

REFERENCE: B-5772

PROJECT: 45728

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
GEOTECHNICAL ENGINEERING UNIT

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-5772	1	14

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**STRUCTURE**  
**SUBSURFACE INVESTIGATION**

COUNTY ROWAN

PROJECT DESCRIPTION REPLACE BRIDGE NO. 66 ON  
SR 1724 OVER NORFOLK SOUTHERN RAILROAD

SITE DESCRIPTION BRIDGE NO. 66 ON SR 1724  
(HURLEY SCHOOL RD.) OVER NORFOLK  
SOUTHERN RAILROAD

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 (919) 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 METHOD. THE OBSERVED WATER LEVELS OR SOIL MOISTURE CONDITIONS INDICATED IN THE SUBSURFACE INVESTIGATIONS ARE AS RECORDED AT THE TIME OF THE INVESTIGATION. THESE WATER LEVELS OR SOIL MOISTURE CONDITIONS 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 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.

PERSONNEL

CG2

GOODNIGHT, D.W.

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INVESTIGATED BY GOODNIGHT, D.W.

DRAWN BY HILL, M.J.

CHECKED BY HAMM, J.R.

SUBMITTED BY FALCON ENG.

DATE APRIL 2021



DocuSigned by:  
W. Scott Hunsberger

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SIGNATURE DATE

**NORTH CAROLINA DEPARTMENT OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
GEOTECHNICAL ENGINEERING UNIT  
SUBSURFACE INVESTIGATION  
SOIL AND ROCK LEGEND, TERMS, SYMBOLS, AND ABBREVIATIONS**

