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REFERENCE

4692

STATE OF NORTH CAROLINA

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

CONTENTS

HEET NO.	<u>DESCRIPTION</u>
1	TITLE SHEET
2	LEGEND
3 , 4	PLAN AND PROFLES
5-II	BORING LOGS

STRUCTURE SUBSURFACE INVESTIGATION

COUNTY WAKE PROJECT DESCRIPTION NEW HOPE CHURCH ROAD GRADE SEPERATION OVER CSX RAIL LINE (CROSSING NO. 630607N AT M.P. S 152.32) SITE DESCRIPTION. -WALLI- STA. 8 + 24.66 TO -WALLI- STA. 13 + 78.38 -WALL2- STA. 10 + 00.00 TO -WALL2- STA. 18 + 08.99

STATE PROJECT REFERENCE NO. P-5715

CAUTION NOTICE

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

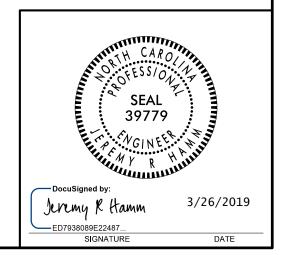
GENERAL SOIL AND ROCK STRATA DESCRIPTIONS AND INDICATED BOUNDARIES ARE BASED ON A GEOTECHNICAL INTERPRETATION OF ALL AVAILABLE SUBSURFACE DATA AND MAY NOT NECESSARILY REFLECT THE ACTUAL SUBSURFACE CONDITIONS BETWEEN BORNOS OR BETWEEN SAMPLED STRATA WITHIN THE BOREHOLE. THE LABORATORY SAMPLE DATA AND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

THE BIDDER OR CONTRACTOR IS CAUTIONED THAT DETAILS SHOWN ON THE SUBSURFACE PLANS ARE PRELIMINARY ONLY AND IN MANY CASES THE FINAL DESIGN DETAILS ARE DIFFERENT. FOR BIDDING AND CONSTRUCTION PURPOSES, REFER TO THE CONSTRUCTION PLANS AND DOCUMENTS FOR FINAL DESIGN INFORMATION ON THIS PROJECT. THE DEPARTMENT DOES NOT WARRAYT 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 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 FOO THE 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.

LANE, R.W. CROCKETT, S.C. INVESTIGATED BY __LANE, R.W. DRAWN BY __HILL, M. J. CHECKED BY _CROCKETT, S.C. SUBMITTED BY FALCON ENG. DATE MARCH 2019

PERSONNEL CAROLINA DRILLING



P-5715

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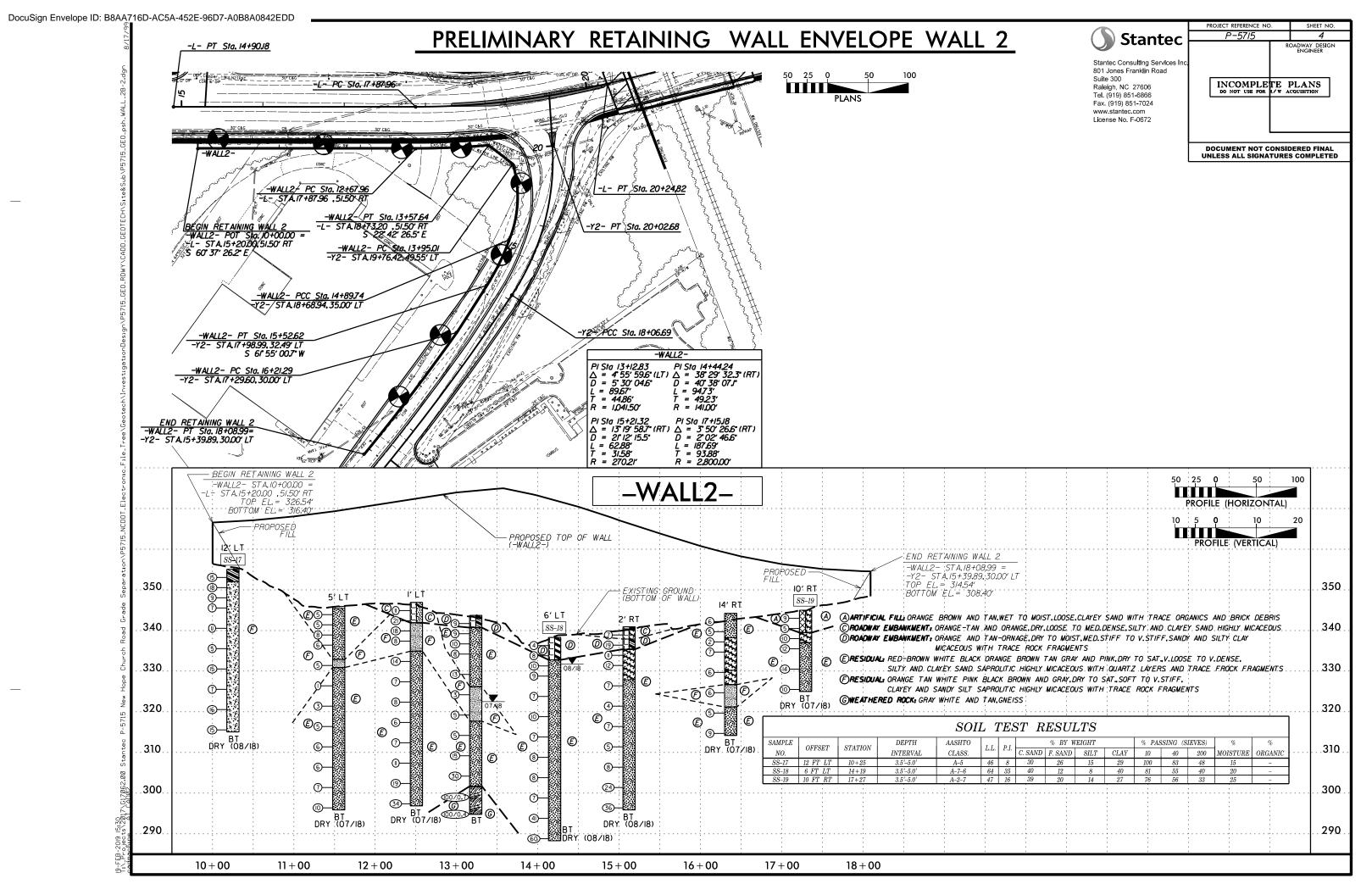
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS

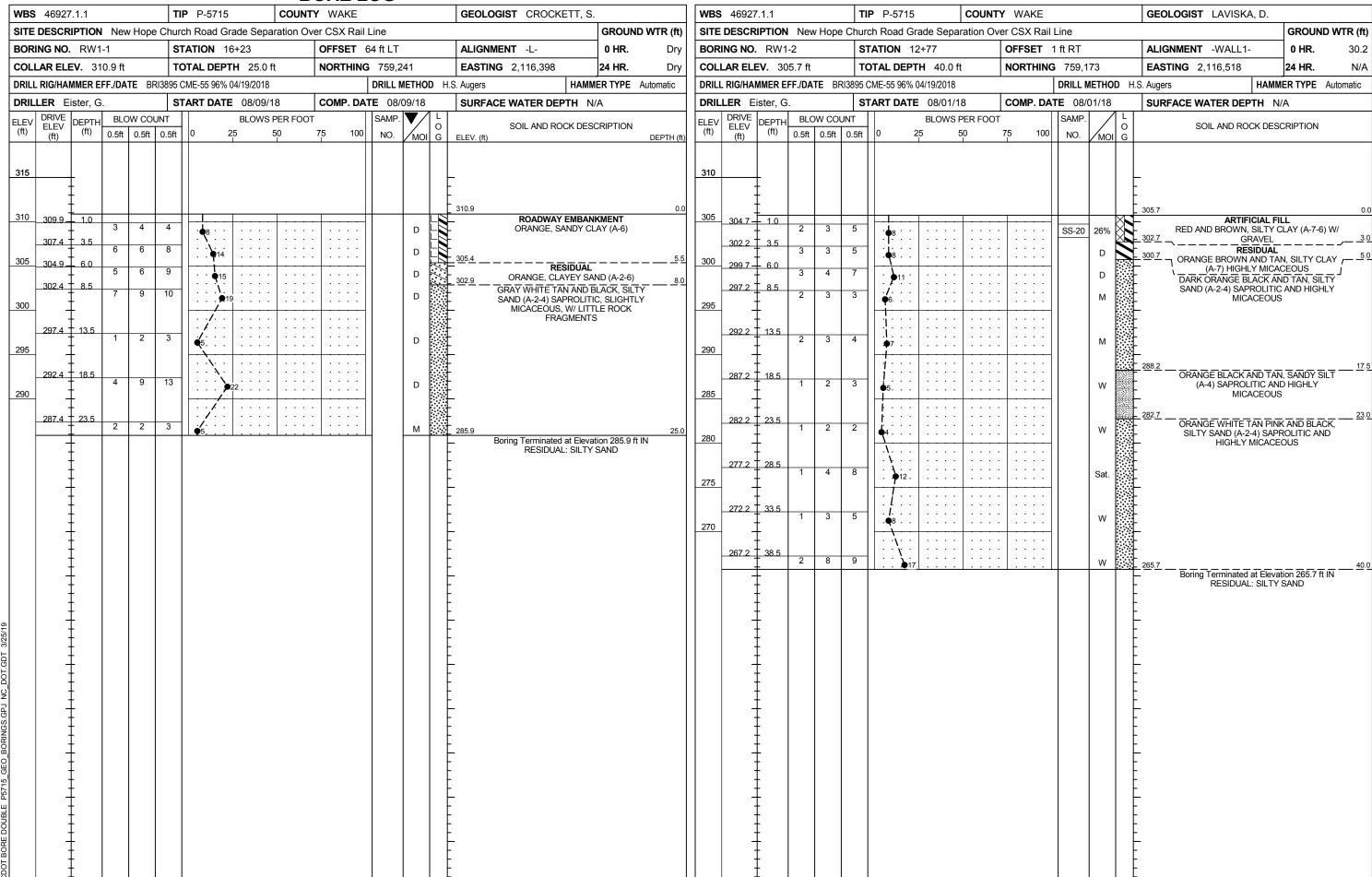
GEOTECHNICAL ENGINEERING UNIT

SUBSURFACE INVESTIGATION

SOIL AND ROCK LEGEND, TERMS, SYMBOLS, AND ABBREVIATIONS

SOIL DESCRIPTION	GRADATION	ROCK DESCRIPTION	TERMS AND DEFINITIONS
SOIL IS CONSIDERED UNCONSOLIDATED, SEMI-CONSOLIDATED, OR WEATHERED EARTH MATERIALS THAT CAN BE PENETRATED WITH A CONTINUOUS FLIGHT POWER AUGER AND YIELD LESS THAN 100 BLOWS PER FOOT ACCORDING TO THE STANDARD PENETRATION TEST (AASHTO T 206, ASTM DIS66). SOIL CLASSIFICATION IS BASED ON THE AASHTO SYSTEM, BASIC DESCRIPTIONS GENERALLY INCLUDE THE FOLLOWING: CONSISTENCY, COLOR, TEXTURE, MOISTURE, ASAHTO CLASSIFICATION, AND OTHER PERTINENT FACTORS SUCH	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. GAP-GRADED - INDICATES A MIXTURE OF UNIFORM PARTICLE SIZES OF TWO OR MORE SIZES. ANGULARITY OF GRAINS	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 WOUL YIELD SPT REFUSAL, 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 REPRESENTED BY A ZONE OF WEATHERED 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.
AS MINERALOGICAL COMPOSITION, ANGULARITY, STRUCTURE, PLASTICITY, ETC. FOR EXAMPLE, VERY STIFF, GRAY, SUTY CLAY, MOIST WITH INTERBEDOED FINE SAND LAYERS, HIGHLY PLASTIC, A-7-6 SOIL LEGEND AND AASHTO CLASSIFICATION GENERAL GRANLAR MATERIALS SILT-CLAY MATERIALS ORGANIC MATERIALS ORGANIC MATERIALS ORGANIC MATERIALS	THE ANGULARITY OR ROUNDNESS OF SOIL GRAINS IS DESIGNATED BY THE TERMS: ANGULAR, SUBANGULAR, SUBROUNDED, OR ROUNDED. MINERALOGICAL COMPOSITION	ROCK MATERIALS ARE TYPICALLY DIVIDED AS FOLLOWS: WEATHERED ROCK (WR) NON-COASTAL PLAIN MATERIAL THAT WOULD YIELD SPT N VALUES > 100 BLOWS PER FOOT IF TESTED. CRYSTALLINE ROCK MATERIALS ARE TYPICALLY DIVIDED AS FOLLOWS:	ARGILACEOUS - APPLIED TO ALL ROCKS OR SUBSTANCES COMPOSED OF CLAY MINERALS, OR HAVING A NOTABLE PROPORTION OF CLAY IN THEIR COMPOSITION, SUCH AS SHALE, SLATE, ETC. ARTESIAN - GROUND WATER THAT IS UNDER SUFFICIENT PRESSURE TO RISE ABOVE THE LEVEL AT WHICH IT IS ENCOUNTERED, BUT WHICH DOES NOT NECESSARILY RISE TO OR ABOVE THE GROUND
CLASS. (\$\leq 35\times \text{PASSING "2000}\) (> 35\times \text{PASSING "2000}\) CROUP CLASS. A-1 A-3 A-2 A-4 A-5 A-6 A-7 CLASS. A-1 A-1-b A-2-4 A-2-5 A-2-6 A-2-7 SYMBOL 000000000000000000000000000000000000	MINERAL NAMES SUCH AS QUARTZ, FELDSPAR, MICA, TALC, KAQLIN, ETC. ARE USED IN DESCRIPTIONS WHEN THEY ARE CONSIDERED OF SIGNIFICANCE. COMPRESSIBILITY SLIGHTLY COMPRESSIBLE LL 31 MODERATELY COMPRESSIBLE LL 31 - 50	ROCK (CR) WOULD YIELD SPT REFUSAL IF TESTED. ROCK TYPE INCLUDES GRANITE, GNEISS, GABBRO, SCHIST, ETC. NON-CRYSTALLINE ROCK (NCR) ROCK (NCR) ROCK TYPE INCLUDES GRANITE, GNEISS, GABBRO, SCHIST, ETC. FINE TO COASTAL PLAIN METAMORPHIC AND NON-COASTAL PLAIN SEDIMENTARY ROCK THAT WOULD YELLD SPT REFUSAL IF TESTED. ROCK TYPE INCLUDES PHYLLITE, SLATE, SANDSTONE, ETC. COASTAL PLAIN SEDIMENTS CEMENTED INTO ROCK, BUT MAY NOT YIELD	SURFACE. CALCAREOUS (CALC.) - SOILS THAT CONTAIN APPRECIABLE AMOUNTS OF CALCIUM CARBONATE. COLLUVIUM - ROCK FRAGMENTS MIXED WITH SOIL DEPOSITED BY GRAVITY ON SLOPE OR AT BOTTOM OF SLOPE.
7. PASSING 18	HIGHLY COMPRESSIBLE LL > 50 PERCENTAGE OF MATERIAL	SEDIMENTARY ROCK SPT REFUSAL. ROCK TYPE INCLUDES LIMESTONE, SANDSTONE, CEMENTED SHELL BEDS, ETC. WEATHERING	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 ROCKS OR CUTS MASSIVE ROCK.
