

REFERENCE: I-5987B

PROJECT: 47533

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<u>SHEET NO.</u>	<u>DESCRIPTION</u>
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STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 DIVISION OF HIGHWAYS
 GEOTECHNICAL ENGINEERING UNIT

STRUCTURE
SUBSURFACE INVESTIGATION

COUNTY ROBESON
 PROJECT DESCRIPTION I-95 IMPROVEMENTS FROM
US 301 (EXIT 22) IN ROBESON COUNTY TO NC 59
(EXIT 41) IN CUMBERLAND COUNTY
 SITE DESCRIPTION BRIDGE ON -L- (I-95) OVER
-Y5- (NC 20) AT -L- STA. 617+12.20

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	I-5987B	1	18

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 (919) 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 BOREHOLE. 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 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 OPINION OF THE DEPARTMENT AS TO THE TYPE OF MATERIALS AND CONDITIONS TO BE ENCOUNTERED. THE BIDDER OR CONTRACTOR IS CAUTIONED TO MAKE SUCH INDEPENDENT SUBSURFACE INVESTIGATIONS AS HE DEEMS NECESSARY TO SATISFY HIMSELF AS TO CONDITIONS TO BE ENCOUNTERED ON THE PROJECT. THE CONTRACTOR SHALL HAVE NO CLAIM FOR ADDITIONAL COMPENSATION OR FOR AN EXTENSION OF TIME FOR ANY REASON RESULTING FROM THE ACTUAL CONDITIONS ENCOUNTERED AT THE SITE DIFFERING FROM THOSE INDICATED IN THE SUBSURFACE INFORMATION.

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

PERSONNEL

M.A.D.

GOODNIGHT, D.J.

WEIS, J.M.

F&R, INC.

INVESTIGATED BY GOODNIGHT, D.J.

DRAWN BY CROCKETT, S.C.

CHECKED BY HAMM, J. R.

SUBMITTED BY FALCON

DATE DECEMBER 2021



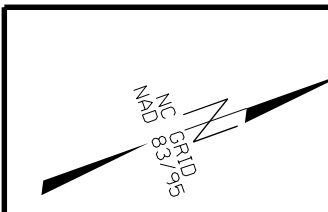
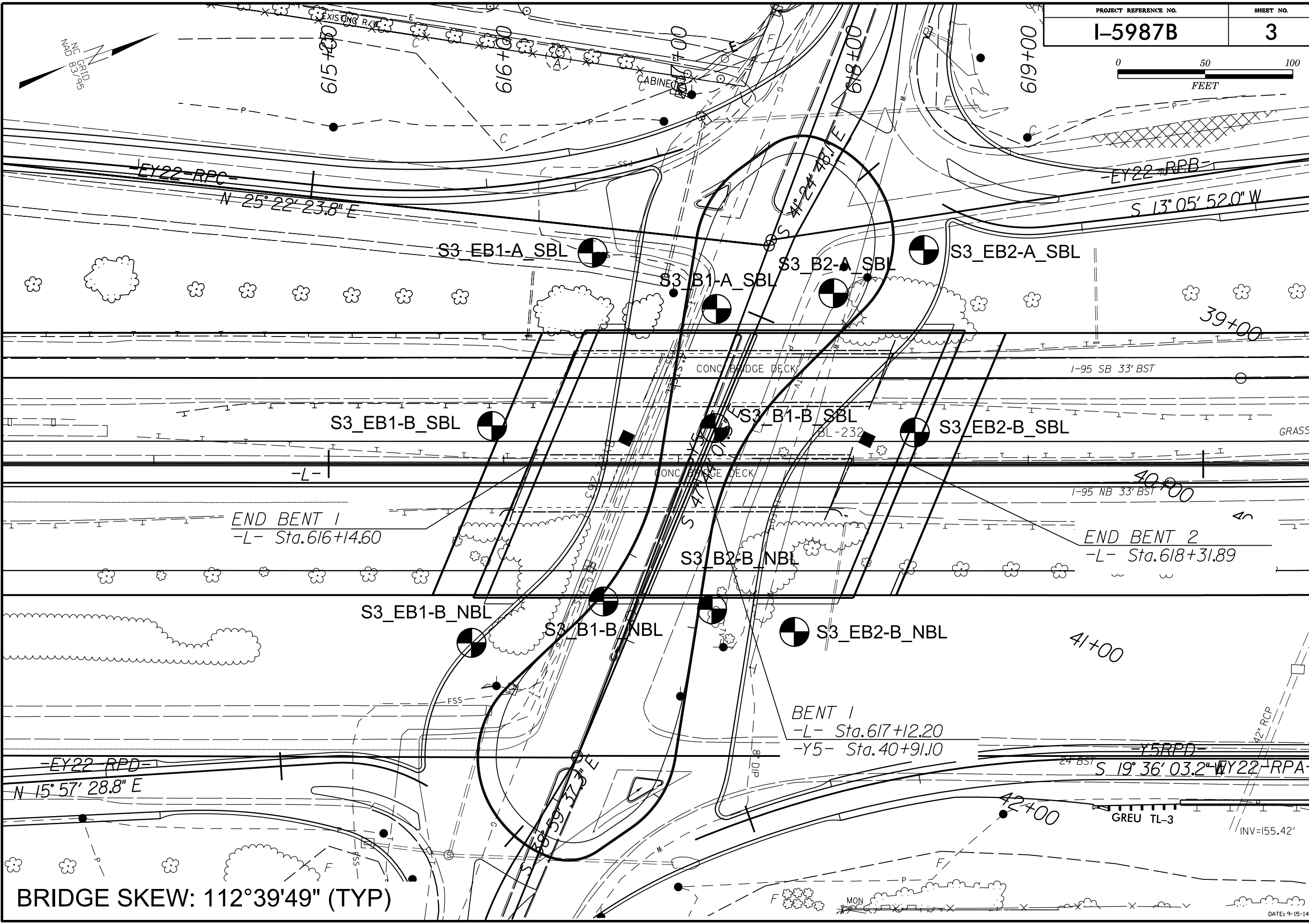
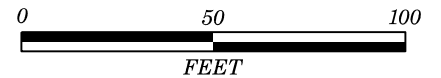
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Stephen C Crockett Dec 16, 2021

