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STATE OF NORTH CAROLINA

DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
GEOTECHNICAL ENGINEERING UNIT

GEOTECHNICAL ENGINEERING UNIT

STRUCTURE SUBSURFACE INVESTIGATION

ROJ. REFE	ERENCE NO	38617.1.1 (E	3–4847)	F	.A. PROJ. <i>I</i>	BRZ-2486(1)
	WILKES					
ROJECT [DESCRIPTION	BRIDGE	No. 42 ON	SR-2	2486	
OVER N	<i>MORAVIAN</i>	CREEK				
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SITE DESC	RIPTION	······································	***************************************			
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STATE	STATE PROJECT REPERENCE NO.	SHEET NO.	TOTA
N.C.	38617.1.1 (B-4847)	1	13

CAUTION NOTICE

THE SUBSURFACE INFORMATION AND THE SUBSURFACE INVESTIGATION ON WHICH IT IS BASED WERE MADE FOR THE PURPOSE OF STUDY, PLANING, AND DESIGN, AND NOT FOR CONSTRUCTION OR PAY PURPOSES. THE VARIOUS FIELD BORING LOCS, ROCK CORES, AND SOLITEST DATA AVAILABLE MAY BE REVIEWED OR INSPECTED IN RALEIGH BY CONTACTING THE N.C. DEPARTMENT OF TRANSPORTATION, GEOTECHNICAL EMBINEERING UNIT AT (919) 250-4088. NEITHER THE SUBSURFACE PLANS AND REPORTS, NOR THE FIELD BORING LOCK, ROCK CORES, OR SOLITEST DATA ARE PART OF THE CONTRACT.

GENERAL SOIL AND ROCK STRATA DESCRIPTIONS AND INDICATED BOUNDARIES ARE BASED ON A GEOTECHNICAL INTERPRETATION OF ALL AVAILABLE SUBSUBFACE DATA AND MAY NOT NECESSARILY REFLECT THE ACTUAL SUBSUFFACE CONDITIONS BETWEEN BORINGS OR BETWEEN SAMPLED STRATA WITHIN THE BOREHOLE. THE LABORATORY SAMPLE DATA AND THE IN STIL IN-PLACE) TEST DATA CAN BE RELED ON ONLY TO THE DEGREE OF RELABLITY INHERENT IN THE STANDARD TEST METHOD. THE OBSERVED WATER LEVELS OR SOIL MOSTUME CONDITIONS INDICATED IN THE SUBSUPFACE INVESTIGATIONS ARE AS RECORDED AT THE TIME OF THE INVESTIGATION. THESE WATER LEVELS OR SOIL MOISTUME CONDITIONS TO CLIMATIC CONDITIONS TO ANY CONSIDERABLY WITH TIME ACCORDING TO CLIMATIC CONDITIONS INCLUDING TEMPERATURES, PRECIPITATION, AND WIND, AS WELL AS OTHER NON-CLIMATIC FACTORS.

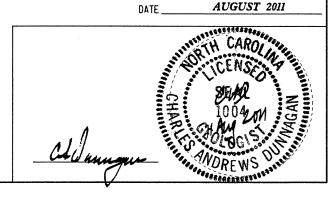
THE BIDDER OR CONTRACTOR IS CAUTIONED THAT DETAILS SHOWN ON THE SUBSURFACE PLANS ARE PRELIMINARY ONLY AND IN MANY CASES THE FINAL DESIGN DETAILS ARE DEFERENT, FOR BIDDING AND CONSTRUCTION PURPOSES, REFER TO THE CONSTRUCTION PLANS AND DOCUMENTS FOR FINAL DESIGN INFORMATION ON THIS PROJECT. THE DEPARTMENT DOES NOT MARRANT OR CUARANTEE 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 NIDEPRIDENT SUBSURFACE INVESTIGATIONS AS HE DEEMS NECESSARY TO SATISFY MINISELF AS TO CONDITIONS TO BE ENCOUNTERED ON THIS PROJECT. THE CONTRACTOR SHALL HAVE NO CLAMF 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.

	G K ROSE
	C J COFFEY
. ·	L E RIDDLE
	R D CHILDERS
<u></u>	
INVESTIGATED BY	C A DUNNAGAN
	W D FRYE, Jr
•	W D FRYE, Jr

PERSONNEL

D C ELLIOT

D O CHEEK



NOTE - THE INFORMATION CONTAINED HEREIN IS NOT IMPLIED OR GUARANTEED BY THE N.C. DEPARTMENT OF TRANSPORTATION AS BEING ACCURATE NOR IT IS CONSIDERED TO BE PART OF THE PLANS, SPECIFICATIONS, OR CONTRACT FOR THE PROJECT.

NOTE - BY HAVING REDUESTED 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.

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NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