**Z000	ORGANIC MATERIAL GRANULAR SILT - CLAY SOILS OTHER MATERIAL 1 TRACE OF ORGANIC MATTER 2 - 3% 3 - 5% TRACE 1 - 10% LITILE ORGANIC MATTER 3 - 5% 5 - 12% LITILE 10 - 20% MODERATELY ORGANIC 5 - 10% 12 - 20% SOME 20 - 35%	FRESH ROCK FRESH, CRYSTALS BRIGHT, FEW JOINTS MAY SHOW SLIGHT STAINING, ROCK RINGS UNDER HAMMER IF CRYSTALLINE. VERY SLIGHT ROCK GENERALLY FRESH, JOINTS STAINED, SOME JOINTS MAY SHOW THIN CLAY COATINGS IF OPEN,	DIP - 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 THE
LL 40 MX 41 MN LITTLE OR HIGHLY FI 6 MX NP 18 MX 18 MX 11 MN 18 MX 18 MX 11 MN 11 MN MODERATE GROUP INDEX 0 0 0 4 MX 8 MX 12 MX 16 MX ND MX GROUP INDEX 0 0 0 5 GROUP SOILS	HIGHLY ORGANIC > 10% > 20% HIGHLY 35% AND ABOVE GROUND WATER	(V SLI.) CRYSTALS ON A BROKEN SPECIMEN FACE SHINE BRIGHTLY. ROCK RINGS UNDER HAMMER BLOWS IF OF A CRYSTALLINE NATURE. SLIGHT ROCK GENERALLY FRESH, JOINTS STAINED AND DISCOLORATION EXTENDS INTO ROCK UP TO	LINE OF DIP, MEASURED CLOCKWISE FROM NORTH. FAULT - A FRACTURE OR FRACTURE ZONE ALONG WHICH THERE HAS BEEN DISPLACEMENT OF THE SIDES RELATIVE TO DNE ANOTHER PARALLEL TO THE FRACTURE.
USUAL TYPES STORE FRAGS. OF MAJOR GRAVEL, AND SAND GRAVEL AND SAND GRAVEL AND SAND GRAVEL AND SAND GRAVEL AND SAND FINE SILTY OF CLAYEY SILTY CLAYEY MATTER GEN. RATING EVEL ENT. TO COOD FAIR TO POOP FAIR TO POOP INSTIT		(SLI.) I INCH. OPEN JOINTS MAY CONTAIN CLAY. IN GRANITOID ROCKS SOME OCCASIONAL FELDSPAR CRYSTALS ARE DULL AND DISCOLORED. CRYSTALLINE ROCKS RING UNDER HAMMER BLOWS. MODERATE 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 STRENGTH AS COMPARED	
AS SUBGRADE	SPRING OR SEEP MISCELLANEOUS SYMBOLS Property (Property Company) SPRING OR SEEP	WITH FRESH ROCK. MODERATELY ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. IN GRANITOID ROCKS, ALL FELDSPARS DULL 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.	FLOOD PLAIN (FP) - LAND BORDERING A STREAM, BUILT OF SEDIMENTS DEPOSITED BY THE STREAM, 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.
PRIMARY SUIL TIPE	ROADWAY EMBANKMENT (RE) ### PROPORT OF ROCK STRUCTURES ### STATIFICIAL FILL (AF) OTHER ### HAN ROADWAY EMBANKMENT ### AUGER BORING ### COME PENETROMETER ### TEST ### COME PENETROMETER ### TEST ### OF ROCK STRUCTURES ### OF ROCK STRUCTUR	IF TESTED, WOULD YIELD SPT REFUSAL	LEDGE - A SHELF-LIKE RIDGE OR PROJECTION OF ROCK WHOSE THICKNESS IS SMALL COMPARED TO ITS LATERAL EXTENT. LENS - A BODY OF SOIL OR ROCK THAT THINS OUT IN ONE OR MORE DIRECTIONS. MOTILED (MOT.) - IRREGULARLY MARKED WITH SPOTS OF DIFFERENT COLORS, MOTTLING IN SOILS USUALLY INDICATES POOR AERATION AND LACK OF GOOD DRAINAGE.
VERT UENSE / 500 VERY SOFT < 2 < 0.25 GENERALLY SOFT 2 TO 4 0.25 TO 0.5 SILT-CLAY MEDIUM STIFF 4 TO 8 0.5 TO 1.0 MATERIAL STIFF 8 TO 15 1 TO 2 (COHESIVE) VERY STIFF 15 TO 300 2 TO 4	INFERRED SOIL BOUNDARY OF CORE BORING SOUNDING ROD TEST BORING WITH CORE TEST BORING WITH CORE WITH CORE TEST BORING WITH CORE WITH CORE TINSTALLATION SPI N-VALUE	SEVERE BUT MASS IS EFFECTIVELY REDUCED TO SOIL STATUS, WITH ONLY TRAMEMINS OF STRONG ROCK (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> 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 ALSO AN EXAMPLE.	PERCHED WATER - WATER MAINTAINED ABOVE THE NORMAL GROUND WATER LEVEL BY THE PRESENCE OF AN INTERVENING IMPERVIOUS STRATUM, 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 ROCK SEGMENTS EQUAL TO OR GREATER THAN 4 INCHES DIVIDED BY THE TOTAL LENGTH OF CORE RUN AND EXPRESSED AS A PERCENTAGE.
HARD > 30 > 4 TEXTURE OR GRAIN SIZE	RECOMMENDATION SYMBOLS	ROCK HARDNESS	SAPROLITE (SAP.) - RESIDUAL SOIL THAT RETAINS THE RELIC STRUCTURE OR FABRIC OF THE PARENT
U.S. STD. SIEVE SIZE 4 10 40 60 200 270 OPENING (MM) 4.76 2.00 0.42 0.25 0.075 0.053 BOULDER CORRE GRAVEL COARSE FINE SLIT CLAY	UNCLASSIFIED EXCAVATION - UNCLASSIFIED EXCAVATION - ACCEPTABLE, BUT NOT TO BE UNCLASSIFIED EXCAVATION - ACCEPTABLE, BUT NOT TO BE UNCLASSIFIED EXCAVATION - UNCLASSIFIED EXCAVATION - UNCLASSIFIED EXCAVATION - EMBANKMENT OR BACKFILL	VERY HARD CANNOT BE SCRATCHED BY KNIFE OR SHARP PICK. BREAKING OF HAND SPECIMENS REQUIRES SEVERAL HARD BLOWS OF THE GEOLOGIST'S PICK. HARD CAN BE SCRATCHED BY KNIFE OR PICK ONLY WITH DIFFICULTY. HARD HAMMER BLOWS REQUIRED TO DETACH HAND SPECIMEN.	ROCK. <u>SILL</u> - AN INTRUSIVE BODY OF IGNEOUS ROCK OF APPROXIMATELY UNIFORM THICKNESS AND RELATIVELY THIN COMPARED WITH ITS LATERAL EXTENT, THAT HAS BEEN EMPLACED PARALLEL TO THE BEDDING OR SCHISTOSITY OF THE INTRUDED ROCKS.
