Ò REFERENCE **CONTENTS**

DESCRIPTION

TITLE SHEET

LEGEND SITE PLAN

PROFILE

BORE LOGS SITE PHOTOGRAPH

SHEET NO.

5, 6

STATE OF NORTH CAROLINA

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

STRUCTURE SUBSURFACE INVESTIGATION

COUNTY SCOTLAND

PROJECT DESCRIPTION BRIDGE NO. 43 ON SR 1645 (DIXIE GUANO ROAD) OVER LEITH'S CREEK

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-5746	1	7

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.

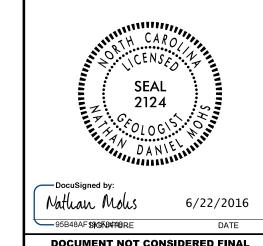
GENERAL SOIL AND ROCK STRATA DESCRIPTIONS AND INDICATED BOUNDARIES ARE BASED ON A GEOTECHNICAL INTERPRETATION OF ALL AVAILABLE SUBSURFACE DATA AND MAY NOT NECESSARILY REFLECT THE ACTUAL SUBSURFACE CONDITIONS BETWEEN BORINGS OR BETWEEN SAMPLED STRATA WITHIN THE BOREHOLE. THE LABORATORY SAMPLE DATA AND 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, LG CAROLINA DRILLING M. RADFORD W. HAMER INVESTIGATED BY N. MOHS, LG DRAWN BY N. MOHS, LG SUBMITTED BY N. MOHS, LG

