REFERENCE

**CONTENTS** 

**DESCRIPTION** 

BORE LOG(S), CORE REPORT(S), & CORE PHOTOGRAPH(S)

TITLE SHEET LEGEND SITE PLAN

PROFILE(S)

CROSS SECTION(S)

SHEET NO.

5-8

# 45 B

STATE OF NORTH CAROLINA

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

### **STRUCTURE** SUBSURFACE INVESTIGATION

COUNTY **IREDELL** 

SITE DESCRIPTION BRIDGE NO. 260 ON SR 1862 OVER ROCKY CREEK

STATE PROJECT REPERENCE NO. 18 17BP.12.R.45

#### **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 1999 707-680. THE SUBSURFACE PLANS AND REPORTS, FIELD BORING LOGS, ROCK CORES AND SOIL TEST DATA ARE NOT PART OF THE CONTRACT.

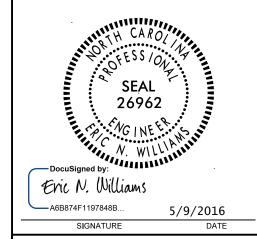
CENERAL SOIL AND ROCK STRATA DESCRIPTIONS AND INDICATED BOUNDARIES ARE BASED ON A GEOTECHNICAL INTERPRETATION OF ALL AVAILABLE SUBSURFACE DATA AND MAY NOT NECESSARILY REFLECT THE ACTUAL SUBSURFACE CONDITIONS BETWEEN BORINGS OR BETWEEN SAMPLED STRATA WITHIN THE BOREHOLE. THE LABORATORY SAMPLE DATA AND THE IN SITU UNI-PLACET ISTO 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 MIDICATED IN THE SUBSURFACE INVESTIGATION, THESE WATER LEVELS OR SOIL MOISTURE CONDITIONS MAY VARY CONSIDERABLY WITH TIME ACCORDING TO CLIMATIC CONDITIONS MAY VARY CONSIDERABLY WITH TIME ACCORDING TO CLIMATIC CONDITIONS MAY VARY CONSIDERABLY WITH TIME ACCORDING TO CLIMATIC CONDITIONS MAY VARY CONSIDERABLY WITH TIME ACCORDING TO CLIMATIC CONDITIONS MAY VARY CONSIDERABLY WITH TIME ACCORDING TO CLIMATIC CONDITIONS MAY VARY CONSIDERABLY WITH TIME ACCORDING TO CLIMATIC 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 DIES NOT WARRANT OR GUARANTEE THE SUFFICIENCY OR ACCURACY OF THE INVESTIGATION MADE, NOR THE INTEMPRETATIONS MADE, OR 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 RESAON RESULTING FROM THE ACTUAL CONDITIONS ENCOUNTERED AT THE SITE DIFFERING FROM THOSE INDICATED IN THE SUBSURFACE INFORMATION.

- IES:
  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.
  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 J.K. STICKNEY C.L. SMITH M.R. MOORE

INVESTIGATED BY J.K. STICKNEY DRAWN BY \_T.T. WALKER CHECKED BY J.E. BEVERLY SEB SUBMITTED BY <u>E.N. WILLIAMS</u> DATE <u>MAY</u> 2016



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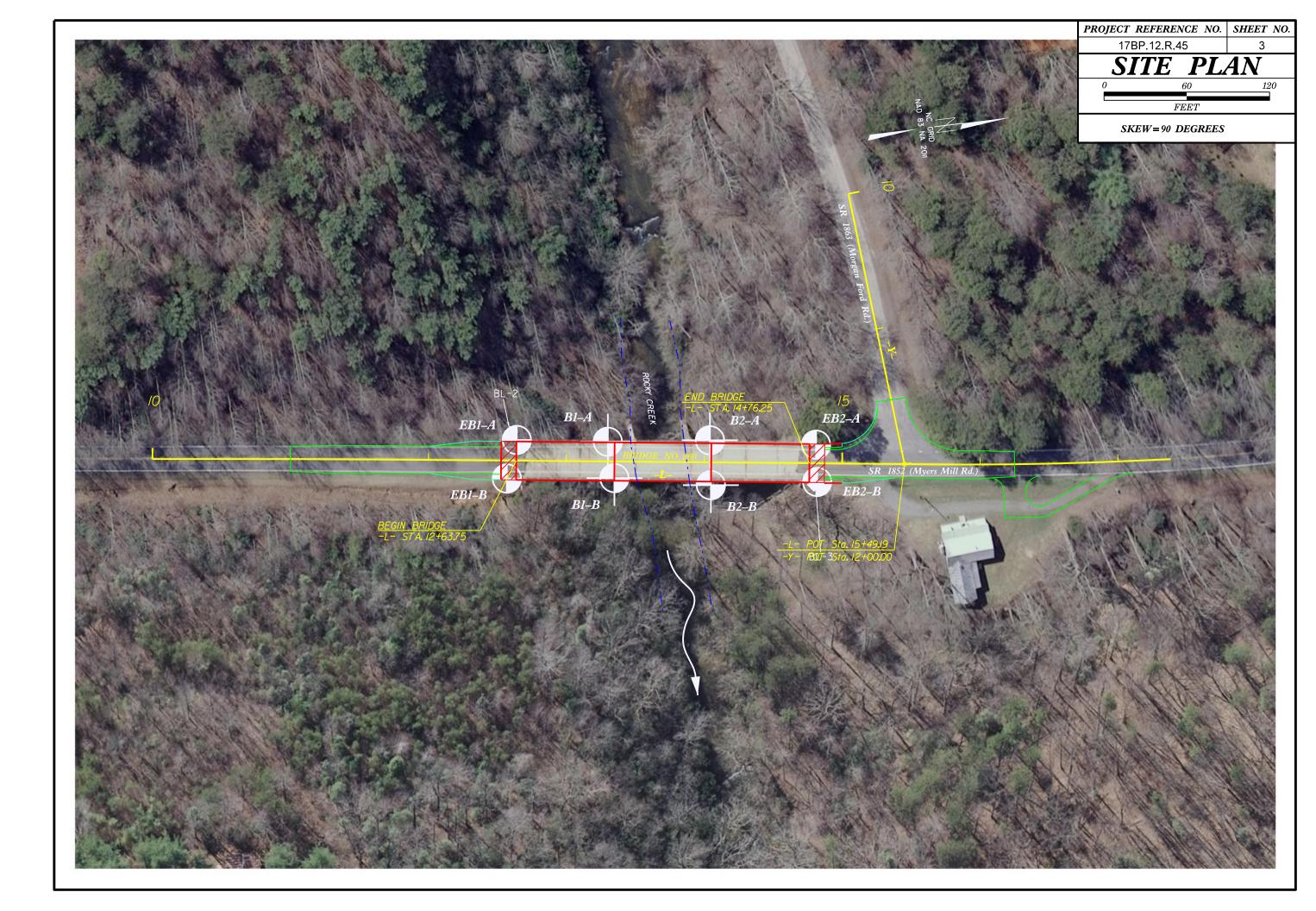
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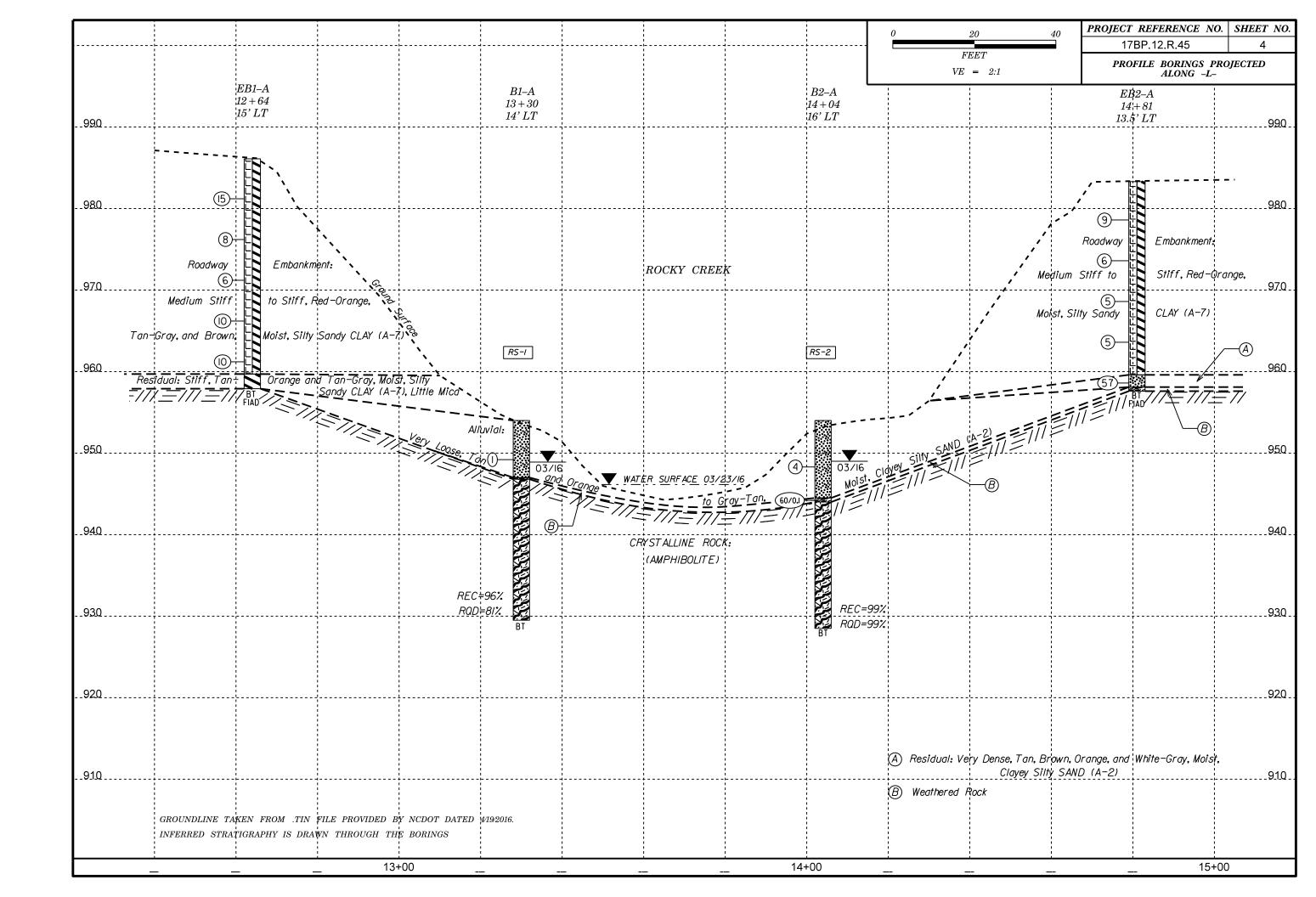
## NORTH CAROLINA DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS GEOTECHNICAL ENGINEERING UNIT