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**DOCUMENT NOT CONSIDERED FINAL
 UNLESS ALL SIGNATURES COMPLETED**

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																																																												
<p>SOIL IS CONSIDERED UNCONSOLIDATED, SEMI-CONSOLIDATED, OR WEATHERED EARTH MATERIALS THAT CAN BE PENETRATED WITH A CONTINUOUS FLIGHT POWER AUGER AND YIELD LESS THAN 100 BLOWS PER FOOT ACCORDING TO THE STANDARD PENETRATION TEST (AASHTO T 206, ASTM D1586). SOIL CLASSIFICATION IS BASED ON THE AASHTO SYSTEM. BASIC DESCRIPTIONS GENERALLY INCLUDE THE FOLLOWING: CONSISTENCY, COLOR, TEXTURE, MOISTURE, AASHTO CLASSIFICATION, AND OTHER PERTINENT FACTORS SUCH AS MINERALOGICAL COMPOSITION, ANGULARITY, STRUCTURE, PLASTICITY, ETC. FOR EXAMPLE, <i>VERY STIFF, GRAY, SILTY CLAY, MOIST WITH INTERBEDDED FINE SAND LAYERS, HIGHLY PLASTIC, A-7-6</i></p>										<p>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.</p>										<p>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. SPT REFUSAL IS PENETRATION BY A SPLIT SPOON SAMPLER EQUAL TO OR LESS THAN 0.1 FOOT PER 60 BLOWS IN NON-COASTAL PLAIN MATERIAL. THE TRANSITION BETWEEN SOIL AND ROCK IS OFTEN REPRESENTED BY A ZONE OF WEATHERED ROCK. ROCK MATERIALS ARE TYPICALLY DIVIDED AS FOLLOWS:</p>										<p>ALLUVIUM (ALLUV.) - SOILS THAT HAVE BEEN TRANSPORTED BY WATER. AQUIFER - A WATER BEARING FORMATION OR STRATA. ARENACEOUS - APPLIED TO ROCKS THAT HAVE BEEN DERIVED FROM SAND OR THAT CONTAIN SAND. 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. ARTESIAN - GROUND WATER THAT IS UNDER SUFFICIENT PRESSURE TO RISE ABOVE THE LEVEL AT WHICH IT IS ENCOUNTERED, BUT WHICH DOES NOT NECESSARILY RISE TO OR ABOVE THE GROUND SURFACE. 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. CORE RECOVERY (REC.) - TOTAL LENGTH OF ALL MATERIAL RECOVERED IN THE CORE BARREL DIVIDED BY TOTAL LENGTH OF CORE RUN AND EXPRESSED AS A PERCENTAGE. DIKE - A TABULAR BODY OF IGNEOUS ROCK THAT CUTS ACROSS THE STRUCTURE OF ADJACENT ROCKS OR CUTS MASSIVE ROCK. DIP - THE ANGLE AT WHICH A STRATUM OR ANY PLANAR FEATURE IS INCLINED FROM THE HORIZONTAL. DIP DIRECTION (DIP AZIMUTH) - THE DIRECTION OR BEARING OF THE HORIZONTAL TRACE OF THE LINE OF DIP, MEASURED CLOCKWISE FROM NORTH. FAULT - A FRACTURE OR FRACTURE ZONE ALONG WHICH THERE HAS BEEN DISPLACEMENT OF THE SIDES RELATIVE TO ONE ANOTHER PARALLEL TO THE FRACTURE. FISSILE - A PROPERTY OF SPLITTING ALONG CLOSELY SPACED PARALLEL PLANES. FLOAT - ROCK FRAGMENTS ON SURFACE NEAR THEIR ORIGINAL POSITION AND DISLOGGED FROM PARENT MATERIAL. FLOOD PLAIN (FP) - LAND BORDERING A STREAM, BUILT OF SEDIMENTS DEPOSITED BY THE STREAM. FORMATION (FM) - A MAPPABLE GEOLOGIC UNIT THAT CAN BE RECOGNIZED AND TRACED IN THE FIELD. 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 ITS LATERAL EXTENT. 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. PERCHED WATER - WATER MAINTAINED ABOVE THE NORMAL GROUND WATER LEVEL BY THE PRESENCE OF AN INTERVENING IMPERVIOUS STRATUM. RESIDUAL (RES.) SOIL - SOIL FORMED IN PLACE BY THE WEATHERING OF ROCK. ROCK QUALITY DESIGNATION (ROD) - A MEASURE OF ROCK QUALITY DESCRIBED BY TOTAL LENGTH OF ROCK SEGMENTS EQUAL TO OR GREATER THAN 4 INCHES DIVIDED BY THE TOTAL LENGTH OF CORE RUN AND EXPRESSED AS A PERCENTAGE. SAPROLITE (SAP.) - RESIDUAL SOIL THAT RETAINS THE RELIC STRUCTURE OR FABRIC OF THE PARENT ROCK. SILL - AN INTRUSIVE BODY OF IGNEOUS ROCK OF APPROXIMATELY UNIFORM THICKNESS AND RELATIVELY THIN COMPARED WITH ITS LATERAL EXTENT, THAT HAS BEEN EMPLACED PARALLEL TO THE BEDDING OR SCHISTOSITY OF THE INTRUDED ROCKS. SLICKENSIDE - POLISHED AND STRIATED SURFACE THAT RESULTS FROM FRICTION ALONG A FAULT OR SLIP PLANE. STANDARD PENETRATION TEST (PENETRATION RESISTANCE) (SPT) - NUMBER OF BLOWS (N OR BPF) OF 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. STRATA CORE RECOVERY (SREC.) - TOTAL LENGTH OF STRATA MATERIAL RECOVERED DIVIDED BY TOTAL LENGTH OF STRATUM AND EXPRESSED AS A PERCENTAGE. STRATA ROCK QUALITY DESIGNATION (SROD) - A MEASURE OF ROCK QUALITY DESCRIBED BY TOTAL LENGTH OF ROCK SEGMENTS WITHIN A STRATUM EQUAL TO OR GREATER THAN 4 INCHES DIVIDED BY THE TOTAL LENGTH OF STRATA AND EXPRESSED AS A PERCENTAGE. TOPSOIL (TS.) - SURFACE SOILS USUALLY CONTAINING ORGANIC MATTER.</p>																																																												
SOIL LEGEND AND AASHTO CLASSIFICATION										ANGULARITY OF GRAINS										WEATHERED ROCK (WR)										CRYSTALLINE ROCK (CR)																																																												
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MINERALOGICAL COMPOSITION										COMPRESSION										NON-CRYSTALLINE ROCK (NCR)										COASTAL PLAIN SEDIMENTARY ROCK (CP)																																																												
<p>MINERAL NAMES SUCH AS QUARTZ, FELDSPAR, MICA, TALC, KAOLIN, ETC. ARE USED IN DESCRIPTIONS WHEN THEY ARE CONSIDERED OF SIGNIFICANCE.</p>										<p>SLIGHTLY COMPRESSIBLE LL < 31 MODERATELY COMPRESSIBLE LL = 31 - 50 HIGHLY COMPRESSIBLE LL > 50</p>										<p>FINE TO COARSE GRAIN METAMORPHIC AND NON-COASTAL PLAIN SEDIMENTARY ROCK THAT WOULD YIELD SPT REFUSAL IF TESTED. ROCK TYPE INCLUDES PHYLLITE, SLATE, SANDSTONE, ETC.</p>										<p>COASTAL PLAIN SEDIMENTS CEMENTED INTO ROCK, BUT MAY NOT YIELD SPT REFUSAL. ROCK TYPE INCLUDES LIMESTONE, SANDSTONE, CEMENTED SHELL BEDS, ETC.</p>																																																												
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SOIL MOISTURE - CORRELATION OF TERMS										EQUIPMENT USED ON SUBJECT PROJECT										FRACTURE SPACING										BEDDING																																																												
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th>SOIL MOISTURE SCALE (ATTERBERG LIMITS)</th> <th>FIELD MOISTURE DESCRIPTION</th> <th>GUIDE FOR FIELD MOISTURE DESCRIPTION</th> </tr> <tr> <td>LL - LIQUID LIMIT PL - PLASTIC LIMIT</td> <td>- SATURATED - (SAT.) - WET - (W)</td> <td>USUALLY LIQUID; VERY WET, USUALLY FROM BELOW THE GROUND WATER TABLE SEMISOLID; REQUIRES DRYING TO ATTAIN OPTIMUM MOISTURE</td> </tr> <tr> <td>OM - OPTIMUM MOISTURE SL - SHRINKAGE LIMIT</td> <td>- MOIST - (M) - DRY - (D)</td> <td>SOLID; AT OR NEAR OPTIMUM MOISTURE REQUIRES ADDITIONAL WATER TO ATTAIN OPTIMUM MOISTURE</td> </tr> </table>										SOIL MOISTURE SCALE (ATTERBERG LIMITS)	FIELD MOISTURE DESCRIPTION	GUIDE FOR FIELD MOISTURE DESCRIPTION	LL - LIQUID LIMIT PL - PLASTIC LIMIT	- SATURATED - (SAT.) - WET - (W)	USUALLY LIQUID; VERY WET, USUALLY FROM BELOW THE GROUND WATER TABLE SEMISOLID; REQUIRES DRYING TO ATTAIN OPTIMUM MOISTURE	OM - OPTIMUM MOISTURE SL - SHRINKAGE LIMIT	- MOIST - (M) - DRY - (D)	SOLID; AT OR NEAR OPTIMUM MOISTURE REQUIRES ADDITIONAL WATER TO ATTAIN OPTIMUM MOISTURE	<p>DRILL UNITS: <input checked="" type="checkbox"/> CME-45C <input checked="" type="checkbox"/> CME-55 <input type="checkbox"/> CME-550 <input type="checkbox"/> VANE SHEAR TEST <input type="checkbox"/> PORTABLE HOIST</p>										<p>ADVANCING TOOLS: <input type="checkbox"/> CLAY BITS <input type="checkbox"/> 6" CONTINUOUS FLIGHT AUGER <input type="checkbox"/> 8" HOLLOW AUGERS <input type="checkbox"/> HARD FACED FINGER BITS <input type="checkbox"/> TUNG-CARBIDE INSERTS <input checked="" type="checkbox"/> CASING <input type="checkbox"/> W/ ADVANCER <input checked="" type="checkbox"/> TRICONE <input type="checkbox"/> 2 1/16" STEEL TEETH <input type="checkbox"/> TRICONE <input type="checkbox"/> TUNG-CARB. <input type="checkbox"/> CORE BIT</p>										<p>TERM SPACING VERY WIDE MORE THAN 10 FEET WIDE 3 TO 10 FEET MODERATELY CLOSE 1 TO 3 FEET CLOSE 0.16 TO 1 FOOT VERY CLOSE LESS THAN 0.16 FEET</p>										<p>TERM THICKNESS VERY THICKLY BEDDED 4 FEET THICKLY BEDDED 1.5 - 4 FEET THINLY BEDDED 0.16 - 1.5 FEET VERY THINLY BEDDED 0.03 - 0.16 FEET THICKLY LAMINATED 0.008 - 0.03 FEET THINLY LAMINATED < 0.008 FEET</p>																																									
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<p>DESCRIPTIONS MAY INCLUDE COLOR OR COLOR COMBINATIONS (TAN, RED, YELLOW-BROWN, BLUE-GRAY). MODIFIERS SUCH AS LIGHT, DARK, STREAKED, ETC. ARE USED TO DESCRIBE APPEARANCE.</p>										<p>FRAC. MARK: ELEVATIONS TAKEN FROM I5987_LS_TIN.TIN DATED 05/21 ELEVATION: FEET</p>										<p>NOTES: FIAD - FILLED IMMEDIATELY AFTER DRILLING</p>										<p>DATE: 8-15-14</p>																																																												