(BLDR.) (COB.) (GR.) (GR.) (CSE. SD.) (F SD.) (SL.) (CL.) GRAIN MM 305 75 2.0 0.25 0.05 0.005	ABBREVIATIONS AR - AUGER REFUSAL MED MEDIUM VST - VANE SHEAR TEST	MODERATELY CAN BE SCRATCHED BY KNIFE OR PICK. GOUGES OR GROOVES TO 0.25 INCHES DEEP CAN BE HARD EXCAVATED BY HARD BLOW OF A GEOLOGIST'S PICK. HAND SPECIMENS CAN BE DETACHED BY MODERATE BLOWS.	SLICKENSIDE - POLISHED AND STRIATED SURFACE THAT RESULTS FROM FRICTION ALONG A FAULT OR SLIP PLANE. STANDARD PENETRATION TEST (PENETRATION RESISTANCE) (SPT) - NUMBER OF BLOWS (N OR BPF) OF
SIZE IN. 12 3 SOIL MOISTURE - CORRELATION OF TERMS	BT - BORING TERMINATED MICA MICACEOUS WEA WEATHERED CL CLAY MOD MODERATELY 7 - UNIT WEIGHT CPT - CONE PENETRATION TEST NP - NON PLASTIC 7 - DRY UNIT WEIGHT	MEDIUM 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 1 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 OUTSIDE DIAMETER SPLIT SPOON SAMPLER, SPT REFUSAL IS PENETRATION EQUAL TO OR LESS THAN 0.1 FOOT PER 60 BLOWS.
SOIL MOISTURE SCALE FIELD MOISTURE GUIDE FOR FIELD MOISTURE DESCRIPTION - SATURATED - USUALLY LIQUID; VERY WET, USUALLY	CSE COARSE	SOFT CAN BE GROVED OR GOUGED READILY BY KNIFE OR PICK. CAN BE EXCAYATED 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. VERY CAN BE CARVED WITH KNIFE. CAN BE EXCAYATED READILY WITH POINT OF PICK. PIECES 1 INCH	STRATA CORE RECOVERY (SPEC.) - TOTAL LENGTH OF STRATA MATERIAL RECOVERED DIVIDED BY TOTAL LENGTH OF STRATUM AND EXPRESSED AS A PERCENTAGE. STRATA ROCK QUALITY DESIGNATION (SROD) - A MEASURE OF ROCK QUALITY DESCRIBED BY TOTAL LENGTH OF ROCK SEGMENTS WITHIN A STRATUM EQUAL TO OR GREATER THAN 4 INCHES DIVIDED BY
LL LIQUID LIMIT PLASTIC PLAS	F - FINE SL SILT, SILTY ST - SHELBY TUBE FOSS FOSSILIFEROUS SLI SLIGHTLY RS - ROCK FRACTURED, FRACTURED TICR - TRICONE REFUSAL RT - RECOMPACTED TRIAXIAL	SOFT OR MORE IN THICKNESS CAN BE BROKEN BY FINGER PRESSURE. CAN BE SCRATCHED READILY BY FINGERNAIL.	THE TOTAL LENGTH OF STRATA AND EXPRESSED AS A PERCENTAGE. <u>TOPSOIL (TS.)</u> - SURFACE SOILS USUALLY CONTAINING ORGANIC MATTER.
RANGE - WET - (W) SEMISOLIDI REGULARES DATING TO ATTAIN OPTIMUM MOISTURE (P1) PL PLASTIC LIMIT	FRAGS FRAGMENTS	FRACTURE SPACING BEDDING TERM SPACING TERM THICKNESS	BENCH MARK: BM-I - BENCH TIE NAIL IN 12" ELM
OM OPTIMUM MOISTURE - MOIST - (M) SOLID; AT OR NEAR OPTIMUM MOISTURE SL SHRINKAGE LIMIT	EQUIPMENT USED ON SUBJECT PROJECT DRILL UNITS: ADVANCING TOOLS: HAMMER TYPE: DRIVE TO SHAPE	VERY WIDE MORE THAN 10 FEET VERY THICKLY BEDDED 4 FEET WIDE 3 TO 10 FEET THICKLY BEDDED 1.5 - 4 FEET MODERATELY CLOSE 1 TO 3 FEET THINLY BEDDED 0.16 - 1.5 FEET	ELEVATION: 329.29 FEET NOTES:
- DRY - (D) REQUIRES ADDITIONAL WATER TO ATTAIN OPTIMUM MOISTURE	CME-45C □ CLAY BITS ☒ AUTOMATIC □ MANUAL X CME-55 ☒ 8* HOLLOW AUGERS ☐ CORE SIZE: □ -B □ -H □	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 THINLY LAMINATED < 0.008 FEET INDURATION	FIAD - FILLED IMMEDIATELY AFTER DRILLING
PLASTICITY NON PLASTIC PLASTICITY INDEX (PI) O-5 DRY STRENGTH VERY LOW SLIGHTLY PLASTIC 6-15 SLIGHT	CME-550X HARD FACED FINGER BITS TUNG,-CARBIDE INSERTS HAND TOOLS.	FOR SEDIMENTARY ROCKS, INDURATION IS THE HARDENING OF MATERIAL BY CEMENTING, HEAT, PRESSURE, ETC. RUBBING WITH FINGER FREES NUMEROUS GRAINS; GENTLE BLOW BY HAMMER DISINTEGRATES SAMPLE.	
MODERATELY PLASTIC 16-25 MEDIUM HIGHLY PLASTIC 26 OR MORE HIGH COLOR	CASING W/ ADVANCER POST HOLE DIGGER PORTABLE HOIST TRICONE STEEL TEETH HAND AUGER TRICONE TRUCONE SOUNDING ROD	MODERATELY INDURATED GRAINS CAN BE SEPARATED FROM SAMPLE WITH STEEL PROBE; BREAKS EASILY WHEN HIT WITH HAMMER. INDURATED 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.	CORE BIT SUUNDING HUD VANE SHEAR TEST	INDURATED OIFFICULT TO BREAK WITH HAMMER. EXTREMELY INDURATED SHAPP HAMMER BLOWS REQUIRED TO BREAK SAMPLE; SAMPLE BREAKS ACROSS GRAINS.	DATE: 8-15-1