## SUBSURFACE INVESTIGATION

SOIL AND ROCK LEGEND, TERMS, SYMBOLS, AND ABBREVIATIONS

SOIL DESCRIPTION	GRADATION	ROCK DESCRIPTION	TERMS AND DEFINITIONS
SOIL IS CONSIDERED UNCONSOLIDATED, SEMI-CONSOLIDATED, OR WEATHERED EARTH MATERIALS THAT CAN BE PENETRATED WITH A CONTINUOUS FLIGHT POWER AUGER AND YIELD LESS THAN 100 BLOWS PER FOOT	WELL GRADED - INDICATES A GOOD REPRESENTATION OF PARTICLE SIZES FROM FINE TO COARSE.	HARD ROCK IS NON-COASTAL PLAIN MATERIAL THAT WOULD YIELD SPT REFUSAL IF TESTED. AN INFERRED ROCK LINE INDICATES THE LEVEL AT WHICH NON-COASTAL PLAIN MATERIAL WOULD YIELD SPT REFUSAL.	ALLUYIUM (ALLUY,) - SOILS THAT HAVE BEEN TRANSPORTED BY WATER.
ACCORDING TO THE STANDARD PENETRATION TEST (AASHTO T 206, ASTM D1586). SOIL CLASSIFICATION	UNIFORMLY GRADED - INDICATES THAT SOIL PARTICLES ARE ALL APPROXIMATELY THE SAME SIZE.  GAP-GRADED - INDICATES A MIXTURE OF UNIFORM PARTICLE SIZES OF TWO OR MORE SIZES.	SPT REFUSAL IS PENETRATION BY A SPLIT SPOON SAMPLER EQUAL TO OR LESS THAN 0.1 FOOT PER 60 BLOWS IN NON-COASTAL PLAIN MATERIAL. THE TRANSITION BETWEEN SOIL AND ROCK IS OFTEN	AQUIFER - A WATER BEARING FORMATION OR STRATA.
IS BASED ON THE AASHTO SYSTEM. BASIC DESCRIPTIONS GENERALLY INCLUDE THE FOLLOWING: CONSISTENCY, COLOR, TEXTURE, MOISTURE, AASHTO CLASSIFICATION, AND OTHER PERTIMENT FACTORS SUCH	ANGULARITY OF GRAINS	REPRESENTED BY A ZONE OF WEATHERED ROCK.	ARENACEOUS - APPLIED TO ROCKS THAT HAVE BEEN DERIVED FROM SAND OR THAT CONTAIN SAND.
AS MINERALOGICAL COMPOSITION, ANGULARITY, STRUCTURE, PLASTICITY, ETC. FOR EXAMPLE, VERY STIFF, GRAY, SILTY CLAY, WOIST 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:	ARGILLACEOUS - APPLIED TO ALL ROCKS OR SUBSTANCES COMPOSED OF CLAY MINERALS, OR HAVING A NOTABLE PROPORTION OF CLAY IN THEIR COMPOSITION, SUCH AS SHALE, SLATE, ETC.
SOIL LEGEND AND AASHTO CLASSIFICATION	ANGULAR, SUBANGULAR, SUBROUNDED, OR ROUNDED.	WEATHERED NON-COASTAL PLAIN MATERIAL THAT WOULD YIELD SPT N VALUES > ROCK (WR) 100 BLOWS PER FOOT IF TESTED.	ARTESIAN - GROUND WATER THAT IS UNDER SUFFICIENT PRESSURE TO RISE ABOVE THE LEVEL AT
GENERAL GRANULAR MATERIALS SILT-CLAY MATERIALS OPERANIC MATERIALS	MINERALOGICAL COMPOSITION	CRYSTALLINE TO COARSE GRAIN IGNEOUS AND METAMORPHIC ROCK THAT	WHICH IT IS ENCOUNTERED, BUT WHICH DOES NOT NECESSARILY RISE TO OR ABOVE THE GROUND
LLASS. (\$ 30% PASSING "200) (> 30% PASSING "200)	MINERAL NAMES SUCH AS QUARTZ, FELDSPAR, MICA, TALC, KAOLIN, ETC.  ARE USED IN DESCRIPTIONS WHEN THEY ARE CONSIDERED OF SIGNIFICANCE.	ROCK (CR) WOULD YIELD SPT REFUSAL IF TESTED. ROCK TYPE INCLUDES GRANITE, GNEISS, GABBRO, SCHIST, ETC.	SURFACE.
CROUP 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-b A-2-4 A-2-5 A-2-6 A-2-7 B-2-7 A-1-4 A-3 A-6. A-7	COMPRESSIBILITY	NON-CRYSTALLINE FINE TO COARSE GRAIN METAMORPHIC AND NON-COASTAL PLAIN SEDIMENTARY ROCK THAT WOULD YELD SPT REFUSAL IF TESTED.	CALCAREOUS (CALC.) - SOILS THAT CONTAIN APPRECIABLE AMOUNTS OF CALCIUM CARBONATE.  COLLUVIUM - ROCK FRAGMENTS MIXED WITH SOIL DEPOSITED BY GRAVITY ON SLOPE OR AT BOTTOM
SYMBOL 000000000000000000000000000000000000	SLIGHTLY COMPRESSIBLE LL < 31	ROCK TYPE INCLUDES PHYLLITE, SLATE, SANDSTONE, ETC.	OF SLOPE.
555565556	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
2. PASSING		(CP) SHELL BEDS, ETC.	BY TOTAL LENGTH OF CORE RUN AND EXPRESSED AS A PERCENTAGE.  DIKE - A TABULAR BODY OF IGNEOUS ROCK THAT CUTS ACROSS THE STRUCTURE OF ADJACENT
*40 30 MX 50 MX 51 MN   PEAT   SOILS	GRANULAR SILT - CLAY ORGANIC MATERIAL SOILS SOILS OTHER MATERIAL	WEATHERING	ROCKS OR CUTS MASSIVE ROCK.
MATERIAL STATE OF THE STATE OF	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 SOILS WITH	LITTLE ORGANIC MATTER 3 - 5% 5 - 12% LITTLE 10 - 20% MODERATELY ORGANIC 5 - 10% 12 - 20% SOME 20 - 35%	VERY SLIGHT ROCK GENERALLY FRESH, JOINTS STAINED, SOME JOINTS MAY SHOW THIN CLAY COATINGS IF OPEN,	DIP DIRECTION (DIP AZIMUTH) - THE DIRECTION OR BEARING OF THE HORIZONTAL TRACE OF THE
LL   -   -   40 MX   41 MN   40 MX   41 MN   40 MX   41 MN   40 MX   41 MN   LITTLE OR HIGHLY	LITCHLY ODCANIC NAW NOW LITCHLY DEVIAND ADDVE	(V SLI.) CRYSTALS ON A BROKEN SPECIMEN FACE SHINE BRIGHTLY, ROCK RINGS UNDER HAMMER BLOWS IF OF A CRYSTALLINE NATURE.	LINE OF DIP, MEASURED CLOCKWISE FROM NORTH.
GROUP INDEX 8 8 8 8 4 MX 8 MX 12 MX 16 MX NO MX AMOUNTS OF SOILS		SLIGHT ROCK GENERALLY FRESH, JOINTS STAINED AND DISCOLORATION EXTENDS INTO ROCK UP TO	FAULT - A FRACTURE OR FRACTURE ZONE ALONG WHICH THERE HAS BEEN DISPLACEMENT OF THE