SOIL DESCRIPTION										GRADATION										ROCK DESCRIPTION										TERMS AND DEFINITIONS																													
<p>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 ACCORDING TO THE STANDARD PENETRATION TEST (AASHTO T 208, ASTM D1586). SOIL CLASSIFICATION IS BASED ON THE AASHTO SYSTEM. BASIC DESCRIPTIONS GENERALLY INCLUDE THE FOLLOWING: CONSISTENCY, COLOR, TEXTURE, MOISTURE, AASHTO CLASSIFICATION, AND OTHER PERTINENT FACTORS SUCH AS MINERALOGICAL COMPOSITION, ANGULARITY, STRUCTURE, PLASTICITY, ETC. FOR EXAMPLE, <i>VERY STIFF, GRAY, SILTY CLAY, MOIST WITH INTERBEDDED FINE SAND LAYERS, HIGHLY PLASTIC, A-7-6</i></p>										<p><b>WELL GRADED</b> - INDICATES A GOOD REPRESENTATION OF PARTICLE SIZES FROM FINE TO COARSE. <b>UNIFORMLY GRADED</b> - INDICATES THAT SOIL PARTICLES ARE ALL APPROXIMATELY THE SAME SIZE. <b>GAP-GRADED</b> - INDICATES A MIXTURE OF UNIFORM PARTICLE SIZES OF TWO OR MORE SIZES.</p>										<p>HARD ROCK IS NON-COASTAL PLAIN MATERIAL THAT WOULD YIELD SPT REFUSAL IF TESTED, AN INFERRED ROCK LINE INDICATES THE LEVEL AT WHICH NON-COASTAL PLAIN MATERIAL WOULD YIELD SPT REFUSAL. SPT REFUSAL IS PENETRATION BY A SPLIT SPOON SAMPLER EQUAL TO OR LESS THAN 0.1 FOOT PER 60 BLOWS IN NON-COASTAL PLAIN MATERIAL. THE TRANSITION BETWEEN SOIL AND ROCK IS OFTEN REPRESENTED BY A ZONE OF WEATHERED ROCK. ROCK MATERIALS ARE TYPICALLY DIVIDED AS FOLLOWS:</p>										<p><b>ALLUVIUM (ALLUV.)</b> - SOILS THAT HAVE BEEN TRANSPORTED BY WATER. <b>AQUIFER</b> - A WATER BEARING FORMATION OR STRATA. <b>ARENACEOUS</b> - APPLIED TO ROCKS THAT HAVE BEEN DERIVED FROM SAND OR THAT CONTAIN SAND. <b>ARGILLACEOUS</b> - 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. <b>ARTESIAN</b> - 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 SURFACE. <b>CALCAREOUS (CALC.)</b> - SOILS THAT CONTAIN APPRECIABLE AMOUNTS OF CALCIUM CARBONATE. <b>COLLUVIUM</b> - ROCK FRAGMENTS MIXED WITH SOIL DEPOSITED BY GRAVITY ON SLOPE OR AT BOTTOM OF SLOPE. <b>CORE RECOVERY (REC.)</b> - TOTAL LENGTH OF ALL MATERIAL RECOVERED IN THE CORE BARREL DIVIDED BY TOTAL LENGTH OF CORE RUN AND EXPRESSED AS A PERCENTAGE. <b>DIKE</b> - A TABULAR BODY OF IGNEOUS ROCK THAT CUTS ACROSS THE STRUCTURE OF ADJACENT ROCKS OR CUTS MASSIVE ROCK. <b>DIP</b> - THE ANGLE AT WHICH A STRATUM OR ANY PLANAR FEATURE IS INCLINED FROM THE HORIZONTAL. <b>DIP DIRECTION (DIP AZIMUTH)</b> - THE DIRECTION OR BEARING OF THE HORIZONTAL TRACE OF THE LINE OF DIP, MEASURED CLOCKWISE FROM NORTH. <b>FAULT</b> - A FRACTURE OR FRACTURE ZONE ALONG WHICH THERE HAS BEEN DISPLACEMENT OF THE SIDES RELATIVE TO ONE ANOTHER PARALLEL TO THE FRACTURE. <b>FISSILE</b> - A PROPERTY OF SPLITTING ALONG CLOSELY SPACED PARALLEL PLANES. <b>FLOAT</b> - ROCK FRAGMENTS ON SURFACE NEAR THEIR ORIGINAL POSITION AND DISLOGGED FROM PARENT MATERIAL. <b>FLOOD PLAIN (FP)</b> - LAND BORDERING A STREAM, BUILT OF SEDIMENTS DEPOSITED BY THE STREAM. <b>FORMATION (FM)</b> - A MAPPABLE GEOLOGIC UNIT THAT CAN BE RECOGNIZED AND TRACED IN THE FIELD. <b>JOINT</b> - FRACTURE IN ROCK ALONG WHICH NO APPRECIABLE MOVEMENT HAS OCCURRED. <b>LEDGE</b> - A SHELF-LIKE RIDGE OR PROJECTION OF ROCK WHOSE THICKNESS IS SMALL COMPARED TO ITS LATERAL EXTENT. <b>LENS</b> - A BODY OF SOIL OR ROCK THAT THINS OUT IN ONE OR MORE DIRECTIONS. <b>MOTTLED (MOT.)</b> - IRREGULARLY MARKED WITH SPOTS OF DIFFERENT COLORS. MOTTLING IN SOILS USUALLY INDICATES POOR AERATION AND LACK OF GOOD DRAINAGE. <b>PERCHED WATER</b> - WATER MAINTAINED ABOVE THE NORMAL GROUND WATER LEVEL BY THE PRESENCE OF AN INTERVENING IMPERVIOUS STRATUM. <b>RESIDUAL (RES.) SOIL</b> - SOIL FORMED IN PLACE BY THE WEATHERING OF ROCK. <b>ROCK QUALITY DESIGNATION (ROD)</b> - 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 RUN AND EXPRESSED AS A PERCENTAGE. <b>SAPROLITE (SAP.)</b> - RESIDUAL SOIL THAT RETAINS THE RELIC STRUCTURE OR FABRIC OF THE PARENT ROCK. <b>SILL</b> - AN INTRUSIVE BODY OF IGNEOUS ROCK OF APPROXIMATELY UNIFORM THICKNESS AND RELATIVELY THIN COMPARED WITH ITS LATERAL EXTENT, THAT HAS BEEN EMPLACED PARALLEL TO THE BEDDING OR SCHISTOSITY OF THE INTRUDED ROCKS. <b>SLICKENSIDE</b> - POLISHED AND STRIATED SURFACE THAT RESULTS FROM FRICTION ALONG A FAULT OR SLIP PLANE. <b>STANDARD PENETRATION TEST (PENETRATION RESISTANCE) (SPT)</b> - NUMBER OF BLOWS (N OR BPF) OF 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 TO OR LESS THAN 0.1 FOOT PER 60 BLOWS. <b>STRATA CORE RECOVERY (SREC.)</b> - TOTAL LENGTH OF STRATA MATERIAL RECOVERED DIVIDED BY TOTAL LENGTH OF STRATUM AND EXPRESSED AS A PERCENTAGE. <b>STRATA ROCK QUALITY DESIGNATION (SROD)</b> - 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. <b>TOPSOIL (TS.)</b> - SURFACE SOILS USUALLY CONTAINING ORGANIC MATTER.</p>																													
<b>SOIL LEGEND AND AASHTO CLASSIFICATION</b>										<b>ANGULARITY OF GRAINS</b>										<b>WEATHERED ROCK (WR)</b>										<b>CRYSTALLINE ROCK (CR)</b>																													
<p>GENERAL CLASS. GRANULAR MATERIALS (&lt;= 35% PASSING #200) SILT-CLAY MATERIALS (&gt; 35% PASSING #200) ORGANIC MATERIALS</p>										<p>THE ANGULARITY OR ROUNDNESS OF SOIL GRAINS IS DESIGNATED BY THE TERMS: ANGULAR, SUBANGULAR, SUBROUNDED, OR ROUNDED.</p>										<p>NON-COASTAL PLAIN MATERIAL THAT WOULD YIELD SPT N VALUES &gt; 100 BLOWS PER FOOT IF TESTED.</p>										<p>FINE TO COARSE GRAIN IGNEOUS AND METAMORPHIC ROCK THAT WOULD YIELD SPT REFUSAL IF TESTED. ROCK TYPE INCLUDES GRANITE, GNEISS, GABBRO, SCHIST, ETC.</p>																													
<b>MINERALOGICAL COMPOSITION</b>										<b>COMPRESSION</b>										<b>NON-CRYSTALLINE ROCK (NCR)</b>										<b>COASTAL PLAIN SEDIMENTARY ROCK (CP)</b>																													
<p>MINERAL NAMES SUCH AS QUARTZ, FELDSPAR, MICA, TALC, KAOLIN, ETC. ARE USED IN DESCRIPTIONS WHEN THEY ARE CONSIDERED OF SIGNIFICANCE.</p>										<p>SLIGHTLY COMPRESSIBLE LL &lt; 31 MODERATELY COMPRESSIBLE LL = 31 - 50 HIGHLY COMPRESSIBLE LL &gt; 50</p>										<p>FINE TO COARSE GRAIN METAMORPHIC AND NON-COASTAL PLAIN SEDIMENTARY ROCK THAT WOULD YIELD SPT REFUSAL IF TESTED. ROCK TYPE INCLUDES PHYLLITE, SLATE, SANDSTONE, ETC.</p>										<p>COASTAL PLAIN SEDIMENTS CEMENTED INTO ROCK, BUT MAY NOT YIELD SPT REFUSAL. ROCK TYPE INCLUDES LIMESTONE, SANDSTONE, CEMENTED SHELL BEDS, ETC.</p>																													
<b>PERCENTAGE OF MATERIAL</b>										<b>GROUND WATER</b>										<b>WEATHERING</b>										<b>MISCELLANEOUS SYMBOLS</b>																													