WBS 46927.1.1		ITY WAKE	GEOLOGIST LAVISKA, D.		WB	S 46927.1.	1		TIP	P-5715		COUNTY	WAKE			GEO	LOGIST LANE, R.	
SITE DESCRIPTION New Hope (Church Road Grade Separation C	Over CSX Rail Line	1	GROUND WTR (ft)	SITI	E DESCRIPT	ION New	w Норе	Church	h Road Gra	de Separa	ation Ove	er CSX Rail	Line		· ·		GROUND WTR (ft)
BORING NO. RW1-3	STATION 11+84	OFFSET 3 ft RT	ALIGNMENT -WALL1-	0 HR. 11.2	BOF	RING NO. F	W1-4		STA	ATION 10-	+87		OFFSET	10 ft RT		ALIG	NMENT -WALL1-	0 HR. 30.2
COLLAR ELEV. 301.5 ft	TOTAL DEPTH 49.7 ft	NORTHING 759,123	EASTING 2,116,596	24 HR. 17.7	COL	LLAR ELEV.	295.9 ft		тот	TAL DEPTH	4 50.0 ft		NORTHING	759,0	91	EAS	ΓΙΝG 2,116,688	24 HR . N/A
DRILL RIG/HAMMER EFF./DATE BRIG	3895 CME-55 96% 04/19/2018	DRILL METHOD H.	S. Augers HAMN	MER TYPE Automatic	DRIL	L RIG/HAMME	R EFF./DA	TE BR	RI3895 CN	ME-55 96% 04	1/19/2018	<u>'</u>		DRILL M	IETHO	D H.S. Auger	s HAN	MMER TYPE Automatic
DRILLER Eister, G.	START DATE 08/02/18	COMP. DATE 08/02/18	SURFACE WATER DEPTH N	I/A	DRI	LLER Eiste	r, G.		STA	ART DATE	08/07/18	3	COMP. DA	TE 08/0	07/18	SUR	FACE WATER DEPTH	N/A
ELEV DRIVE ELEV (ft) DEPTH BLOW COUNTY (ft) 0.5ft 0.5ft (75 100 NO. MOI G	SOIL AND ROCK DES	CRIPTION DEPTH (ft)	ELE\ (ft)			0.5ft		0 25	BLOWS P		75 100	SAMP. NO.	MOI	L O G	SOIL AND ROCK DE	ESCRIPTION
305			-		300	+												
300.5 + 1.0	<u> </u>		301.5 ROADWAY EMBAN	0.0 IKMENT	295	1 +										295.9	0.3' TOPS	
298.0 3.5	2	M L	RED, SANDY CLAY (A-6)	3.0		294.9 1	.0 2	3	2	4 5· · ·					М		ROADWAY EMBA BROWN AND ORANG	E, SILTY CLAY
	1	: :::: M	RESIDUAL BROWN AND ORANGE, SA			292.4 + 3	.5 4	4	6					SS-21	20%		(A-7-5)	
295 295.5 + 6.0 2 2	2 4	M	-		290	289.9 6	.0 4	8	9	. 410 .						289.9	RESIDUA	6.0
293.0 8.5 1 2	$\frac{1}{3}$: : : : :				287.4 + 8	.5			· · ∮ 17					D		TAN GRAY WHITE ORAI BROWN, SILTY SAND (A	NGE BLACK AND
290	● 5···· · · · · · · · · · · · · · · · · ·		SILTY SAND (A-2-4) SAPI HIGHLY MICACE	ROLITIC AND EOUS	285		3	6	7	13.					D		AND HIGHLY MIC	CACEOUS
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268.0 33.5 8 9	10 • 19	· · · · · ·				262.4 + 3	3.5	2	4	1					Cot			
265			_		260		-	_	·	9 6					Sat.			
263.0 38.5	:::: ::::]`:`:					257.4 = 29				.								
	35	 				257.4 T 38	2	3	6						Sat.			
260			- 258 5	43.0	255	┤ ‡							1			<u> </u>		
258.0 43.5 46 54/0.4			WEATHERED R	OCK		252.4 + 43	3.5	4	8	1					0.1			
255			WHITE GIVAL AND FIN	NY, GIVEISS	250] ±				•12.					Sat.			
253.0 48.5		I I N//-/1				047.4	, _			: :': :								
29 64 3	6/0.2	100/0.7	251.8 Boring Terminated at Eleva	49.7 ation 251.8 ft IN		247.4 + 4	4	6	9						Sat.	245.9		50.0
9:			- WEATHERED ROCK	: GNEISS		+										l E	Boring Terminated at Ele RESIDUAL: SILT	
						1										<u> </u>		
			_			1 ±										L		
						1										E		
						1										E		
<u> </u>			-			 										F		
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WBS 46927.1.1		ITY WAKE	GEOLOGIST LANE, R.	WBS	S 46927	`.1.1		TIF	P P-5715	COUNTY WAKE			GEOL	OGIST LANE, R.		
SITE DESCRIPTION New Hope (Church Road Grade Separation O	Over CSX Rail Line	GROUND WTR (ft)				lew Hop	e Churc	ch Road Grade Sepa	ration Over CSX Rai	I Line		I	·	GROUND	WTR (ft)
BORING NO. RW1-5	STATION 8+38	OFFSET 36 ft RT	ALIGNMENT -WALL1- 0 HR. N/A	BOF	RING NO.	RW2-1		ST	TATION 10+25	OFFSET	12 ft LT		ALIGN	IMENT -WALL2-	0 HR.	24.1
COLLAR ELEV. 298.3 ft	TOTAL DEPTH 50.0 ft	NORTHING 758,924	EASTING 2,116,695 24 HR. N/A	COL	LAR ELE	V. 315.0	ft	тс	OTAL DEPTH 40.0 f	t NORTHIN	G 759,1	89	EASTI	NG 758,924	24 HR.	Dry
DRILL RIG/HAMMER EFF./DATE BRIS	3895 CME-55 96% 04/19/2018	DRILL METHOD H.	S. Augers HAMMER TYPE Automatic	DRIL	L RIG/HAN	MMER EFF./[DATE B	3RI3895 C	CME-55 96% 04/19/2018	I.	DRILL N	METHOD	H.S. Augers	HAMI	MER TYPE A	Automatic
DRILLER Eister, G.	START DATE 07/30/18	COMP. DATE 07/30/18	SURFACE WATER DEPTH N/A	DRII	LLER Ei	ster, G.		ST	TART DATE 08/06/1	18 COMP. DA	ATE 08/	06/18	SURFA	ACE WATER DEPTH	N/A	
ELEV DRIVE DEPTH BLOW COUN			SOIL AND ROCK DESCRIPTION	ELEV			BLOW CO		BLOWS	PER FOOT	SAMP.		L	SOIL AND ROCK DES	SCRIPTION	
(ft) (ft) (ft) 0.5ft 0.5ft (0.5ft 0 25 50	75 100 NO. MOI G		ft) (ft)	(ft)	(ft) 0.5	5ft 0.5ft	0.5ft	0 25	50 75 100	NO.	МОІ				
300			_	315	314.0	1.0		+	 				315.0	0.3' TOPSO RESIDUAL		0.0
297.3 1.0		 	298.3 0.5' TOPSOIL	.0	1	- 4	9	6	15			D	312.0	ORANGE, SANDY C	CLAY (A-6)	3.0
295 294.8 3.5	2 •5		BLACK BROWN ORANGE, SILTY CLAY (A-7-6) SLIGHTLY MICACEOUS	310	311.5	- 3.5 - 10	0 8	10	18		SS-17	15%		ORANGE TAN WHITE PIN CLAYEY SILT (A-5) SAPR		
2 3	5	SS-22 30%	_		309.0	6.0	3 4	5	/			D		MICACEOUS W/ TRA	ACE ROCK	
292.3 † 6.0 7 14	15	· · · · ·			306.5			\perp				:				ŀ
290 289.8 7 8.5 4 9	14			305	┤	[2 3	4	7		+	D				ļ
	23					- 10.5							<u> </u>			
285 284.8 13.5			BROWN GRAY AND ORANGE, SILTY	.0 300	301.5		5 4	7	11 11			D				
3 6	7 • 13	w	SAND (A-2-4) MICACEOUS		1 7	-			.,		11					
					296.5				:/: : : : : : : :							
280 279.8 18.5 3 6	7	I	-	295		- 1	2 2	3	5	 	-	М :				
	,				1 1	-			: \				<u></u>			
275 274.8 23.5		· · · · · ·		.0 290	291.5	- 23.5	2 5	10	15			w i				
2/4.0 = 23.3 4 6	6 . •12 · · · · · · · · · · · ·	· · · · · · W 000	COARSE SAND (A-1-b) HIGHLY MICACEOUS		7 7	-			/		11	:				
		000			286.5	- - 28.5		1	: <i>j</i> :: ::::			:				
270 269.8 28.5 6 7	7	· · · · ·	-	285	- 4	1	3	4	7		41	W :				
	14	· · · · · W 0000				-			: \ : : : : : :			:	1 V -			
265				.0 280	281.5		4	12	16			M F	111			
265 264.8 33.5 5 6	9	W		200	1 1	-]		11	" ;	1 1 -			
			<u> </u>	.0	276.5	- - 38.5							A N			
260 259.8 38.5	10		BLACK TAN AND WHITE, SILT (A-4) WITH SAND	275			6	9	15		1	м:	275.0	Boring Terminated at Elev	otion 075 0 ft II	40.0
	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	· · · · · ·				-							-	RESIDUAL: CLAY		IN
755			•			-							-			
255 254.8 43.5 8 16	30	- w	254.3 WHITE BLACK AND TAN, SILTY SAND	. <u>0</u>		-							-			
			(A-2-4) HIGHLY MICACEOUS										‡			
250 249.8 48.5			-			-							L			
00 5 13	13	· · · · · ·	248.3 50.0 Boring Terminated at Elevation 248.3 ft IN	.0		-							-			
			RESIDUAL: SILTY SAND			-							-			
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NCD T													F			

