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#### STATE OF NORTH CAROLINA

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

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## **STRUCTURE** SUBSURFACE INVESTIGATION

COUNTY **YADKIN/SURRY** 

PROJECT DESCRIPTION REPLACE BRIDGE 850006 ON I-77 OVER NC 268, SOUTHERN RAILROAD, AND THE YADKIN RIVER

STATE PROJECT REFERENCE NO. N.C. B-5831

#### **CAUTION NOTICE**

THE SUBSURFACE INFORMATION AND THE SUBSURFACE INVESTIGATION ON WHICH IT IS BASED WERE MADE FOR THE PURPOSE OF STUDY, PLANNING AND DESIGN, AND NOT FOR CONSTRUCTION OR PAY PURPOSES. THE VARIOUS FIELD BORING LOGS, ROCK CORES AND SOIL TEST DATA AVAILABLE MAY BE REVIEWED OR INSPECTED IN RALEIGH BY CONTACTING THE N. C. DEPARTMENT OF TRANSPORTATION, GEOTECHNICAL ENGINEERING UNIT AT 1991 707-6850, THE SUBSURFACE PLANS AND REPORTS, FIELD BORING LOGS, ROCK CORES AND SOIL TEST DATA ARE NOT PART OF THE CONTRACT.

GENERAL SOIL AND ROCK STRATA DESCRIPTIONS AND INDICATED BOUNDARIES ARE BASED ON A GEOTECHNICAL INTERPRETATION OF ALL AVAILABLE SUBSURFACE DATA AND MAY NOT NECESSARILY REFLECT THE ACTUAL SUBSURFACE CONDITIONS BETWEEN BORINGS OR BETWEEN SAMPLED STRATA WITHIN THE BOREHOLE. THE LABORATORY SAMPLE DATA AND THE IN SITU IN-PLACE TEST DATA CAN BE RELIED ON ONLY TO THE DEGREE OF RELIABILITY INHERENT IN THE STANDARD TEST METHOD. THE OBSERVED WATER LEVELS OR SOIL MOISTURE CONDITIONS NDICATED 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 INTERRETATIONS 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 COMPRISATION OR EXTENSION OF TIME BASED ON DIFFERENCES BETWEEN THE CONDITIONS INDICATED HEREIN AND THE ACTUAL CONDITIONS AT THE PROJECT SITE.

J. MIZE P. FALLON

F&R PERSONNEL

TCSS PERSONNEL

YCSO PERSONNEL

INVESTIGATED BY \_ RK&K, LLP

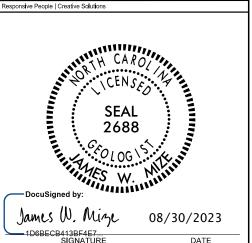
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SUBMITTED BY \_RK&K, LLP

DATE AUGUST 2023





**DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED** 

PROJECT REFERENCE NO. SHEET NO. 2

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

## SUBSURFACE INVESTIGATION

SOIL AND ROCK LEGEND, TERMS, SYMBOLS, AND ABBREVIATIONS

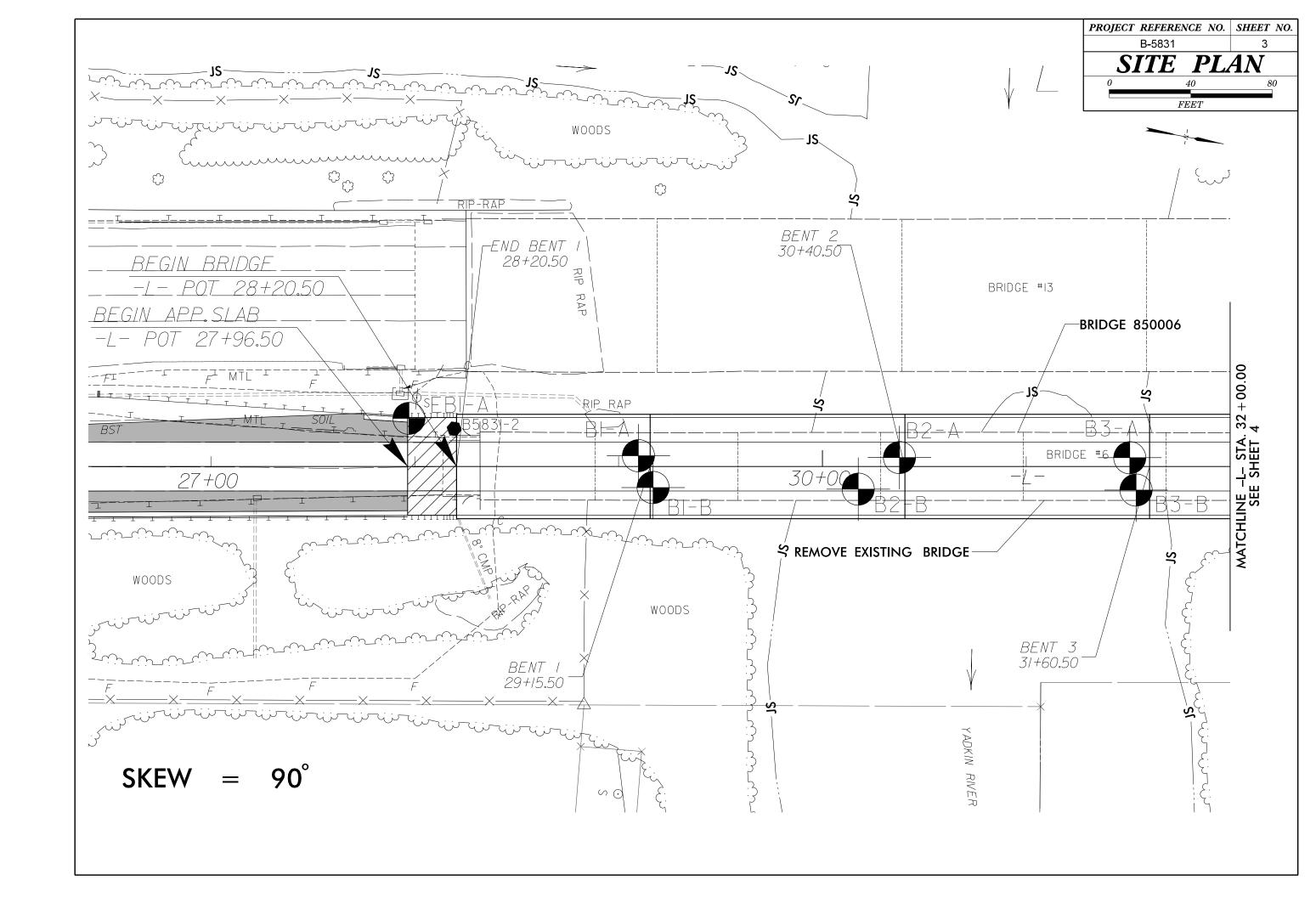
SOIL DESCRIPTION	GRADATION	ROCK DESCRIPTION	TERMS AND DEFINITIONS
SOIL IS CONSIDERED UNCONSOLIDATED, SEMI-CONSOLIDATED, OR WEATHERED EARTH MATERIALS THAT CAN BE PENETRATED WITH A CONTINUOUS FLIGHT POWER AUGER AND YIELD LESS THAN 100 BLOWS PER FOOT ACCORDING TO THE STANDARD PENETRATION TEST (AASHTO T 206, ASTM D1586). SOIL CLASSIFICATION IS BASED ON THE AASHTO SYSTEM. BASIC DESCRIPTIONS GENERALLY INCLUDE THE FOLLOWING: CONSISTENCY, COLOR, TEXTURE, MOISTURE, ASSHTO CLASSIFICATION, AND OTHER PERTINENT FACTORS SUCH	WELL GRADED - INDICATES A GOOD REPRESENTATION OF PARTICLE SIZES FROM FINE TO COARSE. <u>UNIFORMLY GRADED</u> - INDICATES THAT SOIL PARTICLES ARE ALL APPROXIMATELY THE SAME SIZE. <u>GAP-GRADED</u> - INDICATES A MIXTURE OF UNIFORM PARTICLE SIZES OF TWO OR MORE SIZES.  ANGULARITY OF GRAINS	HABD 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 ØLIFOOT PER 60 BLOWS IN NON-COASTAL PLAIN MATERIAL. THE TRANSITION BETWEEN SOIL AND ROCK IS OFTEN REPRESENTED BY A ZONE OF WEATHERED ROCK.	ALLUVIUM (ALLUV.) - SOILS THAT HAVE BEEN TRANSPORTED BY WATER.  ADUIFER - A WATER BEARING FORMATION OR STRATA.  ARENACEOUS - APPLIED TO ROCKS THAT HAVE BEEN DERIVED FROM SAND OR THAT CONTAIN SAND.
AS MINERALOGICAL COMPOSITION, ANDULARITY, 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:	ROCK MATERIALS ARE TYPICALLY DIVIDED AS FOLLOWS:  WEATHERED  NON-COASTAL PLAN 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  GENERAL GRANULAR MATERIALS SILT-CLAY MATERIALS CONTROL OF THE PROPERTY	ANGULAR, SUBANGULAR, SUBROUNDED, OR ROUNDED.  MINERALOGICAL COMPOSITION	ROCK (WR)  FINE TO COARSE GRAIN IGNEOUS AND METAMORPHIC ROCK THAT	ARTESIAN - GROUND WATER THAT IS UNDER SUFFICIENT PRESSURE TO RISE ABOVE THE LEVEL AT WHICH IT IS ENCOUNTERED, BUT WHICH DOES NOT NECESSARILY RISE TO OR ABOVE THE GROUND
CLASS. (≤ 35% PASSING *200) (> 35% PASSING *200) UNGANIC MATERIALS	MINERAL NAMES SUCH AS QUARTZ, FELDSPAR, MICA, TALC, KAOLIN, ETC.  ARE USED IN DESCRIPTIONS WHEN THEY ARE CONSIDERED OF SIGNIFICANCE.	CRYSTALLINE ROCK (CR)  OULD YIELD SPT REFUSAL IF TESTED. ROCK TYPE INCLUDES GRANITE, GNEISS, GABBRO, SCHIST, ETC.	SURFACE.  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-A A-1-A-1 A-2 A-4, A-5 A-2-7 A-1-A-2 A-4, A-5 A-3 A-5, A-7-A-1-A-2 A-4, A-5 A-6, A-7 A-1-A-2 A-1-A-1-A-2 A-1-A-1-A-2 A-1-A-1-A-1-A-1-A-1-A-1-A-1-A-1-A-1-A-1	COMPRESSIBILITY	NON-CRYSTALLINE ROCK (NCR) FINE TO COARSE GRAIN METAMORPHIC AND NON-COASTAL PLAIN SEDIMENTARY ROCK THAT WOULD YELLD SPT REFUSAL IF TESTED. ROCK TYPE INCLUDES PHYLLITE, SLATE, SANDSTONE, ETC.	COLLUVIUM - ROCK FRAGMENTS MIXED WITH SOIL DEPOSITED BY GRAVITY ON SLOPE OR AT BOTTOM OF SLOPE.
SYMBOL 000000000000000000000000000000000000	SLIGHTLY COMPRESSIBLE LL < 31 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.
**10 50 MX	PERCENTAGE OF MATERIAL  GRANULAR SILT CLAY	(CP) SHELL BEDS, ETC. WEATHERING	DIKE - A TABULAR BODY OF IGNEOUS ROCK THAT CUTS ACROSS THE STRUCTURE OF ADJACENT ROCKS OR CUTS MASSIVE ROCK.
*200 15 MX 25 MX 10 MX 35 MX 35 MX 35 MX 36 MN	ORGANIC MATERIAL SOILS SOILS OTHER MATERIAL  TRACE OF ORGANIC MATTER 2 - 3% 3 - 5% TRACE 1 - 10%	FRESH ROCK FRESH, CRYSTALS BRIGHT, FEW JOINTS MAY SHOW SLIGHT STAINING. ROCK RINGS UNDER HAMMER IF CRYSTALLINE.	DIP - THE ANGLE AT WHICH A STRATUM OR ANY PLANAR FEATURE IS INCLINED FROM THE HORIZONTAL.
PASSING *40	LITTLE ORGANIC MATTER 3 - 5% 5 - 12% LITTLE 10 - 20% MODERATELY ORGANIC 5 - 10% 12 - 20% SOME 20 - 35% HIGHLY ORGANIC > 10% > 20% HIGHLY 35% AND ABOVE	VERY SLIGHT ROCK GENERALLY FRESH, JOINTS STAINED, SOME JOINTS MAY SHOW THIN CLAY COATINGS IF OPEN, (V SLI,) CRYSTALS ON A BROKEN SPECIMEN FACE SHINE BRIGHTLY, ROCK RINGS UNDER HAMMER BLOWS IF OF A CRYSTALLINE NATURE.	DIP DIRECTION (DIP AZIMUTH) - THE DIRECTION OR BEARING OF THE HORIZONTAL TRACE OF THE LINE OF DIP, MEASURED CLOCKWISE FROM NORTH.
GROUP INDEX 0 0 0 4 MX 8 MX 12 MX 16 MX NO MX AMOUNTS OF SOILS  USUAL TYPES STONE FRAGS	GROUND WATER   ✓ WATER LEVEL IN BORE HOLE IMMEDIATELY AFTER DRILLING	SLIGHT ROCK GENERALLY FRESH, JOINTS STAINED AND DISCOLORATION EXTENDS INTO ROCK UP TO (SLI.) 1 INCH. OPEN JOINTS MAY CONTAIN CLAY. IN GRANITOID ROCKS SOME OCCASIONAL FELDSPAR	FAULT - A FRACTURE OR FRACTURE ZONE ALONG WHICH THERE HAS BEEN DISPLACEMENT OF THE SIDES RELATIVE TO ONE ANOTHER PARALLEL TO THE FRACTURE.
OF MAJOR GRAVEL AND SILTY OR CLAYEY SILTY CLAYEY MATTER MATTER SAND MATERIALS SAND CRAYEL AND SAND SOILS SOILS	STATIC WATER LEVEL AFTER 24 HOURS	CRYSTALS ARE DULL AND DISCOLORED. CRYSTALLINE ROCKS RING UNDER HAMMER BLOWS.  MODERATE SIGNIFICANT PORTIONS OF ROCK SHOW DISCOLORATION AND WEATHERING EFFECTS. IN	FISSILE - A PROPERTY OF SPLITTING ALONG CLOSELY SPACED PARALLEL PLANES.  FLOAT - ROCK FRAGMENTS ON SURFACE NEAR THEIR ORIGINAL POSITION AND DISLODGED FROM
GEN. RATING AS SUBGRADE EXCELLENT TO GOOD FAIR TO POOR POOR UNSUITABLE	<u> </u>	(MOD.) GRANITOID ROCKS, MOST FELDSPARS ARE DULL AND DISCOLORED, SOME SHOW CLAY. ROCK HAS DULL SOUND UNDER HAMMER BLOWS AND SHOWS SIGNIFICANT LOSS OF STRENGTH AS COMPARED WITH FRESH ROCK.	PARENT MATERIAL.  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 CONSISTENCY OR DENSENESS	SPRING OR SEEP  MISCELLANEOUS SYMBOLS	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.
PRIMARY SOIL TYPE COMPACTIONS OF PENETRATION RESISTENCE COMPRESSIVE STRENGTH	ROADWAY EMBANKMENT (RE) 25/025 DIP & DIP DIRECTION	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.  IF TESTED, MOULD YIELD SPT REFUSAL	JOINT - FRACTURE IN ROCK ALONG WHICH NO APPRECIABLE MOVEMENT HAS OCCURRED.
CONSISTENCY (N-VALUE) (TONS/FT <sup>2</sup> )	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 FELOSPARS ARE KAOLINIZED	LEDGE - A SHELF-LIKE RIDGE OR PROJECTION OF ROCK WHOSE THICKNESS IS SMALL COMPARED TO ITS LATERAL EXTENT.
GENERALLY VERY LOOSE	SUIL STMBOL INSTALLATION INSTALLATION	TO SOME EXTENT. SOME FRAGMENTS OF STRONG ROCK USUALLY REMAIN.  IF TESTED, WOULD YIELD SPT N VALUES > 100 BPF	LENS - A BODY OF SOIL OR ROCK THAT THINS OUT IN ONE OR MORE DIRECTIONS.  MOTTLED (MOT.) - IRREGULARLY MARKED WITH SPOTS OF DIFFERENT COLORS. MOTTLING IN SOILS
MATERIAL DENSE 30 TO 50 VERY DENSE > 50 VERY SOFT < 2 < 0.25	ARTIFICIAL FILL (AF) OTHER THAN ROADWAY EMBANKMENT AUGER BORING  CONE PENETROMETER TEST  OTHER PENETROMETER TEST  OTHER PENETROMETER TEST  SOUNDING ROD	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 (V SEV.) REMAINING. SAPROLITE IS AN EXAMPLE OF ROCK WEATHERED TO A DEGREE THAT ONLY MINOR	USUALLY INDICATES POOR AERATION AND LACK OF GOOD DRAINAGE.  PERCHED WATER - WATER MAINTAINED ABOVE THE NORMAL GROUND WATER LEVEL BY THE PRESENCE 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	VESTIGES OF ORIGINAL ROCK FABRIC REMAIN. <i>IF TESTED, WOULD YIELD SPT N VALUES &lt; 100 BPF</i> 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.  ROCK QUALITY DESIGNATION (ROD) - A MEASURE OF ROCK QUALITY DESCRIBED BY TOTAL LENGTH OF
MATERIAL STIFF 8 TO 15 1 TO 2 (COHESIVE) VERY STIFF 15 TO 30 2 TO 4	TTTTT ALLUVIAL SOIL BOUNDARY A PIEZOMETER INSTALLATION SPT N-VALUE	SCATTERED CONCENTRATIONS. QUARTZ MAY BE PRESENT AS DIKES OR STRINGERS. SAPROLITE IS ALSO AN EXAMPLE.	ROCK SCHENTS EQUAL TO DR GREATER THAN 4 INCHES DIVIDED BY THE TOTAL LENGTH OF CORE RUN AND EXPRESSED AS A PERCENTAGE.
HARD 30 > 4  TEXTURE OR GRAIN SIZE	RECOMMENDATION SYMBOLS	ROCK HARDNESS	SAPPOLITE (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 OPENING (MM) 4.76 2.00 0.42 0.25 0.075 0.053	UNDERCUT UNCLASSIFIED EXCAVATION - UNCLASSIFIED EXCAVATION - ACCEPTABLE, BUT NOT TO BE USED IN THE TOP 3 FEET OF UNCLASSIFIED EXCAVATION -	VERY HARD  CANNOT BE SCRATCHED BY KNIFE OR SHARP PICK, BREAKING OF HAND SPECIMENS REQUIRES SEVERAL HARD BLOWS OF THE GEOLOGIST'S PICK.  HARD  CAN BE SCRATCHED BY KNIFE OR PICK ONLY WITH DIFFICULTY, HARD HAMMER BLOWS REQUIRED	SILL - 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.
BOULDER COBBLE GRAVEL COARSE FINE SILT CLAY (BLDR.) (COB.) (GR.) (CSE. SD.) (F SD.) (SL.) (CL.)	SHALLOW UNCLASSIFIED EXCAVATION - UNDERCUT UNDER	TO DETACH HAND SPECIMEN.  MODERATELY CAN BE SCRATCHED BY KNIFE OR PICK, GOUGES OR GROOVES TO 0.25 INCHES DEEP CAN BE	SICKENSIDE - POLISHED AND STRIATED SURFACE THAT RESULTS FROM FRICTION ALONG A FAULT 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	HARD EXCAVATED BY HARD BLOW OF A GEOLOGIST'S PICK, HAND SPECIMENS CAN BE DETACHED BY MODERATE BLOWS.  ACTUAL CAN BE CONCERN OR CONCERN OF A SECURITY OF THE PROPERTY OF MALE OF THE PROPERTY O	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
SOIL MOISTURE - CORRELATION OF TERMS	CL CLAY MOD MODERATELY $\gamma$ - UNIT WEIGHT CPT - CONE PENETRATION TEST NP - NON PLASTIC $\gamma_{\rm d}$ - DRY 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 I INCH MAXIMUM SIZE BY HARD BLOWS OF THE POINT OF A GEOLOGIST'S PICK.	WITH A 2 INCH OUTSIDE DIAMETER SPLIT SPOON SAMPLER. SPT REFUSAL IS PENETRATION EQUAL TO OR LESS THAN 0.1 FOOT PER 60 BLOWS.
SOIL MOISTURE SCALE FIELD MOISTURE GUIDE FOR FIELD MOISTURE DESCRIPTION	CSE COARSE ORG ORGANIC DMT - DILATOMETER TEST PMT - PRESSUREMETER TEST SAMPLE ABBREVIATIONS DPT - DYNAMIC PENETRATION TEST SAP SAPROLITIC S - BULK	SOFT CAN BE GROVED OR COUGED 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.	STRATA CORE RECOVERY (SREC.) - TOTAL LENGTH OF STRATA MATERIAL RECOVERED DIVIDED BY TOTAL LENGTH OF STRATUM AND EXPRESSED AS A PERCENTAGE.
- SATURATEO - USUALLY LIQUID, VERY WET, USUALLY (SAT.) FROM BELOW THE GROUND WATER TABLE	e - VOID RATIO SD SAND, SANDY SS - SPLIT SPOON F - FINE SL SILT, SILTY ST - SHELBY TUBE FOSS FOSSILIFEROUS SLI SLIGHTLY RS - ROCK	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 FINGERNALL.	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.  TOPSOIL (TS.) - SURFACE SOILS USUALLY CONTAINING ORGANIC MATTER.
PLASTIC   SEMISOLID; REQUIRES DRYING TO ATTAIN OPTIMUM MOISTURE	FRAC FRACTURED, FRACTURES TCR - TRICONE REFUSAL RT - RECOMPACTED TRIAXIAL FRAGS FRAGMENTS $w$ - MOISTURE CONTENT CBR - CALIFORNIA BEARING	FRACTURE SPACING BEDDING	BENCH MARK: N/A
(P) PLPLASTIC LIMIT	HI HIGHLY V - VERY RATIO  EQUIPMENT USED ON SUBJECT PROJECT	TERM SPACING TERM THICKNESS  VERY WIDE MORE THAN 10 FEET VERY THICKLY BEDDED 4 FEET	ELEVATION: N/A FEET
OM OPTIMUM MOISTURE - MOIST - (M) SOLID; AT OR NEAR OPTIMUM MOISTURE SL SHRINKAGE LIMIT	DRILL UNITS: ADVANCING TOOLS: HAMMER TYPE:  CME-45C CLAY BITS X AUTOMATIC MANUAL	MIDE	NOTES:
- DRY - (D) REQUIRES ADDITIONAL WATER TO ATTAIN OPTIMUM MOISTURE	6° CONTINUOUS FLIGHT AUGER CORE SIZE:	VERY CLOSE LESS THAN 0.16 FEET THICKLY LAMINATED 4.088 - 0.35 FEET THINLY LAMINATED 4.098 FEET C0.098 FEET	BORING ELEVATIONS WERE DETERMINED AT THE TIME OF DRILLING WITH A SURVEY GRADE GPS UNIT.
PLASTICITY	X 8'HOLLOW AUGERS   L-B L-H	INDURATION  FOR SEDIMENTARY ROCKS, INDURATION IS THE HARDENING OF MATERIAL BY CEMENTING, HEAT, PRESSURE, ETC.	ABBREVIATIONS:
PLASTICITY INDEX (PI)   DRY STRENGTH	TUNGCARBIDE INSERTS	FRIABLE GENTLE BLOW BY HAMMER DISINTEGRATES SAMPLE.	FIAD - FILLED IMMEDIATELY AFTER DRILLING
SLIGHTLY PLASTIC 6-15 SLIGHT MODERATELY PLASTIC 16-25 MEDIUM HIGHLY PLASTIC 26 OR MORE HIGH	X CASING X W/ ADVANCER POST HOLE DIGGER	MODERATELY INDIDATED GRAINS CAN BE SEPARATED FROM SAMPLE WITH STEEL PROBE;	CT - CORING TERMINATED NA - NOT APPLICABLE / NOT MEASURED
COLOR	PORTABLE HOIST TRICONE STEEL TEETH HAND AUGER TRICONE TRICONE SOUNDING ROD	BREAKS EASILY WHEN HIT WITH HAMMEN.  INDUBATED GRAINS ARE DIFFICULT TO SEPARATE WITH STEEL PROBE:	
DESCRIPTIONS MAY INCLUDE COLOR OR COLOR COMBINATIONS (TAN, RED, YELLOW-BROWN, BLUE-GRAY).  MODIFIERS SUCH AS LIGHT, DARK, STREAKED, ETC. ARE USED TO DESCRIBE APPEARANCE.	X D-50 X CORE BIT VANE SHEAR TEST	DIFFICULT TO BREAK WITH HAMMER.	
PIODIFIENS SUCH AS LIGHT, DAMA, STREAKED, ETC. ARE USED TO DESCRIBE APPEARANCE.		EXTREMELY INDURATED SAMPLE BREAKS ACROSS GRAINS.	

