (ft) (ft) (7) (7) (7) (7) (7) (7) (7) (7) (7) (7	0.5ft 14 3 WOH	0.5ft 10 4 WOH	9 5	BLOWS F	PER FOOT	75 100	FE 09/2	M M M	L O G	SURFACE WATER DEF SOIL AND RO ELEV. (ft) TOUR STREET AND BROWN, ASP ABC STREED, BROWN, ASP ABC STREET AND BROWN SOME SILT AND SOME SILT AND BOTH STREET AND	ID SURFA 'EMBANK HALT 0.4' STONE 0. WN, CLA A-2-6) AND WHI AY (A-6) SIDUAL 'N, CLAY O SAND, M ERED RO RAY, GRA nated with efusal at E	CRIPTION ACE (MENT 1' YEY SAND ——— (A-7), WI' AICACEOL NITE Standard Elevation 6	7

SHEET 11

BRIDGE NO. 235 OVER BEAVER CREEK ON SR 1322

						ROCK	TEST RES	JLTS				
				DEPTH	LENGTH	DIAMETER	AREA	VOL	.UME	UNIT WEIGHT	COMPRESSIVE	
BORING	SAMPLE NO.	STATION	OFFSET	INTERVAL (ft)	(in.)	(in.)	(sq. in.)	(in. ³)	(cf)	(pcf)	STRENGTH (psi)	TESTING METHOD
EB2-A	RS-01	15+33	6FT LT	10.8-11.4	4.4	1.98	2.74	12.06	0.00698	160	5640	ASTM D-7012-10 METHOD C

SITE PHOTOGRAPHS BRIDGE NO. 235 OVER BEAVER CREEK ON SR 1322 (EBENEZER RD.)



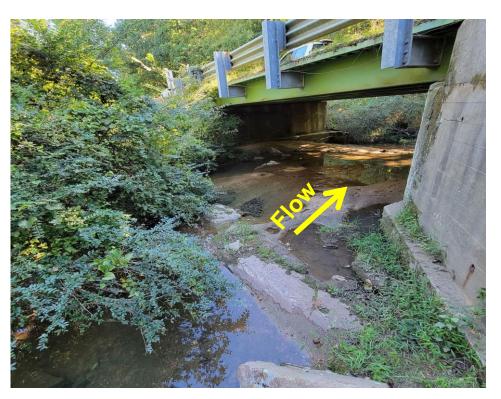
View of SR 1322 looking southwest.



View of Bridge 235 over Beaver Creek looking northwest.



View of SR 1322 looking northeast.



View of Bridge 235 over Beaver Creek looking east.