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REFERENCE

<u>SHEET NO.</u>	DESCRIPTION
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STATE OF NORTH CAROLINA

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

STRUCTURE SUBSURFACE INVESTIGATION

COUNTY COLUMBUS

PROJECT DESCRIPTION US 74 AT SR 1506 (OLD **BOARDMAN ROAD/MACEDONIA CHURCH ROAD**)

SITE DESCRIPTION BRIDGE ON SR 1506 (OLD **BOARDMAN ROAD/MACEDONIA CHURCH ROAD**) OVER US 74 BETWEEN SR 1574 AND SR 1505

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R–5797	1	8

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 LOGS, ROCK CORES AND SOLT TEST DATA AVAILABLE MAY BE REVEWED OR INSPECTED IN RALEIGH BY CONTACTING THE N.C. DEPARTMENT OF TRANSPORTATION, GEOTECHNICAL ENGINEERING UNIT AT 1999 1707-680. THE SUBSURFACE PLANS AND REPORTS, FIELD BORING LOGS, ROCK CORES AND SOIL TEST DATA ARE NOT PART OF THE CONTRACT.

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

THE BIDDER OR CONTRACTOR IS CAUTIONED THAT DETAILS SHOWN ON THE SUBSURFACE PLANS ARE PRELIMINARY ONLY AND IN MANY CASES THE FINAL DESIGN DETAILS ARE DIFFERENT. FOR BIDDING AND CONSTRUCTION PURPOSES, REFER TO THE CONSTRUCTION PLANS AND DOCUMENTS FOR FINAL DESIGN INFORMATION ON THIS PROJECT. THE DEPARTMENT DOES NOT WARRANT OR GUARANTE THE SUFFICIENCY OR ACCURACY OF THE INVESTIGATION MADE, NOR THE INTERPRETATIONS MADE, ON POPINION OF THE DEPARTMENT AS TO THE TYPE OF MATERALLS 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 CONTENES ENCOUNTERED AT THE SITE DIFFERING FROM THOSE INDICATED IN THE SUBSURFACE INFORMATION.

- NOTES: I. 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. 2. BY HAVING REQUESTED THIS INFORMATION, THE CONTRACTOR SPECIFICALLY WAIVES ANY CLAIMS FOR INCREASED COMPENSATION OR EXTENSION OF TIME BASED ON DIFFERENCES BETWEEN THE CONDITIONS INDICATED HEREIN AND THE ACTUAL CONDITIONS AT THE PROJECT SITE.

PERSONNEL

M. DURWAY

W. PESL

D. TIGNOR

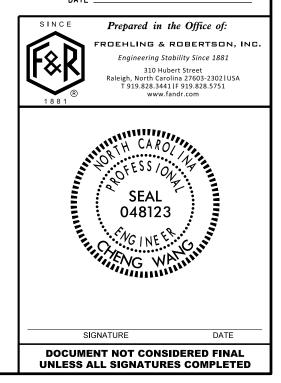
T. BEARD

INVESTIGATED BY ______ Inc.

DRAWN BY _T.T. WALKER

CHECKED BY _____. ALTON, P.E.

SUBMITTED BY <u>C. WANG</u>, P.E.



NORTH CAROLINA DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS GEOTECHNICAL ENGINEERING UNIT SUBSURFACE INVESTIGATION