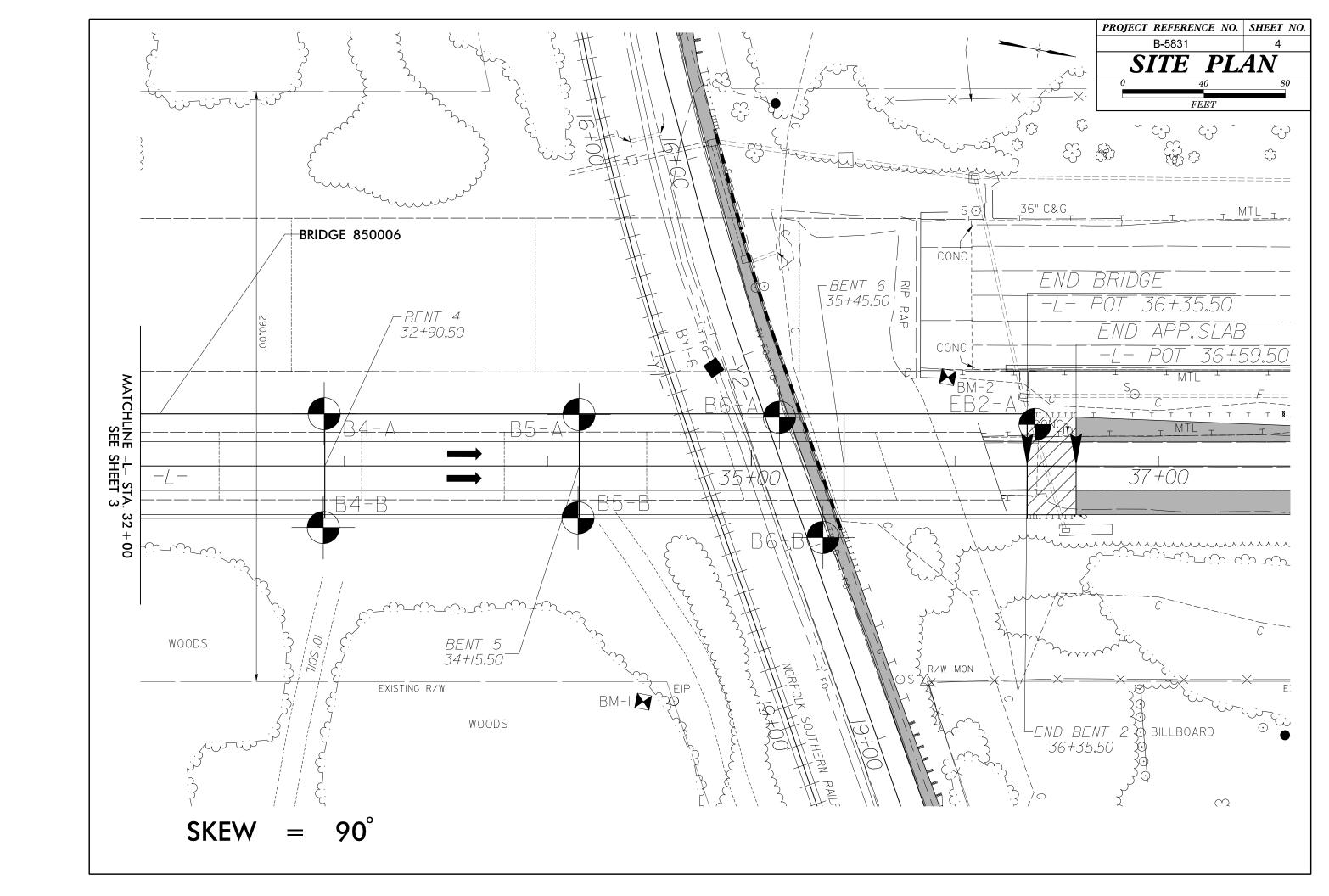
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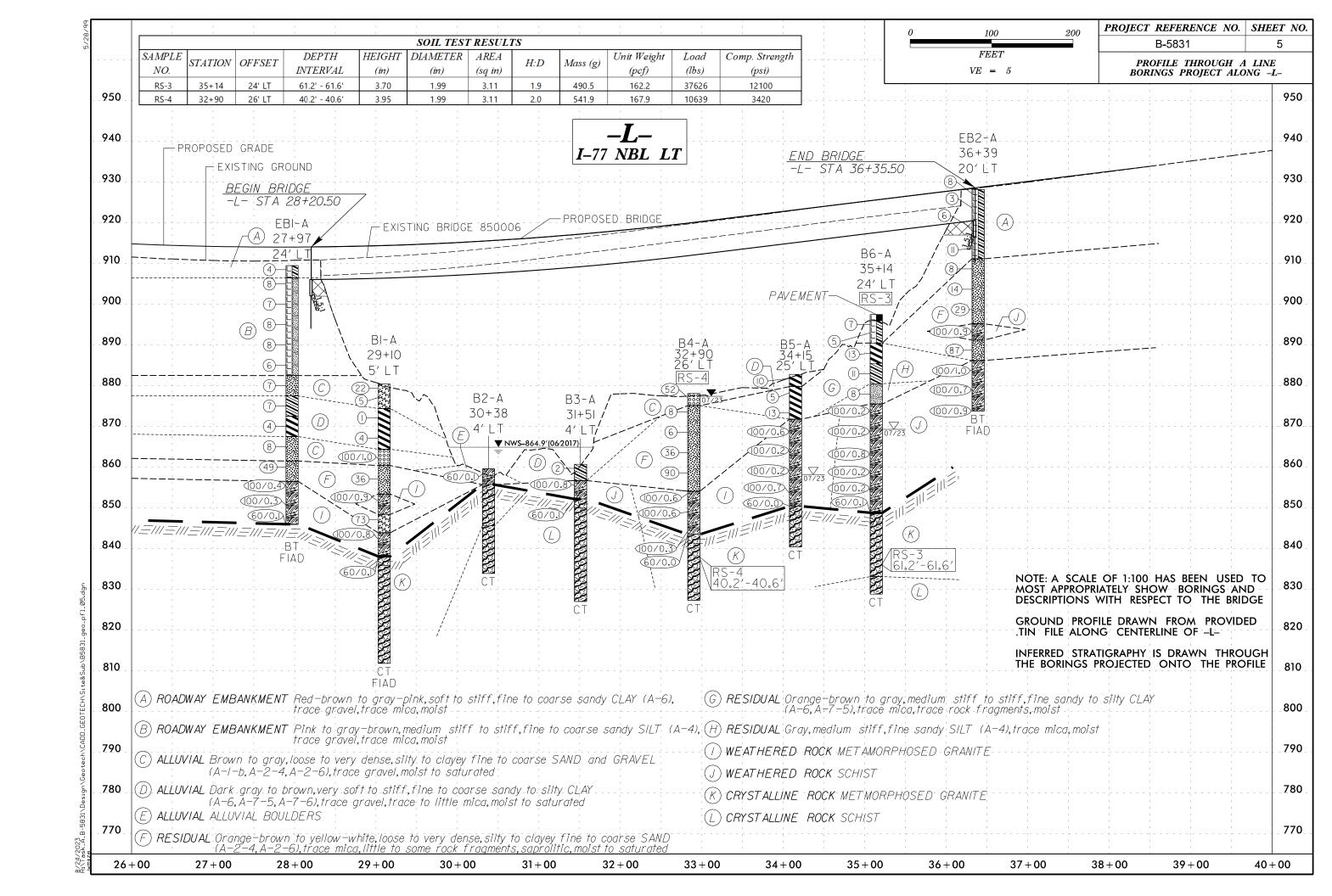
# NORTH CAROLINA DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS GEOTECHNICAL ENGINEERING UNIT

