CONTENTS 5987B REFERENCE

4

SHEET NO.

5-6

DESCRIPTION

LEGEND (SOIL & ROCK)

TITLE SHEET

CROSS SECTIONS BORE LOGS

SITE PLAN

PROFILE

STATE OF NORTH CAROLINA

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

STRUCTURE SUBSURFACE INVESTIGATION

COUNTY _ROBESON

PROJECT DESCRIPTION <u>I-95 IMPROVEMENTS FROM</u> US 301 (EXIT 22) IN ROBESON COUNTY TO NC 59 (EXIT 41) IN CUMBERLAND COUNTY SITE DESCRIPTION BRIDGE NO. 162 ON -Y6-(MCRAINEY RD.) OVER -L- (I-95) AT -L-STA. 761 + 20.96

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	I-5987B	1	11

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 BORINGS OR BETWEEN SAMPLED STRATA WITHIN THE BORCHOLE. THE LABORATORY SAMPLE DATA AND THE IN SITU (IN-PLACE) TEST DATA CAN BE RELIED ON ONLY TO THE DEGREE OF RELIABILITY INHERENT IN THE STANDARD TEST METHOD. THE OBSERVED WATER LEVELS OR SOIL MOISTURE CONDITIONS INDICATED IN THE SUBSURFACE INVESTIGATIONS ARE AS RECORDED AT THE TIME OF THE INVESTIGATION. THESE WATER LEVELS OR SOIL MOISTURE CONDITIONS INCLORDED TO CLIMATIC CONDITIONS INCLORDED TO CLIMATIC CONDITIONS INCLORDING TO CLIMATIC CONDITIONS INCLORDING TEMPERATURES, PRECIPITATION AND WIND, AS WELL AS OTHER NON-CLIMATIC FACTORS.

THE BIDDER OR CONTRACTOR IS CAUTIONED THAT DETAILS SHOWN ON THE SUBSURFACE PLANS ARE PRELIMINARY ONLY AND IN MANY CASES THE FINAL DESIGN DETAILS ARE DIFFERENT. FOR BIDDING AND CONSTRUCTION PURPOSES, REFER TO THE CONSTRUCTION PLANS AND DOCUMENTS FOR FINAL DESIGN INFORMATION ON THIS PROJECT. THE DEPARTMENT DOES NOT WARRANT OR GUARANTEE THE SUFFICIENCY OR ACCURACY OF THE INVESTIGATION MADE, NOR THE INTERPRETATIONS MADE, OR OPINION OF THE DEPARTMENT AS TO THE TYPE OF MATERIALS AND CONDITIONS TO BE ENCOUNTERED. THE BIDDER OR CONTRACTOR IS CAUTIONED TO MAKE SUCH INDEPENDENT SUBSURFACE INVESTIGATIONS AS HE DEEMS NECESSARY TO SATISTY HIMSELF AS TO CONDITIONS TO BE ENCOUNTERED ON THE PROJECT. THE CONTRACTOR SHALL HAVE NO CLAIM FOR ADDITIONAL COMPENSATION OR FOR AN EXTENSION OF TIME FOR ANY REASON RESULTING FROM THE ACTUAL CONDITIONS ENCOUNTERED AT THE SITE DIFFERING FROM THOSE INDICATED IN THE SUBSURFACE INFORMATION.

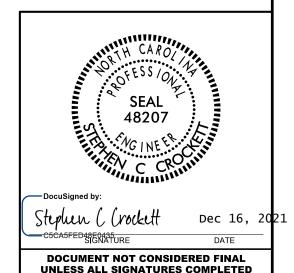
- NOTES:

 1. 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 BY ANY CLAIMS FOR INCREASED COMPENSATION OR EXTENSION OF TIME BASED ON DIFFERENCES BETWEEN THE CONDITIONS INDICATED HEREIN AND THE ACTUAL CONDITIONS AT THE PROJECT SITE.

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INVESTIGATED BY F&R, INC.
DRAWN BYCROCKETT, S.C.
CHECKED BY HAMM, J. R.
SUBMITTED BY FALCON
DECEMBED 2021
DATE DECEMBER 2021

FE&R INC



PROJECT REFERENCE NO. SHEET NO.

1–5987B

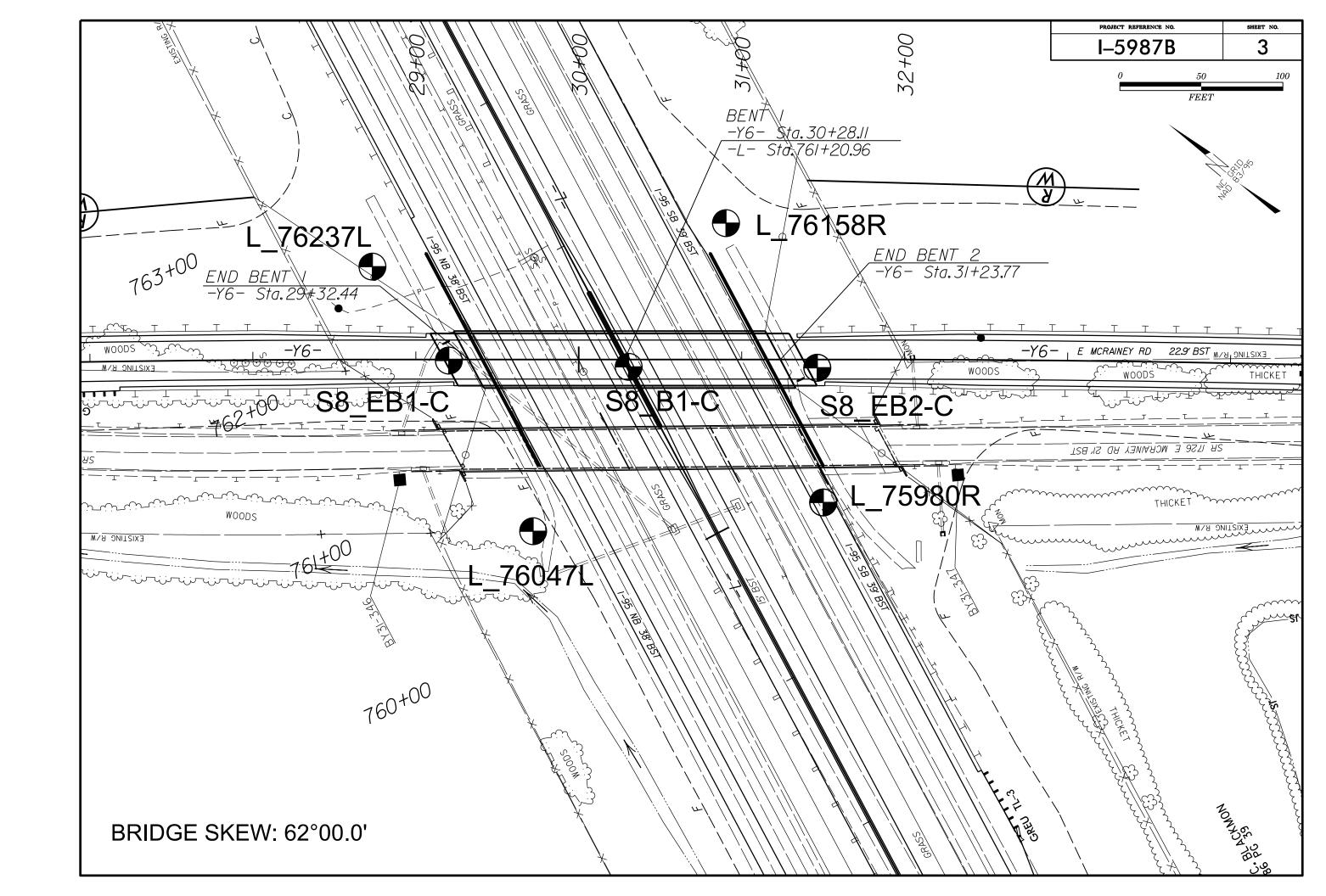
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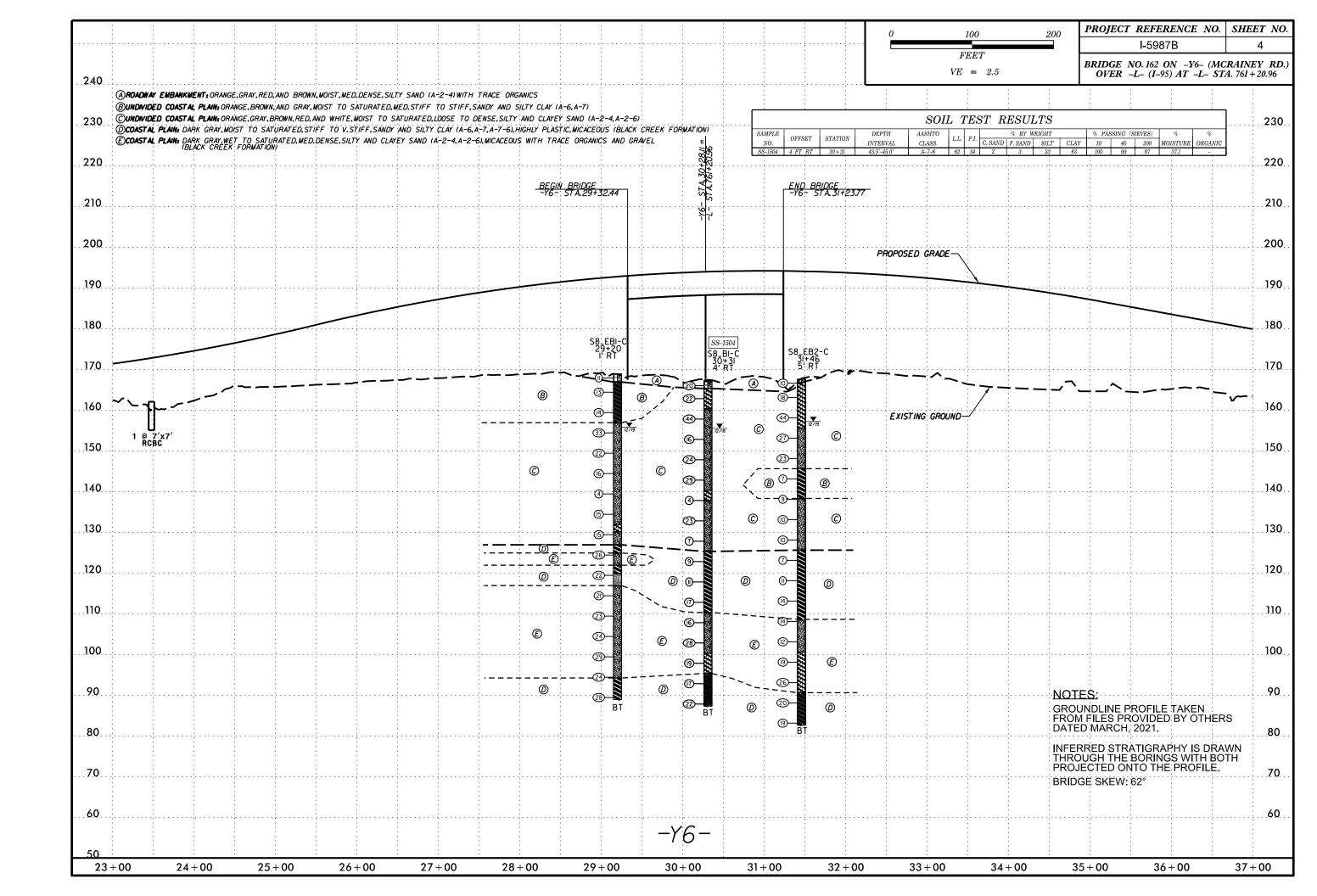
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS GEOTECHNICAL ENGINEERING UNIT

