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U-5833	
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DESCRIPTION TITLE SHEET LEGEND (SOIL & ROCK) SITE PLAN BORELOGS LABORATORY SUMMARY SHEET

STATE OF NORTH CAROLINA

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

STRUCTURE SUBSURFACE INVESTIGATION

COUNTY <u>**RUTHERFORD**</u>

PROJECT DESCRIPTION WIDENING OF SR 2241 (OAK STREET EXTENSION) FROM SR 2159 TO US 74

ALTERNATE

SITE DESCRIPTION WALL FROM -L- STA. 41+54 TO STA. 43 + 00 (-WALL 1-)

S 5022 PROIECT

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U–5833	1	6

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 SOLI 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 BORNIGS OR BETWEEN SAMPLED STRATA WITHIN THE BOREHOLE. THE LABORATORY SAMPLE DATA AND THE IN SITU UN-PLACED 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 MOISTURE 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 GUARANTEE THE SUFFICIENCY OR ACCURACY OF THE INVESTIGATION MADE, NOR THE INTERPRETATIONS MADE, OR OPHION OF THE DEPARTMENT AS TO THE TYPE OF MATERIALS AND CONSTRUCTIONS 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 CONDENSATION, FOR AN THE SITE DIFFERING FROM THOSE INDICATED IN THE SUBSURFACE INFORMATION.