USUAL TYPES STONE FRAGS. FINE SILTY OF CLAVEY SILTY CLAVEY MATTER	▼ WATER LEVEL IN BORE HOLE IMMEDIATELY AFTER DRILLING	(SLI.) 1 INCH. OPEN JOINTS MAY CONTAIN CLAY. IN GRANITOID ROCKS SOME OCCASIONAL FELDSPAR	SIDES RELATIVE TO ONE ANOTHER PARALLEL TO THE FRACTURE.
OF MAJOR GRAVEL, AND SAND GRAVEL 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
CEN PATING	─────────────────────────────────────	(MOD.) GRANITOID ROCKS, MOST FELDSPARS ARE DULL AND DISCOLORED, SOME SHOW CLAY. ROCK HAS	PARENT MATERIAL.
AS SUBGRADE EXCELLENT TO GOOD FAIR TO POOR POOR UNSUITABLE	SPRING OR SEEP	DULL SOUND UNDER HAMMER BLOWS AND SHOWS SIGNIFICANT LOSS OF STRENGTH AS COMPARED WITH FRESH ROCK.	FLOOD PLAIN (FP) - LAND BORDERING A STREAM, BUILT OF SEDIMENTS DEPOSITED BY THE STREAM.
PI OF A-7-5 SUBCROUP IS ≤ LL - 30 ; PI OF A-7-6 SUBCROUP IS > LL - 30		MODERATELY ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. IN GRANITOID ROCKS, ALL FELDSPARS DULL	FORMATION (FM.) - A MAPPABLE GEOLOGIC UNIT THAT CAN BE RECOGNIZED AND TRACED IN THE FIELD.
CONSISTENCY OR DENSENESS	MISCELLANEOUS SYMBOLS	SEVERE AND DISCOLORED AND A MAJORITY SHOW KAOLINIZATION. ROCK SHOWS SEVERE LOSS OF STRENGTH (MOD. SEV.) AND CAN BE EXCAVATED WITH A GEOLOGIST'S PICK, ROCK GIVES "CLUNK" SOUND WHEN STRUCK.	JOINT - FRACTURE IN ROCK ALONG WHICH NO APPRECIABLE MOVEMENT HAS OCCURRED.
PRIMARY SOIL TYPE COMPACTNESS OR CONSISTENCY PENETRATION RESISTENCE COMPRESSIVE STRENGTH	ROADWAY EMBANKMENT (RE) 25/025 DIP & DIP DIRECTION	IF TESTED, WOULD YIELD SPT REFUSAL	LEDGE - A SHELF-LIKE RIDGE OR PROJECTION OF ROCK WHOSE THICKNESS IS SMALL COMPARED TO
M-ANTOE) (1042/1-1)	₩ITH SOIL DESCRIPTION → OF ROCK STRUCTURES	SEVERE ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED, ROCK FABRIC CLEAR AND EVIDENT BUT (SEV.) REDUCED IN STRENGTH TO STRONG SOIL. IN GRANITOID ROCKS ALL FELDSPARS ARE KAOLINIZED	ITS LATERAL EXTENT.
GENERALLY VERY LOOSE < 4 CONTROL CONTR	SOIL SYMBOL  SPT ONT TEST BORING  SLOPE INDICATOR INSTALLATION	TO SOME EXTENT. SOME FRAGMENTS OF STRONG ROCK USUALLY REMAIN.	LENS - A BODY OF SOIL OR ROCK THAT THINS OUT IN ONE OR MORE DIRECTIONS.
GRANULAR MEDIUM DENSE 10 TO 30 N/A MATERIAL DENSE 30 TO 50	ARTIFICIAL FILL (AF) OTHER AUGER BORING CONE PENETROMETER	IF TESTED, WOULD YIELD SPT N VALUES > 100 BPF   VERY	MOTTLED (MOT.) - IRREGULARLY MARKED WITH SPOTS OF DIFFERENT COLORS. MOTTLING IN SOILS USUALLY INDICATES POOR AERATION AND LACK OF GOOD DRAINAGE.
(NON-COHESIVE) VERY DENSE > 50	THAN ROADWAY EMBANKMENT THOUSEN BURLING TEST	VERY ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED, ROCK FABRIC ELEMENTS ARE DISCERNIBLE SEVERE BUT MASS IS EFFECTIVELY REDUCED TO SOIL STATUS, WITH ONLY FRAGMENTS OF STRONG ROCK	PERCHED WATER - WATER MAINTAINED ABOVE THE NORMAL GROUND WATER LEVEL BY THE PRESENCE
VERY SOFT < 2 < 0.25	─────────────────────────────────	(V SEV.) REMAINING. SAPROLITE IS AN EXAMPLE OF ROCK WEATHERED TO A DEGREE THAT ONLY MINOR VESTIGES OF ORIGINAL ROCK FABRIC REMAIN. <u>IF TESTED, WOULD YIELD SPT N VALUES &lt; 100 BPF</u>	OF AN INTERVENING IMPERVIOUS STRATUM,
GENERALLY SOFT 2 TO 4 0.25 TO 0.5 SILT-CLAY MEDIUM STIFF 4 TO 8 0.5 TO 1.0	INFERRED ROCK LINE MY MONITORING WELL TEST BORING WITH CORE	COMPLETE ROCK REDUCED TO SOIL. ROCK FABRIC NOT DISCERNIBLE, OR DISCERNIBLE ONLY IN SMALL AND	RESIDUAL (RES.) SOIL - SOIL FORMED IN PLACE BY THE WEATHERING OF ROCK.  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	A ALLUMIA CON BOUNDARY A PIEZOMETER CON NOVALUE	SCATTERED CONCENTRATIONS, QUARTZ MAY BE PRESENT AS DIKES OR STRINGERS, SAPROLITE IS ALSO AN EXAMPLE.	ROCK SEGMENTS EQUAL TO OR GREATER THAN 4 INCHES DIVIDED BY THE TOTAL LENGTH OF CORE
HARD > 30 > 4	TT >= 4 ALLUVIAL SOIL BOUNDARY A INSTALLATION SPT N-VALUE	ROCK HARDNESS	RUN AND EXPRESSED AS A PERCENTAGE.
TEXTURE OR GRAIN SIZE	RECOMMENDATION SYMBOLS	VERY HARD CANNOT BE SCRATCHED BY KNIFE OR SHARP PICK, BREAKING OF HAND SPECIMENS REQUIRES	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	UNDERCUT UNCLASSIFIED EXCAVATION - UNCLASSIFIED EXCAVATION - UNSUITABLE WASTE UNCLASSIFIED EXCAVATION - ACCEPTABLE, BUT NOT TO BE	SEVERAL HARD BLOWS OF THE GEOLOGIST'S PICK.	SILL - AN INTRUSIVE BODY OF IGNEOUS ROCK OF APPROXIMATELY UNIFORM THICKNESS AND
OPENING (MM) 4.76 2.00 0.42 0.25 0.075 0.053	SHALLOW UNCLASSIFIED EXCAVATION - USED IN THE TOP 3 FEET OF	HARD CAN BE SCRATCHED BY KNIFE OR PICK ONLY WITH DIFFICULTY, HARD HAMMER BLOWS REQUIRED TO DETACH HAND SPECIMEN.	RELATIVELY THIN COMPARED WITH ITS LATERAL EXTENT, THAT HAS BEEN EMPLACED PARALLEL TO THE BEDDING OR SCHISTOSITY OF THE INTRUDED ROCKS.
BOULDER COBBLE GRAVEL SAND SAND SILT CLAY	UNDERCOT LESS ACCEPTABLE DEGRAPAGLE ROCK	MODERATELY CAN BE SCRATCHED BY KNIFE OR PICK, GOUGES OR GROOVES TO 0.25 INCHES DEEP CAN BE	SLICKENSIDE - POLISHED AND STRIATED SURFACE THAT RESULTS FROM FRICTION ALONG A FAULT