DIVISION OF HIGHWAYS

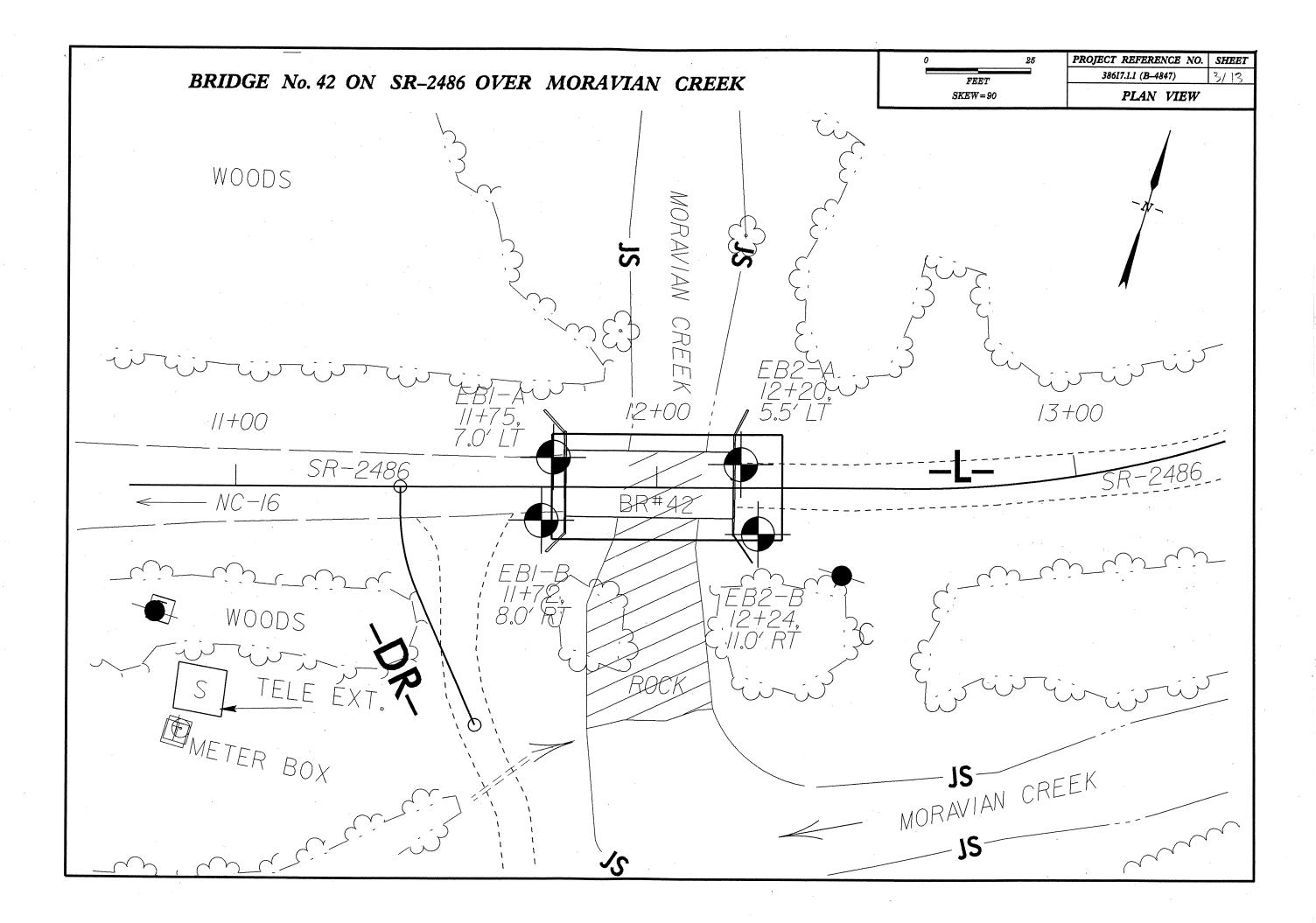
GEOTECHNICAL ENGINEERING UNIT

SUBSURFACE INVESTIGATION

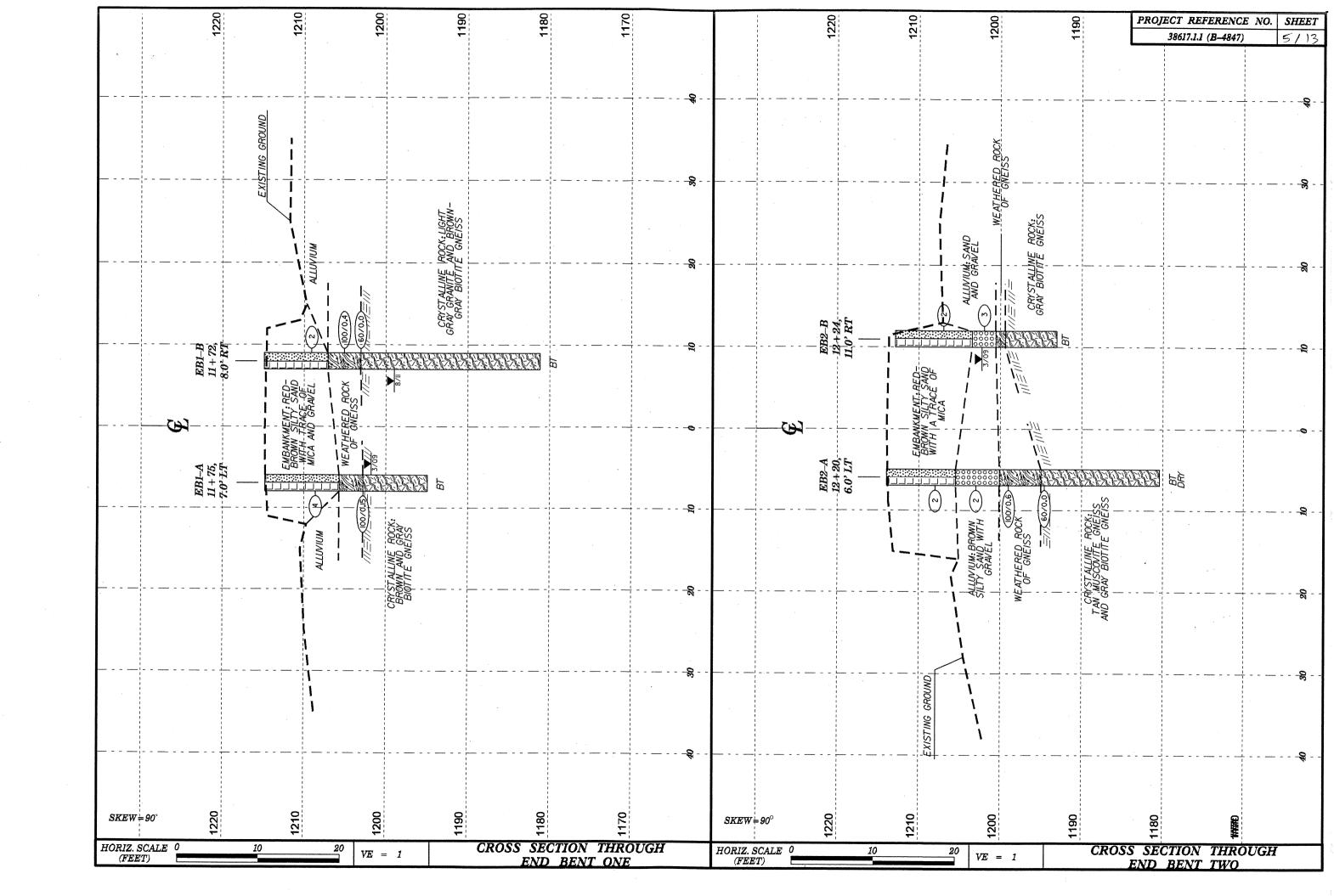
	SOIL AND ROCK LEGE	GEND, TERMS, SYMB	OLS, AND ABBREVIATIONS	
SOIL DESCRIPTION	GRADATION		ROCK DESCRIPTION	TERMS AND DEFINITIONS
SOIL IS CONSIDERED TO BE THE UNCONSOLIDATED, SEMI-CONSOLIDATED, OR WEATHERED EARTH MATERIALS THAT CAN BE PENETRATED WITH A CONTINUOUS FLIGHT POWER ALGER, AND YIELD LESS THAN 108 BLOWS PER FOOT ACCORDING TO STANDARD PENETRATION TEST (AASHTO T206, ASTM D-1586). SOIL CLASSIFICATION IS BASED ON THE AASHTO SYSTEM. BASIC DESCRIPTIONS GENERALLY SHALL INCLUDE:	WELL GRADED - INDICATES A GOOD REPRESENTATION OF PARTICLE SIZES FROM FINE TO COUNTIFIEND - INDICATES THAT SOIL PARTICLES ARE ALL APPROXIMATELY THE SAME SIZE, (ALS POORLY GRADED - INDICATES A MIXTURE OF UNIFORM PARTICLES OF TWO DR MORE SIZES, ANGULARITY OF GRAINS	ALSO ROCK LINE SPT REFUS IN NON-CO	IS NON-COASTAL PLAIN MATERIAL THAT IF TESTED, WOULD YIELD SPT REFUSAL, AN INFERRED INDICATES THE LEVEL AT WHICH NON-COASTAL PLAIN MATERIAL WOULD YIELD SPT REFUSAL. ALL IS PENETRATION BY A SPLIT SPOON SAMPLER EDUAL TO OR LESS THAN 0,1 FOOT PER 60 BLOWS, ASTAL PLAIN MATERIAL. THE TRANSITION BETWEEN SOIL AND ROCK IS OFTEN REPRESENTED BY A ZONE RED ROCK.	ALLUVIUM (ALLUV.) - SOILS THAT HAVE BEEN TRANSPORTED BY WATER. AQUIFER - A WATER BEARING FORMATION OR STRATA. ARENACEOUS - APPLIED TO ROCKS THAT HAVE BEEN DERIVED FROM SAND OR THAT CONTAIN SAND.
CONSISTENCY, COLOR, TEXTURE, MOISTURE, AASHTO CLASSIFICATION, AND OTHER PERTINENT FACTORS SUCH AS MINERALOGICAL COMPOSITION, ANGULARITY, STRUCTURE, PLASTICITY, ETC. EXAMPLE: VERY STFF, BRANSKY CLA, MOST WITH MIERBEDDED FINE SAMD LAVERS, MRINY PLASTIC, A-7-6	THE ANGULARITY OF GRAINS THE ANGULARITY OR ROUNDNESS OF SOIL GRAINS IS DESIGNATED BY THE TERMS: ANGULAR, SUBANGULAR, SUBROUNDED, OR ROUNDED.	POCK MATE	RIALS ARE TYPICALLY DIVIDED AS FOLLOWS: NON-COASTAL PLAIN MATERIAL THAT WOULD YIELD SPT N VALUES > 100	<u>ARGILLACEOUS</u> - APPLIED TO ALL ROCKS OR SUBSTANCES COMPOSED OF CLAY MINERALS, OR HAVING A NOTABLE PROPORTION OF CLAY IN THEIR COMPOSITION, AS SHALE, SLATE, ETC.
SOIL LEGEND AND AASHTO CLASSIFICATION GENERAL GRANULAR MATERIALS SILT-CLAY MATERIALS CLASS. (≤ 35% PASSING *200) (> 35% PASSING *200) ORGANIC MATERIALS	MINERALOGICAL COMPOSITION MINERAL NAMES SUCH AS QUARTZ, FELOSPAR, MICA, TALC, KAOLIN, ETC. ARE USED IN DESCRIPT WHENEVER THEY ARE CONSIDERED OF SIGNIFICANCE.		BLOWS PER FOOT IF TESTED. FINE TO COARSE GRAIN JONEOUS AND METAMORPHIC ROCK THAT WOULD YIELD SPT REFUSAL IF TESTED. ROCK TYPE INCLUDES GRANITE, OMEISS, GABBRO, SCHIST, ETC.	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 DR ABOVE THE GROUND SURFACE.
GROUP A-1 A-3 A-2 A-4 A-5 A-6 A-7 A-1, A-2 A-4, A-5 LASS, A-1 a-1-b A-2-4 A-2-5 A-2-5 A-2-5 A-3 A-6, A-7	COMPRESSIBILITY SLIGHTLY COMPRESSIBLE LIQUID LIMIT LESS THAN 31		LINE FINE TO COARSE GRAIN METAMORPHIC AND NON-COASTAL PLAIN SEDIMENTARY ROCK THAT MOULD YELLD SPT REFUSAL IF TESTED. ROCK TYPE INCLUDES PHYLLITE, SLATE, SANDSTONE, EA	<u>CALCAREOUS (CALC.)</u> - SOILS THAT CONTAIN APPRECIABLE AMOUNTS OF CALCIUM CARBONATE. <u>COLLUVIUM</u> - ROCK FRAGMENTS MIXED WITH SOIL DEPOSITED BY GRAVITY ON SLOPE OR AT BOTTOM OF SLOPE.
S YMBOL	MODERATELY COMPRESSIBLE LIQUID LIMIT EQUAL TO 31-50 LIQUID LIMIT GROWN TO 31-50 PERCENTAGE OF MATERIAL	50 COASTAL PLA SEDIMENTARY (CP)	ROCK SPT REFUSAL. ROCK TYPE INCLUDES LIMESTONE, SANDSTONE, CEMENTED SHELL BEDS, ETC.	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. DIKE - A TABULAR BODY OF IGNEOUS ROCK THAT CUTS ACROSS THE STRUCTURE OF ADJACENT
# 40 38 MX 50 MX 51 MN GRANULAR CLAY PEAT	ORGANIC MATERIAL GRANULAR SILT - CLAY SDILS SDILS OTHER MATERIAL		WEATHERING ROCK FRESH, CRYSTALS BRIGHT. FEW JOINTS MAY SHOW SLIGHT STAINING, ROCK RINGS UNDER	ROCKS OR CUTS MASSIVE ROCK.
LIDDI LINT LIDDI LINT PASTIC INTEX 6 MY MP MP MP MP MP MP MP MP MP	TRACE OF DRGANIC MATTER 2 - 3% 3 - 5% TRACE 1 - 10%	20% 35% VERY SLIGHT	HAMMER IF CRYSTALLINE. ROCK GENERALLY FRESH, JOINTS STAINED, SOME JOINTS MAY SHOW THIN CLAY COATINGS IF OPEN.	<u>DIP</u> - THE ANGLE AT WHICH A STRATUM OR ANY PLANAR FEATURE IS INCLINED FROM THE HORIZONTAL. DIP DIRECTION (DIP AZIMUTH) - THE DIRECTION OR BEARING OF THE HORIZONTAL TRACE OF