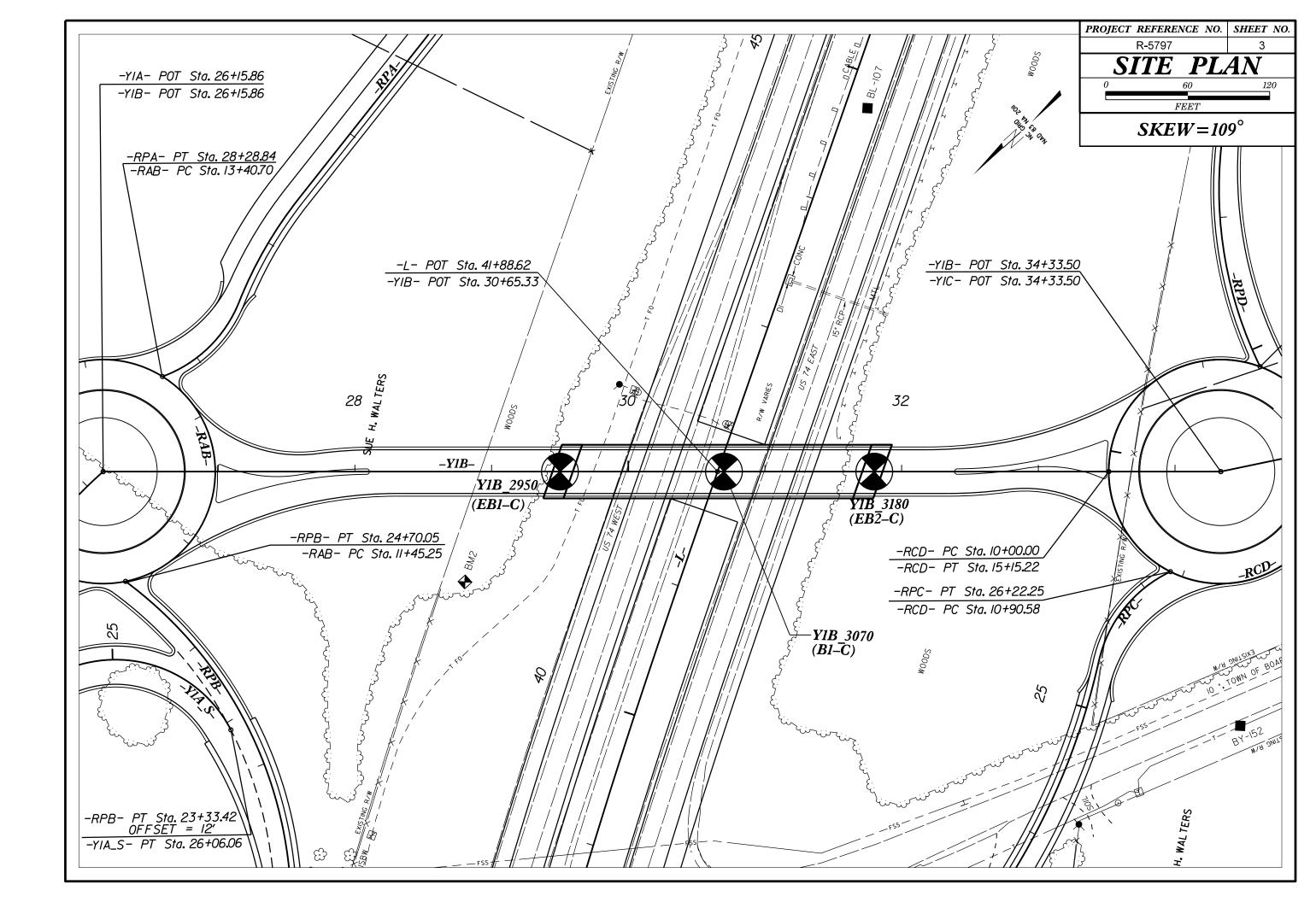
SOIL AND ROCK LEGEND, TERMS, SYMBOLS, AND ABBREVIATIONS

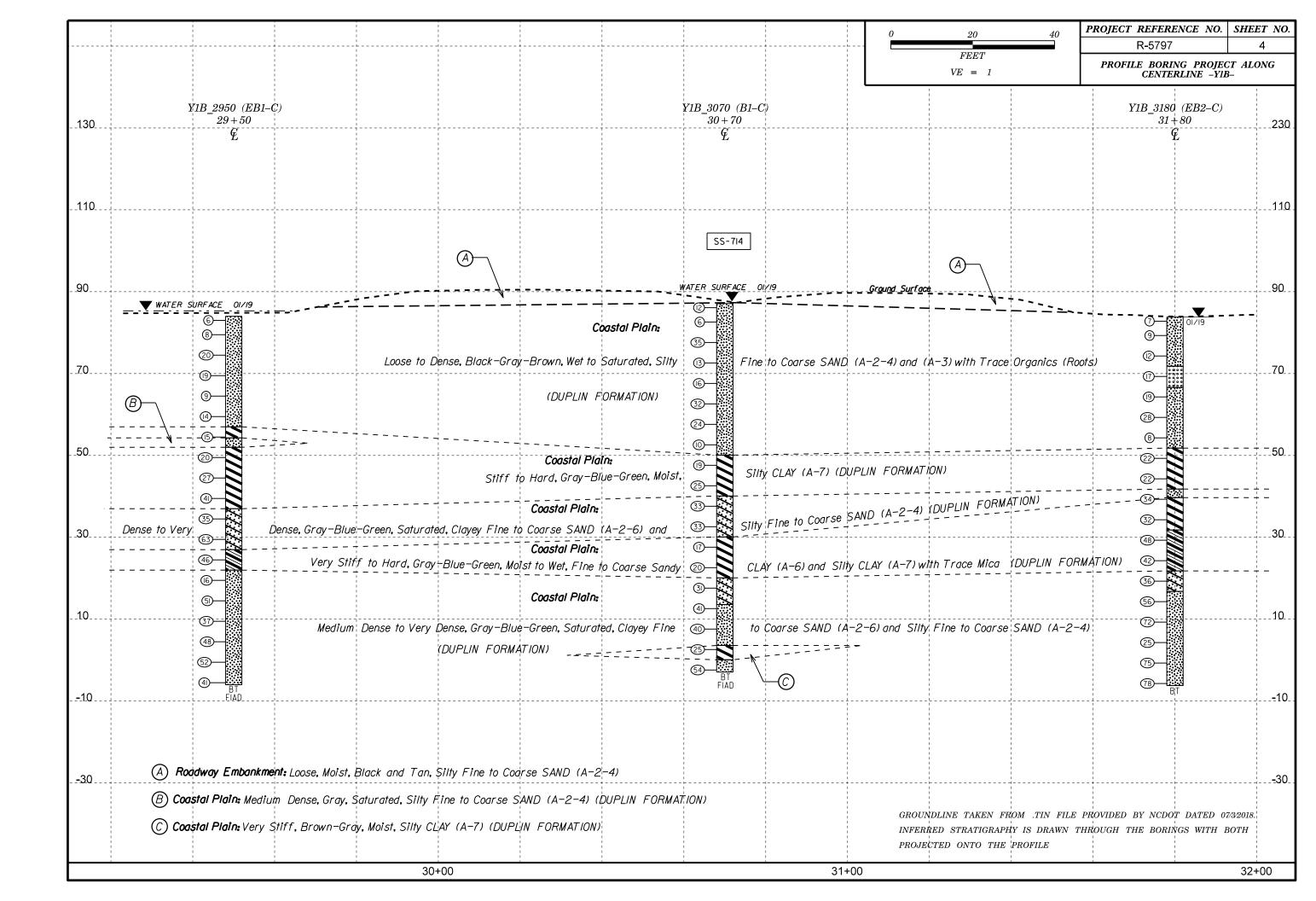
			SOIL D	ESCRIPT	ION			Τ		GRADATION			ROC	CK DESCRIPTION
BE PENET ACCORDI IS E	TRATED WITH ING TO THE BASED ON TH	H A CONTINUO STANDARD PE HE AASHTO SY	TED, SEMI-CON JS FLIGHT PO NETRATION TE STEM. BASIC	SOLIDATED, O WER AUGER A ST (AASHTO DESCRIPTIONS	R WEATHERED ND YIELD LES T 206, ASTM D GENERALLY I	EARTH MATERIALS 5 THAN 100 BLOWS 1586). SOIL CLASSI NCLUDE THE FOLLO	PER FOOT FICATION WING:	UNIFORMLY GRADED - IN	NDICATES THA	REPRESENTATION OF PARTIC AT SOIL PARTICLES ARE AL OF UNIFORM PARTICLE SI	LE SIZES FROM FINE TO COARSE. L APPROXIMATELY THE SAME SIZE. ZES OF TWO OR MORE SIZES.	ROCK LINE I SPT REFUSA BLOWS IN N	IS NON-COASTAL PLAIN MATERIAL NDICATES THE LEVEL AT WHICH L IS PENETRATION BY A SPLIT S ON-COASTAL PLAIN MATERIAL,	THAT WOULD YIELD SPT REFUSAL IF TEST NON-COASTAL PLAIN MATERIAL WOULD YIELI SPOON SAMPLER EQUAL TO OR LESS THAN Ø THE TRANSITION BETWEEN SOIL AND ROCK
A	S MINERALO	GICAL COMPOS	ITION, ANGULA	RITY, STRUCTU	JRE, PLASTICIT	R PERTINENT FACT Y,ETC. FOR EXAMPL	.Ε.			GULARITY OF GRAIN NESS OF SOIL GRAINS IS D			D BY A ZONE OF WEATHERED ROC IALS ARE TYPICALLY DIVIDED AS	
						HIGHLY PLASTIC.A-7-	6			DUNDED, OR ROUNDED.	SIGNATED BY THE TERMS:	WEATHERED		TAL PLAIN MATERIAL THAT WOULD YIELD SP
GENERAL		OIL LEGE			CLASSIFI				MINER	ALOGICAL COMPOS	ITION	ROCK (WR)	EINE TO C	S PER FOOT IF TESTED. COARSE GRAIN IGNEOUS AND METAMORPHIC R
CLASS.		≤ 35% PASSING			ASSING #200)	ORGANIC MAT	ERIALS			QUARTZ, FELDSPAR, MICA, T		CRYSTALLINE ROCK (CR)	WOULD YIE	ELD SPT REFUSAL IF TESTED. ROCK TYPE I
GROUP	A-1	A-3	A-2	A-4 A-5		A-1, A-2 A-4, A-4 A-3 A-6, A-5		ARE USED IN		NS WHEN THEY ARE CONSIE	ERED OF SIGNIFICANCE.	NON-CRYSTAL	I INE FINE TO C	ABBRO,SCHIST.ETC. COARSE GRAIN METAMORPHIC AND NON-COAST
9	A-1-a A-1-b	A-2-4 F	-2-5 A-2-6 A-2		A-7-5, A-7-6	A-3 A-6, A-		SLIG⊦	HTLY COMPRES		LL < 31	ROCK (NCR)		ARY ROCK THAT WOULD YEILD SPT REFUSAL E INCLUDES PHYLLITE, SLATE, SANDSTONE, EI
SYMBOL C								MODEF	RATELY COMP Y COMPRESSI	RESSIBLE	LL = 31 - 50 LL > 50	COASTAL PL		PLAIN SEDIMENTS CEMENTED INTO ROCK,BUI SAL. ROCK TYPE INCLUDES LIMESTONE,SAND
% PASSING 10	50 MX					GRANULAR SILT- CLAY	MUCK,			ENTAGE OF MATER		(CP)	SHELL BED	DS.ETC.
	30 MX 50 MX 15 MX 25 MX		5 MX 35 MX 35 I	4X 36 MN 36 M	N 36 MN 36 MN	SOILS SOILS	PEAT	ORGANIC MATERIAL		NULAR SILT - CLAY DILS <u>SOILS</u>	OTHER MATERIAL	50501		WEATHERING TEW JOINTS MAY SHOW SLIGHT STAINING. ROCK
MATERIAL								TRACE OF ORGANIC MA	ATTER 2	- 3% 3 - 5%	TRACE 1 - 10%	FRESH	HAMMER IF CRYSTALLINE.	EW JUINTS MAT SHOW SLIGHT STAINING. RUCK
PASSING •40	_	- 49. MY	1 MN 40 MX 41 M			SOILS WITH		LITTLE ORGANIC MATT MODERATELY ORGANIC		- 5% 5 - 12% - 10% 12 - 20%	LITTLE 10 - 20% SOME 20 - 35%	VERY SLIGHT		STAINED, SOME JOINTS MAY SHOW THIN CLAY
PI	6 MX		9 MX 11 MN 11 M			LITTLE OR MODERATE	HIGHLY	HIGHLY ORGANIC	<u> </u>	10% > 20%	HIGHLY 35% AND ABOVE	(V SLI.)	OF A CRYSTALLINE NATURE.	N FACE SHINE BRIGHTLY. ROCK RINGS UNDER
GROUP INDEX	0	0 0	4 MX	8 MX 12 M	X 16 MX NO MX	AMOUNTS OF	ORGANIC SOILS			GROUND WATER		SLIGHT		STAINED AND DISCOLORATION EXTENDS INTO R
USUAL TYPES : OF MAJOR	STONE FRAGS. GRAVEL, AND		Y OR CLAYEY	SILTY	CLAYEY	ORGANIC				VEL IN BORE HOLE IMMEDIA		(SL1.)		IN CLAY. IN GRANITOID ROCKS SOME OCCASION ORED. CRYSTALLINE ROCKS RING UNDER HAMME
MATERIALS	SAND	Sand Gra	/EL AND SAND	SOILS	SOILS			▼		TER LEVEL AFTER 24		MODERATE		SHOW DISCOLORATION AND WEATHERING EFFEC
GEN. RATING AS SUBGRADE		EXCELLENT TO	600D	FAIR	TO POOR	FAIR TO POOR	UNSUITABLE		PERCHED W	WATER, SATURATED ZONE, OR	WATER BEARING STRATA	(MOD.)	DULL SOUND UNDER HAMMER BLOW	RS ARE DULL AND DISCOLORED, SOME SHOW CL WS AND SHOWS SIGNIFICANT LOSS OF STRENGT
H3 JODONHDL		PLOF A-7-5 SUE	GROUP IS ≤ LL	- 30 : PLOF A-	7-6 SUBGROUP IS	> LL - 30		- 0-00-	SPRING OR	SEEP		100550 1 TSL 11	WITH FRESH ROCK.	
			VSISTENC						MISC	CELLANEOUS SYMBO)LS	MODERATELY SEVERE	AND DISCOLORED AND A MAJORIT	NLORED OR STAINED. IN GRANITOID ROCKS, ALL Y SHOW KAOLINIZATION. ROCK SHOWS SEVERE
PRIMARY S		COMPAC	NESS OR		F STANDARD ON RESISTENCE	RANGE OF U) 25/025 DIP & DIP DIR	ECTION	(MOD. SEV.)	AND CAN BE EXCAVATED WITH A IF TESTED, WOULD YIELD SPT REA	GEOLOGIST'S PICK. ROCK GIVES *CLUNK* SOUND
T NEPHINI .		CONSI	STENCY		VALUE)	(TONS/				OF ROCK STRU	CTURES	SEVERE	ALL ROCK EXCEPT QUARTZ DISCO	NLORED OR STAINED. ROCK FABRIC CLEAR AND
GENERAL	LLY		LOOSE DSE		< 4 TO 10			SOIL SYMBOL		OPT DMT TEST BOP	RING SLOPE INDICATOR	(SEV.)		IG SOIL. IN GRANITOID ROCKS ALL FELDSPARS
GRANUL MATERIA		MEDIUN	DENSE	10	TO 30	N/4	4		ILL (AF) OTHE			2	IF TESTED, WOULD YIELD SPT N	
(NON-CO			NSE DENSE		TO 50 50			THAN ROADWAY	(EMBANKMEN		TEST	VERY SEVERE		CORED OR STAINED. ROCK FABRIC ELEMENTS A CED TO SOIL STATUS, WITH ONLY FRAGMENTS I
			SOFT		< 2	< 0.:		- INFERRED SOIL	L BOUNDARY	- CORE BORING	SOUNDING ROD	(V SEV.)	REMAINING. SAPROLITE IS AN EXA	AMPLE OF ROCK WEATHERED TO A DEGREE THA BRIC REMAIN. <u>IF TESTED, WOULD YIELD SPT N</u>
GENERAL SILT-CL			ISTIFF		TO 4 TO 8	0.25 TC 0.5 TC		INFERRED ROC	K LINE	MW MONITORING W		COMPLETE		ABRIC NOT DISCERNIBLE, OR DISCERNIBLE ONLY
MATERIA (COHESI)			IFF STIFF		TO 15 TO 30	1 TO 2 TO		ALLUVIAL SOIL		PIEZOMETER	SPT N-VALUE			ARTZ MAY BE PRESENT AS DIKES OR STRINGER
			RD		30	> 4		TTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTT		INSTRUCTION				DCK HARDNESS
		-	EXTURE	OR GRAI	N SIZE				RECO	MMENDATION SYMB	OLS	VERY HARD		OR SHARP PICK. BREAKING OF HAND SPECIME
U.S. STD. SIE OPENING (M			4 10 4.76 2.00	40 0.42	60 200 0.25 0.075					IFIED EXCAVATION -	ACCEPTABLE, BUT NOT TO BE		SEVERAL HARD BLOWS OF THE GE	
				COARSE	FINE		C 1 A 14	SHALLOW UNDERCUT		IFIED EXCAVATION - BLE DEGRADABLE ROCK	USED IN THE TOP 3 FEET OF EMBANKMENT OR BACKFILL	HARD	CAN BE SCRATCHED BY KNIFE OR TO DETACH HAND SPECIMEN.	PICK ONLY WITH DIFFICULTY. HARD HAMMER
BOULDE (BLDR.)		BBLE (COB.)	RAVEL (GR.)	SAND (CSE. SD.)	SAND (F SD		CLAY (CL.)			ABBREVIATIONS		MODERATELY		PICK. GOUGES OR GROOVES TO 0.25 INCHES
GRAIN MM	305	75	2.0	10021 001/	0.25	0.05 0.0	25	AR - AUGER REFUSAL		MED MEDIUM	VST - VANE SHEAR TEST	HARD	BY MODERATE BLOWS.	GEOLOGIST'S PICK. HAND SPECIMENS CAN BE
SIZE IN.		3						BT - BORING TERMINATED CL CLAY	J	MICA MICACEOUS MOD MODERATELY	WEA WEATHERED γ - UNIT WEIGHT	MEDIUM HARD		5 INCHES DEEP BY FIRM PRESSURE OF KNIFE HIPS TO PEICES 1 INCH MAXIMUM SIZE BY HARD
	S	SOIL MOIS	STURE -	CORRELA	TION OF	TERMS		CPT - CONE PENETRATION	N TEST	NP - NON PLASTIC	$\gamma_{\rm d}$ - DRY UNIT WEIGHT	HHRU	POINT OF A GEOLOGIST'S PICK.	IFS TO FEICES I INCH MHAIMUM SIZE BI HHRL
	MOISTURE		FIELD MI DESCRI		GUIDE FOR	FIELD MOISTURE D	ESCRIPTION	CSE COARSE DMT - DILATOMETER TES	.т	ORG ORGANIC PMT - PRESSUREMETER TH	ST SAMPLE ABBREVIATIONS	SOFT		DILY BY KNIFE OR PICK. CAN BE EXCAVATED IN IN SIZE BY MODERATE BLOWS OF A PICK POI
			- SATUR			DUID; VERY WET, US		DPT - DYNAMIC PENETRAT	FION TEST	SAP SAPROLITIC	S - BULK		PIECES CAN BE BROKEN BY FINGE	
			(SAT.			THE GROUND WA		e - VOID RATIO F - FINE		SD SAND, SANDY SL SILT, SILTY	SS - SPLIT SPOON ST - SHELBY TUBE	VERY SOFT		N BE EXCAVATED READILY WITH POINT OF PICK BROKEN BY FINGER PRESSURE. CAN BE SCRATC
PLASTIC		LIMIT					10	 FOSS FOSSILIFEROUS FRAC FRACTURED, FRACT 	TURES	SLI SLIGHTLY TCR - TRICONE REFUSAL	RS – ROCK RT – RECOMPACTED TRIAXIAL		FINGERNAIL.	BROKEN DI I MOEN THESSORE. CHN DE SCHATC
RANGE <			- WET -	(W)		REQUIRES DRYING IMUM MOISTURE	10	FRAGS FRAGMENTS		w - MOISTURE CONTENT	CBR - CALIFORNIA BEARING		FRACTURE SPACING	BEDDING
(PI) PL		C LIMIT						HI HIGHLY		V - VERY		VERY WID	E MORE THAN 10 FE	EET VERY THICKLY BEDDED
		M MOISTURE	- MOIST	- (M)	SOLID; AT O	R NEAR OPTIMUM I	MOISTURE	DRILL UNITS:			HAMMER TYPE:	WIDE	3 TO 10 FEET ELY CLOSE 1 TO 3 FEET	
SL		AGE LIMIT						CME-45C	CLAY		X AUTOMATIC MANUAL	CLOSE	Ø.16 TO 1 FOOT	VERY THINLY BEDDED 0.
			- DRY -	(D)		DDITIONAL WATER	10		6° COM	NTINUOUS FLIGHT AUGER	CORE SIZE:	VERY CLC	DSE LESS THAN Ø.16 F	EET THICKLY LAMINATED 0.0 THINLY LAMINATED
			PL	STICITY				X CME-55	X 8" HOL	LLOW AUGERS	Вн			INDURATION
				ICITY INDEX		DRY STRE	NGTH	CME-550	HARD	FACED FINGER BITS	□ □-N □	FOR SEDIMEN		HARDENING OF MATERIAL BY CEMENTING.H
	PLASTIC	STIC		0-5 6-15		VERY LI SLIGH		VANE SHEAR TEST	TUNG.	-CARBIDE INSERTS	HAND TOOLS:	FRIAB		NG WITH FINGER FREES NUMEROUS GRAINS; E BLOW BY HAMMER DISINTEGRATES SAMPLE
MOD	ERATELY P	LASTIC		16-25		MEDIU				NG W/ ADVANCER	POST HOLE DIGGER			S CAN BE SEPARATED FROM SAMPLE WITH S
HIG	HLY PLASTI	IC .		6 OR MORE		HIGH		PORTABLE HOIST			HAND AUGER	MUDER	BREAKS	S EASILY WHEN HIT WITH HAMMER.
				COLOR				┫┌┐		DNE <u>2¹⁵/16</u> TUNGCARB.	SOUNDING ROD	INDUR		S ARE DIFFICULT TO SEPARATE WITH STEEL OLT TO BREAK WITH HAMMER.
						YELLOW-BROWN, BL				BIT	VANE SHEAR TEST	EVID	SHARP	HAMMER BLOWS REQUIRED TO BREAK SAMPL
MU		JOIN NO LIONI	, DHIN, SINEP	NED, ETC. AR		LOGNIDE HEFEHRAN	~~.	1 '				EXIRE		E BREAKS ACROSS GRAINS

PROJECT REFERENCE NO.