<p>ORGANIC MATERIAL GRANULAR SOILS SILT - CLAY SOILS OTHER MATERIAL</p> <p>TRACE OF ORGANIC MATTER 2 - 3% 3 - 5% TRACE 1 - 10%</p> <p>LITTLE ORGANIC MATTER 3 - 5% 5 - 12% LITTLE 10 - 20%</p> <p>MODERATELY ORGANIC 5 - 10% 12 - 20% SOME 20 - 35%</p> <p>HIGHLY ORGANIC &gt; 10% &gt; 20% HIGHLY 35% AND ABOVE</p>										<p>WATER LEVEL IN BORE HOLE IMMEDIATELY AFTER DRILLING</p> <p>STATIC WATER LEVEL AFTER 24 HOURS</p> <p>PERCHED WATER, SATURATED ZONE, OR WATER BEARING STRATA</p> <p>SPRING OR SEEP</p>										<p>FRESH ROCK FRESH, CRYSTALS BRIGHT, FEW JOINTS MAY SHOW SLIGHT STAINING. ROCK RINGS UNDER HAMMER IF CRYSTALLINE.</p> <p>VERY SLIGHT (IV SLI) ROCK GENERALLY FRESH, JOINTS STAINED, SOME JOINTS MAY SHOW THIN CLAY COATINGS IF OPEN. CRYSTALS ON A BROKEN SPECIMEN FACE SHINE BRIGHTLY. ROCK RINGS UNDER HAMMER BLOWS IF OF A CRYSTALLINE NATURE.</p> <p>SLIGHT (SLI) 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 CRYSTALS ARE DULL AND DISCOLORED. CRYSTALLINE ROCKS RING UNDER HAMMER BLOWS.</p> <p>MODERATE (MOD.) SIGNIFICANT PORTIONS OF ROCK SHOW DISCOLORATION AND WEATHERING EFFECTS. IN 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 WITH FRESH ROCK.</p> <p>MODERATELY SEVERE (MOD. SEV.) ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. IN GRANITOID ROCKS, ALL FELDSPARS DULL AND DISCOLORED AND A MAJORITY SHOW KAOLINIZATION. ROCK SHOWS SEVERE LOSS OF STRENGTH AND CAN BE EXCAVATED WITH A GEOLOGIST'S PICK. ROCK GIVES "CLUNK" SOUND WHEN STRUCK. <i>IF TESTED, WOULD YIELD SPT REFUSAL</i></p> <p>SEVERE (SEV.) 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 TO SOME EXTENT. SOME FRAGMENTS OF STRONG ROCK USUALLY REMAIN. <i>IF TESTED, WOULD YIELD SPT N VALUES &gt; 100 BPF</i></p> <p>VERY SEVERE (IV SEV.) ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. ROCK FABRIC ELEMENTS ARE DISCERNIBLE BUT MASS IS EFFECTIVELY REDUCED TO SOIL STATUS, WITH ONLY FRAGMENTS OF STRONG ROCK 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 &lt; 100 BPF</i></p> <p>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 ALSO AN EXAMPLE.</p>										<p>ROADWAY EMBANKMENT (RE) WITH SOIL DESCRIPTION</p> <p>SOIL SYMBOL</p> <p>ARTIFICIAL FILL (AF) OTHER THAN ROADWAY EMBANKMENT</p> <p>INFERRED SOIL BOUNDARY</p> <p>INFERRED ROCK LINE</p> <p>ALLUVIAL SOIL BOUNDARY</p> <p>DIP &amp; DIP DIRECTION OF ROCK STRUCTURES</p> <p>SPT DMT TEST BORE</p> <p>AUGER BORING</p> <p>CORE BORING</p> <p>MONITORING WELL</p> <p>PIEZOMETER INSTALLATION</p> <p>SLOPE INDICATOR INSTALLATION</p> <p>CONE PENETROMETER TEST</p> <p>SOUNDING ROD</p> <p>TEST BORING WITH CORE</p> <p>SPT N-VALUE</p>																													
<b>TEXTURE OR GRAIN SIZE</b>										<b>RECOMMENDATION SYMBOLS</b>										<b>ROCK HARDNESS</b>										<b>ABBREVIATIONS</b>																													
<p>U.S. STD. SIEVE SIZE OPENING (MM) 4 10 40 60 200 270</p> <p>4.76 2.00 0.42 0.25 0.075 0.053</p>										<p>UNDERCUT EXCAVATION</p> <p>SHALLOW UNDERCUT</p> <p>UNCLASSIFIED EXCAVATION - UNSUITABLE WASTE</p> <p>UNCLASSIFIED EXCAVATION - ACCEPTABLE DEGRADABLE ROCK</p> <p>UNCLASSIFIED EXCAVATION - ACCEPTABLE, BUT NOT TO BE USED IN THE TOP 3 FEET OF EMBANKMENT OR BACKFILL</p>										<p>VERY HARD CANNOT BE SCRATCHED BY KNIFE OR SHARP PICK. BREAKING OF HAND SPECIMENS REQUIRES SEVERAL HARD BLOWS OF THE GEOLOGIST'S PICK.</p> <p>HARD CAN BE SCRATCHED BY KNIFE OR PICK ONLY WITH DIFFICULTY. HARD HAMMER BLOWS REQUIRED TO DETACH HAND SPECIMEN.</p> <p>MODERATELY HARD CAN BE SCRATCHED BY KNIFE OR PICK. GOUGES OR GROOVES TO 0.25 INCHES DEEP CAN BE EXCAVATED BY HARD BLOW OF A GEOLOGIST'S PICK. HAND SPECIMENS CAN BE DETACHED BY MODERATE BLOWS.</p> <p>MEDIUM HARD CAN BE GROUDED OR GOUGED 0.05 INCHES DEEP BY FIRM PRESSURE OF KNIFE OR PICK POINT. CAN BE EXCAVATED IN SMALL CHIPS TO PIECES 1 INCH MAXIMUM SIZE BY HARD BLOWS OF THE POINT OF A GEOLOGIST'S PICK.</p> <p>SOFT CAN BE GROUDED 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 PIECES CAN BE BROKEN BY FINGER PRESSURE.</p> <p>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 FINGER NAIL.</p>										<p>AR - AUGER REFUSAL BT - BORING TERMINATED CL - CLAY CPT - COARSE PENETRATION TEST CSE - COARSE DMT - DILATOMETER TEST DPT - DYNAMIC PENETRATION TEST e - VOID RATIO F - FINE FOSS. - FOSSILIFEROUS FRAC. - FRACTURED, FRACTURES FRAGS. - FRAGMENTS HI. - HIGHLY</p> <p>MED. - MEDIUM MICA. - MICACEOUS MOD. - MODERATELY NP - NON PLASTIC ORG. - ORGANIC PMT - PRESSUREMETER TEST SAP. - SAPROLITIC SD. - SAND, SANDY SL. - SILT, SILTY SLI. - SLIGHTLY TCR - TRICONE REFUSAL w - MOISTURE CONTENT V - VERY</p> <p>VST - VANE SHEAR TEST WEA. - WEATHERED W - UNIT WEIGHT Wg - DRY UNIT WEIGHT</p> <p>SAMPLE ABBREVIATIONS S - BULK SS - SPLIT SPOON ST - SHELBY TUBE RS - ROCK RT - RECOMPACTED TRIAXIAL CBR - CALIFORNIA BEARING RATIO</p>																													
<b>SOIL MOISTURE - CORRELATION OF TERMS</b>										<b>SOIL MOISTURE SCALE (ATTERBERG LIMITS)</b>										<b>SOIL MOISTURE SCALE (ATTERBERG LIMITS)</b>										<b>SOIL MOISTURE SCALE (ATTERBERG LIMITS)</b>																													
<p>SOIL MOISTURE SCALE (ATTERBERG LIMITS) FIELD MOISTURE DESCRIPTION GUIDE FOR FIELD MOISTURE DESCRIPTION</p>										<p>LL - LIQUID LIMIT PL - PLASTIC LIMIT OM - OPTIMUM MOISTURE SHRINKAGE LIMIT</p>										<p>LL - LIQUID LIMIT PL - PLASTIC LIMIT OM - OPTIMUM MOISTURE SHRINKAGE LIMIT</p>										<p>LL - LIQUID LIMIT PL - PLASTIC LIMIT OM - OPTIMUM MOISTURE SHRINKAGE LIMIT</p>																													
<b>PLASTICITY</b>										<b>EQUIPMENT USED ON SUBJECT PROJECT</b>										<b>FRACTURE SPACING</b>										<b>BEDDING</b>																													
<p>NON PLASTIC 0-5 VERY LOW SLIGHTLY PLASTIC 6-15 SLIGHT MODERATELY PLASTIC 16-25 MEDIUM HIGHLY PLASTIC 26 OR MORE HIGH</p>										<p>DRILL UNITS: <input type="checkbox"/> CME-45C <input type="checkbox"/> CME-55 <input type="checkbox"/> CME-550 <input type="checkbox"/> VANE SHEAR TEST <input type="checkbox"/> PORTABLE HOIST <input checked="" type="checkbox"/> MOBILE B-29</p>										<p>ADVANCING TOOLS: <input type="checkbox"/> CLAY BITS <input type="checkbox"/> 6" CONTINUOUS FLIGHT AUGER <input checked="" type="checkbox"/> 8" HOLLOW AUGERS <input type="checkbox"/> HARD FACED FINGER BITS <input type="checkbox"/> TUNG-CARBIDE INSERTS <input type="checkbox"/> CASING <input type="checkbox"/> W/ ADVANCER <input type="checkbox"/> TRICONE * STEEL TEETH <input type="checkbox"/> TRICONE * TUNG-CARB. <input type="checkbox"/> CORE BIT</p>										<p>HAMMER TYPE: <input checked="" type="checkbox"/> AUTOMATIC <input type="checkbox"/> MANUAL</p> <p>CORE SIZE: <input type="checkbox"/> -B <input type="checkbox"/> -H</p> <p><input checked="" type="checkbox"/> NO WIRELINE</p>										<p>TERM SPACING MORE THAN 10 FEET WIDE 3 TO 10 FEET MODERATELY CLOSE 1 TO 3 FEET CLOSE 0.16 TO 1 FOOT VERY CLOSE LESS THAN 0.16 FEET</p>										<p>TERM THICKNESS 4 FEET VERY THICKLY BEDDED 1.5 - 4 FEET THICKLY BEDDED 0.16 - 1.5 FEET THINLY BEDDED 0.03 - 0.16 FEET VERY THINLY BEDDED 0.008 - 0.03 FEET THICKLY LAMINATED &lt; 0.008 FEET THINLY LAMINATED</p>									
<b>COLOR</b>										<b>INDURATION</b>										<b>FRACURE SPACING</b>										<b>BEDDING</b>																													
<p>DESCRIPTIONS MAY INCLUDE COLOR OR COLOR COMBINATIONS (TAN, RED, YELLOW-BROWN, BLUE-BROWN). MODIFIERS SUCH AS LIGHT, DARK, STREAKED, ETC. ARE USED TO DESCRIBE APPEARANCE.</p>										<p>FOR SEDIMENTARY ROCKS, INDURATION IS THE HARDENING OF MATERIAL BY CEMENTING, HEAT, PRESSURE, ETC.</p> <p>FRIABLE RUBBING WITH FINGER FREES NUMEROUS GRAINS; GENTLE BLOW BY HAMMER DISINTEGRATES SAMPLE.</p> <p>MODERATELY INDURATED GRAINS CAN BE SEPARATED FROM SAMPLE WITH STEEL PROBE; BREAKS EASILY WHEN HIT WITH HAMMER.</p> <p>INDURATED GRAINS ARE DIFFICULT TO SEPARATE WITH STEEL PROBE; DIFFICULT TO BREAK WITH HAMMER.</p> <p>EXTREMELY INDURATED SHARP HAMMER BLOWS REQUIRED TO BREAK SAMPLE; SAMPLE BREAKS ACROSS GRAINS.</p>										<p>FRACURE SPACING</p>										<p>BEDDING</p>																													
<b>BENCH MARK:</b>										<b>NOTES:</b>										<b>FRACURE SPACING</b>										<b>BEDDING</b>																													
<p>BMI: RR SPIKE IN I2* WHITE OAK, -YI- S+o 2i+95.16, 36.03 ft LT N: 714542 E: 1537674 ELEVATION: 842.36 FEET</p>										<p>FIAD - FILLED IMMEDIATELY AFTER DRILLING</p>										<p>FRACURE SPACING</p>										<p>BEDDING</p>																													