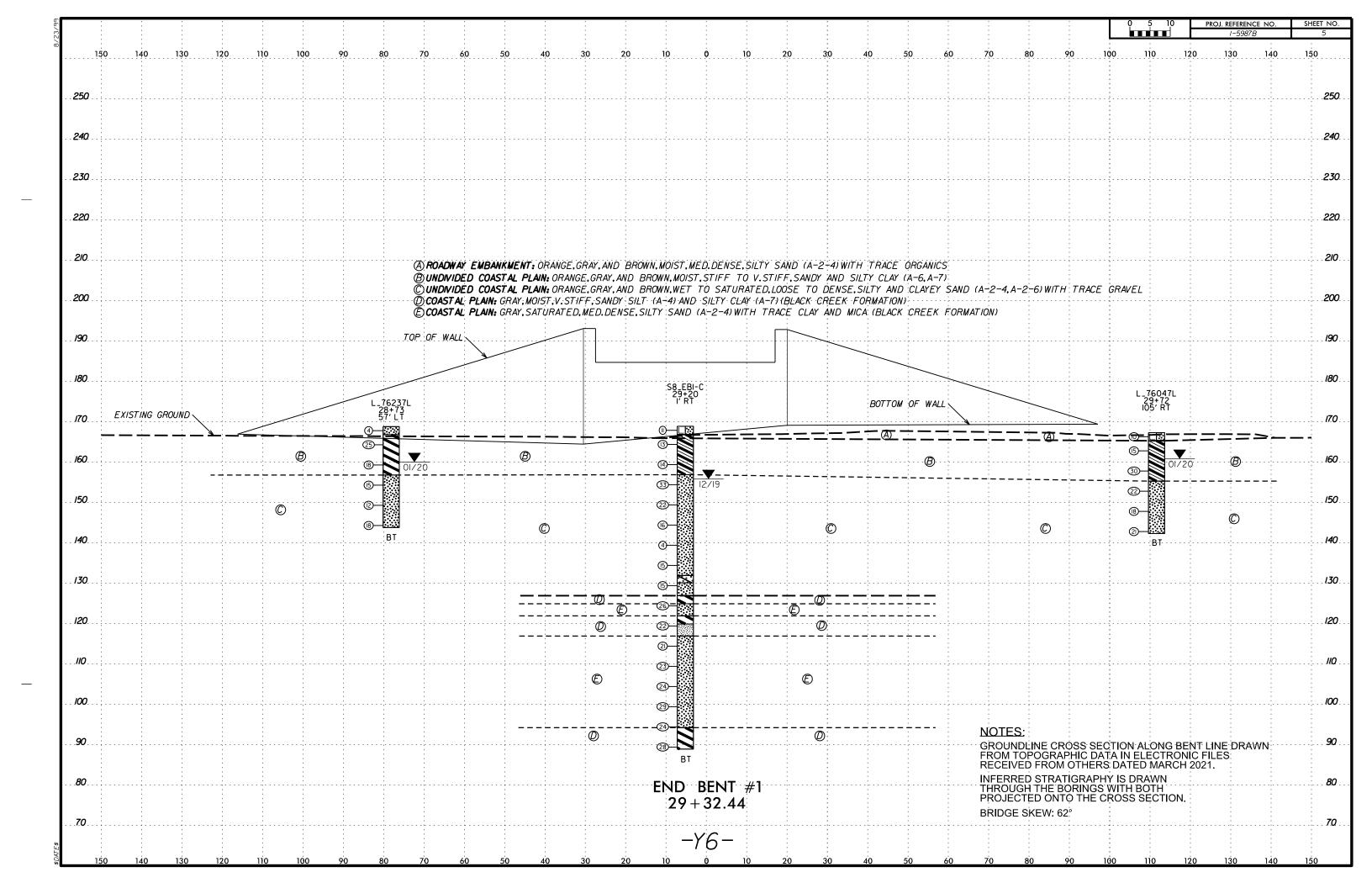
SUBSURFACE INVESTIGATION

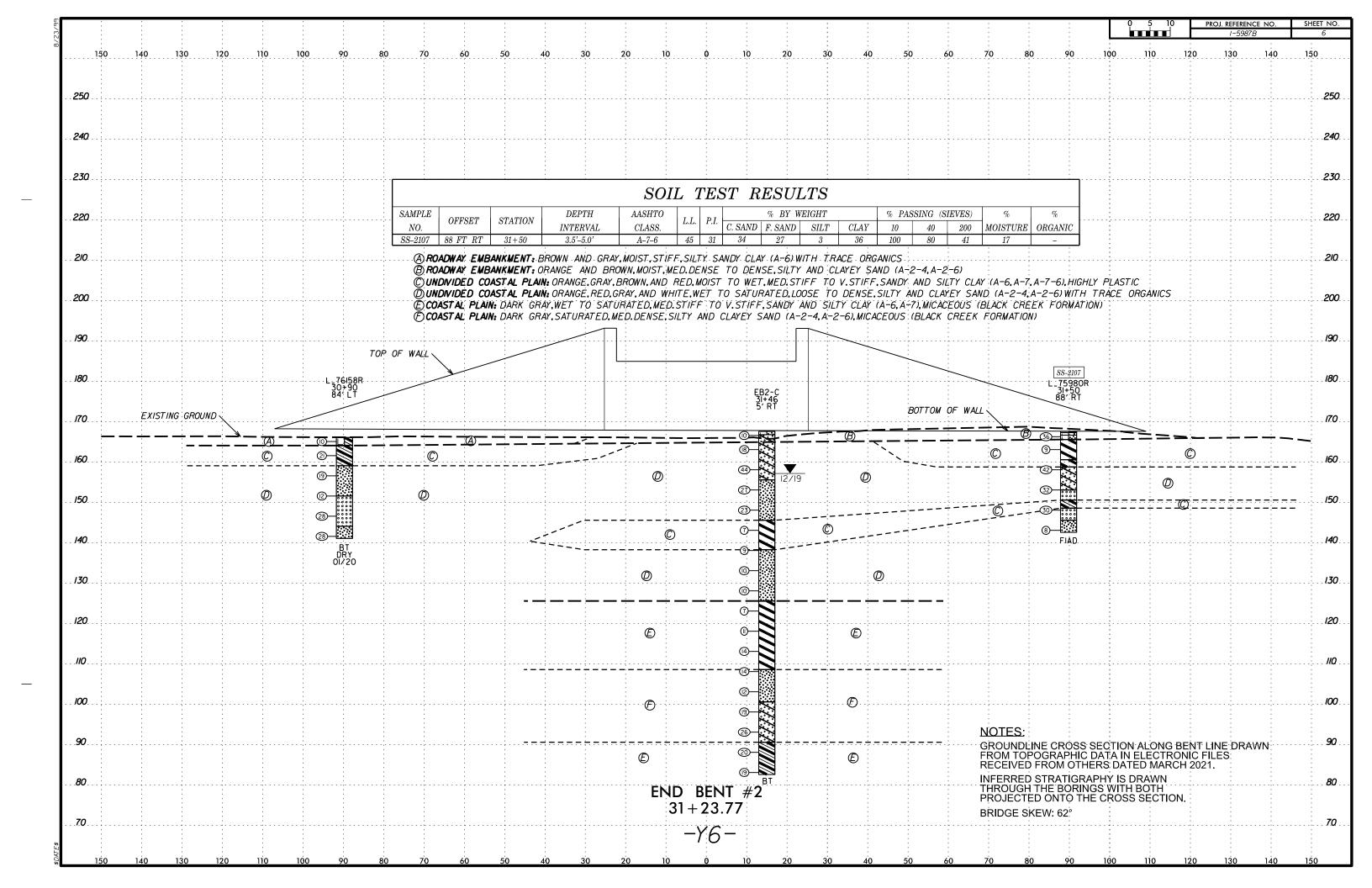
SOIL AND ROCK LEGEND, TERMS, SYMBOLS, AND ABBREVIATIONS

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	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.	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 WOULD YIELD SPT REFUSAL.	ALLUVIUM (ALLUV.) - SOILS THAT HAVE BEEN TRANSPORTED BY WATER.
ACCORDING TO THE STANDARD PENETRATION TEST (AASHTO T 206, ASTM DI586). SOIL CLASSIFICATION IS BASED ON THE AASHTO SYSTEM, BASIC DESCRIPTIONS GENERALLY INCLUDE THE FOLLOWING:	GAP-GRADED - INDICATES A MIXTURE OF UNIFORM PARTICLE SIZES OF TWO OR MORE SIZES.	SPT REFUSAL IS PENETRATION BY A SPLIT SPOON SAMPLER EQUAL TO OR LESS THAN 0.1 FOOT PER 60 BLOWS IN NON-COASTAL PLAIN MATERIAL, THE TRANSITION BETWEEN SOIL AND ROCK IS OFTEN	AQUIFER - A WATER BEARING FORMATION OR STRATA,
CONSISTENCY, COLOR, TEXTURE, MOISTURE, AASHTO CLASSIFICATION, AND OTHER PERTINENT FACTORS SUCH AS MINERALOGICAL COMPOSITION, ANGULARITY, STRUCTURE, PLASTICITY, ETC. FOR EXAMPLE,	ANGULARITY OF GRAINS	REPRESENTED BY A ZONE OF WEATHERED ROCK. ROCK MATERIALS ARE TYPICALLY DIVIDED AS FOLLOWS:	ARENACEOUS - APPLIED TO ROCKS THAT HAVE BEEN DERIVED FROM SAND OR THAT CONTAIN SAND. ARGILLACEOUS - APPLIED TO ALL ROCKS OR SUBSTANCES COMPOSED OF CLAY MINERALS, OR HAVING
VERY STIFF, GRAY, SILTY CLAY, MOIST WITH INTERBEDOED FINE SAND LAYERS, HIGHLY PLASTIC, A-7-6	THE ANGULARITY OR ROUNDNESS OF SOIL GRAINS IS DESIGNATED BY THE TERMS:	WEATHERED VISCOUSTAL PLAIN MATERIAL THAT WOULD YIELD SPT N VALUES >	A NOTABLE PROPORTION OF CLAY IN THEIR COMPOSITION, SUCH AS SHALE, SLATE, ETC.
SOIL LEGEND AND AASHTO CLASSIFICATION	ANGULAR, SUBANGULAR, SUBROUNDED, OR ROUNDED.	ROCK (WR) 100 BLOWS PER FOOT IF TESTED.	ARTESIAN - GROUND WATER THAT IS UNDER SUFFICIENT PRESSURE TO RISE ABOVE THE LEVEL AT
GENERAL GRANULAR MATERIALS SILT-CLAY MATERIALS ORGANIC MATERIALS	MINERALOGICAL COMPOSITION	CRYSTALLINE FINE TO COARSE GRAIN IGNEOUS AND METAMORPHIC ROCK THAT	WHICH IT IS ENCOUNTERED, BUT WHICH DOES NOT NECESSARILY RISE TO OR ABOVE THE GROUND SURFACE.
CLASS. (≤ 35% PASSING *200) (> 35% PASSING *200) CROUP A-1 A-3 A-2 A-4 A-5 A-6 A-7 A-1, A-2 A-4, A-5	MINERAL NAMES SUCH AS QUARTZ, FELDSPAR, MICA, TALC, KAOLIN, ETC. ARE USED IN DESCRIPTIONS WHEN THEY ARE CONSIDERED OF SIGNIFICANCE.	ROCK (CR) WOULD YIELD SPT REFUSAL IF TESTED. ROCK TYPE INCLUDES GRANITE, GNEISS, GABBRO, SCHIST, ETC.	CALCAREOUS (CALC.) - SOILS THAT CONTAIN APPRECIABLE AMOUNTS OF CALCIUM CARBONATE.
GROUP A-1 A-3 A-2 A-4 A-5 A-6 A-7 A-1, A-2 A-4, A-5 CLASS. A-1-0 A-1-b A-2-4 A-2-5 A-2-6 A-2-7 A-4, A-5 A-6, A-7 A-6, A-7	COMPRESSIBILITY	NON-CRYSTALLINE FINE TO COARSE GRAIN METAMORPHIC AND NON-COASTAL PLAIN SEDIMENTARY ROCK THAT WOULD YELLD SPT REFUSAL IF TESTED.	COLLUVIUM - ROCK FRAGMENTS MIXED WITH SOIL DEPOSITED BY GRAVITY ON SLOPE OR AT BOTTOM
SYMBOL 000000000000000000000000000000000000	SLIGHTLY COMPRESSIBLE LL < 31	ROCK TYPE INCLUDES PHYLLITE, SLATE, SANDSTONE, ETC.	OF SLOPE.
% PASSING	MODERATELY COMPRESSIBLE LL = 3! - 50 HIGHLY COMPRESSIBLE LL > 50	COASTAL PLAIN SEDIMENTARY ROCK COASTAL PLAIN SEDIMENTS CEMENTED INTO ROCK, BUT MAY NOT YIELD SPT REFUSAL. ROCK TYPE INCLUDES LIMESTONE, SANDSTONE, CEMENTED	CORE RECOVERY (REC.) - TOTAL LENGTH OF ALL MATERIAL RECOVERED IN THE CORE BARREL DIVIDED BY TOTAL LENGTH OF CORE RUN AND EXPRESSED AS A PERCENTAGE.
*10 50 MX GRANULAR SIL1- MUCK,	PERCENTAGE OF MATERIAL	CCP) SHELL BEDS, ETC. WEATHERING	DIKE - A TABULAR BODY OF IGNEOUS ROCK THAT CUTS ACROSS THE STRUCTURE OF ADJACENT
*40 30 MX 50 MX 51 MN PEAT ** *200 15 MX 25 MX 10 MX 35 MX 35 MX 35 MX 35 MX 36 MN 36 MN 36 MN 36 MN 36 MN	GRANULAR SILT - CLAY ORGANIC MATERIAL SOILS SOILS OTHER MATERIAL	FRESH ROCK FRESH, CRYSTALS BRIGHT, FEW JOINTS MAY SHOW SLIGHT STAINING, ROCK RINGS UNDER	ROCKS OR CUTS MASSIVE ROCK.
MATERIAL	TRACE OF ORGANIC MATTER 2 - 3% 3 - 5% TRACE 1 - 10%	HAMMER IF CRYSTALLINE.	DIP - THE ANGLE AT WHICH A STRATUM OR ANY PLANAR FEATURE IS INCLINED FROM THE HORIZONTAL.
PASSING *40	LITTLE ORGANIC MATTER 3 - 5% 5 - 12% LITTLE 10 - 20% MODERATELY ORGANIC 5 - 10% 12 - 20% SOME 20 - 35%	VERY SLIGHT ROCK GENERALLY FRESH, JOINTS STAINED, SOME JOINTS MAY SHOW THIN CLAY COATINGS IF OPEN,	DIP DIRECTION (DIP AZIMUTH) - THE DIRECTION OR BEARING OF THE HORIZONTAL TRACE OF THE
PI 6 MX NP 10 MX 10 MX 11 MN 11 MN 10 MX 10 MX 11 MN 11 MN LITTLE UK HIGHLY	HIGHLY ORGANIC > 10% > 20% HIGHLY 35% AND ABOVE	(V SLI.) CRYSTALS ON A BROKEN SPECIMEN FACE SHINE BRIGHTLY. ROCK RINGS UNDER HAMMER BLOWS IF OF A CRYSTALLINE NATURE.	LINE OF DIP, MEASURED CLOCKWISE FROM NORTH,
GROUP INDEX 0 0 0 4 MX 8 MX 12 MX 16 MX NO MX AMOUNTS OF SOUS	GROUND WATER	SLIGHT ROCK GENERALLY FRESH, JOINTS STAINED AND DISCOLORATION EXTENDS INTO ROCK UP TO	FAULT - A FRACTURE OR FRACTURE ZONE ALONG WHICH THERE HAS BEEN DISPLACEMENT OF THE SIDES RELATIVE TO ONE ANOTHER PARALLEL TO THE FRACTURE.