	TERMS AND DEFINITIONS
TED. AN INFERRED .D SPT REFUSAL.	ALLUVIUM (ALLUV.) - SOILS THAT HAVE BEEN TRANSPORTED BY WATER.
0.1 FOOT PER 60	ADUIFER - A WATER BEARING FORMATION OR STRATA.
K IS OFTEN	ARENACEOUS - APPLIED TO ROCKS THAT HAVE BEEN DERIVED FROM SAND OR THAT CONTAIN SAND.
PT N VALUES >	ARGILLACEOUS - APPLIED TO ALL ROCKS OR SUBSTANCES COMPOSED OF CLAY MINERALS, OR HAVING A NOTABLE PROPORTION OF CLAY IN THEIR COMPOSITION, SUCH AS SHALE, SLATE, ETC.
ROCK THAT	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 SURFACE.
INCLUDES GRANITE.	
TAL PLAIN . IF TESTED. TC.	<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.
T MAY NOT YIELD DSTONE, 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.
	$\underline{\text{DIKE}}$ - A TABULAR BODY OF IGNEOUS ROCK THAT CUTS ACROSS THE STRUCTURE OF ADJACENT ROCKS OR CUTS MASSIVE ROCK.
< RINGS UNDER	$\underline{\text{DIP}}$ - THE ANGLE AT WHICH A STRATUM OR ANY PLANAR FEATURE IS INCLINED FROM THE HORIZONTAL.
COATINGS IF OPEN. HAMMER BLOWS IF	DIP DIRECTION (DIP AZIMUTH) - THE DIRECTION OR BEARING OF THE HORIZONTAL TRACE OF THE LINE OF DIP, MEASURED CLOCKWISE FROM NORTH.
ROCK UP TO IAL FELDSPAR	FAULT - A FRACTURE OR FRACTURE ZONE ALONG WHICH THERE HAS BEEN DISPLACEMENT OF THE SIDES RELATIVE TO ONE ANOTHER PARALLEL TO THE FRACTURE.
ER BLOWS.	FISSILE - A PROPERTY OF SPLITTING ALONG CLOSELY SPACED PARALLEL PLANES.
TS. IN _AY. ROCK HAS	FLOAT - ROCK FRAGMENTS ON SURFACE NEAR THEIR ORIG1NAL POSITION AND DISLODGED FROM PARENT MATERIAL.
TH AS COMPARED	FLOOD PLAIN (FP) - LAND BORDERING A STREAM, BUILT OF SEDIMENTS DEPOSITED BY THE STREAM.
FELDSPARS DULL LOSS OF STRENGTH	FORMATION (FM.) - A MAPPABLE GEOLOGIC UNIT THAT CAN BE RECOGNIZED AND TRACED IN THE FIELD.
WHEN STRUCK.	JOINT - FRACTURE IN ROCK ALONG WHICH NO APPRECIABLE MOVEMENT HAS OCCURRED.
EVIDENT BUT	LEDGE - A SHELF-LIKE RIDGE OR PROJECTION OF ROCK WHOSE THICKNESS IS SMALL COMPARED TO ITS LATERAL EXTENT.
ARE KAOLINIZED	LENS - A BODY OF SOIL OR ROCK THAT THINS OUT IN ONE OR MORE DIRECTIONS.
	MOTTLED (MOT.) - IRREGULARLY MARKED WITH SPOTS OF DIFFERENT COLORS. MOTTLING IN SOILS USUALLY INDICATES POOR AERATION AND LACK OF GOOD DRAINAGE.
ARE DISCERNIBLE OF STRONG ROCK	USUALLY INDICATES YOUR ACTATION AND LACK OF GOUD DRAINAGE. <u>PERCHED WATER</u> - WATER MAINTAINED ABOVE THE NORMAL GROUND WATER LEVEL BY THE PRESENCE
AT ONLY MINOR	OF AN INTERVENING IMPERVIOUS STRATUM.
VALUES < 100 BPF	RESIDUAL (RES.) SOIL - SOIL FORMED IN PLACE BY THE WEATHERING OF ROCK.
Y IN SMALL AND RS. SAPROLITE IS	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.
INS REQUIRES	SAPROLITE (SAP.) - RESIDUAL SOIL THAT RETAINS THE RELIC STRUCTURE OR FABRIC OF THE PARENT ROCK.
BLOWS REQUIRED	<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.
DEEP CAN BE DETACHED	<u>SLICKENSIDE</u> - POLISHED AND STRIATED SURFACE THAT RESULTS FROM FRICTION ALONG A FAULT OR SLIP PLANE.
OR PICK POINT. D BLOWS OF THE	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 WITH A 2 INCH OUTSIDE DIAMETER SPLIT SPOON SAMPLER. SPT REFUSAL IS PENETRATION EQUAL TO OR LESS THAN 0.1 FOOT PER 60 BLOWS.
N FRAGMENTS INT. SMALL, THIN	STRATA CORE RECOVERY (SREC.) - TOTAL LENGTH OF STRATA MATERIAL RECOVERED DIVIDED BY TOTAL LENGTH OF STRATUM AND EXPRESSED AS A PERCENTAGE.
K. PIECES 1 INCH	<u>STRATA ROCK QUALITY DESIGNATION (SROD)</u> - A MEASURE OF ROCK QUALITY DESCRIBED BY TOTAL LENGTH OF ROCK SEGMENTS WITHIN A STRATUM EQUAL TO OR GREATER THAN 4 INCHES DIVIDED BY THE TOTAL LENGTH OF STRATA AND EXPRESSED AS A PERCENTAGE.
CHED READILY BY	TOPSOIL (TS.) - SURFACE SOILS USUALLY CONTAINING ORGANIC MATTER.
	BENCH MARK: N/A
THICKNESS	
4 FEET 1.5 - 4 FEET	ELEVATION: N/A FEET
0.16 - 1.5 FEET	NOTES:
.03 - 0.16 FEET 008 - 0.03 FEET < 0.008 FEET	BRIDGE BORING ELEVATIONS OBTAINED USING A SURVEY
	GRADE GPS UNIT.
HEAT, PRESSURE, ETC.	FIAD= FILLED IMMEDIATELY AFTER DRILLING
Ε.	
STEEL PROBE:	NM= NOT MEASURED
PROBE;	
LE;	
	DATE: 8-15-14





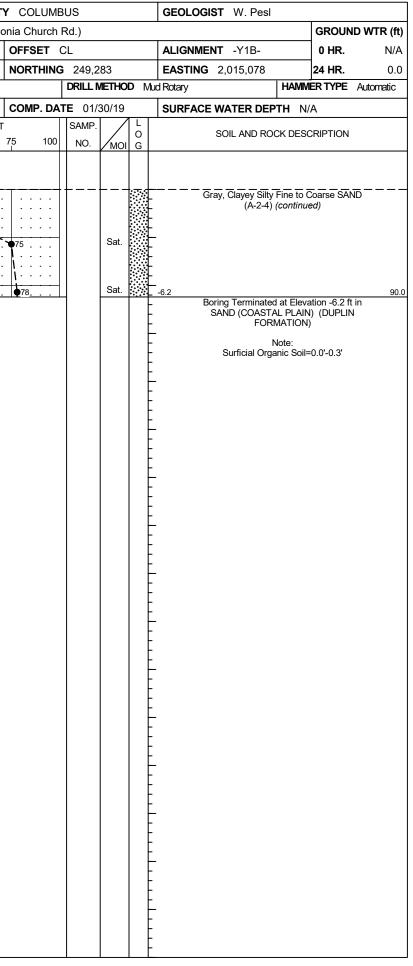
										URE																	
	44997					P R-579				Y COLU				GEOLOGIST	W. Pesl	1			44997					P R-5797		COUNT	
						`			Maced	onia Churc	,					GROUND	WTR (ft)	-						06 (Old Boa		./Macedo	-
BOR	ING NO	. Y1B	_2950	(EB1-	C) ST	ATION	29+50			OFFSET	CL			ALIGNMENT	-Y1B-	0 HR.	N/A	BOR	ING NO.	Y1B_	2950	(EB1-0	C) S 1	TATION 2	9+50		OFF
	LAR ELI					TAL DE				NORTHI				EASTING 2,0		24 HR.	FIAD		LAR ELE					DTAL DEP			NOF
DRILL	RIG/HA	MMER E	FF./DA	TE F8	R5785	CME-55 7	6% 02/	05/2018			DRILL	. METHO	DD	Vlud Rotary	HAMN	IER TYPE	Automatic	DRIL	L RIG/HAI	VIMER EI	F./DA	TE F8	R5785	CME-55 76	% 02/05/2018	8	
DRIL	LER D). Tigno	r		ST	ART DA	TE 01	/31/19		COMP. D	ATE 01	1/31/19)	SURFACE WA	TER DEPTH 0.	.6ft		DRIL	LER D	. Tignor			S		E 01/31/1	9	CON
ELEV	DRIVE ELEV			w co			BL	OWS PE	R FOO		SAMF	P. ▼/		SOIL	AND ROCK DES	CRIPTION		ELEV	DRIVE ELEV	DEPTH		w cou			BLOWS F		
(ft)	(ft)	(ft)	0.5ft	0.5ft	0.5ft	0	25	50)	75 10	0 NO.	Имо	I G				DEPTH (ft)	(ft)	(ft)	(ft)	0.5ft	0.5ft	0.5ft	0 2	25 5 I	i0	75
85		Ļ													ATER SURFACE (01/31/19)		5								n Line	
	84.0	0.0	WOH	2	4	6						Sat.		1	COASTAL PLA	NN .			-		8	21	-27			48	
	80.5 ·	- 3.5				$ I \cdot \cdot $			· · ·					1_	ray Silty Fine SAN Trace Organics (F	Roots)	h		0.5 -	- - 83.5							· ·
80	- 00.5	 	5	4	4	8	+	+				Sat.			(DUPLIN FORMA	TION)		0	0.5		17	22	30	<u> </u>		9 52	<u>+-</u>
		ł												•					-	-					· · · · /		
75	75.5	8.5			10				•••					ļ.				-5	-4.5 -	- 88.5	45	10					
	-	Ŧ	4		13		20					Sat.								-	15	19	22		4 1		
		ŧ					- · · ·		· · · ·	· · · · · ·									-	-							
70	70.5	+ 13.5 +	10	10	9		19	• • •	· · ·	· · · · ·	_	Sat.		- -					-	-							
	-	‡						: : :	· · · · · ·	· · · · · ·									-								
05	65.5 ·	+ + 18.5				· · /.	· · · ·		· · · · · ·	. .									-								
65		 	5	4	5	. •9.						Sat.		•					-								
		ŧ							· · ·										-	-							
60	60.5 ·	23.5	7	7	7	· · · · ·			• • •					•					-	-							
		Ŧ	'	<i>'</i>	·	• ¹⁴	4					Sat.							-	-							
		Ŧ								· · · · · ·				57.0 Grav	, Fine Sandy Silty (<u> 27.0</u>		-	-							
55	55.5	+ 28.5 +	WOH	3	12	••• [5		•••	· · · · ·	_	Sat.		-54.3			29.7		-	-							
	-	ŧ					•		· · · · · ·	· · · · · ·				Gray Si	Ity Fine to Coarse	SAND (A-2-4			-	-							
50	50.5 ·	- 33.5				· · ·	· · ·		· · · · · ·	. .				52.0Gray-B	lue Fine Sandy Silt	y CLAY (A-7)) <u>32.0</u>		-								
50		1	4	8	12		20					М		↓					-	-							
		ŧ					<u>}</u> ::		· · ·										-								
45	45.5	38.5	9	12	15		. \		• • •					-					-	-							
		Ŧ	5	12	13		. 927					M		F					-	-							
		Ŧ												•					-	-							
40	40.5	+ 43.5 +	5	13	28			• • • • • • •	•••		_	М							-	-							
	-	ŧ						Ţ.	••••					37.0			47.0		-	-							
35	35.5 ·	+ + 48.5					- -	1	· · · · · ·				/ :,	Gray Cla	yey Fine to Coarse	SAND (A-2-	<u>6)</u> <u>47.0</u>		-								
	-	ŧ	9	17	18			35				Sat.	<u>~</u> ~~	,,					-								
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30	30.5 ·	53.5	21	29	34				<u> </u>				~~~~						-	_							
	-	ŧ		25	~		.	: : : [●63 . /.	.		Sat.	<i>%</i> %;						-								
		1							1					Gray-Blue	Fine to Coarse Sa	andy CLAY (A	<u>-6)</u> <u>57.0</u>		-	$\left \right $							
25	25.5	<u>+ 58.5</u> 	11	18	28			9 46				м		-			,		-								
		Ŧ						/· ·	· · · ·	.				22.0			<u>62.0</u>		-								
20	20.5 ·	+ - 63.5					. /	· · ·	· · · · · ·	· · · · · ·					ayey Silty Fine to ((A-2-4)	Coarse SAND)		-								
20		‡	9	8	8	🖤	16					Sat.		<u> </u>	(A -2-4)				-								
	.	‡				· · · ·		· · ·	· · · · · ·	· · · · · ·				*+ * *					-	t							
15	15.5	68.5	10	20	31	· · ·	- -	· \ \		.		Sat.							-								
15	-	ŧ				· · ·		:::/	¹⁰ 1	.		381.		•						t							
	10 5	72 5																	-								
10	10.5	<u>+ 73.5</u>	14	17	20			6 37				Sat.							-	$\left \right $							
	.	ł						$\left \frac{1}{2} \right $.									-	-							
5	5.5	78.5					· · · ·	: X	· · · · · ·	· · · · · ·				• -					-	-							
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JNT	Y	С	C	UN	ΛE	31	JS				GEOLOGIST W. Pesl			
cedo	nia	a C	h	urc	h	R	d.)						GROUN	D WTR (ft)
	0	FF	S	ЕΤ	(С	L				ALIGNMENT -Y1B-		0 HR.	N/A
	N	OF	۲	HIN	١G	;	249,4	54			EASTING 2,015,232		24 HR.	FIAD
							DRILL N		DN	/uc	d Rotary	HAMM	ER TYPE	Automatic
	С	0	ΛP	. D	A.	ر TI	E 01/3	31/19			SURFACE WATER DEP	TH 0.6	Sft	
<u>оот</u>		-					SAMP.		L					
	75			10	0		NO.	моі	O G		SOIL AND ROO	CK DESC	RIPTION	
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e														
	Т	-			+	ł		Sat.			Gray Clayey Silty F	ine to C	oarse SAN	D
· ·		•	•	· ·						E	(A-2-4) (continue	ed)	
			•							-				
		•						Sat.		F				
•••		:	•	· ·						F				
		·	•	· ·				Sat.		Ŀ	6.0			00.0
						┥		Jai.		F	-6.0 Boring Terminated	at Eleva	tion -6.0 ft	90.0 in
										F	SAŇD (COASTA FORM	L PLAIN /ATION)) (DUPLIN	
										F		lote:		
										F	Surficial Orga		0.0'-0.2'	
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	44997					P R-579				Y COLUN				GEOL	OGIST M. D	urway	1		-	44997					P R-57			INTY (
									/Maced	onia Churc	,						-	ID WTR (ft)								Boardman	Rd./Mac	
	NG NO.			(B1-C)	_					OFFSET					IMENT -Y1E		0 HR.	N/A		NG NO.			(B1-C		TATION			OF
										NORTHIN					NG 2,015,1		24 HR.	FIAD Automatic								PTH 90.		NC
				IE F&	-	CME-55 8								I.S. Augers				Automatic								83% 02/05/2		
		-			_					COMP. D			3 7 L		ACE WATER	DEPTH 0	.1ft									TE 12/19		CC
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)		0.5ft		0	BL 25	OWS PI. 50	ER FOOT 0	Г 7 <u>5</u> 10	SAMP.	1.7	0	ELEV. (ft)		ROCK DES	CRIPTION	DEPTH (ft)	ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)		0.5ft	-	0	BLOW 25	/S PER FC 50	ООТ 75
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90																			10							м	atch Line	9
	-	ŧ												F						8.6	78.5]		
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85	-	ŧ				• • • 12				· · · · · ·				-	Black-Dark E	Brown, Silty F SAND (A-2-4	ine to Coars	se	5	-	F							
-	83.6 -	- 3.5	3	2	4				· · · · · ·			w		-	(DUF	LIN FORMA	TION)			3.6 -	83.5	6	10	15				
80	-	ŧ								· · · · · ·				F					0	-	F							
	78.6	8.5	11	16	19									F						-1.4	88.5	23	29	25			`\ \	
		E						935				Sat.		E								20	20	20			•54	
75	73.6	- 13.5					/.							_						-	L							
Ē	- 13.0	- 10.0	4	6	7			· · ·	· · ·			Sat.								-	L							
70	-	l l				· · •														-	L							
-	68.6	18.5	3	8	8				· · ·			Sat.								-	Ļ							
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65	63.6 -	23.5					. \.							-						-	F							
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60	-	ł					· /·			· · · · ·				+						-	ł							
-	58.6 -	28.5	4	12	12		· ·		· · · · · ·	. .		Sat.		-						-	ł							
55	-	÷					?	 	· · · · · ·	· · · · · ·				-						-	+							
	53.6 -	- 33.5		_	_	/.					-			-						-	+							
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50	-	+				· · · · · ·				· · · · ·				<u>50.1</u>	Blue-Gre	en, Silty CLA	Y (A-7-5)	<u> </u>		-	+							
F	48.6 -	<u>- 38.5</u>	7	9	10		· · ·		· · · · · ·	.		м		-		, , , -				-	F							
45	-	ŧ					₹ ÷		· · · · · ·											-	F							
	43.6	43.5	8	12	13		.\.							F						-	F							
	-	F		12	10		• 1 25		· · · · · · ·	· · · · · · · ·	SS-714	1 21%		F						-	F							
40	38.6 -	48.5												<u>40.1</u>	Blue-Green, C	layey Fine to	Coarse SA	ND 47.0		-	E							
F		40.0	10	17	16		: :•	33				w	/./.			(A-2-6)				-	L							
35	-	L.											/./.	•_ •						-	L							
ŀ	33.6	53.5	9	13	20		: :		· · · ·			w	///							-	Ļ							
	-	ŧ					: //		· · ·	. .								57.0		-	L							
30	28.6 -	- 58.5					/.							<u>30.1</u>	Blue-Gre	en, Silty CLA	AY (A-7-5)	<u>57.0</u>		-	F							
		-	5	8	9		17	 	· · ·	. .		w		+						-	+							
25	-	÷					· ·			· · · · ·										-	F.							
-	23.6 -	63.5	6	10	10				· · · · · ·	. .		l w								-	ł							
20	-	ŧ					τ ² υ · \∫ .	 	· · ·	· · · · · ·				20.1				67.0			ŧ							
	18.6 -	68.5								.	11			╞	Blue-Green, C	layey Fine to	Coarse SA	ND		-	ŧ							
	-	ŧ –	8	12	19		1 1	31	· · · · · ·			Sat.		1- 1-		(M-2-0)				-	ŧ							
15	-	ŧ.					· · `	<u>,</u>		· · · · ·										-	ŧ							
i F	13.6 -	73.5	12	19	22				· · · · · ·	.		Sat.		<u>13.6</u>	Blue-Green,	Clayey Silty F	ine to Coar	se <u>73.5</u>		-	ŧ							
<u>15</u> 10	-	ŧ							· · · · · ·							SAND (A-2-4	ł)			-	ŧ							
		L		ı – I	I		- 1	- 4 - 1				-		L					L									

