CONTENTS

SHEET NO.

3

5-6

7-9

10

6

461

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LEGEND SITE PLAN PROFILE CROSS SECTIONS BORE LOGS SOIL TEST RESULTS SITE PHOTOGRAPHS

TITLE SHEET

DESCRIPTION

STATE OF NORTH CAROLINA

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

STRUCTURE SUBSURFACE INVESTIGATION

COUNTY ROBESON

PROJECT DESCRIPTION REPLACE BRIDGE 18 ON NC 211 OVER CSX RAILROAD

STATE N.C.





1



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 SOLT TEST DATA AVAILABLE MAY BE REVIEWED OR INSPECTED IN RALEIGH BY CONTACTING THE N.C. DEPARTMENT OF TRANSPORTATION, GEOTECHNICAL ENGINEERING UNIT AT 1991 707-6800. THE SUBSURFACE PLANS AND REPORTS, FIELD BORING LOGS, ROCK CORES AND SOLL 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 BORINGS OR BETWEEN SAMPLED STRATA WITHIN THE BOREHOLE. THE LABORATORY SAMPLE DATA AND THE IN SITU (IN-PLACE)TEST DATA CAN BE RELIED ON ONLY TO THE DECREE OF RELIABILITY INHERENT IN THE STANDARD TEST METHOD. THE OBSERVED WATER LEVELS OR SOLL MOISTURE CONDITIONS MUCIATED IN THE SUBSURFACE INVESTIGATIONS ARE AS RECORDED AT THE TIME OF THE INVESTIGATION. THESE WATER LEVELS OR SOL 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 OF 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 DOCS NOT WARRANT OR GUARANTEE THE SUFFICIENCY OR ACCURACY OF THE INVESTIGATION MADE, NOR THE INTERRETATIONS TO BE ENCOUNTERED. THE BIDDER OR CONTRACTOR IS CAUTIONED TO MARE SUCH INDEPENDENT SUBSURFACE INVESTIGATIONS AS HE DEEMS NECESSARY TO SATISFY IMMSELF AS TO CONDITIONS TO BE ENCOUNTERED ON THE PROJECT. THE CONTRACTOR SHALL HAVE NO CLAM FOR ADDITIONAL COMPENSATION OR FOR AN EXTENSION OF TIME FOR ANY REASON RESULTING FROM THA CAULAL CONDENSATION OR FOR AN EXTENSION OF TIME FOR ANY REASON RESULTING FROM THE SUBSURFACE INFORMATION.

- NOTES: I. THE INFORMATION CONTAINED HEREIN IS NOT IMPLIED OR CUARANTEED BY THE N.C. DEPARTMENT OF TRANSPORTATION AS ACCURATE NOR IS IT CONSIDERED PART OF THE PLANS, SPECIFICATIONS OR CONTRACT FOR THE PROJECT. BY HAVING REQUESTED THIS INFORMATION, THE CONTRACTOR SPECIFICALLY WAIVES ANY CLAIMS FOR INCREASED COMPENSATION OR EXTENSION OF TIME BASED ON DIFFERENCES BETWEEN THE CONDITIONS INDICATED HEREIN AND THE ACTUAL CONDITIONS AT THE PROJECT SITE.

PERSONNEL

M. WALKO, P.E.

J. BRADSHAW, E.I.

A. ROTH

AMERIDRILL

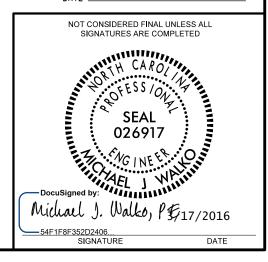
INVESTIGATED BY ECS CAROLINAS, LLP

DRAWN BY _M. BREWER, P.E.

CHECKED BY <u>E. FREEB</u>URG, P.E.