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

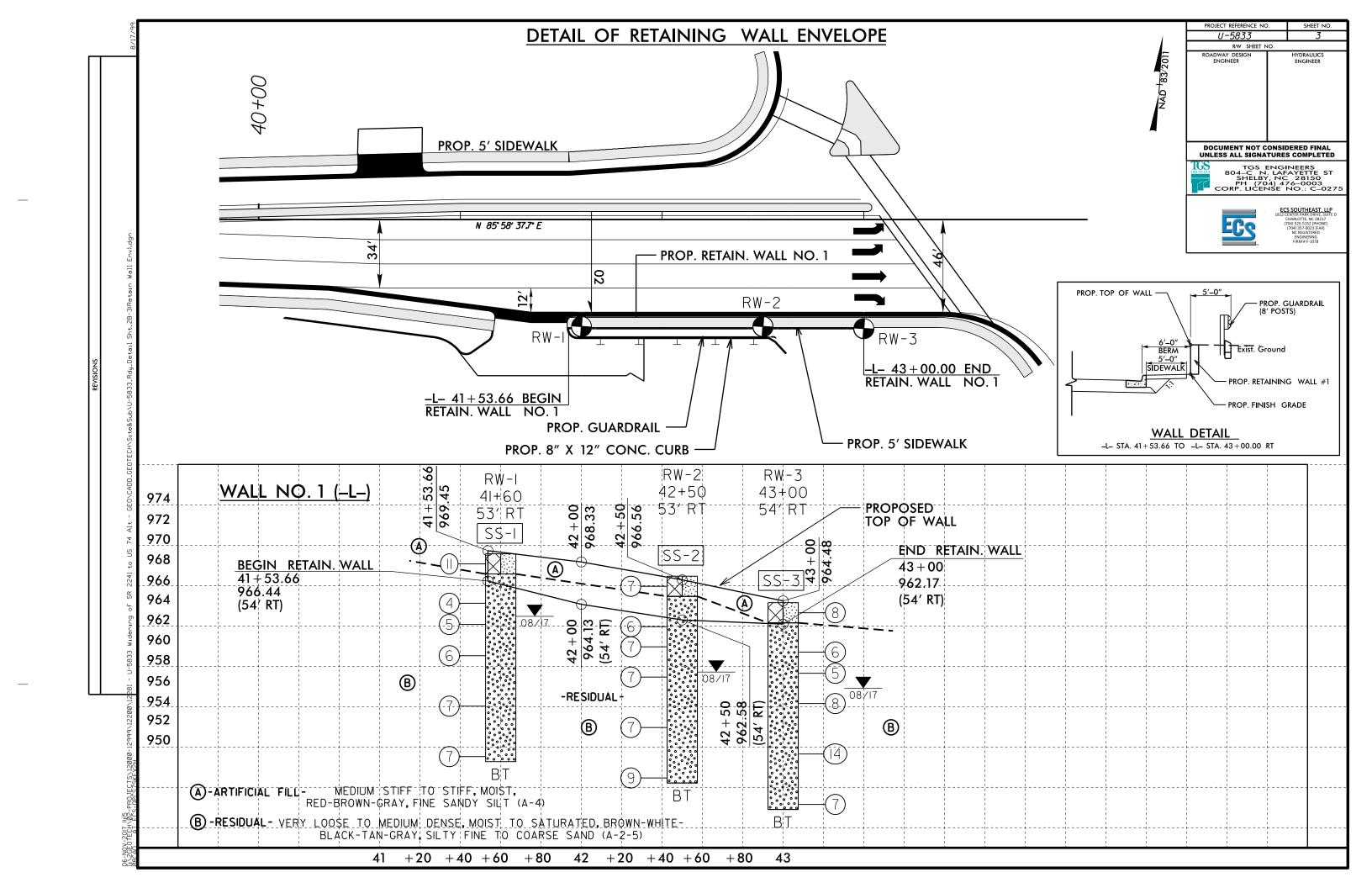
SOIL AND ROCK LEGEND, TERMS, SYMBOLS, AND ABBREVIATIONS

			SOIL	DESCR	IPTI	ON						GRA	DATION						ROCK DES	SCRIPTION
BE PEN	ETRATED WIT) UNCONSOLID H A CONTINUO STANDARD PE	US FLIGHT PC	WER AUG	ER AND	I YIELD LESS	5 THAN 100	BLOWS PE	R FOOT	WELL GRADED - INDICA UNIFORMLY GRADED - I GAP-GRADED - INDICATE	INDICATES T	HAT SOIL PA	ARTICLES ARE AL	L APPROXIMA	TELY THE SAME SIZE.	ROCK LINE I SPT REFUSAL	INDICATES	THE LEVEL	IN MATERIAL THAT W . AT WHICH NON-COA: Y A SPLIT SPOON SA	OULD YIELD SPT REFUSAL IF TESTED STAL PLAIN MATERIAL WOULD YIELD S MPLER EQUAL TO OR LESS THAN Ø.14
		HE AASHTO S											TY OF GRAIN						MATERIAL, THE TRAN	NSITION BETWEEN SOIL AND ROCK I
	AS MINERALC	GICAL COMPOS	SITION, ANGULA	RITY, STR	RUCTURE	E, PLASTICITY	Y,ETC. FOR	EXAMPLE,		THE ANGULARI			OIL GRAINS IS DE		THE TERMS:	ROCK MATER	IALS ARE	TYPICALLY	DIVIDED AS FOLLOW	S:
		GRAY.SILTY CLAY	end and	AASH	то с	LASSIFI				ANGULAR, SUBA	NGULAR, SUB	BROUNDED, OR				WEATHERED ROCK (WR)			100 BLOWS PER FO	
GENERAL CLASS.		GRANULAR MATE (≤ 35% PASSING				Materials Sing #200)	ORC	GANIC MATERI	ALS		AMES SUCH A	AS QUARTZ, P	ELDSPAR, MICA, T	ALC, KAOLIN, B		CRYSTALLINE ROCK (CR)				RAIN IGNEOUS AND METAMORPHIC ROC REFUSAL IF TESTED. ROCK TYPE INCL
GROUP CLASS.	A-1 A-1-a A-1-b	A-3	A-2		A-5	A-6 A-7	A-1, A-2 A-3	A-4, A-5 A-6, A-7		ARE USED I	N DESCRIPT		THEY ARE CONSID	ERED OF SIGN	NIFICANCE.	NON-CRYSTAL			FINE TO COARSE G	RAIN METAMORPHIC AND NON-COASTAL THAT WOULD YEILD SPT REFUSAL IF
SYMBOL					7.4	A-7:6					GHTLY COMPR ERATELY CO	RESSIBLE		LL < 31 LL = 31 -	50	ROCK (NCR)	AIN		ROCK TYPE INCLUD	ES PHYLLITE, SLATE, SANDSTONE, ETC. DIMENTS CEMENTED INTO ROCK, BUT N
% PASSING =10		••••••••••••••••••••••••••••••••••••••	<u></u>				CDANE AD	SILT-	NUCK		HLY COMPRES	SSIBLE	E OF MATER	LL > 50		SEDIMENTARY (CP)				K TYPE INCLUDES LIMESTONE, SANDST
-10 *40	50 MX 30 MX 50 MX	51 MN					granular Soils	CLAY	MUCK, PEAT										WEATH	IERING
= 200		10 MX 35 MX 3	5 MX 35 MX 35	MX 36 MN	36 MN :	36 MN 36 MN		SOILS		ORGANIC MATERIAL	L		SILT - CLAY		MATERIAL	FRESH				S MAY SHOW SLIGHT STAINING. ROCK R