EXISTING R/W
EY22-RPC
N 25° 22' 23.8" E
EY22-RPB
S 13° 05' 52.0" W

S3_EB1-A_SBL S3_B1-A_SBL S3_B2-A_SBL S3_EB2-A_SBL

S3_EB1-B_SBL S3_B1-B_SBL S3_EB2-B_SBL

S3_B2-B_NBL

S3_EB1-B_NBL S3_B1-B_NBL S3_EB2-B_NBL

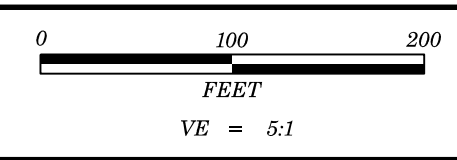
END BENT 1
-L- Sta. 616+14.60

END BENT 2
-L- Sta. 618+31.89

BENT 1
-L- Sta. 617+12.20
-Y5- Sta. 40+91.10

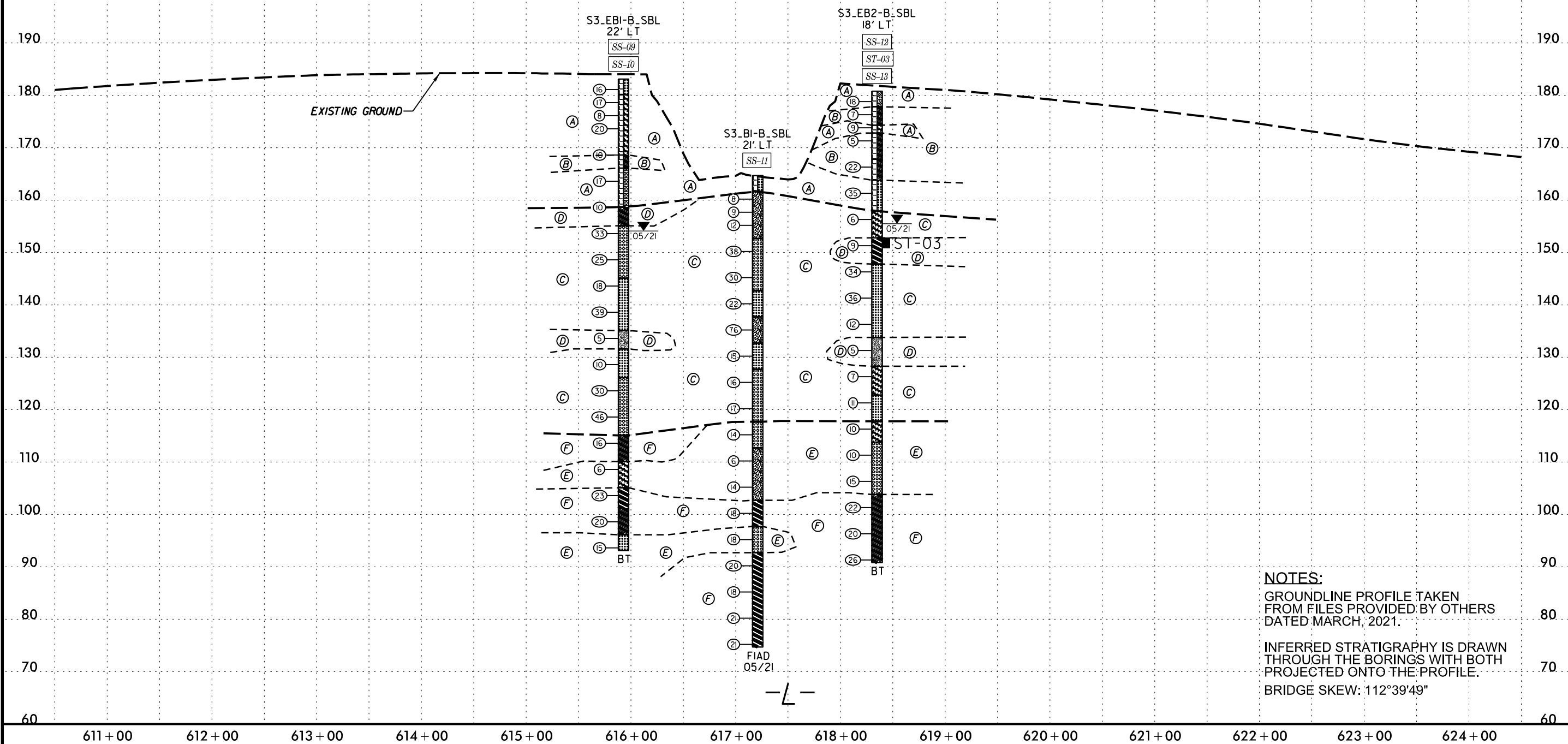
EY22-RPD
N 15° 57' 28.8" E
Y5RPD
S 19° 36' 03.2" W
EY22-RPA

