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## STATE OF NORTH CAROLINA

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

# **STRUCTURE** SUBSURFACE INVESTIGATION

COUNTY BURKE

PROJECT DESCRIPTION BRIDGE NO. 21 ON SR 1803 (JOHNSON BRIDGE ROAD) OVER HENRY FORK RIVER

STATE PROJECT REFERENCE NO. 16 B-5398

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

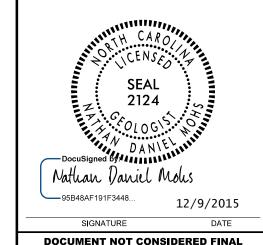
GENERAL SOIL AND ROCK STRATA DESCRIPTIONS AND INDICATED BOUNDARIES ARE BASED ON A GEOTECHNICAL INTERPRETATION OF ALL AVAILABLE SUBSURFACE DATA AND MAY NOT NECESSARILY REFLECT THE ACTUAL SUBSURFACE CONDITIONS BETWEEN BORINGS OR BETWEEN SAMPLED STRATA WITHIN THE BOREHOLE. THE LABORATORY SAMPLE DATA AND THE IN SITU (IN-PLACE) TEST DATA CAN BE RELIED ON ONLY TO THE DEGREE OF RELIABILITY INHERENT IN THE STANDARD TEST METHOD. THE OBSERVED WATER LEVELS OR SOIL MOISTURE CONDITIONS INDICATED IN THE SUBSURFACE INVESTIGATION. THESE WATER LEVELS OR SOIL MOISTURE CONDITIONS MAY VARY CONSIDERABLY WITH TIME ACCORDING TO CLIMATIC CONDITIONS MEDICATED DESCRIPTIONS AND ASSECTIONS OF THE INVESTIGATION. THE STATEM LEVELS OR SOIL MOISTURE CONDITIONS MAY VARY CONSIDERABLY WITH TIME ACCORDING TO CLIMATIC CONDITIONS MEDICATED DESCRIPTIONS AND ASSECTIONS AND ASSECTIONS OF THE INVESTIGATION. THE ACCORDING TO CLIMATIC CONDITIONS MEDICATED DESCRIPTIONS AND ASSECTIONS AND ASSECTIONS OF THE ACCORDING TO CLIMATIC CONDITIONS MEDICATED DESCRIPTIONS AND ASSECTIONS AND ASSECTIONS OF THE ACCORDING TO CLIMATIC CONDITIONS MEDICATED DESCRIPTIONS AND ASSECTIONS AND ASSECTIONS OF THE ACCORDING TO CLIMATIC CONDITIONS MEDICATED DESCRIPTIONS AND ASSECTIONS AND ASSECTIONS OF THE ACCORDING TO CLIMATIC CONDITIONS MEDICATED DESCRIPTIONS ASSECTIONS OF THE ACCORDING TO CLIMATIC CONDITIONS MEDICATED ASSECTIONS. INCLUDING TEMPERATURES, PRECIPITATION AND WIND, AS WELL AS OTHER NON-CLIMATIC FACTORS.

THE BIDDER OR CONTRACTOR IS CAUTIONED THAT DETAILS SHOWN ON THE SUBSURFACE PLANS ARE PRELIMINARY ONLY AND IN MANY CASES THE FINAL DESIGN DETAILS ARE DIFFERENT. FOR BIDDING AND CONSTRUCTION PURPOSES, REFER TO THE CONSTRUCTION PLANS AND DOCUMENTS FOR FINAL DESIGN INFORMATION ON THIS PROJECT. THE DEPARTMENT DOES NOT WARRANT OR GUARANTEE THE SUFFICIENCY OR ACCURACY OF THE INVESTIGATION MADE, NOR THE INTERPRETATIONS MADE, OR OPINION OF THE DEPARTMENT AS TO THE TYPE OF MATERIALS AND CONDITIONS TO BE ENCOUNTERED. THE BIDDER OR CONTRACTOR IS CAUTIONED TO MAKE SUCH INDEPENDENT SUBSURFACE INVESTIGATIONS AS HE DEEMS NECESSARY TO SATISFY HIMSELF AS TO CONDITIONS TO BE ENCOUNTERED ON THE PROJECT. THE CONTRACTOR SHALL HAVE NO CLAIM FOR ADDITIONAL COMPENSATION OR FOR AN EXTENSION OF TIME FOR ANY REASON RESULTING FROM THE ACTUAL CONDITIONS ENCOUNTERED AT THE SITE DIFFERING FROM THOSE INDICATED IN THE SUBSURFACE INFORMATION.

- 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.

N. MOHS E. MAYR SDS G. SKOGLUND J. JUSTICE J. WHITE D. JEFFRIES INVESTIGATED BY N. MOHS, LG DRAWN BY N. MOHS, LG DATE NOVEMBER 2015