GROUP INDEX 0 0 0 4 MX B MX 12 MX 16 MX No MX MODERATE ORGANI		AND ABOVE (V SL).	CRYSTALS ON A BROKEN SPECIMEN FACE SHINE BRIGHTLY. ROCK RINGS UNDER HAMMER BLOWS IF OF A CRYSTALLINE NATURE.	THE LINE OF DIP, MEASURED CLOCKWISE FROM NORTH.
USUAL TYPES STONE FRAGS. FINE SILTY OR CLAYEY SILTY CLAYEY ORGANIC MATERIALS SAND GRAVEL AND SAND SOILS SOILS MATTER	▼ STATIC WATER LEVEL AFTER 24 HOURS	SLIGHT (SLI.)	ROCK GENERALLY FRESH, JOINTS STAINED AND DISCOLORATION EXTENDS INTO ROCK UP TO 1 INCH. OPEN JOINTS MAY CONTAIN CLAY, IN GRANITOID ROCKS SOME DCCASIONAL FELDSPAR CRYSTALS ARE DULL AND DISCOLORED. CRYSTALINE ROCKS RING UNDER HAMMER BLOWS.	FAULT - A FRACTURE OR FRACTURE ZONE ALONG WHICH THERE HAS BEEN DISPLACEMENT OF THE SIDES RELATIVE TO ONE ANOTHER PARALLEL TO THE FRACTURE. FISSILE - A PROPERTY OF SPLITTING ALONG CLOSELY SPACED PARALLEL PLANES.
GEN. RATING AS A EXCELLENT TO GOOD FAIR TO POOR POOR UNSUTTAGE SUBGRADE	PERCHED WATER, SATURATED ZONE, OR WATER BEARING STRATA	MODERATE (MOD.)	SIGNIFICANT PORTIONS OF ROCK SHOW DISCOLORATION AND WEATHERING EFFECTS, IN GRANITOID ROCKS, MOST FELDSPARS ARE DULL AND DISCOLORED, SOME SHOW CLAY, ROCK HAS DULL SOUND UNDER HAMMER BLOWS AND SHOWS SIGNIFICANT LOSS OF STRENOTH AS COMPARED	FLOAT - ROCK FRAGMENTS ON SURFACE NEAR THEIR ORIGINAL POSITION AND DISLOGED FROM PARENT MATERIAL.
PI OF A-7-5 SUBGROUP IS ≤ LL - 30 ; PI OF A-7-6 SUBGROUP IS > LL - 30	SPRING OR SEEP	MODERATELY	WITH FRESH ROCK. ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. IN GRANITOID ROCKS, ALL FFI DSPARS DUILL	FLOOD PLAIN (FP) - LAND BORDERING A STREAM, BUILT OF SEDIMENTS DEPOSITED BY THE STREAM.
PRIMARY SOIL TYPE COMPACTNESS OR RANGE OF STANDARD PENETRATION RESISTENCE COMPACTNESS OR PENET		SAMPLE SEVERE (MOD. SEV.)	AND DISCOLORED AND A MAJORITY SHOW KAOLINIZATION, ROCK SHOWS SEVERE LOSS OF STRENGTH AND CAN BE EXCAVATED WITH A GEOLOGIST'S PICK, ROCK GIVES "CLUNK" SOUND WHEN STRUCK. IF TESTED, WOULD YIELD SPT REFUSA.	FORMATION (FM.) - A MAPPABLE GEOLOGIC UNIT THAT CAN BE RECOGNIZED AND TRACED IN THE FIELD. JOINT - FRACTURE IN ROCK ALONG WHICH NO APPRECIABLE MOVEMENT HAS OCCURRED.
GENERALLY VERY LOOSE <4	WITH SOIL DESCRIPTION S - BULK S - BULK	DESIGNATIONS _K SAMPLE SEVERE (SEV.)	ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED ROCK FABRIC CLEAR AND EVIDENT BUT REDUCED IN STRENGTH TO STRONG SOIL. IN GRANITOID ROCKS ALL FELDSPARS ARE KAQLINIZED TO SOME	LEDGE - A SHELF-LIKE RIDGE OR PROJECTION OF ROCK WHOSE THICKNESS IS SMALL COMPARED TO
GRANULAR LOOSE. 4 TO 18 MATERIAL MEDIUM DENSE 18 TO 38 N/A DENSE 38 TO 58	SS - SPLI SAME	PLIT SPOON AMPLE	EXTENT. SOME FRAGMENTS OF STRONG ROCK USUALLY REMAIN. IF TESTED, YIELDS SPT N VALUES > 100 BPF	ITS LATERAL EXTENT. <u>LENS</u> - A BODY OF SOIL OR ROCK THAT THINS OUT IN ONE OR MORE DIRECTIONS.
VERY DENSE >50	ST - SHEL INFERRED SOIL BOUNDARY SAME	HELBY TUBE VERY SEVERE (V SEV.)	ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. ROCK FABRIC ELEMENTS ARE DISCERNIBLE BUT THE MASS IS EFFECTIVELY REDUCED TO SOIL STATUS, WITH QNLY FRAGMENTS OF STRONG ROCK	MOTILED (MOT.) - IRREGULARLY MARKED WITH SPOTS OF DIFFERENT COLORS, MOTILING IN SOILS USUALLY INDICATES POOR AERATION AND LACK OF GOOD DRAINAGE.
GENERALLY SOFT 2 TO 4 0.25 TO 0.50	MONITORING WELL RS - ROCK INFERRED ROCK LINE A PIEZOMETER	OCK SAMPLE	REMAINING, SAPROLITE IS AN EXAMPLE OF ROCK WEATHERED TO A DEGREE SUCH THAT ONLY MINOR VESTIGES OF THE ORIGINAL ROCK FABRIC REMAIN. IF TESTED, YIELDS SPT N VALUES < 180 BPF	
MATERIAL STIFF 8 TO 15 1 TO 2 (COHESIVE) VERY STIFF 15 TO 30 2 TO 4	ALLUVIAL SOIL BOUNDARY	COMPACTED TRIAXIAL COMPLETE	ROCK REDUCED TO SOIL. ROCK FABRIC NOT DISCERNIBLE OR DISCERNIBLE ONLY IN SMALL AND SCATTERED CONCENTRATIONS. QUARTZ MAY BE PRESENT AS DIKES OR STRINGERS, SAPROLITE IS	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
HARD >30 >4		CALIFORNIA BEARING ATIO SAMPLE	ALSO AN EXAMPLE. ROCK HARDNESS	ROCK SEGMENTS EQUAL TO OR GREATER THAN 4 INCHES DIVIDED BY THE TOTAL LENGTH OF CORE RUN AND EXPRESSED AS A PERCENTAGE.
TEXTURE OR GRAIN SIZE U.S. STD. SIEVE SIZE 4 10 40 60 200 270	SPT N-VALUE	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
