

REFERENCE: I-5972

PROJECT: 44989

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
GEOTECHNICAL ENGINEERING UNIT

STRUCTURE
SUBSURFACE INVESTIGATION

COUNTY JOHNSTON
PROJECT DESCRIPTION I-95 /US-70 BUSINESS,
UPGRADE INTERCHANGE FROM OUTLET CENTER
DR. TO WEST OF YELVERTON GROVE RD.
SITE DESCRIPTION BRIDGE NO. 66 ON US-70 BUSINESS
(E. MARKET ST.) OVER I-95 BETWEEN US 301 AND
SR 2508

INVENTORY

CONTENTS

SHEET NO.	DESCRIPTION
1	TITLE SHEET
2	LEGEND (SOIL & ROCK)
3	SITE PLAN
4	PROFILE
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8-12	BORE LOGS

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	I-5972	1	12

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

P. CARY

J. MIZE

A. BOZORGI

S&ME PERSONNEL

INVESTIGATED BY RK&K, LLP

DRAWN BY M. METRY

CHECKED BY G. GOINS

SUBMITTED BY RK&K, LLP

DATE DECEMBER 2021



P: (919) 878-9560
8601 Six Forks Road, Forum 1, Suite 700
Raleigh, North Carolina 27615-3960
NC License No. F-0112

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DocuSigned by:

Gregory Goins

1/24/2022

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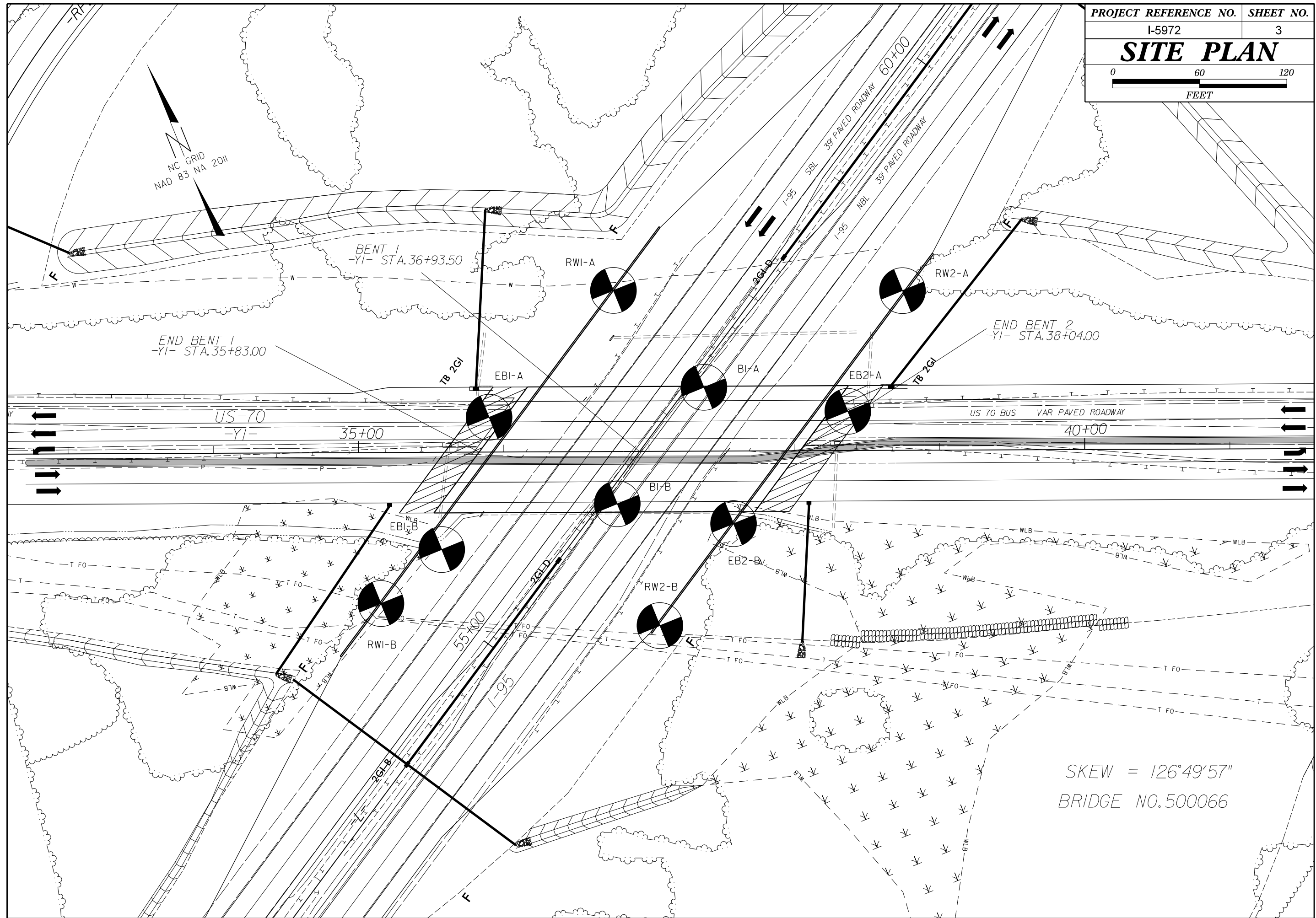
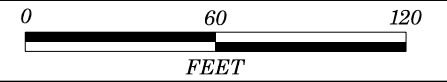
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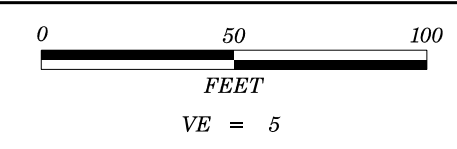
**NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
GEOTECHNICAL ENGINEERING UNIT
SUBSURFACE INVESTIGATION
SOIL AND ROCK LEGEND, TERMS, SYMBOLS, AND ABBREVIATIONS**