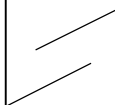
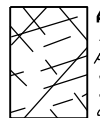
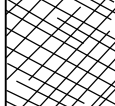

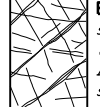



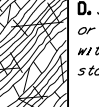

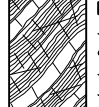

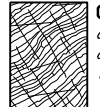

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
GEOTECHNICAL ENGINEERING UNIT

**SUBSURFACE INVESTIGATION**

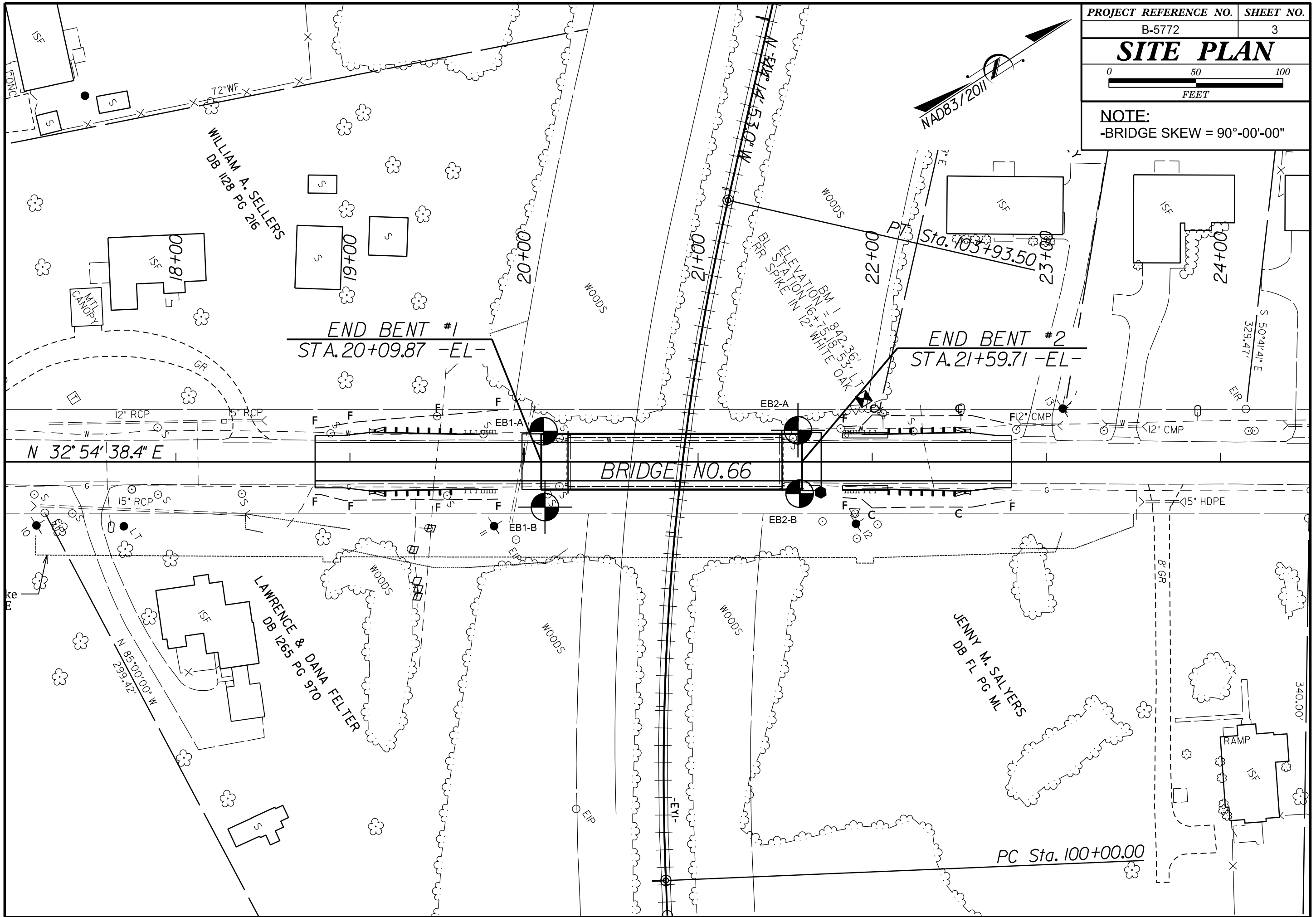
SUPPLEMENTAL LEGEND, GEOLOGICAL STRENGTH INDEX (GSI) TABLES  
FROM AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS

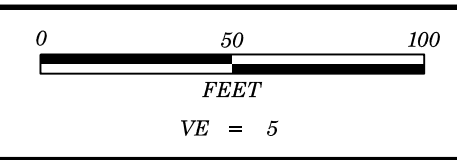
AASHTO LRFD Figure 10.4.6.4-1 — Determination of GSI for Jointed Rock Mass (Marinos and Hoek, 2000)

AASHTO LRFD Figure 10.4.6.4-2 — Determination of GSI for Tectonically Deformed Heterogeneous Rock Masses (Marinos and Hoek, 2000)

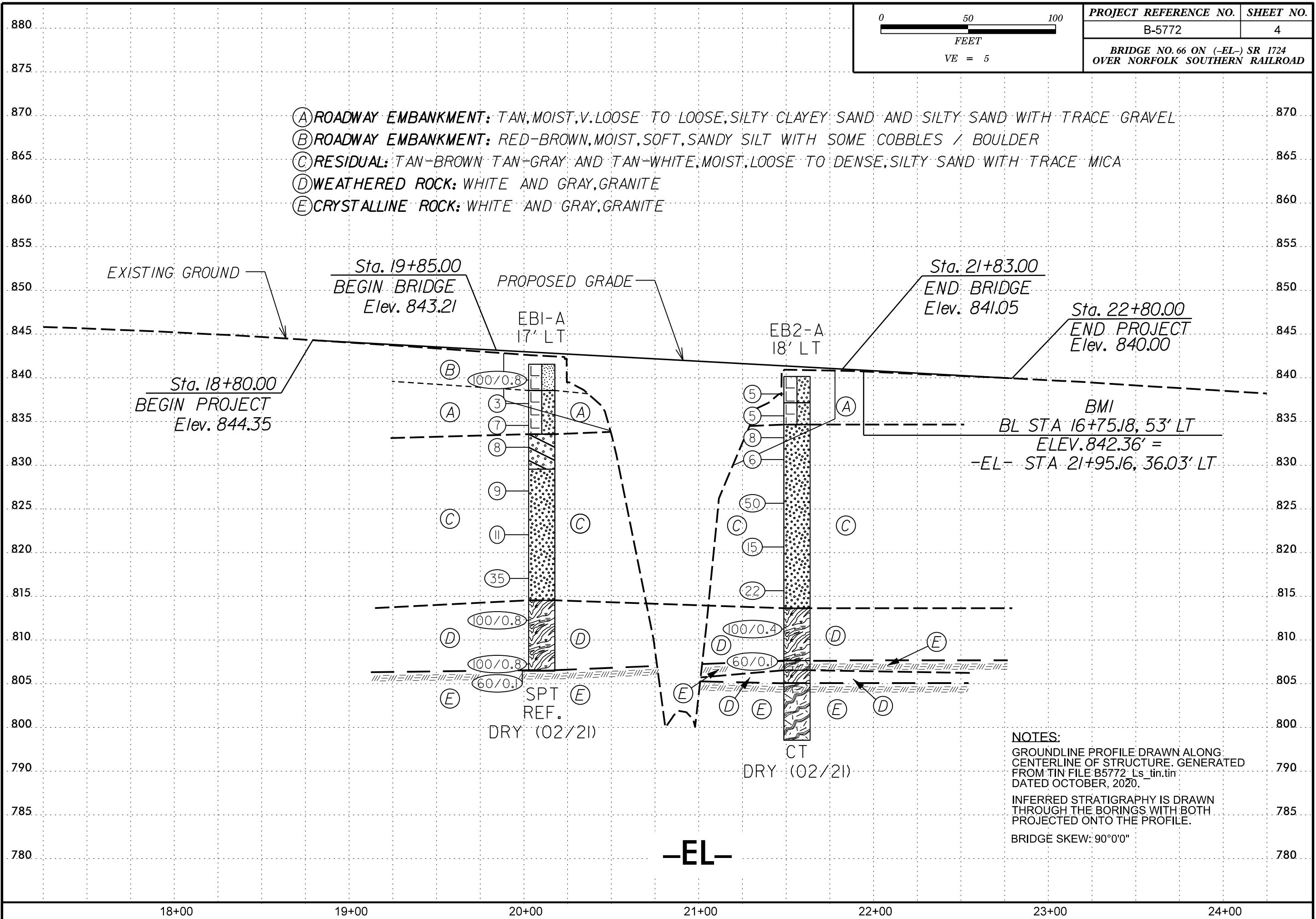
GEOLOGICAL STRENGTH INDEX (GSI) FOR JOINTED ROCKS (Hoek and Marinos, 2000)		SURFACE CONDITIONS					GSI FOR HETEROGENEOUS ROCK MASSES SUCH AS FLYSCH (Marinos, P and Hoek E., 2000)		SURFACE CONDITIONS OF DISCONTINUITIES (Predominantly bedding planes)					
From the lithology, structure and surface conditions 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.		VERY GOOD	GOOD	FAIR	POOR	VERY POOR	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	GOOD	FAIR	POOR	VERY POOR	
STRUCTURE		DECREASING SURFACE QUALITY →					COMPOSITION AND STRUCTURE							
	INTACT OR MASSIVE - intact rock specimens or massive in situ rock with few widely spaced discontinuities	90			N/A	N/A		70						
	BLOCKY - well interlocked undisturbed rock mass consisting of cubical blocks formed by three intersecting discontinuity sets	80					<i>A. Thick bedded, very blocky sandstone</i> 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.	60						
	VERY BLOCKY - interlocked, partially disturbed mass with multi-faceted angular blocks formed by 4 or more joint sets		70						50					
	BLOCKY/DISTURBED/SEAMY - folded with angular blocks formed by many intersecting discontinuity sets. Persistence of bedding planes or schistosity		60							40				
	DISINTEGRATED - poorly interlocked, heavily broken rock mass with mixture of angular and rounded rock pieces			50							30			
	LAMINATED/SHEARED - Lack of blockiness due to close spacing of weak schistosity or shear planes				40							20		
					30		<i>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.</i>						10	
					20									
					10									
														