UNT	Y COLUME	BUS			GEOLOGIST M. Durway	
cedo	nia Church	Rd.)				GROUND WTR (ft)
	OFFSET	CL			ALIGNMENT -Y1B-	0 HR. N/A
	NORTHING	3 249.3	65		EASTING 2,015,152	24 HR. FIAD
				DHS		ERTYPE Automatic
	COMP. DA				SURFACE WATER DEPTH 0.	
-00T		SAMP.	/	1 L		
	75 100	NO.	мо	0	SOIL AND ROCK DESC	CRIPTION
		+				
•						
e	T	· '			Blue-Green, Clayey Silty Fi	ne to Coarse
			Sat.		SAND (A-2-4) (cont	inued)
				-	_	
						83.5
· · ·			M	N	Brown-Gray, Silty CLA	AY (A-7)
· · ·					0.1Blue-Green, Clayey Silty Fi	ne to Coarse 87.0
· · ·			w	-	-2.9	90.0
					Boring Terminated at Eleva	ation -2.9 ft in
					SAŇD (COASTAL PLAIN FORMATION)	i) (DUPLIN)
					Note:	
					Surficial Organic Soil=	0.0'-0.2'
				l E		
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-	44997			- 4		IP R-5797			Y COLUM			GI	EOLOGIST W. Pesl		D (51)		4 4997					P R-5797		COUNTY
						506 (Old Boa		d./Macedo		,				GROUND WT	• •							,		d./Macedo
				(EB2-	·	TATION 3			OFFSET				LIGNMENT -Y1B-	0 HR.	N/A					(EB2-		ATION 3		-
						OTAL DEPT			NORTHIN				, ,	24 HR.	0.0					T = = = = = = = = = = = = = = = = = = =		TAL DEPT		I
						5 CME-55 769						D Mud Ro		IER TYPE Autom	natic					IE Få		CME-55 76%		
DRIL		-	-						COMP. DA				JRFACE WATER DEPTH N	/A		DRIL	LER D		1					
ELEV (ft)		DEPTH (ft)	<u> </u>		·			PER FOOT		SAMP			SOIL AND ROCK DESC			ELEV (ft)	DRIVE ELEV	DEPTH (ft)				0 2		PER FOOT
(14)	(ft)	(11)	0.5π	0.5ft	0.5π		25	50	75 100	NO.	/моі	I G ELE	V. (ft)	DEI	PTH (ft)	(11)	(ft)	(14)	0.5π	0.5ft	0.5π		20	50
85	83.8											83.8	GROUND SURF	ACE	0.0	5	+		-6-	10	-15		Mate	ch Line
		<u> </u>	WOH	2	5	•7 · ·					W		COASTAL PLA Black-Brown, Silty Fine SAN	AN .			-	F						
80	80.3	3.5										F	Trace Organics (R	Roots)		0	0.3	83.5						
	-	Ŧ	2	3	6	. •9				11	Sat.	-	(DUPLIN FORMÀT	HON)			-	F	22	35	40			
		ŧ															-	ŧ						
75	75.3	8.5	4	6	6			+			Sat.					-5	-4.7	88.5	28	38	40			
		ŧ													40.0			+				<u> </u>		
70	70.3	+					· · · · ·					71.8	Brown, Fine to Coarse S	SAND (A-3)	<u>12.0</u>		-	+						
10		+	8	8	9	17				11	Sat.	0 0 0 0 0						÷						
		‡					· · · · ·					66.6			17.2		-	÷						
65	65.3	18.5	5	10	9						Sat.	-	Brown, Silty Fine to Coarse with Trace Organics (Woo	SAND (A-2-4) d Fragments)				ŧ.						
		‡				· · · ¶1 · · · · ·	9		· · · · ·		Joal.		0 (0 ,			-	+						
<u> </u>	60.3	-				$\left \right \cdot \cdot \cdot \cdot \cdot$											-	ł						
60		 	8	12	16	1	28			11	Sat.						-	F						
		ŧ															-	Ļ						
55	55.3	28.5	3	4	4												-	L						
		ŧ		4	4		· · · ·				Sat.						-	L						
		±					· · · ·					51.8	Gray-Blue, Fine Sandy Silt	tv CLAY (A-7)	<u>32.0</u>			L						
50	50.3	33.5	8	10	12	1	22		· · · · ·		м			<i>j</i> - (<i>j</i>			-	L						
		Ŧ															-	E						
45	45.3	38.5															-	Ł						
		ł	7	8	14		22				M						-							
		Ŧ					N · · · ·					41.8	Gray-Brown, Silty Fine to C	Coarse SAND	<u> </u>			F						
40	40.3	<u>† 43.5</u>	8	16	18		. • 34				Sat.	39.7	(A-2-4)	_	44.1		-	F						
		Ŧ					. <u> </u>						Gray-Blue, Silty CLAY (A-7)	with Trace Mica			-	F						
35	35.3	48.5															-	F						
		Ŧ	9	14	18]	м						-	Ē						
		Ŧ										31.8	Gray-Blue, Fine Sandy (<u> </u>		-	F						
30	30.3	<u>† 53.5</u>	18	22	26			48	+		м		Cray-Dido, The Gality (-	F						
1		Ŧ															-	F						
25	25.3	+ 58.5															.	F						
25		Ŧ	12	20	22			2		11	м						-	F						
1		Ŧ					:: <i> </i> ::					21.8	Gray, Clayey Fine to Coarse		<u>62.0</u>		-	F						
	20.3	63.5	9	15	21			· · · ·			Sat.		Gray, Clayey Fine to Coarse	: JAND (A-2-6)			-	ŧ						
		ŧ					. Q 36 .					·····			67.0		-	ŧ						
15	15 3	- 68.5										16.8	Gray, Clayey Silty Fine to ((A-2-4)	Coarse SAND	<u>67.0</u>		-	ŧ						
		+	22	28	28	1		€56	<u> </u>	11	Sat.		(A-2-4)				-	ŧ						
		‡					· · · · ·	· \ · ·									-	ŧ						
10	10.3	73.5	23	33	39			· · \ ·			0.00						-	ŧ						
í		‡					· · · ·		• 72		Sat.						-	ŧ						
	E 0 -	+					· · · ·	/ · · · ·									-	ŧ						
5	5.3	78.5	I		 	41												L	1					



North Carolina Department of Transportation Division of Highways Materials and Test Unit Soils Laboratory

T.I.P. ID NO.:R-5797DESCRIPTION:US 74 and SR 1506 (Old Boardman Road/Macedonia Church Road)

REPORT ON SAMPLES OF: SOIL FOR QUALITY

F&R PROJECT #:	66V-0246	COUNTY:	Columbus	
DATE SAMPLED:	8/18 to 1/19	RECEIVED:	8/18 to 1/19	
SAMPLED FROM:	Various	REPORTED:	8/18 to 1/19	
SUBMITTED BY:	Cheng Wang	BY:	D. Council	

TEST RESULTS

PROJ. SAMPLE NO.	SS-714							
BORING NO.	Y1B_3070							
	(B1-C)							
Retained #4 Sieve %	0.0							
Passing #10 Sieve %	100.0							
Passing #40 Sieve %	94.8							
Passing #200 Sieve %	61.6							

SOIL MORTAR - 100%							
Coarse Sand Ret - #60 %	11.5						
Fine Sand Ret - #270 %	41.7						
Silt 0.053 - 0.010 mm %	35.1						
Clay < 0.010 mm %	11.7						
L.L.	46						
P.L.	33						
P.I.	13						
AASHTO Classification	A-7-5 (7)						
Station	30+70						
Offset	CL						
Depth (ft)	43.5						
to	45.0						
Alignment	-Y1B-						
Moisture Content (%)	20.7						
Organic Content (%)	NT						

NP = Not plastic

NT = Not tested ND = Not Determined

CL = Centerline

Sheet 8

W.P. Alton, P.E	•
Soils Engineer	

CONTENTS SHEET NO.

2

3

4-10

11

DESCRIPTION

LEGEND (SOIL & ROCK)

SITE PLAN & PROFILE

TITLE SHEET

BORE LOGS(S) SOIL TEST RESULTS

0 ア ら R REFERENCE

> 4499 PROJEC

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

DIVISION OF HIGHWAYS GEOTECHNICAL ENGINEERING UNIT

STRUCTURE SUBSURFACE INVESTIGATION

COUNTY COLUMBUS

PROJECT DESCRIPTION US 74 AT SR 1506 (OLD **BOARDMAN ROAD/MACEDONIA CHURCH ROAD**)

SITE DESCRIPTION <u>RETAINING</u> WALL I ON -WALL I-FROM 10+00.00 TO 12+46.31 AND RETAINING WALL 2 ON -WALL 2- FROM 17+00 TO 20+00

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R–5797	1	11

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 LOGS, ROCK CORES AND SOLT TEST DATA AVAILABLE MAY BE REVEWED OR INSPECTED IN RALEIGH BY CONTACTING THE N.C. DEPARTMENT OF TRANSPORTATION, GEOTECHNICAL ENGINEERING UNIT AT 1999 1707-6800. THE SUBSURFACE PLANS AND REPORTS, FIELD BORING LOGS, ROCK CORES AND SOIL TEST DATA ARE NOT PART OF THE CONTRACT.