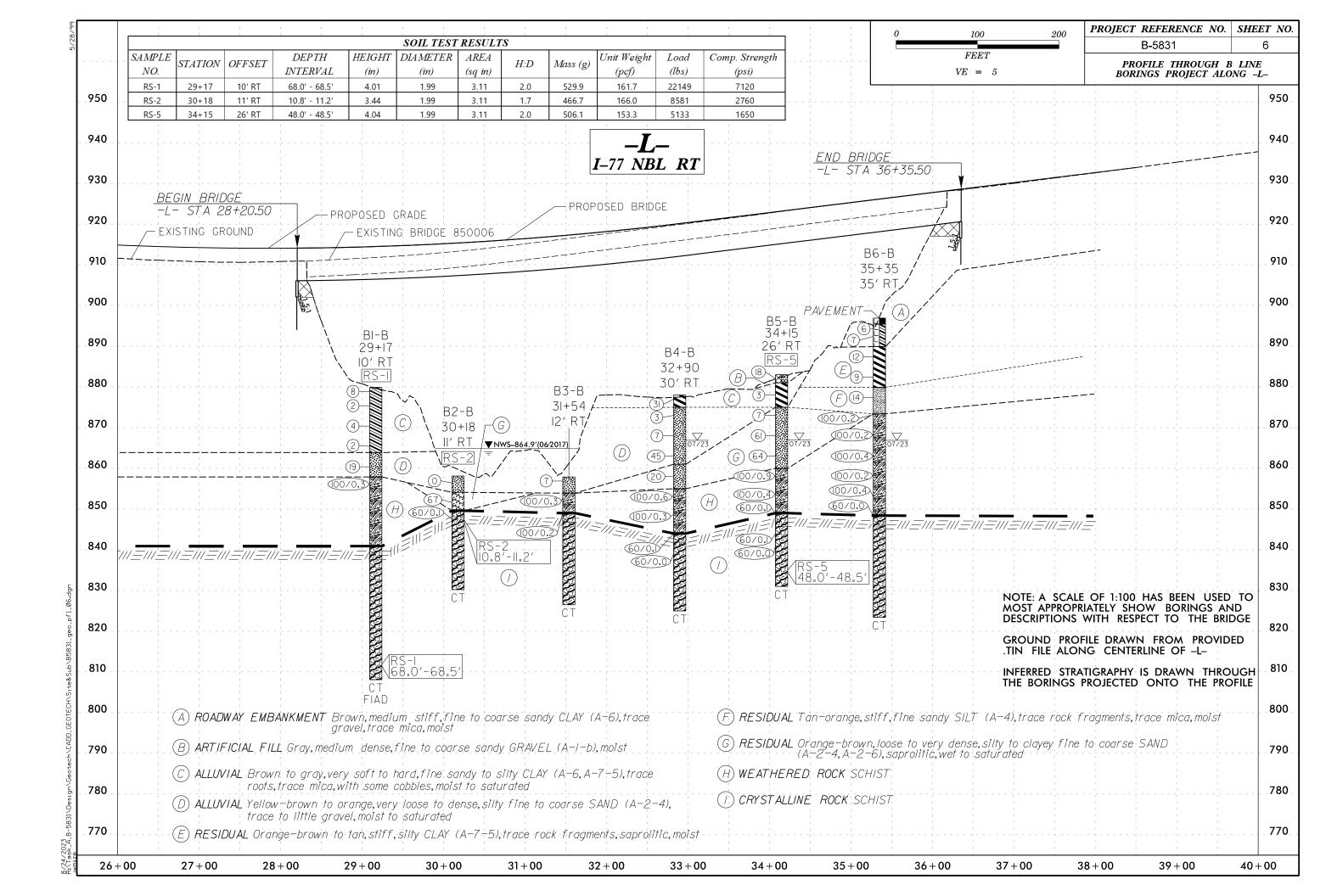
### SUBSURFACE INVESTIGATION

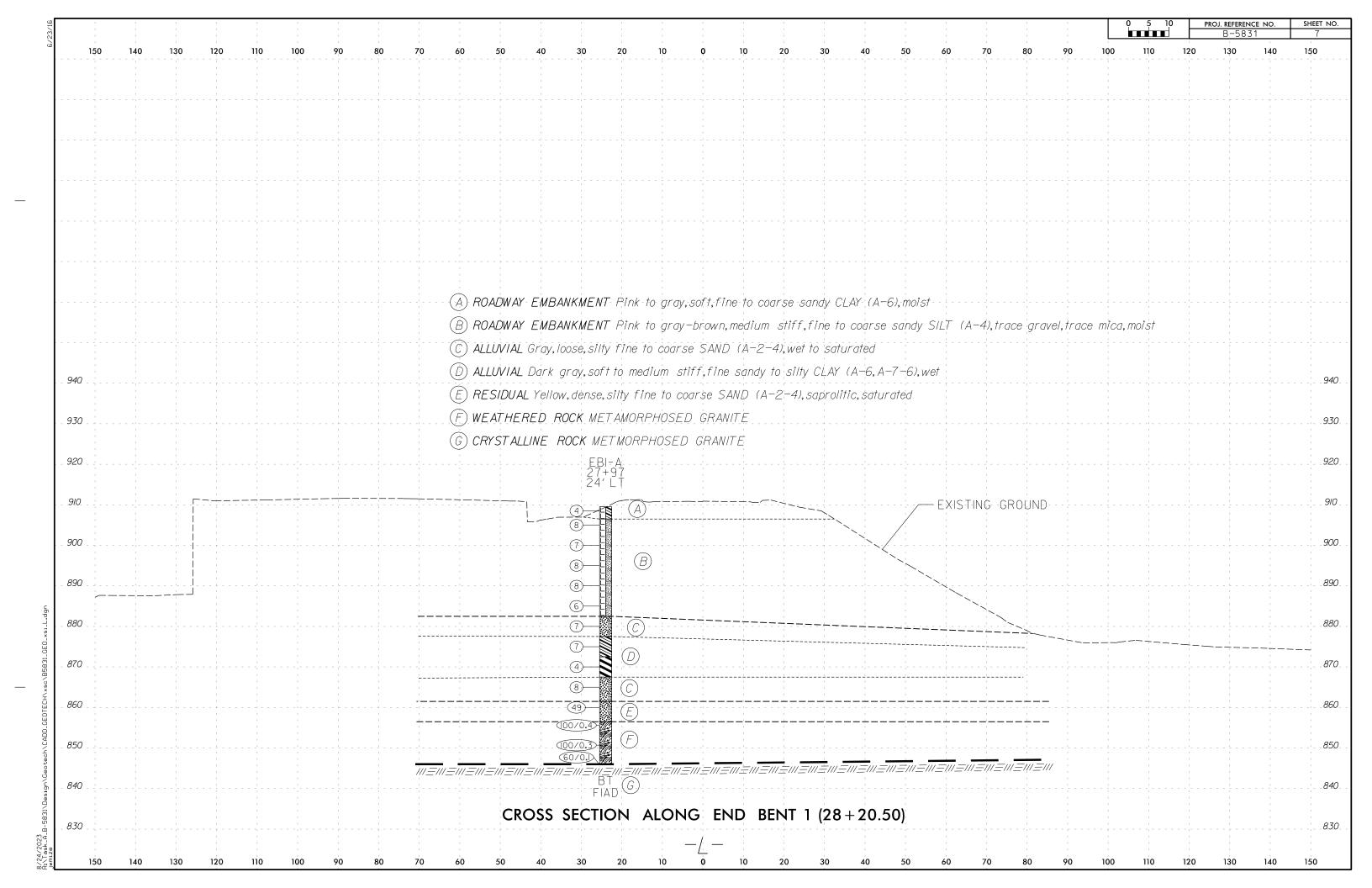
SUPPLEMENTAL LEGEND, GEOLOGICAL STRENGTH INDEX (GSI) TABLES FROM AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS AASHTO LRFD Figure 10.4.6.4-1 — Determination of GSI for Jointed Rock Mass (Marinos and Hoek, 2000) AASHTO LRFD Figure 10.4.6.4-2 — Determination of GSI for Tectonically Deformed Heterogeneous Rock Masses (Marinos and Hoek, 2000) GEOLOGICAL STRENGTH INDEX (GSI) FOR GSI FOR HETEROGENEOUS ROCK MASSES SUCH JOINTED ROCKS (Hoek and Marinos, 2000) AS FLYSCH (Marinos. P and Hoek E., 2000) From a description of the lithology, structure and smooth, slicken-eathered surfaces atings or fillings From the lithology, structure and surface weathered surf ngs or fillings its surface conditions (particularly of the bedding conditions of the discontinuities, estimate weathered moderately altered surfaces the average value of GSI. Do not try to planes), choose a box in the chart. Locate the planes) eq. be too precise. Quoting a range from 33 position in the box that corresponds to the condition O O to 37 is more realistic than stating that of the discontinuities and estimate the average value GSI = 35. Note that the table does not weather of GSI from the contours. Do not attempt to be too apply to structurally controlled failures. precise. Quoting a range from 33 to 37 is more Where weak planar structural planes are realistic than giving GSI = 35. Note that the - Rough, slightly ces present in an unfavorable orientation Hoek-Brown criterion does not apply to structurally with respect to the excavation face, highly coating JR - Very s highly wed colay coat moderately surfaces these will dominate the rock mass controlled failures. Where unfavourably oriented behaviour. The shear strength of surfaces FACE CONDITIC CONTINUITIES dominantly bo continuous weak planar discontinuities are present, Smooth, red and in rocks that are prone to deterioration slightly es these will dominate the behaviour of the rock mass. as a result of changes in moisture The strength of some rock masses is reduced by the content will be reduced if water is 600D rough, . GOOD presence of groundwater and this can be allowed for POOR present. When working with rocks in the by a slight shift to the right in the columns for fair, fair to very poor categories, a shift to the right may be made for wet conditions. Water pressure is dealt with by effective 1 D poor and very poor conditions. Water pressure does 600D surfac Slicke With o VERY FAIR weath VERY Very FAIR Smoot alter VERY Slicke POOR slick coati fragn not change the value of GSI and it is dealt with by stress analysis. using effective stress analysis. STRUCTURE DECREASING SURFACE QUALITY -> COMPOSITION AND STRUCTURE INTACT OR MASSIVE - intact A. Thick bedded, very blocky sandstone .90 rock specimens or massive in 7Ó N/A N/A The effect of pelitic coatings on the bedding situ rock with few widely spaced planes is minimized by the confinement of the rock mass. In shallow tunnels or slopes PIECES discontinuities these bedding planes may cause structurally controlled instability. 80 60 BLOCKY - well interlocked un-70 disturbed rock mass consisting ROCK of cubical blocks formed by three B. Sand-stone with thin inter-layers of intersecting discontinuity sets D. Siltstone 50 C. Sand-60 or silty shale stone and siltstone 9 siltstone with sandor clayey shale with С /E in similar stone layers VERY BLOCKY - interlocked, INTERLOCKING siltstone amounts sandstone 40 partially disturbed mass with 50 layers multi-faceted angular blocks formed by 4 or more joint sets C, D, E, and G - may be more or F. Tectonically deformed, BLOCKY/DISTURBED/SEAMY -30 less folded than illustrated but intensively folded/faulted, folded with angular blocks this does not change the strength. sheared clayey shale or siltstone formed by many intersecting Tectonic deformation, faulting and with broken and deformed ASING discontinuity sets. Persistence loss of continuity moves these categories to F and H. sandstone lauers forming an 30 almost chaotic structure of bedding planes or schistosity 20 DECRE DISINTEGRATED - poorly interlocked, heavily broken rock mass 20 H. Tectonically deformed silty G. Undisturbed siltu with mixture of angular and or clayey shale forming a or clayey shale with 10 rounded rock pieces or without a few very chaotic structure with pockets of clay. Thin layers of thin sandstone layers sandstone are transformed nto small rock pieces. 10 LAMINATED/SHEARED - Lack of blockiness due to close spacing N/A N/A → Means deformation after tectonic disturbance of weak schistosity or shear planes DATE: 8-19-16