							→ Means deformation after tectonic disturbance							

**NOTE:**  
 -BRIDGE SKEW = 90°-00'-00"



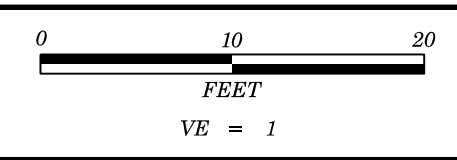


PROJECT REFERENCE NO.	SHEET NO.
B-5772	4
BRIDGE NO. 66 ON (-EL-) SR 1724 OVER NORFOLK SOUTHERN RAILROAD	

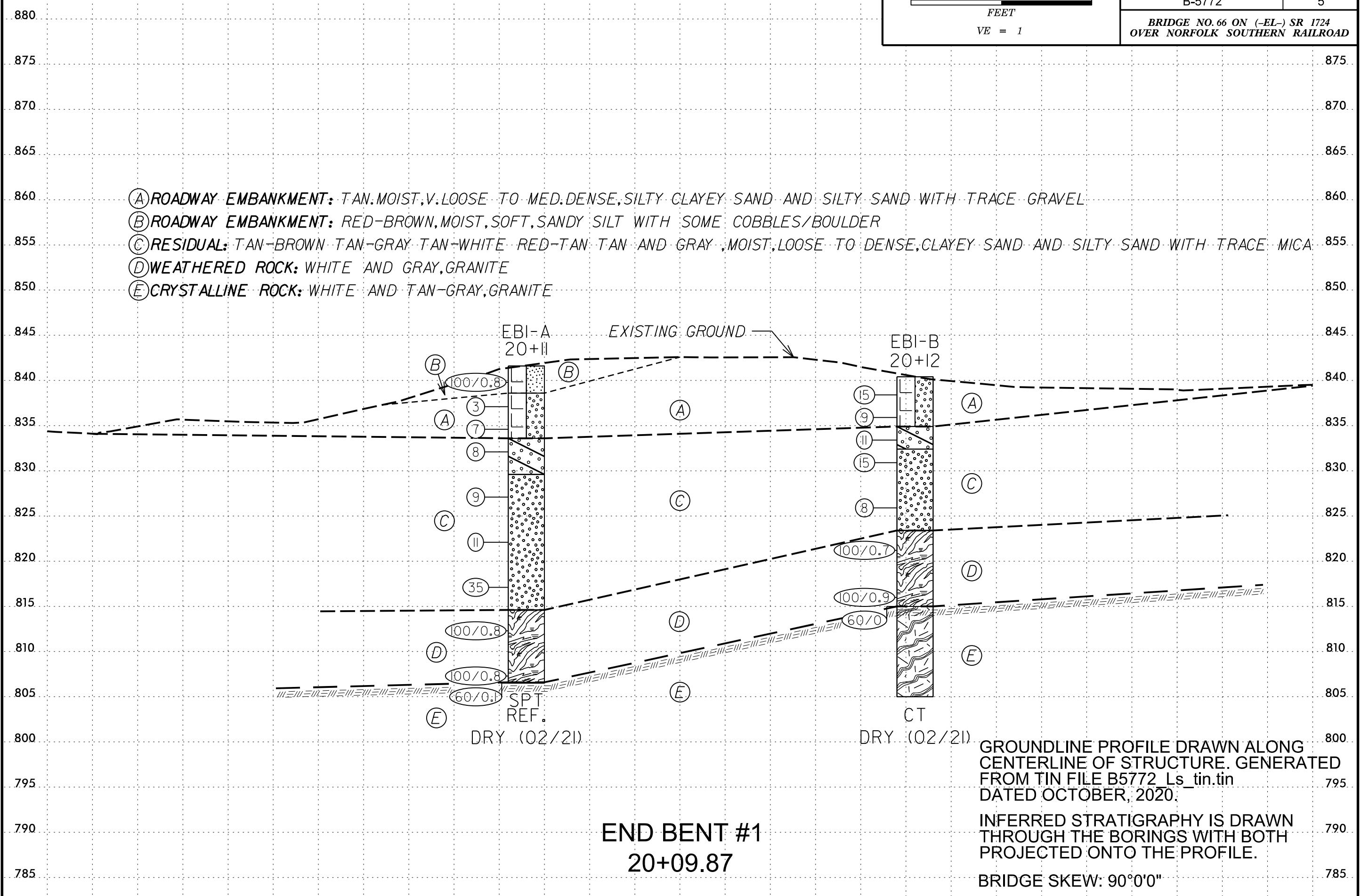


**NOTES:**  
 GROUNDLINE PROFILE DRAWN ALONG CENTERLINE OF STRUCTURE. GENERATED FROM TIN FILE: B5772\_Ls\_tin.tin DATED OCTOBER, 2020.  
 INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE PROFILE.  
 BRIDGE SKEW: 90°0'0"