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

THE BIDDER OR CONTRACTOR IS CAUTIONED THAT DETAILS SHOWN ON THE SUBSURFACE PLANS ARE PRELIMINARY ONLY AND IN MANY CASES THE FINAL DESIGN DETAILS ARE DIFFERENT. FOR BIDDING AND CONSTRUCTION PURPOSES, REFER TO THE CONSTRUCTION PLANS AND DOCUMENTS FOR FINAL DESIGN INFORMATION ON THIS PROJECT. THE DEPARTMENT DOES NOT WARRANT OR GUARANTE THE SUFFICIENCY OR ACCURACY OF THE INVESTIGATION MADE, NOR THE INTERPRETATIONS MADE, ON POPINION OF THE DEPARTMENT AS TO THE TYPE OF MATERALLS 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 CONTENES ENCOUNTERED AT THE SITE DIFFERING FROM THOSE INDICATED IN THE SUBSURFACE INFORMATION.

- NOTES: I. 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. 2. BY HAVING REQUESTED THIS INFORMATION, THE CONTRACTOR SPECIFICALLY WAIVES ANY CLAIMS FOR INCREASED COMPENSATION OR EXTENSION OF TIME BASED ON DIFFERENCES BETWEEN THE CONDITIONS INDICATED HEREIN AND THE ACTUAL CONDITIONS AT THE PROJECT SITE.

PERSONNEL

M. DURWAY

W. PESL

D. TIGNOR

T. BEARD

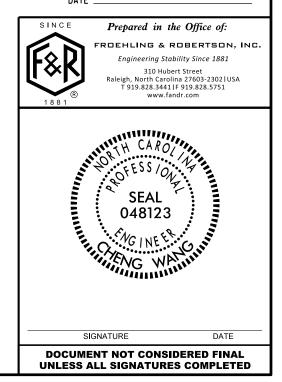
INVESTIGATED BY ______. Inc.

DRAWN BY _T.T. WALKER

CHECKED BY _____. ALTON, P.E.

SUBMITTED BY <u>C. WANG</u>, P.E.

DATE _SEPTEMBER 2019



NORTH CAROLINA DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS GEOTECHNICAL ENGINEERING UNIT SUBSURFACE INVESTIGATION

SOIL AND ROCK LEGEND, TERMS, SYMBOLS, AND ABBREVIATIONS

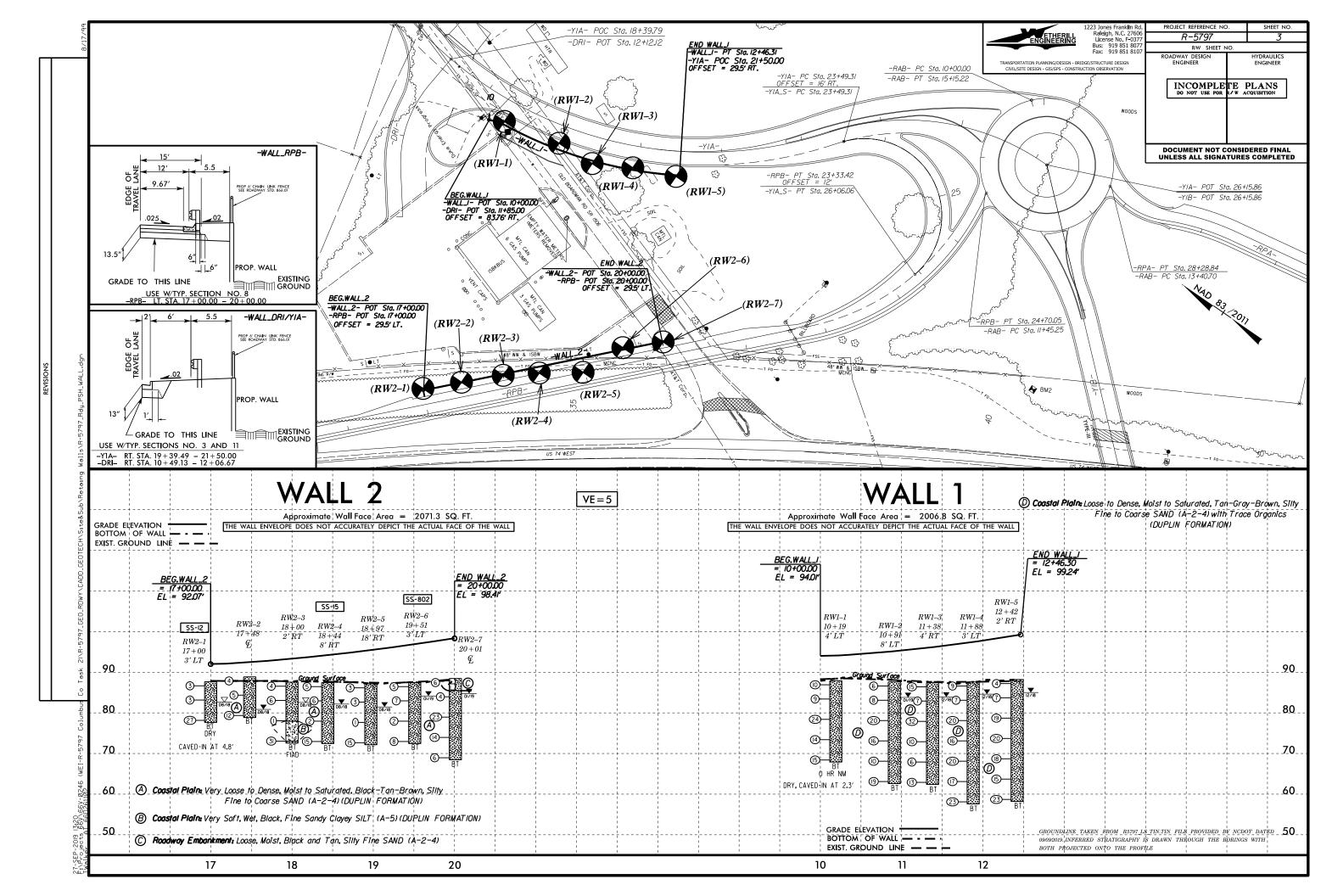
	SOIL DESCR	IPTION			T	GRA	ADATION					ROCK DE	SCRIPTION
BE PENETRATED WITH 4	JNCONSOLIDATED, SEMI-CONSOLIDAT A CONTINUOUS FLIGHT POWER AUG TANDARD PENETRATION TEST (AAS)	ER AND YIELD LESS	THAN 100 BLOWS PER	FOOT	WELL GRADED - INDICAT	DICATES THAT SOIL P	ARTICLES ARE ALL	APPROXIMATEL	Y THE SAME SIZE.	ROCK LINE I	NDICATES THE LI	PLAIN MATERIAL THAT N EVEL AT WHICH NON-COA	WOULD YIELD SPT REFUSAL IF TESTED. ISTAL PLAIN MATERIAL WOULD YIELD S AMPLER EQUAL TO OR LESS THAN 0.1 F
IS BASED ON THE	AASHTO SYSTEM. BASIC DESCRIPT EXTURE, MOISTURE, AASHTO CLASSI	TIONS GENERALLY INC	CLUDE THE FOLLOWING:		<u>GAP-GRADED</u> - INDICATES		TY OF GRAIN		MORE SIZES.	BLOWS IN NO	ON-COASTAL PLA		NSITION BETWEEN SOIL AND ROCK IS
AS MINERALOGIC	CAL COMPOSITION, ANGULARITY, STR	RUCTURE, PLASTICITY,	ETC. FOR EXAMPLE,	50CH	THE ANGULARIT	Y OR ROUNDNESS OF S		-	E TERMS:			ALLY DIVIDED AS FOLLOW	/S:
	AY, SILTY CLAY, MOIST WITH INTERBEDDE					IGULAR, <u>SUBROUNDED</u> , OF	R ROUNDED.			WEATHERED ROCK (WR)		100 PLOWC PEP FO	N MATERIAL THAT WOULD YIELD SPT N DOT IF TESTED.
GENERAL GR	RANULAR MATERIALS SIL	T-CLAY MATERIALS	ORGANIC MATERIALS	;			CAL COMPOSIT			CRYSTALLINE		FINE TO COARSE (GRAIN IGNEOUS AND METAMORPHIC ROCK
		35% PASSING *200)		,		HES SUCH AS QUARTZ, F				ROCK (CR)	J.J.J	WOULD YIELD SPT	REFUSAL IF TESTED. ROCK TYPE INCL CHIST, ETC.
GROUP A-1 A CLASS. A-1-a A-1-b	A-2-4 A-2-5 A-2-6 A-2-7	A-5 A-6 A-7	A-1, A-2 A-4, A-5 A-3 A-6, A-7			COMPRE	ESSIBILITY			NON-CRYSTAL			GRAIN METAMORPHIC AND NON-COASTAL < THAT WOULD YEILD SPT REFUSAL IF
SYMBOL SYMBOL						HTLY COMPRESSIBLE	:	LL < 31 LL = 31 - 50		ROCK (NCR)		ROCK TYPE INCLU	DES PHYLLITE, SLATE, SANDSTONE, ETC. EDIMENTS CEMENTED INTO ROCK, BUT M
% PASSING			SILT-			Y COMPRESSIBLE		LL > 50		SEDIMENTARY (CP)			CK TYPE INCLUDES LIMESTONE, SANDSTO
*10 50 MX *40 30 MX 50 MX 51			STANULAR CLAY	MUCK. PEAT			E OF MATERI	[AL					HERING
	MX 35 MX 35 MX 35 MX 35 MX 36 MN	36 MN 36 MN 36 MN	SOILS		ORGANIC MATERIAL	GRANULAR SOILS	SILT - CLAY SOILS	OTHER MA		FRESH			TS MAY SHOW SLIGHT STAINING. ROCK RI
MATERIAL PASSING =40					TRACE OF ORGANIC MA LITTLE ORGANIC MATT		3 - 5% 5 - 12%	TRACE LITTLE	1 - 10% 10 - 20%		HAMMER IF CRYS		COME TOTALS MAY SHOW THIN SLAV COA
LL – -	- 40 MX 41 MN 40 MX 41 MN 40 MX		SOILS WITH LITTLE OR		MODERATELY ORGANIC HIGHLY ORGANIC	5 - 10% > 10%	12 - 20% > 20%		20 - 35% 35% AND ABOVE	VERY SLIGHT (V SLI.)	CRYSTALS ON A	BROKEN SPECIMEN FACE	SOME JOINTS MAY SHOW THIN CLAY COA SHINE BRIGHTLY. ROCK RINGS UNDER HAM
	NP 10 MX 10 MX 11 MN 11 MN 10 MX Ø Ø 4 MX 8 MX	12 MX 16 MX NO MX	MODERATE AMOUNTS OF	HIGHLY ORGANIC			ND WATER	inone i	554 1110 110012		OF A CRYSTALL		
USUAL TYPES STONE FRAGS			ORGANIC	SOILS	∇	WATER LEVEL IN BO		ELY AFTER DRI	LLING	SLIGHT (SLI.)	1 INCH. OPEN JO	DINTS MAY CONTAIN CLAY.	AND DISCOLORATION EXTENDS INTO ROCK IN GRANITOID ROCKS SOME OCCASIONAL
OF MAJOR GRAVEL, AND		LTY CLAYEY ILS SOILS	MATTER			STATIC WATER LEVE				10050475			RYSTALLINE ROCKS RING UNDER HAMMER E
MATERIALS SAND			FAIR TO BOOD IN		 ₽₩	PERCHED WATER, SAT			STRATA	MODERATE (MOD.)	GRANITOID ROCK	S. MOST FELDSPARS ARE D	SCOLORATION AND WEATHERING EFFECTS. DULL AND DISCOLORED, SOME SHOW CLAY.
AS SUBGRADE	CELLENT TO GOOD	FAIR TO POOR	POOR POOR U	NSUITABLE		SPRING OR SEEP					DULL SOUND UND		SHOWS SIGNIFICANT LOSS OF STRENGTH A
PI	OF A-7-5 SUBGROUP IS ≤ LL - 30 ; PI 0		LL - 30		- 0-11-					MODERATELY			R STAINED. IN GRANITOID ROCKS, ALL FEL
	CONSISTENCY OR		I		 	MISCELLAN	IEOUS SYMBOL	LS		SEVERE (MOD. SEV.)			KAOLINIZATION. ROCK SHOWS SEVERE LOS ST'S PICK. ROCK GIVES "CLUNK" SOUND WH
PRIMARY SOIL TYPE		IGE OF STANDARD RATION RESISTENCE	RANGE OF UNCON		ROADWAY EMBA							LD YIELD SPT REFUSAL	
		(N-VALUE)	(TONS/FT ²)				CDT			SEVERE (SEV.)			R STAINED. ROCK FABRIC CLEAR AND EVI IN GRANITOID ROCKS ALL FELDSPARS ARE
GENERALLY GRANULAR	VERY LOOSE LOOSE	< 4 4 TO 10			SOIL SYMBOL	\bigcirc	VET DMT TEST BORI		SLOPE INDICATOR NSTALLATION	10211	TO SOME EXTEN	T. SOME FRAGMENTS OF S	TRONG ROCK USUALLY REMAIN.
MATERIAL	MEDIUM DENSE DENSE	10 TO 30 30 TO 50	N/A		ARTIFICIAL FI		AUGER BORING		ONE PENETROMETER	VERY	-	L <u>D YIELD SPT N VALUES .</u>	N STAINED. ROCK FABRIC ELEMENTS ARE
(NON-COHESIVE)	VERY DENSE	> 50						\bigcirc	EST	SEVERE	BUT MASS IS EF	FECTIVELY REDUCED TO S	SOIL STATUS, WITH ONLY FRAGMENTS OF
GENERALLY	VERY SOFT SOFT	< 2 2 TO 4	< 0.25 0.25 TO 0.5		- INFERRED SOIL	L BOUNDARY	- CORE BORING	• s	SOUNDING ROD	(V SEV.)			F ROCK WEATHERED TO A DEGREE THAT O AIN. <u>IF TESTED, WOULD YIELD SPT N VAL</u>
SILT-CLAY	MEDIUM STIFF	4 TO 8	Ø.5 TO 1.0		INFERRED ROC		MONITORING WEL		EST BORING	COMPLETE	ROCK REDUCED	TO SOIL. ROCK FABRIC NO	T DISCERNIBLE, OR DISCERNIBLE ONLY IN
MATERIAL (COHESIVE)	STIFF VERY STIFF	8 TO 15 15 TO 30	1 TO 2 2 TO 4		ALLUVIAL SOIL	L BOUNDARY	PIEZOMETER	_	SPT N-VALUE		SCATTERED CON		BE PRESENT AS DIKES OR STRINGERS.
	HARD	> 30	> 4				INSTALLATION	0					ARDNESS
	TEXTURE OR G				<u> </u>		ATION SYMBO			VERY HARD		ATCHED BY KNIFE OR SHA	RP PICK. BREAKING OF HAND SPECIMENS
U.S. STD. SIEVE SIZE OPENING (MM)	4 10 40 4.76 2.00 0.43		270 0.053			UNCLASSIFIED EXC UNSUITABLE WASTE		ACCEPTABLE	ED EXCAVATION - E, BUT NOT TO BE			BLOWS OF THE GEOLOGIST	
	COAR			CLAY	SHALLOW UNDERCUT	UNCLASSIFIED EXC	CAVATION -		E TOP 3 FEET OF T OR BACKFILL	HARD	TO DETACH HAN		WLY WITH DIFFICULTY. HARD HAMMER BLO
BOULDER COBB (BLDR.) (COB				ICL.)			EVIATIONS			MODERATELY			OUGES OR GROOVES TO 0.25 INCHES DEEL
GRAIN MM 305	75 2.0	Ø.25	0.05 0.005		AR - AUGER REFUSAL	MED M		VST - VAN	NE SHEAR TEST	HARD	BY MODERATE B		ST'S PICK. HAND SPECIMENS CAN BE DET
SIZE IN. 12	3				BT - BORING TERMINATED			WEA WEA γ - UNIT		MEDIUM			DEEP BY FIRM PRESSURE OF KNIFE OR
SO	DIL MOISTURE - CORRE	ELATION OF 1	ERMS		CL CLAY CPT - CONE PENETRATION		MODERATELY IN PLASTIC		UNIT WEIGHT	HARD	POINT OF A GEC		PEICES 1 INCH MAXIMUM SIZE BY HARD BL
SOIL MOISTURE SC (ATTERBERG LIMI		GUIDE FOR FI	ELD MOISTURE DESCR	IPTION	CSE COARSE DMT - DILATOMETER TES	ORG OF T PMT - PF	RGANIC RESSUREMETER TES	ST SAMPLE	ABBREVIATIONS	SOFT			KNIFE OR PICK. CAN BE EXCAVATED IN FI
					DPT - DYNAMIC PENETRAT	TION TEST SAP SA	APROLITIC	S - BULK				BROKEN BY FINGER PRESS	BY MODERATE BLOWS OF A PICK POINT. SURE.
	- SATURATED - (SAT.)		JID; VERY WET, USUALL THE GROUND WATER		e - VOID RATIO F - FINE	SL SIL	ND, SANDY LT, SILTY	SS - SPLI ST - SHEL		VERY SOF T			AVATED READILY WITH POINT OF PICK. P BY FINGER PRESSURE. CAN BE SCRATCHED
LL _ LIQUID LI	IMIT				 FOSS FOSSILIFEROUS FRAC FRACTURED, FRACT 	SLI SL	LIGHTLY RICONE REFUSAL	RS - ROCK	< OMPACTED TRIAXIAL	SUFI	FINGERNAIL.	ICKNESS CHIN BE BROKEN I	SI FINDER FRESSURE. CHN DE SCHHICHEL
RANGE <	- WET - (W)	ATTAIN OPTIM	OUIRES DRYING TO		FRAGS FRAGMENTS	w - MOIS	ISTURE CONTENT	CBR - CAL	IFORNIA BEARING	F	RACTURE S	SPACING	BEDDING
	LIMIT				HI HIGHLY				TIO	TERM VERY WID	-	SPACING 10RE THAN 10 FEET	VERY THICKLY BEDDED
ОМ ОРТІМИМ	MOISTURE - MOIST - (M)	SOLID; AT OR	NEAR OPTIMUM MOIST	TURE	DRILL UNITS:	ADVANCING TOOLS:	UN SUBJECT	HAMMER TYPE:		WIDE		3 TO 10 FEET	THICKLY BEDDED 1.5
SL SHRINKAG	GE LIMIT				CME-45C	CLAY BITS			_	MODERATE CLOSE	LY CLOSE	1 TO 3 FEET 0.16 TO 1 FOOT	THINLY BEDDED 0.16 VERY THINLY BEDDED 0.03
	- DRY - (D)		DITIONAL WATER TO NUM MOISTURE				FLIGHT AUGER			VERY CLO	SE LE	ESS THAN 0.16 FEET	THICKLY LAMINATED 0.008 THINLY LAMINATED < 0.
	PLASTIC				X CME-55	X 8" HOLLOW AUGE	ERS	CORE SIZE:	н			INDUF	RATION
	PLASTICITY IN		DRY STRENGTH		CME-550		NGER BITS			FOR SEDIMEN	TARY ROCKS, INC		NING OF MATERIAL BY CEMENTING, HEAT
NON PLASTIC	0-5		VERY LOW			TUNGCARBIDE	INSERTS		-	FRIABL	_E		FINGER FREES NUMEROUS GRAINS:
SLIGHTLY PLASTI MODERATELY PLA			SLIGHT MEDIUM		VANE SHEAR TEST		W/ ADVANCER	HAND TOOLS:	DLE DIGGER			CRAINE CAN R	BY HAMMER DISINTEGRATES SAMPLE. E SEPARATED FROM SAMPLE WITH STEE
HIGHLY PLASTIC			HIGH		PORTABLE HOIST		•STEEL TEETH			MODER	ATELY INDURATE		SEPARATED FROM SAMPLE WITH STEE Y WHEN HIT WITH HAMMER.
	COLOF	3				X TRICONE 215/16	TUNGCARB.			INDUR	ATED		FFICULT TO SEPARATE WITH STEEL PF
	ICLUDE COLOR OR COLOR COMBIN			RAY).			l		EAR TEST	inconi			BREAK WITH HAMMER.
	H AS LIGHT, DARK, STREAKED, ET									EXTRE	MELY INDURATED		BLOWS REQUIRED TO BREAK SAMPLE;