PERSONNEL



**UNLESS ALL SIGNATURES COMPLETED** 

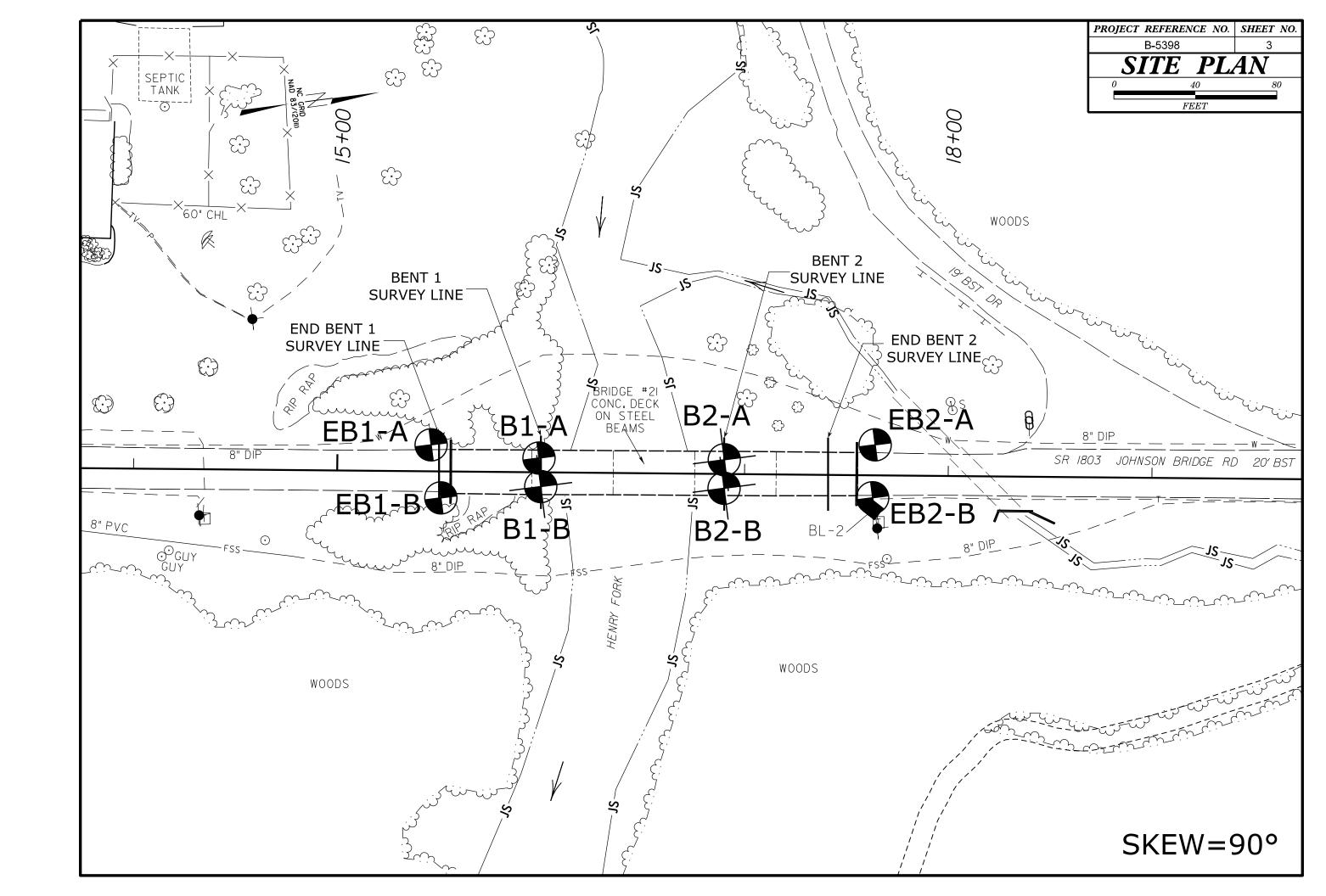
PROJECT REFERENCE NO. SHEET NO. 2

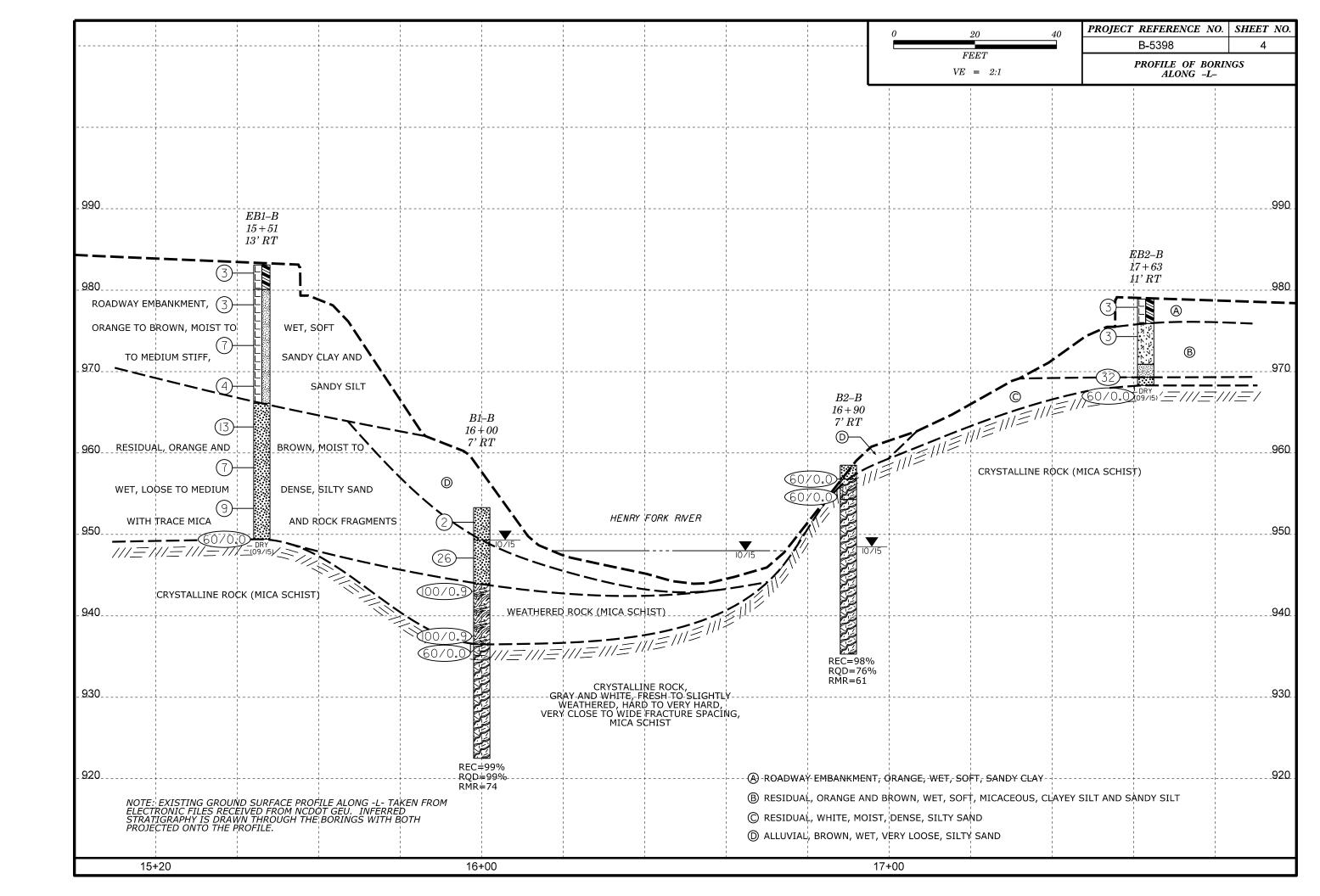
# NORTH CAROLINA DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS GEOTECHNICAL ENGINEERING UNIT