USUAL TYPES STONE FRAGS. FINE SILTY OR CLAYEY SILTY CLAYEY MATTER		(SLI.) 1 INCH. OPEN JOINTS MAY CONTAIN CLAY. IN GRANITOID ROCKS SOME OCCASIONAL FELDSPAR CRYSTALS ARE DULL AND DISCOLORED, CRYSTALLINE ROCKS RING UNDER HAMMER BLOWS.	FISSILE - A PROPERTY OF SPLITTING ALONG CLOSELY SPACED PARALLEL PLANES.
OF MAJOR GRAVEL, AND SAND GRAVEL AND SAND SOILS SOILS	▼ STATIC WATER LEVEL AFTER <u>24</u> HOURS	MODERATE SIGNIFICANT PORTIONS OF ROCK SHOW DISCOLORATION AND WEATHERING EFFECTS. IN	FLOAT - ROCK FRAGMENTS ON SURFACE NEAR THEIR ORIGINAL POSITION AND DISLODGED FROM
GEN. RATING EXCELLENT TO GOOD FAIR TO POOR POOR POOR UNSUITABLE		(MOD.) GRANITOID ROCKS, MOST FELDSPARS ARE DULL AND DISCOLORED, SOME SHOW CLAY. ROCK HAS DULL SOUND UNDER HAMMER BLOWS AND SHOWS SIGNIFICANT LOSS OF STRENGTH AS COMPARED	PARENT MATERIAL.
AS SUBURADE PUUR	SPRING OR SEEP	WITH FRESH ROCK.	FLOOD PLAIN (FP) - LAND BORDERING A STREAM, BUILT OF SEDIMENTS DEPOSITED BY THE STREAM.
PI OF A-7-5 SUBGROUP IS ≤ LL - 30 ; PI OF A-7-6 SUBGROUP IS > LL - 30 CONSISTENCY OR DENSENESS	MISCELLANEOUS SYMBOLS	MODERATELY ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED, IN GRANITOID ROCKS, ALL FELDSPARS DULL	FORMATION (FM.) - A MAPPABLE GEOLOGIC UNIT THAT CAN BE RECOGNIZED AND TRACED IN THE FIELD.
PANCE OF STANDARD PANCE OF LINCONFINED	MISCELLHNEOUS STMBOLS	SEVERE AND DISCOLORED AND A MAJORITY SHOW KAOLINIZATION. ROCK SHOWS SEVERE LOSS OF STRENGTH (MOD. SEV.) AND CAN BE EXCAVATED WITH A GEOLOGIST'S PICK. ROCK GIVES 'CLUNK' SOUND WHEN STRUCK.	JOINT - FRACTURE IN ROCK ALONG WHICH NO APPRECIABLE MOVEMENT HAS OCCURRED.
PRIMARY SOIL TYPE CONSISTENCY PENETRATION RESISTENCE COMPRESSIVE STRENGTH	ROADWAY EMBANKMENT (RE) 25/025 DIP & DIP DIRECTION OF ROCK STRUCTURES	<u>IF TESTED, WOULD YIELD SPT REFUSAL</u>	<u>LEDGE</u> - A SHELF-LIKE RIDGE OR PROJECTION OF ROCK WHOSE THICKNESS IS SMALL COMPARED TO
(N-VALUE) (TONS/FT²) VERY LOOSE < 4	SPT CLORE INDICATOR	SEVERE ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. ROCK FABRIC CLEAR AND EVIDENT BUT (SEV.) REDUCED IN STRENGTH TO STRONG SOIL. IN GRANITOID ROCKS ALL FELDSPARS ARE KAOLINIZED	ITS LATERAL EXTENT.
GRANIII AR LOOSE 4 TO 10	SOIL SYMBOL OPT DAT TEST BORING SLOPE INDICATION INSTALLATION	TO SOME EXTENT. SOME FRAGMENTS OF STRONG ROCK USUALLY REMAIN.	LENS - A BODY OF SOIL OR ROCK THAT THINS OUT IN ONE OR MORE DIRECTIONS. MOTTLED (MOT.) - IRREGULARLY MARKED WITH SPOTS OF DIFFERENT COLORS, MOTTLING IN SOILS
MATERIAL MEDIUM DENSE 10 10 30 N/A	ARTIFICIAL FILL (AF) OTHER THAN ROADWAY EMBANKMENT AUGER BORING CONE PENETROMETER	IF TESTED, WOULD YIELD SPT N VALUES > 100 BPF VERY ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. ROCK FABRIC ELEMENTS ARE DISCERNIBLE	USUALLY INDICATES POOR AERATION AND LACK OF GOOD DRAINAGE.
(NON-COHESIVE) VERY DENSE > 50		SEVERE BUT MASS IS EFFECTIVELY REDUCED TO SOIL STATUS, WITH ONLY FRAGMENTS OF STRONG ROCK	PERCHED WATER - WATER MAINTAINED ABOVE THE NORMAL GROUND WATER LEVEL BY THE PRESENCE
VERY SOFT < 2 < 0.25 GENERALLY SOFT 2 TO 4 0.25 TO 0.5	— INFERRED SOIL BOUNDARY — CORE BORING SOUNDING ROD	(V SEV.) REMAINING, SAPROLITE IS AN EXAMPLE OF ROCK WEATHERED TO A DEGREE THAT ONLY MINOR VESTIGES OF ORIGINAL ROCK FABRIC REMAIN. <u>IF TESTED, WOULD YIELD SPT N VALUES < 100 BPF</u>	OF AN INTERVENING IMPERVIOUS STRATUM, RESIDUAL (RES.) SOIL - SOIL FORMED IN PLACE BY THE WEATHERING OF ROCK.
SILT-CLAY MEDIUM STIFF 4 TO 8 0.5 TO 1.0	INFERRED ROCK LINE MONITORING WELL TEST BORING WITH CORE	COMPLETE ROCK REDUCED TO SOIL, ROCK FABRIC NOT DISCERNIBLE, OR DISCERNIBLE ONLY IN SMALL AND	ROCK QUALITY DESIGNATION (ROD) - A MEASURE OF ROCK QUALITY DESCRIBED BY TOTAL LENGTH OF
MATERIAL STIFF 8 TO 15 1 TO 2 (COHESIVE) VERY STIFF 15 TO 30 2 TO 4	A PIEZOMETER	SCATTERED CONCENTRATIONS. QUARTZ MAY BE PRESENT AS DIKES OR STRINGERS. SAPROLITE IS ALSO AN EXAMPLE.	ROCK SEGMENTS EQUAL TO OR GREATER THAN 4 INCHES DIVIDED BY THE TOTAL LENGTH OF CORE
HARD > 30 > 4	INSTALLATION	ROCK HARDNESS	RUN AND EXPRESSED AS A PERCENTAGE. SAPROLITE (SAP.) - RESIDUAL SOIL THAT RETAINS THE RELIC STRUCTURE OR FABRIC OF THE PARENT
TEXTURE OR GRAIN SIZE	RECOMMENDATION SYMBOLS	VERY HARD CANNOT BE SCRATCHED BY KNIFE OR SHARP PICK, BREAKING OF HAND SPECIMENS REQUIRES	ROCK.
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	UNCLASSIFIED EXCAVATION - UNCLASSIFIED EXCAVATION - UNSUITABLE WASTE	SEVERAL HARD BLOWS OF THE GEOLOGIST'S PICK.	SILL - AN INTRUSIVE BODY OF IGNEOUS ROCK OF APPROXIMATELY UNIFORM THICKNESS AND
COARSE FINE	SHALLOW UNCLASSIFIED EXCAVATION - USED IN THE TOP 3 FEET OF	HARD CAN BE SCRATCHED BY KNIFE OR PICK ONLY WITH DIFFICULTY, HARD HAMMER BLOWS REQUIRED TO DETACH HAND SPECIMEN.	RELATIVELY THIN COMPARED WITH ITS LATERAL EXTENT, THAT HAS BEEN EMPLACED PARALLEL TO THE BEDDING OR SCHISTOSITY OF THE INTRUDED ROCKS.