(CSE, SU,) (F SU,)	ABBREVIATIONS	HARD EXCAVATED BY HARD BLOW OF A GEOLOGIST'S PICK, HAND SPECIMENS CAN BE DETACHED BY MODERATE BLOWS.	OR SLIP PLANE.
GRAIN MM 305 75 2.0 0.25 0.05 0.005 SIZE IN. 12 3	AR - AUGER REFUSAL MED MEDIUM VST - VANE SHEAR TEST BT - BORING TERMINATED MICA MICACEOUS WEA WEATHERED	MEDIUM CAN BE GROOVED OR GOUGED 0.05 INCHES DEEP BY FIRM PRESSURE OF KNIFE OR PICK POINT.	STANDARD PENETRATION TEST (PENETRATION RESISTANCE) (SPT) - NUMBER OF BLOWS (N OR BPF) OF A 140 LB. HAMMER FALLING 30 INCHES REQUIRED TO PRODUCE A PENETRATION OF 1 FOOT INTO SOIL
SOIL MOISTURE - CORRELATION OF TERMS	CL CLAY MOD MODERATELY 7 - UNIT WEIGHT	HARD CAN BE EXCAVATED IN SMALL CHIPS TO PEICES I INCH MAXIMUM SIZE BY HARD BLOWS OF THE	WITH A 2 INCH OUTSIDE DIAMETER SPLIT SPOON SAMPLER. SPT REFUSAL IS PENETRATION EQUAL TO OR LESS THAN 0.1 FOOT PER 60 BLOWS.
COLL MOISTURE SCALE FIELD MOISTURE	CPT - CONE PENETRATION TEST NP - NON PLASTIC 7d - DRY UNIT WEIGHT CSE COARSE ORG ORGANIC	POINT OF A GEOLOGIST'S PICK.  SOFT CAN BE GROVED OR GOUGED READILY BY KNIFE OR PICK, CAN BE EXCAVATED IN FRAGMENTS	STRATA CORE RECOVERY (SREC.) - TOTAL LENGTH OF STRATA MATERIAL RECOVERED DIVIDED BY
(ATTERBERG LIMITS)  DESCRIPTION  GUIDE FOR FIELD MOISTURE DESCRIPTION	DMT - DILATOMETER TEST PMT - PRESSUREMETER TEST SAMPLE ABBREVIATIONS  DPT - DYNAMIC PENETRATION TEST SAP SAPROLITIC S - BULK	FROM CHIPS TO SEVERAL INCHES IN SIZE BY MODERATE BLOWS OF A PICK POINT. SMALL, THIN	TOTAL LENGTH OF STRATUM AND EXPRESSED AS A PERCENTAGE.
- SATURATED - USUALLY LIQUID; VERY WET, USUALLY	e - VOID RATIO SD SAND, SANDY SS - SPLIT SPOON	PIECES CAN BE BROKEN BY FINGER PRESSURE.  VERY CAN BE CARVED WITH KNIFE. CAN BE EXCAVATED READILY WITH POINT OF PICK, PIECES 1 INCH	STRATA ROCK QUALITY DESIGNATION (SRQD) - A MEASURE OF ROCK QUALITY DESCRIBED BY TOTAL LENGTH OF ROCK SEGMENTS WITHIN A STRATUM EQUAL TO OR GREATER THAN 4 INCHES DIVIDED BY
(SAT,) FROM BELOW THE GROUND WATER TABLE	F - FINE SL SILT, SILTY ST - SHELBY TUBE FOSS FOSSILIFEROUS SLI SLIGHTLY RS - ROCK	SOFT OR MORE IN THICKNESS CAN BE BROKEN BY FINGER PRESSURE. CAN BE SCRATCHED READILY BY	THE TOTAL LENGTH OF STRATA AND EXPRESSED AS A PERCENTAGE.
PLASTIC SEMISOLID: REQUIRES DRYING TO	FRAC FRACTURED, FRACTURES TCR - TRICONE REFUSAL RT - RECOMPACTED TRIAXIAL	FINGERNALL.	TOPSOIL (TS.) - SURFACE SOILS USUALLY CONTAINING ORGANIC MATTER.
(PI) PL PLASTIC LIMITATTAIN OPTIMUM MOISTURE	FRAGS FRAGMENTS W - MOISTURE CONTENT CBR - CALIFORNIA BEARING HI HIGHLY V - VERY RATIO	FRACTURE SPACING BEDDING  TERM SPACING TERM THICKNESS	BENCH MARK: BL-3: N: 830271.265, E: 1435607.482, STA. 14+79.73, 15.45' RT
	EQUIPMENT USED ON SUBJECT PROJECT	VERY WIDE MORE THAN 10 FEET VERY THICKLY BEDDED 4 FEET	ELEVATION: 982.65 FEET
OM OPTIMUM MOISTURE SL SHRINKAGE LIMIT  - MOIST - (M) SOLID; AT OR NEAR OPTIMUM MOISTURE	DRILL UNITS: ADVANCING TOOLS: HAMMER TYPE:	WIDE	
PEOUIPES ADDITIONAL MATER TO	CME-45C CLAY BITS X AUTOMATIC MANUAL	CLOSE 0.16 TO 1 FOOT VERY THINLY BEDDED 0.03 - 0.16 FEET VERY CLOSE LESS THAN 0.16 FEET THICKLY LAMINATED 0.008 - 0.03 FEET	BENCH MARK: BL-2: N: 830057.685, E: 1435543.659, STA. 12+59.65, 19.95' LT
- DRY - (D) ATTAIN OPTIMUM MOISTURE	G* CONTINUOUS FLIGHT AUGER CORE SIZE:	THINLY LAMINATED 4.008 FEET	ELEVATION: 985,34 FEET
PLASTICITY	X 8 HOLLOW AUGERS	INDURATION	
PLASTICITY INDEX (PI) DRY STRENGTH	CME-550 HARD FACED FINGER BITS X-N X	FOR SEDIMENTARY ROCKS, INDURATION IS THE HARDENING OF MATERIAL BY CEMENTING, HEAT, PRESSURE, ETC.	NOTES:
NON PLASTIC         0-5         YERY LOW           SLIGHTLY PLASTIC         6-15         SLIGHT	TUNGCARBIDE INSERTS	FRIABLE RUBBING WITH FINGER FREES NUMEROUS GRAINS;  GENTLE BLOW BY HAMMER DISINTEGRATES SAMPLE.	F.I.A.D.= FILLED IMMEDIATELY AFTER DRILLING
MODERATELY PLASTIC 16-25 MEDIUM	X CASING X W/ ADVANCER POST HOLE DIGGER	CRAINC CAN BE CEDARATED FROM CAMPLE WITH CIFEL BRODE.	
HIGHLY PLASTIC 26 OR MORE HIGH	PORTABLE HOIST X TRICONE STEEL TEETH HAND AUGER	BREAKS EASILY WHEN HIT WITH HAMMER.	
COLOR	X CME-550X TRICONE TUNG, CARB. SOUNDING ROD	INDURATED GRAINS ARE DIFFICULT TO SEPARATE WITH STEEL PROBE: DIFFICULT TO BREAK WITH HAMMER.	
DESCRIPTIONS MAY INCLUDE COLOR OR COLOR COMBINATIONS (TAN, RED, YELLOW-BROWN, BLUE-GRAY).	X CORE BIT VANE SHEAR TEST	SHAPP HAMMED DI ONS DECITION TO DOEAK SAMDIE.	
MODIFIERS SUCH AS LIGHT, DARK, STREAKED, ETC. ARE USED TO DESCRIBE APPEARANCE.		EXTREMELY INDURATED SHARP HAMMER BLOWS REQUIRED TO BREAK SAMPLE; SAMPLE BREAKS ACROSS GRAINS.	DATE: 8-15-14