BRIDGE SKEW: 112°39'49" (TYP)



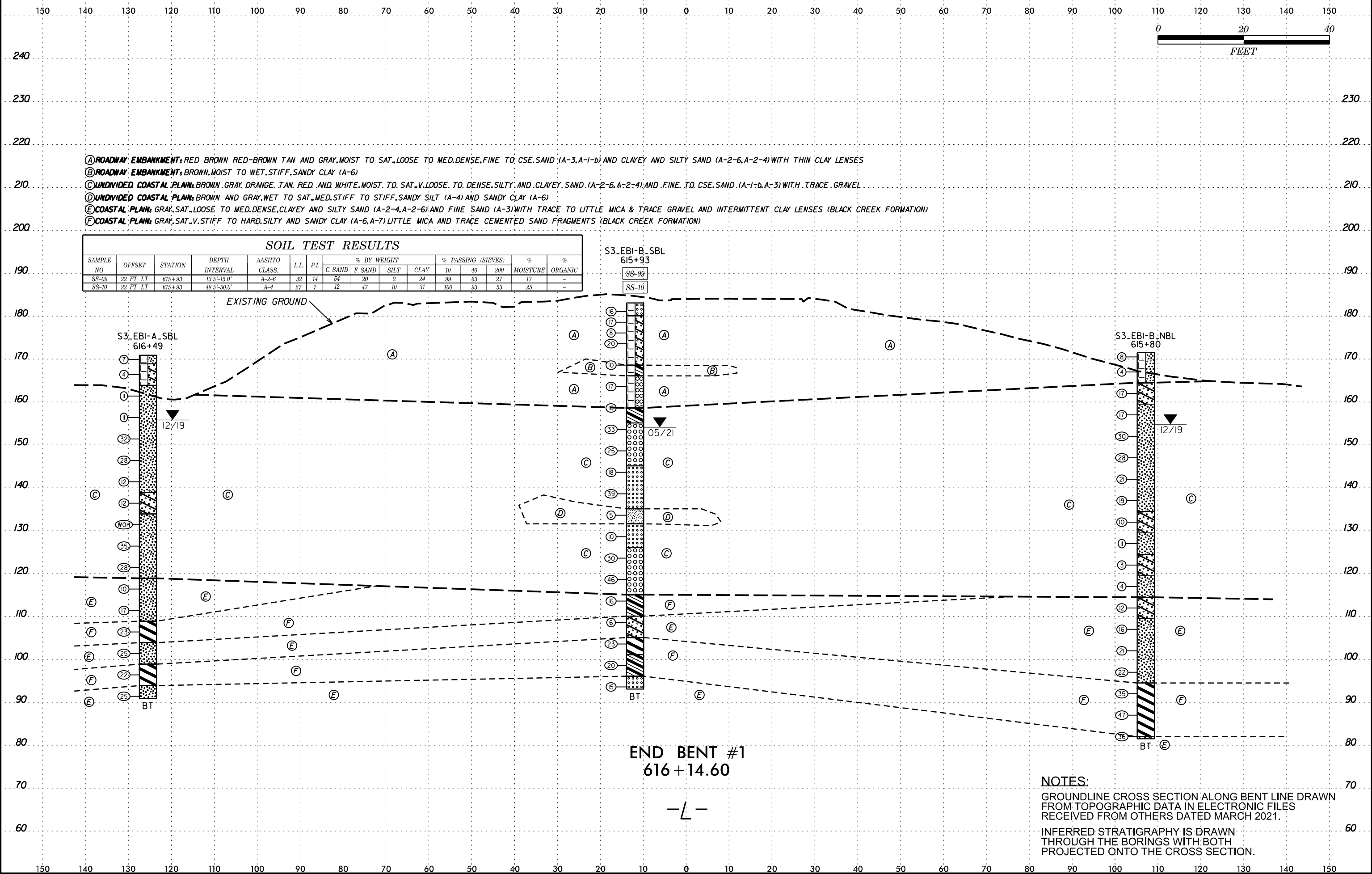
- Ⓐ ROADWAY EMBANKMENT: RED BROWN RED-BROWN TAN AND GRAY, MOIST TO SAT., LOOSE TO DENSE, FINE TO CSE. SAND (A-3, A-1-a, A-1-b) AND CLAYEY AND SILTY SAND (A-2-6, A-2-5, A-2-4) WITH THIN CLAY LENSES
- Ⓑ ROADWAY EMBANKMENT: BROWN, MOIST TO WET, MED. STIFF TO V. STIFF, SANDY AND SANDY SILTY CLAY (A-6, A-7-6)
- Ⓒ UNDIVIDED COASTAL PLAIN: ORANGE, BROWN RED GRAY AND TAN, MOIST TO SAT., LOOSE TO V. DENSE, SILTY AND CLAYEY SAND (A-2-5, A-2-6) AND F. TO CSE. SAND (A-1-a, A-1-b, A-3) WITH INTERMITTENT CLAY LENSES
- Ⓓ UNDIVIDED COASTAL PLAIN: GRAY-BROWN BROWN AND GRAY, WET TO SAT., MED. STIFF TO STIFF, SANDY AND SILTY CLAY (A-6, A-7-6) AND SANDY SILT (A-4)
- Ⓔ COASTAL PLAIN: GRAY, SAT., LOOSE TO MED. DENSE, SILTY AND CLAYEY SAND (A-2-4, A-2-6) AND F. CSE. SAND (A-3, A-1-b, A-1-a) WITH INTERMITTENT LENSES OF LIGNITE AND CLAY AND TRACE CEMENTED SAND FRAGMENTS (BLACK CREEK FORMATION)
- Ⓕ COASTAL PLAIN: GRAY, MOIST TO SAT., V. STIFF, SANDY SILTY CLAY (A-6, A-7, A-7-6) WITH TRACE MICA, INTERMITTENT LENSES OF SAND AND BLACK PLANT FOSSILS AND CEMENTED SAND FRAGMENTS (BLACK CREEK FORMATION)