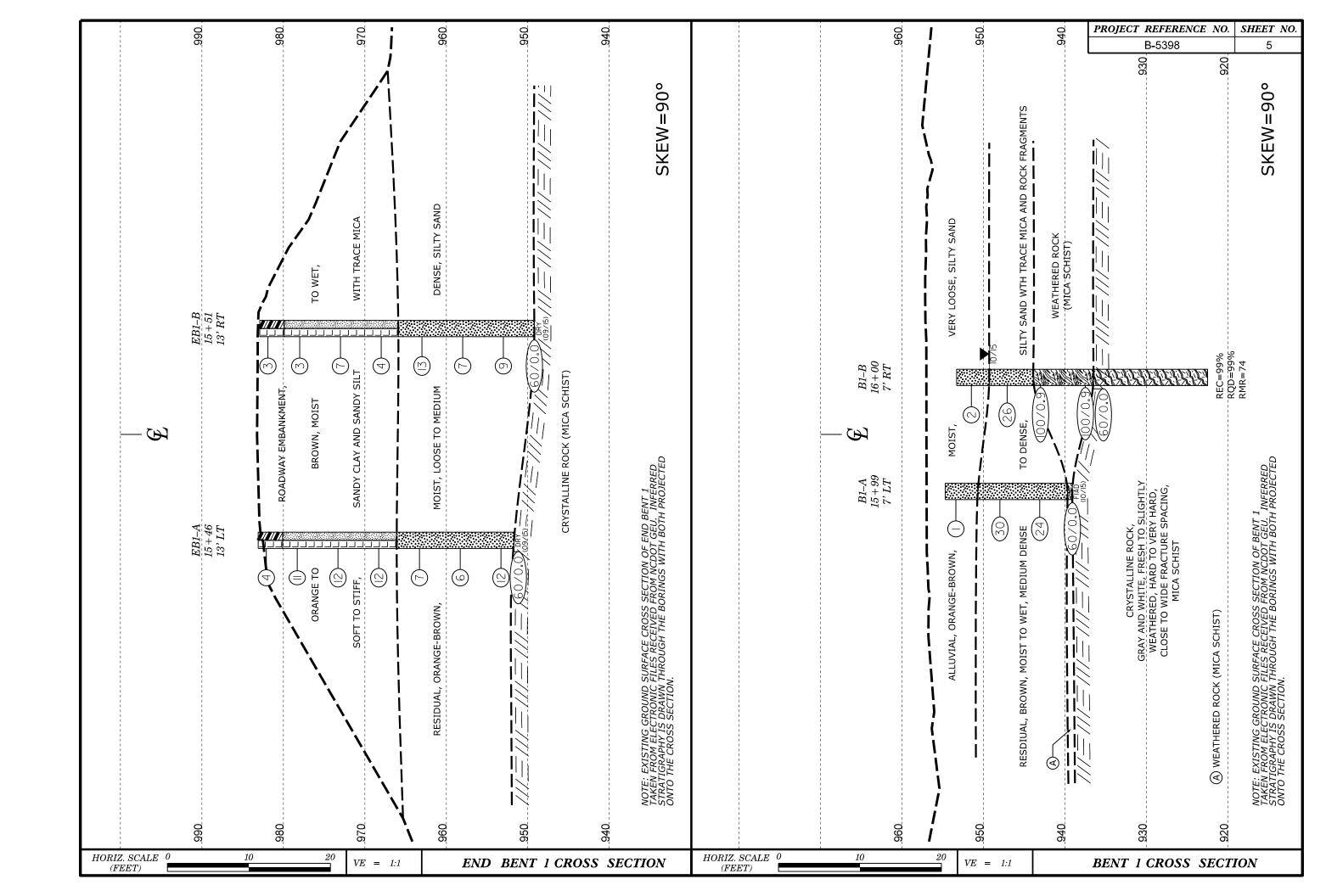
# SUBSURFACE INVESTIGATION

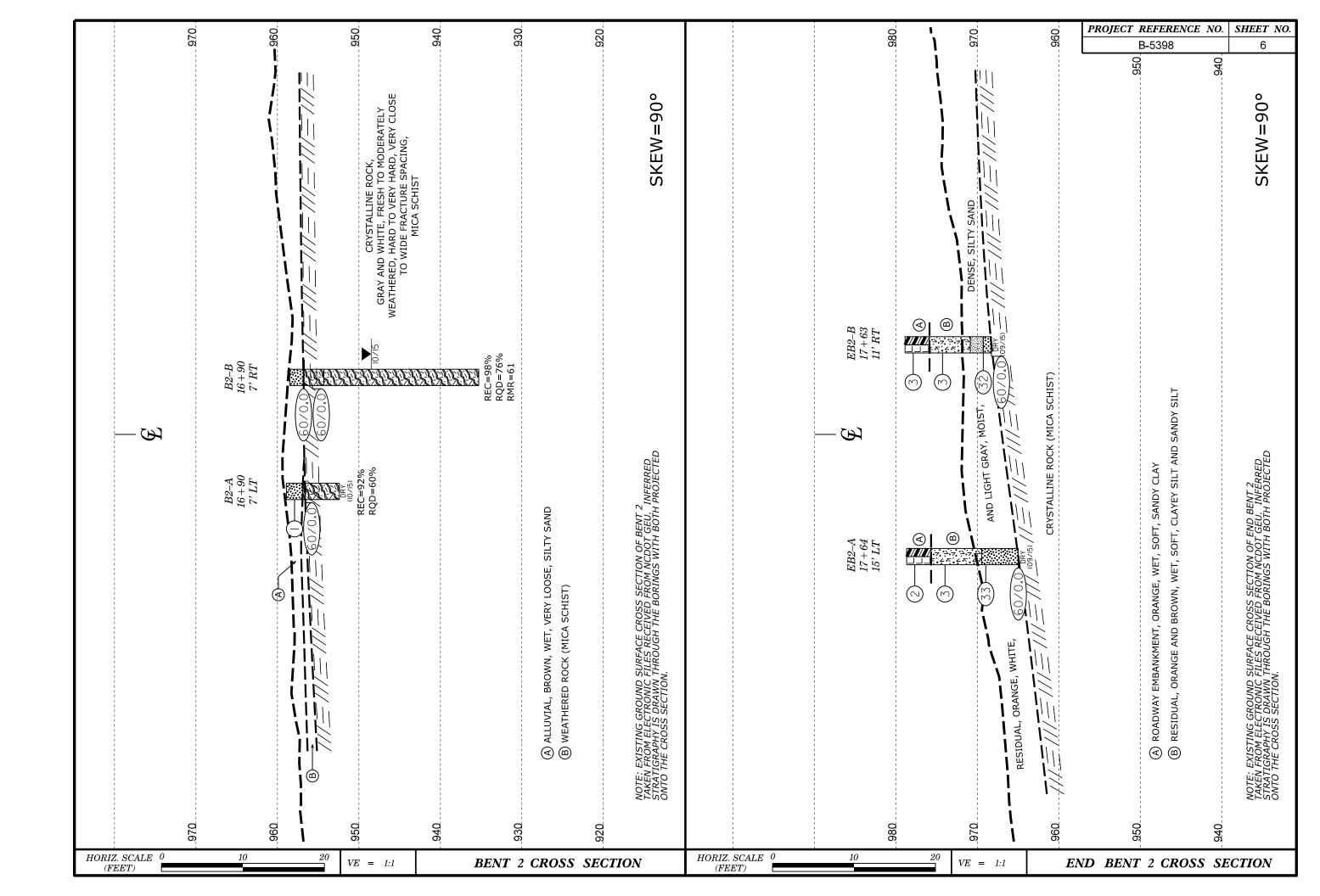
SOIL AND ROCK LEGEND, TERMS, SYMBOLS, AND ABBREVIATIONS

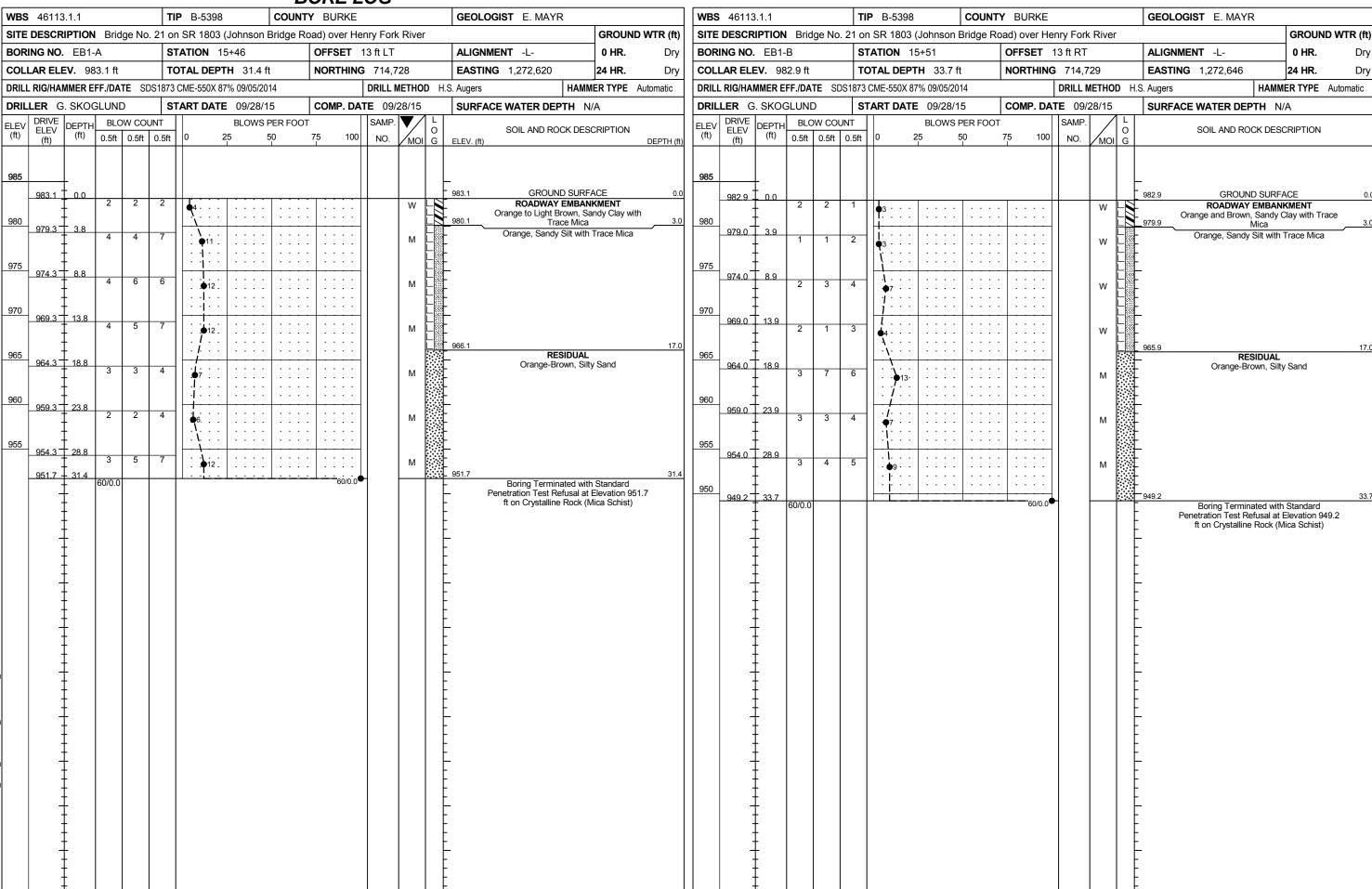
SOIL DESCRIPTION	GRADATION	ROCK DESCRIPTION	TERMS AND DEFINITIONS
SOIL IS CONSIDERED UNCONSOLIDATED, SEMI-CONSOLIDATED, OR WEATHERED EARTH MATERIALS THAT CAN BE PENETRATED WITH A CONTINUOUS FLIGHT POWER AUGER AND YIELD LESS THAN 100 BLOWS PER FOOT	WELL GRADED - INDICATES A GOOD REPRESENTATION OF PARTICLE 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	<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.	SPT REFUSAL IS PENETRATION BY A SPLIT SPOON SAMPLER EQUAL TO OR LESS THAN 0.1 FOOT PER 60	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 PERTINENT FACTORS SUCH	ANGULARITY OF GRAINS	BLOWS IN NON-COASTAL PLAIN MATERIAL, THE TRANSITION BETWEEN SOIL AND ROCK IS OFTEN 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,	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
VERY STIFF,GRAY,SILTY CLAY,MOIST WITH INTERBEDDED FINE SAND LAYERS,HIGHLY PLASTIC,A-7-6	ANGULAR, SUBANGULAR, SUBROUNDED, OR ROUNDED.	WEATHERED NON-COASTAL PLAIN MATERIAL THAT WOULD YIELD SPT N VALUES >	A NOTABLE PROPORTION OF CLAY IN THEIR COMPOSITION, SUCH AS SHALE, SLATE, ETC.
SOIL LEGEND AND AASHTO CLASSIFICATION  GENERAL GRANULAR MATERIALS SILT-CLAY MATERIALS	MINERALOGICAL COMPOSITION	ROCK (WR) 100 BLOWS PER FOOT IF TESTED.	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
GENERAL GRANULAR MATERIALS SILT-CLAY MATERIALS ORGANIC MATERIALS CLASS. (≤ 35% PASSING *200) (> 35% PASSING *200) ORGANIC MATERIALS	MINERAL NAMES SUCH AS QUARTZ, FELDSPAR, MICA, TALC, KAOLIN, ETC.	CRYSTALLINE ROCK (CR)  FINE TO COARSE GRAIN IGNEOUS AND METAMORPHIC ROCK THAT WOULD YIELD SPT REFUSAL IF TESTED. ROCK TYPE INCLUDES GRANITE.	SURFACE.
GROUP A-1 A-3 A-2 A-4 A-5 A-6 A-7 A-1, A-2 A-4, A-5	ARE USED IN DESCRIPTIONS WHEN THEY ARE CONSIDERED OF SIGNIFICANCE.	UNEISS, OHBERU, SCHIST, ETC.	CALCAREOUS (CALC.) - SOILS THAT CONTAIN APPRECIABLE AMOUNTS OF CALCIUM CARBONATE.
CLASS. A-1-0 A-1-6 A-2-4 A-2-5 A-2-6 A-2-7 A-7-6 A-3 A-6, A-7	COMPRESSIBILITY	NON-CATSTALLINE SEDIMENTARY ROCK THAT WOULD YEILD SPT REFUSAL IF TESTED.	COLLUVIUM - ROCK FRAGMENTS MIXED WITH SOIL DEPOSITED BY GRAVITY ON SLOPE OR AT BOTTOM
SYMBOL 000000000000000000000000000000000000	SLIGHTLY COMPRESSIBLE LL < 31 MODERATELY COMPRESSIBLE LL = 31 - 50	COASTAL PLAIN COASTAL PLAIN SEDIMENTS CEMENTED INTO ROCK, BUT MAY NOT YIELD	OF SLOPE.
7. PASSING	HIGHLY COMPRESSIBLE LL > 50	SEDIMENTARY ROCK SPT REFUSAL. ROCK TYPE INCLUDES LIMESTONE, SANDSTONE, CEMENTED	CORE RECOVERY (REC.) - TOTAL LENGTH OF ALL MATERIAL RECOVERED IN THE CORE BARREL DIVIDED BY TOTAL LENGTH OF CORE RUN AND EXPRESSED AS A PERCENTAGE.
*10 50 MX GRANULAR CLAY MUCK,	PERCENTAGE OF MATERIAL	(CP) SHELL BEDS, ETC. WEATHERING	DIKE - A TABULAR BODY OF IGNEOUS ROCK THAT CUTS ACROSS THE STRUCTURE OF ADJACENT
*40 38 MX 58 MX 51 MN 51 MN 50 MX 35 MX 35 MX 35 MX 35 MX 36 MN 36	GRANULAR SILT - CLAY ORGANIC MATERIAL SOILS SOILS OTHER MATERIAL	FRESH ROCK FRESH, CRYSTALS BRIGHT, FEW JOINTS MAY SHOW SLIGHT STAINING, ROCK RINGS UNDER	ROCKS OR CUTS MASSIVE ROCK.
MATERIAL	TRACE OF ORGANIC MATTER 2 - 3% 3 - 5% TRACE 1 - 10%	HAMMER IF CRYSTALLINE.	<u>DIP</u> - 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 48 MX 41 MN 48 MX 41 MN 48 MX 41 MN 48 MX 41 MN LITTLE OR PI 6 MX NP 18 MX 18 MX 11 MN 11 MN 18 MX 18 MX 11 MN 11 MN MN MOREOTY HIGHLY	HIGHLY ORGANIC > 10% > 20% HIGHLY 35% AND ABOVE	(V SLI.) CRYSTALS ON A BROKEN SPECIMEN FACE SHINE BRIGHTLY. ROCK RINGS UNDER HAMMER BLOWS IF OF A CRYSTALLINE NATURE.	LINE OF DIP, MEASURED CLOCKWISE FROM NORTH.
CROUP INDEX 0 0 0 4 MX 8 MX 12 MX 16 MX NO MX AMOUNTS OF	GROUND WATER	SLIGHT ROCK GENERALLY FRESH, JOINTS STAINED AND DISCOLORATION EXTENDS INTO ROCK UP TO	FAULT - A FRACTURE OR FRACTURE ZONE ALONG WHICH THERE HAS BEEN DISPLACEMENT OF THE
USUAL TYPES STONE FRAGS. FINE CULTY OF CANCEY CALTY CLAYER MATTER	✓ WATER LEVEL IN BORE HOLE IMMEDIATELY AFTER DRILLING	(SLI.) I INCH. OPEN JOINTS MAY CONTAIN CLAY. IN GRANITOID ROCKS SOME OCCASIONAL FELDSPAR	SIDES RELATIVE TO ONE ANOTHER PARALLEL TO THE FRACTURE.
OF MAJOR GAYEL AND SAND GRAVEL AND SAND SOILS SOILS  OF MAJOR GAYEL AND SAND GRAVEL AND SAND SOILS SOILS	STATIC WATER LEVEL AFTER 24 HOURS	CRYSTALS ARE DULL AND DISCOLORED, CRYSTALLINE ROCKS RING UNDER HAMMER BLOWS.	FISSILE - A PROPERTY OF SPLITTING ALONG CLOSELY SPACED PARALLEL PLANES.
MHTERIALS SANU	✓ PW PERCHED WATER, SATURATED ZONE, OR WATER BEARING STRATA	MODERATE SIGNIFICANT PORTIONS OF ROCK SHOW DISCOLORATION AND WEATHERING EFFECTS. IN (MOD.) GRANITOID ROCKS, MOST FELDSPARS ARE DULL AND DISCOLORED, SOME SHOW CLAY, ROCK HAS	FLOAT - ROCK FRAGMENTS ON SURFACE NEAR THEIR ORIGINAL POSITION AND DISLODGED FROM PARENT MATERIAL.
GEN. RATING EXCELLENT TO GOOD FAIR TO POOR POOR UNSUITABLE  AS SUBGRADE EXCELLENT TO GOOD FAIR TO POOR UNSUITABLE		DULL SOUND UNDER HAMMER BLOWS AND SHOWS SIGNIFICANT LOSS OF STRENGTH AS COMPARED	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	- O-M- SPRING OR SEEP	WITH FRESH ROCK.  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
CONSISTENCY OR DENSENESS	MISCELLANEOUS SYMBOLS	SEVERE AND DISCOLORED AND A MAJORITY SHOW KAOLINIZATION. ROCK SHOWS SEVERE LOSS OF STRENGTH	FIELD.
COMPACTNESS OR RANGE OF STANDARD RANGE OF UNCONFINED	TT	(MOD. SEV.) AND CAN BE EXCAVATED WITH A GEOLOGIST'S PICK, ROCK GIVES "CLUNK" SOUND WHEN STRUCK,  IF TESTED, WOULD YIELD SPT REFUSAL	JOINT - FRACTURE IN ROCK ALONG WHICH NO APPRECIABLE MOVEMENT HAS OCCURRED.
PRIMARY SOIL TYPE CONSISTENCY PENETRATION RESISTENCE COMPRESSIVE STRENGTH (N-VALUE) (TONS/FT <sup>2</sup> )	ROADWAY EMBANKMENT (RE)  DIP & DIP DIRECTION  WITH SOIL DESCRIPTION  OF ROCK STRUCTURES	SEVERE ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. ROCK FABRIC CLEAR AND EVIDENT BUT	LEDGE - A SHELF-LIKE RIDGE OR PROJECTION OF ROCK WHOSE THICKNESS IS SMALL COMPARED TO ITS LATERAL EXTENT.
GENERALLY VERY LOOSE < 4	SOIL SYMBOL SPIT TEST BORING SLOPE INDICATOR	(SEV.) REDUCED IN STRENGTH TO STRONG SOIL. IN GRANITOID ROCKS ALL FELDSPARS ARE KAOLINIZED	LENS - A BODY OF SOIL OR ROCK THAT THINS OUT IN ONE OR MORE DIRECTIONS.