PERSONNEL



DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

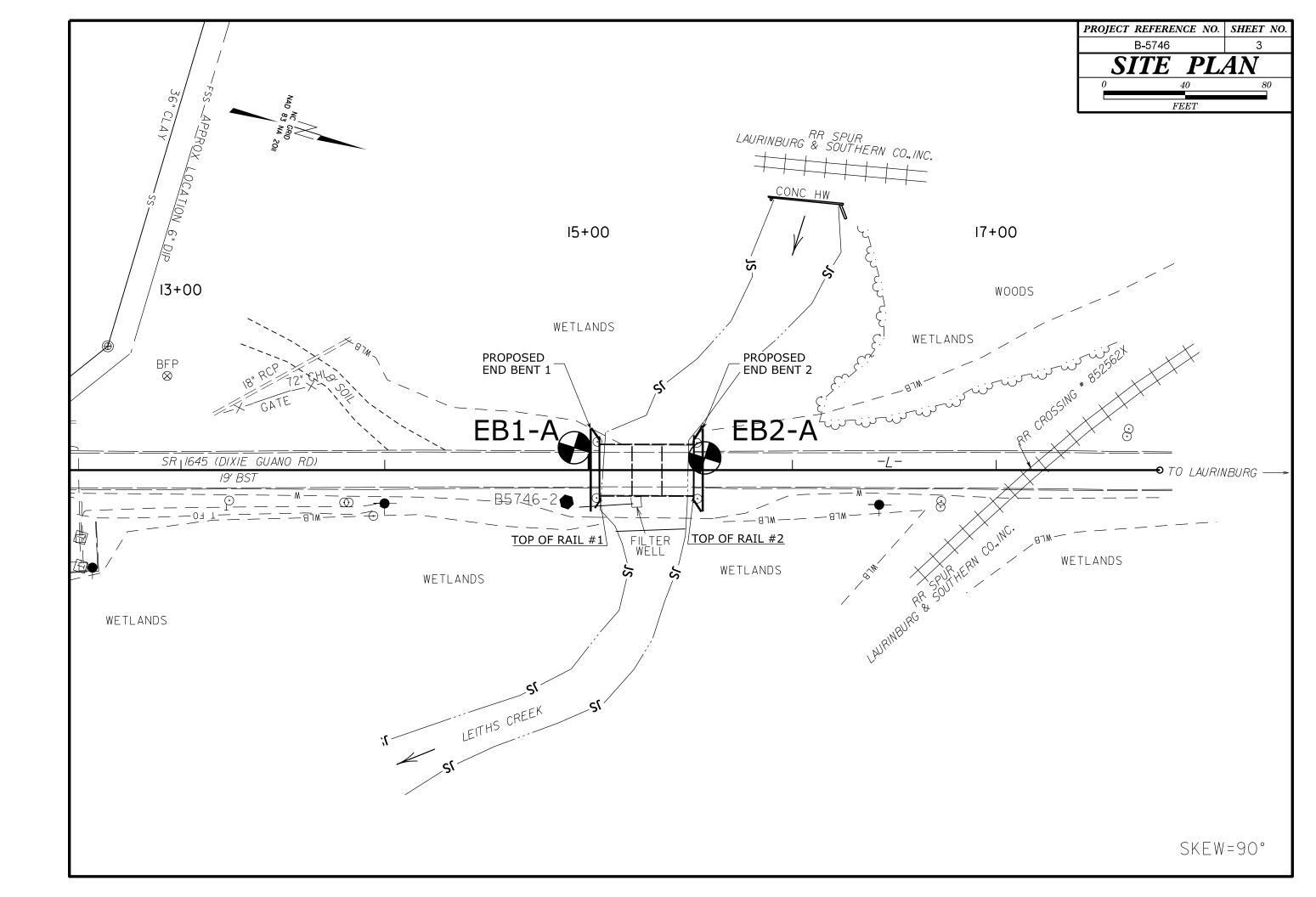
PROJECT REFERENCE NO. SHEET NO. 2