BOULDER COBBLE GRAVEL SAND SAND SILT CLAY	UNDERCOT LESS ACCEPTABLE DEGRAPABLE NOCK	MODERATELY CAN BE SCRATCHED BY KNIFE OR PICK. GOUGES OR GROOVES TO 0.25 INCHES DEEP CAN BE	SLICKENSIDE - POLISHED AND STRIATED SURFACE THAT RESULTS FROM FRICTION ALONG A FAULT
(USE, SU.) (F SU.)	ABBRE VIATIONS AR - AUGER REFUSAL MED MEDIUM VST - VANE SHEAR TEST	HARD EXCAVATED BY HARD BLOW OF A GEOLOGIST'S PICK, HAND SPECIMENS CAN BE DETACHED BY MODERATE BLOWS.	OR SLIP PLANE. STANDARD PENETRATION TEST (PENETRATION RESISTANCE) (SPT) - NUMBER OF BLOWS (N OR BPF) OF
GRAIN MM 305 75 2.0 0.25 0.05 0.005 SIZE IN. 12 3	BT - BORING TERMINATED MICA MICACEOUS WEA WEATHERED	MEDIUM CAN BE GROOVED OR GOUGED 0.05 INCHES DEEP BY FIRM PRESSURE OF KNIFE OR PICK POINT.	A 140 LB. HAMMER FALLING 30 INCHES REQUIRED TO PRODUCE A PENETRATION OF 1 FOOT INTO SOIL
SOIL MOISTURE - CORRELATION OF TERMS	CL CLAY MOD MODERATELY 7 - UNIT WEIGHT	HARD CAN BE EXCAVATED IN SMALL CHIPS TO PEICES 1 INCH MAXIMUM SIZE BY HARD BLOWS OF THE	WITH A 2 INCH OUTSIDE DIAMETER SPLIT SPOON SAMPLER, SPT REFUSAL IS PENETRATION EQUAL TO OR LESS THAN 0.1 FOOT PER 60 BLOWS.
SOIL MOISTURE SCALE FIELD MOISTURE CHIDE FOR EIELD MOISTURE DESCRIPTION	CPT - CONE PENETRATION TEST NP - NON PLASTIC $\gamma_{ m d}$ - DRY UNIT WEIGHT CSE COARSE ORG ORGANIC	POINT OF A GEOLOGIST'S PICK. SOFT CAN BE GROVED OR GOUGED READILY BY KNIFE OR PICK. CAN BE EXCAVATED IN FRAGMENTS	STRATA CORE RECOVERY (SREC.) - TOTAL LENGTH OF STRATA MATERIAL RECOVERED DIVIDED BY
(ATTERBERG LIMITS) DESCRIPTION GOIDE FOR FIELD MOISTOKE DESCRIPTION	DMT - DILATOMETER TEST PMT - PRESSUREMETER TEST SAMPLE ABBREVIATIONS DPT - DYNAMIC PENETRATION TEST SAP SAPROLITIC S - BULK	FROM CHIPS TO SEVERAL INCHES IN SIZE BY MODERATE BLOWS OF A PICK POINT. SMALL, THIN	TOTAL LENGTH OF STRATUM AND EXPRESSED AS A PERCENTAGE.
- SATURATED - USUALLY LIQUID; VERY WET, USUALLY	e - VOID RATIO SD SAND, SANDY SS - SPLIT SPOON	PIECES CAN BE BROKEN BY FINGER PRESSURE. VERY CAN BE CARVED WITH KNIFE, CAN BE EXCAVATED READILY WITH POINT OF PICK, PIECES 1 INCH	STRATA ROCK QUALITY DESIGNATION (SRQD) - A MEASURE OF ROCK QUALITY DESCRIBED BY TOTAL LENGTH OF ROCK SEGMENTS WITHIN A STRATUM EQUAL TO OR GREATER THAN 4 INCHES DIVIDED BY
(SAT.) FROM BELOW THE GROUND WATER TABLE	F - FINE SL SILT, SILTY ST - SHELBY TUBE FOSS FOSSILIFEROUS SLI SLIGHTLY RS - ROCK	SOFT OR MORE IN THICKNESS CAN BE BROKEN BY FINGER PRESSURE. CAN BE SCRATCHED READILY BY	THE TOTAL LENGTH OF STRATA AND EXPRESSED AS A PERCENTAGE.
PLASTIC SEMISOLID; REDUIRES DRYING TO	FRAC FRACTURED, FRACTURES TCR - TRICONE REFUSAL RT - RECOMPACTED TRIAXIAL	FINGERNAIL.	TOPSOIL (TS.) - SURFACE SOILS USUALLY CONTAINING ORGANIC MATTER.
(PI) PL PLASTIC LIMIT ATTAIN OPTIMUM MOISTURE	FRAGS FRAGMENTS w - MOISTURE CONTENT CBR - CALIFORNIA BEARING HI HIGHLY V - VERY RATIO	FRACTURE SPACING BEDDING TERM SPACING TERM THICKNESS	BENCH MARK: ELEVATIONS TAKEN FROM 15987_LS_TIN2.TIN DATED 05/21
	EQUIPMENT USED ON SUBJECT PROJECT	VERY WIDE MORE THAN 10 FEET VERY THICKLY BEDDED 4 FEET	ELEVATION: FEET
OM OPTIMUM MOISTURE - MOIST - (M) SOLID; AT OR NEAR OPTIMUM MOISTURE SL SHRINKAGE LIMIT	DRILL UNITS: ADVANCING TOOLS: HAMMER TYPE:	WIDE 3 TO 10 FEET THICKLY BEDDED 1.5 - 4 FEET MODERATELY CLOSE 1 TO 3 FEET THINLY BEDDED 0.16 - 1.5 FEET	
REQUIRES ADDITIONAL WATER TO	CME-45C CLAY BITS X AUTOMATIC MANUAL	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	NOTES: FIAD - FILLED IMMEDIATELY AFTER DRILLING
- DRY - (D) ATTAIN OPTIMUM MOISTURE	X CME-55 G CONTINUOUS FLIGHT AUGER CORE SIZE:	THINLY LAMINATED 4.008 FEET THINLY LAMINATED 4.008 FEET	FIAD - FILLED IMMEDIATELT AFTER DKILLING
PLASTICITY	8" HOLLOW AUGERS	INDURATION	1
PLASTICITY INDEX (PI) DRY STRENGTH	CME-550 HARD FACED FINGER BITS	FOR SEDIMENTARY ROCKS, INDURATION IS THE HARDENING OF MATERIAL BY CEMENTING, HEAT, PRESSURE, ETC.	
NON PLASTIC 0-5 VERY LOW SLIGHTLY PLASTIC 6-15 SLIGHT	VANE SHEAR TEST UNGCARBIDE INSERTS	RUBBING WITH FINGER FREES NUMEROUS GRAINS; FRIABLE GENTLE BLOW BY HAMMER DISINTEGRATES SAMPLE.	
MODERATELY PLASTIC 16-25 MEDIUM	X CASING W/ ADVANCER POST HOLE DIGGER	CRAINC CAN BE CERABATED FROM CAMBLE WITH CIFFL BRODE.	
HIGHLY PLASTIC 26 OR MORE HIGH	PORTABLE HOIST X TRICONE 2 15/6 STEEL TEETH HAND AUGER	MODERATELY INDURATED ORALING CHILD SEPTEMBLED FROM SHIPLE WITH SIEEL FRODE; BREAKS EASILY WHEN HIT WITH HAMMER.	
COLOR	TRICONE TUNGCARB. SOUNDING ROD	INDURATED GRAINS ARE DIFFICULT TO SEPARATE WITH STEEL PROBE; DIFFICULT TO BREAK WITH HAMMER.	
DESCRIPTIONS MAY INCLUDE COLOR OR COLOR COMBINATIONS (TAN, RED, YELLOW-BROWN, BLUE-GRAY).	CORE BIT VANE SHEAR TEST	CHARD HAMMED BLOWS DECITION TO BREAK SAMPLE.	
MODIFIERS SUCH AS LIGHT, DARK, STREAKED, ETC. ARE USED TO DESCRIBE APPEARANCE.		EXTREMELY INDURATED SAMPLE BREAKS ACROSS GRAINS.	DATE: 8-15-1