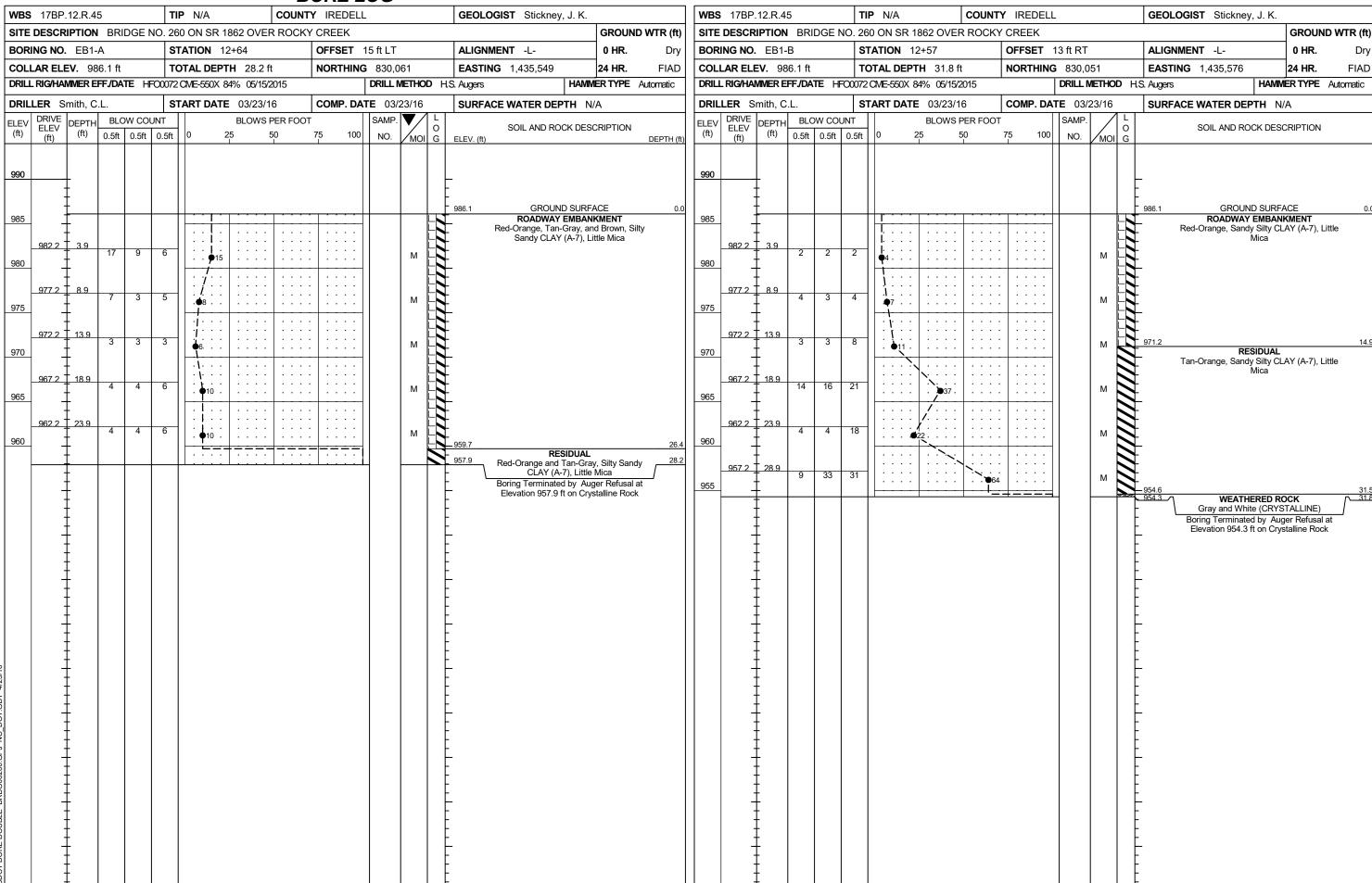


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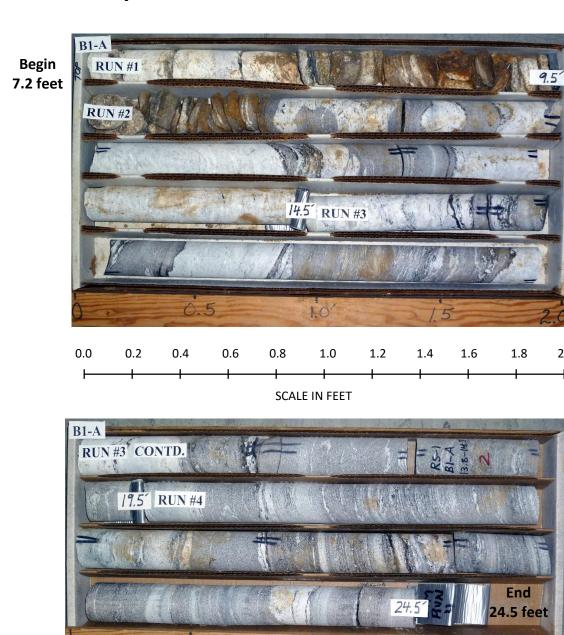
	В	ORE LOG		
VBS 17BP.12.R.45	TIP N/A COUNT	Y IREDELL	GEOLOGIST Stickney, J. K.	
ITE DESCRIPTION BRIDGE NO	1	/ CREEK	GROUND WTF	R (ft)
BORING NO. B1-A	STATION 13+30	OFFSET 14 ft LT		NM
COLLAR ELEV. 954.0 ft	TOTAL DEPTH 24.5 ft	<b>NORTHING</b> 830,127	<b>EASTING</b> 1,435,558 <b>24 HR</b> .	5.1
DRILL RIG/HAMMER EFF/DATE HFOO	0072 CME-550X 84% 05/15/2015	DRILL METHOD NV	V Casing W/SPT & Core HAMMER TYPE Automa	atic
ORILLER Smith, C.L.	<b>START DATE</b> 03/23/16	COMP. DATE 03/23/16	SURFACE WATER DEPTH N/A	
LEV DRIVE ELEV (ft) DEPTH BLOW COUNT (ft) 0.5ft 0.5ft 0.5ft 0.	BLOWS PER FOOT 5ft 0 25 50	75 100   100   /   0	SOIL AND ROCK DESCRIPTION  ELEV. (ft)  DEP	TH (ft
155 155 155 155 155 155 155 155 155 155		RS-1	947.0  947.0  946.8  WEATHERED ROCK (GRANITE and HORNBLENDE GNEISS)  CRYSTALLINE ROCK Gray-Black-White (GRANITE and HORNBLENDE GNEISS)  .  Boring Terminated at Elevation 929.5 ft in Crystalline Rock	0.0 7.0 7.2