GRANULAR MEDIUM DENSE 10 TO 30 N/A	VST PMT INSTRICENTION	TO SOME EXTENT. SOME FRAGMENTS OF STRONG ROCK USUALLY REMAIN.  IF TESTED. WOULD YIELD SPT N VALUES > 100 BPF	MOTTLED (MOT.) - IRREGULARLY MARKED WITH SPOTS OF DIFFERENT COLORS, MOTTLING IN SOILS
MATERIAL DENSE 30 TO 50 (NON-COHESIVE) VEDICIFIED SECTION OF NO. 10 TO 50	ARTIFICIAL FILL (AF) OTHER AUGER BORING CONE PENETROMETER THAN ROADWAY EMBANKMENT AUGER BORING TEST	VERY ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. ROCK FABRIC ELEMENTS ARE DISCERNIBLE	USUALLY INDICATES POOR AERATION AND LACK OF GOOD DRAINAGE.
VERT DENSE 2 300		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 OF AN INTERVENING IMPERVIOUS STRATUM.
VERY SOFT         < 2         < 0.25           GENERALLY         SOFT         2 TO 4         0.25 TO 0.5	— INFERRED SOIL BOUNDARY — CORE BORING SOUNDING ROD	(V SEV.) REMAINING, SAPROLITE IS AN EXAMPLE OF ROCK WEATHERED TO A DEGREE THAT ONLY MINOR VESTIGES OF ORIGINAL ROCK FABRIC REMAIN. <u>IF TESTED, WOULD YIELD SPT N VALUES &lt; 100 BPF</u>	RESIDUAL (RES.) SOIL - SOIL FORMED IN PLACE BY THE WEATHERING OF ROCK.
SILT-CLAY MEDIUM STIFF 4 TO 8 0.5 TO 1.0	INFERRED ROCK LINE  MONITORING WELL  TEST BORING WITH CORE	COMPLETE ROCK REDUCED TO SOIL. ROCK FABRIC NOT DISCERNIBLE, OR DISCERNIBLE ONLY IN SMALL AND	ROCK QUALITY DESIGNATION (ROD) - A MEASURE OF ROCK QUALITY DESCRIBED BY TOTAL LENGTH OF
MATERIAL	A ALLUMIAL SOIL BOUNDARY A PIEZOMETER	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	INSTRUCTION	ROCK HARDNESS	RUN AND EXPRESSED AS A PERCENTAGE.
TEXTURE OR GRAIN SIZE	RECOMMENDATION SYMBOLS	VERY HARD CANNOT BE SCRATCHED BY KNIFE OR SHARP PICK, BREAKING OF HAND SPECIMENS REQUIRES	SAPROLITE (SAP.) - RESIDUAL SOIL THAT RETAINS THE RELIC STRUCTURE OR FABRIC OF THE PARENT ROCK.
U.S. STD. SIEVE SIZE 4 10 40 60 200 270	UNDERCUT UNCLASSIFIED EXCAVATION - UNCLASSIFIED EXCAVATION - 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	LISED IN THE TOP 3 EFET OF	HARD CAN BE SCRATCHED BY KNIFE OR PICK ONLY WITH DIFFICULTY. HARD HAMMER BLOWS REQUIRED	RELATIVELY THIN COMPARED WITH ITS LATERAL EXTENT, THAT HAS BEEN EMPLACED PARALLEL TO THE BEDDING OR SCHISTOSITY OF THE INTRUDED ROCKS.
BOULDER COBBLE GRAVEL COARSE FINE SILT CLAY	UNCLASSIFIED EXCAVATION - SOLD IN THE TOP STATE OF BACKFILL  UNDERCUT  UNCLASSIFIED EXCAVATION - SOLD IN THE TOP STATE OF BACKFILL  EMBANKMENT OR BACKFILL	TO DETACH HAND SPECIMEN.  MODERATELY CAN BE SCRATCHED BY KNIFE OR PICK, GOUGES OR GROOVES TO 0.25 INCHES DEEP CAN BE	<u>SLICKENSIDE</u> - POLISHED AND STRIATED SURFACE THAT RESULTS FROM FRICTION ALONG A FAULT
(BLDR.) (COB.) (GR.) (CSE. SD.) (F SD.) (SL.) (CL.)	ABBREVIATIONS	HARD EXCAVATED BY HARD BLOW OF A GEOLOGIST'S PICK, HAND SPECIMENS CAN BE DETACHED	OR SLIP PLANE.
GRAIN MM 305 75 2.0 0.25 0.05 0.005	AR - AUGER REFUSAL MED MEDIUM VST - VANE SHEAR TEST	BY MODERATE BLOWS.	STANDARD PENETRATION TEST (PENETRATION RESISTANCE) (SPT) - NUMBER OF BLOWS (N OR BPF) OF
SIZE IN. 12 3	BT - BORING TERMINATED MICA MICACEOUS WEA WEATHERED CL CLAY MOD MODERATELY 7 - UNIT WEIGHT	MEDIUM CAN BE GROOVED OR GOUGED 0.05 INCHES DEEP BY FIRM PRESSURE OF KNIFE OR PICK POINT.  HARD CAN BE EXCAVATED IN SMALL CHIPS TO PEICES I INCH MAXIMUM SIZE BY HARD BLOWS OF THE	A 140 LB. HAMMER FALLING 30 INCHES REQUIRED TO PRODUCE A PENETRATION OF 1 FOOT INTO SOIL WITH A 2 INCH OUTSIDE DIAMETER SPLIT SPOON SAMPLER. SPT REFUSAL IS PENETRATION EQUAL
SOIL MOISTURE - CORRELATION OF TERMS	CPT - CONE PENETRATION TEST NP - NON PLASTIC $\gamma_{ m d}$ - DRY UNIT WEIGHT	POINT OF A GEOLOGIST'S PICK.	TO OR LESS THAN 0.1 FOOT PER 60 BLOWS.
SOIL MOISTURE SCALE FIELD MOISTURE GUIDE FOR FIELD MOISTURE DESCRIPTION	CSE COARSE ORG ORGANIC  DMT - DILATOMETER TEST PMT - PRESSUREMETER TEST SAMPLE ABBREVIATIONS	SOFT CAN BE GROVED OR GOUGED READILY BY KNIFE OR PICK, CAN BE EXCAVATED IN FRAGMENTS FROM CHIPS TO SEVERAL INCHES IN SIZE BY MODERATE BLOWS OF A PICK POINT. SMALL, THIN	STRATA CORE RECOVERY (SREC.) - TOTAL LENGTH OF STRATA MATERIAL RECOVERED DIVIDED BY TOTAL LENGTH OF STRATUM AND EXPRESSED AS A PERCENTAGE.
	DPT - DYNAMIC PENETRATION TEST SAP SAPROLITIC S - BULK	PIECES CAN BE BROKEN BY FINGER PRESSURE.	STRATA ROCK QUALITY DESIGNATION (SROD) - A MEASURE OF ROCK QUALITY DESCRIBED BY TOTAL
- SATURATED - 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	VERY CAN BE CARVED WITH KNIFE. CAN BE EXCAVATED READILY WITH POINT OF PICK. PIECES 1 INCH	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.
	FOSS FOSSILIFEROUS SLI SLIGHTLY RS - ROCK	SOFT OR MORE IN THICKNESS CAN BE BROKEN BY FINGER PRESSURE, CAN BE SCRATCHED READILY BY FINGERNAIL.	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 \( \omega \) - MOISTURE CONTENT CBR - CALIFORNIA BEARING	FRACTURE SPACING BEDDING	
(PI) PLASTIC LIMIT	HI HIGHLY V - VERY RATIO	TERM SPACING TERM THICKNESS	BENCH MARK: BL-2; N:714939, E:12172679
- MOIST - (M) COLID. AT OR NEAR ORTIMIN MOISTURE	EQUIPMENT USED ON SUBJECT PROJECT	VERY WIDE MORE THAN 10 FEET VERY THICKLY BEDDED 4 FEET	ELEVATION: 977.76 FEET
OM OPTIMUM MOISTURE	DRILL UNITS: ADVANCING TOOLS: HAMMER TYPE:	WIDE	NOTEC
PENLIPES ANDITIONAL WATER 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	NOTES:
- DRY - (D) ATTAIN OPTIMUM MOISTURE	CME-55 CONTINUOUS FLIGHT AUGER CORE SIZE:	THINLY LAMINATED < 0.008 FEET	
PLASTICITY	X 8*HOLLOW AUGERS	INDURATION	
PLASTICITY INDEX (PI) DRY STRENGTH	X CME-550 HARD FACED FINGER BITS X-N 2WL	FOR SEDIMENTARY ROCKS, INDURATION IS THE HARDENING OF MATERIAL BY CEMENTING, HEAT, PRESSURE, ETC.	
NON PLASTIC 0-5 VERY LOW	TUNGCARBIDE INSERTS	RUBBING WITH FINGER FREES NUMEROUS GRAINS;	
SLIGHTLY PLASTIC 6-15 SLIGHT MODERATELY PLASTIC 16-25 MEDIUM	VANE SHEAR TEST X CASING X W/ ADVANCER HAND TOOLS:	GENILE BLUW BY HAMMER DISINTEURATES SAMPLE.	
HIGHLY PLASTIC 26 OR MORE HIGH	POST HOLE DIGGER	MODERATELY INDURATED GRAINS CAN BE SEPARATED FROM SAMPLE WITH STEEL PROBE; BREAKS EASILY WHEN HIT WITH HAMMER.	
COLOR	TOTAL	CDAING ADE DIEETCH I TO SEPARATE WITH STEEL DROPE.	
DESCRIPTIONS MAY INCLUDE COLOR OR COLOR COMBINATIONS (TAN, RED, YELLOW-BROWN, BLUE-GRAY).	SOUNDING ROD    X CORE BIT   VANE SHEAR TEST	INDURATED DIFFICULT TO BREAK WITH HAMMER.	
MODIFIERS SUCH AS LIGHT, DARK, STREAKED, ETC. ARE USED TO DESCRIBE APPEARANCE.	MINITE STEHK IEST	EXTREMELY INDURATED SHARP HAMMER BLOWS REQUIRED TO BREAK SAMPLE;	
THOSE TEND COOK TO ELECTIVE CONTENTED, EVENTUE COED TO DESCRIBE THE ELECTION OF		SAMPLE BREAKS ACROSS GRAINS.	DATE: 8-15-1-