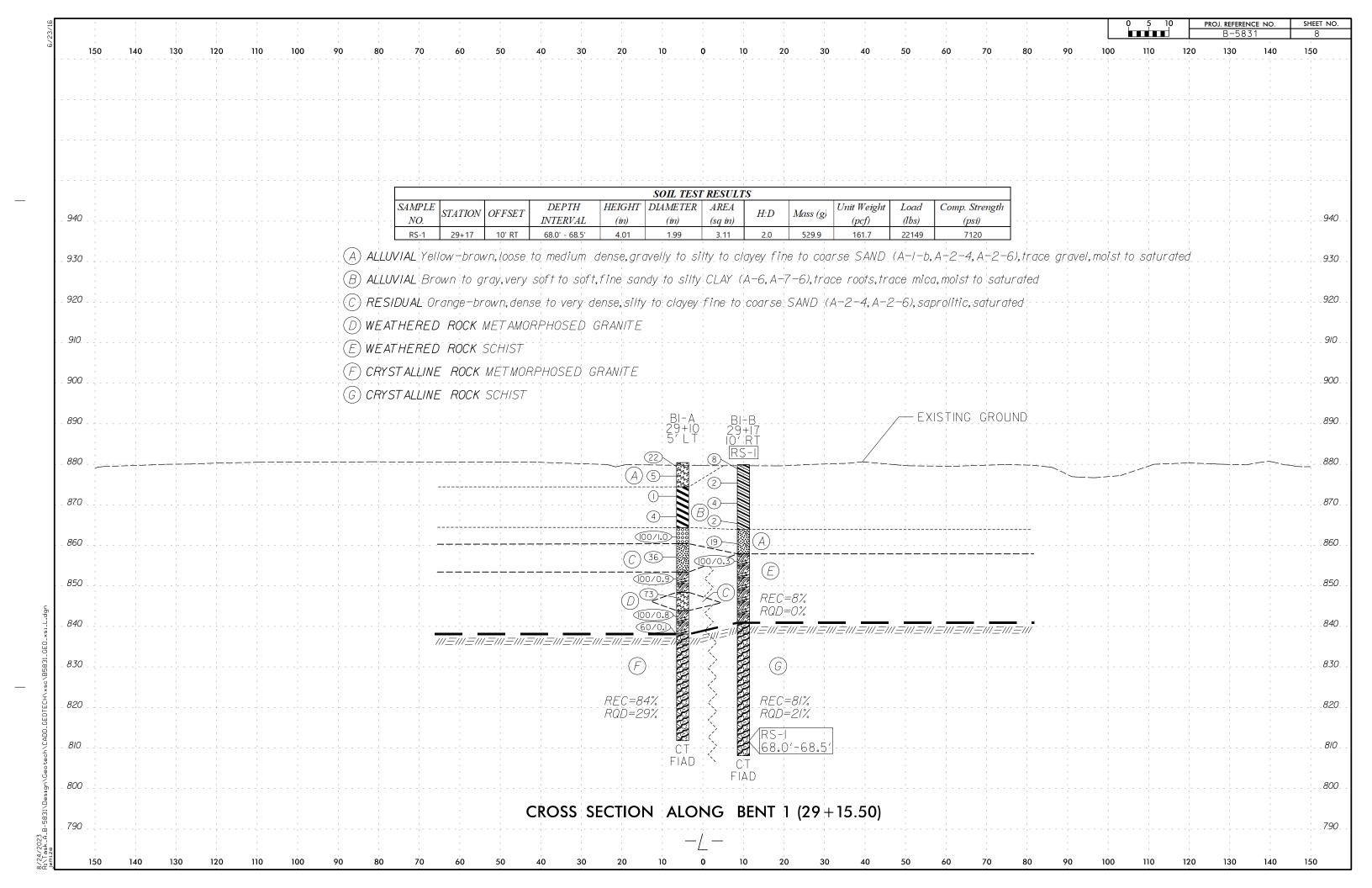


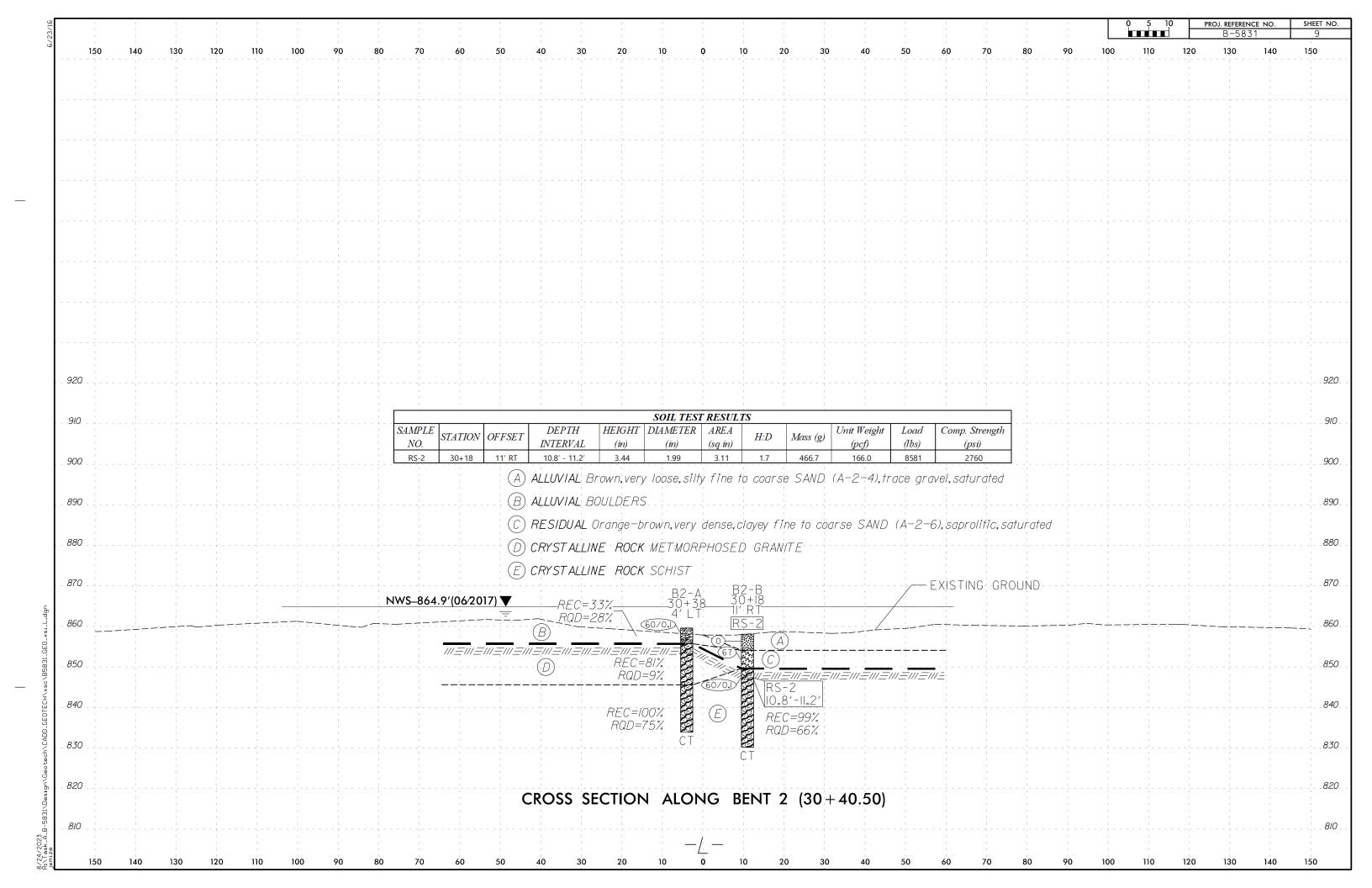


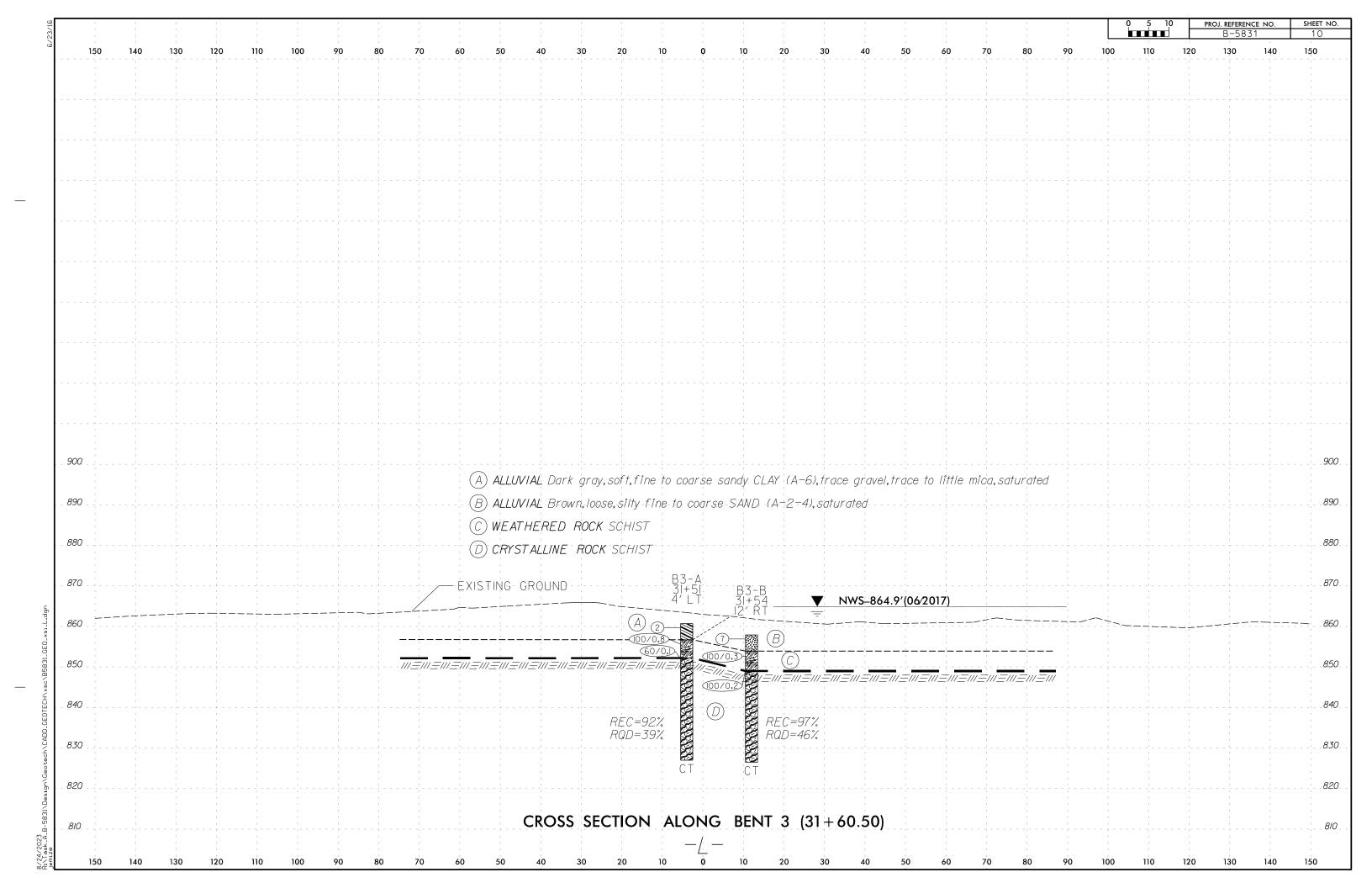


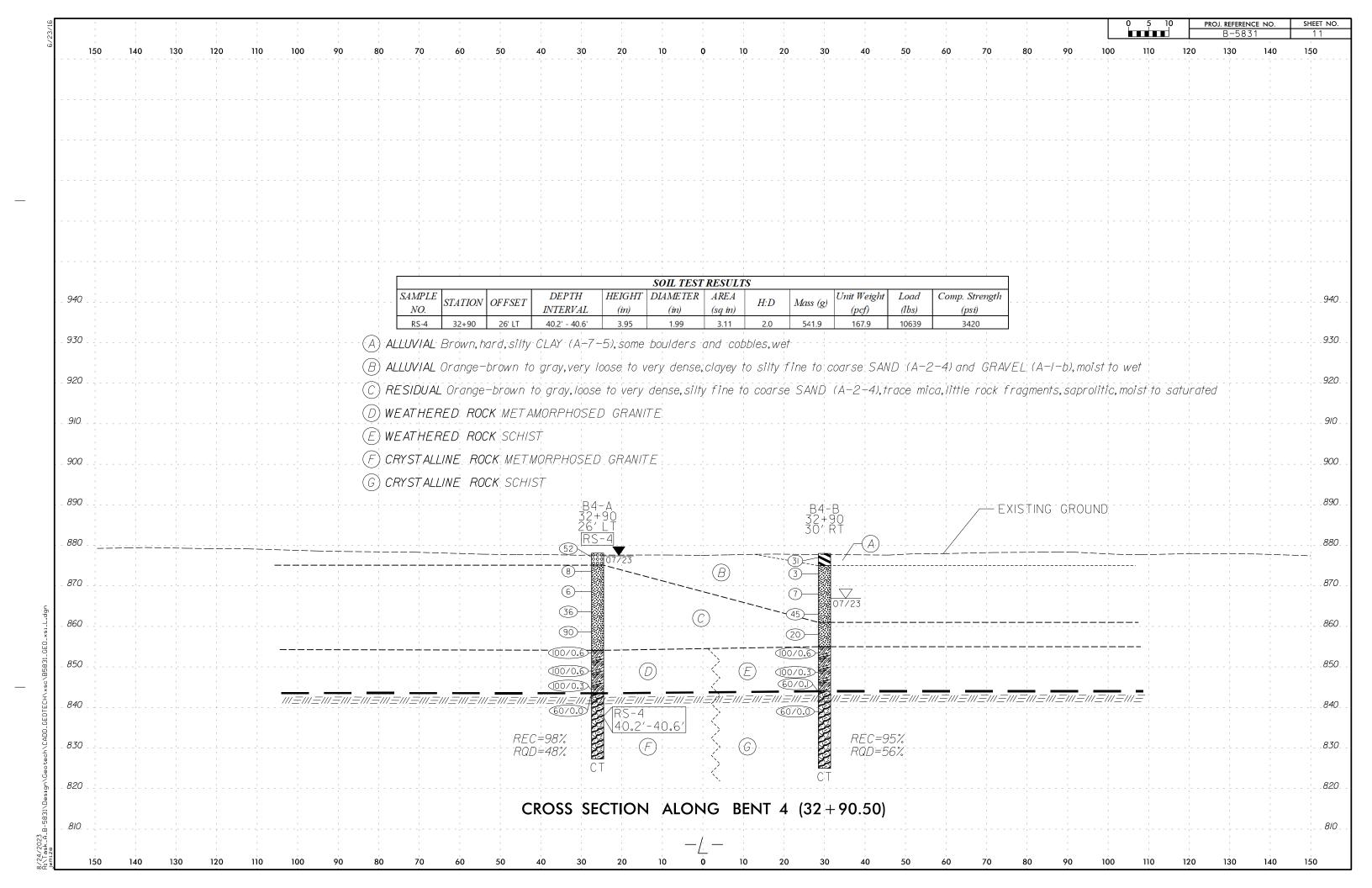


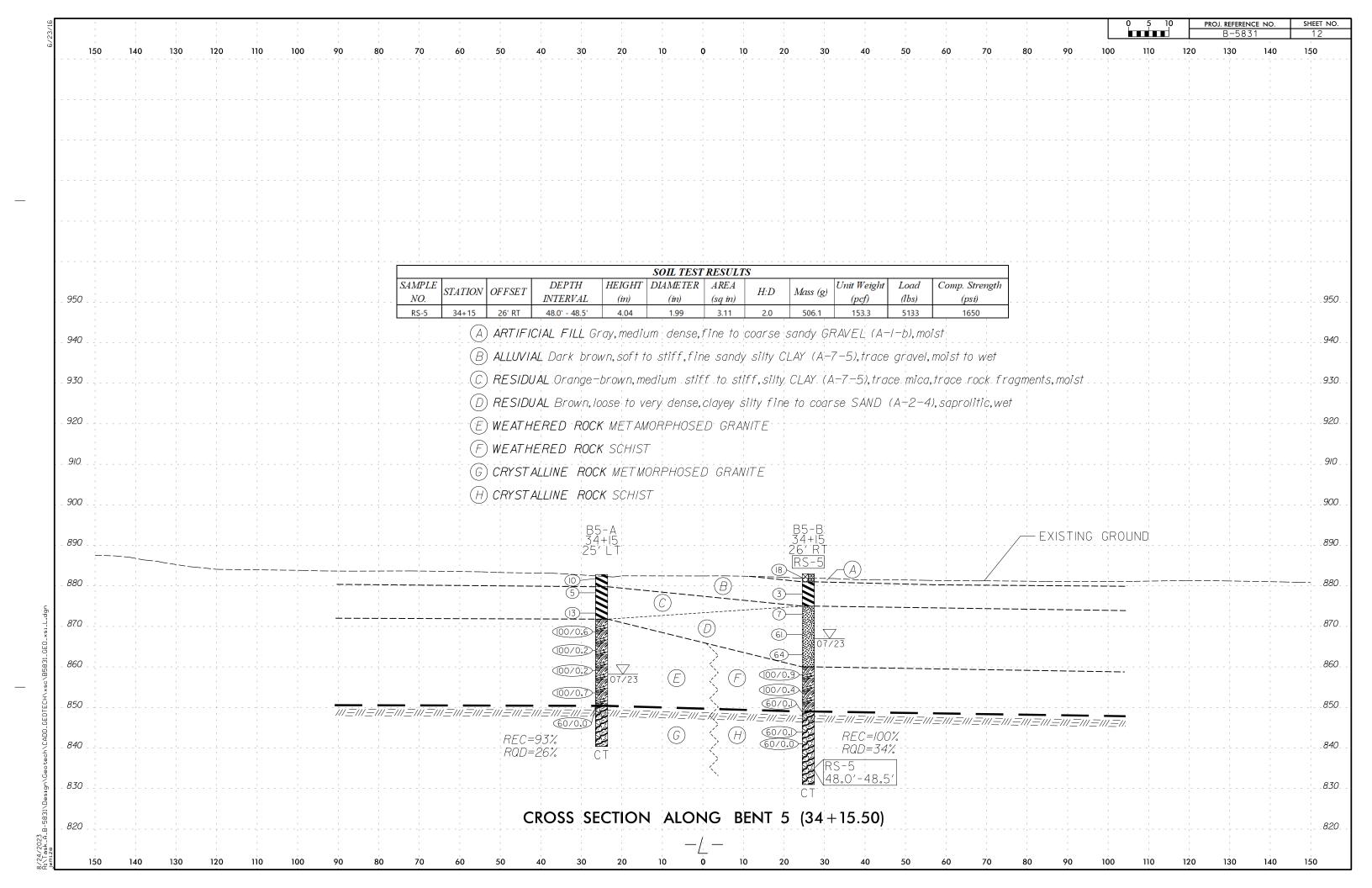


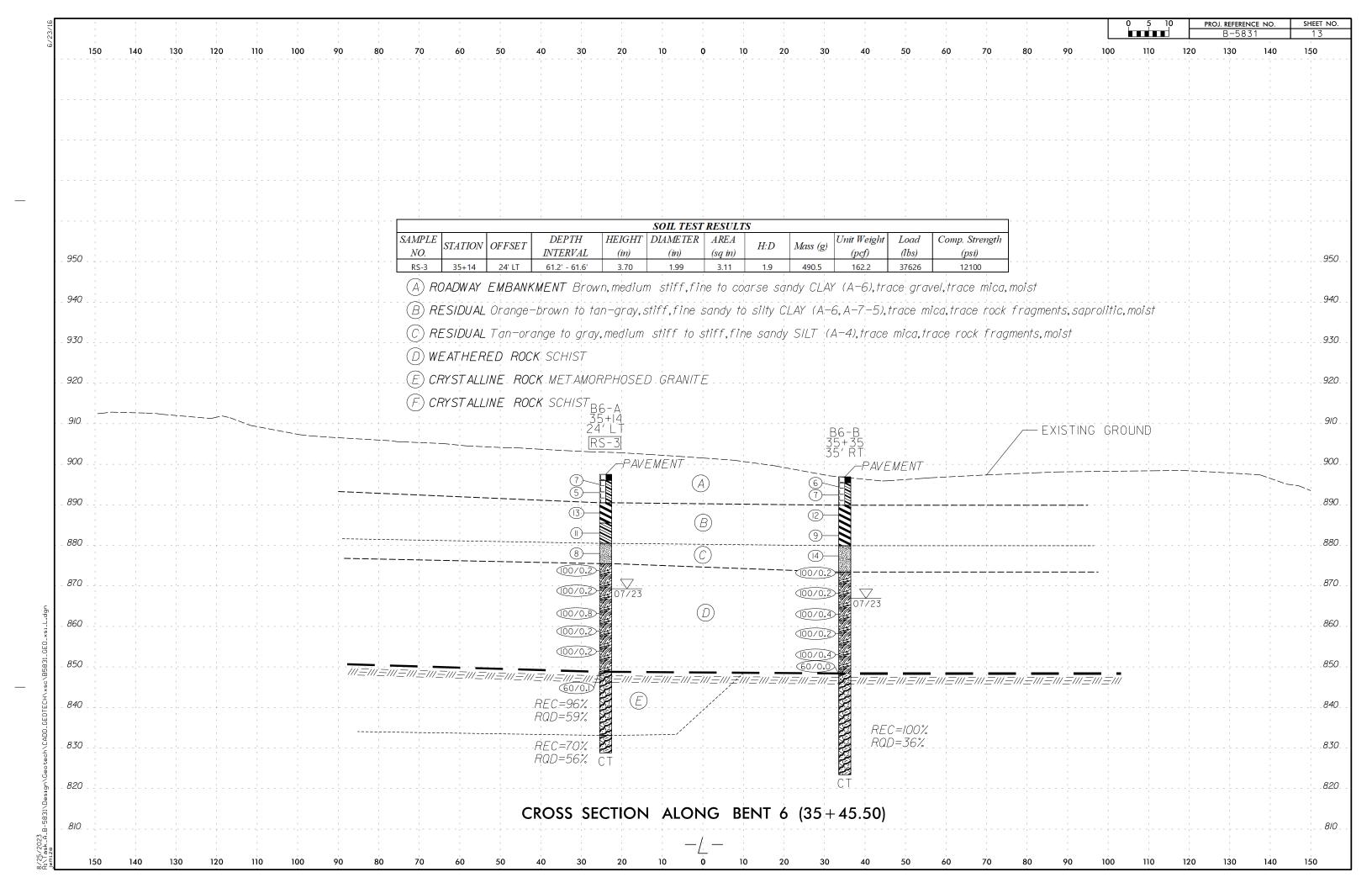


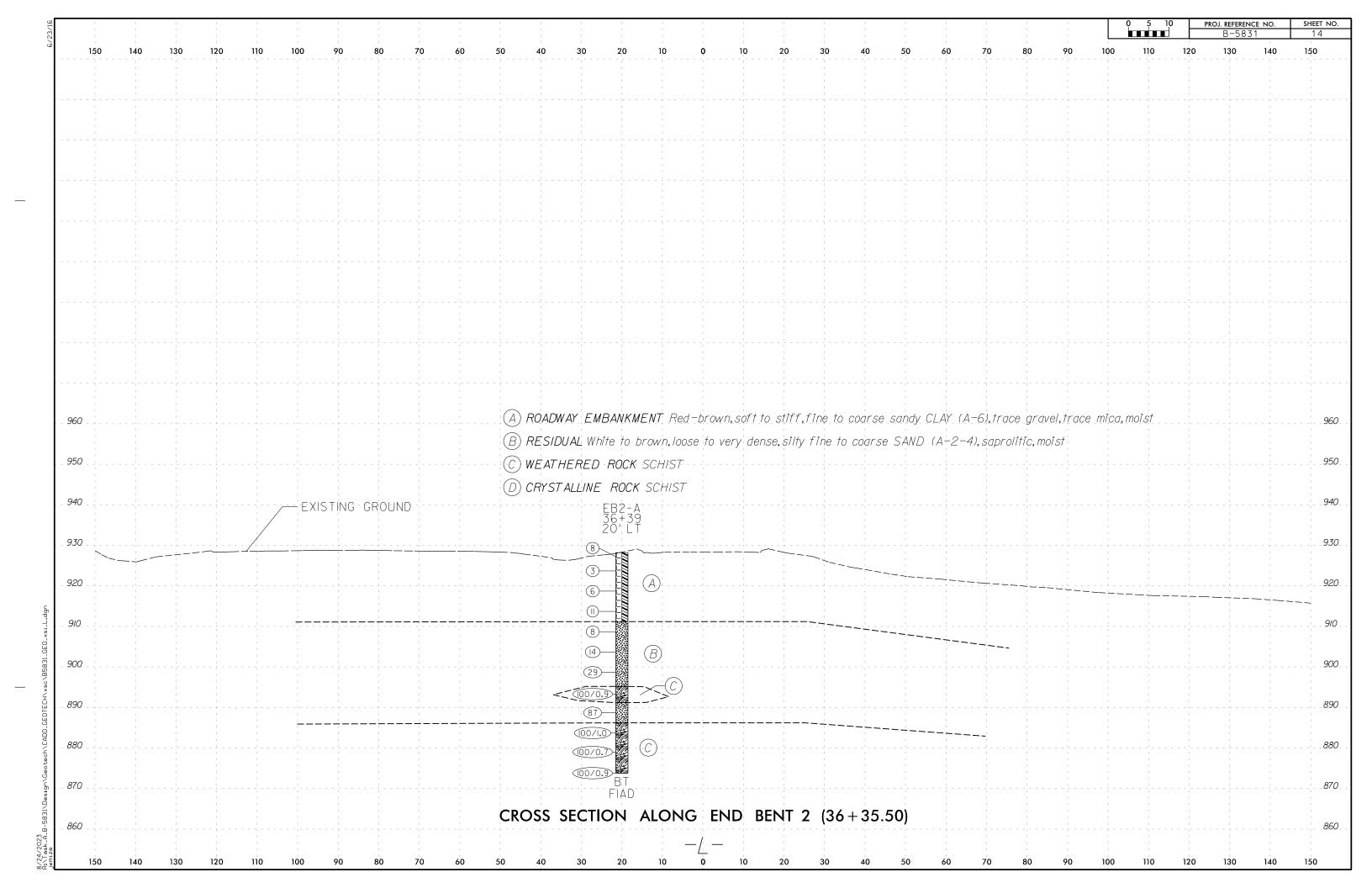












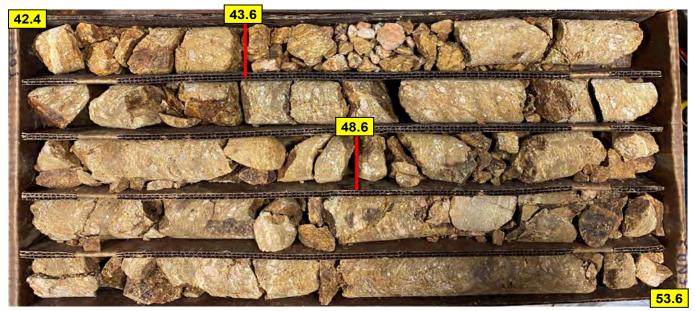
W.F.C	45=0	4.0			1	<b>D</b> 5	.0.4					<del>55</del>			OFOLOGICE 1.15	
	45784		N D	.1		P B-58		77 -	COUNT			l			GEOLOGIST J. Mize	DIATE (C)
				place I	Ť				NC 268,				ind the	Yadı	1	D WTR (ft)
	ING NO				_	TATION				+		24 ft LT			ALIGNMENT -L- 0 HR.	Dry
	LAR EL					OTAL D				NOR	THING	914,6			<b>EASTING</b> 1,463,139 <b>24 HR</b> .	FIAD
				TE F		Diedrich I				T				<b>D</b> H.S	S. Augers HAMMER TYPE	Automatic
	LER B		T			TART D					IP. DA	TE 06/		1 L T	SURFACE WATER DEPTH N/A	
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	0.5ft	OW CC		0	25		PER FOO 50	T 75	100	SAMP.	MOI	0	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
910	909.5	0.0	2	2	2	Ц,									909.5 GROUND SURFACE	0.0
	-			2		• 4							M		ROADWAY EMBANKMENT Pink to gray, fine to coarse sandy CL (A-6)	AY 3.0
905	906.0	3.5	1	3	5								М	E	Pink to gray-brown, fine to coarse sar	
	-						$\Box$						""	L F	SILT (A-4), trace gravel, trace mica	
	901.0	[ 8.5												L.E		
900	-	_	2	3	4	7-	-+			-			М	L F	_	
	-					: : :				.				F		
395	896.0	13.5	3	3	5								M	L#		
	-	F					-						"	Ľ.F	<del>-</del>	
	891.0	18.5												L#		
390		- 10.0	2	2	6	8-	-+						М		- -	
	-	[				: : :								L F		
385	886.0	23.5	3	3	3								M	L#		
	-	-				<del>  •</del> 6							l IVI		<u>-</u>	
	- 881.0	28.5				11									ALLUVIAL ALLUVIAL	27.0
380	- 001.0	- 20.5	2	3	4	7-	+						w		Gray, silty fine to coarse SAND (A-2-	4)
	-	-				: : :				.					877.5	32.0
375	876.0	33.5	4	3	4	:į: :				.   : :			١,,,		Dark gray, fine sandy CLAY (A-6)	
<i></i> 0	-	-				7							W		<u>-</u>	
	871.0	38.5														37.0
370	- 0/ 1.0 -		2	2	2	4							w		- -	
	-	-								.					867.5	42.0
365	866.0	43.5	2	2	6	:¦: :							0-4	-	Gray, silty fine to coarse SAND (A-2-	4)
300	-	-				8-	<u>.</u>						Sat.	-	= 1	
	-	40.5								.   . :					861.5	48.0
860	861.0	48.5	6	16	33		-		49 <del></del>				Sat.		RESIDUAL Yellow, silty fine to coarse SAND (A-2	-4),
	-	-								.   . :					saprolitic	
355	856.0	53.5	100/0.						Ĭ <del>-</del> ∷∹-	:+::					WEATHERED ROCK	53.0
555	-	-	100/0.	1			$\dashv$				100/0.4				METAMORPHOSED GRANITE	
	-									.						
350	851.0 _	58.5	100/0.	3			-				100/0.3				<del>-</del>	
	-	-								.   . :	: : :					
	846.0	63.5	60/0.1	1						.	60/0.1	1			846.0 845.9 / CRYSTALLINE POCK	63.5 \(\sigma 63.6
	-	-	00/0.1	ή							00/0.1				METAMORPHOSED GRANITE	
	-	<u> </u>													Boring Terminated with Standard Penetration Test Refusal at	
	- 	<u> </u>													Elevation 845.9 ft in Crystalline Rool METAMORPHOSED GRANITE	C:
	-	-														
	-	<u> </u>														
	-	-													<del>-</del>	
	:	<u> </u>														