MATERIAL PASSING #40										TRACE OF ORGANIC M LITTLE ORGANIC MAT		2 - 3% 3 - 5%	3 - 5% 5 - 12%	TRACE LITTLE	1 - 10% 10 - 20%			IF CRYSTAL		
LL	- 1	- 40 MX	11 MN 40 MX 41	MN 40 MX	41 MN	40 MX 41 MN	SOILS			MODERATELY ORGANIC	C 5	5 - 10%	12 - 20%	SOME	20 - 35%	VERY SLIGHT (V SLI.)				SOME JOINTS MAY SHOW THIN CLAY COA SHINE BRIGHTLY. ROCK RINGS UNDER HAM
PI	6 MX	NP 10 MX 1	0 MX 11 MN 11	MN 10 MX	10 MX	11 MN 11 MN	LITTL MODE		HIGHLY	HIGHLY ORGANIC		> 10%	> 20%	HIGHLY	35% AND ABOVE			YSTALLINE N		
GROUP INDEX	0	0 0	4 MX	8 MX	12 MX	16 MX NO MX	AMOUN		ORGANIC SOILS			GROUN	ND WATER			SLIGHT				AND DISCOLORATION EXTENDS INTO ROCH
USUAL TYPES	STONE FRAGS.	FINE SIL	TY OR CLAYEY	SIL	TY	CLAYEY	ORG/ MAT			∇	WATER L	EVEL IN BO	RE HOLE IMMEDIA	ATELY AFTER	DRILLING	(SLI.)				IN GRANITOID ROCKS SOME OCCASIONAL YSTALLINE ROCKS RING UNDER HAMMER
OF MAJOR MATERIALS	GRAVEL, AND SAND		VEL AND SAND		ILS	SOILS				▼	STATIC '	WATER LEVE	LAFTER 24	HOURS		MODERATE				COLORATION AND WEATHERING EFFECTS.
GEN. RATING				-			FAIR TO				PERCHED	WATER, SAT	URATED ZONE, OR	WATER BEAR	ING STRATA	(MOD.)	GRANITOI	ID ROCKS, MC	OST FELDSPARS ARE D	ULL AND DISCOLORED, SOME SHOW CLAY.
AS SUBGRADE		EXCELLENT TO	GOOD		FAIR TO	POOR	POOR	POOR	UNSUITABLE									UND UNDER ESH ROCK.	HAMMER BLOWS AND S	HOWS SIGNIFICANT LOSS OF STRENGTH
		PIOF A-7-5 SUE	IGROUP IS ≤ LL	- 30 : PI (OF A-7-6	SUBGROUP IS	> LL - 30			0-M-	SPRING (UR SEEP				MODERATELY				STAINED. IN GRANITOID ROCKS, ALL FE
		CO	NSISTENC	Y OR	DEN	ISENESS					MIS	SCELLAN	EOUS SYMBO	DLS		SEVERE	AND DISC	COLORED AND) A MAJORITY SHOW W	AOLINIZATION. ROCK SHOWS SEVERE LOS
		COMPAC	TNESS OR			STANDARD		E OF UNC		Π		RE) 25/025				(MOD. SEV.)			TED WITH A GEOLOGIS <i>IELD SPT REFUSAL</i>	T'S PICK. ROCK GIVES *CLUNK* SOUND W
PRIMARY	SOIL TYPE		STENCY	PENET	RATION (N-VAI	RESISTENCE	COMPI	RESSIVE S (TONS/FT		L ROADWAY EME			DIP & DIP DIR OF ROCK STRU	CTURES		SEVERE				STAINED, ROCK FABRIC CLEAR AND EV
		VERY	LOOSE		< -					김 백구			SPT		SLOPE INDICATOR	(SEV.)	REDUCED	IN STRENG	TH TO STRONG SOIL. I	N GRANITOID ROCKS ALL FELDSPARS AR
GENER		LC	OSE		4 TO	10				SOIL SYMBOL		\mathbf{T}	DPT DMT TEST BOF VST PMT		INSTALLATION				DME FRAGMENTS OF S [*] IELD SPT N VALUES >	TRONG ROCK USUALLY REMAIN.