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 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, VERY STIFF, GRAY, SILTY CLAY, MOIST WITH INTERBEDDED FINE SAND LAYERS, HIGHLY PLASTIC, A-7-6										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.										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:										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 DISLODGED 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 (RQD) - A MEASURE OF ROCK QUALITY DESCRIBED BY TOTAL LENGTH OF ROCK SEGMENTS EQUAL TO OR GREATER THAN 4 INCHES DIVIDED BY THE TOTAL LENGTH OF CORE RUN AND EXPRESSED AS A 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 SPHOSITISY 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 IN 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.																													
SOIL LEGEND AND AASHTO CLASSIFICATION										ANGULARITY OF GRAINS										CRYSTALLINE ROCK (CR)										WEATHERING																													
MINERALOGICAL COMPOSITION										MINERAL NAMES SUCH AS QUARTZ, FELDSPAR, MICA, TALC, KAOLIN, ETC. ARE USED IN DESCRIPTIONS WHEN THEY ARE CONSIDERED OF SIGNIFICANCE.										NON-CRYSTALLINE ROCK (NCR)										FRESH																													
COMPRESSIONIBILITY										SLIGHTLY COMPRESSIBLE LL < 31 MODERATELY COMPRESSIBLE LL = 31 - 50 HIGHLY COMPRESSIBLE LL > 50										NON-COASTAL PLAIN MATERIAL THAT WOULD YIELD SPT N VALUES > 100 BLOWS PER FOOT IF TESTED.										ROCK FRESH, CRYSTALS BRIGHT, FEW JOINTS MAY SHOW SLIGHT STAINING. ROCK RINGS UNDER HAMMER IF CRYSTALLINE.																													
PERCENTAGE OF MATERIAL										ORGANIC MATERIAL GRANULAR SOILS SILT - CLAY SOILS OTHER MATERIAL 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% HIGHLY ORGANIC > 10% > 20% HIGHLY 35% AND ABOVE										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.										ROCK GENERALLY FRESH, JOINTS STAINED, SOME JOINTS MAY SHOW THIN CLAY COATINGS IF OPEN, CRYSTALS ON A BROKEN SPECIMEN FACE SHINE BRIGHTLY. ROCK RINGS UNDER HAMMER BLOWS IF OF A CRYSTALLINE NATURE.																													
GROUND WATER										WATER LEVEL IN BORE HOLE IMMEDIATELY AFTER DRILLING STATIC WATER LEVEL AFTER 24 HOURS PERCHED WATER, SATURATED ZONE, OR WATER BEARING STRATA SPRING OR SEEP										COASTAL PLAIN SEDIMENTARY ROCK (CP)										MODERATE (MOD.)																													
CONSISTENCY OR DENSENESS										PRIMARY SOIL TYPE COMPACTNESS OR CONSISTENCY RANGE OF STANDARD PENETRATION RESISTANCE (N-VALUE) RANGE OF UNCONFINED COMPRESSIVE STRENGTH (TONS/FT ²)										MODERATELY SEVERE (MOD. SEV.)										COMPLETE																													
TEXTURE OR GRAIN SIZE										U.S. STD. SIEVE SIZE OPENING (MM) 4 10 40 60 200 270 4.76 2.00 0.42 0.25 0.075 0.053										SEVERE (SEV.)										VERY HARD																													
SOIL MOISTURE - CORRELATION OF TERMS										SOIL MOISTURE SCALE (ATTERBERG LIMITS) FIELD MOISTURE DESCRIPTION GUIDE FOR FIELD MOISTURE DESCRIPTION										VERY SEVERE (V. SEV.)										HARD																													
PLASTICITY										NON PLASTIC SLIGHTLY PLASTIC MODERATELY PLASTIC HIGHLY PLASTIC PLASTICITY INDEX (PI) DRY STRENGTH VERY LOW SLIGHT MEDIUM HIGH										VERY SEVERE (V. SEV.)										MODERATELY HARD																													