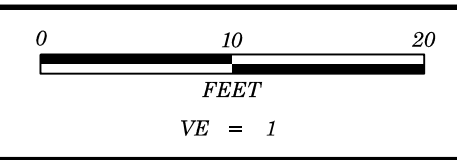
**-EL-**



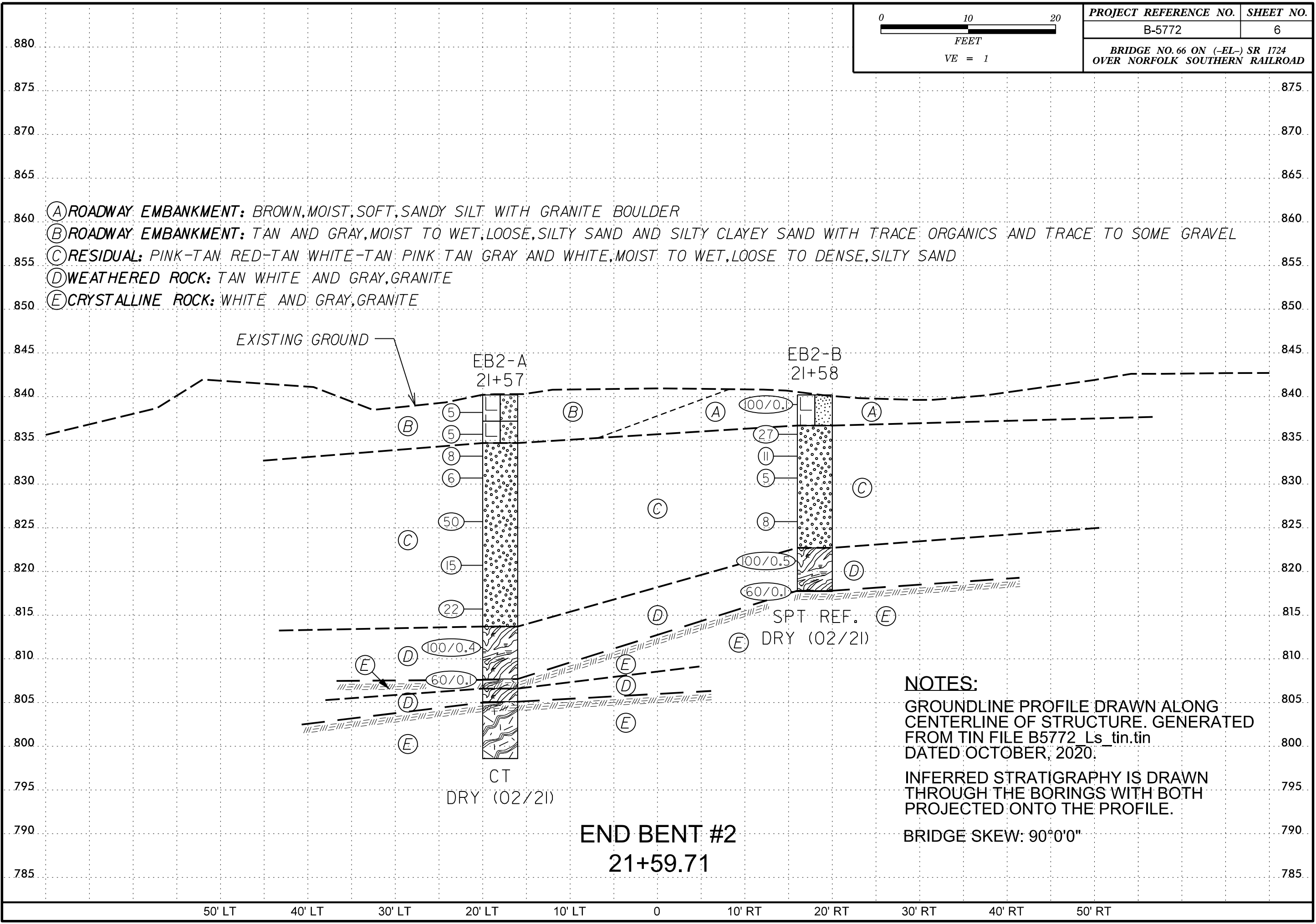
PROJECT REFERENCE NO.	SHEET NO.
B-5772	5
BRIDGE NO. 66 ON (-EL-) SR 1724 OVER NORFOLK SOUTHERN RAILROAD	



**END BENT #1  
20+09.87**



PROJECT REFERENCE NO.	SHEET NO.
B-5772	6
BRIDGE NO. 66 ON (-EL-) SR 1724 OVER NORFOLK SOUTHERN RAILROAD	



# GEOTECHNICAL BORING REPORT BORE LOG

WBS 45728.1.2		TIP B-5772		COUNTY ROWAN		GEOLOGIST GOODNIGHT, D.J.										
SITE DESCRIPTION Bridge No. 66 on SR 1724 Over Norfolk Southern Railroad							GROUND WTR (ft)									
BORING NO. EB1-A		STATION 20+11		OFFSET 17 ft LT		ALIGNMENT -L-										
COLLAR ELEV. 842.2 ft		TOTAL DEPTH 35.1 ft		NORTHING 714,377		EASTING 1,537,590										
DRILL RIG/HAMMER EFF./DATE CG29022 Mobile B-29 88% 03/26/2020		DRILL METHOD H.S. Augers		HAMMER TYPE Automatic												
DRILLER Kiker, J.		START DATE 02/24/21		COMP. DATE 02/24/21		SURFACE WATER DEPTH N/A										
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG MOI	L O G	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100						
845																
840	841.2	1.0	2	98/0.3									M	842.2	0.0	GROUND SURFACE
	838.7	3.5	3	1	2								M	839.2	3.0	ROADWAY EMBANKMENT RED-BROWN, SOFT, SANDY SILT (A-4) WITH SOME COBBLES/BOULDERS
835	836.2	6.0	3	3	4								M			TAN, VERY LOOSE, SILTY CLAYEY SAND (A-2-5) WITH TRACE GRAVEL
	833.7	8.5	2	3	5								M	834.2	8.0	RESIDUAL
830	828.7	13.5	3	3	6								M	830.2	12.0	TAN-BROWN, LOOSE, CLAYEY SAND (A-2-6)
825	823.7	18.5	5	4	7								M			TAN-BROWN, TAN-GRAY, & TAN-WHITE, LOOSE TO DENSE, SILTY SAND (A-2-4) WITH TRACE MICA
820	818.7	23.5	8	13	22								M			
815	813.7	28.5	33	67/0.3									M	815.2	27.0	WEATHERED ROCK WHITE & GRAY, GRANITE
810	808.7	33.5	55	45/0.3												
	807.2	35.0	60/0.1											807.2	35.0	CRYSTALLINE ROCK WHITE & GRAY, GRANITE
														807.1	35.1	Boring Terminated WITH STANDARD PENETRATION TEST REFUSAL at Elevation 807.1 ft IN CR: GRANITE