MATER	IAL		1 DENSE NSE		10 TC 30 TC			N/A		ARTIFICIAL F	ILL (AF) OT		AUGER BORING	۵	CONE PENETROMETER	VERY				<u>IDD BFF</u> STAINED. ROCK FABRIC ELEMENTS ARE
(NON-C	OHESIVE)		DENSE		> 5					THAN ROADWA	AT EMBANKM			\bigcirc	TEST	SEVERE				OIL STATUS, WITH ONLY FRAGMENTS OF
			SOFT		< :			< 0.25		INFERRED SO	IL BOUNDAR	м -()- м	CORE BORING	•	SOUNDING ROD	(V SEV.)				ROCK WEATHERED TO A DEGREE THAT
GENER SILT-C			OFT M STIFF		2 TC 4 TC			0.25 TO 0		INFERRED RO		MWO	MONITORING WE		TEST BORING	COMPLETE				NN. <u>IF TESTED, WOULD YIELD SPT N VA</u> DISCERNIBLE, OR DISCERNIBLE ONLY IN
MATER		SI	IFF		8 TO) 15		1 TO 2		SWEWE INCOME		U		Ψ	WITH CORE	COMPLETE				BE PRESENT AS DIKES OR STRINGERS.
(COHES	IVE)		STIFF ARD		15 TC > 3			2 TO 4		ALLUVIAL SO	IL BOUNDAR	ay 🛆	PIEZOMETER INSTALLATION	\bigcirc	SPT N-VALUE		ALSO AN	EXAMPLE.		
								> 4					ATION SYMB						ROCK H	ARDNESS
																VERY HARD				P PICK. BREAKING OF HAND SPECIMENS
U.S. STD. S OPENING (4 10 4.76 2.00	40 0.43		60 200 1.25 0.075	270 0.053					SSIFIED EXC TABLE WASTE		ACCEPTA	IFIED EXCAVATION - BLE, BUT NOT TO BE				S OF THE GEOLOGIST	
				COAR		FINE				SHALLOW		SSIFIED EXC			THE TOP 3 FEET OF NENT OR BACKFILL	HARD		SCRATCHED		LY WITH DIFFICULTY. HARD HAMMER BLO
BOULD (BLDR		BBLE (COB.)	GRAVEL	SAN	ID	SAND		SILT SL.)	CLAY (CL.)				ADABLE ROCK	2.10.111		MODERATELY				DUGES OR GROOVES TO 0.25 INCHES DEE
(OEDI)				(CSE.	SD.)	(F SD.	.) `	JL./					VIATIONS			HARD	EXCAVATE	ed by hard	BLOW OF A GEOLOGIS	ST'S PICK. HAND SPECIMENS CAN BE DE
GRAIN M		75 3	2.0		0	.25	0.05	0.005		AR - AUGER REFUSAL	- 0	MED MI			VANE SHEAR TEST WEATHERED	MED UNI		RATE BLOWS		
SIZE I		-								BT - BORING TERMINATE CL CLAY	U		1ICACEOUS ODERATELY		NIT WEIGHT	MEDIUM HARD				DEEP BY FIRM PRESSURE OF KNIFE OR EICES 1 INCH MAXIMUM SIZE BY HARD B
		SOIL MOI			<u>ELAT</u>	ION OF	TERMS			CPT - CONE PENETRATIC	JN TEST	NP - NOM	N PLASTIC		RY UNIT WEIGHT	-		F A GEOLOGI		
	. MOISTURE TERBERG LI		FIELD M DESCR		0	GUIDE FOR F	TELD MOIS	STURE DES	CRIPTION	CSE COARSE DMT - DILATOMETER TES	ST	ORG OF PMT - PF	RGANIC RESSUREMETER TE	-ST SAM	PLE ABBREVIATIONS	SOFT				NIFE OR PICK. CAN BE EXCAVATED IN F BY MODERATE BLOWS OF A PICK POINT.
										DPT - DYNAMIC PENETRA			APROLITIC	S - BL					ERAL INCHES IN SIZE	