COLOR										DESCRIPTORS MAY INCLUDE COLOR OR COLOR COMBINATIONS (TAN, RED, YELLOW-BROWN, BLUE-GRAY). MODIFIERS SUCH AS LIGHT, DARK, STREAKED, ETC. ARE USED TO DESCRIBE APPEARANCE.										COMPLETE										MEDIUM HARD																													
MISCELLANEOUS SYMBOLS										ROADWAY EMBANKMENT (RE) WITH SOIL DESCRIPTION SOIL SYMBOL ARTIFICIAL FILL (AF) OTHER THAN ROADWAY EMBANKMENT INFERRED SOIL BOUNDARY INFERRED ROCK LINE ALLUVIAL SOIL BOUNDARY										DIP & DIP DIRECTION OF ROCK STRUCTURES SLOPE INDICATOR INSTALLATION CONE PENETROMETER TEST SOUNDING ROD TEST BORING WITH CORE SPT N-VALUE										MODERATELY HARD										SOFT																			
RECOMMENDATION SYMBOLS										UNDERCUT UNCLASSIFIED EXCAVATION - UNSUITABLE WASTE UNCLASSIFIED EXCAVATION - ACCEPTABLE DEGRADABLE ROCK										VERY SEVERE (V. SEV.)										VERY HARD																													
ABBREVIATIONS										AR - AUGER REFUSAL BT - BORING TERMINATED CL - CLAY CPT - CONE PENETRATION TEST CSE - COARSE DMT - DILATOMETER TEST DPT - DYNAMIC PENETRATION TEST e - VOID RATIO F - FINE FOSS. - FOSSILIFEROUS FRAC. - FRACTURED, FRACTURES FRAGS. - FRAGMENTS HL - HIGHLY MED. - MEDIUM MICA - MICACEOUS MOD. - MODERATELY NP - NON PLASTIC ORG. - ORGANIC PMT - PRESSUREMETER TEST SAP. - SAPROLITIC SD. - SAND, SANDY SL. - SILT, SILTY SLI. - SLIGHTLY TCR - TRICONE REFUSAL w - MOISTURE CONTENT v - VERY VST - VANE SHEAR TEST WE. - WEATHERED UNIT WEIGHT DRY UNIT WEIGHT SAMPLE ABBREVIATIONS S - BULK SS - SPLIT SPOON ST - SHELBY TUBE RS - ROCK RT - RECOMPACTED TRIAXIAL CBR - CALIFORNIA BEARING RATIO										MODERATELY HARD										SOFT																													
EQUIPMENT USED ON SUBJECT PROJECT										DRILL UNITS: CME-45C CME-55 CME-550 VANE SHEAR TEST PORTABLE HOIST DIEDRICH D-50										ADVANCING TOOLS: CLAY BITS 6" CONTINUOUS FLIGHT AUGER 8" HOLLOW AUGERS HARD FACED FINGER BITS TUNG-CARBIDE INSERTS CASING w/ ADVANCER TRICONE * STEEL TEETH TRICONE * TUNG-CARB. CORE BIT										HAMMER TYPE: AUTOMATIC MANUAL CORE SIZE: -B -H -N HAND TOOLS: POST HOLE DIGGER HAND AUGER SOUNDING ROD VANE SHEAR TEST										MODERATELY HARD										VERY HARD									
FRACTURE SPACING										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										BEDDING										BENCH MARK: #6 STA. 46+76.61 -YI-, I02.9' LT, NAIL SET IN 9' PINE																													
INDURATION										FOR SEDIMENTARY ROCKS, INDURATION IS THE HARDENING OF MATERIAL BY CEMENTING, HEAT, PRESSURE, ETC. FRIABLE RUBBING WITH FINGER FREES NUMEROUS GRAINS; GENTLE BLOW BY HAMMER DISINTEGRATES SAMPLE. MODERATELY INDURATED GRAINS CAN BE SEPARATED FROM SAMPLE WITH STEEL PROBE; BREAKS EASILY WHEN HIT WITH HAMMER. INDURATED GRAINS ARE DIFFICULT TO SEPARATE WITH STEEL PROBE; DIFFICULT TO BREAK WITH HAMMER. EXTREMELY INDURATED SHARP HAMMER BLOWS REQUIRED TO BREAK SAMPLE; SAMPLE BREAKS ACROSS GRAINS.										ELEVATION: 148.92 FEET										NOTES: BRIDGE BORING ELEVATIONS DETERMINED USING SURVEY-GRADE GPS RETAINING WALL BORING ELEVATIONS DETERMINED FROM NCDOT PROVIDED .TIN FILE ABBREVIATIONS: F.I.A.D. - FILLED IMMEDIATELY AFTER DRILLING																													