	В	ORE LOG					ORE LOG	
<b>WBS</b> 45784.1.2	TIP B-5831 COUN	TY YADKIN	GEOLOGIST J. Mize		<b>WBS</b> 45784.1.2	TIP B-5831 COUNT	Y YADKIN	GEOLOGIST J. Mize
SITE DESCRIPTION Replace Brid	ge 850006 on I-77 over NC 268,	Southern Railroad, and the Yad	Ikin River	GROUND WTR (ft)	SITE DESCRIPTION Replace B	ridge 850006 on I-77 over NC 268,	Southern Railroad, and the Ya	dkin River GROUND WTR (f
BORING NO. B1-A	STATION 29+10	OFFSET 5 ft LT	ALIGNMENT -L-	<b>0 HR</b> . N/A	BORING NO. B1-A	STATION 29+10	OFFSET 5 ft LT	ALIGNMENT -L- 0 HR. N/A
COLLAR ELEV. 880.4 ft	TOTAL DEPTH 68.6 ft	<b>NORTHING</b> 914,806	<b>EASTING</b> 1,463,136	<b>24 HR</b> . FIAD	COLLAR ELEV. 880.4 ft	TOTAL DEPTH 68.6 ft	<b>NORTHING</b> 914,806	<b>EASTING</b> 1,463,136 <b>24 HR.</b> FIAD
DRILL RIG/HAMMER EFF./DATE F&R7	078 Diedrich D50 85% 08/30/2021	DRILL METHOD N	W Casing w/ Core HAMM	MER TYPE Automatic	DRILL RIG/HAMMER EFF./DATE F&	R7078 Diedrich D50 85% 08/30/2021	DRILL METHOD	NW Casing w/ Core HAMMER TYPE Automatic
DRILLER B. Maxson	<b>START DATE</b> 07/16/23	COMP. DATE 07/17/23	SURFACE WATER DEPTH N	/A	DRILLER B. Maxson	<b>START DATE</b> 07/16/23	COMP. DATE 07/17/23	SURFACE WATER DEPTH N/A
ELEV DRIVE DEPTH BLOW COUNT (ft) (ft) 0.5ft 0.5ft 0.5ft	<b></b>	400	SOIL AND ROCK DES	SCRIPTION	CORE SIZE NQ2	TOTAL RUN 26.3 ft		
(ft) (ft) (ft) 0.5ft 0.5ft 0.	5ft 0 25 50	75 100 NO. MOI G	ELEV. (ft)	DEPTH (ft)	RUN DEPTH RUN RATE (ft) (ft) (ft) (ft) RUN (ft) (ft) (ft)	L RUN SAMP. STRATA    REC. RQD   NO. (ft) (ft) (ft) (ft) (ft) (ft) (ft) (ft)	L     0	DESCRIPTION AND REMARKS
							† † ` ` ` <i>'</i>	DEPTH (
885			<u>-</u> -		838.1 838.1 42.3 0.1 3:12/1 838.0 42.3 0.1 3:12/1 836.8 43.6 1.2 2:31/1	.2 (0.7) SPT (22.0) (7.6)	838.1	Begin Coring @ 42.3 ft CRYSTALLINE ROCK 42.
			- -		836.8 4 43.6 1.2 2:31/1 5.0 2:31/1	0 58% (0.0) 84% 29%	Orange-brown, m hard, close to	oderately severe weathering to fresh, moderately to very very close fractures, METAMORPHOSED GRANITE
880 880.4 0.0 3 3 1	9	M N	- 880.4 GROUND SURF - ALLUVIAL	FACE 0.0	1   1   1   2:31/1	0. (4.3) 0% (0.8) 0. 16%		Highly fractured zone 54' - 56'
878.1 2.3 2 2 3	3		Brown, clayey fine SAND	) (A-2-6), trace		.0		GSI = 25 to 35
875	95	.       Sat.	- -			.0   100%   22%   .0		
873.1 7.3	<i> </i>         -		Brown, silty CLAY	(A-7-6)6.0	826.8 53.6 3:05/1 3:05/1	.0		
	<sup>1</sup>	Sat.	No SPT recovery 12.	2.3' - 13.8'	825 5.0 3:27/1 3:27/1 3:27/1	.0 (2.6) (0.7) .0 52% 14%		
870	1		- - -		821.8 <b>58.6</b> 3.27/1 3:27/1 3:27/1	.0       0.		
868.1 1 2.3	2 4	Sat.	- - -		820 5.0 2:42/1	.0 (4.4) (1.5) .0 88% 30%		
865		· ····	- <del>-</del> 864.4	16.0	2:42/1	.0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		
863.1 17.3 12 88/0.5			Brown, gravelly SAN	ID (A-1-b) 16.0	816.8 <u>  63.6   2:42/1</u>   5.0   2:40/1	0 (5.0) (3.5)		
860		100/1.0 000	- - 860.4	20.0	2:40/1 2:40/1	0 100% 70%		
858.1 22.3			RESIDUAL  Brown, silty fine to coarse		811.8 68.6 2:40/1 2:40/1	.0	811.8	68.
8 5 3		.	saprolitic	(			Boring Ter	minated at Elevation 811.8 ft in Crystalline Rock: METAMORPHOSED GRANITE
855			- <del>-</del>					
853.1 T 27.3 21 38 62 <i>i</i>	<u> </u>	:+	- 853.4 WEATHERED R				-	
850		100/0.9	METAMORPHOSED	GRANITE			F	
848.1 32.3				32.0			-	
29 21 5	$\begin{bmatrix} 02 & & & & & & & & & & & & & & & & & & $	. <b>∮</b> 73   Sat	Orange-brown, clayey fine (A-2-6), saproli	to coarse SAND			<del>[</del> -	
845			843.9	36.5			[	
843.1 37.3 57 43/0.3			_ WEATHERED R _ METAMORPHOSED				<u> </u>	
840			- <del>-</del>					
838.1 + 42.3   60/0.1		· · · · · · · · · · · · · · · · · · ·	838.1 CRYSTALLINE F	42.3				
835			METAMORPHOSED				-	
T		]	<del>-</del> -					
			- -				<u> </u>	
830			-  -				E	
133			<u>-</u> -				<u> </u>	
825 Ldg 100 JN Page 100 JN Pag			- <del>-</del>				_	
			- -				-	
			- -				-	
7			<del>-</del> -					
31.0			<del>-</del>					
815		60/0.1	-  -					
			- - _ 811.8	68.6			I E	
BORE DOUBLE			Boring Terminated at Elevi Crystalline Rock: METAN	ration 811.8 ft in MORPHOSED	]		E	
			- GRANITE					
TCD01			- -				-	
<u> </u>	1				J <u> </u>		1 1	

## **B1-A**

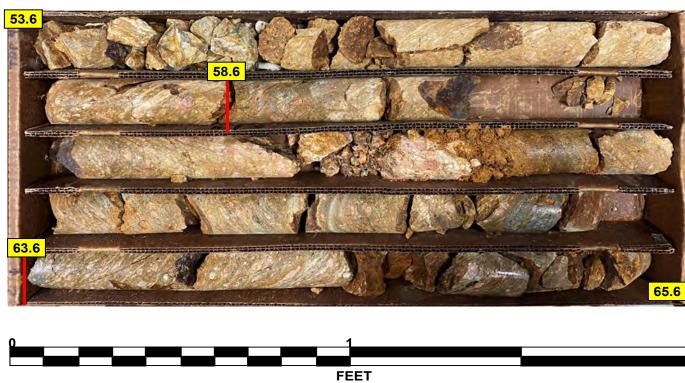
BOX 1: 42.4 - 53.6 FEET BOX 2: 53.6 - 65.6 FEET





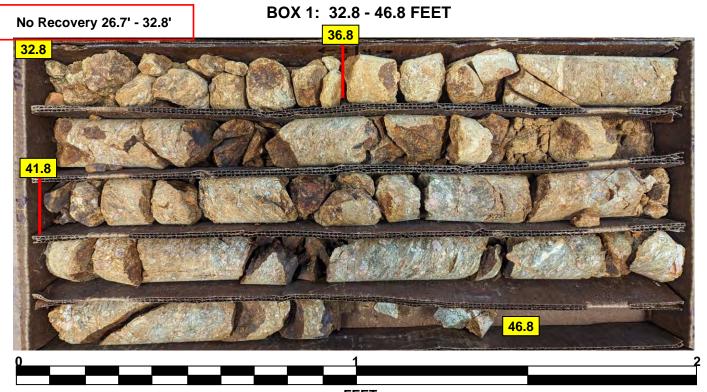
FEET BOX 3: 65.6 - 68.6 FEET





	E	BORE LOG					CORE LOG	
<b>WBS</b> 45784.1.2	TIP B-5831 COUN	TY YADKIN	GEOLOGIST J. Mize		<b>WBS</b> 45784.1.2	TIP B-5831 COUN	TY YADKIN	GEOLOGIST J. Mize
SITE DESCRIPTION Replace Bri	idge 850006 on I-77 over NC 268,	Southern Railroad, and the Yad	kin River GROUND V	VTR (ft)	SITE DESCRIPTION Replace E	Bridge 850006 on I-77 over NC 268,	Southern Railroad, and the	Yadkin River GROUND WTR (ft
BORING NO. B1-B	STATION 29+17	OFFSET 10 ft RT	ALIGNMENT -L- 0 HR.	N/A	BORING NO. B1-B	STATION 29+17	OFFSET 10 ft RT	ALIGNMENT -L- 0 HR. N/A
COLLAR ELEV. 879.9 ft	TOTAL DEPTH 71.8 ft	<b>NORTHING</b> 914,816	<b>EASTING</b> 1,463,150 <b>24 HR</b> .	FIAD	COLLAR ELEV. 879.9 ft	TOTAL DEPTH 71.8 ft	<b>NORTHING</b> 914,816	<b>EASTING</b> 1,463,150 <b>24 HR.</b> FIAD
DRILL RIG/HAMMER EFF./DATE F&F	R7078 Diedrich D50 85% 08/30/2021	DRILL METHOD N	N Casing W/SPT & Core HAMMER TYPE Auto	omatic	DRILL RIG/HAMMER EFF./DATE F	R7078 Diedrich D50 85% 08/30/2021	DRILL METHOD	NW Casing W/SPT & Core HAMMER TYPE Automatic
DRILLER B. Maxson	<b>START DATE</b> 06/28/23	COMP. DATE 06/28/23	SURFACE WATER DEPTH N/A		DRILLER B. Maxson	START DATE 06/28/23	COMP. DATE 06/28/23	SURFACE WATER DEPTH N/A
ELEV DRIVE DEPTH BLOW COU		400     /   0	SOIL AND ROCK DESCRIPTION		CORE SIZE NQ2	TOTAL RUN 49.8 ft		
(ft) (ft) (ft) 0.5ft 0.5ft	0.5ft 0 25 50	75 100 NO. MOI G	ELEV. (ft)	DEPTH (ft)	ELEV RUN DEPTH RUN RAT (ft) (ft) (ft) (ft)	$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	- L	DESCRIPTION AND REMARKS
					(ft) ELEV (ft) (ft) (Min/	ft)   (11)   (11)   NO.   (11)	G ELEV. (ft)	DEPTH (ft
880 879.9 0.0 2 3	5	.     M	_879.9 GROUND SURFACE	0.0	857.9 857.9 22.0 4.7	SPT (1.0) (0.0	)	Begin Coring @ 22.0 ft WEATHERED ROCK 22.0
	<b>9</b> 8 · ·   · · · ·   · · · ·	.	Brown to gray, silty fine sandy CLAY (A-6) trace roots, trace mica	),	855	8% 0%	F#7/A	moderately severe to very severe weathering, medium hard, very close fractures, SCHIST
876.4	$\frac{1}{1}\left \int_{2}^{r} \cdots \cdot $		- uace roots, trace mica		853.2 + 26.7			Auger Refusal at 26.7' (bit burned up)
			-		T 5.0 2:30/	1.1 (0.0) (0.0) 1.0 0% (0.0)	840.9	
871.4 + 8.5					850 <u> </u>	1.0 (0.0) (0.0)		
870	2 4	Sat.	<del>-</del>		847.1 32.8 2:25/ 3:27/	1.0		
			·		845 T 4.0 3:20/3:10/	1.0   (1.0)   (0.0)   1.0   25%   0%		
865 866.4 + 13.5 1 1	1		•		843.1 + 36.8   3:00/	1.0		
				<u>16.0</u>	T   5.0   3:06/ 2:19/	1.0   (2.8)   (0.3)   1.0   56%   6%	840.9	39.0
861.4 + 18.5			trace gravel	'	840 2:20/	(26.6) (7.0		CRYSTALLINE ROCK to gray, moderately severe to slight weathering, moderately
860	<del>  • • • • • • • • • • • • • • • • • •</del>	Sat.	<del>-</del>		838.1	1.0 1.0 (4.8) (1.4)	hard	d to hard, very close to close fractures, SCHIST
			WEATHERED ROCK	22.0	835 2:24/ 3:31/ 2:37/	1.0   96%   28%	Orange-brown hard	Highly fractured zone 52' - 58'
856.4 + 23.5 100/0.3		100/0.3	SCHIST		833.1 T 46.8   2:08/	1.0		GSI = 25 to 40
			Auger Refusal at 26.7' (bit burned up)			1.0   90%   24%		
‡			•		830 2:50/	1.0	<u>-</u>	
850			<del>-</del>		828.1 <u>51.8</u> 1:50/ 5.0 1:47/	1.0 1.0 (1.0) (0.0)		
					825 T 1:45/	1.0   20%   0%		
845					823.1 56.8 1:59/ 2:02/	1.0		
T			<del>-</del> -		T   5.0   2:13/	1.0 (4.1) (0.7) 1.0 82% 14%		
		100/0.3	- - - 840.9	39.0	820 2:04/	1.0		
840			CRYSTALLINE ROCK SCHIST	00.0	818.1 T 61.8     3:04/	1.0 (4.9) (2.1)		
						1.0   98%   42%		
835					813.1 66.8 1:39/ 2:21/	1.0	808.1	
T			<del>-</del> -		T   5.0   3·10/	1.0 (4.5) (1.3) 1.0 90% 26% RS-1		
					810 + 2:48/	1.0	-	
830			<del>-</del>		808.1 † 71.8   3:32/	1.0		ninated at Elevation 808.1 ft in Crystalline Rock: SCHIST
			• •					•
825							I E	Auger Refusal at 26.7' (bit burned up)
T T I I			<del>-</del> -				E	
11/23			<u>.</u>				<del> </del>	
820 +			<del>-</del>				E	
			<u>.</u> -				1 E	
집 815 T T T T T T T T T T T T T T T T T T T			-				I E	
							-	
<u>831.6</u>   Ε		RS-1	•				-	
\(\frac{8}{2}\) \(\frac{8}{10}\) \(\frac{1}{1}\) \(\frac{1}{1}\) \(\frac{1}{1}\)			- -				-	
			Boring Terminated at Elevation 808.1 ft in	71.8			<u>E</u>	
			Crystalline Rock: SCHIST				I E	
			<u>-</u>				E	
CDDOT BORE DOUBLE B8831.GPJ NC_DOT.GDT 8/11/23			-				1 E	
2 1 1 1			•					

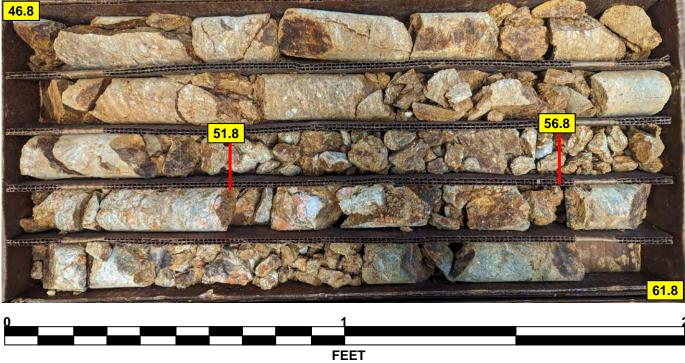
## B1-B



FEET BOX 3: 61.8 - 71.8 FEET







**BOX 2: 46.8 - 61.8 FEET** 

		BORE LOG	1					_		_		RE LOG		
<b>WBS</b> 45784.1.2		NTY YADKIN	GEOLOGIST J. Mize		<u> </u>	<b>S</b> 45784.1.2		<b>TIP</b> B-583				YADKIN	GEOLOGIST J. Mize	
<u> </u>	Bridge 850006 on I-77 over NC 268	· -	1	GROUND WTR (ft)	-		eplace Bri	Ť		NC 268		thern Railroad, and the Yac	1	GROUND WTR
BORING NO. B2-A	STATION 30+38	OFFSET 4 ft LT	ALIGNMENT -L-	<b>0 HR.</b> N/A		RING NO. B2-A		STATION			_	FFSET 4 ft LT	ALIGNMENT -L-	0 HR. N
COLLAR ELEV. 859.6 ft	TOTAL DEPTH 25.7 ft	<b>NORTHING</b> 914,932	<b>EASTING</b> 1,463,113	<b>24 HR.</b> N/A		LAR ELEV. 859.6		TOTAL DE			NC	ORTHING 914,932	<b>EASTING</b> 1,463,113	24 HR.
DRILL RIG/HAMMER EFF./DATE F	1		W Casing W/SPT & Core HAMI	MER TYPE Automatic	DRIL	L RIG/HAMMER EFF./D	ATE F&R	7078 Diedrich D	50 85% 08/30	)/2021		DRILL METHOD N	IW Casing W/SPT & Core HA	MMER TYPE Automat
DRILLER B. Maxson	START DATE 07/10/23	COMP. DATE 07/11/23	SURFACE WATER DEPTH 5	5.6ft		LLER B. Maxson		START DA	<b>TE</b> 07/10/	23	CC	OMP. DATE 07/11/23	SURFACE WATER DEPTH	<b>1</b> 5.6ft
ELEV DRIVE DEPTH BLOW CO			SOIL AND ROCK DE	SCRIPTION	COF	RE SIZE NQ2		TOTAL RU		OTDATA				
(ft) (ft) (ft) 0.5ft 0.5ft	0.5ft 0 25 50	75 100 NO. MOI G	ELEV. (ft)	DEPTH (ft)	ELEV (ft)	RUN DEPTH RUI (ft) (ft)	N DRILL RATE (Min/ft)	RUN REC. RQD (ft) (ft) %	SAMP. NO.	STRATA REC. RQI (ft) (ft) % %	L O G	ELEV. (ft)	DESCRIPTION AND REMARKS	DEPT
870			_		859.6	859.6 - 0.0 1.9 857.7 - 1.9 - 3.8		SPT SPT	(3	1.3) (1.1 33% 28%	1) 7//		Ground Surface ALLUVIAL ALLUVIAL BOULDERS	
865			WATER SURFACE	(07/10/23)	855	1 1 1	4:45/1.0 4:45/1.0 3:24/1.0	(0.9)	( . (8	1.3) (1.1 33% 289 8.2) (0.9 31% 9%	9)	855.7  Brown to white, sev	CRYSTALLINE ROCK vere to very slight weathering, medi o close fractures, METAMORPHOS	um hard to very hard,
860			_859.6 GROUND SUR		850		3:24/1.0 3:24/1.0 3:24/1.0 3:24/1.0	84%   18%				very close it	GSI = 25 to 35	ED GRANITE
858.4 1.2 60/0.1		· · · · · · · · · · · · · · · · · · ·	ALLUVIAL BOUI - 855.7 Soil seam 3.1'	LDERS	845	5.0	5:46/1.0 5:46/1.0 5:46/1.0	(5.0) (1.6) 100% 32%				845.6		
855			CRYSTALLINE METAMORPHOSEI	ROCK	040	843.9 15.7 5.0	5:46/1.0 5:46/1.0 5:24/1.0 5:24/1.0 5:24/1.0	)   (5.0)   (3.3) )   100%   66%	1 (1	11.7) (8.8 00% 75%	3) (1)	Brown to white, f	resh to very slight weathering, very moderately close fractures, SCHIS GSI = 35 to 45	nard, very close to T
850			• <del>-</del> •		840	838.9 20.7	5:24/1.0	(5.0) (5.0) (100% (3.9) (3.9)						
845			- 845.6 SCHIST	14.0	835	833.9 25.7	5:50/1.0 5:50/1.0 5:50/1.0 5:50/1.0	)				833.9		B 1 0011107
840												Boring Termina	ted at Elevation 833.9 ft in Crystalli	ne Rock: SCHIST
			- - -											
835			- 833.9 Boring Terminated at Ele Crystalline Rock:	25.7 vation 833.9 ft in								-  -  -		
			. Grystalline Rock.	3011131								_		
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## **B2-A**