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	LL	P.I.	% BY WEIGHT			% PASSING (SIEVES)			% MOISTURE	% ORGANIC	
							C. SAND	F. SAND	SILT	CLAY	10	40			200
SS-09	22 FT LT	615+93	13.5'-15.0'	A-2-6	32	14	54	20	2	24	99	63	27	17	-
SS-10	22 FT LT	615+93	48.5'-50.0'	A-4	27	7	12	47	10	31	100	93	53	25	-
SS-11	21 FT LT	617+21	63.5'-65.0'	A-7-6	50	23	1	5	32	62	100	99	95	29	-
SS-12	18 FT LT	618+35	8.5'-10.0'	A-7-6	45	20	43	18	5	34	99	71	42	22	-
ST-03	18 FT LT	618+35	28.0'-30.0'	A-7-6	58	40	0	21	33	46	100	100	79	25	-
SS-13	18 FT LT	618+35	48.5'-50.0'	A-4	26	5	5	56	13	26	99	96	48	27	-



NOTES:
 GROUNDLINE PROFILE TAKEN FROM FILES PROVIDED BY OTHERS DATED MARCH, 2021.
 INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE PROFILE.
 BRIDGE SKEW: 112°39'49"

8/23/99



- (A) ROADWAY EMBANKMENT: RED BROWN RED-BROWN TAN AND GRAY, MOIST TO SAT., LOOSE TO MED. DENSE, FINE TO CSE. SAND (A-3, A-1-b) AND CLAYEY AND SILTY SAND (A-2-6, A-2-4) WITH THIN CLAY LENSES
- (B) ROADWAY EMBANKMENT: BROWN, MOIST TO WET, STIFF, SANDY CLAY (A-6)
- (C) UNDIVIDED COASTAL PLAIN: BROWN, GRAY, ORANGE, TAN, RED, AND WHITE, MOIST TO SAT., V. LOOSE TO DENSE, SILTY AND CLAYEY SAND (A-2-6, A-2-4) AND FINE TO CSE. SAND (A-1-b, A-3) WITH TRACE GRAVEL
- (D) UNDIVIDED COASTAL PLAIN: BROWN AND GRAY, WET TO SAT., MED. STIFF TO STIFF, SANDY SILT (A-4) AND SANDY CLAY (A-6)
- (E) COASTAL PLAIN: GRAY, SAT., LOOSE TO MED. DENSE, CLAYEY AND SILTY SAND (A-2-4, A-2-6) AND FINE SAND (A-3) WITH TRACE TO LITTLE MICA & TRACE GRAVEL AND INTERMITTENT CLAY LENSES (BLACK CREEK FORMATION)
- (F) COASTAL PLAIN: GRAY, SAT., V. STIFF TO HARD, SILTY AND SANDY CLAY (A-6, A-7) LITTLE MICA AND TRACE CEMENTED SAND FRAGMENTS (BLACK CREEK FORMATION)

SOIL TEST RESULTS															
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
SS-09	22 FT LT	615+93	13.5'-15.0'	A-2-6	32	14	54	20	2	24	99	63	27	17	-
SS-10	22 FT LT	615+93	48.5'-50.0'	A-4	27	7	12	47	10	31	100	93	53	25	-