SUBMITTED BY <u>M. WALKO, P.E.</u>





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

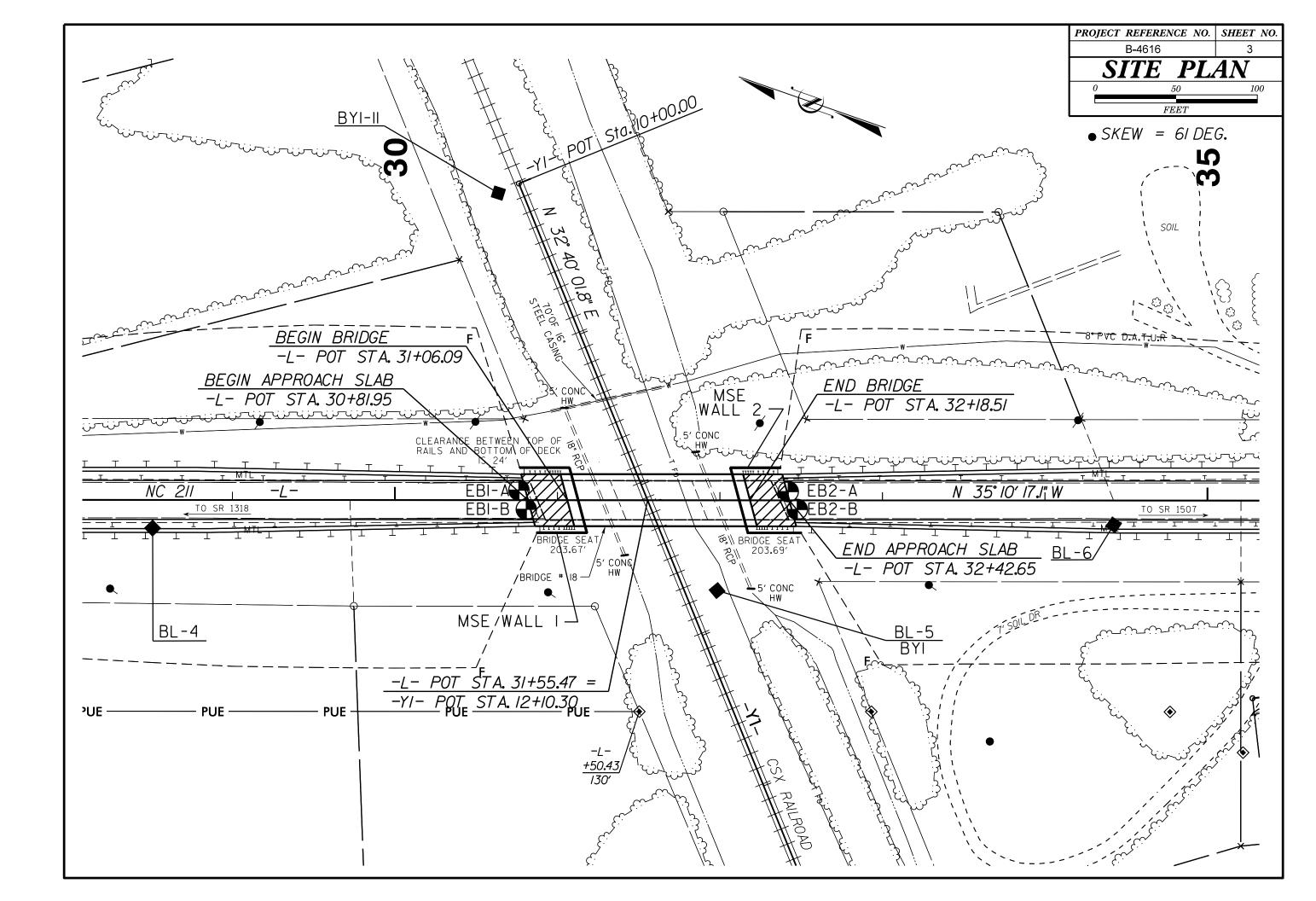
SOIL AND ROCK LEGEND, TERMS, SYMBOLS, AND ABBREVIATIONS

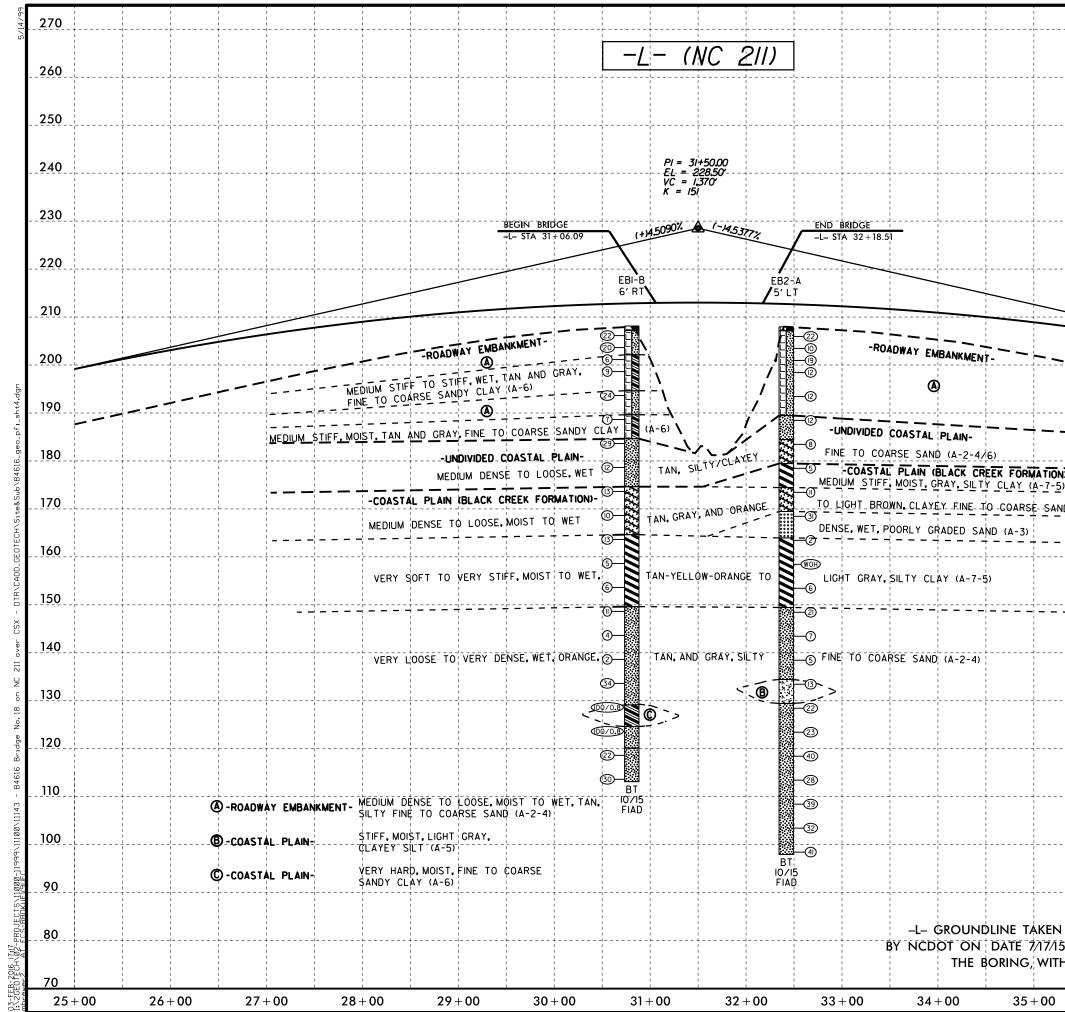
SOIL DESCRIP	TION	GRADATION	ROCK DESCRIPTION
SOIL IS CONSIDERED UNCONSOLIDATED, SEMI-CONSOLIDATED, BE PENETRATED WITH A CONTINUOUS FLIGHT POWER AUGER A ACCORDING TO THE STANDARD PENETRATION TEST IAASHTO IS BASED ON THE AASHTO SYSTEM. BASIC DESCRIPTION CONSISTENCY, COLOR, TEXTURE, MOISTURE, AASHTO CLASSIFICA AS MINERALOGICAL COMPOSITION, ANGULARITY, STRUCT	ND YIELD LESS THAN 100 BLOWS PER FOOT T 206, ASTM DIS66. SOIL CLASSIFICATION S GENERALLY INCLUDE THE FOLLOWING: TION, AND OTHER PERTINENT FACTORS SUCH	WELL GRADED INDICATES A GOOD REPRESENTATION OF PARTICLE SIZES FROM FINE TO COARSE. UNIFORMLY GRADED - INDICATES THAT SOIL PARTICLES ARE ALL APPROXIMATELY THE SAME SIZE. GAP-GRADED - INDICATES A MIXTURE OF UNIFORM PARTICLE SIZES OF TWO OR MORE SIZES. ANGULARITY OF GRAINS	HARD ROCK IS NON-COASTAL PLAIN MATERIAL THAT WOULD YIELD SPT REFUSAL IF TEST ROCK LINE INDICATES THE LEVEL AT WHICH NON-COASTAL PLAIN MATERIAL WOULD YIELD SPT REFUSAL IS PENETRATION BY A SPLIT SPOON SAMPLER EQUAL TO OR LESS THAN 0. BLOWS IN NON-COASTAL PLAIN MATERIAL. THE TRANSITION BETWEEN SOIL AND ROCK REPRESENTED BY A ZONE OF WEATHERED ROCK. ROCK MATERIALS ARE TYPICALLY DIVIDED AS FOLLOWS;
VERY STIFF, GRAY, SILTY CLAY, MOIST WITH INTERBEDDED FI	NE SAND LAYERS, HIGHLY PLASTIC, A-7-6	THE ANGULARITY OR ROUNDNESS OF SOIL GRAINS IS DESIGNATED BY THE TERMS: ANGULAR, SUBANGULAR, SUBROUNDED, OR ROUNDED.	WEATHERED NON-COASTAL PLAIN MATERIAL THAT WOULD YIELD SP
SOIL LEGEND AND AASHTO		MINERALOGICAL COMPOSITION	ROCK (WR) 100 BLOWS PER FOOT IF TESTED.
	PASSING #200) ORGANIC MATERIALS	MINERAL NAMES SUCH AS QUARTZ, FELDSPAR, MICA, TALC, KAOLIN, ETC.	CRYSTALLINE ROCK (CR) WOULD VIELD SPT REFUSAL IF TESTED. ROCK TYPE IN GNEISS, GABBRO, SCHIST, ETC.
GROUP A-1 A-3 A-2 A-4 A-1 CLASS. A-1-a A-1-b A-2-4 A-2-5 A-2-6 A-2-7	5 A-6 A-7 A-1, A-2 A-4, A-5 A-7-6, A-3 A-6, A-7	ARE USED IN DESCRIPTIONS WHEN THEY ARE CONSIDERED OF SIGNIFICANCE.	NON-CRYSTALLINE FINE TO COARSE GRAIN METAMORPHIC AND NON-COAST
SYMBOL 000000000000000000000000000000000000		SLIGHTLY COMPRESSIBLE LL < 31	ROCK (NCR) ROCK TYPE INCLUDES PHYLLITE, SLATE, SANDSTONE, ET
2 PASSING		MODERATELY COMPRESSIBLE LL = 31 - 50 HIGHLY COMPRESSIBLE LL > 50	COASTAL PLAIN COASTAL PLAIN SEDIMENTS CEMENTED INTO ROCK, BUT SEDIMENTARY ROCK SPT REFUSAL, ROCK TYPE INCLUDES LIMESTONE, SAND
■10 50 MX ■40 30 MX 50 MX 51 MN	GRANULAR SILT- UCK, SOILS CLAY PEAT	PERCENTAGE OF MATERIAL	CP) HILL BEDS, ETC. WEATHERING
■200 15 MX 25 MX 10 MX 35 MX 35 MX 35 MX 35 MX 36 MN 36 I		CRANULAR SILT - CLAY ORGANIC MATERIAL SOILS SOILS OTHER MATERIAL	FRESH ROCK FRESH, CRYSTALS BRIGHT, FEW JOINTS MAY SHOW SLIGHT STAINING. ROCK
MATERIAL PASSING *40 LL – – 40 MX 41 MN 40 MX 41 MN 40 MX 41 N	SOILS WITH	TRACE OF ORGANIC MATTER 2 - 3% 3 - 5% TRACE 1 - 10% LITTLE ORGANIC MATTER 3 - 5% 5 - 12% LITTLE 10 - 20% MODERATELY ORGANIC 5 - 10% 12 - 20% SOME 20 - 35%	HAMMER IF CRYSTALLINE. VERY SLIGHT ROCK GENERALLY FRESH, JOINTS STAINED, SOME JOINTS MAY SHOW THIN CLAY C