**BOX 1: 1.9 - 13.9 FEET** 



FEET BOX 3: 22.7 - 25.7 FEET



BOX 2: 13.9 - 22.7 FEET



FEET

	BORE I	LOG			CORE LOG				
<b>WBS</b> 45784.1.2 <b>TIP</b> B-	-5831 COUNTY YADKIN	N GEOLOGIST J. Mize		<b>WBS</b> 45784.1.2	TIP B-5831 COUI	NTY YADKIN	GEOLOGIST J. Mize		
SITE DESCRIPTION Replace Bridge 85000	06 on I-77 over NC 268, Southern R	Railroad, and the Yadkin River	GROUND WTR (ft)	SITE DESCRIPTION Replace Br	idge 850006 on I-77 over NC 268	3, Southern Railroad, and the Ya	adkin River	GROUND WTR (ft)	
BORING NO. B2-B STATIO	<b>ON</b> 30+18 <b>OFFSET</b>	11 ft RT ALIGNMENT -L-	<b>0 HR.</b> N/A	BORING NO. B2-B	STATION 30+18	OFFSET 11 ft RT	ALIGNMENT -L-	<b>0 HR</b> . N/A	
COLLAR ELEV. 858.1 ft TOTAL	DEPTH 27.9 ft NORTHIN	<b>NG</b> 914,915 <b>EASTING</b> 1,463,132	<b>24 HR</b> . N/A	COLLAR ELEV. 858.1 ft	TOTAL DEPTH 27.9 ft	<b>NORTHING</b> 914,915	<b>EASTING</b> 1,463,132	<b>24 HR</b> . N/A	
DRILL RIG/HAMMER EFF./DATE F&R7078 Diedric	ch D50 85% 08/30/2021	DRILL METHOD NW Casing W/SPT & Core	HAMMER TYPE Automatic	DRILL RIG/HAMMER EFF./DATE F&F	R7078 Diedrich D50 85% 08/30/2021	DRILL METHOD	NW Casing W/SPT & Core HA	MMER TYPE Automatic	
		DATE 07/18/23 SURFACE WATER DE	PTH 8.8ft	DRILLER B. Maxson	<b>START DATE</b> 07/17/23	COMP. DATE 07/18/23	SURFACE WATER DEPTH	<b>I</b> 8.8ft	
ELEV DRIVE DEPTH BLOW COUNT (ft) (ft) 0.5ft 0.5ft 0.5ft 0	BLOWS PER FOOT		CK DESCRIPTION	CORE SIZE NQ2	TOTAL RUN 19.4 ft				
(ft) (ft) (ft) 0.5ft 0.5ft 0.5ft 0	25 50 75 100	NO. MOI G ELEV. (ft)	DEPTH (ft)	ELEV RUN DEPTH RUN RATE (ft) (ft) (ft) (Mig/ft)	RUN SAMP. REC. RCD (ft) (ft) NO. (ft) (ft) (ft) %	D O	DESCRIPTION AND REMARKS		
				(it) (iviii)it		G ELEV. (ft)	D 1 0 1 0056	DEPTH (ft)	
870				849.6 + 8.5 2.1	SPT (17.2) (11	.5) 849.6 Gray, fresh to sliç	Begin Coring @ 8.5 ft CRYSTALLINE ROCK	8.5	
		WATER SUF	RFACE (07/17/23)	847.5 + 10.6 + 4.3 1:15/0.4	3 (4.3) (4.1) RS-2 99% 66 0 100% 95%	% Gray, fresh to slig	ght weathering, hard to very hard, very close fractures, SCHIST	y close to moderately	
865				I I I I 1.10/1	0   100%   95%		GSI = 35 to 45		
				843.2 † 14.9   4:10/1.	0   0   (5.0) (2.7)   0   100%   54%				
860				840 <u> </u>	0   100%   54%				
<del>                                      </del>			D SURFACE 0.0	840 4:08/1. 4:08/1. 4:08/1. 4:08/1.	0 0				
857.4 0.7 2 0 0		Sat. Brown, silty fine to	LUVIAL o coarse SAND (A-2-4),	5.0 4:28/1. 4:28/1. 4:28/1.	0 (4.9) (3.0) 0 98% 60%				
855			e gravel	835 4:28/1. 833.2 24.9 4:28/1. 4:28/1.					
		Orange-brown, clay	SIDUAL yey fine to coarse SAND	T 3.0 3:54/1.	0   (3.0)   (1.7)				
850			), saprolitic 8.5	830.2 † 27.9 3:54/1.	0 100% 01%	830.2 Boring Termin	nated at Elevation 830.2 ft in Crystallin	27.9 ne Rock: SCHIST	
8476 + 105		CRYSTA	LLINE ROCK CHIST				·		
	60/0.1	RS-2				<u>E</u>			
T           .									
						-			
840						-			
						-			
						-			
						-			
		849.6 CRYSTA S(	27.9			-			
		Boring Terminated	at Elevation 830.2 ft in Rock: SCHIST			F			
		- Crystainne	Nock. Scriist						
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**B2-B** 

**BOX 1: 10.6 - 19.9 FEET** 



FEET BOX 2: 19.9 - 27.9 FEET

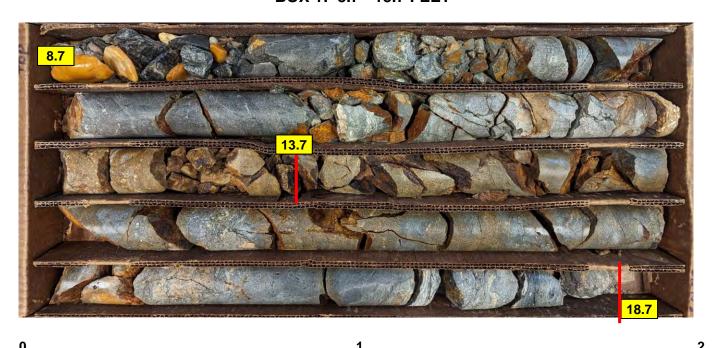


FEET

BORE LOG				CORE LOG				
<b>WBS</b> 45784.1.2 <b>TIP</b> B-5831 <b>COUNTY</b> S	SURRY	GEOLOGIST J. Mize	<b>WBS</b> 45784.1.2	TIP B-5831 COUN	TY SURRY	GEOLOGIST J. Mize		
SITE DESCRIPTION Replace Bridge 850006 on I-77 over NC 268, South	thern Railroad, and the Yadki	in River GROUND WTR (ft)	SITE DESCRIPTION Replace Brid	dge 850006 on I-77 over NC 268,	Southern Railroad, and the Ya	adkin River GROUND WTR (ft		
BORING NO. B3-A STATION 31+51 OF	FSET 4 ft LT	ALIGNMENT -L- 0 HR. N/A	BORING NO. B3-A	STATION 31+51	OFFSET 4 ft LT	ALIGNMENT -L- 0 HR. N/A		
COLLAR ELEV. 860.7 ft TOTAL DEPTH 33.7 ft NO	<b>DRTHING</b> 915,043	<b>EASTING</b> 1,463,092 <b>24 HR.</b> N/A	COLLAR ELEV. 860.7 ft	TOTAL DEPTH 33.7 ft	<b>NORTHING</b> 915,043	<b>EASTING</b> 1,463,092 <b>24 HR.</b> N/A		
DRILL RIG/HAMMER EFF./DATE F&R7078 Diedrich D50 85% 08/30/2021	DRILL METHOD NW	Casing W/SPT & Core HAMMER TYPE Automatic	DRILL RIG/HAMMER EFF./DATE F&R	7078 Diedrich D50 85% 08/30/2021	DRILL METHOD	NW Casing W/SPT & Core HAMMER TYPE Automatic		
		SURFACE WATER DEPTH 4.5ft	DRILLER B. Maxson	<b>START DATE</b> 07/13/23	COMP. DATE 07/14/23	SURFACE WATER DEPTH 4.5ft		
ELEV (ft) DEPTH BLOW COUNT BLOWS PER FOOT (ft) 0.5ft 0.5ft 0.5ft 0 25 50 75	SAMP. L	SOIL AND ROCK DESCRIPTION	CORE SIZE NQ2	TOTAL RUN 25.2 ft				
(ft) (ft) (ft) 0.5ft 0.5ft 0.5ft 0 25 50 75	100 NO. MOI G	ELEV. (ft) DEPTH (ft)	ELEV RUN ELEV (ft) DEPTH RUN RATE (Min/ft)	RUN   SAMP.   REC.   RQD   REC.   RQD   NO.   (ft) (ft) (ft)   REC.   RQD   REC.   RQD   REC.   RQD   REC.   RQD   REC.   RQD   RQ	-	DESCRIPTION AND REMARKS		
				W   W   W   W	G ELEV. (ft)	DEPTH (f		
870			852.2 852.2 8.5 0.2 3:50/1.0	1 (4.3) SPT (23.0) (9.8) 1 86% (0.7) 92% 39%	852.2	Begin Coring @ 8.5 ft CRYSTALLINE ROCK 8.6		
			850 5.0 3:50/1.0 3:50/1.0 3:50/1.0 3:50/1.0	92% 39%	Gray to brown, sli very	ght to moderately severe weathering, medium hard to hard, close to moderately close fractures, SCHIST		
865		WATER SURFACE (07/13/23)	I   847.0   13.7     13⋅50/1.0			Highly fractured zone 8.7' - 9.7'		
			845 5.0 3:08/1.0 3:08/1.0	(4.7) (0.9) 94% 18%		GSI = 30 to 40		
860.7 + 0.0		860.7 GROUND SURFACE 0.0	3:08/1.0					
	Sat.	ALLUVIAL Dark gray, fine to coarse sandy CLAY (A-6),	842.0	(4.0) (0.5) 0 80% 10%				
8564 + 43	· · · ·	trace gravel, trace to little mica 856.7 4.0	840 T 3:26/1.0 3:26/1.0	80%   10%				
855 50 50/0.3	60/0.1	WEATHERED ROCK SCHIST	3:26/1.0 3:26/1.0 3:26/1.0 3:26/1.0	1 (5.0) (3.5)				
852.2 8.5		852.2 8.5	835 5.0 4:17/1.0 4:17/1.0 4:17/1.0	(5.0) (3.5) 100% 70%				
850 60/0.1	60/0.1	CRYSTALLINE ROCK SCHIST	832.0 28.7 4.17/1.0 4:17/1.0 4:17/1.0					
<u> </u>			830 5.0 3:52/1.0 3:52/1.0	(5.0) (4.2) 100% 84%				
			3:52/1.0 3:52/1.0 3:52/1.0 3:52/1.0	10070 0470				
845			827.0 33.7 3:52/1.0		827.0	33.: nated at Elevation 827.0 ft in Crystalline Rock: SCHIST		
840 +					[			
					E			
					<u> </u>			
835								
					-			
830								
	····	827.0 33.7			-			
		Boring Terminated at Elevation 827.0 ft in Crystalline Rock: SCHIST			-			
		Crystalline Nock. 3011131						
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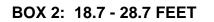
## **B3-A**

BOX 1: 8.7 - 18.7 FEET



FEET BOX 3: 28.7 - 33.7 FEET





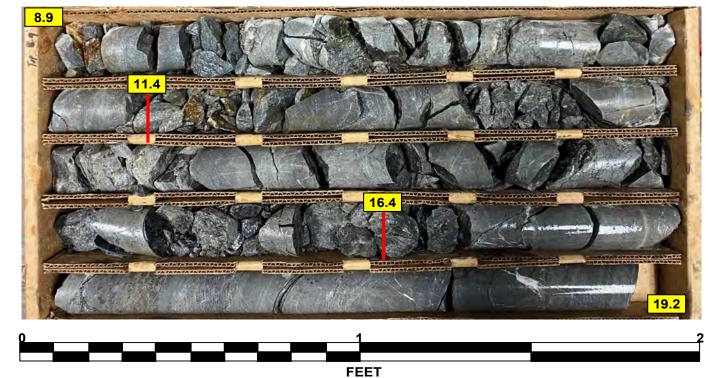


FEET

BORE LOG										C	CORE L	.OG		
WBS 45784.1.2 TI	IP B-5831 COUNTY SU		OGIST J. Mize		<b>WBS</b> 45784	.1.2		TIP B-5	831	COUN	TY SURRY		GEOLOGIST J. Mize	
SITE DESCRIPTION Replace Bridge	850006 on I-77 over NC 268, Southe	rn Railroad, and the Yadkin Rive	r	GROUND WTR (ft)	SITE DESCR	IPTION R	eplace Bri	dge 850006	on I-77 ov	er NC 268,	Southern Ra	ilroad, and the Ya	adkin River	GROUND WTR (ft)
BORING NO. B3-B	TATION 31+54 OFF	ET 12 ft RT ALIG	NMENT -L-	<b>0 HR</b> . N/A	BORING NO	В3-В		STATION	<b>1</b> 31+54		OFFSET	12 ft RT	ALIGNMENT -L-	<b>0 HR.</b> N/A
COLLAR ELEV. 857.9 ft	OTAL DEPTH 31.4 ft NOR	THING 915,049 EAST	<b>ING</b> 1,463,107	<b>24 HR.</b> N/A	COLLAR EL	<b>EV.</b> 857.9	ft	TOTAL D	<b>EPTH</b> 31.	4 ft	NORTHIN	<b>G</b> 915,049	<b>EASTING</b> 1,463,107	<b>24 HR.</b> N/A
DRILL RIG/HAMMER EFF./DATE F&R7078	B Diedrich D50 85% 08/30/2021	DRILL METHOD NW Casing	W/SPT & Core HAMM	IER TYPE Automatic	DRILL RIG/HAM	IMER EFF./C	ATE F&R	7078 Diedrich	D50 85% 08/	30/2021		DRILL METHOD	NW Casing W/SPT & Core	HAMMER TYPE Automatic
	TART DATE 07/18/23 COM	P. DATE 07/19/23 SURF	ACE WATER DEPTH 9.	Oft	<b>DRILLER</b> B	Maxson		START D	OATE 07/1	8/23	COMP. DA	<b>TE</b> 07/19/23	SURFACE WATER DE	<b>PTH</b> 9.0ft
ELEV DRIVE DEPTH BLOW COUNT ELEV (ft)	BLOWS PER FOOT	SAMP. L O	SOIL AND ROCK DES	SCRIPTION	CORE SIZE	NQ2			UN 22.5 ft					
(ft) ELEV (ft) 0.5ft 0.5ft 0.5ft	0 25 50 75	100 NO. MOI G ELEV. (ft	:)	DEPTH (ft)	/ft\   ELEV	DEPTH RU (ft) (ft	\   KAIE	RUN REC. RQI (ft) (ft) % %	SAMP. NO.	STRATA REC. RQD (ft) (ft) %			DESCRIPTION AND REMAR	KS
					(11)	(11)	(Min/ft)	\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	110.	% %	G ELEV. (	ft)		DEPTH (ft)
870					849 849.0	8.9 2.5	5 1:57/0.5	(2.3) (0.0 92% 0%	))	(21.9) (10.4	849.0		Begin Coring @ 8.9 ft CRYSTALLINE ROCK	8.9
		<b>▼</b>	WATER SURFACE (	(07/18/23)	846.5 -	· 11.4 ·	5 1:57/0.5 3:54/1.0 3:54/1.0	92% 0% (4.7) (0.0		97%   46%		Gray, severe v	weathering to fresh, medium har moderately close fractures, SC	d to hard, very close to CHIST
865					845	-   "	3:26/1.0 3:26/1.0	(4.7) (0.0 94% 0%					GSI = 35 to 50	
					841.5 -	- - 16.4	3:26/1.0 3:26/1.0							
860					840	5.0	3:14/1.0 3:14/1.0	(5.0) (3.3 100% 66%	6)					
		857.9	GROUND SURF	FACE		· ·	3:14/1.0 3:14/1.0 3:14/1.0							
857.9 1 0.0 3 2 5	<b>♦</b> 7 · · · · · · · · · · · · · · ·	· · Sat.	ALLUVIAL Brown, silty fine to coarse		836.5 -	21.4	3:14/1.0 3:19/1.0	(5.0) (3.7 100% 74%	')					
855 +		853.9	brown, silly line to coarse	SAND (A-2-4)	-	.	I 3·10/1 0				826			
852.9 5.0 100/0.3		00/0.3	WEATHERED R SCHIST	оск	831.5 -	26.4	3:19/1.0 3:19/1.0	(4.9) (3.4 98% 68%	<u>,                                      </u>					
850   T			2011101		830	5.0	3:03/1.0	98% 68%	·) 6					
849.4 8.5 100/0.2		00/0.2	CRYSTALLINE F	8.9 ROCK	826.5 -	31.4	3:03/1.0 3:03/1.0 3:03/1.0				826.5			31.4
		30/0.3 849.0 849.0	SCHIST		020.3		3.03/1.0				- 620.3	Boring Termir	nated at Elevation 826.5 ft in Cry	stalline Rock: SCHIST
845											-			
						.					-			
840 +						-					-			
						.					-			
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835						.								
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830						:					-			
		· · · · · · · · · · · · · · · · · · ·									-			
+ + + + + + + + + + + + + + + + + + + +		· ·   826.5	Boring Terminated at Eleva			-					-			
			Crystalline Rock: S	SCHIST	-						-			
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## **B3-B**