			- SATUR (SAT			USUALLY LIC FROM BELOW				e - VOID RATIO F - FINE		SD SAN			PLIT SPOON	VERY	CAN BE (CARVED WIT	H KNIFE, CAN BE EXC	AVATED READILY WITH POINT OF PICK. F
		LIMIT		.,		HON DELON			THOLL	FOSS FOSSILIFEROUS		SL SIL SLI SL		RS - F	SHELBY TUBE	SOFT			SS CAN BE BROKEN B	Y FINGER PRESSURE. CAN BE SCRATCHE
PLASTIC RANGE <			- WET -		ç	SEMISOLID; R	EQUIRES (DRYING TO		FRAC FRACTURED, FRAC	CTURES	TCR - TF	RICONE REFUSAL		RECOMPACTED TRIAXIAL		FINGERNA			
(PI) PL	DUACT		- WCI -	(W)	4	ATTAIN OPTI	MUM MOIS	TURE		FRAGS FRAGMENTS HI HIGHLY		W - MOIS V - VERY	STURE CONTENT		CALIFORNIA BEARING RATIO		FRACTU	JRE SPA		BEDDING
PLI		IC LIMIT											ON SUBJECT			<u>TERM</u> VERY WID)F	MORE	<u>SPACING</u> THAN 10 FEET	TERM TERM THICKLY BEDDED
10	и 上 ОРТІМЦ	JM MOISTURE	- MOIST	- (M)	9	SOLID; AT OF	R NEAR OP	TIMUM MO	ISTURE	DRILL UNITS:		NG TOOLS:	UN SUBSECT			WIDE		3	TO 10 FEET	THICKLY BEDDED 1.5
S	L 🔶 SHRINK	AGE LIMIT								X DIEDRICH D-50		AY BITS				MODERATE CLOSE	ELY CLOSE		TO 3 FEET 6 TO 1 FOOT	THINLY BEDDED 0.16 VERY THINLY BEDDED 0.03
			- DRY -	(D)		REQUIRES AD			I							VERY CLC	JSE		THAN Ø.16 FEET	THICKLY LAMINATED 0.008
						ATTAIN OPTI	MUM MOIS	IURE		CME-55			FLIGHT AUGER	CORE SIZE						THINLY LAMINATED < 0
			PL	ASTIC	ITY							HOLLOW AUGE		Ш-в	L]-H					ATION
			PLAST	ICITY IN	NDEX (P	P(1)		Y STRENG		CME-550	HAF	RD FACED FI	NGER BITS	□-N		FOR SEDIMEN	NTARY ROC	KS, INDURA		ING OF MATERIAL BY CEMENTING, HEA
	N PLASTIC			0-5			_	VERY LOW		VANE SHEAR TEST	1UT	NGCARBIDE	INSERTS			FRIAB	JLE			FINGER FREES NUMEROUS GRAINS; BY HAMMER DISINTEGRATES SAMPLE.
	IGHTLY PLA DERATELY P			6-15 16-25				SLIGHT MEDIUM				SING 🗌 V	ADVANCER	HAND TOOL						
	GHLY PLAST		:	26 OR M				HIGH		PORTABLE HOIST		ICONE	•STEEL TEETH		HOLE DIGGER	MODEF	RATELY IN	DURATED		SEPARATED FROM SAMPLE WITH STE WHEN HIT WITH HAMMER.
				COLOF	۲							ICONE	TUNGCARB.		AUGER					FFICULT TO SEPARATE WITH STEEL P
DECODI			00.00.00.00			(TAN 050	XELL 014 02		CRAY			RE BIT			IDING ROD SHEAR TEST	INDUR	AILU			BREAK WITH HAMMER.
		INCLUDE COL UCH AS LIGH										011			SHEAR IESI	FXTRE	EMELY INDU			BLOWS REQUIRED TO BREAK SAMPLE;
•																			SAMPLE BREAKS	S ACROSS GRAINS.