MD	40007.4.4		Т.	ID D 574			TY WARE			CEOL O	CICT LAVIICICA D		\A/D	40007	7 4 4			TID	P-5715	COL	NITY NAME			1.	CEOLOGICE LANE D	
	46927.1.1	N. Namilla		IP P-571			TY WAKE	:::::::::::::::::::::::::::::::::::::::		GEOLO	GIST LAVISKA, D.	GROUND WTR (ft)	l —	S 46927		Name	llana O				NTY WAKE	il I in a			GEOLOGIST LANE, R.	CDOUND WED (6)
	DESCRIPTION					aration C				AL ICNIN	AFNT MALLO	⊢ ` ` `	l ——				норе С	_			Over CSX Rai				ALICNIMENT MALLO	GROUND WTR (fft)
-	ING NO. RW			TATION		-	OFFSET				MENT -WALL2-	0 HR. N/A		RING NO.				+-	ATION 12+		OFFSET				ALIGNMENT -WALL2-	0 HR. 26.3
	LAR ELEV. 3				PTH 50.0		NORTHIN				G 2,116,389	24 HR. N/A	l	LLAR ELE					TAL DEPTH		NORTHIN				EASTING 2,116,470	24 HR. N/A
	_ RIG/HAMMER E						1			H.S. Augers		MER TYPE Automatic					E BRI38	1	ME-55 96% 04/					H.S. /		MMER TYPE Automatic
DRII	LER Eister, C	1		TART DA	TE 07/30/		COMP. D			SURFAC	CE WATER DEPTH	N/A	DRI	JULLER E					ART DATE		COMP. DA		_	; //	SURFACE WATER DEPTH	N/A
ELEV (ft)	DRIVE ELEV (ft)	0.5ft 0.5		0	25 1	50	75 100		MOI G	ELEV. (ft)	SOIL AND ROCK DES	SCRIPTION DEPTH (ft)	(ft)	V FI F\/	DEPTH (ft)		0.5ft 0		0 25	BLOWS PER FO	75 100	SAMP.	/	O I G	SOIL AND ROCK D	ESCRIPTION
310													310)	_											
005	<u> </u>									305.9	0.5' TOPSO			305.9	1.0								<u> </u>	30	06.9 ROADWAY EME	
305	304.9 1.0	3 3	3 2	 1 1 1 1 1 1 1 1 1 					М		RESIDUAL REDDISH-BROWN WHIT	TE BLACK AND	305	303.4	35	4	6	5	11 .			1	D		ORANGE-TAN, SILT HIGHLY MICA	Y SAND (A-2-4) CEOUS
	302.4 + 3.5	3 3	3 2	- <u> </u>		: : : :			M	}	ORANGE, SILTY SAND (MICACEOU	A-2-4) HIGHLY IS			‡	4	9	12	21				D	<u></u> 30	01.9	5.
300	299.9 6.0	1 4	4 4	 				41		-			300	300.9 _	6.0	5	8	10	/			41	D		RESIDU ORANGE AND TAN, S	LT (A-4) HIGHLY
	297.4 T 8.5] :• 8 :	: : : :	.			M	;				298.4	8.5	2	3	5					D		MICACEO	008
295	‡	2 3	3 3	6					М	<u>+</u>			295	, -					. 7°						04.0	12.0
255	† †			1 1				11				13.0		293.4	13.5				- 1			1			TAN ORANGE BLACK A	
	292.4 + 13.5	1 2	2 3	- 	: : : :	: : : :			w		BROWN WHITE BLACK					8	7	7	14				D		SAND (A-2-4) SAPROL MICACEO	OUS
290	‡							41		<u>`</u>	BROWN WHITE ORANG		290	<u> </u>					· · · / · ·					_		
	287.4 T 18.5]	: : : :	.				+ S	SILTY SAND (A-2-4) HIGH W/ FINE QUARTZ	LY MICACEOUS LAYERS		288.4	18.5	2	3	4					Ιм			
285		1 WC	OH 1	1		.			W	-			285	, -					:\f`. : : :							
200	†			1				1		-				283.4	23.5				1			1				
	282.4 + 23.5	2 2	2 1			: : : :			w	-				-		1	3	5	.∳8				М			
280	‡							41		_			280	_					.1			41				
	+ 277.4 + 28.5			;::		.				}				278.4	28.5	1	3	3					Sat.			
275	ļ	2 2	2 3] 5; ;		.			w	<u>+</u>			275	. -					\P 0,				Out.			
2/3	†			 				1		-			2/3	273.4	33.5			-				1				
	272.4 + 33.5	1 2	2 4			.			w	<u>+</u>						2	3	4	l ▲ 7				Sat.			
270	‡			9 6				41	w	-			270	<u> </u>					-1			41				
	267.4 T 38.5			i::		.				<u>+</u>				268.4	38.5	3	4	7					Sat.			
265		2 2	2 4	 • 6			l l		w	-			265	. -									Jai.			
205	†			1 1				1		-			200	263.4	43.5							1				
	262.4 + 43.5	2 3	3 4	<u> </u>		1			w	<u> </u>						5	7	12	19				Sat.			
260								_	**				260	<u> </u>							· · · · · · ·	1				
3/25/19	257.4 T 48.5			.	: : : :	.								258.4	48.5	7	14 2	20	· · · · ``	\			Sat		50.0	50.
.GDT 3/	70.5	3 4	4 6	10_	<u>: : : : : </u>		<u>: </u>	Ц	w		Dadas Tarrito (1 / 5	50.0		-				-	<u> </u>	₩34		+	Sat.	25	Boring Terminated at El	evation 256.9 ft IN