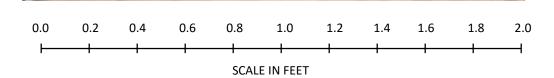
									C	O	RE LO	OG .					
WBS	17BP.	12.R.4	5		TIP	N/A		C	OUNT	ΥΙ	IREDELL			GEOLOGIST Stickney	J. K.		
SITE	DESCR	IPTION	BRI	DGE NO	. 260 (	ON SF	R 1862 O	√ER R	OCKY	/ CF	REEK					GROUN	D WTR (ft)
BORI	NG NO.	B1-A	ı		STA	TION	13+30			OF	FFSET 14	1 ft LT		ALIGNMENT -L-		0 HR.	NM
	AR ELE						<b>PTH</b> 24			NC	ORTHING	· ·		<b>EASTING</b> 1,435,558		24 HR.	5.1
DRILL	. RIG/HAI	/IMER E	FF./DA	TE HFOO	0072 CN	/IE-550>	< 84% 05 <sub>0</sub>	/15/2015	5			DRILL METHOD	NW	/ Casing W/SPT & Core	HAMM	ER TYPE	Automatic
DRIL	LER S	mith, C	.L.		STAI	RT DA	TE 03/2	23/16		CC	OMP. DAT	E 03/23/16		SURFACE WATER DEP	TH N	/A	
CORI	E SIZE	NX					<b>N</b> 17.3 f		A T A								
ELEV (ft)	RUN ELEV (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	REC. (ft) %	RQD (ft) %	SAMP. NO.	STR REC. (ft) %	RQD (ft) %	O G	ELEV. (ft)		D	ESCRIPTION AND REMARK	3		DEPTH (ft
946.8	946.8 _	7.2	2.2	1,24/0.2	(1.0)	(0.0)		(46.6)	(1.1.1)	P	2 046.0			Begin Coring @ 7.2 ft			7.0
945	940.6 _ 944.5 — - - 939.5 —	- 9.5 - - -	5.0	1:31/0.3 1:31/1.0 1:31/1.0 1:42/1.0 1:42/1.0 1:42/1.0 1:42/1.0 1:42/1.0	(1.8) 78% (4.8) 96% (5.0)	(0.0) 0% (4.1) 82% (5.0) 100%	RS-1	(16.6) 96%	(14.1) 82%		<b>/</b>	Hard, Interlayere	d (GF	CRYSTALLINE ROCK Moderately Weathered to Fres RANITE and HORNBLENDE G ang to 10.3' Then Wide Fractul QU=7.52 ksi	NEISS)	with Very C	7.2 to Close
935	934.5 — 939.5 —		5.0	1:40/1.0 1:40/1.0 1:40/1.0 1:40/1.0 1:34/1.0 1:34/1.0 1:34/1.0 1:34/1.0		(5.0) 100%					929.5						24.5
												Boring 1	[ermir	nated at Elevation 929.5 ft in 0	Crystallin	e Rock	





#### CORE PHOTOGRAPHS: Bridge No. 260 on SR 1862 over Rocky Creek, B1-A 13+30, 14' LT





#### SHEET 12

#### GEOTECHNICAL BORING REPORT BORE LOG

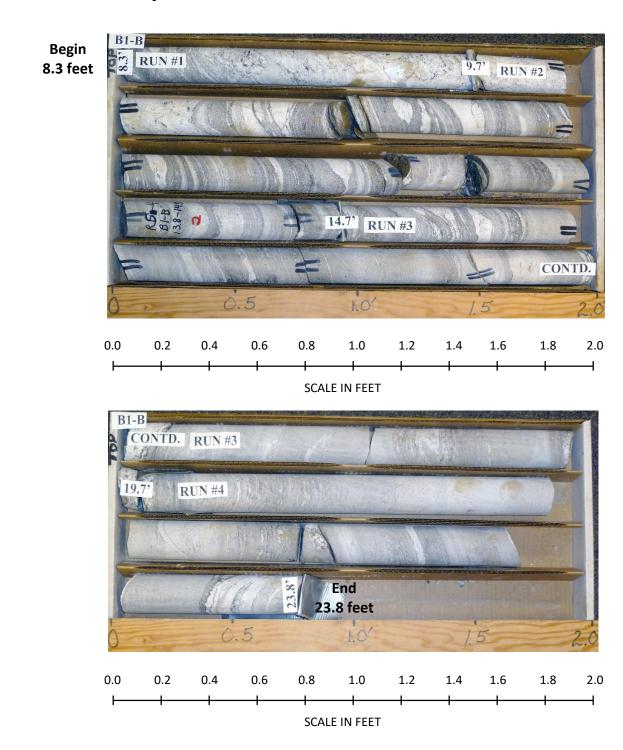
COLLAR ELEV.         953.3 ft         TOTAL DEPTH         23.8 ft         NORTHI           DRILL RIG/HAMMER EFF/DATE         HFC0072 CVE-550X 84%         05/15/2015           DRILLER         Smith, C.L.         START DATE         03/22/16         COMP. I           ELEV         DRIVE ELEV         DEPTH         BLOW COUNT         BLOWS PER FOOT	T 12 ft RT	
STATION   13+35   OFFSET	T 12 ft RT	0 HR. NM 24 HR. 5.0 MER TYPE Automatic N/A SCRIPTION
COLLAR ELEV. 953.3 ft	DRILL METHOD NW Casing W/SPT & Core HAMIN  DATE 03/22/16 SURFACE WATER DEPTH NOTE ON MOI G ELEV. (ft)  SOIL AND ROCK DESTRUCTION OF SURFACE WATER DEPTH NOTE OF SURFACE WA	24 HR. 5.0  MER TYPE Automatic  N/A  SCRIPTION
RILL RIG/HAMMER EFF/DATE	DRILL METHOD NW Casing W/SPT & Core HAMM  DATE 03/22/16 SURFACE WATER DEPTH N  SAMP. O SOIL AND ROCK DEST  MOI G ELEV. (ft)  953.3 GROUND SURF  ALLUVIAL	MER TYPE Automatic  N/A  SCRIPTION
START DATE   03/22/16   COMP.	DATE 03/22/16  SURFACE WATER DEPTH N ONO. MOI G ELEV. (ft)  953.3 GROUND SURF ALLUVIAL	N/A SCRIPTION
DEPTH ELEV (ft) DEPTH (ft) 0.5ft 0.5ft 0.5ft 0 25 50 75 1	SAMP.   L O SOIL AND ROCK DES	SCRIPTION
0.5ft 0.5ft 0.5ft 0 25 50 75 1	O SOIL AND ROCK DES	
(ft) (ft) (ft) 0.5ft 0.5ft 0.5ft 0 25 50 75 1	NO.   MOI   G   ELEV. (ft)	
950 949.6 3.7 WOH WOH 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	ALLUVIAL	
949.6 3.7 WOH WOH 1	ALLUVIAL	
949.6 T 3.7 WOH WOH 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	ALLUVIAL	
949.6 T 3.7 WOH WOH 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		
949.6 = 3.7 WOH WOH 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Tan Grango, Glayby Chi.	
	<u> </u>	
45		
<del>-</del>	945.3 WEATHERED R	8.
	- 945.0 WEATHERED R GRANITE and HORNBLE	
	CRYSTALLINE F Gray-Black-White (AMPH	ROCK
10	HORNBLENDE GI	NEISS)
	: RS-4	
35		
<del>2</del>		
30	929.5	23.
‡	- Boring Terminated at Elevi Crystalline Ro	ation 929.5 ft in