OPENING (MM) 4.76 2.80 0.42 0.25 0.075 0.053	SUUNDING RUD ©EF———————————————————————————————————	HARD	SEVERAL HARD BLOWS OF THE GEOLOGIST'S PICK. CAN BE SCRATCHED BY KNIFE OR PICK ONLY WITH DIFFICULTY, HARD HAMMER BLOWS REQUIRED	PARENT ROCK. <u>SILL</u> - AN INTRUSIVE BODY OF IGNEOUS ROCK OF APPROXIMATELY UNIFORM THICKNESS AND
BOULDER		STURE CONTENT	TO DETACH HAND SPECIMEN. CAN BE SCRATCHED BY KNIFE OR PICK, GOUGES OR GRODVES TO 0.25 INCHES DEEP CAN BE	RELATIVELY THIN COMPARED WITH ITS LATERAL EXTENT, THAT HAS BEEN EMPLACED PARALLEL TO THE BEDDING OR SCHISTOSITY OF THE INTRUDED ROCKS. SLICKENSIDE - POLISHED AND STRIATED SURFACE THAT RESULTS FROM FRICTION ALONG A FAULT OR
GRAIN MM 305 75 2.0 0.25 0.05 0.005 SIZE IN. 12 3	CPT - CONE PENETRATION TEST MOD MODERATELY WEA WEA	YANE SHEAR TEST HARD VEATHERED	EXCAVATED BY HARD BLOW OF A GEOLOGIST'S PICK. HAND SPECIMENS CAN BE DETACHED BY MODERATE BLOWS.	STIP PLANE. STANDARD PENETRATION TEST (PENETRATION RESISTANCE) (SPT) - NUMBER OF BLOWS (N OR BPF) OF
SOIL MOISTURE - CORRELATION OF TERMS SOIL MOISTURE SCALE FIELD MOISTURE GUIDE FOR FIELD MOISTURE DESCRIPTION (ATTERPERE LIMITE) PROPERTIES.	DPT - DYNAMIC PENETRATION TEST PMT - PRESSUREMETER TEST WOH-WEIGH	Y UNIT WEIGHT HARD IGHT OF HAMMER	CAN BE GROOVED OR GOUGED 0.05 INCHES DEEP BY FIRM PRESSURE OF KNIFE OR PICK POINT. CAN BE EXCAVATED IN SMALL CHIPS TO PEICES I INCH MAXIMUM SIZE BY HARD BLOWS OF THE POINT OF A GEOLOGIST'S PICK.	A 140 LB. HAMMER FALLING 30 INCHES REQUIRED TO PRODUCE A PENETRATION OF 1 FOOT INTO SOIL WITH A 2 INCH DUTSIDE DIAMETER SPLIT SPOON SAMPLER. SPT REFUSAL IS PENETRATION EQUAL TO OR LESS THAN 0.1 FOOT PER 60 BLOWS.
- SATURATED - USUALLY LIQUID; VERY WET, USUALLY	F - FINE SD SAND, SANDY AFTEL FOSS FOSSILIFEROUS SL SILT, SILTY	LLED IMMEDIATELY SOFT TER DRILLING 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 PIECES CAN BE BROKEN BY FINGER PRESSURE.	
LL LIOUID LIMIT (SAT.) FROM BELOW THE GROUND WATER TABLE PLASTIC SEMISOLID: REQUIRES DRYING TO	FRAC FRACTURED, FRACTURES SLI SLIGHTLY FRAGS FRAGMENTS TCR - TRICONE REFUSAL	VERY SOFT	CAN BE CARVED WITH KNIFE. CAN BE EXCAVATED READILY WITH POINT OF PICK. PIECES 1 INCH OR MORE IN THICKNESS CAN BE BROKEN BY FINGER PRESSURE. CAN BE SCRATCHED READILY BY FINGERNAIL.	STRATA ROCK DUALITY DESIGNATION (SROD) - A MEASURE OF ROCK QUALITY DESCRIBED BY TOTAL LENGTH OF ROCK SECHENTS WITHIN A STRATUM EQUAL TO OR GREATER THAN 4 INCHES DIVIDED BY THE TOTAL LENGTH OF STRATA AND EXPRESSED AS A PERCENTAGE.
(P) PLASTIC LIMIT STREET - (W) ATTAIN OPTIMUM MOISTURE	EQUIPMENT USED ON SUBJECT PROJECT		ACTURE SPACING BEDDING SPACING TERM THICKNESS	TOPSOIL (TS.) - SURFACE SOILS USUALLY CONTAINING ORGANIC MATTER.
OM OPTIMUM MOISTURE - MOIST - (M) SOLID; AT OR NEAR OPTIMUM MOISTURE	DRILL UNITS: ADVANCING TOOLS: HAMMER TYPE:	PE: TERM ATIC MANUAL VERY WID	MORE THAN 10 FEET VERY THICKLY BEDDED > 4 FEET	BENCH MARK: BM*2: 8* SPIKE IN ROOT OF I2* SYCAMORE II8' RT OF -BL- STA 7+25.00
SL SHRINKAGE LIMIT	MOBILE B-	wide wide	3 TO 10 FEET THICKLY BEDDED 1.5 - 4 FEET THINLY BEDDED 0.16 - 1.5 FEET	ELEVATION: 1208.68 FT.
- DRY - (D) REOUJRES ADDITIONAL WATER TO ATTAIN OPTIMUM MOISTURE	6 CONTINUOUS FLIGHT AUGER CORE SIZE: BK-51 B HOLLOW AUGERS -B	VEDY CLO	0.16 TO 1 FEET VERY THINLY BEBDED 0.03 - 0.16 FEET	NOTES:
PLASTICITY	CME-45C HARD FACED FINGER BITS X -N XWL	L .	INDURATION	
PLASTICITY INDEX (PI) DRY STRENGTH NONPLASTIC 0-5 VERY LOW	TUNG,-CARBIDE INSERTS	FUR SEDIMENT	ARY ROCKS, INDURATION IS THE HARDENING OF THE MATERIAL BY CEMENTING, HEAT, PRESSURE, ETC.	
LOW PLASTICITY 6-15 SLIGHT	X CASING X W/ ADVANCER HAND TODUS:	FR	ABLE RUBBING WITH FINGER FREES NUMEROUS GRAINS; GENTLE BLOW BY HAMMER DISINTEGRATES SAMPLE.	
HIGH PLASTICITY 26 OR MORE HIGH	PORTABLE HOIST TRICONE STEEL TEETH POST HO	HOLE DIGGER MOD	ERATELY INDURATED GRAINS CAN BE SEPARATED FROM SAMPLE WITH STEEL PROBE: BREAKS EASILY WHEN HIT WITH HAMMER.	
COLOR	TRICONETUNG,-CARB. HAND AUG	1	URATED 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.	Conc bii	SHEAR TEST	DIFFICULT TO BREAK WITH HAMMER. REMELY INDURATED SHARP HAMMER BLOWS REQUIRED TO BREAK SAMPLE;	
		EXI	SAMPLE BREAKS ACROSS GRAINS.	