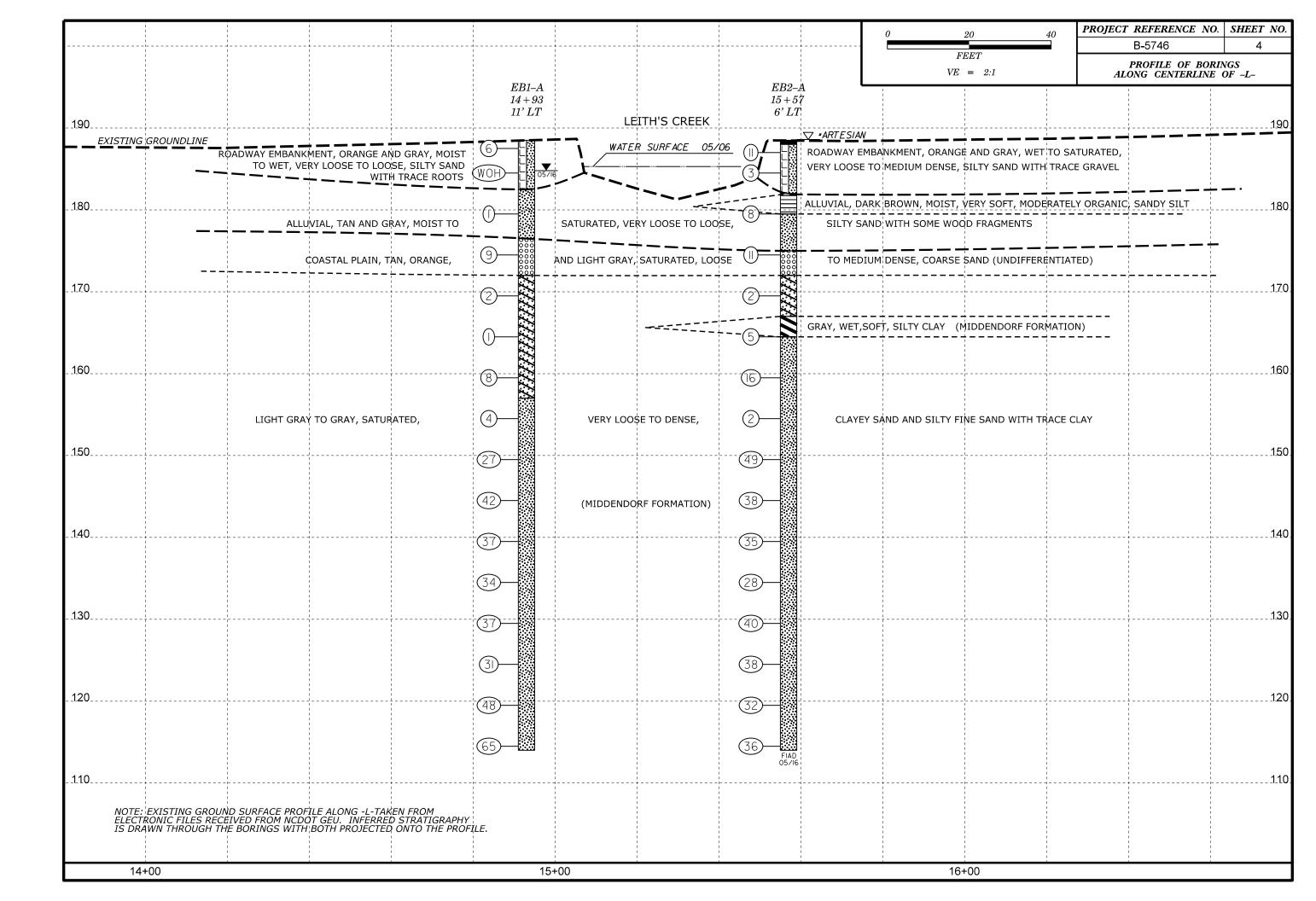
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS GEOTECHNICAL ENGINEERING UNIT