									<u> </u>	<u>UI</u>		<del>UG</del>					
WBS	17BP	12.R.4	5		TIP	N/A		С	OUNT	Υ    II	REDELL			GEOLOGIST Stickn	ey, J. K.		
SITE	DESCR	IPTION	I BRI	DGE NO	. 260 (	ON SF	R 1862 O	VER R	OCK	/ CR	EEK					GROUN	ID WTR (ft)
BOR	ING NO.	B1-B	3		STA	TION	13+35			OF	SET 1	2 ft RT		ALIGNMENT -L-		0 HR.	NM
	LAR ELI						<b>PTH</b> 23			NO		830,128		<b>EASTING</b> 1,435,585		24 HR.	5.0
DRIL	L RIG/HAI	MMER E	FF./DA	TE HFO	0072 CN	/IE-550>	< 84% O5	15/201	5			DRILL METHO	D NM	V Casing W/SPT & Core	HAMM	ER TYPE	Automatic
	LER S		.L.		STA	RT DA	TE 03/2	22/16		СО	MP. DAT	<b>E</b> 03/22/16		SURFACE WATER D	EPTH N/	'A	
COR	E SIZE	NX					N 15.5			L.							
ELEV (ft)	RUN ELEV (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	REC. (ft) %	JN RQD (ft) %	SAMP. NO.	REC. (ft)	RQD (ft) %	L O G	ELEV. (ft	)	D	DESCRIPTION AND REMA	RKS		DEPTH (ft)
945	945.0 943.6 - 938.6	- 8.3 - 9.7 - - - - 14.7 -	1.4 5.0 5.0	1:35/0.4 1:35/1.0 1:41/1.0 1:41/1.0 1:41/1.0 1:41/1.0 1:46/1.0 1:46/1.0	(1.4) (100%) (5.0) 100% (5.0) 100%	(4.7)	RS-4	(15.5) 100%	(14.5) 94%		945.0	Gray-Bla HORNBLEND	ack-Whi DE GNE	Begin Coring @ 8.3 to CRYSTALLINE ROCI te, Fresh Hard, Interlayered (ISS) with Moderately Closed QU= 12.8 ksi	<b>(</b> d (amphibo	DLITE and acture Spa	8.3 cing
935	933.6 -	- 19.7 - - - - 23.8	4.1	1:46/1.0 1:46/1.0 1:38/1.0 1:38/1.0 1:38/1.0 1:38/0.1	100%	(3.9) 95%					- - - - - - 929.5	Borin	g Termi	nated at Elevation 929.5 ft	in Crystallin	e Rock	23.8





#### CORE PHOTOGRAPHS: Bridge No. 260 on SR 1862 over Rocky Creek, B1-B 13+35, 12' RT



#### **WBS** 17BP.12.R.45 TIP N/A COUNTY IREDELL GEOLOGIST Stickney, J. K. SITE DESCRIPTION BRIDGE NO. 260 ON SR 1862 OVER ROCKY CREEK GROUND WTR (ft) OFFSET 16 ft LT STATION 14+04 ALIGNMENT -L-BORING NO. B2-A 0 HR. NM COLLAR ELEV. 954.0 ft TOTAL DEPTH 25.5 ft **NORTHING** 830,200 **EASTING** 1,435,566 24 HR. 5.0 DRILL METHOD NW Casing W/SPT & Core **DRILL RIG/HAMMER EFF./DATE** HF00072 CME-550X 84% 05/15/2015 HAMMER TYPE Automatic DRILLER Smith. C.L. **START DATE** 03/21/16 **COMP. DATE** 03/21/16 SURFACE WATER DEPTH N/A ELEV CHI DEPTH BLOW COUNT (ft) (ft) 0.5ft 0.5ft 0.5ft **BLOWS PER FOOT** SAMP. SOIL AND ROCK DESCRIPTION (ft) 0.5ft 0.5ft 0.5ft MOI G 75 100 NO. ELEV. (ft) DEPTH (ft 955 954.0 GROUND SURFACE ALLUVIAL Gray-Tan, Clayey Silty SAND (A-2) 950 949.3 4.7 945 944.3 + 9.7 60/0.1 WEATHERED ROCK (AMPHIBOLITE) 60/0.1 CRYSTALLINE ROCK 940 Gray-Black-White (AMPHIBOLITE) RS-2 935 . . . . . . . . 930 Boring Terminated at Elevation 928.5 ft in

										C	Ol	RE L	O(	3												
WBS	<b>1</b> 7E	P.12.R.	45			TIP	N/A		C	OUNT	ΥII	REDELL					,	GEOLO	GIST	ΓSt	ickne	y, J. K				
SITE	DES	RIPTIO	<b>N</b> B	RIDGE	E NO.	260 (	ON SR	1862 O\	/ER R	OCKY	CR	EEK											GF	ROUN	D WTF	R (ft)
BOR	ING N	<b>O</b> . B2-	Α			STAT	ΓΙΟΝ	14+04			OF	FSET 1	6 ft	LT			4	ALIGNM	/IEN	Γ -L·	-		0	HR.		NM
		LEV. 9						<b>PTH</b> 25.			NO	RTHING	83	0,20	00			EASTIN	G ´	1,435	5,566			HR.		5.0
DRIL	L RIG/I	IAMMER	EFF/D	ATE	HF00	072 CIV	1E-550X	84% 05/	15/2015	5			DRI	LL MI	ETHO	DD N	WC	asing W	SPT	& Core	е	HAI	MMER T	YPE	Autom	atic
		Smith,	C.L.			STAF	RT DA	<b>TE</b> 03/2	1/16		СО	MP. DA	Έ	03/2	1/16		;	SURFAC	CE V	VATE	R DE	PTH	N/A			
COR		E NX	_			TOTA	AL RUI	<b>1</b> 15.5 f		) A T A	L.,															
ELEV (ft)	RUN ELE' (ft)	DEPT (ft)	H RUI (ft)	`  R/	RILL ATE in/ft)	REC. (ft)	RQD (ft) %	SAMP. NO.	REC. (ft)	RQD (ft) %	L O G	ELEV. (f	:)				DE	SCRIPTIO	ON A	ND RI	EMARI	KS			DEP	TH (ft
944	944.	100		1.4	E/0 E	(F. F.)	(F. F.)										E	Begin Co								
940		5 + 15.5	5.0	2:00 2:00 2:00 2:00 2:00	5/0.5 5/1.0 5/1.0 5/1.0 5/1.0 5/1.0 0/1.0 0/1.0 0/1.0 0/1.0	(5.0) 100%	(5.5) 100% (5.0) 100%	RS-2				- - - - - - - -	•	Gray-	Black	(-White	e, F	CRYSTesh, Hard	d (AN Spa	IPHIB cing	BOLITE	-	Vide Fra	acturin	g	
930		Ī	5.0	1:50	0/1.0 0/1.0 0/1.0 0/1.0 0/1.0	(4.9) 98%	(4.9) 98%					- - -														
	928.	5 + 25.5 +		1:50	0/1.0							- 928.5 -			Borin	g Terr	mina	ted at Ele	evatio	n 928	3.5 ft in	Crysta	lline Ro	ck		25.5
		<del>                                      </del>																								