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WBS	47533	3.1.1			T	IP I-	5987	7B			COL	JNTY	/ R	OBES	NC				GEOLOG	IST Q. Estek	oan			
SITE	DESCR	IPTION	Brid	ge No.	162 oı	า -Y6	- (Mo	Rair	ney R	oad)	ove	r -L-	(I -95	5) at -L	- Sta	a. 761	+20.9	6				GROU	ND WTF	R (ft
BORI	NG NO.	S8_E	B1-C		S	TATI	ON	29+	20				OF	FSET	1 ft	t RT			ALIGNME	ENT -Y6-		0 HR.		N/A
COLL	AR ELE	EV . 16	88.9 ft		T	OTAL	. DE	PTH	80.	0 ft			NO	RTHIN	G :	399,58	34		EASTING	2,008,994		24 HR.		13.1
DRILL	RIG/HAN	IMER EF	F./DAT	E F&F		CME-5	5 82	% 03/	01/20	19					Тр	RILL M	ETHO	D Mu	I ud Rotary		НАМІ	J MER TYPE	Automa	atic
	L ER D.					TAR)		СО	MP. DA						E WATER DE				
ELEV	DRIVE ELEV	DEPTH	1	ow co					BLOV			<u>—</u> ООТ				SAMP.	▼/	1 - 1						
(ft)	ELEV (ft)	(ft)	0.5ft	0.5ft	0.5ft	0		25		5	0		75	100		NO.	MOI	O	ELEV. (ft)	SOIL AND RO	OCK DE	SCRIPTIO		PTH (1
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180																								
100	-	‡																	- -					
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175	_	‡																	- 					
	-	‡																	- -					
170	-	‡																	- -					
170	168.9 -	0.0													Ш				168.9		ND SUR			(
	-	‡	2	3	8	:	† 11			-		: :	:				М		166 <u>.9</u>	ROADWAY ORANGE-GR	AY, SIL	TY FINE T		2
165	165.4	3.5	4	6	7	ŀ	·1·	:	• • •	-		• •	<u> </u> :		11		М		_	COARSE SAND OF	(A-2-4) RGANIC		ACE !	
	-	‡				:	.•1: . .	3-		-		: :	:				IVI		-	UNDIVIDED ORANGE-BRO			TO	
400	- 160.4	8.5				:	. J.			•		: :	:						- -	COARSE S			. •	
160	- 100.4	- 0.5	6	6	8	1	. •1	4,		-			+-		1		М		_					
	-	ţ				:		<u>``</u>		-			:				_		1 <u>56.9</u>					_ 1
155	155.4	13.5	15	15	18	ŀ		·		•			<u>:</u>						_ OF	RANGE TO GRA			FINE	
	-	ł	'3	'3	'6	:		:	.) 33.	-			:				Sat.		-			,		
	450.4.5	10.5				-		: /	' 	-			:						<u> </u>					
150	150.4	18.5	9	10	12	1		22					+		\parallel		Sat.		_					
	-	-						/					:											
145	145.4	23.5	-		40]]:	: : ;	ί.		-			:						-					
	-	F	7	6	10	-	. 🌶	16		-			Ţ.				Sat.		-					
	-	Ŧ				:	/:	-		-			:						-					
140	140.4_	28.5	2	2	2	4		-		-			┿:		\parallel		Sat.		-					
	-	F				}	. :	-		-			:						_					
135	135.4	33.5			<u> </u>] :	, .	-		-			:						-					
	-	Ŧ	6	8	′		. •	15		-			Ţ :				Sat.		-					
	-	Ŧ					: [-		-	: :	: :	:						131 <u>.9</u> GF	RAY, CLAYEY F	INE TO	COARSE	SAND	_ 3
130	130.4	38.5	3	5	10	┧┝╌	ij	15		-			ֈ։		\parallel		Sat.		130.1		(A-2-6)		_	3
	-	Ŧ				:	\			-			:						- G - <u>126.9</u>	RAY, SILTY FII	NE 10 C (A-2-4)	OARSE S	AND	_ 4
125	125.4 ⁻	43.5] :		-\		-			:						_	COAS	STAL PL		— — —	 4
	-	-	5	13	13	-			26	-			T :				М			FOR	RMÀTIÓ	Ň)		
	-	Ŧ				:		: /		-			:							RAY, SILTY FII A-2-4) (BLACK				_ 4
120	120.4	48.5	7	12	10	 		1 22		-			<u> </u>		\parallel		М			RAY, SILTY CL MICA (BLACK (4
	-	‡						77		-		: :	:						G	RAY, FINE TO (A-4) (BLACK (COARS	E SANDY	SILT	<u>5</u>
115	115.4	† 53.5] :		<u> </u>		•) -	ŔŔŸ, ŚĪLTYŦĬĨ	VE TO C	OARSE S	AND	_ =
110	-	‡	8	10	11	-		P 21		-			T :		11		Sat.		- (<i>)</i>	4-2-4) WITH TF BLACK CRI)				
	-	ļ		[:	: :	1		-			:	: : :					- -					
110	110.4	58.5	6	9	14	1	• •			-		• •	+:				Sat.		-					
	-	‡		[:	· ·	.♥²3 .	'- · ·			: :	:				Jul.		-					
105	- 105.4	63.5		[:	: :			-	: :	: :	:						-					
100		+	10	11	13] :		. •2	4				+:		11		Sat.		- - -					
	-	‡		[:		: /					:						- -					
100	100.4	68.5				11 .		- 1		-			•											