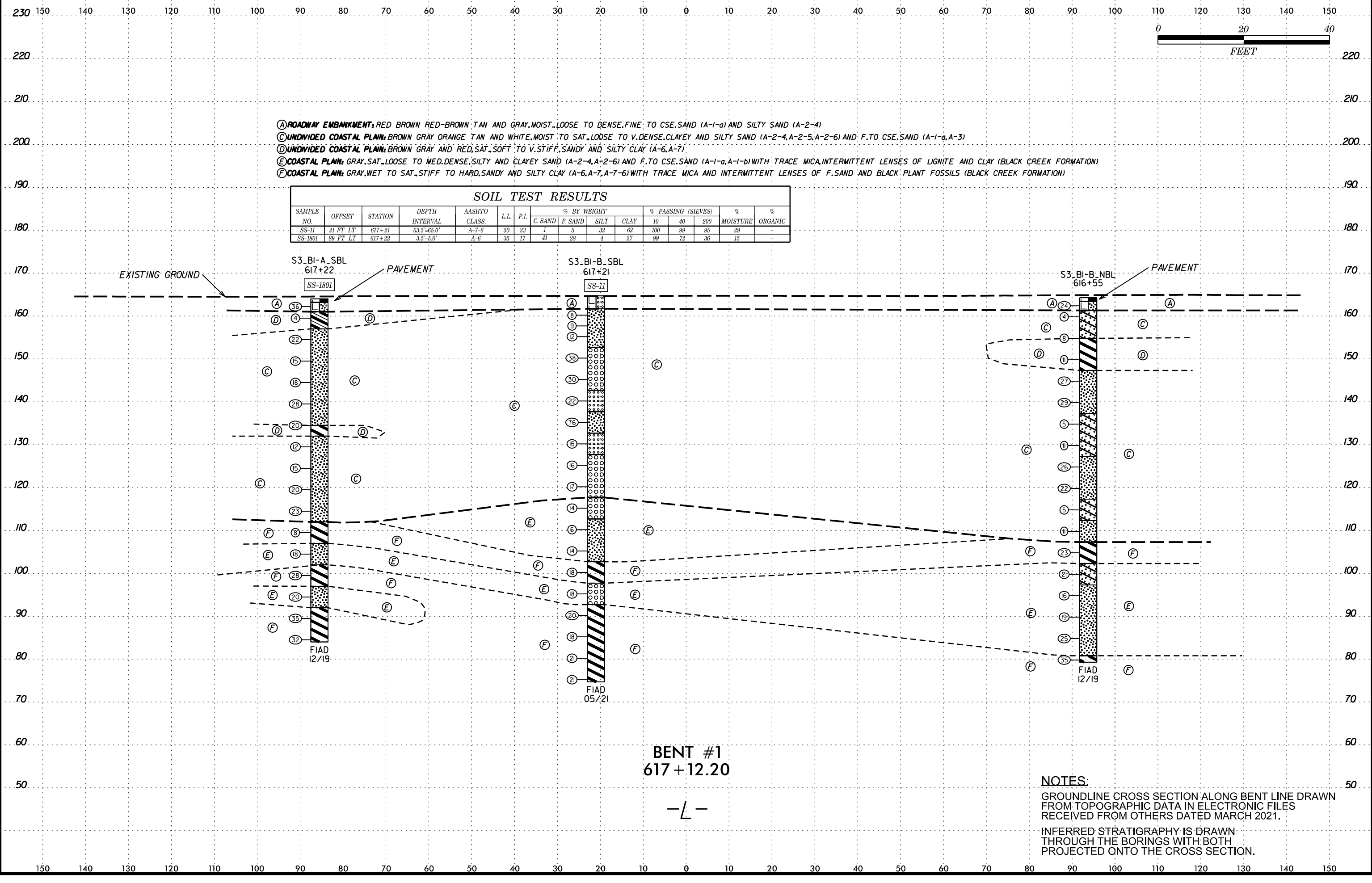
S3_EBI-B_SBL
615+93

END BENT #1
616+14.60

NOTES:
 GROUNDLINE CROSS SECTION ALONG BENT LINE DRAWN FROM TOPOGRAPHIC DATA IN ELECTRONIC FILES RECEIVED FROM OTHERS DATED MARCH 2021.
 INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION.

8/23/99

8/23/99



- (A) ROADWAY EMBANKMENT: RED BROWN RED-BROWN TAN AND GRAY, MOIST, LOOSE TO DENSE, FINE TO CSE. SAND (A-1-a) AND SILTY SAND (A-2-4)
- (C) UNDIVIDED COASTAL PLAIN: BROWN GRAY ORANGE TAN AND WHITE, MOIST TO SAT., LOOSE TO V. DENSE, CLAYEY AND SILTY SAND (A-2-4, A-2-5, A-2-6) AND F. TO CSE. SAND (A-1-a, A-3)
- (D) UNDIVIDED COASTAL PLAIN: BROWN GRAY AND RED, SAT., SOFT TO V. STIFF, SANDY AND SILTY CLAY (A-6, A-7)
- (E) COASTAL PLAIN: GRAY, SAT., LOOSE TO MED. DENSE, SILTY AND CLAYEY SAND (A-2-4, A-2-6) AND F. TO CSE. SAND (A-1-a, A-1-b) WITH TRACE MICA, INTERMITTENT LENSES OF LIGNITE AND CLAY (BLACK CREEK FORMATION)
- (F) COASTAL PLAIN: GRAY, WET TO SAT., STIFF TO HARD, SANDY AND SILTY CLAY (A-6, A-7, A-7-6) WITH TRACE MICA AND INTERMITTENT LENSES OF F. SAND AND BLACK PLANT FOSSILS (BLACK CREEK FORMATION)

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	LL	P.I.	% BY WEIGHT			% PASSING (SIEVES)			% MOISTURE	% ORGANIC	
							C. SAND	F. SAND	SILT	CLAY	10	40			200
SS-11	21 FT LT	617+21	63.5'-65.0'	A-7-6	50	23	1	5	32	62	100	99	95	29	-
SS-1801	89 FT LT	617+22	3.5'-5.0'	A-6	35	17	41	28	4	27	99	72	36	15	-

BENT #1
617+12.20

-L-

NOTES:
GROUNDLINE CROSS SECTION ALONG BENT LINE DRAWN FROM TOPOGRAPHIC DATA IN ELECTRONIC FILES RECEIVED FROM OTHERS DATED MARCH 2021.
INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION.