SUBSURFACE INVESTIGATION

SOIL AND ROCK LEGEND, TERMS, SYMBOLS, AND ABBREVIATIONS

001, 07000101			
SOIL DESCRIPTION	GRADATION	ROCK DESCRIPTION HARD ROCK IS NON-COASTAL PLAIN MATERIAL THAT WOULD YIELD SPT REFUSAL IF TESTED. AN INFERRED	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. UNIFORMLY GRADED - INDICATES THAT SOIL PARTICLES ARE ALL APPROXIMATELY THE SAME SIZE.	ROCK LINE INDICATES THE LEVEL AT WHICH NON-COASTAL PLAIN MATERIAL WOULD YIELD SPT REFUSAL.	ALLUVIUM (ALLUV.) - SOILS THAT HAVE BEEN TRANSPORTED BY WATER.
ACCORDING TO THE STANDARD PENETRATION TEST (AASHTO T 206, ASTM DI586). SOIL CLASSIFICATION IS BASED ON THE AASHTO SYSTEM. BASIC DESCRIPTIONS GENERALLY INCLUDE THE FOLLOWING:	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.
CONSISTENCY, COLOR, TEXTURE, MOISTURE, AASHTO CLASSIFICATION, AND OTHER PERTINENT FACTORS SUCH	ANGULARITY OF GRAINS	REPRESENTED BY A ZONE OF WEATHERED ROCK. ROCK MATERIALS ARE TYPICALLY DIVIDED AS FOLLOWS:	ARENACEOUS - APPLIED TO ROCKS THAT HAVE BEEN DERIVED FROM SAND OR THAT CONTAIN SAND. ARGILLACEOUS - APPLIED TO ALL ROCKS OR SUBSTANCES COMPOSED OF CLAY MINERALS, OR HAVING
AS MINERALOGICAL COMPOSITION, ANGULARITY, STRUCTURE, PLASTICITY, ETC. FOR EXAMPLE, VERY STIFF, GRAY, SILTY CLAY, MOIST WITH INTERBEDDED FINE SAND LAYERS, HIGHLY PLASTIC, A-7-6	THE ANGULARITY OR ROUNDNESS OF SOIL GRAINS IS DESIGNATED BY THE TERMS:	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	ANGULAR, SUBANGULAR, SUBROUNDED, OR ROUNDED.	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 ORGANIC MATERIALS	MINERALOGICAL COMPOSITION	CRYSTALLINE FINE TO COARSE GRAIN IGNEOUS AND METAMORPHIC ROCK THAT	WHICH IT IS ENCOUNTERED, BUT WHICH DOES NOT NECESSARILY RISE TO OR ABOVE THE GROUND SURFACE.
LLASS. (\$\(\sigma\) 39% PASSING "200) (> 39% PASSING "200)	MINERAL NAMES SUCH AS QUARTZ, FELDSPAR, MICA, TALC, KAOLIN, ETC. ARE USED IN DESCRIPTIONS WHEN THEY ARE CONSIDERED OF SIGNIFICANCE.	ROCK (CR) WOOLD FIELD SPI REFUSAL IF TESTED, ROCK TIPE INCLUDES GRANTE, GNEISS, GABBRO, SCHIST, ETC.	CALCAREOUS (CALC.) - SOILS THAT CONTAIN APPRECIABLE AMOUNTS OF CALCIUM CARBONATE.
GROUP A-1 A-3 A-2 A-4 A-5 A-6 A-7 A-1, A-2 A-4, A-5 CLASS. A-1-0 A-1-0 A-1-0 A-2-4 A-2-5 A-2-6 A-2-7 A-1-0 A-2-6 A-3-7-5 A-3 A-6, A-7	COMPRESSIBILITY	NON-CRYSTALLINE FINE TO COARSE GRAIN METAMORPHIC AND NON-COASTAL PLAIN SEDIMENTARY ROCK THAT WOULD YELLD SPT REFUSAL IF TESTED.	COLLUVIUM - ROCK FRAGMENTS MIXED WITH SOIL DEPOSITED BY GRAVITY ON SLOPE OR AT BOTTOM
SYMBOL 0000 d0000 d00000 d0000 d00000 d0000 d00000 d0000 d00000 d0000 d00000 d0000 d00000 d0000 d000000	SLIGHTLY COMPRESSIBLE LL < 31	ROCK TYPE INCLUDES PHYLLITE, SLATE, SANDSTONE, ETC.	OF SLOPE.
7. PASSING	MODERATELY COMPRESSIBLE LL = 31 - 50 HIGHLY COMPRESSIBLE LL > 50	COASTAL PLAIN SEDIMENTARY ROCK COASTAL PLAIN SEDIMENTS CEMENTED INTO ROCK, BUT MAY NOT YIELD 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 SIL1- MUCK,	PERCENTAGE OF MATERIAL	(CP) SHELL BEDS, ETC. WEATHERING	DIKE - A TABULAR BODY OF IGNEOUS ROCK THAT CUTS ACROSS THE STRUCTURE OF ADJACENT
*40 30 MX 50 MX 51 MN PEAT *200 15 MX 25 MX 10 MX 35 MX 35 MX 35 MX 36 MN 36 MN 36 MN 36 MN 36 MN 36 MN	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.	DIP - THE ANGLE AT WHICH A STRATUM OR ANY PLANAR FEATURE IS INCLINED FROM THE HORIZONTAL.
PASSING *40 40 MX 41 MN	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