PROJECT REFERENCE NO. 38617.I.I (B-4847)

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NCDOT GEOTECHNICAL ENGINEERING UNIT

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BOR	NG NO.	EB1-	-A		S	TATION 11	+75	OFFSET	7 ft LT			ALIGNMENT -L-	0 HR.	N/A
COLL	AR ELE	EV. 1,	214.8	ft	TO	OTAL DEPT	H 19.9 ft	NORTHIN	IG 851	,966		EASTING 1,356,668	24 HR. 1	13.0
DRILL	RIG/HAN	MMER E	FF/DA	TE AF	O0071	CME-550X 72	2% 09/03/2009		DRILI	. METH	OD N	W Casing W/SPT & Core H.	AMMER TYPE Automat	atic
DRIL	LER R	ose, G	. K.		S	TART DATE	03/23/09	COMP. D				SURFACE WATER DEPTH		
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	1,202.8-	<u>- 12.0</u>	00/0.1	5				100/0.1	; •	V		_ 1,202.8 - CRYSTALLII	-	12.
200	-	-							41			- Brown and gray I	piotite gneiss.	
	_	_						: : : : :				<u>-</u>		
	-	_										-	•	
1195						<u> </u>			4		25	1,194.9 _ Boring Terminated at E	evation 1.194.9 ft in	19.
	1	_									1 6	biotite gr		
	_										1 1	Logged by D	O Cheek.	
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NCDOT GEOTECHNICAL ENGINEERING UNIT

SHEET 6/13

WBS 38617.1.1	KE B	ORINO			Y WILKES		GEOLOGIST N/A		9/ 1
SITE DESCRIPTION Brid	lae No. 4	l						GR	OUND WTR (ft)
BORING NO. EB1-A	9-	STATION			OFFSET 7	ft LT	ALIGNMENT -L-	0 H	IR. N/A
COLLAR ELEV. 1,214.8	ft		PTH 19.9	ft	NORTHING	851,966	EASTING 1,356,668	24 H	
DRILL RIG/HAMMER EFF/DA		071 CME-550	K 72% 09/03/	/2009		DRILL METHOD NW	Casing W/SPT & Core	HAMMER T	YPE Automatic
DRILLER Rose, G. K.			TE 03/23		COMP. DAT	TE 03/23/09	SURFACE WATER DEP	TH N/A	
CORE SIZE NXWL		TOTAL RU							
DIN	DRILL	RUN	T	STRATA REC. RQD	L	Г	DESCRIPTION AND REMARKS	3	
ELEV ELEV (ft) DEPTH RUN (ft)	RATE (Min/ft)	REC. RQD (ft) (ft) % %	NO.	(ft) (ft) % %	O G ELEV. (fi		Begin Coring @ 12.0 ft		DEPTH (ft
1,194.9 19.9 2.9 1.0 2.9 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0	N=100/0.1	(2.7) (0.4) 93% 14% (2.2) (0.3) 44% 6%			1,202.8	W	CRYSTALLINE ROCK e gneiss with a trace of garnets veathered; soft to moderately h a) Parts along foliation @ 40° b) Joints @ 80° c) Joints @ 50°. inated at Elevation 1,194.9 ft in	ard.	19.
08/05/11									
DOT CORE SINGLE BORE_CORELOGS.GPJ. NC_DOT.GDT 08/05/11									