DOT.GD	‡									F '	Boring Terminated at Elev RESIDUAL: SILT			_										-	RESIDUAL: SIL	TY SAND
0 0										<u> </u>				-												
GPJ N	‡									<u> </u>				_												
	<u> </u>									E				-										1 -		
RING	1 1									E				-										1 E		
GEO_BORINGS.	1 ±									F				-										1 -		
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P5715_	1 1									Ł				-	<u> </u>									1 E		
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DOUE	\perp									E				-	<u> </u>									E		
ORE I	 									F				-	<u> </u>									F		
OT B(<u> </u>									Ė				-	-									F		
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WBS 46927.1.1	TIP P-5715 COUNTY WAKI	E GEOLOGIST L	ANE R	WBS 46927.1.1	TIP P-5715 COU	NTY WAKE	GEOLOGIST LANE, R.
	Church Road Grade Separation Over CSX F		GROUND WTR (ft)		ew Hope Church Road Grade Separation		GROUND WTR (ft)
BORING NO. RW2-4	STATION 13+24 OFFSE			BORING NO. RW2-5	STATION 14+19	OFFSET 6 ft LT	ALIGNMENT -WALL2- 0 HR. Dry
COLLAR ELEV. 303.7 ft		IING 759,034 EASTING 2,11		COLLAR ELEV. 298.3 ft		NORTHING 758,959	EASTING 2,116,577 24 HR. 6.6
DRILL RIG/HAMMER EFF./DATE BRISE		DRILL METHOD H.S. Augers	HAMMER TYPE Automatic		ATE BRI3895 CME-55 96% 04/19/2018	DRILL METHOD	
DRILLER Eister, G.		_	ER DEPTH N/A	DRILLER Eister, G.	START DATE 08/02/18	COMP. DATE 08/02/18	SURFACE WATER DEPTH N/A
DRIVE BLOW COUNT		SAMP. V L	ER DEFIN IN/A		OW COUNT BLOWS PER FO		SURFACE WATER DEPTH IN/A
ELEV (ft) DEPTH BLOW COUN (ft) 0.5ft 0.5ft 0.	I	100 NO. MOI G ELEV. (ft)	AND ROCK DESCRIPTION DEPTH (ft)	F FV	t 0.5ft 0.5ft 0 25 50	75 100 NO. MOI G	
305		303.7	0.0	300			- 298.3 0
302.7 + 1.0 3 4	5	· M L ORANGE,	SANDY CLAY (A-6) MICACEOUS	297.3 1.0 2	2 2	D	ROADWAY EMBANKMENT TAN-ORANGE, SILTY CLAY (A-7-6)
300 300.2 7 3.5 2 4	5	— <u> </u>	RESIDUAL 3.0	295 294.8 3.5 2	3 5		MICACEOUS W/ TRACE RÒCK ' FRAGMENTS
297.7 + 6.0 3 5	<u> </u>	(A-2-4) N	INGE AND GRAY, SILTY SAND IICACEOUS AND SAPROLITIC	292.3 + 6.0	.ް		292.8
295 295.2 7 8.5	5 . • 10 .	: D		290 289.8 8.5	5 5 . 10	 * ::::	∵L TAN WHITE GRAY AND LIGHT PINK,
2 4	4			289.8 - 8.5	4 5 . •9	· · · · · · M	L SILTY SAND (A-2-4) SAPROLITIC AND HIGHLY MICACEOUS
							9 -
290 290.2 13.5 3 8	5	<u> </u>		285 284.8 13.5	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		9 -
	S	: "			4 3	W	9 -
285 285.2 18.5		286.2	TAN AND WHITE, FINE SANDY	280 279.8 18.5			% -
203 2032 10.3 2 1	2 43		4) HIGHLY MICACEOUS AND SAPROLITIC	280 279.8 18.5	6 4 . •10	· · · · · · Sat.	%—
			SAFROLITIC				%_
280 280.2 23.5 2 2	3	<u> </u>		275 274.8 23.5			%}- %
	³ • • • • • • • • • • • • • • • • • • •	Sat	26.0		4 3 47	· · · · · ·	%]-
075 075 0 + 00 5		· WHITE	AN AND BLACK, SILTY SAND) SAPROLITIC AND HIGHLY				<u>‡</u>
275 275.2 7 28.5 2 3	2	Sat. Sat.	MICACEOUS	270 269.8 7 28.5	3 5		4 <u> </u>
					T8		
270 270.2 33.5				265 264.8 33.5			¥
3 7	8 •15	Sat.		264.8 = 33.5	3 5	· · · · · · M	-
							¥
265 265.2 38.5 7 14 1	16			260 259.8 38.5			<u>"</u>
	♦ 30 .	-			3 4 67	M	<u>‡</u>
		<u>-</u>	WEATHERED ROCK 42.0				1
260 260.2 T 43.5 12 58 42		GRAY	WHITE AND TAN. GNEISS	255 254.8 43.5 8	141 07		
	100/	·					3 <u>.</u> X
255 255.2 48.5		254.8	48.9	250 249.8 48.5			%1 &L
100/0.4	100/	/0.4 Boring Te	rminated at Elevation 254.8 ft IN ATHERED ROCK: GNEISS	14	24 36	50 · · · · · · D	248.3
		WE	ATHERED ROCK: GNEISS				Boring Terminated at Elevation 248.3 ft IN RESIDUAL: SILTY SAND