PROJECT REFERENCE NO.

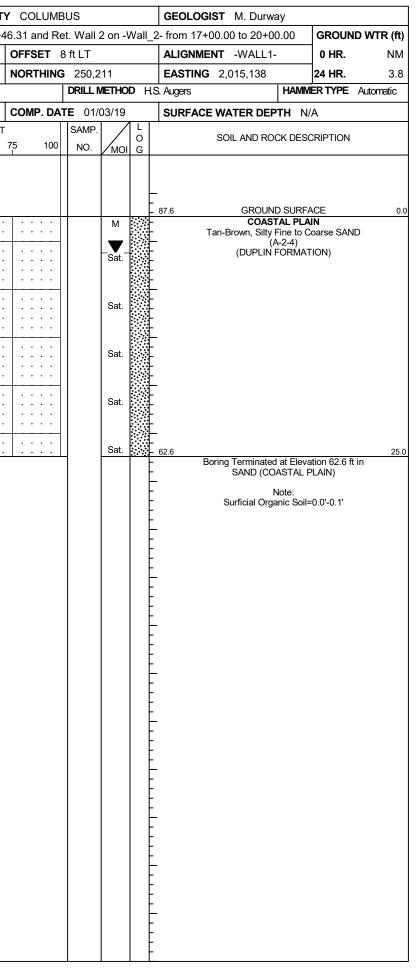
R-5797



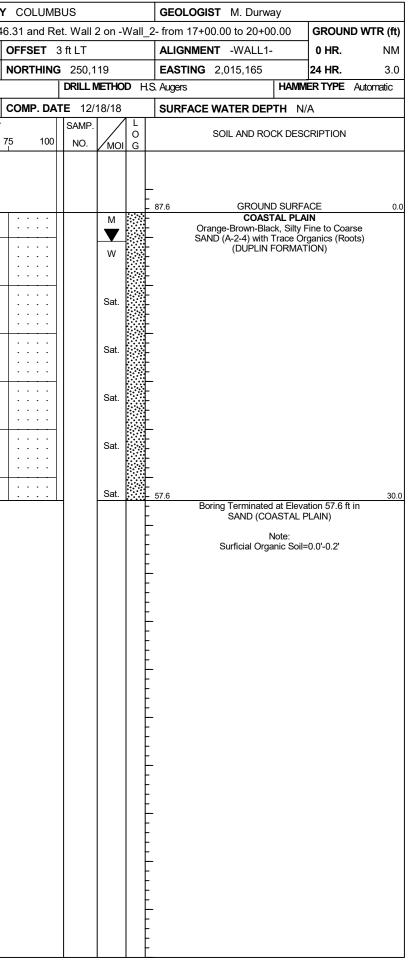
TED. AN INFERRED	TERMS AND DEFINITIONS
D SPT REFUSAL.	ALLUVIUM (ALLUV.) - SOILS THAT HAVE BEEN TRANSPORTED BY WATER. ADUIFER - A WATER BEARING FORMATION OR STRATA.
IS OFTEN	AUDIFER - A WATER BEARING FORMATION OR STRATA. ARENACEOUS - APPLIED TO ROCKS THAT HAVE BEEN DERIVED FROM SAND OR THAT CONTAIN SAND.
	ARGILLACEOUS - APPLIED TO ALL ROCKS OR SUBSTANCES COMPOSED OF CLAY MINERALS, OR HAVING
PT N VALUES >	ANGULANEOUS - APPCIED TO HIL ROLKS OF SUBSTANCES COMPOSED OF LEAT MIREMALS, OF 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
ROCK THAT NCLUDES GRANITE,	WHICH IT IS ENCOUNTERED, BUT WHICH DOES NOT NECESSARILY RISE TO OR ABOVE THE GROUND SURFACE.
TAL PLAIN	CALCAREOUS (CALC.) - SOILS THAT CONTAIN APPRECIABLE AMOUNTS OF CALCIUM CARBONATE.
IF TESTED. TC. T MAY NOT YIELD	COLLUVIUM - ROCK FRAGMENTS MIXED WITH SOIL DEPOSITED BY GRAVITY ON SLOPE OR AT BOTTOM OF SLOPE.
DSTONE, 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. DIKE - A TABULAR BODY OF IGNEOUS ROCK THAT CUTS ACROSS THE STRUCTURE OF ADJACENT
RINGS UNDER	ROCKS OR CUTS MASSIVE ROCK.
	$\overline{\text{DIP}}$ - THE ANGLE AT WHICH A STRATUM OR ANY PLANAR FEATURE IS INCLINED FROM THE HORIZONTAL.
COATINGS IF OPEN. HAMMER BLOWS IF	DIP DIRECTION (DIP AZIMUTH) - THE DIRECTION OR BEARING OF THE HORIZONTAL TRACE OF THE LINE OF DIP, MEASURED CLOCKWISE FROM NORTH.
ROCK UP TO IAL FELDSPAR	FAULT - A FRACTURE OR FRACTURE ZONE ALONG WHICH THERE HAS BEEN DISPLACEMENT OF THE SIDES RELATIVE TO ONE ANOTHER PARALLEL TO THE FRACTURE.
ER BLOWS.	FISSILE - A PROPERTY OF SPLITTING ALONG CLOSELY SPACED PARALLEL PLANES.
TS. IN	FLOAT - ROCK FRAGMENTS ON SURFACE NEAR THEIR ORIGINAL POSITION AND DISLODGED FROM
AY. ROCK HAS	PARENT MATERIAL.
	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
FELDSPARS DULL LOSS OF STRENGTH	FIELD.
WHEN STRUCK.	JOINT - FRACTURE IN ROCK ALONG WHICH NO APPRECIABLE MOVEMENT HAS OCCURRED.
	LEDGE - A SHELF-LIKE RIDGE OR PROJECTION OF ROCK WHOSE THICKNESS IS SMALL COMPARED TO
EVIDENT BUT ARE KAOLINIZED	ITS LATERAL EXTENT.
THE RECEIPTIZED	LENS - A BODY OF SOIL OR ROCK THAT THINS OUT IN ONE OR MORE DIRECTIONS.
	MOTTLED (MOT.) - IRREGULARLY MARKED WITH SPOTS OF DIFFERENT COLORS. MOTTLING IN SOILS USUALLY INDICATES POOR AERATION AND LACK OF GOOD DRAINAGE.
ARE DISCERNIBLE OF STRONG ROCK	PERCHED WATER - WATER MAINTAINED ABOVE THE NORMAL GROUND WATER LEVEL BY THE PRESENCE
AT ONLY MINOR	OF AN INTERVENING IMPERVIOUS STRATUM.
VALUES < 100 BPF	RESIDUAL (RES.) SOIL - SOIL FORMED IN PLACE BY THE WEATHERING OF ROCK.
' IN SMALL AND RS. SAPROLITE IS	ROCK DUALITY DESIGNATION (ROD) - A MEASURE OF ROCK DUALITY DESCRIBED BY TOTAL LENGTH OF ROCK SEGMENTS EDUAL TO OR GREATER THAN 4 INCHES DIVIDED BY THE TOTAL LENGTH OF CORE RUN AND EXPRESSED AS A PERCENTAGE.
NS REQUIRES	SAPROLITE (SAP.) - RESIDUAL SOIL THAT RETAINS THE RELIC STRUCTURE OR FABRIC OF THE PARENT ROCK.
BLOWS REQUIRED	SILL - 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.
DEEP CAN BE	SLICKENSIDE - POLISHED AND STRIATED SURFACE THAT RESULTS FROM FRICTION ALONG A FAULT
DETACHED	OR SLIP PLANE.
OR PICK POINT. D BLOWS OF THE	STANDARD PENETRATION TEST (PENETRATION RESISTANCE)(SPI) - NUMBER OF BLOWS (N OR BPF) OF 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.
N FRAGMENTS NT. SMALL, THIN	STRATA CORE RECOVERY (SREC.) - TOTAL LENGTH OF STRATA MATERIAL RECOVERED DIVIDED BY TOTAL LENGTH OF STRATUM AND EXPRESSED AS A PERCENTAGE.
K. PIECES 1 INCH CHED READILY BY	<u>STRATA ROCK QUALITY DESIGNATION (SROD)</u> - A MEASURE OF ROCK QUALITY DESCRIBED BY TOTAL LENGTH OF ROCK SEGMENTS WITHIN A STRATUM EQUAL TO OR GREATER THAN 4 INCHES DIVIDED BY THE TOTAL LENGTH OF STRATA AND EXPRESSED AS A PERCENTAGE.
	TOPSOIL (TS.) - SURFACE SOILS USUALLY CONTAINING ORGANIC MATTER.
	BENCH MARK: N/A
4 FEET 1.5 - 4 FEET	ELEVATION: N/A FEET
0.16 - 1.5 FEET .03 - 0.16 FEET	NOTES:
008 - 0.03 FEET	RETAINING WALL BORING ELEVATIONS OBTAINED USING A SURVEY
< 0.008 FEET	
	GRADE GPS UNIT.
EAT, PRESSURE, ETC.	FIAD= FILLED IMMEDIATELY AFTER DRILLING
	NM= NOT MEASURED
STEEL PROBE:	
PROBE;	