PI 6 MX NP 10 MX 10 MX 11 MN 11 MN 10 MX 10 M	MX 11 MN 11 MN MODERATE DECANIC	HIGHLY ORGANIC > 10% > 20% HIGHLY 35% AND ABOVE	(V SLI.) CRYSTALS ON A BROKEN SPECIMEN FACE SHINE BRIGHTLY. ROCK RINGS UNDER H OF A CRYSTALLINE NATURE.
	VI IG MX NU MX AMUUNTS UF SOILS	GROUND WATER	SLIGHT ROCK GENERALLY FRESH, JOINTS STAINED AND DISCOLORATION EXTENDS INTO RO (SLI.) 1 INCH. OPEN JOINTS MAY CONTAIN CLAY. IN GRANITOID ROCKS SOME OCCASION
OF MAJOR GRAVEL, AND FINE SILTY OR CLAYEY SILTY MATERIALS SAND SAND GRAVEL AND SAND SOILS	CLAYEY MATTER SOILS	STATIC WATER LEVEL AFTER <u>24</u> HOURS	CRYSTALS ARE DULL AND DISCOLORED. CRYSTALLINE ROCKS RING UNDER HAMME MODERATE SIGNIFICANT PORTIONS OF ROCK SHOW DISCOLORATION AND WEATHERING EFFECT
	TO POOR FAIR TO POOR UNSUITABLE	∇PW PERCHED WATER, SATURATED ZONE, OR WATER BEARING STRATA	(MOD.) GRANITOID ROCKS, MOST FELDSPARS ARE DULL AND DISCOLORED, SOME SHOW CL/ DULL SOUND UNDER HAMMER BLOWS AND SHOWS SIGNIFICANT LOSS OF STRENGT
AS SUBURADE	PUUR	SPRING OR SEEP	WITH FRESH ROCK.
PI OF A-7-5 SUBGROUP IS ≤ LL - 30 ;PI OF A- CONSISTENCY OR DE		MISCELLANEOUS SYMBOLS	MODERATELY ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. IN GRANITOID ROCKS, ALL SEVERE AND DISCOLORED AND A MAJORITY SHOW KAOLINIZATION. ROCK SHOWS SEVERE L
	OF STANDARD RANGE OF UNCONFINED ON RESISTENCE COMPRESSIVE STRENGTH	ROADWAY EMBANKMENT (RE) 25/025 DIP & DIP DIRECTION	(MOD.SEV.) AND CAN BE EXCAVATED WITH A GEOLOGIST'S PICK. ROCK GIVES *CLUNK* SOUND IF TESTED, WOULD YIELD SPT REFUSAL
	<pre>value) compressive strength (TONS/FT²) </pre>		SEVERE ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED, ROCK FABRIC CLEAR AND ((SEV.) REDUCED IN STRENGTH TO STRONG SOIL. IN GRANITOID ROCKS ALL FELDSPARS
GRANULAR MEDIUM DENSE 10	TO 10 TO 30 N/A		TO SOME EXTENT. SOME FRAGMENTS OF STRONG ROCK USUALLY REMAIN. IF TESTED, WOULD YIELD SPT N VALUES > 100 BPF
(NON-COHESIVE) DENSE 30	TO 50 > 50	ARTIFICIAL FILL (AF) OTHER THAN ROADWAY EMBANKMENT	VERY ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. ROCK FABRIC ELEMENTS AN SEVERE BUT MASS IS EFFECTIVELY REDUCED TO SOIL STATUS, WITH ONLY FRAGMENTS C
	< 2 < 0.25 TO 4 0.25 TO 0.5	INFERRED SOIL BOUNDARY	(V SEV.) REMAINING, SAPROLITE IS AN EXAMPLE OF ROCK WEATHERED TO A DEGREE THAT VESTIGES OF ORIGINAL ROCK FABRIC REMAIN. <u>IF TESTED, WOULD YIELD SPT N</u>
SILT-CLAY MEDIUM STIFF 4 MATERIAL STIFF 8	TO 8 0.5 TO 1.0 TO 15 1 TO 2		COMPLETE ROCK REDUCED TO SOIL. ROCK FABRIC NOT DISCERNIBLE, OR DISCERNIBLE ONLY SCATTERED CONCENTRATIONS. QUARTZ MAY BE PRESENT AS DIKES OR STRINGER
HARD	TO 30 2 TO 4 > 30 > 4	INSTALLATION	ALSO AN EXAMPLE. ROCK HARDNESS
TEXTURE OR GRAI	IN SIZE		VERY HARD CANNOT BE SCRATCHED BY KNIFE OR SHARP PICK. BREAKING OF HAND SPECIMEN
U.S. STD. SIEVE SIZE 4 10 40 OPENING (MM) 4.76 2.00 0.42	60 200 270 0.25 0.075 0.053	UNDERCUT UNCLASSIFIED EXCAVATION - UNSUITABLE WASTE UNCLASSIFIED EXCAVATION - UNSUITABLE WASTE UNCLASSIFIED EXCAVATION -	SEVERAL HARD BLOWS OF THE GEOLOGIST'S PICK. HARD CAN BE SCRATCHED BY KNIFE OR PICK ONLY WITH DIFFICULTY. HARD HAMMER E
BOULDER COBBLE GRAVEL COARSE	FINE SILT CLAY	SHALLOW UNDERCUT UNCLASSIFIED EXCAVATION - USED IN THE TOP 3 FEET OF ACCEPTABLE DEGRADABLE ROCK USED IN THE TOP 3 FEET OF EMBANKMENT OR BACKFILL	TO DETACH HAND SPECIMEN.