#### CORE PHOTOGRAPHS: Bridge No. 260 on SR 1862 over Rocky Creek, B2-A 14+04, 16' LT





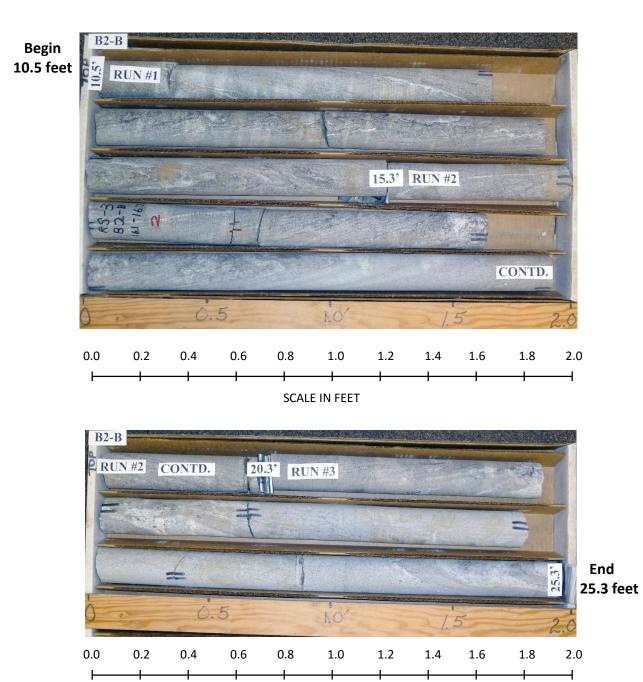
950 940 940 940 940 940 950 960 960 960 960 960 960 960 960 960 96											<u>D</u>	JKE	<u></u>	<u>UU</u>					
STATION   14+05   OFFSET   17 ft RT   ALIGNMENT -L-   24 HR.	WBS	17BP	.12.R.4	5		TII	P N/A			COU	NTY	' IRED	ELL	-			GEOLOGIST Stickney, J. K.		
CONTINUE   CONTINUE   CONTINUE   COMP.   DATE   C	SITE	DESCF	RIPTION	BRI	DGE N					R ROC	_						1	GROUND	WTR (ft)
RILL RIGHAMMER EFF/DATE	BORI	NG NO	. B2-B			ST	TATION	l 14-	+05			OFFSE	T 1	17 ft RT			ALIGNMENT -L-	0 HR.	NM
START DATE   03/21/16   COMP. DATE   03/21/16   SURFACE WATER DEPTH   N/A	OLL	AR EL	<b>EV</b> . 95	4.0 ft		TC	DTAL D	EPTH	<b>1</b> 25.3	ft		NORTH	IING	830,1	97		<b>EASTING</b> 1,435,599	24 HR.	5.1
EVALUATION   PROPERTIES   PRO	RILL	RIG/HA	MMER E	FF./DA	TE HP	00072	CME-55	OX 84	% 05/15	5/2015				DRILL N	METHO	D NV	V Casing W/SPT & Core HAMIN	IER TYPE A	utomatic
## Company of the control of the con	RIL	LER S	mith, C	.L.		ST	TART D	ATE	03/21/	16		COMP.	DA	<b>TE</b> 03/2	21/16		SURFACE WATER DEPTH N	/A	
949 6 4.4 1 2 3		ELEV					0	25 I				75	100		MOI	0		CRIPTION	DEPTH (ft
944 6 9.4 100/0.2 100/0.2 943.5 WEATHERED ROCK (AMPHIBOLITE)  RS-3  Boring Terminated at Elevation 928.7 ft in Crystalline Rock	55		<u>+</u>							· · ·		· · ·	:				ALLUVIAL		0.0
943.5 WEATHERED ROCK (AMPHIBOLITE)  RS-3  Boring Terminated at Elevation 928.7 ft in Crystalline Rock	50	949.6	4.4	1	2	3	<b>1</b> .	   - :			· ·		· · ·		M_		-	, ,	
Gray-Black-White (AMPHIBOLITE)  RS-3  Gray-Black-White (AMPHIBOLITE)  RS-3  Boring Terminated at Elevation 928.7 ft in Crystalline Rock	15	944.6	9.4	100/0.2								- 100/	· /0.2				943.5 WEATHERED RO	E)	9.0
35 928.7 Boring Terminated at Elevation 928.7 ft in Crystalline Rock	.0_	- -	† + +								: :		·	-			Gray-Black-White (AMP	HIBOLITE)	
928.7  Boring Terminated at Elevation 928.7 ft in Crystalline Rock	35	_	† †								: :			KS-3 /			-		
Crystalline Rock	80	- -	- - - -								: :								25.3
<u>+</u>       E		-																	
		- - - - - - -															- -		

									C	OF	RE L	0	G												
WBS	17BP	.12.R.4	5		TIP	N/A		C	OUNT	<b>Y</b> IF	REDELL	-				(	EOLO	OGIS	ST S	tickne	ey, J.	K.			
SITE	DESCR	IPTION	<b>I</b> BRI	DGE NO	260 (	ON SR	1862 O	/ER R	OCK	/ CRI	EEK												GROUI	ND W	TR (ft
BOR	ING NO	B2-B	3		STA	ΓΙΟΝ	14+05			OF	SET	17 ft	RT			1	LIGN	MEN	IT -l				0 HR.		NM
	LAR ELI						<b>PTH</b> 25			NO	RTHING						ASTI						24 HR.		5.1
DRILL	RIG/HA	MMER E	FF./DA	TE HFOO	072 CN	1E-550X	(84% 05/	15/2015	5			DRI	LL M	ETHC	D N	WC	asing W	V/SPT	*Co	re	Н	AMME	R TYPE	Auto	matic
DRIL	<b>LER</b> S	mith, C	L.		STAI	RT DA	<b>TE</b> 03/2	1/16		co	MP. DA	TE	03/2	1/16		5	URFA	CE	WAT	ER DE	EPTH	I N/A			
COR	E SIZE	NX			I		<b>N</b> 14.8 f																		
ELEV (ft)	RUN ELEV (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	REC. (ft) %	JN RQD (ft) %	SAMP. NO.	STR REC. (ft) %	RQD (ft) %	L O G	ELEV. (1	ft)				DES	CRIPT	ION .	AND F	REMAF	RKS			Di	EPTH (
943.5	043.5	10.5	4.0	4.50/0.0	(4.0)	(4.0)		(4.4.0)	(44.0)							В	egin C	Corin	ng @	10.51	ft				
940	943.5	15.3	5.0	1:50/0.8 1:50/1.0 1:50/1.0 1:50/1.0 1:50/1.0 1:45/1.0 1:45/1.0	(4.8) 100% (5.0) 100%	(4.9)	RS-3	100%	(14.8) 100%		- 943.5 - - - - - -	Gi	ray-Bl	lack-V	Vhite,	, Fres	h Hard, Wide	, (AM Frac	IPHIB(	pacing	with I	Modera	itely Clos	se to	10.
	933.7	20.3	5.0	1:45/1.0 1:45/1.0 1:45/1.0 1:45/1.0	(5.0) 100%	(5.0) 100%					<del>-</del>														
930	-	<u> </u>		1:45/1.0							_														
	928.7	25.3		1:45/1.0 1:45/1.0							928.7			Borin	g Terr	mina	ed at E	Elevat	ion 92	8.7 ft i	n Crys	stalline	Rock		25





#### CORE PHOTOGRAPHS: Bridge No. 260 on SR 1862 over Rocky Creek, B2-B 14+05, 17' RT



SCALE IN FEET