		BORE LOG			
NBS 44997.1.1		TY COLUMBUS	GEOLOGIST M. Durway	WBS 44997.1.1	TIP R-5797 COUNTY
SITE DESCRIPTION Ret.	Wall 1 on -Wall_1- from 10+00.00 to 12	+46.31 and Ret. Wall 2 on -Wall		t) SITE DESCRIPTION Ret. Wall	1 1 on -Wall_1- from 10+00.00 to 12+4
BORING NO. RW1-1	STATION 10+19	OFFSET 4 ft LT	ALIGNMENT -WALL1- 0 HR. NN	BORING NO. RW1-2	STATION 10+91
COLLAR ELEV. 87.9 ft	TOTAL DEPTH 20.0 ft	NORTHING 250,281	EASTING 2,015,122 24 HR. Dr	y COLLAR ELEV. 87.6 ft	TOTAL DEPTH 25.0 ft
DRILL RIG/HAMMER EFF./DAT	E F&R3495 CME-55 83% 02/05/2018	DRILL METHOD	S. Augers HAMMER TYPE Automatic	DRILL RIG/HAMMER EFF/DATE F	&R3495 CME-55 83% 02/05/2018
DRILLER D. Tignor	START DATE 01/03/18	COMP. DATE 01/03/19	SURFACE WATER DEPTH N/A	DRILLER D. Tignor	START DATE 01/03/19
LEV DRIVE DEPTH BLO	V COUNT BLOWS PER FO	DT SAMP.	SOIL AND ROCK DESCRIPTION	ELEV DRIVE DEPTH BLOW CC	DUNT BLOWS PER FOOT
(ft) (ft) (ft) 0.5ft	0.5ft 0.5ft 0 25 50	75 100 NO. MOI G	ELEV. (ft) DEPTH		0.5ft 0 25 50
90				90	
87.9 0.0			- GROUND SURFACE (
87.9 <u>0.0</u> 2	4 6		COASTAL PLAIN	87.6 + 0.0	3
85 84.4 3.5			Gray-Tan, Silty Fine to Coarse SAND (A-2-4) with Trace Organics (Roots)	85 44.1 3.5	
4	4 5	: Sat.	(DUPLIN FORMATION)		4
					$\left \begin{array}{c c} & \ddots & \ddots \\ & \ddots & \ddots & \ddots \\ & \ddots & \ddots & \ddots \\ & \ddots & \ddots$
80 79.4 8.5 6			-	80 79.1 8.5	
		Sat.		6 8	$12 \qquad \qquad$
75			•		
74.4 13.5	7 7		-	74.1 13.5 9	7
	· · • • · · · · · · · · · · · · · ·				$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$
70 69.4 18.5		· · · · ·	_		
	7 8 · · · · · · · · · · · · · · · · · ·	Sat.	67.9 20	<u>69.1 18.5</u> 1 3	7
			. Boring Terminated at Elevation 67.9 ft in SAND (COASTAL PLAIN)		$\left \begin{array}{c} \left \begin{array}{c} \cdot X \\ \cdot \cdot \end{array} \right \\ \cdot \cdot X \\ \cdot \cdot \end{array} \right \\ \cdot \cdot \cdot \cdot \cdot \\ \cdot \cdot \cdot \cdot \end{array} \right \\ \cdot \cdot \cdot \cdot \cdot \\ \cdot \\ \cdot \cdot \\ \cdot \cdot \\ \\ \cdot \\ \\ \cdot \\ \\ \cdot \\ \cdot \\ \\ \cdot \\ \\ \cdot \\ \cdot \\ \\ \cdot \\ \\ \cdot \\ \\ \cdot \\ \cdot \\ \cdot \\ \\ \cdot \\ \\ \cdot \\ \cdot \\ \cdot \\ \\ \cdot \\ \\ \cdot \\ \cdot \\ \\ \\ \cdot \\ \cdot \\ \\ \cdot \\ \\ \cdot \\ \cdot \\ \\ \cdot \\ \\ \cdot \\ \\ \\ \cdot \\ \\ \\ \cdot \\ \\ \\ \cdot \\$
			– Note:	<u>65</u> <u>64.1</u> <u>23.5</u>	
			24 Hr. =Dry, Caved-in at 2.3'	7 9	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$



											JREL									,									
BORING NO. RW13 STATION 11+38 OFFSET 4 LIGNMENT VALL1- 2 H R. NM COLLAR ELEV. 87.4 ft TOTAL DEPTH 250,163 EASTING 2,015,141 24 H R. 3.5 COLLAR ELEV. 87.6 ft TOTAL DEPTH 30.0 ft DRILLROHMENE FF.DATE F88296 CME-56 89% 02052018 DRILLROHMENT - WALLT 24 H R. 3.5 COLLAR ELEV. 87.6 ft TOTAL DEPTH 30.0 ft DRILLROHMENE FF.DATE F88296 CME-56 89% 02052018 DRILLROHMENT - WALLT 24 H R. 3.5 COLLAR ELEV. 87.6 ft TOTAL DEPTH 30.0 ft DRILLROHMENE FF.DATE 5880 02052018 DRILLROHMENT - WALLT DRILROHMENT - WALLT																													
COLLAR ELEV. 87.4 ft TOTAL DEPTH 25.0 ft NORTHING 250,163 EASTING 2,015,141 24 HR. 3.5 DRILL GMAMMER EFF.JOATE F3RV485 CMESS 85% 02052018 DRILLMETHOD MdRRER FF.JAURE F37.8485 CMESS 85% 02052018 DRILLMETHOD MdRRER FF.JAURE F37.485 CMESS 85% 02052018 DRILLMETHOD MdRRER FF.JAURE F37.485 CMESS 85% 02052018 DRILLMETHOD MdRRER FF.JAURE F37.485 CMESS 85% 02052018 DRILLMER D. Tignor START DATE 12/18/18 SURFACE WATER DEPTH NA LOW COLL BLOWS PERFORT BLOWS PERFORT NO NO CMESS 85% 02052018 DRILLMER D. Tignor START DATE 12/18/18 90 Image: Start St					t. Wall		_		00.00 to				2 on -	-Wall					• •	I				t. Wall		_		0.00 to 1	2+46
DRILL RIGHAMMER EFF, DATE F3R2/86 OME-55 83% (20.52018 DRILL METHOD MadRicary HAMMER TYPE Automatic DRILLER D. Tignor START DATE 12/18/18 COMP. DATE 12/18/18 SURFACE WATER DEPTH NA ELEV DRILLER 0.581 0.55 0.59 0.59 0.59 0.59 0.55 0.0 0.68	BOR	ING NO	. RW1	1-3		S	TATION	11+38			OFFSET	4 ft RT			ALIG	GNMENT	-WALL1-		0 HR. NM	BOI	RING NO) . RW	'1-4						
DRILLER D. Tignor START DATE 12/18/18 COMP. DATE 12/18/18 SURFACE WATER DEPTH N/A ELEV DRIVE 0 CPTH BLOWS PER FOOT SAMP NO VIO C SOIL AND ROCK DESCRIPTION DEPTH (0) BLOWS DEPTH (0) BLOWS PER FOOT										1	NORTHIN																		
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(h)	DRIL		. Tigno				TART DA	TE 12/	18/18	0	COMP. DA				SUR	FACE W	ATER DEPT	TH N/A	۱ <u>ــــــــــــــــــــــــــــــــــــ</u>	DRI		-				TART DAT	E 12/18	3/18	
(h)	ELEV	DRIVE ELEV		'⊢		-							1.7	0		sc	DIL AND ROC	K DESCF	RIPTION		/ DRIVE	DEPT	· · ·	-	-				
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B5 COASTAL, PLAIN Orange-BrownBark, Plan Pice to Coarse SAND (A-24) with Trace Organics (Roots) (DUPLIN FORMATION) B5 CoastaL, PLAIN B6 80 2 3 4 - <	90		Ł																	90		\pm							
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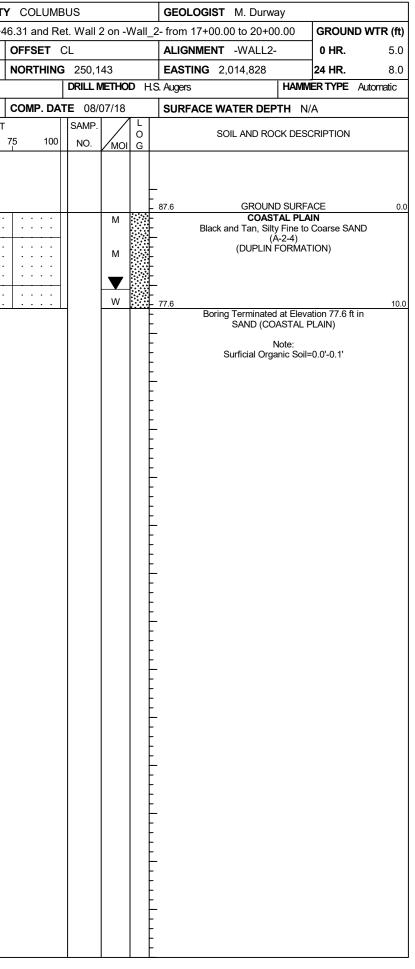