MD	46927.1.1				I P P-57	715				WAKE				05	01.00	GIST	1 V VIL					T _A	/BS 4	6027 1	1 1				rip '	P-5715			אוואודי	/ WAKE	:				CE		ST I AY	/ISKA, [<u> </u>		
	DESCRIPTI		ou Hon				lo Con							GE	OLO	JISI	LAINE,	, K.	CE		WTR (f	→ -				Nove	, Hone							er CSX R					GE	OLOGI	SI LA	VISKA, L		DOLIND	WTR (1
	ING NO. R		ем пор		TATION			arauori		OFFSET					CNIM	IENT -	١٨/٨١١	2		HR.	•	` -	ORING				/ поре			ION 1		грагаш		OFFSET					1	CNIME	NT -W	ALL 2		HR.	•
-			rı.	-				C 1	_					_							20.											0.6													Di
	LAR ELEV.				OTAL D			π	<u> r</u>	NORTHI						G 2,1	16,512		24		N//		OLLAF				- DI			L DEP				NORTHI							2,116,			HR.	FIA
	RIG/HAMMEI		DAIL B											H.S. Aug						IYPE /	Automatic	$\dashv \vdash$					IE B			-55 96%						RILL ME		υ H.	$\overline{}$					IYPE /	Automatic
DRII	DRIVE DED				TART D					COMP. I			/18 7 / L		RFAC	E WAT	TER DI	EPTH	N/A			_	RILLE	31\ /E			144 001		TAR	T DATI				COMP. I			0/18 //		SUI	RFACE	WATER	R DEPTH	I N/A		
ELEV (ft)	ELEV (ft)		t 0.5ft		0	25	BLOWS	50 -	7!	5 10		_]	/ 0	B ELEV	′. (ft)	SOIL	L AND F	ROCK DE	ESCRIP'	TION	DEPTH	1 1 (E√ E	LEV (ft)	(ft)		0.5ft	0.5ft	0	:	25 	VS PER 50				AMP. NO.	MOI	O G			SOIL AN	ID ROCK	DESCRI	PTION	
305														_								30	05															_	- _{304.2}			0.3' TOP			
300	299.9 1.0	0												300.9 - 300.4		D/	O A DWA	AY EMBA	ANIZNATI	NT).0 :5 3(03.2 T 00.7 +	3.5	2	3	3		6					11		М		-	BR		RESIDI D DARK G -2-4) MICA	SRAY, SI		ND
000	297.4 7 3.5	7	4	3	•7			::						297.9	_ /	0.5'	' BITUM	IINOUS (GATE BA	CONCR	ETE		.0		98.2	6.0	1	2	3		5	::		: : :				M M		298.2	— –	DDI E DI	ACK AND	BDOWN		_ — -
295	294.9 6.0	0 10				19	· · · ·	::					D K	295.4	- '\ - \- - \-	ORAI OR	RANGE,	SANDY	CLAY (A-2-7) A-6)		.5 29	95 29	95.7	8.5	3	3	4		2 · · · · · · · · · · · · · · · · · · ·		: : :	: : :		1 1		M	////	- - -	10	IN LL DL	SAND (A	\-2-6)	i, OLATE	. '
	292.4 + 8.9 -	5 5	5	6	· • 1	1 .	· · · ·				·		D		OF	RANGE	AND TA	RESIDUA AN, CLA` IICACEO	YEY SA	ND (A-2	2-6)			‡						.Y' . .		· · · · · ·							- - -						
290	‡				• •								·/· // ·// ·//										90 29	90.7 +	13.5	2	3	3	+	•6 -1 · · ·							М		<u>290.2</u>		Y AND V	VHITE, CL	AYEY S	AND (A-2	2-7) 1
285	287.4 ⁺ 13.	.5	3	4	. .	· ·	· · · · ·				.		D	287.9	O	SILTY S	SAND (A	VHITE BL 4-2-4) SA	APROLI [™]	TIC AND			85 28	35.7	18.5					, 					.				- - 286.7 -	— <u></u>		RAY AND I			-4) 1
200	282.4 18.	.5							: :								HIGHL	_Y MÎCA	CEOUS					‡		1	2	4		∮ 6 1	::		: : :		-		М		- -		HIG	GHLY MIC	:ACEOU:	5	
280	‡	1	2	2	4								М									_28	80 28	30.7	23.5	1	3	2	i	5					11		М		2 <u>81.2</u>			TAN, SII GHLY MIC)
	277.4 23.	.5	2	5	1								w											‡	00.5					./ ./ ./					.				- -						
275	Ŧ										-											2	75	75.7	28.5	1	3	6	ŀ	9					Щ.	-	М		274.2		ing Term	inated at E	Elevation	274.2 ft I	3/IN
270	272.4 + 28. + +	.5 2	2	3	\$ 5.						.		w											Ŧ															- -			IDUAL: SI			
	267.4 33.	.5			1.									-										Ŧ															-						
265	+	2	3	5	. •8		 		• •		1 1	{	Sat.											‡															-						
260	262.4 + 38.	.5 8	11	13									Sat.											‡															- -						
260	<u>+</u> - 257.4 + 43.	5					\. \.:::	::	: :															‡															- - -						
0	+	6	17	19		· ·	36	<u> : :</u>	::	· · ·		5	Sat.	255.9				ed at Ele			45 N	5.0		‡															- - -						
3/25/18	‡													-		r	KESIDU	JAL: SILT	IY SANI	D				‡															- -						
TOT.GD	Ŧ													Ē										Ŧ															- - -						
NC C	<u> </u>													Ė										‡																					
RINGS.G	‡													-										‡															- -						
SEO_BOR	† †													-										‡															<u>-</u> -						
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SORE DC	‡													-										‡															- -						
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WDO										IKE	_					
WB2	46927	7.1.1			TI	P P-571	5	COU	NTY	WAKE					GEOLOGIST LANE, R.	
SITE	DESCR	RIPTION	Nev	v Норе	Chur	ch Road (Grade Se	paration	Over	CSX Ra	ail L	Line			GROUND WTR	(ft)
BOR	ING NO.	. RW2	-8		SI	TATION	17+27		(OFFSET	1	0 ft RT			ALIGNMENT -WALL2- 0 HR. 18	8.3
COLI	LAR ELI	EV . 30	5.0 ft		TC	OTAL DEF	PTH 20.0) ft	1	NORTHII	NG	758,8	04		EASTING 2,116,317 24 HR. N	N/A
DRILL	RIG/HA	MMER E	FF./DA	TE BF	RI3895 (CME-55 96%	6 04/19/201	8				DRILL IV	IETHO	DН	I.S. Augers HAMMER TYPE Automati	ic
DRIL	LER E	ister, G	-		ST	TART DAT	ΓE 07/31	/18		COMP. D	PΑT	TE 07/3	31/18		SURFACE WATER DEPTH N/A	
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLC 0.5ft	0.5ft	JNT 0.5ft	0	BLOW 25	S PER FO	OOT 7:	5 10	00	SAMP. NO.	MOI	L O G	SOIL AND ROCK DESCRIPTION ELEV. (ft) DEPTI	H (ft)
310	-	<u></u>												-		
305	304.0	1.0									_			\\ \cdot \cdot \\ \cdot \cdot \\ \cdot \cdot \cdot \cdot \\ \cdot \cd	305.0 ARTIFICIAL FILL	0.0
	-	+	1	4	5	. ∳ 9 .							W		ORANGE BROWN AND TAN, CLAYEY SAND (A-2-7) W/ TRACE ORGANICS AND	
300	301.5	3.5	2	2	3	∫ ./ ∫ ₅						SS-19	25%		BRICK	
	299.0	6.0	2	3	7	1					- 1		Sat.		— 299.5 - RESIDUAL	5.5
	296.5	8.5				· • 10	.				.		Sal.		297.0 TAN AND GRAY, CLAYEY SAND (A-2-6) MOTTLED	8.0
295	_	‡	3	4	8	●12					4		М		TAN AND WHITE, SILTY SAND (A-2-4) SAPROLITIC, W/ TRACE ROCK	
	-	‡				-									FRAGMENTS	
290	291.5	13.5	4	4	10	· · ·							М		-	
200	-	‡				<u> </u>									- -	
	286.5	+ + 18.5				::/:					.					
			2	4	6	. ∮10		• • • •	• •				Sat.		285.0 Boring Terminated at Elevation 285.0 ft IN	20.0