PI 6 MX NP 10 MX 10 MX 11 MN 11 MN 10 MX 10 MX 11 MN 11 MN LITTLE UR 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.
GROUP INDEX 0 0 0 4 MX 8 MX 12 MX 16 MX NO MX AMOUNTS OF SOUR	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 SIDES RELATIVE TO ONE ANOTHER PARALLEL TO THE FRACTURE.
USUAL TYPES STONE FRAGS. FINE SILTY OR CLAYEY SILTY CLAYEY MATTER		(SLI.) 1 INCH. OPEN JOINTS MAY CONTAIN CLAY. IN GRANITOID ROCKS SOME OCCASIONAL FELDSPAR CRYSTALS ARE DULL AND DISCOLORED, CRYSTALLINE ROCKS RING UNDER HAMMER BLOWS.	FISSILE - A PROPERTY OF SPLITTING ALONG CLOSELY SPACED PARALLEL PLANES.
OF MAJOR GRAYEL AND SAND GRAVEL AND SAND SOILS SOILS	STATIC WATER LEVEL AFTER 24 HOURS	MODERATE SIGNIFICANT PORTIONS OF ROCK SHOW DISCOLORATION AND WEATHERING EFFECTS. IN	FLOAT - ROCK FRAGMENTS ON SURFACE NEAR THEIR ORIGINAL POSITION AND DISLODGED FROM
GEN. RATING EYELLENT TO COOD EAR TO POOR FAIR TO POOR INSUITABLE		(MOD.) GRANITOID ROCKS, MOST FELDSPARS ARE DULL AND DISCOLORED, SOME SHOW CLAY, ROCK HAS DULL SOUND UNDER HAMMER BLOWS AND SHOWS SIGNIFICANT LOSS OF STRENGTH AS COMPARED	PARENT MATERIAL.
AS SUBURADE PUUR	O-MI► SPRING OR SEEP	WITH FRESH ROCK.	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		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 COMPAGENESS OF RANGE OF STANDARD RANGE OF UNCONFINED	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 COMPACTIVES OF PENETRATION RESISTENCE COMPRESSIVE STRENGTH	ROADWAY EMBANKMENT (RE) 25/025 DIP & DIP DIRECTION	<u>IF TESTED, WOULD YIELD SPT REFUSAL</u>	LEDGE - A SHELF-LIKE RIDGE OR PROJECTION OF ROCK WHOSE THICKNESS IS SMALL COMPARED TO
(N-VALUE) (TUNS/FT-)	WITH SOIL DESCRIPTION → OF ROCK STRUCTURES	SEVERE ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED, ROCK FABRIC CLEAR AND EVIDENT BUT (SEV.) REDUCED IN STRENGTH TO STRONG SOIL. IN GRANITOID ROCKS ALL FELDSPARS ARE KAOLINIZED	ITS LATERAL EXTENT.
GENERALLY VERY LOOSE	SOIL SYMBOL SOIL SYMBOL 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 ALL BOCK EXCEPT DIJARTZ DISCOLORED OR STAINED, ROCK FARRIC ELEMENTS ARE DISCERNIRLE	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 AUGER BURING TEST	VERY ALL ROCK EXCEPT OUARTZ 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	── 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 < 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 MN MONITORING WELL TEST BORING	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.
MATERIAL STIFF 8 TO 15 1 TO 2 (COHESIVE) VERY STIFF 15 TO 30 2 TO 4	WITH CORE A STATE OF THE CORE POINT OF THE CORE PIEZOMETER PIEZOMETER COLUMN OF THE CORE	SCATTERED CONCENTRATIONS. QUARTZ MAY BE PRESENT AS DIKES OR STRINGERS. SAPROLITE IS ALSO AN EXAMPLE.	ROCK QUALITY DESIGNATION (RQD) - A MEASURE OF ROCK QUALITY DESCRIBED BY TOTAL LENGTH OF ROCK SEGMENTS EQUAL TO OR GREATER THAN 4 INCHES DIVIDED BY THE TOTAL LENGTH OF CORE
HARD > 30 > 4	→ ALLUVIAL SOIL BOUNDARY ALLUVIAL SOIL BOUNDARY 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	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	SHALLOW STEET OF STEET 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	UNDERCUT ACCEPTABLE DEGRADABLE ROCK 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	SLICKENSIDE - 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 SIZE IN. 12 3	AR - AUGER REFUSAL MED MEDIUM VST - VANE SHEAR TEST BT - BORING TERMINATED MICA MICACEOUS WEA WEATHERED	BY MODERATE BLOWS. MEDIUM CAN BE GROOVED OR COUGED 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