SHEET

SITE DESCRIPTION Bridge No. 42 on SEX-2486 over Moravalan Creek GROUN BORING NO. E81-8 STATION 11+72 OFFSET 8 R RT ALIGNMENT 4- OHR. OHR	
COLLAR ELEV. 1,214.9 ft TOTAL DEPTH 33.7 ft NORTHING 851,950 EASTING 1,356,672 24 HR. DRILL RIGHAMMER EFF, DATE AF00071 CME-550X 72% 09/03/2009 DRILL METHOD NW Casing W/SPT & Core HAMMER TYPE DRILLER Coffey, Jr., C. START DATE 08/03/11 COMP. DATE 08/03/11 SURFACE WATER DEPTH N/A ELEV (ft) CFEV (ft) 0-5ft 0.5ft 0.5	WTR
DRILL RIGHAMMER EFF/DATE	١
DRILLER Coffey, Jr., C. START DATE 08/03/11 COMP. DATE 08/03/11 SURFACE WATER DEPTH N/A ELEV (ft) PRIVE (ft) DEPTH (ft) BLOW COUNT (ft) BLOW SPER FOOT 0.5ft SAMP. NO. SOIL AND ROCK DESCRIPTION 1215 AB (ft)	1:
DRILLER Coffey, Jr., C. START DATE 08/03/11 COMP. DATE 08/03/11 SURFACE WATER DEPTH N/A Comparison Compa	Automat
SAMP. SOIL AND ROCK DESCRIPTION SAMP. SOIL AND ROCK DESCRIPTION SOIL AND ROC	
(fi) (fi) 0.5ft 0.5ft 0.5ft 0.5ft 0.5ft 0.5ft 0.5ft 0.25 50 75 100 NO. MOI G ELEV. (fi) SOIL AND ROCK DESCRIPTION 1,214.9 GROUND SURFACE ROADWAY EMBANKMENT Red-brown silty sand. 1,207.1 WEATHERED ROCK Weathered rock of gneiss. 1,203.1 11.8 60/0.0 1,203.1	
1215	DEPT
1210	DEFT
1210	,
210 1,210.1 4.8 1 1 1 1 1 2	
205 1,205.1 9.8 100/0.4 1,203.1 11.8 60/0.0 1,203.1 11.8 60/0.0 1,203.1 11.8 60/0.0 1,203.1 11.99.3 CRYSTALLINE ROCK Light gray granite. 1,199.3 CRYSTALLINE ROCK Brown-gray biotite gneiss. 1,191.2 CRYSTALLINE ROCK Gray and brown biotite gneiss with garr and interlayers of granite. 1,191.2 CRYSTALLINE ROCK Gray and brown biotite gneiss with garr and interlayers of granite.	
205 1,205.1 9.8 100/0.4 1,203.1 11.8 60/0.0 200 CRYSTALLINE ROCK Light gray granite. 1,199.3 CRYSTALLINE ROCK Brown-gray biotite gneiss. 1,191.2 CRYSTALLINE ROCK Gray and brown biotite gneiss with garr and interlayers of granite. 1,181.2 Boring Terminated at Elevation 1,181.2	
205 1,205.1 9.8 100/0.4 1,203.1 11.8 60/0.0 200 195 195 195 195 195 195 195 195 195 195	
200 1,203.1 11.8 1,203.1 11.8 60/0.0 1,203.1 11.8 60/0.0 1,203.1 1,199.3 1,199.3 CRYSTALLINE ROCK Brown-gray biotite gneiss. 1,199.3 CRYSTALLINE ROCK Gray and brown biotite gneiss with garrand interlayers of granite. 1,181.2 Boring Terminated at Elevation 1,181.2 Boring Terminated at Elevation 1,181.2 Boring Terminated at Elevation 1,181.2 CRYSTALLINE ROCK Gray and brown biotite gneiss with garrand interlayers of granite. 1,181.2 CRYSTALLINE ROCK Gray and brown biotite gneiss with garrand interlayers of granite. 1,181.2 CRYSTALLINE ROCK Gray and brown biotite gneiss with garrand interlayers of granite. 1,181.2 CRYSTALLINE ROCK Gray and brown biotite gneiss with garrand interlayers of granite. 1,181.2 CRYSTALLINE ROCK Gray and brown biotite gneiss with garrand gray and gray an	
1,203.1 11.8 60/0.0 CRYSTALLINE ROCK Light gray granite. 1,199.3 CRYSTALLINE ROCK Brown-gray biotite gneiss. 1,191.2 CRYSTALLINE ROCK Gray and brown biotite gneiss with garr and interlayers of granite. 1,181.2 Boring Terminated at Elevation 1,181.2	
Light gray granite. 195 196 197 1,199.3 CRYSTALLINE ROCK Brown-gray biotite gneiss. 198 1,191.2 CRYSTALLINE ROCK Gray and brown biotite gneiss with garr and interlayers of granite. 1885 1,181.2 Boring Terminated at Elevation 1,181.2	
195 196 197 1,191.2 CRYSTALLINE ROCK Brown-gray biotite gneiss. 1,191.2 CRYSTALLINE ROCK Gray and brown biotite gneiss with garr and interlayers of granite. 1,181.2 Boring Terminated at Elevation 1,181.2	
Brown-gray biotite gneiss. 1,191.2 CRYSTALLINE ROCK Gray and brown biotite gneiss with garr and interlayers of granite. 1,181.2 Boring Terminated at Elevation 1,181.2	
90 1,191.2 CRYSTALLINE ROCK Gray and brown biotite gneiss with garr and interlayers of granite. 85 1,181.2 Boring Terminated at Elevation 1,181.2	
90 CRYSTALLINE ROCK Gray and brown biotite gneiss with garr and interlayers of granite. 85 1,181.2 Boring Terminated at Elevation 1,181.2	
90 CRYSTALLINE ROCK Gray and brown biotite gneiss with garr and interlayers of granite. 85 1,181.2 Boring Terminated at Elevation 1,181.2	
90 CRYSTALLINE ROCK Gray and brown biotite gneiss with garr and interlayers of granite. 85 1,181.2 Boring Terminated at Elevation 1,181.2	
and interlayers of granite. 85 1,181.2 Boring Terminated at Elevation 1,181.2	
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	38617				<u> </u>	B-484					VILKES	GEOLOGIST Elliott, E			
				dge No. 4	Т			oravia	in Cre	·				GROUND	WTR (ft)
	ING NO.				 		11+72			+	FSET 8 ft RT	ALIGNMENT -L-		0 HR.	N/A
COL	LAR ELI	E V . 1,	214.9	ft	тот	AL DE	PTH 33	.7 ft	···	NO	RTHING 851,950	EASTING 1,356,672		24 HR.	15.9
DRILI	L RIG/HAI	MMER E	FF/DA	TE AFOO	071 CN	1E-550X	72% 09/	03/2009)		DRILL METHOD NW	/ Casing W/SPT & Core	НАММЕ	R TYPE A	utomatic
DRIL	LER C	offey,	Jr., C.		STA	RT DA	TE 08/0	3/11		co	MP. DATE 08/03/11	SURFACE WATER DE	PTH N/A	4	
COR	E SIZE	NXWI	_		1		N 21.9								
ELEV	RUN	DEPTH		DRILL RATE	REC.	UN RQD	SAMP.	REC.	RQD	L L		DESCRIPTION AND REMARK	(S		
(ft)	(ft)	(ft)	(ft)	(Min/ft)	(ft) %	(ft) %	NO.	(ft) %	(ft) %	Ğ	ELEV. (ft)	ZEGORII MORTARD REMARK			DEPTH (ft)
1203.1	4 mm 4	44.0	<u> </u>						<u> </u>			Begin Coring @ 11.8 ft			
	1,203.1 1,201.2	11.8 13.7	1.9	N=60/0.0 1.7/0.9 2.0/0.0	(1.3) 68%	(1.2) 63%					1,203.1	CRYSTALLINE ROCK Light gray granite.			11.8
1200	-		5.0	2.0/0.0	(4.5)	(1.3) 26%					T1,199.3	a) Joints @ 45°.			15.6
	-	-		2.0/0.0 1.9/0.0 0.5/0.0 0.8/0.0	0070	2070					Brown-gray biotite gr	CRYSTALLINE ROCK neiss with a trace of garnets.	Soft to har	d; severely to	0
1195	1,196.2	18.7	5.0	1.2/0.0	(3.6)	(0.4)						moderately weathered. a) Parts along foliation @ 49			
	-	-		1.0/0.0 1.7/0.0	72%	8%						b)Joints @ 25°.			
	1,191.2	23.7		1.8/0.0 0.6/0.0							- 1,191.2				23.7
1190		-	5.0	1.8/0.0 1.9/0.0	(4.6) 92%	(3.1) 62%			1			CRYSTALLINE ROCK e gneiss with garnets and int			
	-	-		1.7/0.0	32.76	02 /6					fresh with occasio	onal interlayers of moderately	eriayers of hard and n	granite. Hari noderately	3,
4405	1,186.2	28.7	5.0	2.0/0.0	(4.0)	(1.0)					• •	weathered rock. a) Parts along foliation @ 25	5°.		
1185		<u>-</u>	3.0	1.5/0.0	(4.8) 96%	(1.9) 38%					_	b) Joints @ 80°. c) Joints @ 10°.			
	4 404 0	- 22.7		1.5/0.0 1.8/0.0								,			
	1,181.2	33.7	1	1.6/0.0	 				 	مشاجع	1,181.2 Boring Termin	nated at Elevation 1,181.2 ft	n biotite gr	neiss.	33.7
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NCDOT GEOTECHNICAL ENGINEERING UNIT