(BLDR.) (COB.) (GR.) (CSE. SD.)	SAND (SL.) (CL.)	ABBREVIATIONS	MODERATELY CAN BE SCRATCHED BY KNIFE OR PICK. GOUGES OR GROOVES TO 0.25 INCHES D HARD EXCAVATED BY HARD BLOW OF A GEOLOGIST'S PICK. HAND SPECIMENS CAN BE D
GRAIN MM 305 75 2.0 SIZE IN. 12 3	0. 25 0.0 5 0.00 5	AR - AUGER REFUSAL MED MEDIUM VST - VANE SHEAR TEST BT - BORING TERMINATED MICA MICACEOUS WEA WEATHERED	BY MODERATE BLOWS. MEDIUM CAN BE GROOVED OR GOUGED 0.05 INCHES DEEP BY FIRM PRESSURE OF KNIFE I
SOIL MOISTURE - CORRELA	ATION OF TERMS	CL CLAY MOD MODERATELY γ - UNIT WEIGHT CPT - CONE PENETRATION TEST NP - NON PLASTIC $\gamma_{\rm A}$ - DRY UNIT WEIGHT	HARD CAN BE EXCAVATED IN SMALL CHIPS TO PEICES I INCH MAXIMUM SIZE BY HARD POINT OF A GEOLOGIST'S PICK.
SOIL MOISTURE SCALE FIELD MOISTURE (ATTERBERG LIMITS) DESCRIPTION	GUIDE FOR FIELD MOISTURE DESCRIPTION	CSE COARSE ORG ORGANIC DMT - DILATOMETER TEST PMT - PRESSUREMETER TEST <u>SAMPLE ABBREVIATIONS</u>	SOFT CAN BE GROVED OR GOUGED READILY BY KNIFE OR PICK. CAN BE EXCAVATED IN FROM CHIPS TO SEVERAL INCHES IN SIZE BY MODERATE BLOWS OF A PICK POIN
- SATURATED -	USUALLY LIQUID; VERY WET, USUALLY	DPT - DYNAMIC PENETRATION TEST SAP SAPROLITIC S - BULK e - VOID RATIO SD SAND, SANDY SS - SPLIT SPOON	PIECES CAN BE BROKEN BY FINGER PRESSURE.
	FROM BELOW THE GROUND WATER TABLE	F - FINE SL SILT, SILTY ST - SHELBY TUBE FOSS FOSSILIFEROUS SLI SLIGHTLY RS - ROCK	VERY CAN BE CARVED WITH KNIFE. CAN BE EXCAVATED READILY WITH POINT OF PICK. SOFT OR MORE IN THICKNESS CAN BE BROKEN BY FINGER PRESSURE. CAN BE SCRATCI
PLASTIC RANGE < - WET - (W)	SEMISOLID; REQUIRES DRYING TO	FRAC FRACTURED, FRACTURES TCR - TRICONE REFUSAL RT - RECOMPACTED TRIAXIAL	
	ATTAIN OPTIMUM MOISTURE	FRAGS FRAGMENTS W - MOISTURE CONTENT CBR - CALIFORNIA BEARING HI HIGHLY V - VERY RATIO	FRACTURE SPACING BEDDING
- MOIST - (M)	SOLID: AT OR NEAR OPTIMUM MOISTURE	EQUIPMENT USED ON SUBJECT PROJECT	VERY WIDE MORE THAN 10 FEET VERY THICKLY BEDDED WIDE 3 TO 10 FEET THICKLY BEDDED
OMOPTIMUM MOISTUREHOIST (***) SLSHRINKAGE LIMIT		DRILL UNITS: ADVANCING TOOLS: HAMMER TYPE: CME-45C CLAY BITS X AUTOMATIC MANUAL	MODERATELY CLOSE 1 TO 3 FEET THINLY BEDDED 0. CLOSE 0.16 TO 1 FOOT VERY THINLY BEDDED 0.0
- DRY - (D)	REQUIRES ADDITIONAL WATER TO ATTAIN OPTIMUM MOISTURE		VERY CLOSE LESS THAN 0.16 FEET THICKLY LAMINATED 0.0
PLASTICITY		CME-55 Image: Contrological Problem CORE SIZE: 8* HOLLOW AUGERS Image: Control Problem Image: Control Problem	THINLY LAMINATED INDURATION
PLASTICITY INDEX		X CME-550 HARD FACED FINGER BITS	FOR SEDIMENTARY ROCKS, INDURATION IS THE HARDENING OF MATERIAL BY CEMENTING, HE
NON PLASTIC 0-5 SLIGHTLY PLASTIC 6-15	VERY LOW SLIGHT	VANE SHEAR TEST	FRIABLE RUBBING WITH FINGER FREES NUMEROUS GRAINS; GENTLE BLOW BY HAMMER DISINTEGRATES SAMPLE.
MODERATELY PLASTIC 16-25 HIGHLY PLASTIC 26 OR MORE	MEDIUM HIGH	Image of the second	MODERATELY INDURATED GRAINS CAN BE SEPARATED FROM SAMPLE WITH S BREAKS EASILY WHEN HIT WITH HAMMER.
COLOR		TRICONE TUNGCARB.	INDURATED GRAINS ARE DIFFICULT TO SEPARATE WITH STEEL DIFFICULT TO BREAK WITH HAMMER.
DESCRIPTIONS MAY INCLUDE COLOR OR COLOR COMBINATIO MODIFIERS SUCH AS LIGHT, DARK, STREAKED, ETC. AF		CORE BIT VANE SHEAR TEST X 2 ¹ / ₄ " H.S.A.	EXTREMELY INDURATED SHARP HAMMER BLOWS REQUIRED TO BREAK SAMPL SAMPLE BREAKS ACROSS GRAINS.