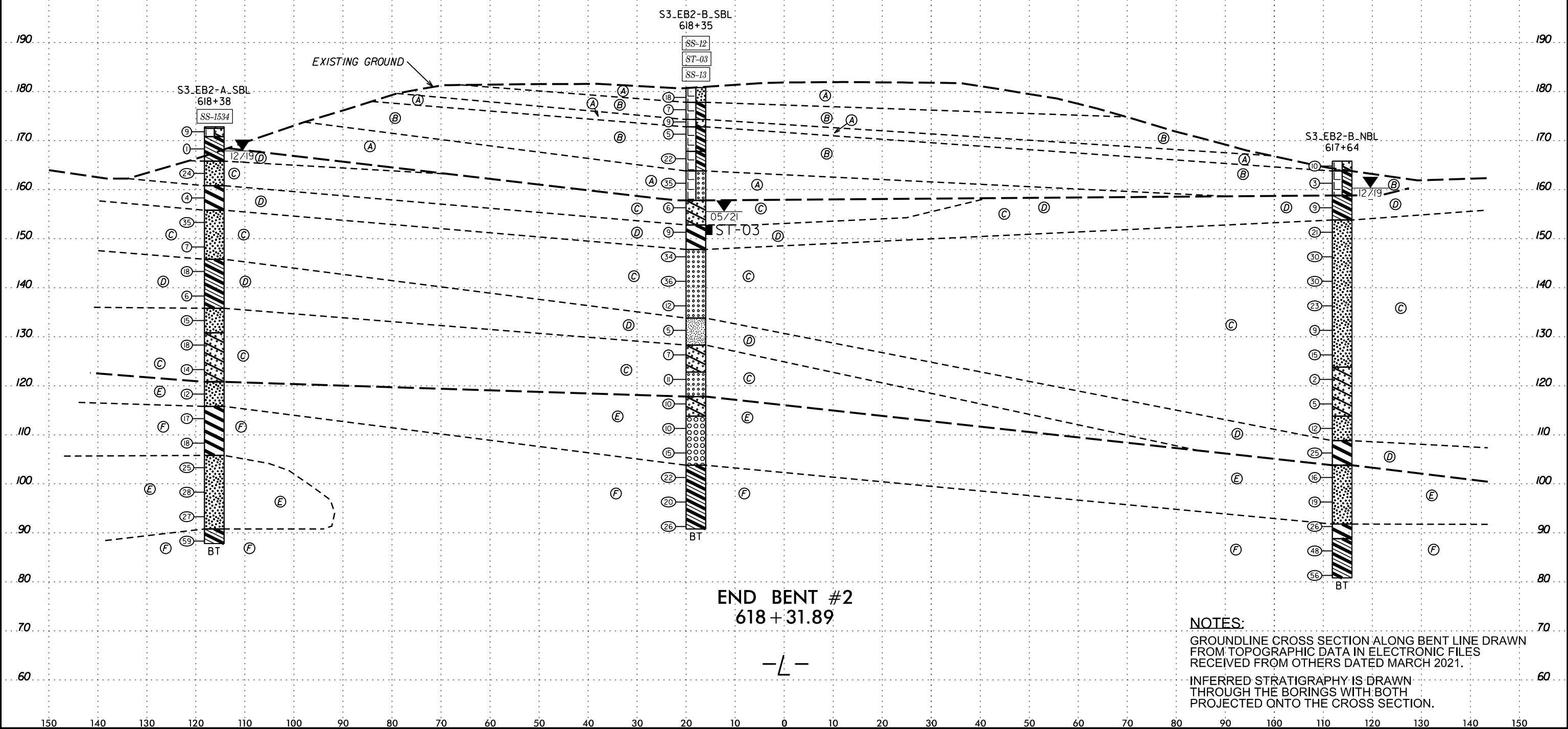
SDATES

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150



- (A) ROADWAY EMBANKMENT, RED BROWN RED-BROWN TAN AND GRAY, MOIST TO SAT., LOOSE TO MED. DENSE, FINE TO CSE. SAND (A-3) AND CLAYEY AND SILTY SAND (A-2-6, A-2-4)
- (B) ROADWAY EMBANKMENT, BROWN, MOIST TO WET, SOFT TO MED. STIFF, SANDY AND SILTY CLAY (A-6, A-7-6)
- (C) UNDIVIDED COASTAL PLAIN, BROWN ORANGE GRAY WHITE AND TAN, WET TO SAT., V. LOOSE TO DENSE, SILTY AND CLAYEY SAND (A-2-4, A-2-6) AND F. SAND (A-3) WITH INTERMITTENT CLAY LENSES
- (D) UNDIVIDED COASTAL PLAIN, BROWN GRAY AND WHITE, MOIST TO SAT., V. SOFT TO STIFF, SANDY AND HIGHLY PLASTIC, SILTY CLAY (A-6, A-7, A-7-6) AND SANDY SILT (A-4) WITH LITTLE MICA AND TRACE ORGANICS
- (E) COASTAL PLAIN, GRAY, SAT., M. DENSE, SILTY AND CLAYEY SAND (A-2-4, A-2-6) AND CSE. SAND (A-1-b) WITH LITTLE MICA AND TRACE CEMENTED SAND FRAGMENTS (BLACK CREEK FORMATION)
- (F) COASTAL PLAIN, GRAY, WET TO SAT., V. STIFF TO HARD, SILTY AND SANDY CLAY (A-6, A-7) WITH TRACE GRAVEL AND ORGANICS AND LITTLE MICA AND INTERMITTENT SAND LENSES (BLACK CREEK FORMATION)

SOIL TEST RESULTS															
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	LL	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE ORGANIC	
							C. SAND	F. SAND	SILT	CLAY	10	40	200	MOISTURE	ORGANIC
SS-12	18 FT LT	618+35	8.5'-10.0'	A-7-6	45	20	43	18	5	34	99	71	42	22	-
ST-03	18 FT LT	618+35	28.0'-30.0'	A-7-6	58	40	0	21	33	46	100	100	79	25	-
SS-13	18 FT LT	618+35	48.5'-50.0'	A-4	26	5	5	56	13	26	99	96	48	27	-
SS-1534	123 FT LT	618+38	3.5'-5.0'	A-6	30	17	33	27	7	33	99	82	44	17	-



NOTES:
 GROUNDLINE CROSS SECTION ALONG BENT LINE DRAWN FROM TOPOGRAPHIC DATA IN ELECTRONIC FILES RECEIVED FROM OTHERS DATED MARCH 2021.
 INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION.

GEOTECHNICAL BORING REPORT BORE LOG

WBS 47533.1.1		TIP I-5987B		COUNTY ROBESON		GEOLOGIST Goodnight, D.											
SITE DESCRIPTION BRIDGE ON -L- (I-95) OVER -Y5- (NC 20) AT -L- STA. 617+12.20							GROUND WTR (ft)										
BORING NO. S3_B1-B_SBL		STATION 617+21		OFFSET 21 ft LT		ALIGNMENT -L-											
COLLAR ELEV. 164.7 ft		TOTAL DEPTH 90.0 ft		NORTHING 386,192		EASTING 2,004,122											
DRILL RIG/HAMMER EFF./DATE MID3964 CME-45C 91% 02/21/2019			DRILL METHOD Mud Rotary		HAMMER TYPE Automatic												
DRILLER Powell, B.		START DATE 05/20/21		COMP. DATE 05/20/21		SURFACE WATER DEPTH N/A											
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)		
			0.5ft	0.5ft	0.5ft	0	25	50	75	100							
165															164.7	7 INCHES ASPHALT ROADWAY EMBANKMENT TAN, SANDY GRAVEL (A-1-a)	0.0
160	161.2	3.5	9	5	3									M	161.7	UNDIVIDED COASTAL PLAIN TAN AND GRAY, SILTY CLAYEY SAND (A-2-5)	3.0
	158.7	6.0	2	4	5									M			
155	156.2	8.5	4	5	7									M			
150	151.2	13.5	10	17	21									Sat.	152.7	ORANGE AND LIGHT GRAY, F TO CSE. SAND (A-1-a)	12.0
145	146.2	18.5	9	12	18									Sat.			
140	141.2	23.5	8	9	13									Sat.	142.7	LIGHT GRAY, F. SAND (A-3)	22.0
135	136.2	28.5	21	25	51									Sat.	137.7	LIGHT GRAY, CLAYEY SILTY SAND (A-2-5)	27.0
130	131.2	33.5	4	7	8									Sat.	132.7	LIGHT GRAY, SAND (A-3)	32.0
125	126.2	38.5	5	7	9									Sat.	127.7	LIGHT GRAY AND TAN, F. TO CSE. SAND (A-1-a)	37.0
120	121.2	43.5	6	6	11									Sat.			
115	116.2	48.5	2	7	7									Sat.	117.7	COASTAL PLAIN LIGHT GRAY, F. TO CSE. SAND (A-1-a) WITH INTERMITTENT LENSES OF LIGNITE AND CLAY (BLACK CREEK FORMATION)	47.0
110	111.2	53.5	3	2	4									Sat.	112.7	LIGHT GRAY, SLIGHTLY SILTY F TO CSE. SAND (A-2-4) (BLACK CREEK FORMATION)	52.0
105	106.2	58.5	2	6	8									Sat.			
100	101.2	63.5	4	8	10									Sat.	102.7	DARK GRAY, F. SANDY SILTY CLAY (A-7-6) WITH TRACE MICA (BLACK CREEK FORMATION)	62.0
95	96.2	68.5	3	7	11									Sat.	97.7	GRAY, SLIGHTLY SILTY F. TO CSE. SAND (A-1-b) WITH INTERMITTENT LENSES OF CLAY (BLACK CREEK FORMATION)	67.0
90	91.2	73.5	6	9	11									M	92.7	DARK GREY, F. SANDY SILTY CLAY (A-7) WITH TRACE MICA, INTERMITTENT LENSES OF F. SAND AND BLACK PLANT FOSSILS (BLACK CREEK FORMATION)	72.0
85	86.2	78.5	3	6	12									W			