SHEET

WBS	38617	'.1.1		*	/Τ	P B-4847 CC	DUNTY WILKES	5			GEOLOGIST Elliott, D. C.		
SITE	DESCR	IPTION	l Bric	lge No	o. 42 o	SR-2486 over Moraviar	n Creek					GROUND	WTR (f
BORI	NG NO.	EB2	Α		S	ATION 12+20	OFFSET	6 ft LT			ALIGNMENT -L-	0 HR.	N/
COLL	AR ELE	E V. 1,	214.0	ft	T	OTAL DEPTH 33.6 ft	NORTHING	G 851,9	977		EASTING 1,356,714	24 HR.	Cave
RILL	RIG/HAI	MMER E	FF./DA	TE A	FO0071	CME-550X 72% 09/03/2009		DRILL	METHO	D N	W Casing W/SPT & Core HAMN	IER TYPE A	utomatic
RIL	LER C	offey, 、	Jr., C.		s	ART DATE 08/03/11	COMP. DA	TE 08/	03/11		SURFACE WATER DEPTH N	/A	
LEV	DRIVE ELEV	DEPTH	BLC	ow co	UNT	BLOWS PER		SAMP.	V	L	SOIL AND ROCK DES	CRIPTION	
(ft)	(ft)	(ft)	0.5ft	0.5ft	0.5ft	0 25 50	75 100	NO.	MO		ELEV. (ft)	CIGITION	DEPTH
l		,			1								
215		L		İ									
	-	ļ			 		T		 		1,214.0 GROUND SURF	KMENT	
240	-										Red-brown silty sand with a	trace of mica	•
210	1,209.0	5.0				<u> </u> -					<u>-</u>		
	-	-	WOH	1	1	2			M				
05	-	_									1,205.5 ALLUVIAL		
ł	1,204.0	10.0	3	1	1				м	000	Brown silty sand with	gravel.	
	.]	-							"	0000	· · · · · · · · · · · · · · · · · · ·		
00	1,199.0	15.0								666 773	1,200.1 WEATHERED R	OCK	1
			48	52/0.1			100/0.6				Weathered rock of		
95	1,194. 6	- 10 1									1,195.0		1
	1,194.0	- 19.4	60/0.0				60/0.0				CRYSTALLINE R Tan muscovite gneiss an		
]	_									gneiss.	a gray bloate	
90		_									· -		
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85]	_											
	-	-									-		
	1	-											
-		-	l		-	1		4		يخبط	1,180.4 Boring Terminated at Elevat	on 1,180.4 ft i	3 n
	1	-								-	biotite gneiss		
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SHEET

WBS	38617		CO	RE B	·	B-484				· • ·	WILKES GEOLOGIST Elliott, D. C.	
			l Brid	ge No. 4	L						GROUND WT	D /#
	ING NO.			90 110. 1	r		12+20			T	FSET 6 ft LT ALIGNMENT -L- 0 HR.	N/A
	LAR ELI						PTH 33.	e ft				
				TE AFO0	L					NO		aved
				IL AIOO						00		nauc
	LER C			<u> </u>			TE 08/0		•	100	DMP. DATE 08/03/11 SURFACE WATER DEPTH N/A	
	E SIZE	1	Τ	DRILL	I	JN JN	N 14.2 f		ΑΤΑ	١.,		·
ELEV (ft)	RUN ELEV (ft)	DEPTH (ft)	RUN (ft)	RATE (Min/ft)	REC. (ft) %	RQD (ft) %	SAMP. NO.	REC. (ft) %	RQD (ft) %	L O G	DESCRIPTION AND REMARKS ELEV. (ft) DE	PTH (
194.5	4										Begin Coring @ 19.4 ft	
1190 1185	4 405 4	23.6	5.0	1.1/0.0 1.3/0.0 1.4/0.0 1.4/0.0 1.3/0.0 2.4/0.0	(4.0) 95% (5.0) 100%				`		CRYSTALLINE ROCK Tan muscovite gneiss to 20.9ft with gray biotite gneiss below. Slightly weathered to fresh, hard to very hard iwth soft, severely weathered zones from 21.8ft to 22.3ft and 24.3ft to 24.5ft. a) Parts along foliation @ 35°. b) Joints @ 80°. c) Joint @ 45°. (continued)	
•	- 100 1		0.0	2.5/0.0 2.4/0.0 2.5/0.0	100%	100%				1		
	1,180.4	33.6		2.4/0.0	 -			 	 		1,180.4 Boring Terminated at Elevation 1,180.4 ft in biotite gneiss.	33



SHEET

WBS 38617.1.1 TIP B-4847 COUN							COUNT	Y WILKES	<u> </u>			GEOLOGIST N/A				
SITE	DESCR	IPTION	l Brid	ge No	. 42 or	n SR-2486	over Mora	vian Cree	k				`	GF	ROUND	WTR (ft
BORI	NG NO.	EB2-	·B		S	TATION 1	2+24		OFFSET	11 ft RT	•		ALIGNMENT -L-	0	HR.	N/A
COLLAR ELEV. 1,212.9 ft					TO	OTAL DEPT	H 19.81	NORTHING 851,965				EASTING 1,356,726	24	HR.	10.6	
DRILL	RIG/HAI	MMER E	FF/DA	TE AF	O0071	CME-550X 7	2% 09/03/2	2009		DRILL	METHO	D N	W Casing W/SPT & Core	HAMMER	TYPE /	Automatic
DRIL	ER R	ose, G	. K.		S	TART DATE	03/23/0	09	COMP. DA	TE 03	/23/09		SURFACE WATER DEP	TH N/A		
ELEV	DRIVE	DEPTH	BLC	W CO	UNT		BLOWS	PER FOOT	·	SAMP	V /	L	COU AND DO	OK DESCRIE	TION	
(ft)	ELEV (ft)	(ft)	0.5ft	0.5ft	0.5ft	0 2	25	50	75 100	NO.	МОІ	0 G	SOIL AND RO	JK DESCRIF	TION	DEPTH (
										Ħ						
1215		L														ń
		Ī												SURFACE		0
		-				1	T	1::::	1::::				, ROADWAY Red-brown silty sai			a.
1210	_	Ŧ				 		+		11			-			
	1,208.0	4.9	2	1	1								-			
1205		Ŧ .				72	: : : :			<u> </u>		\Box	•			
	1.203.0	9.9											- 1,203.5			g
	.1,20,1,1,		2	2	1	• 3					Y	000	- Sand a	.UVIAL. ind gravel.		
200		‡					+	+===	 					RED ROCK		12 13
		‡						::::				M	- \ Weathered	rock of gneis	SS. (
195		‡		,			::::	: : : :						otite gneiss.	•	
1195	-	‡						†	+	11	ľ					19
		-								1			Boring Terminated	at Elevation 1 e gneiss.	,193.1 f	
		<u>†</u>				,							Logged b	y D O Cheek	•	
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SHEET -9/13