B-4616

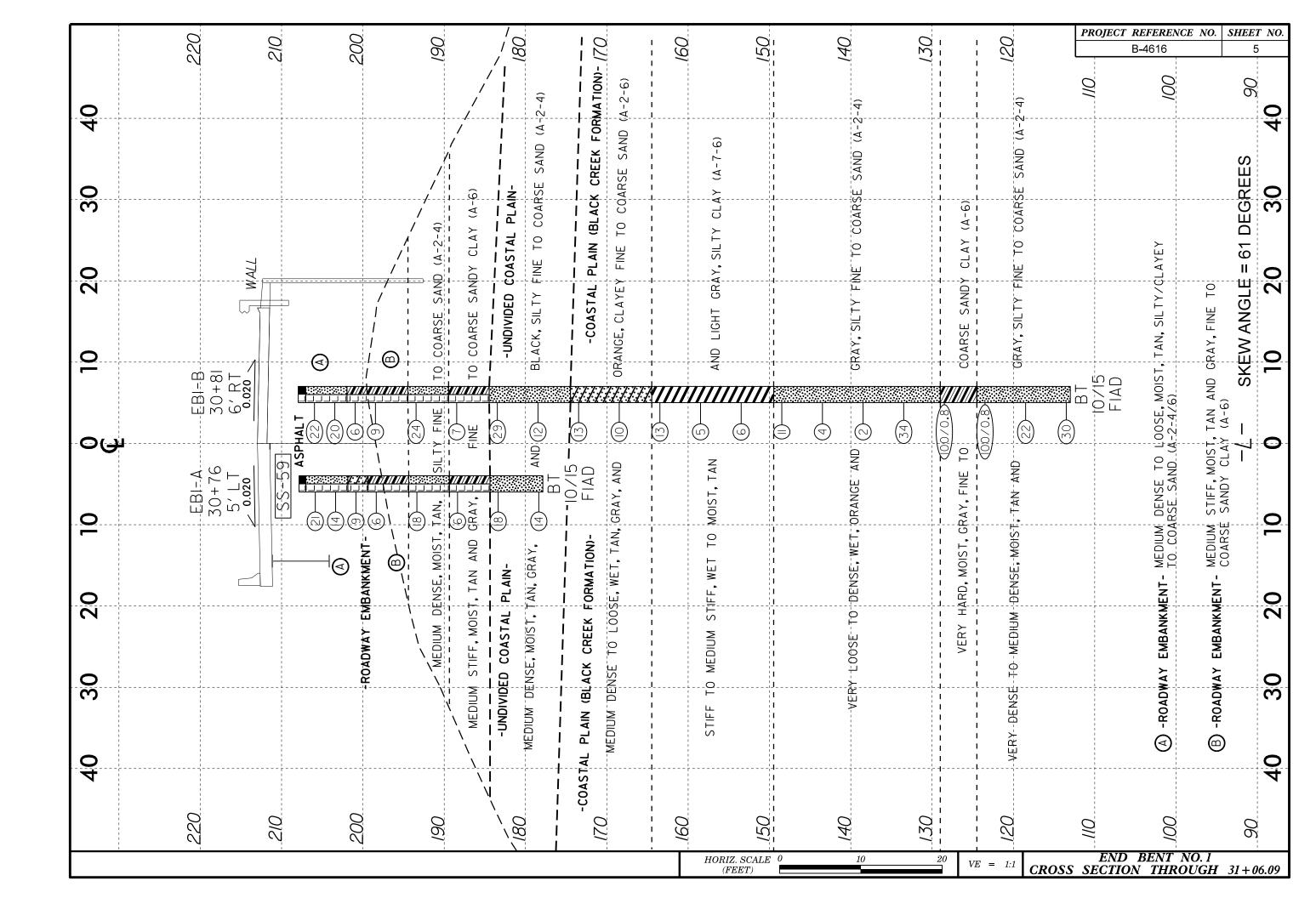


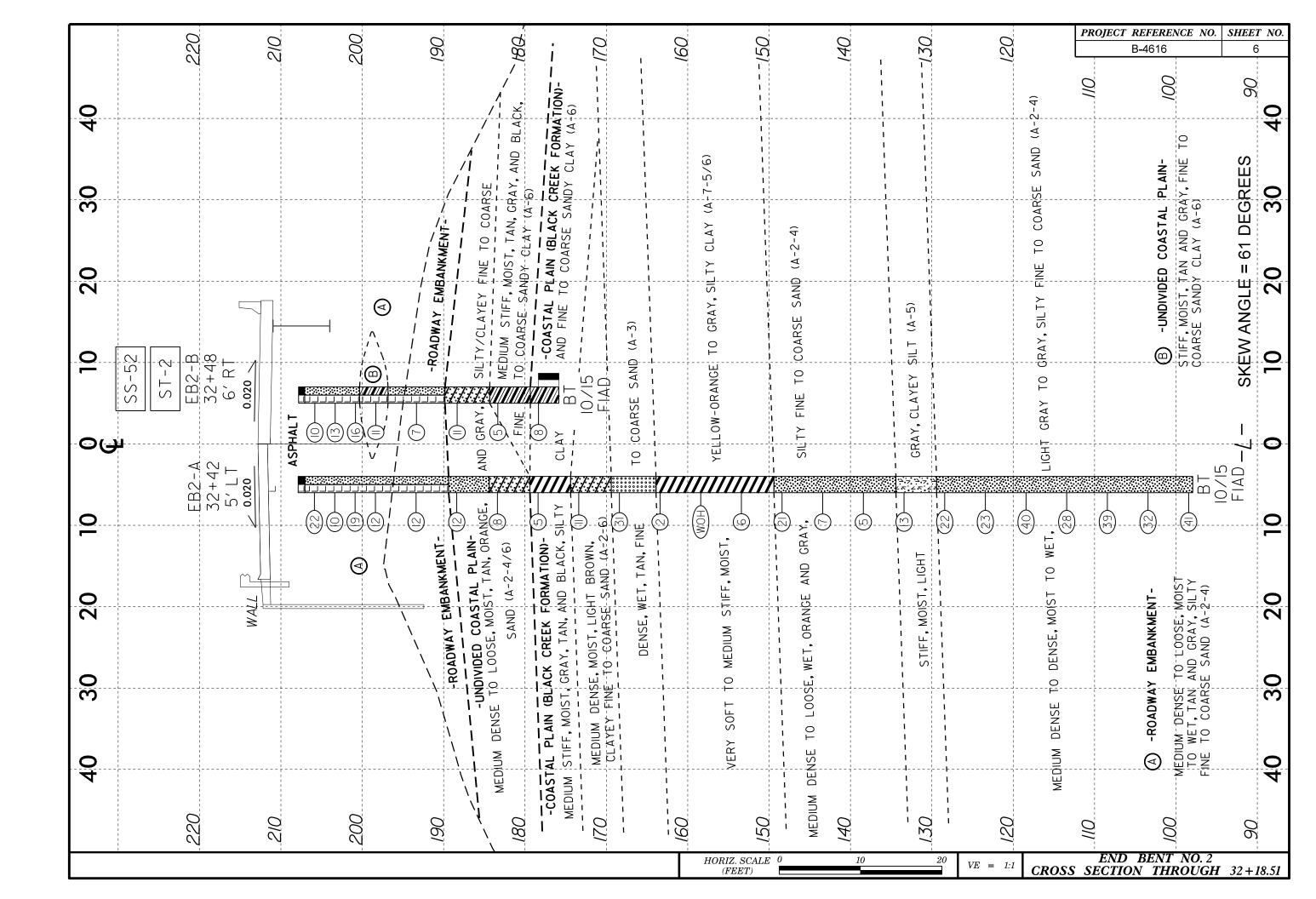
TERMS AND DEFINITIONS D. AN INFERRED ALLUVIUM (ALLUV.) - SOILS THAT HAVE BEEN TRANSPORTED BY WATER. SPT REFUSAL. I FOOT PER 60 IS OFTEN AQUIFER - A WATER BEARING FORMATION OR STRATA. ARENACEOUS - APPLIED TO ROCKS THAT HAVE BEEN DERIVED FROM SAND OR THAT CONTAIN SAND. ARGILLACEOUS - APPLIED TO ALL ROCKS OR SUBSTANCES COMPOSED OF CLAY MINERALS, OR HAVING A NOTABLE PROPORTION OF CLAY IN THEIR COMPOSITION, SUCH AS SHALE, SLATE, ETC. N VALUES > ARTESIAN - GROUND WATER THAT IS UNDER SUFFICIENT PRESSURE TO RISE ABOVE THE LEVEL AT ICK THAT WHICH IT IS ENCOUNTERED, BUT WHICH DOES NOT NECESSARILY RISE TO OR ABOVE THE GROUND SURFACE. CLUDES GRANITE. CALCAREOUS (CALC.) - SOILS THAT CONTAIN APPRECIABLE AMOUNTS OF CALCIUM CARBONATE. COLLUVIUM - ROCK FRAGMENTS MIXED WITH SOIL DEPOSITED BY GRAVITY ON SLOPE OR AT BOTTOM OF SLOPE. AL PLAIN IF TESTED. MAY NOT YIELD 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. TONE, CEMENTED 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. OATINGS IF OPEN, DIP DIRECTION (DIP AZIMUTH) - THE DIRECTION OR BEARING OF THE HORIZONTAL TRACE OF THE LINE OF DIP, MEASURED CLOCKWISE FROM NORTH. AMMER BLOWS IF \underline{FAULT} - A FRACTURE OR FRACTURE ZONE ALONG WHICH THERE HAS BEEN DISPLACEMENT OF THE SIDES RELATIVE TO ONE ANOTHER PARALLEL TO THE FRACTURE. СК ИР ТО FEL DSPAR BLOWS. FISSILE - A PROPERTY OF SPLITTING ALONG CLOSELY SPACED PARALLEL PLANES. $\underline{\mathsf{FLOAT}}$ - ROCK FRAGMENTS ON SURFACE NEAR THEIR ORIGINAL POSITION AND DISLODGED FROM PARENT MATERIAL. S. IN Y. ROCK HAS AS COMPARED FLOOD PLAIN (FP) - LAND BORDERING A STREAM, BUILT OF SEDIMENTS DEPOSITED BY THE STREAM. $\underline{\mathsf{FORMATION}}$ - A MAPPABLE GEOLOGIC UNIT THAT CAN BE RECOGNIZED AND TRACED IN THE FIELD. ELDSPARS DULL USS OF STRENGTH 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 VIDENT BUT 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. RE DISCERNIBLE PERCHED WATER - WATER MAINTAINED ABOVE THE NORMAL GROUND WATER LEVEL BY THE PRESENCE F STRONG ROCK AN INTERVENING IMPERVIOUS STRATUM ALUES < 100 BPF RESIDUAL (RES.) SOIL - SOIL FORMED IN PLACE BY THE WEATHERING OF ROCK. IN SMALL AND S. SAPROLITE IS $\underline{\rm ROCK}$ 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. SAPROLITE (SAP.) - RESIDUAL SOIL THAT RETAINS THE RELIC STRUCTURE OR FABRIC OF THE PARENT ROCK. S REQUIRES SILL - AN INTRUSIVE BODY OF IGNEOUS ROCK OF APPROXIMATELY UNIFORM THICKNESS AND THE RELATIVELY THIN COMPARED WITH ITS LATERAL EXTENT, THAT HAS BEEN EMPLACED PARALLEL TO THE BEDDING OR SCHISTOSITY OF THE INTRUDED ROCKS. LOWS REQUIRED EP CAN BE $\underline{\text{SLICKENSIDE}}$ - POLISHED and STRIATED SURFACE THAT RESULTS FROM FRICTION ALONG A FAULT OR SLIP PLANE. ETACHED 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 R PICK POINT. BLOWS OF THE TO OR LESS THAN 0.1 FOOT PER 60 BLOWS. STRATA CORE RECOVERY (SREC.) - TOTAL LENGTH OF STRATA MATERIAL RECOVERED DIVIDED BY TOTAL LENGTH OF STRATUM AND EXPRESSED AS A PERCENTAGE. FRAGMENTS NT. SMALL. THIN STRATA ROCK QUALITY DESIGNATION (SROD) - A MEASURE OF ROCK QUALITY DESCRIBED BY TOTAL LENGTH OF ROCK SEGMENTS WITHIN A STRATUM EQUAL TO OR OREATER THAN 4 INCHES DIVIDED BY THE TOTAL LENGTH OF STRATA AND EXPRESSED AS A PERCENTAGE. PIECES 1 INCH HED READILY BY TOPSOIL (TS.) - SURFACE SOILS USUALLY CONTAINING ORGANIC MATTER. BENCH MARK: -L- STA. 22+77.74, 66.45' RT; RR SPIKE THICKNESS 4 FEET IN BASE OF 40" OAK TREE ELEVATION: 180.63 FEET .5 - 4 FEET 16 - 1.5 FEET 13 - 0.16 FEET NOTES: BORING LOCATIONS, ELEVATIONS, AND COORDINATES 8 - 0.03 FEET WERE OBTAINED USING A TRIMBLE GEO7X HANDHELD 0.008 FEET H-STAR UNIT W/ SUB-FOOT ACCURACY. AT, PRESSURE, ETC FIAD = FILLED IN AFTER DRILLING TEEL PROBE: PROBE;





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n from roadway design plans provided 80	 		 + 	 	 - 	, , , , , , , ,	 			+	100
	, 		 	 	 	 				 	90
15. INFERRED STRATIGRAPHY IS DRAWN THROUGH	15. INFI	ERREI	STRAT	IGRAPH	Y IS DR	AWN 1				+	80
TH BOTH PROJECTED ON THE PROFILE.	тн вот	ΓH P	ROJECTE	D ON	THE PR	OFILE.					70
$) \qquad 36+00 \qquad 37+00 \qquad 38+00 \qquad 39+00$)	36-	+ 00	37-	+ 00	38	+00			<u>:</u> 39 +	