NCDOT BORE DOUBLE B5772\_BORINGS.GPJ NC\_DOT.GDT 3/8/21

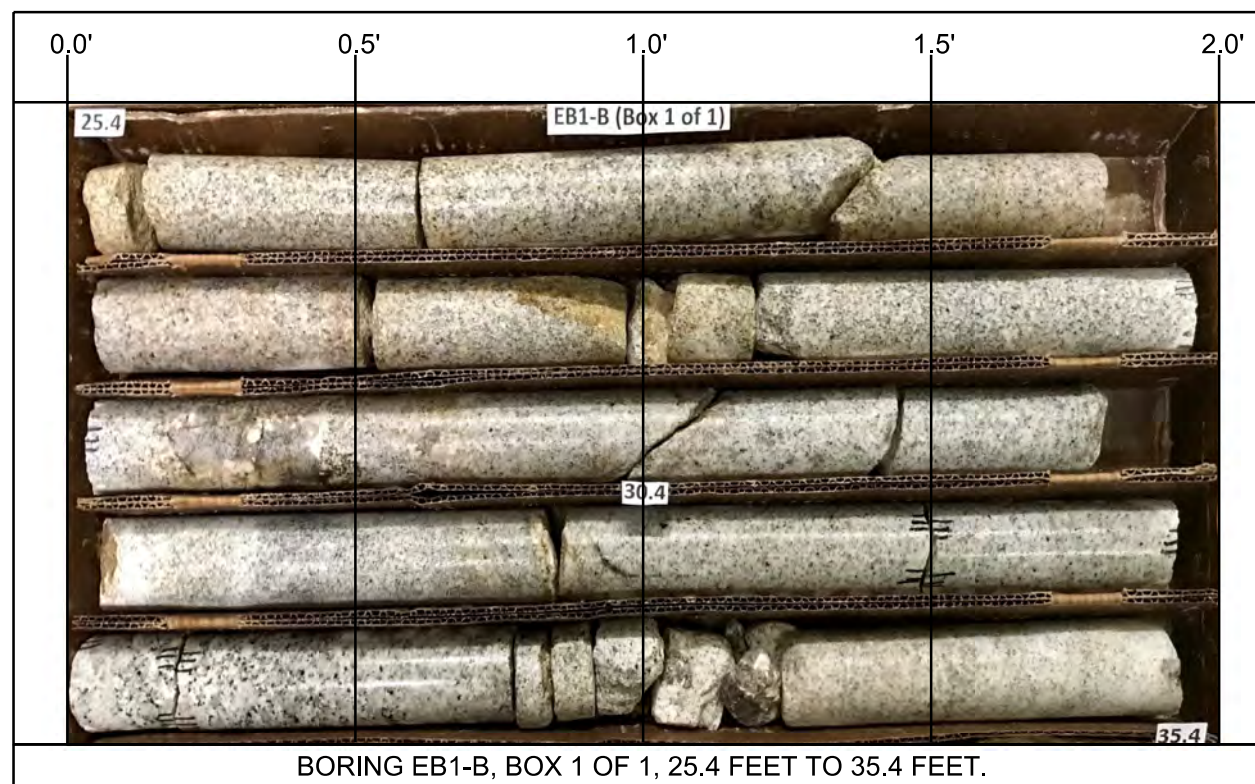



# GEOTECHNICAL BORING REPORT BORE LOG

# GEOTECHNICAL BORING REPORT CORE LOG

WBS 45728.1.2		TIP B-5772		COUNTY ROWAN		GEOLOGIST GOODNIGHT, D.J.									
SITE DESCRIPTION Bridge No. 66 on SR 1724 Over Norfolk Southern Railroad							GROUND WTR (ft)								
BORING NO. EB1-B		STATION 20+12		OFFSET 26 ft RT		ALIGNMENT -L-									
COLLAR ELEV. 841.5 ft		TOTAL DEPTH 35.4 ft		NORTHING 714,354		EASTING 1,537,627									
DRILL RIG/HAMMER EFF./DATE CG29022 Mobile B-29 88% 03/26/2020		DRILL METHOD SPT Core Boring		HAMMER TYPE Automatic											
DRILLER Kiker, J.		START DATE 02/24/21		COMP. DATE 02/24/21		SURFACE WATER DEPTH N/A									
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG MOI	LOG	SOIL AND ROCK DESCRIPTION	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100					
845															
840	840.5	1.0	9	7	8										841.5 GROUND SURFACE 0.0
	838.0	3.5	8	5	4										ROADWAY EMBANKMENT TAN, MEDIUM DENSE TO LOOSE, SILTY SAND (A-2-4) WITH TRACE CLAY & GRAVEL
835	835.5	6.0	1	4	7										RESIDUAL 836.0 5.5
	833.0	8.5	4	7	8										833.5 8.0 RED-TAN, MEDIUM DENSE, CLAYEY SAND (A-2-6) TAN & GRAY, MEDIUM DENSE TO LOOSE, SILTY SAND (A-2-4)
830															
825	828.0	13.5	2	4	4										824.5 17.0 WEATHERED ROCK GRAY & WHITE, GRANITE
	823.0	18.5	45	55/0.2											
820															
	818.0	23.5	29	71/0.4											
815	816.1	25.4	60/0.0												816.1 25.4 CRYSTALLINE ROCK WHITE & TAN-GRAY, GRANITE
810															
															806.1 35.4 Boring Terminated at Elevation 806.1 ft IN CR: GRANITE

WBS 45728.1.2		TIP B-5772		COUNTY ROWAN		GEOLOGIST GOODNIGHT, D.J.					
SITE DESCRIPTION Bridge No. 66 on SR 1724 Over Norfolk Southern Railroad							GROUND WTR (ft)				
BORING NO. EB1-B		STATION 20+12		OFFSET 26 ft RT		ALIGNMENT -L-					
COLLAR ELEV. 841.5 ft		TOTAL DEPTH 35.4 ft		NORTHING 714,354		EASTING 1,537,627					
DRILL RIG/HAMMER EFF./DATE CG29022 Mobile B-29 88% 03/26/2020		DRILL METHOD SPT Core Boring		HAMMER TYPE Automatic							
DRILLER Kiker, J.		START DATE 02/24/21		COMP. DATE 02/24/21		SURFACE WATER DEPTH N/A					
ELEV (ft)	RUN ELEV (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	RUN		SAMP. NO.	STRATA		LOG	DESCRIPTION AND REMARKS
					REC. (%)	RQD (%)		REC. (%)	RQD (%)		
816.1											
815	816.1	25.4	5.0	2:00/1.0 1:02/1.0 1:01/1.0 0:56/1.0 1:15/1.0	(4.8) 96%	(4.6) 92%		(9.4) 94%	(8.6) 86%		816.1 25.4 Begin Coring @ 25.4 ft CRYSTALLINE ROCK WHITE & TAN-GRAY, SLIGHTLY TO VERY SLIGHTLY WEATHERED, HARD, MODERATELY CLOSE TO CLOSELY FRACTURED, GRANITE
	811.1	30.4									
810			5.0	1:59/1.0 1:48/1.0 1:15/1.0 1:08/1.0 0:31/1.0	(4.6) 92%	(4.0) 80%					
	806.1	35.4									806.1 35.4 Boring Terminated at Elevation 806.1 ft IN CR: GRANITE



 <p>FALCON ENGINEERING, INC. 1210 TRINITY ROAD, SUITE 110 RALEIGH, NC 27607 PHONE: 919.871.0800</p>	<b>ROCK CORE PHOTOGRAPHS</b>
	BRIDGE NO. 66 ON SR 1724 OVER NORFOLK SOUTHERN RAILROAD ROWAN COUNTY, NC WBS NO.: 45728.1.2 & TIP NO.: B-5772 FALCON PROJECT NO.: G20049.00