SHEET NO.

PROJECT REFERENCE NO. U-5833

	TERMS AND DEFINITIONS
TED. AN INFERRED .D SPT REFUSAL.	ALLUVIUM (ALLUV.) - SOILS THAT HAVE BEEN TRANSPORTED BY WATER.
0.1 FOOT PER 60	AQUIFER - A WATER BEARING FORMATION OR STRATA.
< IS OFTEN	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 >	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 INCLUDES GRANITE,	WHICH IT IS ENCOUNTERED,BUT WHICH DOES NOT NECESSARILY RISE TO OR ABOVE THE GROUND SURFACE.
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 COATINGS IF OPEN.	$\underline{\text{DIP}}$ - THE ANGLE AT WHICH A STRATUM OR ANY PLANAR FEATURE IS INCLINED FROM THE HORIZONTAL.
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 NAL FELDSPAR	<u>FAULT</u> - A FRACTURE OR FRACTURE ZONE ALONG WHICH THERE HAS BEEN DISPLACEMENT OF THE SIDES RELATIVE TO ONE ANOTHER PARALLEL TO THE FRACTURE.
ER BLOWS. TS. IN	<u>FISSILE</u> - A PROPERTY OF SPLITTING ALONG CLOSELY SPACED PARALLEL PLANES. <u>FLOAT</u> - ROCK FRAGMENTS ON SURFACE NEAR THEIR ORIGINAL POSITION AND DISLODGED FROM
AY. ROCK HAS	PARENT MATERIAL.
FELDSPARS DULL	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.
LOSS OF STRENGTH WHEN STRUCK.	JOINT - FRACTURE IN ROCK ALONG WHICH NO APPRECIABLE MOVEMENT HAS OCCURRED.
EVIDENT BUT	<u>LEDOE</u> - 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.
ARE DISCERNIBLE	MOTTLED (MOT.) - IRREGULARLY MARKED WITH SPOTS OF DIFFERENT COLORS. MOTTLING IN SOILS USUALLY INDICATES POOR AERATION AND LACK OF GOOD DRAINAGE.
OF STRONG ROCK	<u>PERCHED WATER</u> - WATER MAINTAINED ABOVE THE NORMAL GROUND WATER LEVEL BY THE PRESENCE OF AN INTERVENING IMPERVIOUS STRATUM.
<u>VALUES < 100 BPF</u> Y IN SMALL AND	RESIDUAL (RES.) SOIL - SOIL FORMED IN PLACE BY THE WEATHERING OF ROCK.
RS. SAPROLITE IS	ROCK QUALITY DESIGNATION (RQD) - A MEASURE OF ROCK QUALITY DESCRIBED BY TOTAL LENGTH OF ROCK SEGMENTS EQUAL TO OR GREATER THAN 4 INCHES DIVIDED BY THE TOTAL LENGTH OF CORE RUN AND EXPRESSED AS A PERCENTACE.
INS REQUIRES	$\underline{SAPROLITE\ (SAP.)}$ - 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	$\underline{SLICKENSIDE}$ - 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	<u>STRATA CORE RECOVERY (SREC.)</u> - TOTAL LENGTH OF STRATA MATERIAL RECOVERED DIVIDED BY TOTAL LENGTH OF STRATUM AND EXPRESSED AS A PERCENTAGE.
K. PIECES 1 INCH CHED READILY BY	STRATA ROCK QUALITY DESIGNATION (SRQD)- A MEASURE OF ROCK QUALITY DESCRIBED BY TOTAL LENGTH OF ROCK SEGMENTS WITHIN A STRATUM EQUAL TO OR GREATER THAN 4 INCHES DIVIDED BY THE TOTAL LENGTH OF STRATA AND EXPRESSED AS A PERCENTAGE.
	TOPSOIL (TS.) - SURFACE SOILS USUALLY CONTAINING ORGANIC MATTER.
	BENCH MARK: BM #3
THICKNESS	N-588,934.3731 E-1,137,644.6809
4 FEET 1.5 - 4 FEET	ELEVATION: 981.12 FEET
0.16 - 1.5 FEET	NOTES:
.03 - 0.16 FEET 008 - 0.03 FEET	ROADWAY DESIGN AND SURVEY INFORMATION PROVIDED
< 0.008 FEET	BY TGS ENGINEERS
EAT, PRESSURE, ETC.	
Ε.	
STEEL PROBE:	
PROBE;	
F.	