	CL CLAY MOD MODERATELY γ - UNIT WEIGHT	HARD CAN BE EXCAVATED IN SMALL CHIPS TO PEICES 1 INCH MAXIMUM SIZE BY HARD BLOWS OF THE	WITH A 2 INCH OUTSIDE DIAMETER SPLIT SPOON SAMPLER. SPT REFUSAL IS PENETRATION EQUAL
SOIL MOISTURE - CORRELATION OF TERMS SOIL MOISTURE SCALE FIELD MOISTURE CAUGE FOR ANION MOISTURE CONTROL MO	CPT - CONE PENETRATION TEST NP - NON PLASTIC 7 _d - DRY UNIT WEIGHT CSE COARSE ORG ORGANIC	POINT OF A GEOLOGIST'S PICK.	TO OR LESS THAN 0.1 FOOT PER 60 BLOWS. STRATA CORE RECOVERY (SREC.) - TOTAL LENGTH OF STRATA MATERIAL RECOVERED DIVIDED BY
(ATTERBERG LIMITS) OBSCRIPTION GUIDE FOR FIELD MOISTURE DESCRIPTION	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	TOTAL LENGTH OF STRATUM AND EXPRESSED AS A PERCENTAGE.
- SATURATED - USUALLY LIQUID; VERY WET, USUALLY	DPT - DYNAMIC PENETRATION TEST SAP SAPROLITIC S - BULK e - VOID RATIO SD SAND, SANDY SS - SPLIT SPOON	PIECES CAN BE BROKEN BY FINGER PRESSURE.	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	VERY CAN BE CARVED WITH KNIFE. CAN BE EXCAVATED READILY WITH POINT OF PICK, PIECES 1 INCH SOFT OR MORE IN THICKNESS CAN BE BROKEN BY FINGER PRESSURE. CAN BE SCRATCHED READILY BY	THE TOTAL LENGTH OF STRATA AND EXPRESSED AS A PERCENTAGE.
PLASTIC CEMISOLID, DEGUIDES ORVING TO	FOSS FOSSILIFEROUS SLI SLIGHTLY RS - ROCK FRAC FRACTURED, FRACTURES TCR - TRICONE REFUSAL RT - RECOMPACTED TRIAXIAL	FINGERNAIL.	TOPSOIL (TS.) - SURFACE SOILS USUALLY CONTAINING ORGANIC MATTER.
(P) ATTAIN OPTIMUM MOISTURE	FRAGS FRAGMENTS	FRACTURE SPACING BEDDING	BENCH MARK: B5746-2; N: 370169.2978, E: 1868318.5767
" PLL + PLASTIC LIMIT -	EQUIPMENT USED ON SUBJECT PROJECT	TERM SPACING TERM THICKNESS VERY WIDE MORE THAN 10 FEET VERY THICKLY BEDDED 4 FEET	ELEVATION: 188.19 FEET
OM OPTIMUM MOISTURE - MOIST - (M) SOLID; AT OR NEAR OPTIMUM MOISTURE	DRILL UNITS: ADVANCING TOOLS: HAMMER TYPE:	WIDE 3 TO 10 FEET THICKLY BEDDED 1.5 - 4 FEET MODERATELY CLOSE 1 TO 3 FEET THINLY BEDDED 0.16 - 1.5 FEET	ELEANITON: 100'13 LEET
SL SHRINKAGE LIMIT	X CME-45C CLAY BITS X AUTOMATIC MANUAL	CLOSE 0.16 TO 1 FOOT VERY THINLY BEDDED 0.03 - 0.16 FEET	NOTES:
- DRY - (D) REQUIRES ADDITIONAL WATER TO ATTAIN OPTIMUM MOISTURE	6° CONTINUOUS FLIGHT AUGER CORE SIZE:	VERY CLOSE LESS THAN 0.16 FEET THICKLY LAMINATED 0.008 - 0.03 FEET THINLY LAMINATED < 0.008 FEET	TOP OF RAIL #1 ELEV.= 199.4 FEET TOP OF RAIL #2 ELEV.= 199.3 FEET
PLASTICITY	CME-55 CORE SIZE; CORE SIZE; -BH	INDURATION	TOT OF TABLE 2 ELLVI- 133.3 FEET
PLASTICITY INDEX (PI) DRY STRENGTH	CME-550 HARD FACED FINGER BITS	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 CASING W/ ADVANCER HAND TOOLS:	GENILE BLUW BY HAMMER DISINTEURATES SAMPLE.	
HIGHLY PLASTIC 26 OR MORE HIGH	PORTABLE HOIST X TRICONE 21/2 STEEL TEETH HAND AUGER	MODERATELY INDURATED GRAINS CAN BE SEPARATED FROM SAMPLE WITH STEEL PROBE; BREAKS EASILY WHEN HIT WITH HAMMER.	
COLOR	TRICONE TUNGCARB. SOUNDING ROD	INDURATED GRAINS ARE DIFFICULT TO SEPARATE WITH STEEL PROBE;	
DESCRIPTIONS MAY INCLUDE COLOR OR COLOR COMBINATIONS (TAN, RED, YELLOW-BROWN, BLUE-GRAY).	CORE BIT VANE SHEAR TEST	DIFFICULT TO BREAK WITH HAMMER.	
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: 8-15-1
		China E Chemic Horizon China	BATEL 0 13 1