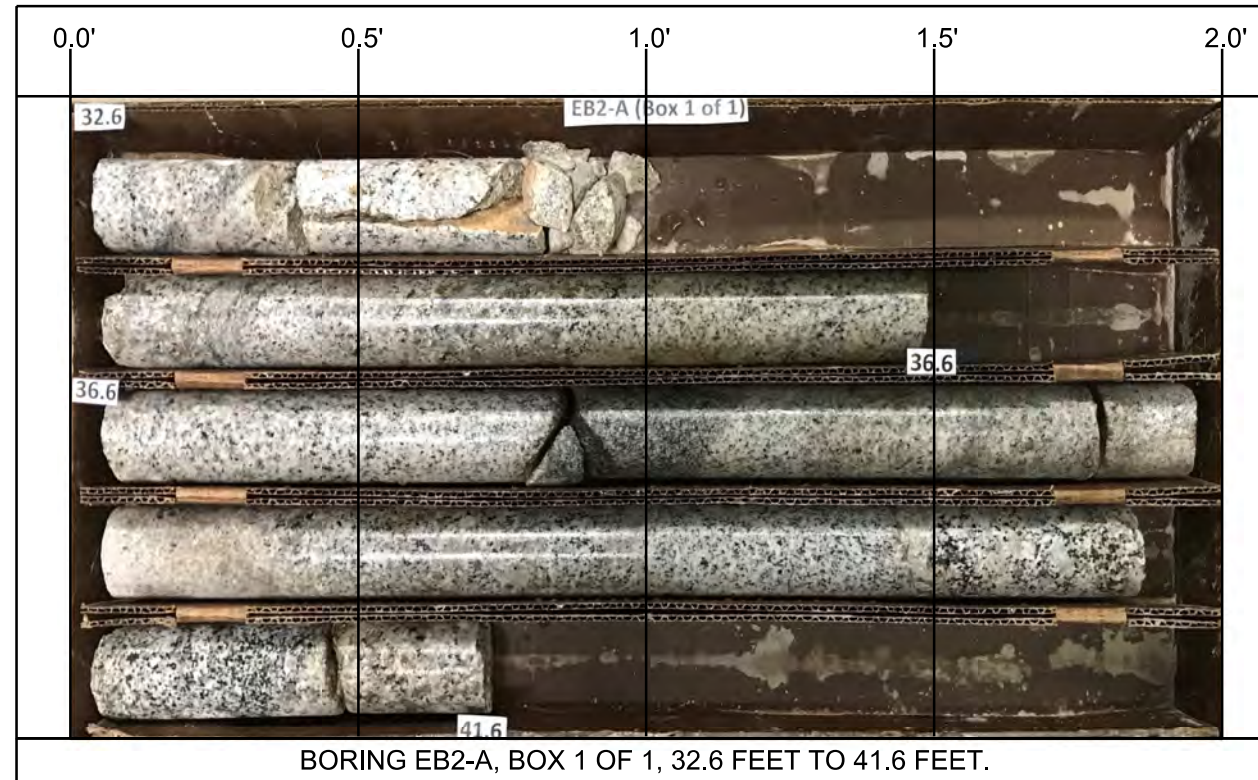
## GEOTECHNICAL BORING REPORT BORE LOG


## GEOTECHNICAL BORING REPORT CORE LOG

WBS 45728.1.2		TIP B-5772		COUNTY ROWAN		GEOLOGIST GOODNIGHT, D.J.									
SITE DESCRIPTION Bridge No. 66 on SR 1724 Over Norfolk Southern Railroad						GROUND WTR (ft)									
BORING NO. EB2-A		STATION 21+57		OFFSET 18 ft LT		ALIGNMENT -L-									
COLLAR ELEV. 840.8 ft		TOTAL DEPTH 41.6 ft		NORTHING 714,500		EASTING 1,537,669									
DRILL RIG/HAMMER EFF./DATE CG29022 Mobile B-29 88% 03/26/2020		DRILL METHOD H.S. Augers		HAMMER TYPE Automatic											
DRILLER Kiker, J.		START DATE 02/25/21		COMP. DATE 02/25/21		SURFACE WATER DEPTH N/A									
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG MOI	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100					
845															
840	839.8	1.0	2	2	3								M	840.8 GROUND SURFACE 0.0	
	837.3	3.5	3	2	3								W	837.8 ROADWAY EMBANKMENT TAN, LOOSE, SILTY SAND (A-2-4) WITH TRACE ORGANICS & GRAVEL 3.0	
835	834.8	6.0	2	4	4								W	835.3 TAN & GRAY, LOOSE, SILTY CLAYEY SAND (A-2-5) WITH SOME GRAVEL 5.5	
	832.3	8.5	3	2	4								M	RESIDUAL PINK, TAN, GRAY, & WHITE, LOOSE TO DENSE, SILTY SAND (A-2-4)	
830													M		
	827.3	13.5	5	19	31								W		
825													W		
	822.3	18.5	5	6	9								W		
820													W		
	817.3	23.5	7	14	8								M		
815															
	812.3	28.5	100/0.4												814.3 WEATHERED ROCK GRAY & WHITE GRANITE 26.5
810															
	808.3	32.5	60/0.1												808.3 CRYSTALLINE ROCK GRAY & WHITE GRANITE 32.5
805															807.2 CRYSTALLINE ROCK GRAY & WHITE GRANITE 33.6
															805.7 WEATHERED ROCK TAN GRANITE 35.1
800															CRYSTALLINE ROCK GRAY & WHITE GRANITE
															799.2 Boring Terminated at Elevation 799.2 ft IN CR: GRANITE 41.6

WBS 45728.1.2		TIP B-5772		COUNTY ROWAN		GEOLOGIST GOODNIGHT, D.J.				
SITE DESCRIPTION Bridge No. 66 on SR 1724 Over Norfolk Southern Railroad						GROUND WTR (ft)				
BORING NO. EB2-A		STATION 21+57		OFFSET 18 ft LT		ALIGNMENT -L-				
COLLAR ELEV. 840.8 ft		TOTAL DEPTH 41.6 ft		NORTHING 714,500		EASTING 1,537,669				
DRILL RIG/HAMMER EFF./DATE CG29022 Mobile B-29 88% 03/26/2020		DRILL METHOD H.S. Augers		HAMMER TYPE Automatic						
DRILLER Kiker, J.		START DATE 02/25/21		COMP. DATE 02/25/21		SURFACE WATER DEPTH N/A				
ELEV (ft)	RUN ELEV (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	TOTAL RUN 9.0 ft		STRATA REC. (ft) %	RQD (ft) %	LOG	DESCRIPTION AND REMARKS
					REC. (ft) %	RQD (ft) %				
808.2										
	808.2	32.6	4.0	0:34/1.0 0:17/1.0 1:45/1.0 1:13/1.0	(2.4) 60%	(2.2) 55%				Begin Coring @ 32.6 ft CRYSTALLINE ROCK WHITE & TAN-GRAY, SLIGHTLY WEATHERED, MODERATELY HARD TO HARD, CLOSELY FRACTURED, GRANITE (continued) 33.6
805										
	804.2	36.6	5.0	0:54/1.0 1:46/1.0 5:12/1.0 2:50/1.0 3:07/1.0	(4.5) 90%	(4.0) 80%	(6.0) 92%	(5.5) 85%		805.7 WEATHERED ROCK TAN, SEVERELY WEATHERED, GRANITE 35.1
800										
	799.2	41.6								799.2 CRYSTALLINE ROCK WHITE & GRAY, SLIGHTLY TO VERY SLIGHTLY WEATHERED, HARD, MODERATELY CLOSE TO CLOSELY FRACTURED, GRANITE 41.6 Boring Terminated at Elevation 799.2 ft IN CR: GRANITE

NCDOT BORE DOUBLE B5772\_BORINGS.GPJ NC\_DOT.GDT 3/8/21



 <p>FALCON ENGINEERING, INC. 1210 TRINITY ROAD, SUITE 110 RALEIGH, NC 27607 PHONE: 919.871.0800</p>	<b>ROCK CORE PHOTOGRAPHS</b>
	BRIDGE NO. 66 ON SR 1724 OVER NORFOLK SOUTHERN RAILROAD ROWAN COUNTY, NC WBS NO.: 45728.1.2 & TIP NO.: B-5772 FALCON PROJECT NO.: G20049.00

# GEOTECHNICAL BORING REPORT

## BORE LOG

<b>WBS</b> 45728.1.2		<b>TIP</b> B-5772		<b>COUNTY</b> ROWAN		<b>GEOLOGIST</b> GOODNIGHT, D.J.								
<b>SITE DESCRIPTION</b> Bridge No. 66 on SR 1724 Over Norfolk Southern Railroad							<b>GROUND WTR (ft)</b>							
<b>BORING NO.</b> EB2-B		<b>STATION</b> 21+58		<b>OFFSET</b> 18 ft RT		<b>ALIGNMENT</b> -L-								
<b>COLLAR ELEV.</b> 840.2 ft		<b>TOTAL DEPTH</b> 22.5 ft		<b>NORTHING</b> 714,481		<b>EASTING</b> 1,537,700								
<b>DRILL RIG/HAMMER EFF./DATE</b> CG29022 Mobile B-29 88% 03/26/2020				<b>DRILL METHOD</b> H.S. Augers		<b>HAMMER TYPE</b> Automatic								
<b>DRILLER</b> Kiker, J.		<b>START DATE</b> 02/24/21		<b>COMP. DATE</b> 02/24/21		<b>SURFACE WATER DEPTH</b> N/A								
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG	SOIL AND ROCK DESCRIPTION	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100				
845														
840														840.2 GROUND SURFACE 0.0
	839.2	1.0	100/0.1							100/0.1				ROADWAY EMBANKMENT
	836.7	3.5	30	13	14									BROWN, SOFT, SANDY SILT (A-4) WITH BOULDER (GRANITE) 3.5
835	834.2	6.0	4	5	6									RESIDUAL
	831.7	8.5	2	2	3									PINK-TAN, RED-TAN, & WHITE-TAN, MEDIUM DENSE TO LOOSE, SILTY SAND (A-2-4)
830														
	826.7	13.5	4	4	4									
825														
	821.7	18.5	100/0.5							100/0.5				WEATHERED ROCK 17.5
820														WHITE & GRAY, GRANITE
	817.8	22.4	60/0.1							60/0.1				CRYSTALLINE ROCK 22.4
														WHITE & GRAY, GRANITE 22.5
														Boring Terminated WITH STANDARD PENETRATION TEST REFUSAL at Elevation 817.7 ft IN CR: GRANITE

NCDOT BORE DOUBLE B5772\_BORINGS.GPJ\_NC\_DOT.GDT\_3/8/21



VIEW ALONG END BENT 1 FROM EB1-A TOWARD EB1-B



VIEW ALONG END BENT 2 FROM EB2-A TOWARD EB2-B



VIEW UPSTATION FROM END BENT 1 TOWARD END BENT 2



VIEW DOWNSTATION FROM END BENT 2 TOWARD END BENT 1



FALCON ENGINEERING, INC.  
1210 TRINITY ROAD, SUITE 110  
RALEIGH, NC 27607  
PHONE: 919.871.0800  
FAX: 919.871.0803

**SITE PHOTOGRAPHS**

BRIDGE NO. 66 ON SR 1724 OVER NORFOLK  
SOUTHERN RAILROAD  
ROWAN COUNTY, NC  
WBS NO.: 45728.1.2 & TIP NO.: B-5772  
FALCON PROJECT NO.: G20049.00