GEOTECHNICAL BORING REPORT BORE LOG

WBS	47533	.1.1			TI	P -	-5987B	3		COL		ROE	BESO					GEOLOGIST Q. Esteban			
SITE	DESCR	PTION	Bridg	je No.	162 or	า -Y6	- (McR	Rainey	Road) over	L- (I-95) a	at -L-	Sta	a. 761+	20.96	6		GROUN	D WTR	(ft)
BOR	NG NO.	S8_E	B1-C				ON 2				-	OFFS						ALIGNMENT -Y6-	0 HR.		N/A
	LAR ELE						L DEP					NORT	HING		399,58			<u> </u>	24 HR.		13.1
	. RIG/HAM			F&R										_	RILL MI		Mu	, ' ' ' ' ' ' ' ' ' ' ' ' ' ' ' ' ' ' '	R TYPE	Automat	ic
	LER D.					ΓAR	T DATI					COMF	<u>'. DA</u> ገ		12/0	6/19	1	SURFACE WATER DEPTH N/A			
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	0.5ft	0.5ft	JNT 0.5ft	0		BL0 25	OWS F	PER F		75 	100		NO.	MOI	O G	SOIL AND ROCK DESC	RIPTION	DEP	TH (ft)
100	- - - 95.4		12	- 1 4	— ₁₅ -	- - - - -	· · ·	29	Matcl							Sat.		GRAY, SILTY FINE TO CO. (A-2-4) WITH TRACE CLA' (BLACK CREEK FORMATIO	AND MI	CA	
	- -	- - -	9	10	14			24								Sat.		GRAY, SILTY CLAY (A-7) W SAND (BLACK CREEK FC			74.7
90	90.4	78.5 -	10	12	16	-		28								М		- 88.9			80.0
																		Boring Terminated at Elevat SILTY CLAY (COASTAL PL CREEK FORMATK)	AIN) (BLA	i IN CK	

										D	<u>Ur</u>	KE L	UG							
WBS	47533	.1.1			T	IP I-59	987B		С	OUNT	R	OBESO	N			GEOLOGI	ST B. Painte	er		
SITE	DESCR	IPTION	Brid	ge No. 1	162 o	n -Y6- ((McRai	iney Ro	ad) o	ver -L-	(I -95) at -L-	Sta. 761	+20.90	6				GROUNI	D WTR (ft)
BOR	NG NO.	S8_B	1-C		s	TATIO	N 30+	+31			OFF	SET 4	4 ft RT			ALIGNME	NT -Y6-		0 HR.	N/A
COLI	AR ELE	V . 16	7.3 ft		Т	OTAL	DEPTH	1 80.0	ft		NOF	RTHING	399,4	97		EASTING	2,009,062		24 HR.	11.8
DRILL	RIG/HAM	MER EF	F./DAT	F F&R:	<u> </u> 3495 (CMF-55	82% 03	3/01/201	9				DRILL N	IETHOD) Mu	 id Rotary	<u> </u>	НАММ	ER TYPE	Automatic
	LER D.							12/09			CO	ND DV.	TE 12/0		1110		WATER DE			ratornatio
	DD1\/E		Π.	W COL			DATE			R FOOT		VIF, DA	SAMP.		1 L T	SURFACE	WATER DE	PIN N/	4	
ELEV (ft)	ELEV (ft)	DEPTH (ft)	0.5ft		0.5ft	0	25		50		75 	100	NO.	MOI	O G	ELEV. (ft)	SOIL AND RO	OCK DES	CRIPTION	DEPTH (ft)
170		_														_				
	-															- - 1 87:3	GROUN	ND SURF	ACE	<u> </u>
	167.0	0.3 _	9	12	8	1 : :	- 120				Τ:			М		165.3	ROADWAY	/ EMBANI		2.0
165	- 163.8 -	- - 3.5				<u> </u>	1		\pm		+-						D-BROWN, SI	SPHALT LTY FINE	TO COAR	
	-	-	10	10	12	1	- 1	2	- -		•			М		- /	SAN UNDIVIDED	ND (A-2-4		j
160	-	-						$\langle \dots \rangle$. :		:	: : :			//	- - _{160.3} _ O	RANGE-GRAY	'-RED, SII	TY CLAYE	Y
100	158.8 -	- - 8.5]		·,' <u>,</u>			1:					\	FINE TO COA			
	-		16	22	22		: :	رد ایر	1 44	 	:			W			TY FINE TO			
155	_	_				<u> · ·</u>		·/: ·								<u>-</u>				
	153.8 -	- 13.5	8	7	9		-,/		- -		.			l w		-				
	-				J		•16 • \ •							l vv		-				
150	_	Ī.,					. /				ֈ:					- -				
	148.8 - -	- 18.5 -	10	12	12	::	. : <u>`</u> \	24		 	:			w		- -				
	-	_								 	:					-				
145	 143.8 -	- - 23.5				<u> </u>			+		+-					_				
	143.0 -	- 20.0	9	13	16	1 ::		2 9	. .		:	: : :		W		=				
140	_	-					-/		- -		:					- 140 <u>.3</u>				27.0
140	- 138.8 -	- - 28.5				<u> </u>	/				+:					DAF	RK GRAY, CLA	YEY FINE	SAND (A-	2-6)
	-		2	2	2	4:				 	:			W		<u>137.8</u> OR	ANGE-GRAY	TO WHIT	E, SILTY F	29.5 INE
135	-	_				: \	<u> </u>				•				<u> </u>		COARSE SAN GRAVEL F	ID (A-2-4)	WITH TRA	
	133.8 -	33.5	6	12	11		.,		. .		Ţ.			100	I I	-	OIVAVLLI	TOW 50.	3-40.0	
	-		"	'^	• • •						:			W		-				
130	-	_					<u>/: </u>									- -				
	128.8 -	- 38.5 -	4	3	4	:_;	' ::			 	:			w		-				
	-					.Ţ:	: :		: :		:	: : :		''		-				40.0
125	_ 123.8 -	- - 43.5				 			+		+-					125.3		STAL PLA		42.0
	123.0 -	- 43.5	3	4	5	:	9		. :		:	: : :	SS-1504	37%			RK GRAY, SIL TRACE FINE			TH
120	-	-				j : [[:						CACEOUS, HIC		STIC (BLÁ	CK
120	 118.8 -	- - 48.5]					+:					-	CKLLK	TORWAT	iON)	
	-		4	5	6	: •	11 -			 	:			М		-				
115	-	_					<u> </u>		- -		-					-				
	113.8 -	- 53.5	4	8	9		1.				1:					-				
	-	_	4		9		17				:			W		-				
110	-						1:				<u> </u>					110.3	RAY TO DARK		I AVEV SII	<u>57.0</u>
	108.8 -	- 58.5 -	6	7	9	┨ : :	1.		: :	 	:			l w	-	-	FINE TO COA	ARSE SAN	ID (A-2-4),	
	-						. 16			. 	•			''		- MIC	CACEOUS WIT AND GRAVE	EL (BLACH	CREEK	CS
105	102.0	62.5				 			+		+-					_	FOF	RMÀTION)	
	103.8 -	- 63.5 -	8	12	16	::	:: };	28 .	: :		:	: : :		Sat.		-				
100	-	<u> </u>				::	::/	· · · ·	: :		:	: : :				- <u>100.3</u>				67.0
100	98.8 -	- - 68.5]	: ;/		+		+:						ARK GRAY, SI	LTY CLAY	EY FINE T	<u> </u>
	-		7	9	10	: •	19		: -		:			Sat.	//		OARSE SAND DRGANICS AN	D CEMEN	ITED SANI	, <u> </u>
95	-					: :	- j.		- :		:	. : :				- 95.3	FRAGMENT FOF	S (BLACK		<u>72.0</u>
- , ,	93.8 -	- - 73.5	E		10		-;;-		- -		1:						RK GRAY, SIL	TYFINE	SANDY CL	AY
	-	<u> </u>	5	7	10	::	• 17	: : :	: :	· · · ·	:	: : :		W		- -	A-6), MICACEO FOF	OUS (BLA RMATION	ICK CREÉ!)	`
90	-	-				$ \cdot \cdot$	- /-		- -		-					-				