SITE PLAN

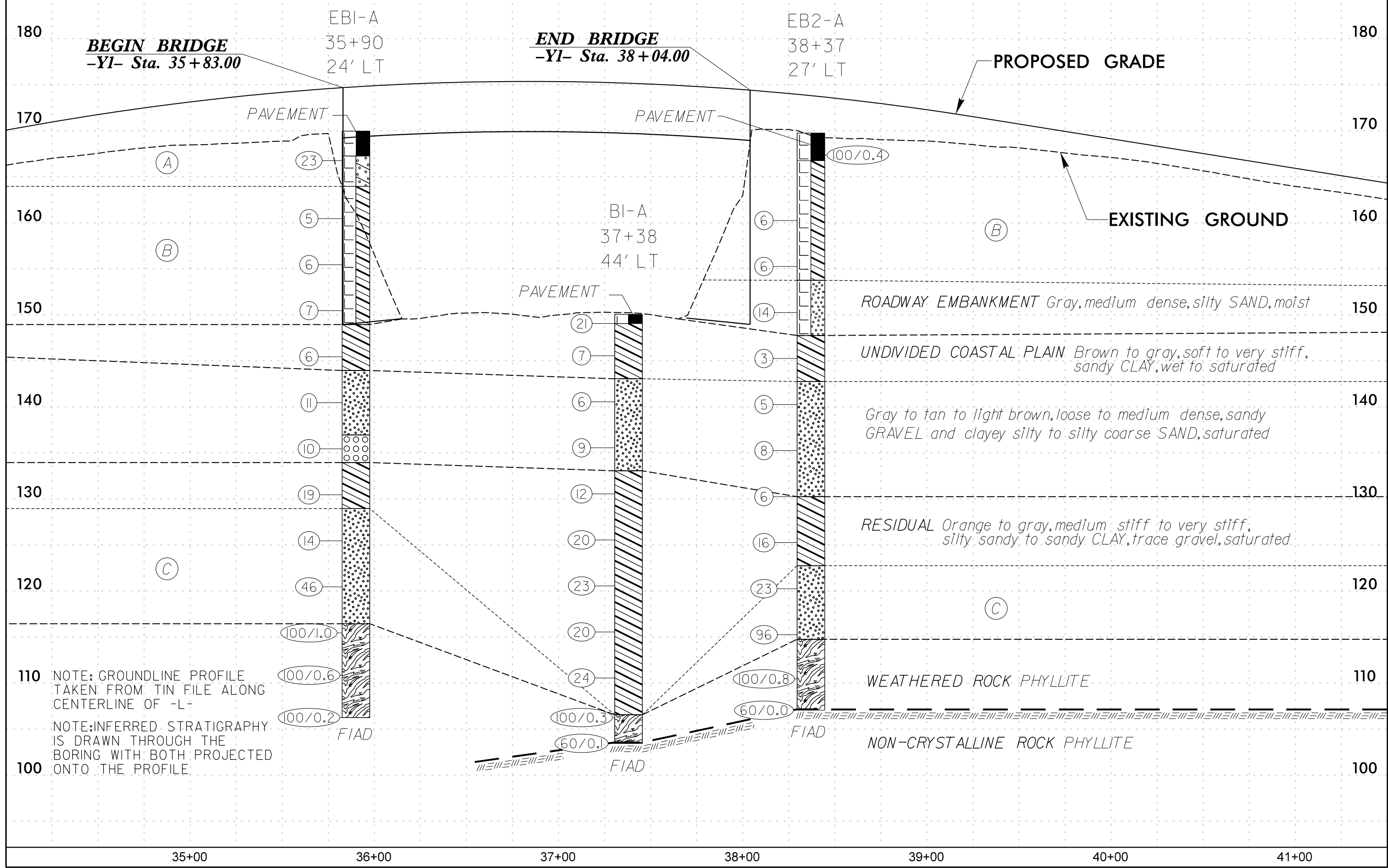


SKEW = 126°49'57"
BRIDGE NO. 500066



PROJECT REFERENCE NO.	SHEET NO.
I-5972	4
PROFILE ALONG -YI- (CENTERLINE)	

- (A) ROADWAY EMBANKMENT Orange, medium dense, clayey coarse SAND, moist
- (B) Brown, medium stiff, sandy CLAY, moist to saturated
- (C) RESIDUAL Green, medium dense to very dense, silty SAND, some rock fragments, saturated

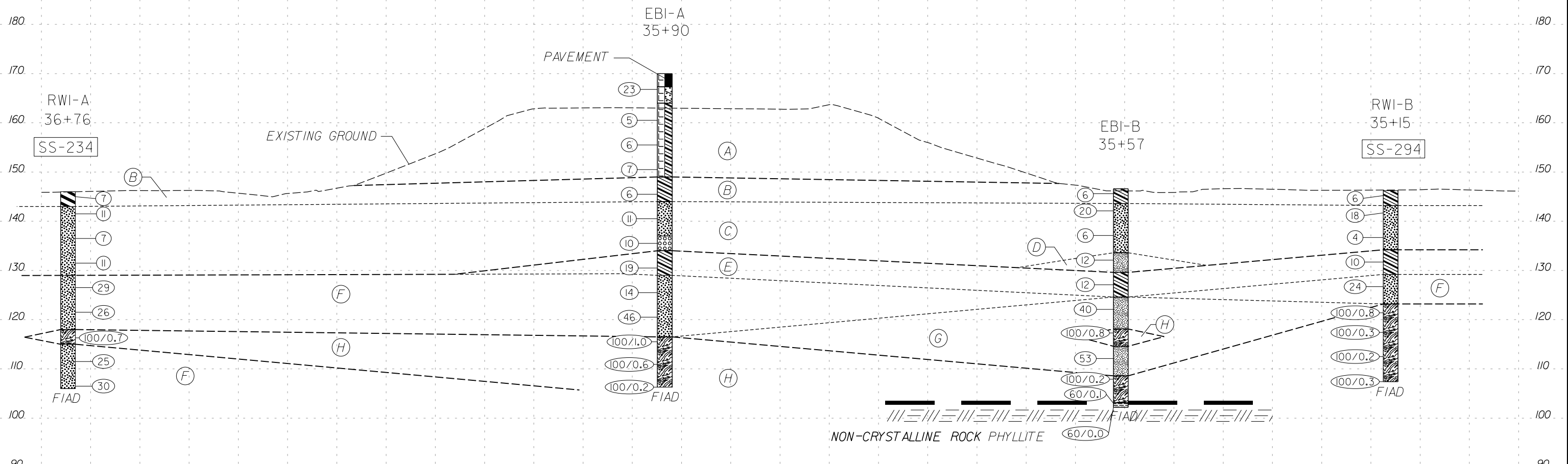


150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

250 240 230 220 210 200 190 180 170 160 150 140 130 120 110 100 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

SAMPLE NO.	STATION	OFFSET	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING SIEVE			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
							SS-234	36+76	111' LT	0.0-1.5	A-7-6 (5)	45	22		
SS-294	35+15	104' RT	0.0-1.5	A-6 (3)	26	11	25	28	25	22	100	82	54.1	17.8	-