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<b>—</b>			Brid	lge No		n SR 1803 (Jo	hnson E			nry Fork	River	•		GROUND WTR (ft)
	NG NO.					TATION 15+			OFFSET				ALIGNMENT -L-	0 HR. N/A
	AR ELE					OTAL DEPTH			NORTHING		'80		<b>EASTING</b> 1,272,633	<b>24 HR.</b> FIAD
				TE SI		CME-550X 87%			_			D NW	·	ER TYPE Automatic
	LER J.					TART DATE			COMP. DA				SURFACE WATER DEPTH N/	
ELEV	DRIVE	DEPTH		W COI				ER FOOT		SAMP.		1 L		
(ft)	ELEV (ft)	(ft)	0.5ft	0.5ft	0.5ft	0 25	5	50 I	75 100	NO.	MOI	O G	SOIL AND ROCK DESC	CRIPTION
955		- 00											.954.7 GROUND SURFA	ACE 0.0
	954.4	- <del>0.3</del> -	WOH	WOH	1	<b>p</b> 1					М	_	ALLUVIAL Orange-Brown, Silty	Sand
050	‡	- -										_	950.7	4.0
950	949.0	5.7							<del> </del>				RESIDUAL Brown, Silty Coarse to Fine S	and with Trace
	‡	-	6	12	18	::::1}	30 · ·				W	_	Mica and Rock Frag	ments
945		-				· · · ·   /						<u> </u>		
	944.1	10.6	13	12	12	24					w	_		
040	‡	- -				::::: [								
940	939.1	15.6	60/0.0			<del>  </del>			60/0.0	$\downarrow$			939.7 <b>WEATHERED RO</b>	15.0 DCK 15.6
	‡	- -	0.070.0						00/0.0				(Mica Schist)  Boring Terminated with	Standard
		-											Penetration Test Refusal at E ft on Crystalline Rock (M	Elevation 939.1
	‡	- -											it on crystalline Rock (ivi	ica Scriist)
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### COUNTY BURKE **WBS** 46113.1.1 **TIP** B-5398 **GEOLOGIST** E. MAYR SITE DESCRIPTION Bridge No. 21 on SR 1803 (Johnson Bridge Road) over Henry Fork River **GROUND WTR (ft)** OFFSET 7 ft RT ALIGNMENT -L-BORING NO. B1-B STATION 16+00 0 HR. N/A COLLAR ELEV. 953.3 ft TOTAL DEPTH 30.8 ft **NORTHING** 714,779 **EASTING** 1,272,647 24 HR. 4.0 Caved DRILL RIG/HAMMER EFF./DATE SDS8513 CME-550X 91% 09/05/2014 DRILL METHOD NW Casing W/SPT & Core HAMMER TYPE Automatic **DRILLER** J. WHITE **START DATE** 09/30/15 **COMP. DATE** 10/16/15 SURFACE WATER DEPTH N/A ELEV DRIVE DEPTH BLOW COUNT SAMP. **BLOWS PER FOOT** SOIL AND ROCK DESCRIPTION (ft) 0.5ft 0.5ft 0.5ft MOI G 75 100 NO. (ft) ELEV. (ft) 955 953.3 GROUND SURFACE 952.5 ALLUVIAL Brown, Silty Sand with Trace Gravel 950 **V** RESIDUAL 948.1 Brown, Silty Sand with Trace Mica and Rock 13 Fragments 945 943.9 4 9.4 17 83/0.4 WEATHERED ROCK 100/0.9 940 938.4 92/0.4 100/0.9 936.5 + 16.8 60/0.0 CRYSTALLINE ROCK 935 Gray and White, Fresh to Slightly Weathered, Hard to Very Hard, Close to RS-1 Wide Fracture Spacing, Mica Schist REC=99% RQD=99% 930 RMR=74 925 Boring Terminated at Elevation 922.5 ft in Crystalline Rock (Mica Schist)