GEOTECHNICAL BORING REPORT BORE LOG

						_		-									1					-					
	33798					P B-4616			Y ROBESO	N			GEOLO	DGIST J. Bradsh				3 33798					P B-4616			Y ROBESC	NC
				je No.		NC 211 ov		ailroad	1							ND WTR (ft)				-	e No. 1	_	NC 211 ove		road		
	NG NO.					TATION 3			OFFSET					MENT L	0 HR.	Dry	I ———	ring no.				_	ATION 3			OFFSET	
	LAR ELE					DTAL DEP			NORTHING					NG N/A	24 HR.	FIAD	-	LAR EL					DTAL DEP			NORTHIN	
			F./DATI	E AME		CME-550X 8			1				S. Augers		HAMMER TYPE	Automatic	! ┣───			F./DATE	AME	_	ME-550X 83				DR
	LER B.								COMP. DA			<u></u>	SURFA	CE WATER DEP	TH N/A			LER B								COMP. DA	
ELEV (ft)		DEPTH (ft)		W CO		0		S PER FOO		SAMP.	17	Ő		SOIL AND ROO	CK DESCRIPTIO		ELEV (ft)		DEPTH (ft)				0		PER FOOT		SA
(11)	(ft)	(14)	0.5π	0.5ft	0.5ft	0	25	50	75 100	NO.	Имо	I G	ELEV. (ft)			DEPTH (ft)	(11)	(ft)	(11)	0.5ft	0.5π	0.5π		25	50	75 100	
210		-											_				210		+								
	-	- 1.0											207.8	GROUNI	O SURFACE alt (0.8')	0.0			I								\parallel
205	206.8 -	- 1.0	8	13	8		21				м			ROADWAY			205	206.8	+ 1.0 +	4	4	6	· • 10 ·				
200	204.3	- <u>3.5</u>	4	8	6				· · · · · ·		м		-	Tan, medium dens	se, silty fine to co	arse	200	204.3	<u>+</u> 3.5	5	6	7	· · · · · ·				11
	- 201.8 -	- - 6.0				- • 9 14.							201.8	SAND (A-2	2-4), trace clay	6.0		201.8	<u> </u>				· · • • • • • •				
200	-	- 05	4	5	4	• • 9 • •			 		M		- 199.3	Tan and gray, loose	e, clayey fine to c	barse 8.5	200	199.3	+ + 8.5	5	8	8) 16				
	- 199.5	- 0.5	2	3	3	.			 		м		<u> </u>		D (A-2-6)			199.5	+ 0.5	4	5	6	/ . ∳11 .				
	-	_											-	Tan and gray, medi	ium stiff, fine to c	barse			ŧ				· · · ·				
195	194.3	13.5					<u> </u>						194.3		CLAY (A-6)	13.5	195	194.3	13.5		4		<u> </u>		· · · ·		$\left \right $
	-	-	6	9	9) 1	18				M		-	Tan, medium den	se, silty fine to co	arse			ł	6	4	3	. . .				
190	-	-											<u>189.3</u>	SANI	D (A-2-4)		190		Ŧ								
	189.3	- 18.5 -	6	3	3	6 ,				SS-59	17%		-			<u> </u>		189.3	+ 18.5 +	2	5	6					11
	-	-									1		-	Tan and gray, medi sandy Cl	ium stiff, fine to c _AY (A-6(4))	barse			ŧ								
185	- 184.3	23.5				<u> </u>	+						- 184.3			23.5	185	184.3	+ + 23.5								
	-	-	6	8	10		18				м				COASTAL PLAIN				+	2	2	3	6 5				SS
180	-	-											-	Tan, gray and black	k, medium dense e SAND (A-2-4)	silty	180		ŧ				1:::				
160	179.3	28.5	7	7	7	<u> </u>	· · · ·						-	line to coars	e Sand (A-2-4)			179.3	28.5	4	4	4	1				11
	-	-	'	'	'	<u> </u>					M		_ 177.8	Boring Terminated	at Elevation 177.	30.0 3 ft in			ŧ		-	-	. \$ 8				
	-	_											-	COASTAL PLAIN	N silty SAND (A-2	-4)			<u>+</u>						<u> </u>		
	-	_											- <u>(</u>	<u>) 2005 Dther Samples:</u> ST-1 (20.0 - 22.0)					ŧ								
	-	_											_	01 1 (20.0 22.0)					ŧ								
	_	-																	ł								
	-	-										F	-						Ŧ								
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	-																		<u>+</u>								

SHEET 7

							GROUN	ID WTR (ft)
OFFSET 6	6 ft RT			ALIC	GNMENT L		0 HR.	Dry
NORTHING	N/A			EAS	TING N/A		24 HR.	FIAD
	DRILL N	IETHOD) Н.	S. Augers	3	HAMME	ER TYPE	Automatic
COMP. DAT	-	07/15	• • • •	SUR	FACE WATER DEF	PTH N/A	4	
75 100	SAMP.		L O		SOIL AND RO	CK DESC	CRIPTION	I
	NO.	<u>/ MOI</u>	G					
				-				
				207.8 207.0	Asp	D SURFA		0.0
· · · ·		M	L	-	ROADWAY			
		м		-	Tan and brown, me coarse SAND	edium der (A-2-4), 1	nse, silty fi trace clay	ne to
		м		- 200.3				7.5
		м		-	Tan and gray, sti	ff fine to c	oarse sar	ndy
				<u>196.8</u>	CL	AY (A-6)		<u>11.0</u>
					Gray and tan, loc SAN	ose silty fi D (A-2-4)		se
		M		-		, ,		
				<u>189.8</u>		<u></u>		<u>18.0</u>
		м	<u>/~/~</u>	-				
			///	-	Tan, gray and black fine to coars	k, medium se SAND	1 dense, c (A-2-6)	
	SS-52	16%		184.3				<u>23.5</u>
		1		-	Tan, gray and blac coarse sa			e to
				179.3				<u>28.5</u>
		M		-				
				175.8	Tan and black, me sandy	CLAY (A-	6)	barse <u>32.0</u>
				-	(Black Cre Boring Terminated	at Eleva	tion 175.8	
				-	COASTAL PLA	IN sandy	CLAY (A-I	5)
				-	<u>Other Samples:</u> ST-2 (30.0 - 32.0)		
				-				
				-				
				-				
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	1	I						