NCDOT BORE SINGLE B03_15987_GEO_BRDG_L61700.GPJ_NC_DOT.GDT 12/8/21

GEOTECHNICAL BORING REPORT BORE LOG

WBS 47533.1.1		TIP I-5987B		COUNTY ROBESON		GEOLOGIST Goodnight, D.											
SITE DESCRIPTION BRIDGE ON -L- (I-95) OVER -Y5- (NC 20) AT -L- STA. 617+12.20							GROUND WTR (ft)										
BORING NO. S3_B1-B_SBL		STATION 617+21		OFFSET 21 ft LT		ALIGNMENT -L-											
COLLAR ELEV. 164.7 ft		TOTAL DEPTH 90.0 ft		NORTHING 386,192		EASTING 2,004,122											
DRILL RIG/HAMMER EFF./DATE MID3964 CME-45C 91% 02/21/2019			DRILL METHOD Mud Rotary		HAMMER TYPE Automatic												
DRILLER Powell, B.		START DATE 05/20/21		COMP. DATE 05/20/21		SURFACE WATER DEPTH N/A											
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)		
			0.5ft	0.5ft	0.5ft	0	25	50	75	100							
85																	
80	81.2	83.5	5	9	12									W			
75	76.2	88.5	5	9	12									W			
															74.7	Boring Terminated at Elevation 74.7 ft IN CLAY (COASTAL PLAIN) (BLACK CREEK FORMATION)	90.0

NCDOT BORE SINGLE B03_15987_GEO_BRDG_L61700.GPJ_NC_DOT.GDT 12/8/21

GEOTECHNICAL BORING REPORT BORE LOG

WBS 47533.1.1		TIP I-5987B		COUNTY ROBESON		GEOLOGIST R. French										
SITE DESCRIPTION BRIDGE ON -L- (I-95) OVER -Y5- (NC 20) AT -L- STA. 617+12.20							GROUND WTR (ft)									
BORING NO. S3_B1-B NBL		STATION 616+57		OFFSET 79 ft RT		ALIGNMENT -L-										
COLLAR ELEV. 164.3 ft		TOTAL DEPTH 85.0 ft		NORTHING 386,099		EASTING 2,004,194										
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 84% 03/01/2019			DRILL METHOD Mud Rotary		HAMMER TYPE Automatic											
DRILLER S. Davis		START DATE 12/18/19		COMP. DATE 12/18/19		SURFACE WATER DEPTH N/A										
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100						
165																
	163.4	0.9	11	13	11											
160	160.8	3.5	2	2	2											
	155.8	8.5	5	4	4											
155	150.8	13.5	1	1	10											
150	145.8	18.5	7	11	16											
145	140.8	23.5	9	13	16											
140	135.8	28.5	4	3	2											
135	130.8	33.5	5	6	5											
130	125.8	38.5	7	12	14											
125	120.8	43.5	14	10	12											
120	115.8	48.5	2	3	2											
115	110.8	53.5	3	5	6											
110	105.8	58.5	6	9	14											
105	100.8	63.5	7	9	12											
100	95.8	68.5	5	7	9											
95	90.8	73.5	7	8	11											
90	85.8	78.5	10	11	14											

NCDOT BORE SINGLE B03_15987_GEO_BRDG_L61700.GPJ_NC_DOT.GDT 12/8/21

GEOTECHNICAL BORING REPORT BORE LOG

WBS 47533.1.1		TIP I-5987B		COUNTY ROBESON		GEOLOGIST R. French										
SITE DESCRIPTION BRIDGE ON -L- (I-95) OVER -Y5- (NC 20) AT -L- STA. 617+12.20							GROUND WTR (ft)									
BORING NO. S3_B1-B NBL		STATION 616+57		OFFSET 79 ft RT		ALIGNMENT -L-										
COLLAR ELEV. 164.3 ft		TOTAL DEPTH 85.0 ft		NORTHING 386,099		EASTING 2,004,194										
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 84% 03/01/2019			DRILL METHOD Mud Rotary		HAMMER TYPE Automatic											
DRILLER S. Davis		START DATE 12/18/19		COMP. DATE 12/18/19		SURFACE WATER DEPTH N/A										
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100						
85																
	80.8	83.5	9	13	22											
80																

NCDOT BORE SINGLE B03_15987_GEO_BRDG_L61700.GPJ_NC_DOT.GDT 12/8/21

GEOTECHNICAL BORING REPORT BORE LOG

WBS 47533.1.1		TIP I-5987B		COUNTY ROBESON		GEOLOGIST W. Pesl										
SITE DESCRIPTION BRIDGE ON -L- (I-95) OVER -Y5- (NC 20) AT -L- STA. 617+12.20							GROUND WTR (ft)									
BORING NO. S3_B2-A SBL		STATION 617+89		OFFSET 98 ft LT		ALIGNMENT -L-										
COLLAR ELEV. 163.5 ft		TOTAL DEPTH 80.0 ft		NORTHING 386,282		EASTING 2,004,072										
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 84% 03/01/2019		DRILL METHOD Mud Rotary		HAMMER TYPE Automatic												
DRILLER S. Davis		START DATE 01/07/20		COMP. DATE 01/07/20		SURFACE WATER DEPTH N/A										
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100						
170																
165	163.5	0.0	2	4	7											
160	160.0	3.5	1	2	2											
155	155.0	8.5	5	6	8											
150	150.0	13.5	10	11	10											
145	145.0	18.5	12	16	16											
140	140.0	23.5	8	9	10											
135	135.0	28.5	5	9	10											
130	130.0	33.5	3	11	11											
125	125.0	38.5	10	6	8											
120	120.0	43.5	23	31	23											
115	115.0	48.5	6	7	6											
110	110.0	53.5	3	3	5											
105	105.0	58.5	6	8	11											
100	100.0	63.5	10	18	20											
95	95.0	68.5	8	11	14											
90	90.0	73.5														

NCDOT BORE SINGLE B03_15987_GEO_BRDG_L61700.GPJ_NC_DOT.GDT 12/8/21

GEOTECHNICAL BORING REPORT BORE LOG

WBS 47533.1.1		TIP I-5987B		COUNTY ROBESON		GEOLOGIST W. Pesl										
SITE DESCRIPTION BRIDGE ON -L- (I-95) OVER -Y5- (NC 20) AT -L- STA. 617+12.20							GROUND WTR (ft)									
BORING NO. S3_B2-A SBL		STATION 617+89		OFFSET 98 ft LT		ALIGNMENT -L-										
COLLAR ELEV. 163.5 ft		TOTAL DEPTH 80.0 ft		NORTHING 386,282		EASTING 2,004,072										
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 84% 03/01/2019		DRILL METHOD Mud Rotary		HAMMER TYPE Automatic												
DRILLER S. Davis		START DATE 01/07/20		COMP. DATE 01/07/20		SURFACE WATER DEPTH N/A										
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100						
90																
85	85.0	78.5	14	21	33											

NCDOT BORE SINGLE B03_15987_GEO_BRDG_L61700.GPJ_NC_DOT.GDT 12/8/21

Match Line

GRAY, SILTY FINE TO COARSE SAND (A-2-4) WITH TRACE MICA, CLAY, AND GRAVEL (continued) 77.0

DARK GRAY TO LIGHT GRAY, FINE SANDY SILTY CLAY (A-7) WITH TRACE MICA 80.0

Boring Terminated at Elevation 83.5 ft IN CLAY (COASTAL PLAIN) (BLACK CREEK FORMATION)