# GEOTECHNICAL BORING REPORT CORE LOG

	C	ORE LOG		
<b>WBS</b> 46113.1.1	TIP B-5398 COUNTY	Y BURKE	GEOLOGIST E. MAYR	
SITE DESCRIPTION Bridge No. 21	1 on SR 1803 (Johnson Bridge Ro	ad) over Henry Fork River		GROUND WTR (ft)
BORING NO. B1-B	STATION 16+00	OFFSET 7 ft RT	ALIGNMENT -L-	<b>0 HR.</b> N/A
COLLAR ELEV. 953.3 ft	TOTAL DEPTH 30.8 ft	<b>NORTHING</b> 714,779	<b>EASTING</b> 1,272,647	<b>24 HR.</b> 4.0 Caved
DRILL RIG/HAMMER EFF./DATE SDS85	513 CME-550X 91% 09/05/2014	DRILL METHOD NW	Casing W/SPT & Core HAMM	IER TYPE Automatic
DRILLER J. WHITE	<b>START DATE</b> 09/30/15	<b>COMP. DATE</b> 10/16/15	SURFACE WATER DEPTH N	/A
CORE SIZE N2WL	TOTAL RUN 14.0 ft			
ELEV (ft) DEPTH RUN (ft) PRILL RATE (Min/ft)	RUN   STRATA   REC.   RQD   REC.   RQD   NO.   (ft) (ft) (ft)   REC.   RQD   REC.   RQD   REC.   RQD   RC   RQD   RC   RQD   RQD	L O D D G ELEV. (ft)	ESCRIPTION AND REMARKS	DEPTH (ft)
936.5			Begin Coring @ 16.8 ft	
935 936.5 + 16.8 4.0 N=60/0.0 1:30/1.0 2:15/1.0 2:15/1.0 3:30/1.0 1:30/1.0 1:30/1.0 1:30/1.0 1:30/1.0 1:30/1.0 1:30/1.0 1:30/1.0 1:30/1.0 1:00/1.0	(4.9) (4.9) 98% RS-1 99% 99% (4.9) 98% 98%	936.5 Gray and White, Fres Wi	CRYSTALLINE ROCK  th to Slightly Weathered, Hard to Very ide Fracture Spacing, Mica Schist REC=99% RQD=99% RMR=74	Hard, Close to
927.5 + 25.8   1:45/1.0 + 5.0 1:15/1.0	(5.0) (5.0) 100% 100%	922.5	t Elevation 922.5 ft in Crystalline Rock	30.8