GEOLOGIST J. Bradshaw

GEOTECHNICAL BORING REPORT BORE LOG

WBS	3379	98.1.1			ТІ	P B-46	16		С		ROBES				G	OLOGIST J. Bradshaw			WBS	33798	.1.1			TIF	P B-4616		COUNT	
		RIPTION	Bridg	je No.				CSX R									GROUND WTF	R (ft)				Bridg	je No.		NC 211 ove	r CSX Rail		
). EB1-I				TATION					OFFSET	6 ft RT			AI	IGNMENT L	-	N/A		NG NO.		-	,		ATION 30			6
		L EV. 20			_	OTAL DI) ft		NORTHIN				E	STING N/A	24 HR. F	IAD							TAL DEPT			1
		MMER EF		E AME								DRILL	METHO	OD M			J ER TYPE Automa	tic					E AM		ME-550X 83			L
		B. Boyce				TART D					COMP. D				_	RFACE WATER DEPTH N/	A			LER B.					ART DATE			6
ELEV	DRIVE			w co				BLOW		R FOOT		SAMP		ΛĽ					ELEV	DRIVE ELEV			w co				PER FOOT	
(ft)	ELEV (ft)	(ft)	0.5ft	0.5ft	0.5ft	0	25	5	50		75 100	NO.	Им	O DI G	ELE	SOIL AND ROCK DES		PTH (ft)	(ft)	ELEV (ft)	(ft)	0.5ft	0.5ft	0.5ft	0 2	25 5	50	7
											·																	_
210																			130							Matc	h Line	
		Ŧ													F 207.	GROUND SURF.	ACE	0.0		129.4	78.5	21	56	44/0.3		· ·		
	206.9	1.0	11	12	10		· .						м		207.	Asphalt (0.9)		<u>0.9</u>		-	-							•
205	204.4	3.5						2 · · ·							Į.				125	124.4	- 83.5							-
	201.9		11	9	11		20						M		201	Tan, medium dense, silty SAND (A-2-4		6.0		-	-	37	60	40/0.3				
200	_201.9	+ 0.0	4	3	3	↓ · · · · ·		· · · · · ·	· · ·	· · · ·			w					0.0	120	-	-							
200	199.4	8.5	3	3	6	· <u>·</u> ·						11	М		-	Tan and gray, medium stiff coarse sandy CLA	Y (A-6)		120	119.4	- <u>88.5</u>	12	13	9	· · · · ·		+	. 1
		‡				. ¶ ⁹ . ∖.		· · · ·	: :	· · · ·					1					-	-					×××××××××××××××××××××××××××××××××××××		
195	104 4	+ 13.5				»	\.								- 194.	1		13.5	115	-	- 03 5					<u> </u>		-
		+ 10.0	8	10	14		2	24	· · ·	· · · ·			М			Tan and brown, medium de					-	9	12	18		4 30	· · · ·	
400		ţ					· /	· · ·	: :						1	coarse SAND (A				-								
190	189.4	18.5	2	3	4										<u>189</u>	<u> </u>		<u>18.5</u>		-	È							
		ł		5	7				: :				M		ł	Tan and gray, medium stit				-								
185		±				``	\.		• •						£	coarse sandy CLA	r (A-6)			-								
	184.4		9	12	17		}	2 9					w		<u>184.</u>			<u>23.5</u>		-	F							
		Ŧ					/								F	Tan and gray, medium den	se, silty fine to			-	F							
180	179.4	- 28.5													<u>;</u>	coarse SAND (A-2-4),	trace clay			-	-							
		Ŧ	6	7	5	: ;	2	· · · · · ·					W		1					-	-							
175		‡				.		· · · · · ·	: :						1					-	-							
175	174.4	33.5	5	6	7	+-							l w	\sim	<u>174</u>			<u>33.5</u>		-	È.							
		‡		-		: : T	13_	· · · · · ·	: :	· · · ·						Tan, gray and orange, me				-	-							
170	160.4	38.5							· ·							loose, clayey fine to coarse	SAND (A-2-6)			-	-							
	109.4	1 30.5	3	4	6	. ∳1ċ	5 :	· · ·	· ·	· · · ·			w			(Black Creek Form	lation)			-								
		ŧ				:1:		· · ·	: :											-	-							
165	164.4	43.5	13	7	6				<u> </u>						164	<u>+</u>		<u>43.5</u>		-	-							
		ł	13		0	∳ [•]	13.	· · ·					W		Ł	Tan and light gray, stiff to m	edium stiff, silty			-								
160		+				• /• •									+	CLAY (A-7-6)			-	-							
2/3/10	159.4	+ 48.5	woн	2	3	• <u>•</u> 5							М		F					-	F							
5		Ŧ							- -						F					-	F							
109. 155	154.4	53.5													<u> </u>					-	-							
کّ ا		‡ ¯	1	3	3	6		· · · · · ·		· · · ·			M		-					-	F							
ਤ ਹੋ 150		‡				:\: :		· · · ·	: :]					-	F							
150 N N 150	149.4	58.5	5	5	6		.					11	l w		<u>149.</u>			<u>58.5</u>		-	ŧ							
200		‡		-		: / 1	' ·	· · · · · ·	: :	· · · ·					<u>;</u>	Orange and gray, very loose fine to coarse SAND	e to dense, silty			-	t i							
	1/1 /	- 63.5				_;/:_:	•••		- -						Ł	ine to coarse GAND	(* * *)			-	È.							
<u>GEO</u>	<u> </u>	+ 00.0	3	2	2	/		· · ·					w		1					-	F							
0107 9107 9107 9107 9107 9107 9107 9107		ŧ				<u> </u>									ł					-	Ł							
	139.4	68.5		4											ŀ					-	F							
OBLI		ł	2	1	1	• 2	•••			· · · · ·			W		Ł					-	Ł							
р ц 135		Ŧ				:									E					-	Ł							
ROK	134.4	73.5	10	13	21		\	•34]	w		F					-	F							
135 130 130		Ŧ						- F -							1					-	F							
⁰ 2 130		<u>t</u>						· · · ·	- -						: -						Ľ							

SHEET 8

ROBESO	N			GEOLOGIST J. Bradshav	N		
				·		GROUM	ID WTR (ft)
OFFSET	6 ft RT			ALIGNMENT L		0 HR.	N/A
NORTHING				EASTING N/A		24 HR.	FIAD
			Mu	1		R TYPE	
COMP. DA			iviu				Automatic
CONF. DA	SAMP.)7/15	L	JURFACE WATER DEFT	H N/A	\	
75 100	NO.		0	SOIL AND ROCK	C DESC	RIPTION	I
	110.	/моі	G				
		L					<u> </u>
· 100/0.8		м					
				Gray, very hard, fine to (A-	o coars -6)	e sandy (CLAY
				_124.4			<u> </u>
• 100/0.8		м		Tan, very dense, silty	fine to	coarse S	AND
				(A-2	2-4)		88.0
+ 		м					
				Gray, medium dense SAND	e, silty f (A-2-4)	ine to coa	arse
		м					95.0
	1			Boring Terminated at	t Elevat	ion 112.9	ft in
			ļ	COASTAL PLAIN	SIITY SA	ND (A-2-	4)
			Ŀ				
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GEOTECHNICAL BORING REPORT BORE LOG