BOX 1: 8.9 - 19.2 FEET BOX 2: 19.2 - 26.4 FEET



BOX 3: 26.4 - 31.4 FEET





FEET

В	BORE LOG			C	CORE LOG	
	NTY SURRY GEOLOGIST P. Fallon 8	& J. Mize	<b>WBS</b> 45784.1.2	TIP B-5831 COUN	TY SURRY	GEOLOGIST P. Fallon & J. Mize
SITE DESCRIPTION Replace Bridge 850006 on I-77 over NC 268,	B, Southern Railroad, and the Yadkin River	GROUND WTR (ft)	SITE DESCRIPTION Replace Brid	idge 850006 on I-77 over NC 268,	Southern Railroad, and the Ya	adkin River GROUND WTR (ft)
BORING NO. B4-A STATION 32+90	OFFSET 26 ft LT ALIGNMENT -L-	<b>0 HR.</b> 17.9	BORING NO. B4-A	STATION 32+90	OFFSET 26 ft LT	<b>ALIGNMENT</b> -L- <b>0 HR</b> . 17.9
COLLAR ELEV. 878.1 ft TOTAL DEPTH 50.8 ft	NORTHING 915,176	<b>24 HR.</b> 0.7 Caved	COLLAR ELEV. 878.1 ft	TOTAL DEPTH 50.8 ft	<b>NORTHING</b> 915,176	<b>EASTING</b> 1,463,045 <b>24 HR.</b> 0.7 Caved
DRILL RIG/HAMMER EFF./DATE F&R7078 Diedrich D50 85% 08/30/2021	DRILL METHOD H.S. Augers & Core	HAMMER TYPE Automatic	DRILL RIG/HAMMER EFF./DATE F&R	R7078 Diedrich D50 85% 08/30/2021	DRILL METHOD	H.S. Augers & Core HAMMER TYPE Automatic
DRILLER B. Maxson START DATE 07/07/23	COMP. DATE 07/20/23 SURFACE WATER DEP	PTH N/A	DRILLER B. Maxson	<b>START DATE</b> 07/07/23	COMP. DATE 07/20/23	SURFACE WATER DEPTH N/A
ELEV DRIVE ELEV (ft) (ft) 0.5ft 0.5ft 0.5ft 0.25 50	== too     /   O   SOIL AND ROO	CK DESCRIPTION	CORE SIZE NQ2	TOTAL RUN 16.2 ft		
(ft) (ft) (ft) 0.5ft 0.5ft 0.5ft 0 25 50	75 100 NO. MOI G ELEV. (ft)	DEPTH (ft)	ELEV RUN DEPTH RUN RATE (ft) (ft) (Min/ft)	REC. RQD   SAWI - REC. RQD		DESCRIPTION AND REMARKS
			(It) (WIII I/It)		G ELEV. (ft)	DEPTH (ft)
880		O SURFACE 0.0	843.5 34.6 1.2 4:35/1.2 842.3 35.8 5.0 6:42/1.0	2 (1.2) (0.0) (15.9) (7.8)	) 843.5 Dark gray, very sl	Begin Coring @ 34.6 ft CRYSTALLINE ROCK 34.6
878.1	ALLU	UVIAL	1 840   T   1 6:42/1.0	0   (4.7)   (2.6)	Dark gray, very sl	ight to moderate weathering, very close to close fractures, hard, METAMORPHOSED GRANITE
875 874.6 + 3.5		clayey sandy GRAVEL	6:42/1.0	0   94%   52%		GSI = 30 to 50
3 4 4	· · │ · · · · │ │ │ │	IDUAL ray, silty fine to coarse	837.3 + 40.8 6:42/1.0 5.0 9:38/1.0	0 (5.0) (3.0) RS-4		
870		mica, little to some rock s, saprolitic	835 9:38/1.0 9:38/1.0 9:38/1.0 9:38/1.0	0   100%   60%		
869.6 + 8.5   2   3   3   6	··   · · · ·		832.3 + 45.8   9:38/1.0   5.0   4:12/1.0	0 (5.0) (2.2)		
			830 + 12/1.0	0 (5.0) (2.2) 0 100% 44%		
865 864.6 13.5 9 16 20	Sat		827.3 + 50.8 4:12/1.0 4:12/1.0		827.3	50.8
10 20	Sal. Sal.		+		Boring Te	rminated at Elevation 827.3 ft in Crystalline Rock: METAMORPHOSED GRANITE
860 859.6 18.5					F	
20 40 50	Sat. Sat.				[	
855					-	
854.6 + 23.5   20   42   58/0.1	854.1 <b>WEATHE</b>	RED ROCK				
	METAMORPH	IOSED GRANITE			<u> </u>	
850 849.6 28.5 84 16/0.1						
1 10/0.1	1 100/0.6					
845						
844.6 + 33.5   843.5 + 34.6   100/0.3	843.5 60/0.0	LLINE ROCK				
	METAMORPH METAMORPH	IOSED GRANITE				
840					[	
	RS-4				1 E	
835						
830						
		50.8				
		at Elevation 827.3 ft in METAMORPHOSED				
	GRA	ANITE			[	
	‡				E	
					E	
[5]   †					E	
	‡				-	
일   <del> </del>						
<u> </u>	‡					
					-	
	[					
ž			<u> </u>		<u> </u>	

**B4-A** 

BOX 1: 34.6 - 44.8 FEET



FEET BOX 2: 44.8 - 50.8 FEET



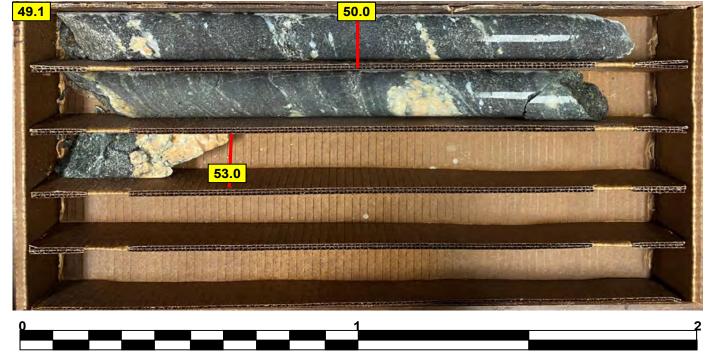
	BORE LOG	1				CORE LOG		
	DUNTY SURRY	GEOLOGIST J. Mize		<b>WBS</b> 45784.1.2		ITY SURRY	GEOLOGIST J. Mize	
SITE DESCRIPTION Replace Bridge 850006 on I-77 over NC	268, Southern Railroad, and the Ya	dkin River	GROUND WTR (ft)	SITE DESCRIPTION Replace B	ridge 850006 on I-77 over NC 268	, Southern Railroad, and the Ya	adkin River	GROUND WTR (
BORING NO. B4-B STATION 32+90	OFFSET 30 ft RT	ALIGNMENT -L-	<b>0 HR.</b> 11.1	BORING NO. B4-B	STATION 32+90	OFFSET 30 ft RT	ALIGNMENT -L-	<b>0 HR.</b> 11.
COLLAR ELEV. 878.0 ft TOTAL DEPTH 53.0 ft	<b>NORTHING</b> 915,186	<b>EASTING</b> 1,463,100	24 HR. FIAD	COLLAR ELEV. 878.0 ft	TOTAL DEPTH 53.0 ft	<b>NORTHING</b> 915,186	<b>EASTING</b> 1,463,100	24 HR. FIAI
DRILL RIG/HAMMER EFF./DATE F&R7078 Diedrich D50 85% 08/30/202	DRILL METHOD	H.S. Augers & Core HAI	MMER TYPE Automatic	DRILL RIG/HAMMER EFF./DATE F8	R7078 Diedrich D50 85% 08/30/2021	DRILL METHOD	H.S. Augers & Core HAN	IMER TYPE Automatic
DRILLER B. Maxson START DATE 07/19/23	COMP. DATE 07/21/23	SURFACE WATER DEPTH	N/A	DRILLER B. Maxson	<b>START DATE</b> 07/19/23	COMP. DATE 07/21/23	SURFACE WATER DEPTH	N/A
ELEV DRIVE DEPTH BLOW COUNT BLOWS PEI	FOOT SAMP. L	SOIL AND ROCK D	DESCRIPTION	CORE SIZE NQ2	TOTAL RUN 19.0 ft			
(ft) (ft) (ft) 0.5ft 0.5ft 0.5ft 0 25 50		ELEV. (ft)	DEPTH (ft)	ELEV (ft) RUN DEPTH RUN RATION (ft) (ft) (ft) RUN (ft) RUN RATION (Min/ft)	RUN   STRATA   REC.   RQD   NO.   (ft)   (	D	DESCRIPTION AND REMARKS	DEPTH
878.0 0.0		F 878.0 GROUND SU	JRFACE 0.0	844 844.0 34.0 5.0	SPT (13.3) (7.9 95% 56°	0) 844.0 Gray, fresh to sli	Begin Coring @ 34.0 ft CRYSTALLINE ROCK ight weathering, very close to moderate	3 alv close fractures.
875	w w	ALLUVI Brown, silty CLAY (A- 875.0 boulders and	-7-5), with some cobbles3.0	839.0 39.0			hard, SCHIST GSI = 45 to 55	-,,
	:::: :::::  w	Orange-brown, silty fine (A-2-4), little	e to coarse SAND gravel		0.0 (0.9) (0.5) 0 90% 50% (0.5) 0 (4.5) (2.4)			
869.0 9.0 3 4 3				833.0 45.0 3:11/1 5.0 4:17/1	0 (4.5) (2.4) 0 90% 48% 0 (4.9) (2.1)			
865		- - -		830 4:17/1 4:17/1 4:17/1	.0 98% 42% .0 .0 .0 .0 .0 .0 .0 .0 .0 .0 .0 .0 .0			
864.0 14.0 20 28 17	м	861.0	17.0	3.0 4:55/1	SPT (13.3) (7.5 95%) 569 (10.9) (0.5) (0.9) (0.5) (0.6) (0.9) (0.5) (0.6) (0.9) (0.6) (0.9	825.0		{
859.0 19.0 16 14 6	· · ·   · · · · · ·	RESIDU. Brown, silty fine to coar saproliti	rse SAND (A-2-4),	=		Boring Termin	nated at Elevation 825.0 ft in Crystalline	e Rock: SCHIST
855 854 0 24 0		855.0 WEATHERED	D ROCK 23.0					
60 40/0.1	100/0.6	SCHIS <sup>-</sup>						
849.0 29.0 100/0.3	100/0.3	<del> </del>						
844.0 34.0 60/0.1	· · · · · · · · · · · · · · · · · · ·	844.0 CRYSTALLIN	34.0 E ROCK					
840		SCHIS <sup>*</sup>	T			<del> </del>		
60/0.0		]-  -  -  -						
835		<u> -</u>  -  -						
830		}-  -  -  -				<del> </del>		
		825.0	53.0			[		
3 1		Boring Terminated at El Crystalline Rock	levation 825.0 ft in k: SCHIST					
		- - -						
		<u> </u>				[-		
		<u>-</u> -				<u>E</u>		
		<u>-</u>				E		
		- - -						
		<u> </u>				E		

**B4-B** 

BOX 1: 39.0 - 49.1 FEET



FEET BOX 2: 49.1 - 53.0 FEET



				CO	ORE LOG				
<b>WBS</b> 45784.1.2 <b>TIP</b> B-5831 <b>C</b>	DUNTY SURRY	GEOLOGIST P. Fallon & J. M	Mize	<b>WBS</b> 45784.1.2	<b>TIP</b> B-5831	COUNTY	SURRY	GEOLOGIST P. Fallon	& J. Mize
SITE DESCRIPTION Replace Bridge 850006 on I-77 over NC	268, Southern Railroad, and the Ya	dkin River	GROUND WTR (ft)	SITE DESCRIPTION Repla	ace Bridge 850006 on I-77 o	er NC 268, Soi	outhern Railroad, and the Yadkin River		GROUND WTR (ft)
BORING NO. B5-A STATION 34+15	OFFSET 25 ft LT	ALIGNMENT -L-	<b>0 HR.</b> 24.6	BORING NO. B5-A	STATION 34+15	0	OFFSET 25 ft LT	ALIGNMENT -L-	<b>0 HR</b> . 24.6
COLLAR ELEV. 882.8 ft TOTAL DEPTH 42.4 ft	NORTHING 915,299	<b>EASTING</b> 1,463,022	24 HR. Caved	COLLAR ELEV. 882.8 ft	TOTAL DEPTH 42	4 ft <b>N</b>	<b>NORTHING</b> 915,299	<b>EASTING</b> 1,463,022	24 HR. Caved
DRILL RIG/HAMMER EFF./DATE F&R7078 Diedrich D50 85% 08/30/202	DRILL METHOD	H.S. Augers & Core HAMI	MER TYPE Automatic	DRILL RIG/HAMMER EFF./DATE	E F&R7078 Diedrich D50 85% 08	30/2021	DRILL METHO	DD H.S. Augers & Core	HAMMER TYPE Automatic
DRILLERB. MaxsonSTART DATE07/07/23	<b>COMP. DATE</b> 07/20/23	SURFACE WATER DEPTH	N/A	DRILLER B. Maxson	START DATE 07/0	7/23 <b>C</b>	COMP. DATE 07/20/23	SURFACE WATER DEF	TH N/A
ELEV DRIVE DEPTH BLOW COUNT BLOWS PER		SOIL AND ROCK DE	SCRIPTION	CORE SIZE NQ2	TOTAL RUN 10.0				
(ft) (ft) (ft) 0.5ft 0.5ft 0.5ft 0	75 100 NO. MOI G	ELEV. (ft)	DEPTH (ft)	ELEV   ELEV   Color	DRILL RUN SAMP. (Min/ft) (ft) (ft) (ft) NO.	STRATA L REC. RQD (ft) (ft) % % G	C G ELEV. (ft)	DESCRIPTION AND REMARK	S DEPTH (ft)
885				850.4				Begin Coring @ 32.4 ft	DEI III (II)
882.8 + 0.0		882.8 GROUND SUR		30.4 T 32.4   5.0   6	6:56/1.0 (4.3) (2.2) 6:56/1.0 86% 44%	(9.3) (2.6) 93% 26%	850.4 Gray, fresh	CRYSTALLINE ROCK to very slight weathering, very hard, cl fractures, METAMORPHOSED GF	ose to moderately close
880	M	ALLUVIAL Dark brown, fine sandy sil	Ity CLAY (A-7-5),	845 845.4 - 37.4	6:56/1.0 6:56/1.0 6:56/1.0			fractures, METAMORPHOSED Gf  Highly fractured zone 35' - 3	
879.3 3.5 2 2 3	M	RESIDUAL	[	T   5.0   3	3:14/1.0   (5.0)   (0.4)   3:14/1.0   100%   8%			GSI = 35 to 55	0
		Orange-brown, silty CLA mica, trace rock fr	ragments	1 1 1 13	3:14/1.0 3:14/1.0 3:14/1.0		840.4	001 - 00 to 00	
875 874.3 8.5 2 6 7	<del>  </del>	<u> </u>		840.4 + 42.4	3:14/1.0		- 840.4 - Borir	g Terminated at Elevation 840.4 ft in	42.4 Crystalline Rock:
	M		11.0				F	METAMORPHOSED GRANI	ΓE
870 869 3 13 5		WEATHERED I Brown to gray, METAM	MORPHOSED				E		
72 28/0.1	100/0.6	GRANITE					-		
1865							-		
864.3 18.5	100/0.2						F		
		-					F		
859.3 23.5 100/0.2	100/0.e  100/0.e  100/0.2  100/0.2  100/0.7  100/0.7	<del> -</del> <del>-</del>					F		
							[		
855 854 3 28 5		<del>-</del>					_		
59  41/0.2          .		<del> </del>					-		
	60/0.0	850.4	32.4				<u> </u>		
		CRYSTALLINE METAMORPHOSED					F		
		-					F		
845		-					-		
		- - 840.4					E		
+ + + + + +		─ Boring Terminated at Elev					-		
		Crystalline Rock: META GRANITE					-		
							-		
		- -					F		
		- -					E		
		<del>-</del> -					[		
1,523		<del>-</del> -					<u> </u>		
<sup>88</sup>		<del>-</del>					-		
		<del>-</del> -					<u> </u>		
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<u> </u>		<u></u>					E		
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		<u> </u>					-		
<u> </u>		<u>-</u>					‡		