# GEOTECHNICAL BORING REPORT **BORE LOG**

WAS 4013.1.1   TP 6-0386   COUNTY BURNET   GROUGHT E.MAYE   GROUGH TEMPT FOR ROY						OLO!		BORE L		KEPUK	•							С	ORE LO	OG .		
DORNOUS   1.50   DORNOUS   1.50   DORNOUS	WB	<b>S</b> 4611	3.1.1		1-	<b>IP</b> B-5398				GEOLO	OGIST E. MAYR			<b>WBS</b> 46113.1.1		<b>TIP</b> B-539	98				GEOLOGIST E. MAYR	
DORNOUS   1.50   DORNOUS   1.50   DORNOUS	SIT	E DESCI	RIPTION	Bridg	ge No. 21 (	on SR 1803 (Jo	hnson Bridge I	Road) over He	nry Fork Riv	/er		GROUND WTR (	ft)	SITE DESCRIPTION	Bridge No. 2	1 on SR 180	3 (Johnso	n Bridge Ro	oad) over Heni	y Fork River		GROUND WTR (ft)
SOURCE   April   Color   Col	во	RING NO	. B2-A			STATION 16+9	90	OFFSET	7 ft LT	ALIGN	MENT -L-	<b>0 HR</b> . N	Ά	BORING NO. B2-A		STATION	16+90		OFFSET 7	ft LT	ALIGNMENT -L-	<b>0 HR.</b> N/A
Delication   Del	co	LLAR EL	<b>EV</b> . 958	3.9 ft	1	OTAL DEPTH	6.5 ft	NORTHING	714,870	EASTI	<b>IG</b> 1,272,645	<b>24 HR</b> . D	ry	COLLAR ELEV. 958	3.9 ft	TOTAL DE	<b>PTH</b> 6.5	ft	NORTHING	714,870	<b>EASTING</b> 1,272,645	<b>24 HR</b> . Dry
CREATION   CONTROL   CON	DRII	LL RIG/HA	MMER EF	F./DAT	E SDS187	3 CME-550X 87%	09/05/2014		DRILL METH				_	DRILL RIG/HAMMER EF	F./DATE SDS1	1873 CME-550X	( 87% 09/05/	2014	<u> </u>	DRILL METHOD N	W Casing W/SPT & Core H	
1 No.   1 No.	DRI	LLER .	. WHITE	<u> </u>		START DATE	10/06/15					H N/A		<b>DRILLER</b> J. WHITE		START DA	TE 10/06	5/15				N/A
No.										<u> </u>			_			TOTAL RU	N 2.5 ft					
98. 05. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0.	(ft)	(ft)	(ft)	0.5ft	0.5ft 0.5ft	0 25	50	75 100	NO. M		SOIL AND ROCK				RUN DRILL		SAMP.	STRATA REC   ROD	L		DESCRIPTION AND DESCRIPTION	
98. 05. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0.														(ft) ELEV (ft)	(ft) RATE (Min/ft)	(ft) (ft) % %	NO.	(ft) (ft) % %	G ELEV. (ft)		DESCRIPTION AND REMARKS	DEPTH (ft)
## ALAMAN   1900	960									L				956							Begin Coring @ 2.9 ft	
### WEATH PRINTED TO A 19 CO 1		958.9	0.0	WOH	WOH 1				W	*.*. *			0.0		2.5 2:45/0.5 3:00/1.0	(2.3) (1.5) 92% 60%		(2.3) (1.5) 92% 60%	956.0	Gray and White, Fres to Ve	ery Close Fracture Spacing, Mica S	I to Very Hard, Close 2.9 chist 5.4
The state of the s			<sup>1</sup> 2.3			T			1 1	956.9	Brown, S	Silty Sand	2.0 2.3/	955.5 - 5.4	9:30/1.0	1	1		952.4		REC=92%	6.5
Gots and William Line De Very Supplies  When Control Control  Control Control  Contr	955	-	<del>[</del>	00/0.0		I				130.7 E	(Mica	Schist)							l F	*Drillad with	(Mica Schist)	I Malfunction
Cose Parlam System (Mar System Core Parlam System C											(Mica	Schist)							l E ,	Boring Terminated	at Elevation 952.4 ft in Crystalline	Rock (Mica Schist)
Cose Parlam System (Mar System Core Parlam System C			Ŧ								Gray and White, Fr	resh to Very Slightly ery Hard, Close to Very							F			
Titled und Desire (Active ring Active ring			$f \mid$								Close Fracture Sp	acing, Mica Schist =92%							F			
Tested on Group Advanced on to See Cook  Server (command as factors)  Fig. 1. Server			Ŧ							F   L	RQD:	=60%							E			
Section 1 de la control de la			<u> </u>							F	*Drilled with Casing A	Advancer due to Core							l E			
Cycentres Reck (Max Schreit)			Ŧ							F	Boring Terminated at	t Elevation 952.4 ft in							F			
B8388 GEO BRAD CONT CDT 11 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1			‡							I F	Crystalline Roo	k (Mica Schist)							F			
B8388 GEO BRAD CONT CDT 11 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1			Ŧ							I F									F			
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WBS	46113.1.1			TI	<b>P</b> B-5398	COUNT	Y BURKE			GEOLOGIST E. MAYR	
SITE	DESCRIPTION	<b>I</b> Brid	lge No	. 21 or	n SR 1803 (Johnso	n Bridge R	oad) over He	nry Fork	River		GROUND WTR (ft)
BORI	<b>NG NO</b> . B2-E	3		SI	<b>TATION</b> 16+90		OFFSET	7 ft RT		ALIGNMENT -L-	<b>0 HR</b> . N/A
COLL	AR ELEV. 9	58.5 ft		TC	OTAL DEPTH 23.	2 ft	NORTHING	714,8	68	<b>EASTING</b> 1,272,659	<b>24 HR.</b> 10.0
ORILL	. RIG/HAMMER E	FF./DA	TE SE	DS8513	CME-550X 91% 09/05	/2014		DRILL N	METHOD N	W Casing W/SPT & Core HAMN	IER TYPE Automatic
DRILI	LER G. SKO	GLUNI	)	SI	TART DATE 10/0	1/15	COMP. DA	<b>TE</b> 10/0	01/15	SURFACE WATER DEPTH N	/A
ELEV (ft)	DRIVE ELEV (ft) DEPTH (ft)	0.5ft	0.5ft	JNT 0.5ft	BLOW 0 25	S PER FOO <sup>-</sup> 50 1	75 100	SAMP. NO.	MOI G	SOIL AND ROCK DES	CRIPTION  DEPTH (ft)
955	957.8 = 0.7 955.7 = 2.8	WOH 60/0.0		60/0.0		· · · · · · · · · · · · · · · · · · ·	60/0.0		M	958.5 GROUND SURF  956.8 Brown, Silty Fine  CRYSTALLINE F  954.3 (Mica Schist  Gray and White, Fresh to	Sand 1.7 OCK 4.2 D Moderately
950 945	‡ + + + +							RS-2 /	<b>▼</b>	Weathered, Hard to Very Ha Wide Fracture Spacing, REC=98% RQD=76% RMR=61	rd, very close to Mica Schist
945	+ + + + + + + + + + + + + + + + + + + +									 - - - -	
	+ + + + + + + + +									Boring Terminated at Eleva Crystalline Rock (Mic	23.2 ution 935.3 ft in a Schist)
	+ + + + + + + + + + + + + + + + + + + +										