	-
	E

SHEET 5

SITE DESCRIPTION Bridge No. 43 on SR 1645 (Dixie Guano Road) over Leith's Creek GROUND WTR (ft)	WBS	45702	2.1.1			Т	I P B-5746		COUNT	Y SCOTLA	AND			GEOLOGIS	ST N. Mohs	. LG		
BORING NO. EBI-A				l Brid	dae No			ie Gua								GROUND WTR (ft)		
COLLAR ELEV. 188 5 ft TOTAL DEPTH 74.5 ft NORTHING 370,165 EASTING 1,868,292 24 HR 3.7 PRILL ROPAMMER FF,DATE BYZDY ACM-92 795,96020275 DRILL ROWN BY MARKER TYPE Adornals DEPTH NA CHARLES ACCORDING TO THE PROPERTY OF THE P														ALIGNMEN	NT -L-	ł	N/A	
DRILLE RIGHAMMER EFF.DATE SR02974 CNE-46C 79% 50032015 COMP. DATE 50725716 SURFACE WATER DEPTH N/A	COLI	LAR ELI	EV . 18	38.5 ft					:			65				24 HR.	3.7	
DRILLER M. Radford						<u> </u>	CME-45C 79% 06	03/2015		l) Mu			<u> </u>	Automatic	
ELECY Part P										COMP. DA				· ·	WATER DEF			
(th) (th) (th) (th) (th) (th) (th) (th)	ELEV	DRIVE	DEPTH	BLO	DW CO						SAMP.			1	COIL AND DO	OK DEGG	PDIDTION	
185			(ft)	0.5ft	0.5ft	0.5ft	0 25	5	50	75 100	NO.	MOI			SOIL AND RO	CK DESC	RIPTION	
185																		
185	190													_				
180		188.5	0.0	4	3	3	1 1					M	-	188.5				0.0
Worl	405	185.5	3.0				$\left \left \int_{1}^{6} \cdot \cdot \cdot \right \cdot $					"		Or	ange and Gray	, Silty Sar		ce
180	185	-100.0	- 0.0	WOH	WOH	WOH	0			1		w		-		10013		
180 180.5			‡											182.5	<u>-</u>	Ι ΙΙνίΔι		6.0
175 175.5 13.0 3 4 5	180	180.5	8.0	2	1	0	.					C		Tan,	Silty Sand with	Some W	ood Fragn	nents
175		-	<u> </u>	-	'		$\left \begin{array}{cccccccccccccccccccccccccccccccccccc$					Sal.	<u></u>					
170		175.5	13.0				\\:::: :						000			TAI DI A		12.0
170 170.5 18.0 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	175	175.5	13.0	3	4	5	9		 	 		Sat.		-	Tan and Ora	nge, Coar	se Sand	
170		-	ŧ				: <i>j</i> : : : :							172.0			<u></u>	16.5
165	170	170.5	18.0	2	1	1	/ .							_				
160		-	ŧ	-	'		$\begin{bmatrix} \mathbf{\Phi}^2 & \dots & \vdots \\ 1 & \dots & \ddots & \vdots \end{bmatrix}$					Sat.						
160		165.5	1 ,,,				: : : : :											
3 4 4 3 3 4 4 4 3 3 4 4 4 3 3 4 4 4 5 3 4 4 5 3 4 5 4 5	165	105.5	23.0	WOH	WOH	1	1		 	 		Sat.		-				
3 4 4 3 3 4 4 4 3 3 4 4 4 3 3 4 4 4 5 3 4 4 5 3 4 5 4 5		-	ł				\\:::: :											
155	160	160.5	28.0	,		1	1 .											
155		-	Ŧ	3	4	4	8					Sat.		_				
155		455.5											$\frac{1}{2}$	<u>157.0</u> Lic	ht Gray to Gra	y, Silty Fi	ne Sand w	<u>31</u> .5 ith
150	155	155.5	33.0	3	1	3	4					Sat.	Į.	-	Tra	ice Clay		
145		-	Ŧ						: : : :				F		(**********		,	
145	150	150.5	38.0		11	16	:::::::::::::::::::::::::::::::::::::		: : : :				F					
140		-	Ŧ	"	''	10	2	·				Sat.	F	_				
140			Ī					\	: : : :				E					
135	145	145.5	43.0	10	15	27		42				Sat.	Į.	=				
135		-	Ŧ					.] .	: : : :				E					
135	140	140.5	48.0	10	17	200		: j. :	: : : :									
130		-	Ŧ	12	17	20		9 37				Sat.		_				
130			Ī]::	: : : :									
130. 130.5 58.0 16 19 18 937 Sat. 125 125.5 63.0 36 16 15 31 Sat. 120 120.5 68.0 16 23 25 848 Sat. 115 115.5 73.0 23 32 33 Sat. 116 19 18 937 Sat. Sat. Sat. Sat. Sat. Sat. Sat. Sat. Sat. Boring Terminated at Elevation 114.0 ft in	135	135.5	<u> </u>	15	16	18	-	34		+		Sat.	 ‡	-				
16 19 18		-	Ŧ					· · ·					 ‡					
125	130	130.5	58.0	1.	10	1,0] :::: :	1::					:::					
120 120.5 + 68.0 16 23 25		-	Ŧ	16	19	18	.	• 37		1	1	Sat.	::: :	_				
120 120.5 + 68.0 16 23 25		:	Ŧ					<i> </i>					:::‡					
120 120.5 68.0 16 23 25	125	125.5	63.0	36	16	15	-	31		 		Sat.	::: : ‡	_				
115 115.5 73.0 23 32 33 Sat. Sat. Sat. Sat. Sat. Sat. Sat. Sat.		-	Ŧ				:::: :	XII.					::: ‡					
115 115.5 73.0 Sat. Sat. Sat. Sat. Sat. Sat. Sat. Sat.	120	120.5	68.0] :::: :	1.					::: ‡					
23 32 33 Sat. 114.0 Sat. Boring Terminated at Elevation 114.0 ft in		-	Ŧ	16	23	25	-		48	1	11	Sat.	:::: ‡	=				
23 32 33 Sat. 114.0 Sat. Boring Terminated at Elevation 114.0 ft in		:	Ŧ						X				::: ‡					
Boring Terminated at Elevation 114.0 ft in	115	115.5	73.0	23	32	33	-					Sat.	::: ‡	114 0				74 5
+ Silly Sailu (Middelluon Polifiation)		-	ļ				[-	, 😛 55		٦		+	Bor	ing Terminated	at Elevat	ion 114.0	ft in
		:	Ŧ										F		Only Garia (Will	ideniuun F	omation)	