GEOTECHNICAL BORING REPORT

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12+4				2 on -\	Nall_	2- from 17+00.00 to 20+00.00	1	D WTR (ft)
		SET 2		70		ALIGNMENT -WALL1- EASTING 2,015,186	0 HR. 24 HR.	NM 3.2
	NU		DRILL N		DM			Automatic
	со	MP. DAT	E 12/	18/18		SURFACE WATER DEPTH N/	A	
FOOT			SAMP.	▼⁄	L O	SOIL AND ROCK DESC	RIPTION	
	75	100	NO.	моі		ELEV. (ft)		DEPTH (ft)
						- GROUND SURFA	CE	0.0
	1:			М		COASTAL PLA Orange-Brown-Black, Silty F	IN	
	· ·			▼		SAND (A-2-4) with Trace Org (DUPLIN FORMAT	ganics (Ro	ots)
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				Sat.		- 58.2		30.0
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						Note: Surficial Organic Soil=		
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SITE DESCRIPTION Ret. Wall 1 on -Wall_1- from 10+00.00 to 12+46.31 and Ret. Wall 2 on -Wall_2- from 17+00.00 to 20+00.00 GROUND WTR (ft) BORING NO. RW2-1 STATION 17+00 OFFSET 3 ft LT ALIGNMENT •WALL2- 0 HR. 5.0 COLLAR ELEV. 87.7 ft TOTAL DEPTH 10.0 ft NORTHING 250,178 EASTING 2,014,795 24 HR. Drig DRILL RIGHAMMER EFF./DATE F&R3465 CME-56 83% 0205/2018 DRILL METHOD HAS Augers HAMMER TYPE Automatic DRILL RIGHAMMER EFF./DATE F&R3465 CME-56 83% 0205/2018 DRILL METHOD HAS Augers HAMMER TYPE Automatic DRILL RIGHAMMER EFF./DATE BI/OW COUNT BLOW COUNT BLOW SPER FOOT SOIL AND ROCK DESCRIPTION DEPTH (ft) BLOW COUNT BLOW SPER FOOT SOIL AND ROCK DESCRIPTION BLOW COUNT BLOW COUNT BLOW SPER FOOT SOIL AND ROCK DESCRIPTION BLOW COUNT BLOW SPER FOOT SOIL AND ROCK DESCRIPTION BLOW COUNT BLOW SPER FOOT SOIL AND ROCK DESCRIPTION BLOW COUNT BLOW SPER FOOT SOIL AND ROCK DESCRIPTION BLOW COUNT BLOW SPER FOOT SOIL AND ROCK DESCRIPTION BLOW COUNT																		n									
BORING NO. RW2-1 STATION 17+00 OFFSET 3 ft LT ALIGNMENT 0 HR. 5.0 COLLAR ELEV. 87.7 ft TOTAL DEPTH 10.0 ft NORTHING 250,178 EASTING 24 HR. Dry DRILL RIGHAMMER EFF./DATE F8R3495 CM-55 83% (02/05/2018) DRILL METHOD HS. Augers HAMMER TYPE Automatic DRILL RP. D. Tignor START DATE 08/07/18 COMP. DATE 08/07/18 SURFACE WATER DEPTH N/A BIL DRIVE (ft) DEPTH (ft) BLOW COUNT (ft) BLOWS PER FOOT (ft) SOIL AND ROCK DESCRIPTION (ft) SOIL AND ROCK DESCRIPTION (ft) DEPTH (ft) BLOW COUNT (ft) BLOWS PER FOOT (ft) SOIL AND ROCK DESCRIPTION (ft) DEPTH (ft) BLOW COUNT (ft) BLOW COUNT (1										COUNTY
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DRILL RIGHAMMER EFFJDATE F8R3495 CME-55 83% 02/05/2018 DRILL METHOD H.S. Augers HAMMER TYPE Automatic DRILLER D. Tignor START DATE 08/07/18 COMP. DATE 08/07/18 SURFACE WATER DEPTH N/A ELEV DRIVE DEPTH BLOW COUNT BLOWS PER FOOT SOIL AND ROCK DESCRIPTION DEPTH (ft) BLOW COUNT BLOWS PER FOOT SOIL AND ROCK DESCRIPTION DEPTH (ft) BLOW COUNT BLOWS PER FOOT SOIL AND ROCK DESCRIPTION DEPTH (ft) BLOW COUNT BLOWS PER FOOT 0 25 50 75 100 MOI G ELEV. (ft) SOIL AND ROCK DESCRIPTION ELEV. (ft) DEPTH (ft) BLOW COUNT BLOWS PER FOOT 0 25 50 90 -	BOR	ING NO). RW2	2-1		S	TATION	17+00	0		OFFSET	3 ft LT			A	-IGNMENT -WALL2-	0 HR.	5.0	BOF	RING NO . R	W2-2		S	TATION	17+48	8	
DRILLER D. Tignor START DATE 08/07/18 COMP. DATE 08/07/18 SURFACE WATER DEPTH N/A DRILLER D. Tignor START DATE 08/07/18 COMP. DATE 08/07/18 SURFACE WATER DEPTH N/A DRIVE DEPTH BLOW COUNT BLOWS PER FOOT SOIL AND ROCK DESCRIPTION DEPTH (ft) D. Tignor START DATE 08/07/18 300 ATT 0.5ft											NORTHIN							-									
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(ft) (ft) 0.5ft	DRIL					S	TART DA	TE 08	8/07/18	3	COMP. DA	TE 08	/07/18	3	S	JRFACE WATER DEPTH	N/A		DRI	-	Inor		S	TART D	ATE 0	8/07/18	3
(ft) (ft) 0.5ft	ELEV	DRIVE	DEPTH	BLC				BL	OWS P	ER FOOT	-	SAMP				SOIL AND ROCK DES	SCRIPTION		ELEV		····	_			BL		
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Boring Terminated at Elevation 77.7 ft in SAND (COASTAL PLAIN) Notes: 1. Surficial Organic Soil=0.0'-0.1'		/9.2	+ ^{8.5}	10	14	13		. • 27					w		77.7			10.0		79.1 8.	5 1	7	5	:`\			· · · · ·
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Webs 4489/11 TPF RotP/Z COUNTY COUNDING: COUNTY COUNDING: COUND UT(n) BIOLOGIA THE MARK DATA TPE RotP/Z TPE RotP/Z COUNTY COUNDING: COUND UT(n) STREEGE/COUNDING:	
DORING ND: RV/3:0 STATION 19+00 Deferse 2 # 87 ALLOWERT - MAIL2: 0 ## FX00 19-44 COULAR ELEY - 70.1 TOTAL DEPTH 10:0 MORTHMO 2006 D44.8 FX00 TOTAL DEPTH 10:0	COUNTY
COLLAR ELV. 07.6 TOTAL DEPTH 15.0 NORTAL EPTHS 201.08 EASTING 201.49.41 44.8 FLO COLLAR ELV. 07.6 TOTAL DEPTH TOTAL DEP	
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DRULER D. Tignor START DATE 0.0007/16 COMP. DATE 0.0007/16 SURFACE WATER DEPTH MAA EEV FORM BCUWCOUNT	
ELEV (ft) DRIVE ELEV (ft) DEOW COUNT (ft) BLOWS PER FOOT 0.5ft SAMP 0 Soll AND ROCK DESCRIPTION ELEV. (ft) DEPTH (ft) BLOW COUNT 0.5ft BLOW COUNT 0.5ft </th <th>18</th>	18
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	/18 C
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87.6 0.0 1 2 2 4	50 75
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Bits Bits Coastal PLAIN (A2-4) Bits Bits <th< td=""><td></td></th<>	
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Gray, Silty Fine to Coarse SAND (A-2-4) (DUPLIN FORMATION) Boring Terminated at Elevation 72.6 ft in SAND (COASTAL PLAIN) Note:	
Boring Terminated at Elevation 72.6 ft in SAND (COASTAL PLAIN)	
Note: - Surficial Organic Sal=0.0*0.1* - - -	

١T	Y COLUME	BUS			GEOLOGIS	ST M. Durwa	у		
2+4	6.31 and Re	et. Wall 2	2 on -\	Nall_2	2- from 17+0	0.00 to 20+00	.00	GROUN	D WTR (ft)
	OFFSET 8	3 ft RT			ALIGNMEN	T -WALL2-		0 HR.	9.0
	NORTHING	3 250,0	71		EASTING	2,014,892		24 HR.	5.5
		DRILL N	IETHO	DHS	6. Augers		HAMM	ER TYPE	Automatic
	COMP. DA	TE 08/0)7/18		SURFACE	WATER DEP	TH N/	4	
ОТ		SAMP.		L O		SOIL AND ROC			
	75 100	NO.	моі			SOIL AND ROC	K DESC		
· · · · · · · · · · · · · · · · · · ·		SS-15	M ••••••••••••••••••••••••••••••••••••		87.5 Blac (GROUNE COAST k and Gray, Silty A-2-4) with Trac (DUPLIN F	AL PLAI Fine to e Organi	N Coarse SA cs (Roots)	0.0 ND
			W	-	72.5				15.0
					Boi	ring Terminated SAND (COA N Surficial Organ	ASTAL P ote:	LAIN)	in

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				. Wall					.00 to 1		.31 and R			Wall	_				_	UND WTR (ft)	-				t. Wall				10+00.0	10 to 12+	-
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						TARTI	DATE	08/07/			Comp. Da			1 L		RFACE W	VATER	DEPTH N	I/A					1	0.44.00				01/02/1		co
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	0.5ft	0W COU 0.5ft		о	25	BLOWS	50	75 1	5 100	SAMP. NO.	1.7	0	ELEV. (OIL AND	ROCK DES	SCRIPTIC	ON DEPTH (ft)	ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	·——	OW CO 0.5ft	-	0	25	BLOWS	20 50	75
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85	87.2	<u> 0.0</u> 	WOH	1	2	•3 .							м		87.2	Black,	CO , Tan, and	OUND SURF ASTAL PL/ Gray, Silty	AIN Fine to 0	0.0 Coarse	85	- 07.5	-	2	2	3	• 5	•••	· · · · ·		
	83.7	3.5	1	2	1								м		E		S	Sand (A-2-4 Lin Forma	4)			84.0	3.5	2	3	4					
80		ŧ				$\left \begin{array}{c} \P^{3} \\ \Pi & \Pi \end{array} \right $		· · · ·	.		· · · ·		¥	_							80	-	ŧ				, .	· · ·	· · · ·	 	
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75	73.7	_ _ 13.5				 `` `									<u> </u>						75	74.0	13.5							 	
		+	7	8	7		0 15					L	W		72.2		<u>a Termin</u>	ated at Elev	ration 72	2 ft in <u>15.0</u>			<u>+</u>	4	4	4	<u> </u>	••			· ·
	-	ŧ													F		SAND	(COASTAL	PLAIN)				ŧ								
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2+4	6.31 and Re	t. Wall 2	2 on -\	Nall_2	2- from 17+00).00 to 20+00	0.00	GROUN	D WTR (ft)
	OFFSET 3	6 ft LT			ALIGNMEN	T -WALL2-	0 HR.	NM	
	NORTHING	250,0	04		EASTING	2,014,976		24 HR.	3.3
		DRILL N	IETHO	DHS	6. Augers		HAMM	ER TYPE	Automatic
	COMP. DAT	E 01/0)2/19		SURFACE	NATER DEP	TH N/	Ą	
от		SAMP.		L O	,	SOIL AND ROO			
	75 100	NO.	моі	G			K DESC		
		NO.	M Sat.	G	87.5 Bla SANE 72.5 Bor	GROUNE COAST ck-Brown-Gray) (A-2-4) with Ti (DUPLIN F (DUPLIN F	2 SURFA AL PLAI Silty Fir race Gra CORMAT ORMAT at Eleva ASTAL P lote: anic Soil	CE N te to Coars vel & Orga ION) tion 72.5 ft LAIN) =0.0'-0.2'	nics 15.0 in

WBS																		
	44997					P R-5						LUME				GEOLOGIST M. Durway		
				Wall					.00 to					2 on -\	Wall_	2- from 17+00.00 to 20+00.00		ND WTR (f
BORING NO. RW2-7 STATION 20+01															ALIGNMENT -WALL2-	0 HR.	N	
	AR ELE							H 20.0			NOR	THING	249,9			EASTING 2,015,009	24 HR.	3.
	rig/hai			TE F8	&R3495	CME-5	5 83%	02/05/20	18				DRILL	NETHO	D H.S	S. Augers H	AMMER TYPE	Automatic
	ER D	Tigno					DATE	01/02			СОМ	P. DA	FE 01/0	02/19	.	SURFACE WATER DEPTH	N/A	
LEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLC 0.5ft	0.5ft	JNT 0.5ft	0	25	BLOWS	50 PER		75	100	SAMP. NO.			SOIL AND ROCK	DESCRIPTION	
-	(11)		0.010	0.010	0.011								110.	<u>/ MOI</u>	G	ELEV. (ft)		DEPTH
90																		
~	88.5	- - 0.0									-					- 88.5 GROUND SI	JRFACE	(
	-	-	1	3	3	• 6		· · · · · ·	. .					м		ROADWAY EM Black and Tan, Silty F	BANKMENT ine SAND (A-2	2-4)
35	85.0	3.5	2	2	2		•••		. . .	· · ·	· ·	•••		W				
	-	-	_	_	_		•••	· · · · · ·	. .	· · ·		•••			-	Tan-Brown and Black, S SAND (A	-2-4)	arse
0	80.0	8.5					$\langle \cdot \cdot $. .						-	(DUPLIN FOF	MATION)	
		-	4	11	12		· · •	3						w	F	-		
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5	75.0	13.5	6	7	7		•/• •/•			· · ·				Sat.		-		
]	-					14			· · ·					E			
0	70.0	18.5													E	_		
	-	-	2	3	3	6						•••	4	Sat.	F	68.5 Boring Terminated at I		20

North Carolina Department of Transportation Division of Highways Materials and Test Unit Soils Laboratory

 T.I.P. ID NO.:
 R-5797

 DESCRIPTION:
 Retaining Wall 1 on -Wall_1- from 10+00.00 to 12+46.31 and Retaining Wall 2 on -Wall_2- from 17+00.00 to 20+00.00

REPORT ON SAMPLES OF: SOIL FOR QUALITY

F&R PROJECT #:	66V-0246	COUNTY:	Columbus
DATE SAMPLED:	8/18 to 1/19	RECEIVED:	8/18 to 1/19
SAMPLED FROM:	Various	REPORTED:	8/18 to 1/19
SUBMITTED BY:	Cheng Wang	BY:	D. Council

TEST RESULTS

PROJ. SAMPLE NO.	SS-12	SS-15	SS-802						
BORING NO.	RW2_1	RW2_4	RW2_6						
Retained #4 Sieve %	NT	0.0	0.0						
Passing #10 Sieve %	NT	99.9	99.3						
Passing #40 Sieve %	NT	67.2	75.5						
Passing #200 Sieve %	2.7	14.5	34.9						

SOIL MORTAR - 100%									
Coarse Sand Ret - #60 %	NT	67.2	47.0						
Fine Sand Ret - #270 %	NT	19.1	20.0						
Silt 0.053 - 0.010 mm %	NT	4.2	17.8						
Clay < 0.010 mm %	NT	9.5	15.2						
L.L.	NT	NP	NP						
P.L.	NT	NP	NP						
P.I.	NT	NP	NP						
AASHTO Classification	A-2-4	A-2-4	A-2-4						
Station	17+00	18+44	19+51						
Offset	3' Lt	8' Lt	3' Lt						
Depth (ft)	3.5	8.5	8.5						
to	5.0	10.0	10.0						
Alignment	-WALL2-	-WALL2-	-WALL2-						
Moisture Content (%)	20.1	63.2	123.5						
Organic Content (%)	1.5	NT	NT						

NP = Not plastic

NT = Not tested

ND = Not Determined

CL = Centerline

Sheet 11

W.P. Alton, P.E.

Soils Engineer