**B5-A** 

**BOX 1: 32.4 - 42.4 FEET** 



						В	ORE I	LOG														CO	RE LOG			
WB	<b>S</b> 45784.1.2		TI	<b>P</b> B-5831			Y SURRY			GEOLOG	ST J. Mize			WBS	45784.	1.2			TIP	B-5831			SURRY	GEOLOGIST J. Mize		
SIT	E DESCRIPTIO	N Replace	Bridge	350006 on	I-77 over	NC 268, \$	Southern R	ailroad, a	nd the Ya	adkin River		GRO	UND WTR (f	SITE	DESCR	IPTION	Repla	ace Bridg	ge 850	006 on I-77 o	er NC 26	8, Sou	uthern Railroad, and the Y	adkin River	GF	OUND WTR (ft
во	RING NO. B5-I	В	S	TATION 34	4+15		OFFSET	26 ft RT		ALIGNME	NT -L-	0 HF	<b>R.</b> 16.0	BORI	ING NO.	B5-B			STAT	<b>TION</b> 34+15		О	FFSET 26 ft RT	ALIGNMENT -L-	0	<b>HR.</b> 16.0
СО	LLAR ELEV. 8	83.0 ft	TO	TAL DEP	<b>TH</b> 52.0 f	t	NORTHIN	<b>IG</b> 915,	808	EASTING	1,463,072	24 HF	R. FIAD	COLL	LAR ELE	<b>V</b> . 883	3.0 ft		TOTA	AL DEPTH 52	.0 ft	N	<b>ORTHING</b> 915,308	<b>EASTING</b> 1,463,072	24	<b>HR.</b> FIAD
DRI	LL RIG/HAMMER	EFF./DATE	-&R7078	Diedrich D50	85% 08/30/	2021		DRILL	METHOD	H.S. Augers & Co	re	HAMMER TYP	E Automatic	DRILL	RIG/HAM	IMER EF	F./DATE	F&R70	078 Died	drich D50 85% 08	/30/2021		DRILL METHOD	H.S. Augers & Core	HAMMER T	YPE Automatic
DR	ILLER B. Maxs			ART DAT	<b>E</b> 07/19/2	23	COMP. D	<b>ATE</b> 07	20/23	SURFACE	WATER DEP	PTH N/A		DRIL	LER B.	Maxsor	n		STAR	RT DATE 07/	19/23	C	<b>OMP. DATE</b> 07/20/23	SURFACE WATER DI	EPTH N/A	
ELE (ft)	ELEV   /ft/	H BLOW C				PER FOOT					SOIL AND ROC	CK DESCRIPTI	ON	CORI	E SIZE	NQ2				L RUN 18.0						
(11)	(ft)	0.5ft 0.5f	t 0.5ft	0 2	25 	50	75 100	NO.	MOI G	ELEV. (ft)			DEPTH (f	ELEV (ft)	RUN ELEV	DEPTH (ft)	(4)	DRILL RATE	RU REC. (ft) %	RQD SAMP.	STRATA			DESCRIPTION AND REMAR	RKS	
															(ft)	(11)	(11)	(Min/ft)	%	(ii) NO.	(ii)	t) G	ELEV. (ft)			DEPTH (fi
885	<del> </del>									-				849	849.0	34.0	8.0	-		SPT	(10.0) (3	.4)	849.0	Begin Coring @ 34.0 ft CRYSTALLINE ROCK	<u> </u>	34.0
	883.0 0.0	8 11	7	1		T	T	+	м	<u> </u>	ARTIFIC	SURFACE	0.	4	-						(10.0) (3 100% 34	الإ	Dark gray, ver	y slight to moderate weathering, fractures, SCHIST	hard, close to	
880	J							]	"   🛚	8 <u>8</u> 1.0 _ Gra	y, fine to coarse s	sandy GRAVEI <b>UVIAL</b>	<u>L (A-1-b)</u> 2.	845	+	.								GSI = 35 to 45		
	879.0 4.0	2 0	3	2					w C	}	Brown, silty	CLAY (A-7-5)			1											
	1 1			<b>\</b> \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \						}				840	841.0	42.0	5.0 3	3:13/1.0	(5.0)	(2.3)						
875	874.0 9.0			1	<del> </del>	+ : : : :	<del> </del>			875.0		IDUAL	8.	4	1		3	3:13/1.0 3:13/1.0 3:13/1.0	100%	46%						
	1 1	2 2	5	•7					W	<u></u> В	own, clayey silty (A-2-4),	fine to coarse saprolitic	SAND		836.0	47.0	3	3:13/1.0   3·13/1.0								
870					<b>\</b> \\:\:			]						835	1	.	5.0   3	3:26/1.0 3:26/1.0	(5.0) 100%	(1.1) 22% RS-5						
	869.0 14.0	38 31	30							_							3	3:26/1.0 3:26/1.0					-			
005	.					1									831.0	52.0	3	3:26/1.0				<u>ر</u> امج		nated at Elevation 831.0 ft in Cr	ystalline Rock:	SCHIST 52.0
865	864.0 19.0		20			<del>    .</del>	1	1		_													-			
		8 32	32			• • •64			W														-			
860						· · ¦ ·			42	8 <u>60.0</u>		========	23.	1	+	.							_			
	859.0 24.0	21 79/0	.4				100/0.9			1		RED ROCK HIST											-			
055	.							[]		<b>3</b>						.							-			
855	854.0 29.0	100/0.4				<del> </del>	<del> </del>	1		1													-			
	‡	100/0.4					. 100/0.4	Ĭ		1													-			
850	4 +							<u> </u>		849.0			34.			.							-			
	849.0 34.0	60/0.1					60/0.1	<b>•</b>		049.0	CRYSTAL	LINE ROCK HIST	34.	1	‡	.							-			
845											501	нізт			‡	.							-			
040	844.0 39.0	60/0.1				<u> </u>	60/0.1	<b>↓</b>															-			
	841.0 42.0									<b>\$</b>						.							-			
840	041.0 + 42.0	60/0.0				<del> </del>	00/0.0	1		-					‡	.							-			
	‡														‡	.							-			
835	;														‡								F			
	7 Ŧ					1	<b>I</b>	RS-5		F					Ŧ								-			
					1		<b>I</b>	il .		831.0			52.		Ŧ								-			
	+									_ Bo	ring Terminated a	at Elevation 83 Rock: SCHIST	1.0 ft in	1	Ŧ								-			
23										F	J.,				Ŧ								-			
8/11/	<del> </del>									E					<del> </del>								-			
GDT	Ŧ									F					l Ŧ								-			
DOT.	ļ <u></u>									F					Ŧ								-			
NC	1 ‡									F													F			
GPJ	‡									F					‡								-			
B5831.GPJ	‡									F					‡								-			
	‡									F					‡								-			
DOUBLE	‡									F					‡								-			
JRE D	‡									F					‡								F			
OT BC	‡									F					‡								F			
NCDC	‡									F					‡	.							F			

**B5-B** 

**BOX 1: 42.0 - 52.0 FEET** 



BORE LOC	G		C	CORE LOG	
WBS         45784.1.2         TIP         B-5831         COUNTY         SURRY		<b>WBS</b> 45784.1.2		TY SURRY	GEOLOGIST P. Fallon
SITE DESCRIPTION Replace Bridge 850006 on I-77 over NC 268, Southern Railroad		SITE DESCRIPTION Replace Brid	Ť		
BORING NO. B6-A STATION 35+14 OFFSET 24 ft		BORING NO. B6-A	STATION 35+14	OFFSET 24 ft LT	<b>ALIGNMENT</b> -L- <b>0 HR.</b> 28.2
COLLAR ELEV. 897.5 ft TOTAL DEPTH 68.7 ft NORTHING 91		COLLAR ELEV. 897.5 ft	TOTAL DEPTH 68.7 ft	<b>NORTHING</b> 915,396	<b>EASTING</b> 1,463,005 <b>24 HR.</b> FIAD
		DRILL RIG/HAMMER EFF./DATE F&R7	1	<del> </del>	H.S. Augers & Core HAMMER TYPE Automatic
DRILLER B. Maxson START DATE 07/06/23 COMP. DATE		DRILLER B. Maxson	<b>START DATE</b> 07/06/23	COMP. DATE 07/06/23	SURFACE WATER DEPTH N/A
LEV   ELEV   DEL   LEV   DEL   LEV	SOIL AND ROCK DESCRIPTION	CORE SIZE NQ2	TOTAL RUN 20.0 ft		
	, mail 6 = 2221 (iii)	ELEV (ft) DEPTH RUN RATE (Min/ft)	RUN   STRATA   REC.   RQD   (ft)   (ft)	O O G ELEV. (ft)	DESCRIPTION AND REMARKS
900		848.8	%   %   %   %	G ELEV. (π)	DEPTH (ft) Begin Coring @ 48.7 ft
900 +		848.8 <u>48.7</u> 5.0 3:28/1.0	(4.9) (4.0) (15.1) (9.3 98% 80% 96% 59%	) 848.8 Gray-brown to	CRYSTALLINE ROCK  white, moderately severe to fresh weathering, moderately
896.0 1.5	897.5   GROUND SURFACE   0.0	845 4:26/1.0	96% 60% 96% 39%	hard to hard, vei	ry close to moderately severe to fresh weathering, moderately ry close to moderately close fractures, METAMORPHOSED  GRANITE
895 894.0 3.5 3 4 3	M ROADWAY EMBANKMENT Brown, fine sandy CLAY (A-6), trace gravel	843.8 \( \frac{1}{53.7} \)	(4 9) (2 7)		GSI = 40 to 50
5	M	I I I 16:41/1 0	(4.9) (2.7) 98% 54%		GSI = 40 to 50
890	890.5	838.8 58.7 6:14/1.0			
889.0 8.5 2 5 8	Orange-brown, silty CLAY (A-7-5)	5.0 6:28/1.0	(4.6)   (2.1)     92%   42%		
	885.5	835	)		
885	Gray, silty fine sandy CLAY (A-6), trace mica	833.8 63.7 17:35/1.0 5.0 4:20/1.0	(4.6) (2.9)	833.1	64.4 to fresh weathering, moderately-hard to hard, close to very
2 5 6 . • 11		830 4:06/1.0 4:27/1.0 4:13/1.0	(4.6) (2.9) 92% 58% (3.0) (2.4 70% 56%	Gray, moderate	close fracture spacing, SCHIST GSI = 40 to 50
880	880.5 Gray, fine sandy SILT (A-4), trace mica	828.8 68.7 4:13/1.0 4:34/1.0			ens of metamorphosed granite 65.2' - 65.9' 68.7 inated at Elevation 828.8 ft in Crystalline Rock: SCHIST
3 3 5 . 68	M			- Boning reini	inated at Elevation 626.6 it in Crystalline Rock. 3CH31
875	875.5 22.0			<del> </del>	
874.0 23.5 100/0.2 100/0.2	WEATHERED ROCK SCHIST	1 1 1			
				-	
869 0 28 5					
100/0.2					
865				-	
864.0 33.5 5 65/0.3 5 65/0.0 5 65/0.3 5					
860		<del> </del>			
859.0 38.5 100/0.2 · · · · · · · · · · · · · · · · · · ·				<u> </u>	
855 854.0 43.5				-	
100/0.2				-	
850				-	
849.0 48.5 60/0.1	848.8 48.7 CRYSTALLINE ROCK			-	
845	METAMORPHOSED GRANITE	<del> </del>			
		‡			
840 T		‡			
[					
835 T RS	<u>53</u>	‡			
[8]	833.1 64.4 SCHIST			[	
830				[-	
	828.8 68.7 Boring Terminated at Elevation 828.8 ft in	‡			
	Crystalline Rock: SCHIST	‡			
		‡			
öz         +					

## B6-A

BOX 1: 48.7 - 58.7 FEET BOX 2: 58.7 - 67.7 FEET



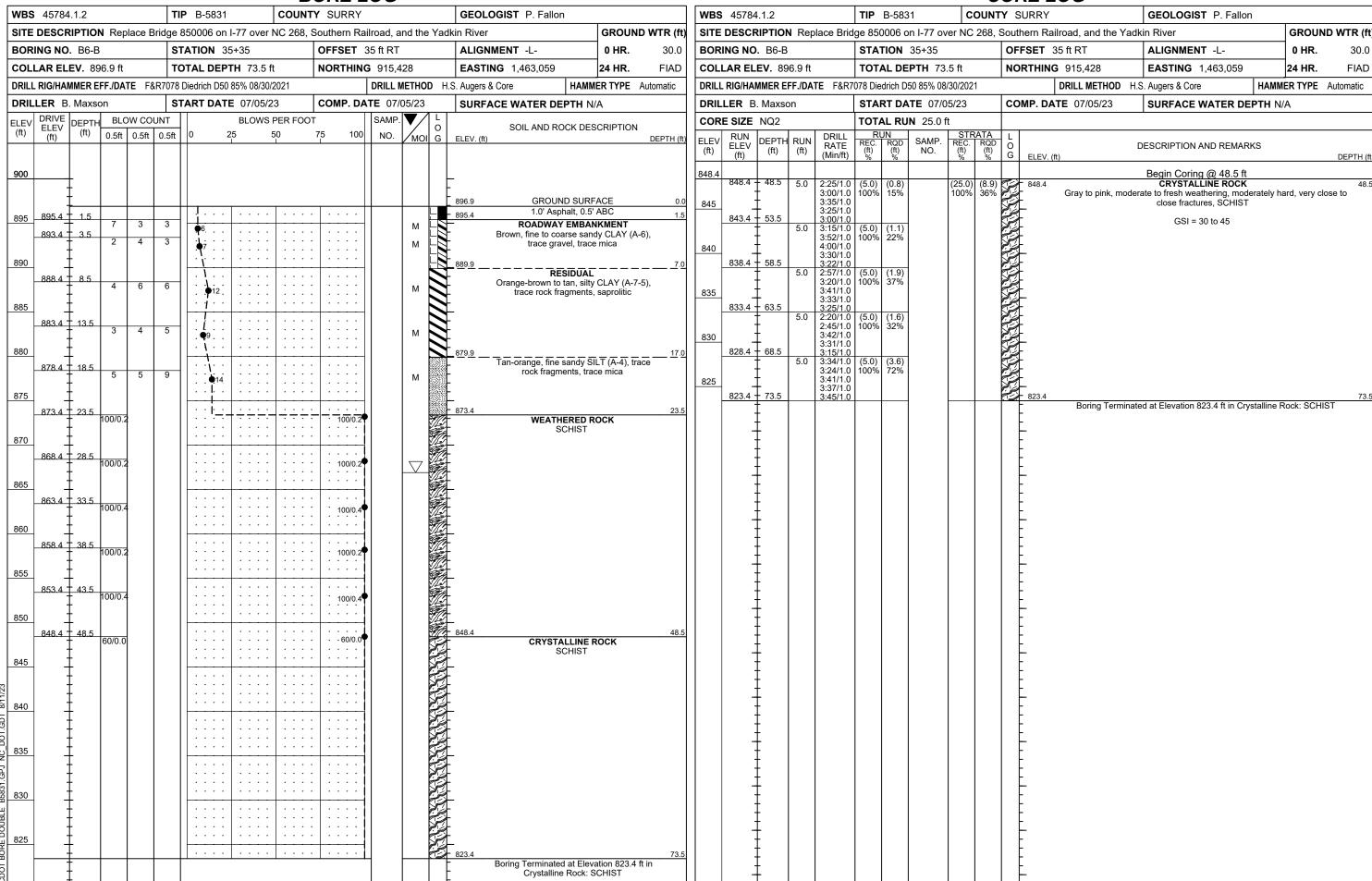
FEET BOX 3: 67.7 - 68.7 FEET



FEET



FEET



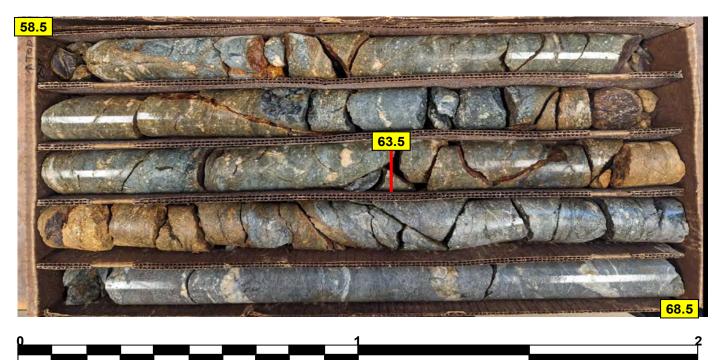
## **B6-B**

BOX 1: 48.5 - 58.5 FEET BOX 2: 58.5 - 68.5 FEET



FEET BOX 3: 68.5 - 73.5 FEET





FEET

	Y GEOLOGIST J. Mize
BORING NO. EB2-A STATION 36+39 OFFS	I I
	20 ft LT ALIGNMENT -L- 0 HR. Dry
COLLAR ELEV. 928.2 ft TOTAL DEPTH 54.4 ft NORT	<b>NG</b> 915,520 <b>EASTING</b> 1,462,985 <b>24 HR.</b> FIAD
<b>DRILL RIG/HAMMER EFF./DATE</b> F&R7078 Diedrich D50 85% 08/30/2021	DRILL METHOD H.S. Augers, HAMMER TYPE Automatic
DRILLER B. Maxson START DATE 06/29/23 COMP	DATE 06/29/23 SURFACE WATER DEPTH N/A
DRIVE   DEPTH   BLOW COUNT   BLOWS PER FOOT	SAMP. L O SOIL AND ROCK DESCRIPTION DEPTH (ft)
930	928.2 GROUND SURFACE 0.1
925 924.7 3.5	ROADWAY EMBANKMENT Red-brown, fine to coarse sandy CLAY (A-6), trace gravel, trace mica
924.7 = 3.5 2 1 2 43	M L
920 919 7 = 8.5	
915 914.7 13.5 5 5 6	
	M 911.2 17.0
910 909.7 18.5 3 4 4	RESIDUAL White to brown, silty fine to coarse SAND (A-2-4), saprolitic
905	
904.7 23.5 5 7 7	
900 899.7 28.5	
7 10 19	
895 894.7 33.5 18 38 62/0.4	895.2 WEATHERED ROCK 33.4
	11 1 1///3
890 889.7 38.5 20 31 56	RESIDUAL White, silty fine to coarse SAND (A-2-4), saprolitic
995	'
884.7 43.5 42 58/0.5	SCHIST
880 879.7 48.5	
60 40/0.2	
875 874.7 53.5 30 70/0.4	873.8 54.4
10	Boring Terminated at Elevation 873.8 ft in Weathered Rock: SCHIST

SHEET 40



#### SHEET 41 Yadkin & Surry Counties B-5831/I-77 NB Bridge

Froehling & Robertson, Inc. 310 Hubert Street Raleigh, NC 27603-2302 | USA T 919.828.3441 | F 919.828.5751 www.fandr.com

ASTM D7012 - 14e1 Test Report

**Unconfined Compression Test** 

Client: RK&K Report Date: 8/1/2023 Project: F&R Project No.: B-5831, Bridge 850006 on I-77 66B-01110

R Project No.: 66B-01110

Specimen ID	Diameter (in.)	Height (in.)	Height/Diameter Ratio	Area (in.²)	Volume (in. <sup>3</sup> )	Specimen Wt (gm)	Unit Weight (pcf)	Maximum Axial Load (lbs)	Maximum Unconfined Compressive Strength (psi)	
B1-B; RS-1; 68.0'-68.5'	1.990	4.010	2.0	3.110	12.472	529.90	161.712	22149	7120	
B2-B; RS-2; 10.8'-11.2'	1.990	3.440	1.7	3.110	10.699	466.70	166.024	8581	2760	
B6-A; RS-3; 61.2'-61.6'	1.990	3.700	1.9	3.110	11.508	490.50	162.229	37626	12100	
B4-A; RS-4; 40.2'-40.6'	1.990	3.950	2.0	3.110	12.286	541.90	167.886	10639	3420	
B5-B; RS-5; 48.0'-48.5'	1.990	4.040	2.0	3.110	12.565	506.10	153.302	5133	1650	





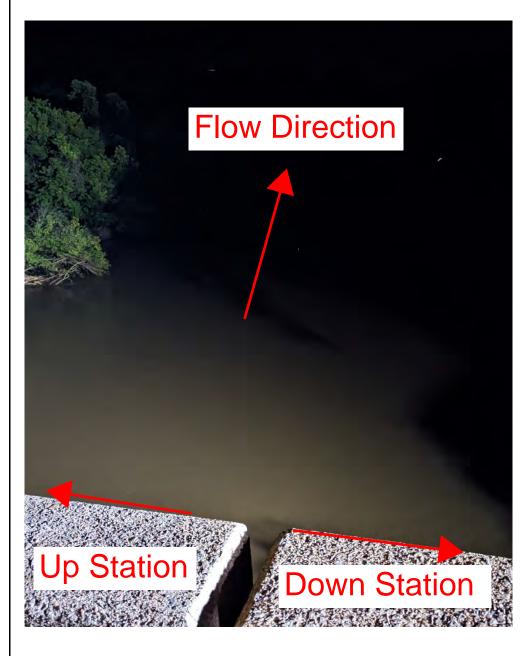


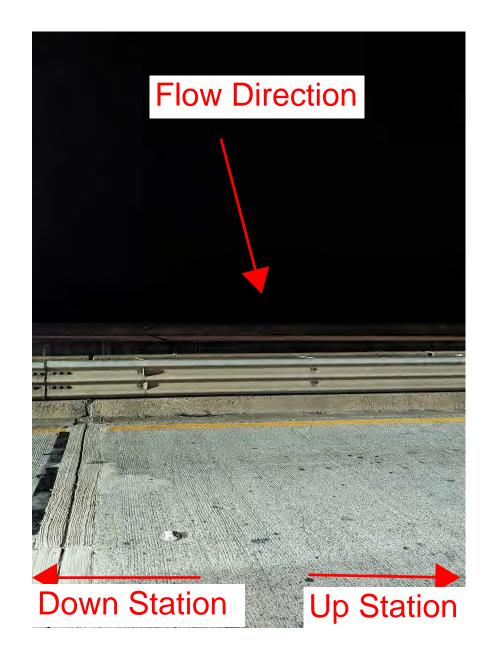












**Drill Rig Photo on Bridge Deck (-L-)** 

**Yadkin River Downstream** 

**Yadkin River Upstream** 



Bridge Replacement #850006 Elkin, NC Yadkin and Surry Counties

DATE: 08/23/2023

SHEET 42