# GEOTECHNICAL BORING REPORT CORE LOG

									<u></u>	<u>UI</u>	RE LOG				
WBS	46113	3.1.1			TIP	B-539	98	C	OUNT	Y	URKE GE	EOLOGIST E. MAYR			
				lge No. 2	1 on S	R 180	3 (Johns	on Brid	dge Ro	oad)	over Henry Fork River			GROUN	D WTR (ft)
BOR	ING NO	. B2-B	3		STA	TION	16+90			OF	FSET 7 ft RT AL	LIGNMENT -L-		0 HR.	N/A
COL	LAR EL	<b>EV</b> . 95	8.5 ft		TOT	AL DE	<b>PTH</b> 23.	.2 ft		NC	<b>RTHING</b> 714,868 <b>EA</b>	<b>ASTING</b> 1,272,659		24 HR.	10.0
DRILL	L RIG/HA	MMER E	FF./DA	TE SDS8	513 CM	IE-550X	91% 09/05	5/2014			DRILL METHOD NW Cas	sing W/SPT & Core	HAMME	R TYPE	Automatic
DRIL	LER (	S. SKO	GLUNI	)	STAI	RT DA	<b>TE</b> 10/0	1/15		CC	MP. DATE 10/01/15 SU	JRFACE WATER DEPT	TH N/A	4	
COR	E SIZE	N2WL			TOT	AL RU	<b>N</b> 19.0 f	t							
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	DESC ELEV. (ft)	CRIPTION AND REMARKS	;		DEPTH (ft)
954.3	954.3	4.2	4.0	4:00/1.0 1:30/1.0 1:45/1.0	(3.7) 93%	(2.8) 70%	RS-2	(18.6) 98%			954.3 Gray and White, Fresh to	egin Coring @ 4.2 ft Moderately Weathered, Ha Vide Fracture Spacing, Mica REC=98%	ard to Ve a Schist	ery Hard, \	/ery 4.2
950	950.3	8.2	5.5	1:45/1.0 0:45/1.0 1:00/1.0 1:15/1.0 1:45/1.0	(5.5) 100%	(3.0) 55%	\NO-2				- - - -	RQD=76% RMR=61			
945	944.8_	+	4.5	1:30/1.0 0:30/0.5 1:45/0.5 2:45/1.0 1:30/1.0 1:45/1.0 3:00/1.0 0:45/1.0	(4.5) 100%	(3.8) 84%					_ - - -				
940	940.3	† † †	5.0	1:45/1.0	(4.9) 98%	(4.9) 98%					_ - -				
	935.3	23.2		3:00/1.0							- 935.3  Boring Terminated at Ele	evation 935.3 ft in Crystallin	ne Rock (	(Mica Schi	23.2 st)
	-	† †									- - -				
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WE	<b>S</b> 461	13.1.1				TIP	B-5398	3		COUN	TY E	BURKE				G	SEOLO	GIST E.	MAYR					WBS	4611	3.1.1				TIP	B-5398	3	C	COUNT	Y BUR	KE				GEOLO	OGIST	E. MA	YR			
SIT	E DES	CRIPTI	ON B	ridge N	No. 21	on S	R 1803	(Johr	nson E	Bridge F	Road)	over H	lenry	Fork R	iver						GROUN	ND WTR	(ft)	SITE	DESC	RIPTIO	<b>N</b> Bri	idge N	No. 21	1 on S	SR 1803	(John	son Br	idge Ro	ad) ove	r Henr	y Fork F	River						GRO	UND WT	R (ft)
во	RING N	IO. EI	32-A			STA	TION 1	17+64			OF	FSET	15 ft	LT		Δ	LIGNI	IENT -L-			0 HR.		Ory	BORI	NG NC	<b>)</b> . EB2	2-B			STA	TION	17+63			OFFSE	T 11	ft RT			ALIGN	MENT	· -L-		0 HR	<b>.</b>	Dry
СО	LLAR E	LEV.	978.7	ft		TOT	AL DEP	<b>TH</b> 1	13.7 ft		NO	RTHIN	IG 7	14,944		E	ASTIN	<b>G</b> 1,272	,648	;	24 HR.		Ory	COLL	AR EL	<b>.EV</b> . 9	978.9 f	ft		тот	AL DEP	<b>TH</b> 1	0.6 ft		NORTH	IING	714,94	0		EASTIN	NG 1	,272,67	3	24 HR	<b>l.</b>	Dry
DRI	LL RIG/I	HAMME	R EFF./D	DATE	SDS18	73 CM	E-550X 8	37% 09	/05/201	4			DR	LL ME	THOD	H.S. A	ugers			HAMME	R TYPE	Automa	ic	DRILL	RIG/HA	AMMER	EFF./D	ATE :	SDS18	873 CN	ЛЕ-550X 8	37% 09/	05/2014			D	RILL ME	THO	D H.S	S. Augers			HAN	IMER TYP	E Auton	atic
DR			OGLU				RT DAT					MP. D				s	URFA	CE WATE	R DEPT	H N/A	١					G. SKC					RT DAT				COMP.			8/15		SURFA	ACE W	ATER D	EPTH	N/A		
ELE (ft)		DEF V (ff		tow C				BL0 25	OWS P	ER FOC	75 75	100		MP.	/ [0	G EL	EV. (ft)	SOIL A	ND ROCK	K DESCI	RIPTION	DEP1	1 1	ELEV (ft)	DRIVE ELEV (ft)	DEPT (ft)		OW Co			0	BLC 25	0WS PE 50	R FOOT		11	NO.	моі	C G		S	OIL AND	ROCK DE	SCRIPTIC	N	_
980		7 = 0.	lwo	)H 1	1	1	2				.   .				11 1	978	8.7 5.7	ROA	ROUND DWAY EI Drange, S	MBANK Sandy Cla	MENT		0.0			0.0	1	2	1	1	3 · · ·					.		W		978.9 975.9		ROADW nge, Sand		<b>NKMENT</b> h Trace G		<u>0.0</u> 3.0
070	975.	1	1	2	1	1	3								۷ × × ×	7. 2. 2.		Orange,	<b>RESII</b> Clayey Si	<b>DUAL</b> ilt with T	race Mic	a			•	Ţ	1	2	1	1	3							W		970.9	Ora	ange, Cla	yey Silt wi Fragment	th Trace R	ock	8.0
970	970.	0 7 8.	7 1	17	7 16			· ]·	33		.   .				w A	V — 969	9.5	Orange, Wi San	nite, and I	Light Gragr	ay, Silty F	ine	9.2	970		10.6 10.6	3		27	27		<b>Q</b> 32	2					М	200000	969.3		Wh	nite, Silty S	Sandy Sili Sand ith Standa		9.6
965	965.	0 T 13	7									· · · ·				96	5.0						13.7			Ī													E		Penetra	ation Tes	t Refusal	at Elevation (Mica Sch	า 968.3	
		<u> </u>	60/0	0.0								60/0.0				ŧ	F	Boring Penetration ft on Cry	Terminate Test Refu stalline R	ısal at El	levation 9	965.0				<u> </u>																				
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Sheet 13



# UNCONFINED COMPRESSIVE STRENGTH OF INTACT ROCK CORE SPECIMEN

ASTM D7012

 WBS No.: 46113.1.1
 Test Date: 10/27/2015

 TIP No.: B-5398
 Tested By: N. Mohs

County: Burke

Description: Bridge No. 21 on SR 1803 over Henry Fork River

Test No.	1	2	
Boring ID	B1-B	B2-B	
Station	16+00	16+90	
Sample ID	RS-1	RS-2	
Sample Depth, ft	18.1	6.9	
Core Length #1, in.	3.980	4.001	
Core Length #2, in.	3.984	4.010	
Avg. Core Length, in.	3.982	4.006	
Core Dia. #1, in.	1.997	1.982	
Core Dia. #2, in.	1.996	1.982	
Avg. Core Dia., in.	1.997	1.982	
Length/Dia. Ratio	1.99	2.02	
X-Sectional Area, in <sup>2</sup>	3.13	3.09	
Weight, lb	1.23	1.15	
Unit Weight, pcf	170.50	160.80	
Break Type	2	4	
Load at Failure, lb	43,430	21,830	
Correction Factor	1.00	1.00	
Comp. Strength, psi	13,875	7,065	
Comp. Strength, ksf	1,998	1,017	

### Rock Descriptions:

Test 1: Gray and white, Fresh to Slightly Weathered, Hard to Very Hard, Close to Wide Fracture Spacing
Test 2: Gray and white, Fresh to Moderately Weathered, Hard to Very Hard, Very Close to Wide Fracture Spacing
Break Types:



PROJECT REFERENCE NO.	SHEET NO.
D_E300	1/4

# CORE PHOTOGRAPHS

BORING BI-B 16+00 -L-, 7 FT RT







2FT = 0

0 1 FT 2FT

PROJECT REFERENCE NO.	SHEET NO.
R-5398	15

# CORE PHOTOGRAPHS

BORING B2-B 16+90 -L-, 7 FT RT



0 1 FT 2FT

CORE BOXES 1&2: RUNS 1-4

PROJECT REFERENCE NO.	SHEET NO.
B-5398	16

# SITE PHOTOGRAPHS



PHOTOGRAPH I: VIEW OF JOHNSON BRIDGE RD. AT BRIDGE 21 LOOKING SOUTH.



PHOTOGRAPH 2: VIEW UNDER BRIDGE 21 LOOKING SOUTH.