GEOTECHNICAL BORING REPORT BORE LOG

									1		IRE L								- —										
	5022					P U-583					RUTHEF					LOGIST M. B	rewer	I	-	S 5022					P U-583			OUNT	
SITE	DESCR	RIPTION	N Wi	dening	of SR	2241 (Oa	ak St	reet Ex	tensio	· ·	om SR 21			ltern	ate (-W	ALL 1-)		GROUND WTR (ft)	SITE	E DESCR	RIPTION	Wid	ening		2241 (Oa		Exten	nsion) l	From
BORI	ING NO	. RW-	-1		S	TATION	41+	60		C	OFFSET	53 ft RT			ALI	SNMENT -L-		0 HR. 13.5	BOF	ring no	. RW-	2		S	TATION	42+50			OF
COLL	LAR EL	EV. 96	69.2 ft		Т	OTAL DE	PTH	20.6 f	ť	N	NORTHING	5 588,9	958		EAS	TING 1,137,8	29	24 HR. 6.2	COL	LAR EL	EV . 96	6.9 ft		т	OTAL DE	PTH 20).5 ft		NC
DRILL	RIG/HA	MMER E	EFF./DA	ATE H	PC0279	Diedrich [D50 88	3% 11/02/	/2016			DRILL I	METHO	DD ⊦	H.S. Auge	S	HAMM	ER TYPE Automatic	DRIL	.L RIG/HA	MMER E	FF./DA	TE HF	PC0279	Diedrich D)50 88% 1 [°]	1/02/201	16	
DRILI	LER J	l. Cain			S	TART DA	TE	08/21/1	7	C	COMP. DA	TE 08/	21/17	,	SUF	FACE WATER	DEPTH N/	A	DRI	LLER J	. Cain			S	FART DA	TE 08/2	21/17		cc
ELEV	DRIVE ELEV		BL	ow co	UNT		I	BLOWS	PER FO	DOT		SAMP.	\mathbf{V}	L		SOIL AND	ROCK DESC		ELEV	/ DRIVE ELEV	DEPTH	BLC	W CO	UNT		BLO\	WS PE	R FOOT	r.
(ft)	(ft)	(ft)	0.5ft	0.5ft	0.5ft	0	25		50	75	5 100	NO.	мо	l G	ELEV.			DEPTH (f) (ft)	(ft)	(ft)	0.5ft	0.5ft	0.5ft	0	25	50		75
970	969.2	0.0													969.2		OUND SURFA		970		ļ								
		+ +	2	5	6	. ∲11 ./		 	 	 	· · · · ·		M		967.2	_ Stiff, Red-Brown	lay, mica, and	SILT (A-4), with2		966.9	0.0	3	4	3	47.				. _
965	965.3	Ť	3	2	2	<u>/</u> ●4			+			SS-1	36%			Very Loose to	RESIDUAL		965		ł					<u> </u>			+
ŀ	963.2	<u> </u>	2	2	3		•						M	_	Ŧ	Silty Fine to C trace mica and	oarse SAND (A-2-5(0)), with		962.9	4.0	3	3	3					•
960	960.1	T 9.1													F		graver-sizeu i	lock inaginents	960	960.9	6.0	3	3	4					
		Ŧ	3	3	3	6	•						w		F					957.9	Ŧ								-
		Ŧ													-						+ 0.0	3	3	4					•
955	955.1	14.1	3	3	4		·	· · · · ·			· · · · ·		w		F				955		Ŧ					· · · ·			
		Ŧ													ŧ.					952.9	14.0	3	3	4					
950	950.1	+ + 19 1						· · · · ·	· · · ·		· · · · · · · ·				Ŧ				950		Ŧ		Ŭ		•7 · •1· ·	· · · ·		· · · · · ·	•
		-	3	3	4	•7 .							w		948.6	D. i. T. ii		20.		947.9	Ŧ 10.0								
		Ŧ													F	Boring Termir Residu	ated at Elevat al Silty SAND			947.9	- 19.0 -	3	4	5	 	· · · ·		· · · · · ·	
	-																												