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	WBS	38617	'.1.1			TIP B-4847 COUNTY						LKES		GEOLOGIST N/A				
					ge No. 4	2 on SR-2486 over Moravian Cree										GROUN	ID WTR (ft)	
	BOR	ING NO.	EB2-	В		STATION 12+24					OFFSET 11 ft RT			ALIGNMENT -L-		0 HR. N/A		
	COLI	LAR ELE	E V. 1,	212.9	ft	TOT	AL DE	PTH 19.	8 ft		NOR	THING 8	351,965	EASTING 1,356,726		24 HR.	10.6	
	DRILL	RIG/HAI	MMER E	FF./DA	TE AFO0	071 CM	E-550X	72% 09/0	3/2009	9		DF	RILL METHOD NV	V Casing W/SPT & Core	HAMME	R TYPE	Automatic	
	DRIL	LER R	ose, G	. K.		STAI	RT DA	TE 03/2	3/09	,	CON	P. DATE	03/23/09	SURFACE WATER DEPT	H N/A	4		
	COR	E SIZE	NXWL	_				N 6.3 ft										
.	ELEV (ft)	RUN ELEV (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	REC. (ft) %	JN RQD (ft) %	SAMP. NO.	STI REC. (ft) %	RATA RQD (ft) %	L O G	ELEV. (ft)]	DESCRIPTION AND REMARKS			DEPTH (ft)	
	199.39	1 100 /-	125	10		(4.0)	(4.0)			<u> </u>				Begin Coring @ 13.5 ft			~~~	
	1195	1,188.1	_	5.0		(1.2) 92% (4.8) 96%	(1.0) \77% / (3.3) 66%		-			1,199.4	Gray biotite gneiss moderately s	CRYSTALLINE ROCK s with garnets. Fresh, hard with in severely weathered and moderate a) Parts along foliation @ 45°. b) Joint @ 10°.	nterlaye ely hard	rs of brow rock.		
		1,193.1	19.8							\vdash	المراجع	1,193.1	Boring Term	inated at Elevation 1,193.1 ft in t	oiotite a	neiss.	19.8	
		-	F								ŀF			Logged by D O Cheek.	9.			
														Logged by D O Cheek.				
NCDOT CORE SINGLE BORE_CORELOGS.GPJ NC_DOT.GDT 08/05/11																		
NCDO I CO			- - -															



38617.1.1 (B-4847)
Wilkes Co.
Bridge No. 42 on SR-2486
Over Moravian Creek
EB1-A
Box 1 of 1



38617.1.1 (B-4847)
Wilkes Co.
Bridge No. 42 on SR-2486
Over Moravian Creek
EB2-B
Box 1 of 1



38617.1.1 (B-4847)
Wilkes Co.
Bridge No. 42 on SR-2486
Over Moravian Creek
EB1-B
Box 1 of 2



38617.1.1 (B-4847)
Wilkes Co.
Bridge No. 42 on SR-2486
Over Moravian Creek
EB1-B
Box 2 of 2



38617.1.1 (B-4847)
Wilkes Co.
Bridge No. 42 on SR-2486
Over Moravian Creek
EB2-A
Box 1 of 2



38617.1.1 (B-4847)
Wilkes Co.
Bridge No. 42 on SR-2486
Over Moravian Creek
EB2-A
Box 2 of 2

Template Revised 02/07/06



FIELD SCOUR REPORT

WBS:	38617.1.1 TIP: B-4847 COUNTY: Wilkes
DESCRIPTION(1): Brid	dge No. 42 on SR-2486 over Moravian Creek
	EXISTING BRIDGE
Information from:	Field Inspection X Microfilm (reel pos:) Other (explain)
Bridge No.: 42 Foundation Type: Foo	Length: 40ft Total Bents: 2 Bents in Channel: 0 Bents in Floodplain: 2 otings.
EVIDENCE OF SCO Abutments or End	Bent Slopes: None noted.
Interior Bents:	
Channel Bed: Nor	ne noted.
Channel Bank: Nor	ne noted.
EXISTING SCOUR I Type(3): Wo	PROTECTION oden end-bent walls and wingwalls. Boulder rip-rap from EB2-B to centerline.
Extent(4): Wir	ngwalls extend eight feet beyond end-bent walls.
Effectiveness(5): Goo	od.
Obstructions(6): Roc	ck outcrops in stream upstream of bridge; abundant boulders in stream downstream.

INSTRUCTIONS

- 1 Describe the specific site's location, including route number and body of water crossed.
- 2 Note scour evidence at existing end bents or abutments (e.g. undermining, sloughing, degradations).
- 3 Note existing scour protection (e.g. rip rap).
- 4 Describe extent of existing scour protection.
- 5 Describe whether or not the scour protection appears to be working.
- 6 Note obstructions such as dams, fallen trees, debris at bents, etc.
- 7 Describe the channel bed material based on observation and/or samples. Include any lab results with report.
- 8 Describe the channel bank material based on observation and/or samples. Include any lab results with report.
- 9 Describe the material covering the banks (e.g. grass, trees, rip rap, none).
- 10 Determine the approximate floodplain width from field observation or a topographic map.
- 11 Describe the material covering the floodplain (e.g. grass, trees, crops).
- 12 Use professional judgement to specify if the stream is degrading, aggrading, or static.
- 13 Describe potential and direction of the stream to migrate laterally during the bridge's life (approx. 100 years).
- Give the design scour elevation (DSE) expected over the life of the bridge (approx. 100 years). This elevation can be given as a range across the site, or for each bent. Discuss the relationship between the Hydraulics Unit theoritical scour and the DSE. If the DSE is dependent on scour counter measures, explain (e.g. rip rap armoring on slopes). The DSE is based on the erodability of materials, giving consideration to the influence of joints, foliation, bedding characteristics, % core recovery, % RQD, differential weathering, shear strength, observations at existing structures, other tests deemed appropriate, and overall geologic conditions at the site.

				DE	SIGN IN	<u>IFORM</u>	<u>ATIOI</u>	<u> </u>			*	
Channe	el Bed Mate	erial(7)			Alluvial s				downstre	eam.		
Channel	Bank Mate	erial(8)		d with g								
Channe	el Bank Co	over(9):	: Shrubbe							-		
Floo	Floodplain Width(10): <u>EB1: +/- 50ft</u> . EB2 > 100ft.											
-	Floodplain Cover(11): EB1-B: grass. Otherwise, trees and shurbberies.											
1100												
	Stream is(12): Aggrading Degrading X Static											
hannel Migratio	on Tenden	icy(13):	East				,					
Observations	and Othe	r Comr	ments:									
		Re	eported b	y:				an			8/5/20)11
DESIGN SCOUR ELEVATIONS(14) Feet Meters												
BENTS												
	. Г		Π					T .	<u> </u>			
4												
0	[
Comparison of The Geotechr						aulice I In	it's ther	oretical so	our in the	roport de	atod	
18 July 2011.	The end-b	ents w	ill not be a	affected	l.	aunes On	113 11100	or elicar so	out in the	report de	2160	
	. DS	E dete	rmined b	y:		CAD	unnaga	an		Date:	8/10/2	011
												*
SOIL ANALY Bed or Bank		LISF	ROM CHA	ANNEL	BED AN	DBANK	MAIL	RIAL	<u> </u>	Т		
Sample No.												
Retained #4												
Passed #10				_								
Passed #40 Passed #200												
Coarse Sand												
Fine Sand				+								
Silt			***************************************									
Clay												
LĹ												
PI												
AASHTO											·····	
Station Offset											·	
Depth												