GEOTECHNICAL BORING REPORT BORE LOG

									UK		C						
WBS	47533.1	.1			TI	Р	I-5987B	COUNT	Y RO	BESO	Ν				GEOLOGIST B. Painter		
SITE	DESCRIP	TION	Bridg	e No.	162 or	۱-՝	Y6- (McRainey Ro	ad) over -L-	(I -95)	at -L-	Sta	a. 761	+20.96	;		GROUN	ND WTR (ft)
BOR	NG NO.	S8 B1	1-C		S	ГΑ	ATION 30+31		OFFS	SET 4	1 f1	t RT			ALIGNMENT -Y6-	0 HR.	N/A
_	LAR ELEV						TAL DEPTH 80.0) ft				399,49	7		EASTING 2,009,062	24 HR	11.8
				- F&D			IE-55 82% 03/01/201				_	RILL M		Muc	·		Automatic
			-/DATE	- ran					0014	D DA	_			iviuc			Automatic
	LER D. T					IΑ	ART DATE 12/09			P. DA	_	12/0		L	SURFACE WATER DEPTH N	Α	
ELEV (ft)	CLC	EPTH (ft)		W COI		Н.		S PER FOOT		100		SAMP.	/	0	SOIL AND ROCK DES	CRIPTION	١
\(\frac{117}{2}\)	(ft)	(10)	υ.5π	0.5ft	0.5ft	H	0 25	50	75 	100	+	NO.	/MOI	G	ELEV. (ft)		DEPTH (ft)
90							Ma	atch Line			L						
	88.8	78.5	6	9	13								w		87.3		20.0
	+					۲	V 22		_		t				Boring Terminated at Elev	ation 87.3	ft IN80.0
	l Ŧ													F	SANDЎ CLAY (COASTAL I CREEK FORMAT	PLAIN) (BL 'ION)	_ACK
	‡													F		,	
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WBS	47533	.1.1			TI	IP I -5987E			COUNT	Y R	OBESO	N			GEOLOGIST B. Painter	
SITE	DESCRI	IPT I ON	Bridg	ge No. 1	62 or	า -Y6- (McF	ainey	Road)	over -L	- (I-95	5) at -L-	Sta. 761	+20.9	3	GRO	OUND WTR (ft)
BORI	NG NO.	S8_E	B2-C		S	TATION 3	1+46			OF	FSET :	5 ft RT			ALIGNMENT -Y6- 0 H	IR. N/A
COLL	AR ELE	V . 16	7.6 ft		To	OTAL DEP	ΓΗ 8	35.0 ft		NO	RTHING	399,40	08		EASTING 2,009,136 24 H	IR. 10.4
DRILL	RIG/HAM	MER EF	F./DATE	E F&R3	<u> </u>	CME-55 82%	03/01/	2019		<u> </u>		DRILL M) Mu	Id Rotary HAMMER TY	PE Automatic
	LER D.					TART DAT				CO	MP DA	TE 12/			SURFACE WATER DEPTH N/A	
	ם מייני			W COU					ER FOO			SAMP.	10/13	1 L T	CONTACT WATER DEI III IVA	
ELEV (ft)	ELEV	DEPTH (ft)			0.5ft	 	25	50001		' 75	100	NO	///	0	SOIL AND ROCK DESCRIPT	
	(ft)		0.010	0.011	0.010	H	1]	-			110.	/MOI	G	ELEV. (ft)	DEPTH (ft
175		-												H	_	
														l F	- -	
170	-														- -	
170	-														- -	
	167.6	- 0.0	1	5	5	1 . 1	1	1					M	 :::-	- 167.6 GROUND SURFACE - 166.8 ROADWAY EMBANKMEN	0.0 3.0 T
165	-	_			Ü	10 .				- -			IVI	/ /	BROWN, SILTY FINE SAND (^-2-4)
	164.1	3.5	7	9	9	1 7.							М	/ //	UNDIVIDED COASTAL PLA ORANGE-GRAY-RED, SILTY C	
	-					· · · · • i	, ·			. :			'*'	///	FINE TO COARSE SAND (A-	-2-6)
160	450.4								• • •	<u> </u>					- -	
	159.1	<u>8.5</u>	19	25	19		: :	44		. :			_		- -	
	-							<u>/</u> ::		: :			_	<u>// </u>	- - 155.6	12.0
155	154.1	13.5]	+ /	,		-					ORANGE-WHITE, SILTY FINI COARSE SAND (A-2-4)	ĒTO — — <u></u>
	-		11	15	12		27			. .			W	-	COARSE SAIND (A-2-4)	
150	1									. :				-	- -	
100	149.1	18.5	10	12	11		1						,,,	 	- -	
	-	_	10	'^	''	ر ا ام ا	23-			- :			W	-	<u>-</u>	
145		_				/ .				:				K E	- 145.6LIGHT BROWN, FINE SANDY	SII TV 22.0
	144.1	_ 23.5	WOH	WOH	7	• // • •	• •			. .			Sat.	Ŋ	- CLAY (A-7)	OILTT
						-\				. :	: : :		-		- -	
140	139.1	28.5					+								<u>-</u>	
	-100.1	- 20.5	1	4	5	. •9	: :			: :			W		T 138.3 RED-ORANGE-WHITE, CLAYE	29.3 7 SILTY
405	-					: ; : :				: :					FINE TO COARSE SAND (A-2-4 TRACE ORGANICS) WITH
135	134.1	33.5				 . i	+-			+:					_ TRACE ORGANICS	
	-		5	4	6	10 -	- :			- :			Sat.	-	<u>-</u> -	
130	-					: : :	•			. .				-	-	
	129.1	38.5	3	5	5	. 10 -				. .			Sat.	F	-	
						: 7 0 :	-			. :			04	ļ <u> </u>	-	
125	124.1	43.5				-	<u> </u>			<u> </u>					- 125.6 - COASTAL PLAIN	42.0
	-1 24. 1 -	- 43.3	2	3	4	7				: :			W		- DARK GRAY, FINE SANDY SILT - (A-7), MICACEOUS (BLACK C	Y CLAY REEK
400	-	_				: : : :	- :			: :					FORMATION)	
120	119.1	48.5				 ` ` `	+-								- -	
	-		3	5	6	. • 11 •	-			. :			W		-	
115	-	_				- • j - •				- -				N	-	
	114.1	53.5	3	5	9	1	- ·			. .			Sat.		-	
	1	-				14				: :			Jai.		- -	
110	109.1	- 58.5				• • • •	<u> </u>			<u> </u>					- -	
	108.1	_ 00.5	4	6	8	14	: ;			: :			Sat.		- 108.6 - DARK GRAY, CLAYEY SILTY FIN	59.0 IE SAND
	-	-				::/::	: :			: :				::::	- (A-2-4), MICACEOUS (BLACK (FORMATION)	
105	104.1	63.5				 	+-			+:				╠╬╁	-	
125 120 115 110 100		_	3	6	6	12	-			: ÷			Sat.	 -	<u>-</u>	
100	- 1	-				[] : : [] :	: :			. .	:::				- - <u>100.6</u>	67.0
	99.1	68.5	5	8	11	/ .				. .			804		DARK GRAY, SILTY CLAYEY F COARSE SAND (A-2-6), MICAC	EOUS
	-	<u> </u>				:::•	9 - 1			: :			Sat.		- (BLACK CREÈK FÓRMATIC	DN)
95	-	ŀ		1 1		11				- -				[`` -	-	

GEOTECHNICAL BORING REPORT BORE LOG

									ONL L					
	47533.					P I-5987B			ROBESO				GEOLOGIST B. Painter	
ITE	DESCRI	PTION	Brido	ge No.	162 or	ı -Y6- (McRa	iney Road	l) over -L-	(I-95) at -L-	Sta. 761	+20.9	6		GROUND WTR (ft)
ORI	NG NO.	S8_E	B2-C		S	TATION 31	+46		OFFSET 5	5 ft RT			ALIGNMENT -Y6-	0 HR. N/A
OLL	AR ELE	V . 16	7.6 ft		TO	OTAL DEPTI	4 85.0 ft		NORTHING	399,4	80		EASTING 2,009,136	24 HR . 10.4
RILL	RIG/HAM	MER EF	F./DATI	E F&F	R3495 C	ME-55 82% 0	3/01/2019			DRILL N	IETHOI	D Mu	id Rotary HAMM	IER TYPE Automatic
RILI	L ER D.	Tignor			Sī	TART DATE	12/09/19	9	COMP. DA	TE 12/	10/19		SURFACE WATER DEPTH N/	/A
EV	DRIVE ELEV	DEPTH		W CO				PER FOOT		SAMP.	lacksquare	0 7	SOIL AND ROCK DES	CRIPTION
(ft)	(ft)	(ft)	0.5ft	0.5ft	0.5ft	0 2	5 5	50	75 100	NO.	/MOI	ı G	ELEV. (ft)	DEPTH (f
95	94.1	73.5		├		- v	Matc	h Line				\	DARK GRAY, SILTY CLA	YEY FINE TO
Ī		-	7	13	13		26				Sat.	//	COARSE SAND (A-2-6), (BLACK CREEK FORMATION	MICACEOUS
90	7	-				::::/							- 90.6	77
	89.1	78.5	5	9	11	1					Sat.		DARK GRAY, SILTY FINE (A-6), MICACEOUS (BL/	ACK CREEK
	1	-									Out.		- ` ´ FORMATÌON -	1)
35	84.1	- - 83.5				· · · · •							-	
	V	-	5	8	11	· · · • 19					W		- 82.6	85
	1	-											 Boring Terminated at Elevinol SANDY CLAY (COASTAL IN TERMINATE) 	PLAIN) (BLACK
	7	- -											CREEK FORMAT	TION)
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							B	<u>ORE L</u>	<u>UG</u>						
WBS	47533	.1.1			TI	IP I-5987B	COUNTY	ROBESO	N			GEOLOGIST B. Painte	r		
SITE	DESCRI	PTION	Bridg	je No.	162 or	n -Y6- (McRainey Road) over -L-	(I -95) at -L-	Sta. 761	+20.9	6	T		GROUN	ID WTR (ft
BORII	NG NO.	L_762	237L		S ⁻	TATION 28+73		OFFSET 5	7 ft LT			ALIGNMENT -Y6-		0 HR.	N/A
COLL	AR ELE	V . 16	8.8 ft		T (OTAL DEPTH 25.0 ft		NORTHING	399,6	57		EASTING 2,009,008		24 HR.	8.8
DRILL	RIG/HAM	MER EF	F./DATE	F&R	85785 C	CME-55 73% 03/01/2019			DRILL N	IETHO) Mu	d Rotary	HAMME	R TYPE	Automatic
DRILL	ER D.	Tignor				TART DATE 01/14/20		COMP. DAT			/ 	SURFACE WATER DEP	TH N/A	4	
(ft)	DRIVE ELEV (ft)	DEPTH (ft)	0.5ft	W CO		4	PER FOOT	75 100	SAMP.	MOI	O G	SOIL AND RO	CK DESC	CRIPTION	l DEPTH (
170	168.8 -	- - 0.0										_ 	D SURFA	ACE	0
	100.0 -	- 0.0	WOH	2	2	4				W		UNDIVIDED (COASTA	L PLAIN	
65	165.3	3.5	_] :						SAND (A-2-4) WIT	H TRACI	E ORGAN	NCS i
	-		5	11	14	•25				М		- GRĀY-BRÓWN SANDY SIL	TY CLA) COARS ((A-7)	6E
	-	-				::::/ ::::				_					
60	160.3	8.5	4	8	10	418				_ _M _		-			
	1					::::7:" :::::						. 156.8			12
55	155.3	- 13.5] :::;: :::::						ORANGE-BROW			LTY
	-	-	3	7	8	•15				Sat.		- FINE TO COA	NOE SAN	иD (M-Z-4)	,
	1	-				:::::									
50	150.3	18.5	5	5	7	12		+		Sat.		-			
	† †	-				. • • 12.		::::		Jan					
45	- 145.3	23.5				::i: ::::									
-			6	7	11	• 18		1		Sat.		_ . 143.8 . Boring Terminated			25