SHEET 4

NT	Y RUTHER	FORD			GEOLOGI	ST J. Erickso	on		
ו) F	rom SR 215	9 to US	74 Alt	ernate	e (-WALL 1-)		GROUN	D WTR (ft)
	OFFSET 5	53 ft RT			ALIGNMEN	NT -L-		0 HR.	14.8
	NORTHING	588,9	64		EASTING	1,137,919		24 HR.	9.5
		DRILL N	IETHO	D H.S	. Augers		HAMME	R TYPE	Automatic
	COMP. DAT	FE 08/2	21/17		SURFACE	WATER DEP	TH N/	4	
ОТ		SAMP.		L		SOIL AND ROO	K DESC	RIPTION	
	75 100	NO.	/моі	G					
		SS-2	M 31% W W W		<u><u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u></u></u>	ium Stiff, Red-B	CIAL FIL rown-Gra e clay, m iTDUAL ite, Silty with trac rock frag	L ay, Fine Sa ica, and gu Fine to Cc e mica an iments	<u>avel</u> j parse d

GEOTECHNICAL BORING REPORT BORE LOG

											BC	JR		OG						
WBS	5 0228	5.1.1			Т	P U-5	5833			COU	NTY	RU	THEF	RFORD			GEOLOGIST J. Eric	ckson		
SITE	DESCR		Wio	dening	of SR	2241 (Oak	Stree	t Exte	ensior	n) Fro	om S	R 21	59 to US	6 74 A	lterna	ate (-WALL 1-)		GROUND	WTR (ft)
BOR	ING NO	. RW-	3		S	TATIO	N 43	+00			(OFFS	SET :	54 ft RT			ALIGNMENT -L-		0 HR.	12.5
COL	LAR EL	EV. 96	64.3 ft		Т	OTAL [DEPT	H 20).5 ft		I	NOR	THING	5 588,9	967		EASTING 1,137,96	9	24 HR.	8.5
DRILL	L RIG/HA	MMER E	FF./DA	TE H	PC0279	Diedric	h D50	88% 1	1/02/2	016				DRILL	METHC	DD H	I.S. Augers	HAMN	IER TYPE A	utomatic
DRIL	.LER J	. Cain			S	TART [DATE	08/	21/17	7	(сом	P. DA	TE 08	21/17		SURFACE WATER D	EPTH N	/A	
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	0.5ft	OW CO 0.5ft		0	2		WS P 5	ER FC		5	100	SAMP NO.		L O I G	SOIL AND	ROCK DES	CRIPTION	DEPTH (f
965 955 950 945		<u>3.9</u> 6.0 9.0 14.0	3 3 3 4 4	4 3 2 3 6 3	4 3 3 5 8 4									SS-3	M 34% W W Sat.	X	964.3 GRO 962.3 Medium Stiff, Re (A-4) Loose I Brown-White- SAND (A-2-5 gravel-si - - - - - - - - - - - - -	, with trace RESIDUAL to Medium I slack, Silty F (0)), with tra zed rock fra	LL ine Sandy SIL clay Dense, Fine to Coarse ace mica and agments	0. T2. J 20.

					SOIL '	TES	ST	RES	ULTS	5	
BORING	SAMPLE	OFFSET	STATION	DEPTH	AASHTO	TT	P.I.		% BY W	EIGHT	
NO.	NO.	OFFSEI	STATION	INTERVAL	CLASS.	L.L.	<i>P.I.</i>	C. SAND	F. SAND	SILT	CLAY
<i>RW–1</i>	SS-1	53' RT	41+60 -L-	3.9 - 5.4'	A-2-5(0)	48	1	37.5	32.0	7.2	23.3
<i>RW</i> –2	SS-2	53' RT	42 + 50 -L-	4.0 - 5.5'	A-2-5(0)	44	NP	27.1	45.7	5.1	22.1
RW-3	SS-3	54' RT	43+00 -L-	3.9 - 5.4'	A-2-5(0)	46	NP	42.4	30.2	12.0	15.5

LAB TECHNICIAN: AMANDA ROTH

NCDOT CERTIFICATION NO. 112-09-1003

SIGNATURE:

		PROJE	CT REFERENCE	NO. SHEET	N
			U-5833	6	
					_
% PAS	SSING (S	IEVES)	%	%	
% PAS 10	SSING (S 40	<i>IEVES</i>) 200	% MOISTURE	% ORGANIC	
			-		
10	40	200	MOISTURE		