+0.1

FIAD

GROUND WTR (ft)

GEOTECHNICAL BORING REPORT **BORE LOG**

WB	3 457	02.1.1			Т	IP B-5746	3		Y SCOTLA			GEOL	OGIST N. Mohs, LO	 G		WBS	S 45702	 2.1.1			TIP I	B-5746	COL	UNTY	SCOTL	AND			GEOLOGIST N. Mohs, Lo	 G			
			ON Br	idge N				l .	l) over Leith'				,		D WTR (ft)	∤	SITE DESCRIPTION Bridge No. 43 on SR 1645 (Dixie Guano Road									1	GROUND WTR						
		IO. EE				TATION 1	-		OFFSET			ALIGN	IMENT -L-	0 HR.	+0.1	l	BORING NO. EB2-A STATION 15+57				FFSET				ALIGNMENT -L-	0 HR. +							
COL	LAR E	LEV.	188.5	t	т	OTAL DEP	TH 74.5	ft	NORTHIN	3 370,2	28	EASTI	NG 1,868,278	24 HR.	FIAD	COLLAR ELEV. 188.5 ft TOTAL DEPTH 74.5 ft				NORTHING 370,228					EASTING 1,868,278 24 HR. F								
DRIL	L RIG/H	HAMMER	R EFF./D	ATE E	RI2974	CME-45C 79	% 06/03/201	5		DRILL N	IETHOD	Mud Rotary	H	AMMER TYPE	Automatic	DRIL	L RIG/HA	MMER EF	F./DATE	BRI297	74 CME-	-45C 79% 06/	03/2015	DRILL METHOD					HOD Mud Rotary HAMMER TYPE Automa				
DRII		M. Ra				TART DAT			COMP. DA	TE 05/2	25/16	SURFA	ACE WATER DEPTH	l N/A		DRII	DRILLER M. Radford			START DATE 05/25/16				COMP. DATE 05/25/16			/25/16		SURFACE WATER DEPTH	l N/A			
ELEV (ft)				OW CC				PER FOOT			P P		SOIL AND ROCK	DESCRIPTION		ELEV (ft)	LLLV	DEPTH_ (ft)	BLOW 0		_		OWS PER F		100	SAMP	/	0	SOIL AND ROCK	DESCRIPTION			
(10)	(ft)	(10)	/ 0.51	t 0.5ft	0.5π	110	25	50	75 100	NO.	/MOI G	ELEV. (ft)			DEPTH (ft)	(11)	(ft)	(1.5)	0.5ft 0.5	5π 0.5	οπ ⁰	25	50	75	100	NO.	MOI	G					
400																,,,							Matab Lin										
190		\pm										 - 188-5	GROUND S	SURFACE	0.0	110	 	<u>-</u>	+-		-+-		Match Lin	<u>e</u>		-+		┨╌┼	Note: Artesian Ground				
	188.0	0 0.5	5	5	6	· · · ·					w L	188.0	Asphalt (4 Inches)0 & St ROADWAY EM	tone Base (2 Inc	hes)			‡										-	Elevation 188.6 Feet, 4 Boring Sealed with G	Hours After Drilling. Fout and Bentonite.			
185	185.	5 + 3.0	3	2	1	<u>/····</u>					Sat.	<u>.</u>	Orange and Gray, Silt Grav	ty Sand with Trac	ce		_	‡															
		‡				🐧 : : :					Juli L	182.0	Giav	, CI	6.5			‡										-					
180	180.5	+ 5 + 8.0] <u>;</u> ;;;						F	ALLUV Dark Brown, Moderately		. — — — —			‡															
100		‡	2	1	7	. • 8	1				M	179.5	Gray, Silty		9.0		-	†										-					
		Ţ.,				: :::												†															
175	175.	5 † 13. †	0 4	5	6	11					Sat.	175.0	COASTAL	PLAIN	13.5		_	†															
		Ī				:/: : :					000	0 172.0	Light Gray, Co (Undifferer	parse Sand	16.5			<u> </u>															
170	170.5	5 <u> </u>	0 2	1	1	1 /					·//	Ĭ	Gray, Claye (Middendorf F	ey Sand				$ar{f H}$										E					
		Ŧ		'	'	♦ 2					Sat.	[(Midderidori i	orriation)				<u> </u>															
	165 (5 + 23.	١									167.0	Gray, Silt		21.5			<u> </u>										<u> </u>					
165	105.	+ 23.	wo	H 2	3	5	 	1			w	164.5	(Middendorf F Light Gray to Gray, S	,	24.0 th		-	<u> </u>										-					
		‡				: :							Trace ((Middendorf F	Clay				‡										-					
160	160.5	<u>5 + 28.</u>	0 5	8	8	1 \					Sat.	<u>.</u>	(Middelidell')	orridation)			_	‡															
		‡				/					Jai.	<u>}</u>						‡															
155	155.5	+ 5 + 33.	0] ;/: : :						<u></u>						‡										-					
133		‡	1	1	1	d 2	1	1			Sat.	<u></u>					-	‡										-					
		‡				:::::	. [: : :					<u>:</u>						‡															
150	150.5	5 + 38. +	0 14	23	26	 	1,,,,,	49			Sat	-					_	‡										ŀ					
		Ŧ					: : : ;	/ ```										†															
145	145.5	5 + 43.	0 12	10	1 20] : : : :	: : ;/:											Ŧ															
		Ŧ	12	18	20		●38				Sat.							[ΙE					
(0	4407	. I					: ;; :											$\frac{1}{2}$										l E					
140	140.3	5 + 48. 1	14	18	17	1	\$ 35	+			Sat.						-	-										<u> </u>					
GDT		‡					:/: : :					<u></u>						<u> </u>										<u> </u>					
135	135.5	5 + 53.	0 13	14	14		1				c _{ot}	<u>.</u>					_	‡															
S		‡	"	''	''		Q 28				Sat.							‡															
GP.	130 4	+ 5 + 58.	١				: '\ : :											‡															
H 130	-100.	+ 30.	15	19	21	1	40				Sat.						-	‡															
G004		‡					! .					<u>.</u>						‡															
유 125	125.5	5 + 63.	0 16	17	21]				Sat.	<u>-</u>					_	‡										l <u>E</u>					
GEO		‡									Oat.	<u>.</u>						‡															
120	120.5	+ 5 + 68.	0] ::::	:/:::					<u>:</u>						‡															
ы 120 щ	1	‡	13	14	18	1	. 932				Sat.	<u>;</u> }− ;}-						‡										-					
OUBL		‡							: : : : :			<u>:</u>						‡															
115	115.5	5 † 73 . †	0 10	18	18	 	36	ļ · · · ·			Sat.	114.0			74.5		_	‡															
0T BO		+					<u> </u> 30			4		- 114.0	Boring Terminated at E Silty Sand (Midden	Elevation 114.0 f				‡															
CDC		‡										F	Silly Sand (Wilden	idon i oilliduoll)				‡															
<u> </u>	1				1	1				-	 						-				_												

PROJECT REFERENCE NO.	SHEET NO.
B-5746	7

SITE PHOTOGRAPH



VIEW LOOKING SOUTH ALONG DIXIE GUANO ROAD