WBS	33798.	1.1			ТІ	P B-4	616		COUN	NTY RC						GEOLOGIST J. Bradshaw			WBS	33798	5.1.1			ТІІ	P B-4616		COUNT	Y
SITE	DESCRIF	PTION	Bridg	e No. '	18 on	NC 21	l over	CSX Ra	ilroad								GROUND V	VTR (ft)	SITE	DESCR	IPTION	Bridg	je No.	18 on I	NC 211 ove	er CSX Ra	ilroad	
BOR	NG NO.	EB2-A	4		S	ΓΑΤΙΟΙ	N 32	+42		OFF	SET	5 ft LT			4	ALIGNMENT L	0 HR.	N/A	BOR	NG NO.	EB2-A	٩		ST	TATION 3	2+42		OF
COLI	AR ELE	V. 20	7.9 ft		т	OTAL I	DEPTI	H 110.0) ft	NOR	THING	S N/A				E ASTING N/A	24 HR.	FIAD	COL	LAR ELI	EV. 20	7.9 ft		тс	OTAL DEP	TH 110.0) ft	NC
DRILL	RIG/HAMN	MER EF	F./DATE	AME								DRILL N	NETHO	DD N	Mud R	otary HAMN	ER TYPE Aut	omatic	DRILL	. RIG/HAN	IMER EF	F./DATE	e ame		CME-550X 83			
DRIL	LER B.	Boyce			S		DATE	10/06/	15	CON	IP. DA	TE 10/	06/15			SURFACE WATER DEPTH N	'A		DRIL	LER B	Boyce	•			TART DATI			CC
ELEV	DRIVE ELEV			W COL					PER FO			SAMP.				SOIL AND ROCK DES	CRIPTION		ELEV	DRIVE ELEV	DEPTH		W COL				PER FOO	
(ft)	(ft)	(ft)	0.5ft	0.5ft	0.5ft	0	2	5	50	75	100	NO.	/мс	DI G	E	LEV. (ft)		DEPTH (ft)	(ft)	(ft)	(ft)	0.5ft	0.5ft	0.5ft	0	25	50	75
210															F				130	129.4	78.5				⊦	Mat	ch Line	
	206.9	1.0					<u> </u>						-			07.9 GROUND SURF 07.1 Asphalt (0.8'		0.0		-	+	6	10	12	: : : •)22		. .
205	+		11	11	11			2 • • •			•••		М						125	-	+					· · · ·		· ·
	204.4	3.5	8	6	4	· .	10						w		F	Tan and gray, medium den		y		124.4	83.5	8	11	12		23		-
	201.9	6.0	5	9	10			· · · ·					м		F	fine to coarse SANE) (A-2-4)			-	+							- -
200	199.4	8.5					· • • 19								F				120	119.4	88.5					+		
	ŧ		5	6	6		12	· · · ·			· · ·		W		ļ.					-	+	19	22	18		40		.
195	ļ, t														-				115	-	+							:
100	194.4	13.5	3	4	8		12						w		-				110	114.4	93.5	8	11	17		<u>/</u>		.
	ŧ																			-	ŧ					1		: ;
190	189.4	18.5														39.4			110	109.4	98.5					+-+-	· · ·	
	‡		5	5	7		12	· · · · · ·					M		1	UNDIVIDED COAST	AL PLAIN			-	ŧ	16	20	19		39		
185	‡					:į	· · · ·	· · · ·							-	Tan, gray and black, medie fine to coarse SANE			105	-						: /::		: :
100	184.4	23.5	4	3	5	· <u>]</u> .							м	/		<u>34.4</u>		<u> 23.5</u>	105	104.4	103.5	13	14	18		· <u>/</u>		
	‡					•¶ ⁸ •] •	· · · ·	· · · · · ·	· · · ·		· · ·					Tan, orange and gray, loos coarse SAND (A)		-	ŧ					.932		· ·
180	179.4	28.5				ļ								~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~		79.4	,	28.5	100	994-	108.5					· · · ·		·
		20.0	2	2	3	• 5	· · ·	· · · · · ·		· · · ·	· · ·		м		Ţ	COASTAL PLA	NN					8	17	24		· · · • • 4	1 <u> </u>	
175	‡					-\ - -\-	· · · ·	· · · ·	· · · ·							Gray, medium stiff, silty (trace to little sa				-	+							
175	174.4	33.5	4	5	6	<u>;</u>							м		11	$\frac{74.4}{2} - \underline{\qquad} (\underline{\text{Black Creek Forn}})$		_/ <u>33.5</u>										
	‡				-	. 9 	<u> </u>	· · · · · ·			· · ·			<i>%</i> ./		Light brown, medium dens				-								
170	169.4	38.5					·`\							<i>.</i> /./.		coarse SAND (A	-2-6)	<u>38.5</u>		-								
		00.0	10	14	17		•••	31		· · · ·	· · ·		w	000			- — — — — — — d SAND (A-3)			-								
105	1						<u>`</u> /	· · · ·						0 0 0 0 0 0 0 0 0 0 0 0	-	i an, dense, poorly grade	a on a de (n o)			-	+							
165		43.5	2	1	1	1.							М	000		<u> 33.9</u>		44.0		-	+							
	1		2	.		● ² .	•••	· · ·							}	Yellow-orange to gray, very	soft to medium	ı I		-								
160	159.4	10 E				ļi · ·									Ł	stiff, silty CLAY (A	4-7-5)			-								
2		40.0	WOH	WOH	WOH	•0	 	· · ·					м		1					-	ŧ							
5	ŧ							· · ·	.						1					-	ŧ							
155	154.4	53.5	WOH	3	3	+														-	ŧ							
	Ŧ			5	5	• 6.	· ·	· · ·					M		ł					-	ŧ							
	149.4	50 F					<u>s</u> :								Ł	19.4		58.5		-	ŧ I							
150	149.4	58.5	9	10	11	· ·	2	1					w		÷		- — — — — — —			-	ŧ I							
9	Ī						<i>!</i> :									Orange and gray, medium silty fine to coarse SA				-	Ł							
		63.5	4		1		/ 								ł					-	ŧ I							
	Ŧ		4	3	4	.• 7	•••	· · · · · · ·					W							-	E							
140	Ŧ														F					-	E							
	139.4	68.5	2	2	3	6 5	• •]	w		F					-	F							
200	Ŧ					۰. ۱	•••								F					-	F							
135		73.5		_		 - ``		· · · ·			· · ·			.,,		<u>34.4 </u>		<u> 73.5</u>		-	F							
3 5	Ŧ		3	5	8		13						M	N N N V	ŀF	Light gray, stiff, fine clay	ey SILT (A-5)			-	F							
130	ŧ						N:							N N N V	ŀ					-	F							
													•							•	-	•	-					

SHEET 9

ROBESON	N			GEOLOGIST J. Bradsha	w		
						GROUN	ID WTR (ft)
OFFSET 5	ft LT			ALIGNMENT L		0 HR.	N/A
NORTHING	N/A			EASTING N/A		24 HR.	FIAD
	DRILL M	ETHOD	Mu	d Rotary	HAMME	R TYPE	Automatic
COMP. DAT	E 10/0	06/15		SURFACE WATER DEPT	'H N/A	١	
	SAMP.		L O	SOIL AND ROC	K DESC	RIPTION	
75 100	NO.	моі	Ğ				
	L						
		М		_ <u>129.4</u>	edium de	ense to de	– – – <u>78.5</u> / ense.
· · · · ·				silty fine to coar	se SAN	D (A-2-4)	,
		w		-			
· · · ·				_			
		W					
		W		-			
· · · ·				_			
		W					
		w		-			
· · · ·				_			
		W		97.9 Boring Terminated	at Flova	tion 07 0	110.0 ft in
			F	COASTAL PLAIN	silty SA	ND (A-2-	4)
			F	-			
			F				
			F	_			
			F				
			E				
			E	-			
			F				
				_			
				_			
				_			
				_			
				-			
				-			
			E				

						SO	IL TEST I	RESULTS								
SAMPLE NO.	BORING	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	C CAND		WEIGHT	CLAV	% PAS	SING (SIEVES)	200	% MOISTURE	% ORGANIC
SS-59	EB1-A	5 RT	30+76	18.5-20.0	A-6(4)	39	21	C. SAND 38.8	F. SAND 21.8	SILT 7.8	CLAY 31.6	99.0	40 76.0	200 42.0	17.0	-
SS-52	EB2-B	6 RT	32+48	23.5-25.0	A-6(2)	35	17	43.5	19.5	5.9	31.1	100.0	79.0	39.0	15.9	-

SAMPLE NO.	BORING	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% PASSING 200	% MOISTURE	SPECIFIC GRAVITY	COMPRESSION INDEX (C _c)	RECOMPRESSION INDEX (C _r)	INITIAL VOID RATIO
ST-2	EB2-B	6 RT	32+48	30.0-32.0	A-6(4)	40	22	41.0	15.6	2.650	0.17	0.010	0.602

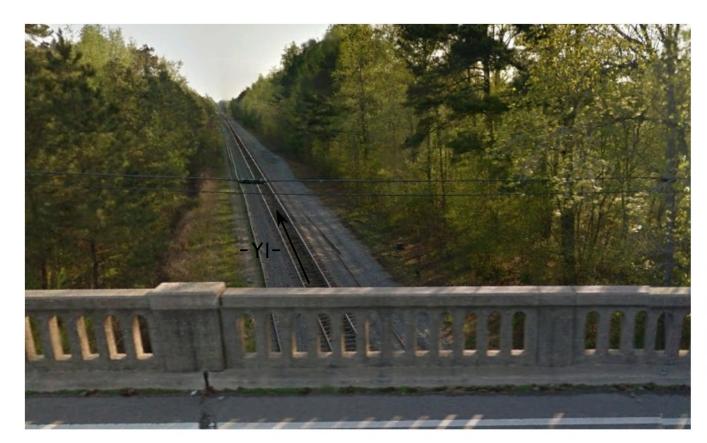
SS = Split-Barrel Sample (ASTM D-1586)

ST = Shelby Tube (Undisturbed) Sample

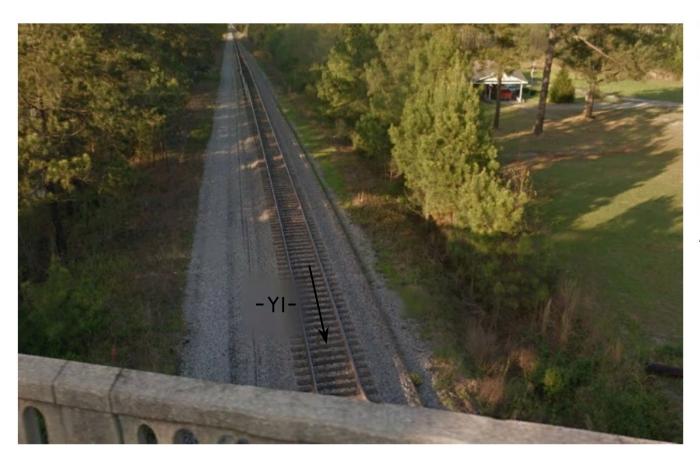
Lab Technician: Amanda R. Roth

NCDOT Certification No.: 112-09-1003

PROJE	CCT REFERENC	E NO.	SHEET	NO
	B -4616		10	



Site Photo No. 1: -Y1- (CSX RR) Looking Upstation (West)





Site Photo No. 3: -L- (NC 211) Looking Downstation (North)

Site Photo No. 2: -Y1- (CSX RR) Looking Downstation (East)