GEOTECHNICAL BORING REPORT BORE LOG

VBS	47533	.1.1			TI	P I-59	987B		COU	YTV	ROBE	SOI	N			GEOLOGIST B. Painter		
ITE	DESCR	IPTION	Brid	ge No.	162 or	ı -Y6- (McRa	iney Roa	ıd) over	-L- (I	l-95) at	-L- \$	Sta. 761	+20.9	6		GRO	JND WTR (fi
BORII	NG NO.	L_760	047L		S ⁻	TATION	N 29	+72			OFFSE	T 1	105 ft RT	•		ALIGNMENT -Y6-	0 HR	R. N/A
OLL	AR ELE	EV. 16	7.3 ft		TO	OTAL [DEPTI	H 25.0	ft	ı	NORTH	ING	399,47	77		EASTING 2,008,947	24 HR	6.
RILL	RIG/HAM	IMER EF	F./DAT	E F&F	R5785 C	ME-55	73% 0	3/01/2019	1				DRILL M	ETHO) Mu	id Rotary HA	MMER TYPE	E Automatic
	L ER D.	Tignor			S	TART D	DATE	01/14/	20	(COMP.	DAT	ΓE 01/1	4/20		SURFACE WATER DEPTH	N/A	
LEV	DRIVE ELEV	DEPTH	-	w co				BLOWS			_		SAMP.	lacktriangledown/		SOIL AND ROCK D	ESCRIPTION	ON
(ft)	(ft)	(ft)	0.5ft	0.5ft	0.5ft	0	2: I	5	50	7	5	100	NO.	/MOI	G	ELEV. (ft)		DEPTH (
170	_	-														_		
	167.3	0.0				Ш.										- - 167.3 GROUND SU		С
165	-	F	1	2	8	∶∳	10 .					-		М		ROADWAY EMB <u>165.3</u> BROWN, SILTY FINE S	AND (A-2-4) WITH <u>_</u> 2
	163.8 -	3.5	3	6	9		, <u> </u>									TRACE ORG		<u>,</u> j
	-	F					15					-		M		ORANGE-BROWN TO C	SRAY, SILT	
160	450.0	ļ , _												_		- OANDI OLA	i (A-0)	
ŀ	158.8 - -	8.5	7	12	18			30						М		- -		
155	-	ļ						/· · · · ·	::							- - 155.3		12
100	153.8 -	13.5		10	40		/		1			-				ORANGE-GRAY-RED COARSE SAND (A-2-	SILTY FIN	E TO
	-	‡	9	10	12		. •	22						W		GRAVEL FROM	13.5'-15.0'	0.102
150	_	‡				• • •	-		- :							- -		
-	148.8 - -	18.5	9	8	10		- -					:		Sat.		- -		
45	-	<u> </u>					. 1.					:				- -		
45	 143.8 -	23.5					- 1		+ : :			_				- -		
			7	10	11		- •2	1				-	1	Sat.		142.3		2
	-	l														Boring Terminated at El SILTY SAND (UNDIV	DED COAS	L3 π IN STAL
	-	F														PLAIN)	
	-	ļ														- -		
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								<u>B</u>	ORE I	LOG						
WBS	47533	.1.1			TI	IP I-5987	В	COUNT	Y ROBES	ON			GEOLOGIST B. Paint	er		
SITE D	ESCRI	IPTION	Brido	ge No.	162 or	n -Y6- (Mc	Rainey Road	d) over -L-	· (I -95) at -L	- Sta. 761	+20.96	3			GROUN	ID WTR (
3OR I N	IG NO.	L_76	158R		S ⁻	TATION	30+90		OFFSET	84 ft LT			ALIGNMENT -Y6-		0 HR.	N
COLLA	AR ELE	EV . 16	6.1 ft		T	OTAL DE	PTH 25.0 ft	t	NORTHIN				EASTING 2,009,168		24 HR.	
RILLF	RIG/HAM	IMER EF	F./DAT	E F&F	R3495 C	CME-55 82%	% 03/01/2019			DRILL N	IETHOD) Mu	d Rotary	HAMM	ER TYPE	Automatio
		Tignor			S	TART DA	TE 01/20/2	.0	COMP. DA		20/20		SURFACE WATER DE	PTH N/	A	
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	0.5ft	0.5ft		0		PER FOO ⁻ 50	T 75 100	SAMP.	MOI	L O G	SOIL AND RO	OCK DES	CRIPTION	DEPTI
70	-	-											<u>-</u>			
65	166.1 -	0.0	2	4	6	10-			<u> </u>		М		166.1 GROUI ROADWAY 164.1 BROWN-GRAY, S		KMENT	RSE
	162.6 - - -	3.5	8	9	12		•21				М		SANDY CLÁY OF UNDIVIDED	(A-6) WI RGANICS COASTA	TH TRACE	≣
60	- - 157.6 -	- - 8.5	7	10	9								- ORANGE-GR	Y CLAY (A AY, SILT	A-6) Y FINE TO	1-
55	-	-	,	10	9		19			-	Sat.		COARSE - - -	E SAND (A	\-2-4)	
50	152.6 - - -	- 13.5 -	5	5	7	12					Sat.	0000	- - 151.6 - ORANGE-GRA		, FINE SAN	ND
	- 147.6 - -	- 18.5	11	14	14		28				Sat.	0000	- - -	(A-3)		
45	- - - 142.6	23.5					· 1 · · · · · · · · · · · · · · · · ·			1		0000	- 144.1 GRAY-WHITE, S	LTY FINE	TO COA	RSE
	-	-	10	13	15		28				Sat.		141.1 SAI Boring Terminate SILTY SAND (U		tion 141.1	
	-												· -	PLAIN) Notes:	<i>5</i>	
	-	-											1. Boring caved- - -	in at 3.5' a	after 24 ho	urs
	-	-											- - -			
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GEOTECHNICAL BORING REPORT

							B	ORE L	<u>OG</u>					
WBS 47533.1.1 TIP I-5987B COUN							COUNT	TY ROBESON				GEOLOGIST B. Painter		
SITE	DESCR	IPTION	Bridg	je No.	162 on	-Y6- (McRainey Roa	d) over -L-	(I-95) at -L-	Sta. 761	+20.9	6		GROUND WTR (ft)	
BORING NO. L_75980R STATION 31+50									38 ft RT			ALIGNMENT -Y6-	0 HR. N/A	
COLLAR ELEV. 167.6 ft TOTAL DEPTH 25.0 ft							ŧ	NORTHING 399,352				EASTING 2,009,075	24 HR. FIAD	
DRILL	. RIG/HAN	MER EF	F./DATE	F&F	3495 C	ME-55 82% 03/01/2019			DRILL M	ETHO) Mu	d Rotary HAMM	ER TYPE Automatic	
DRIL	LER D	. Tignor			ST	TART DATE 01/22/2	20	COMP. DA	_	22/20	4 . 1	SURFACE WATER DEPTH N/	A	
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	0.5ft	0.5ft	UNT 0.5ft	0 25	PER FOO	Γ 75 100	SAMP. NO.	MOI	C G	SOIL AND ROCK DES	CRIPTION DEPTH (ft)	
170		<u> </u>										-		
165	167.3	0.3	10	13	23	36 .				М		167.9 GROUND SURF 166.7 ROADWAY EMBAN 165.6 ASPHALT		
103	164.1	3.5	3	3	6				SS-2107	17%		ORANGE-BROWN, SILTY TO COARSE SAND BROWN, CLAYEY SILTY	(A-2-6)	
160	159.1	8.5	7	20	20							160.6 (A-2-4) UNDIVIDED COASTA 158.8 ORANGE-BROWN-GRA	L PLAIN — — 1,— 7.0	
155		 	'	20	22	4	2			М	/////	COARSE SANDY CLAY (A PLASTIC GRAY, FINE SANDY SILT	-7-6), HIGHLY	
	154.1	13.5	9	15	17	· · · · · · • • • • • • • • • • • • • •				w	/ 0000	ORANGE-RED-GRAY, SI 153.1 FINE TO COARSE SAI ORANGE-WHITE, FINE	ND (A-2-6) 14.5 SAND (A-3)	
150	149.1	18.5	4	13	17	30				w		150.6 ORANGE-PINK, SILTY FINE (A-6)	19.0	
145		22.5				30					0 0 0 0	WHITE, FINE SANI	22.0	
	144.1	23.5	6	5	3	·				Sat.		(A-2-4) Boring Terminated at Eleva SILTY SAND (UNDIVIDE PLAIN)	25.0 tion 142.6 ft IN	
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