- (A) ROADWAY EMBANKMENT Brown, medium stiff, sandy CLAY (A-6), saturated
- (B) UNDIVIDED COASTAL PLAIN Red to gray to tan, medium stiff, sandy to sandy silty slightly to moderately plastic CLAY (A-6, A-7-6), trace mica, moist
- (C) Orange to brown to tan, loose to medium dense, silty to clayey silty fine to coarse SAND and sandy GRAVEL (A-1-b, A-2-4), saturated
- (D) Orange, stiff, fine sandy SILT (A-4), saturated
- (E) RESIDUAL Orange to green, medium stiff to very stiff, fine sandy to silty sandy CLAY (A-6), trace to little gravel, saturated
- (F) Green to orange to gray, medium dense to dense, silty fine SAND (A-2-4), trace gravel, saturated
- (G) Green, hard, fine sandy SILT (A-4), some mica, saturated
- (H) WEATHERED ROCK PHYLLITE



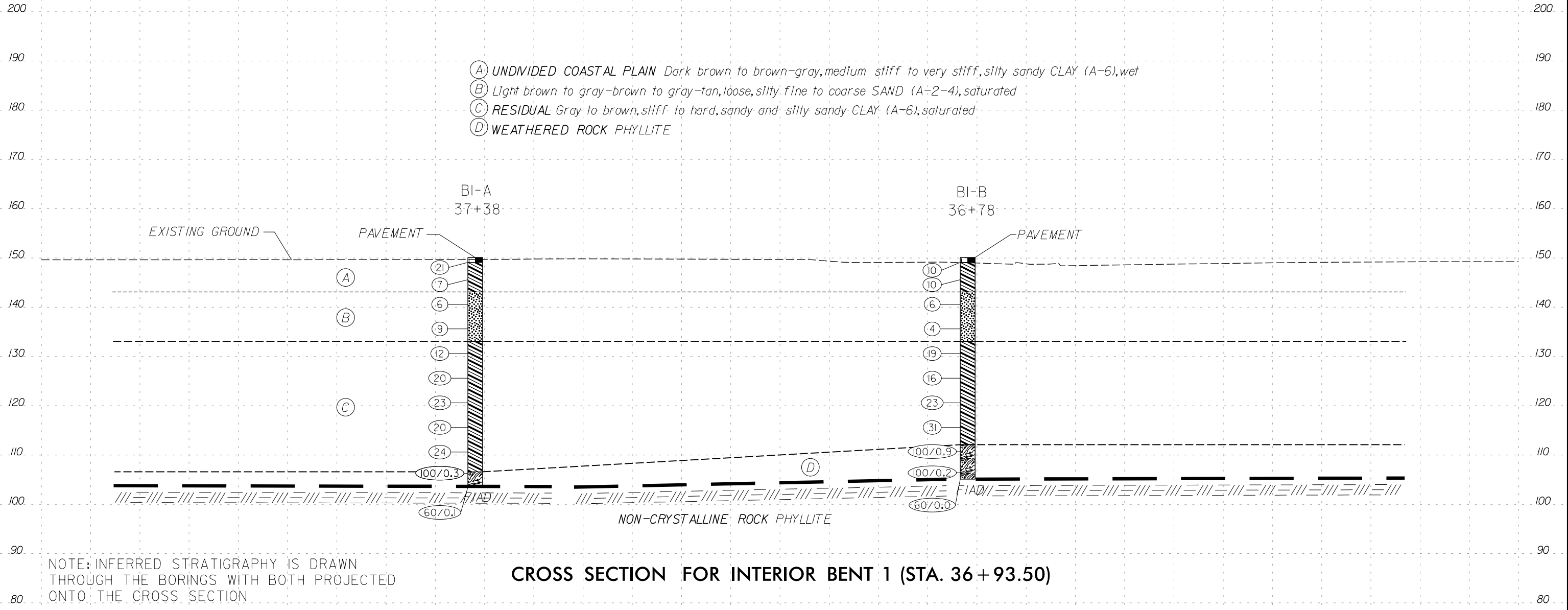
NOTE: INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION

CROSS SECTION FOR END BENT 1 (STA. 35 + 83.00)

-Y/-

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

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



NOTE: INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION

CROSS SECTION FOR INTERIOR BENT 1 (STA. 36 + 93.50)

-Y/-

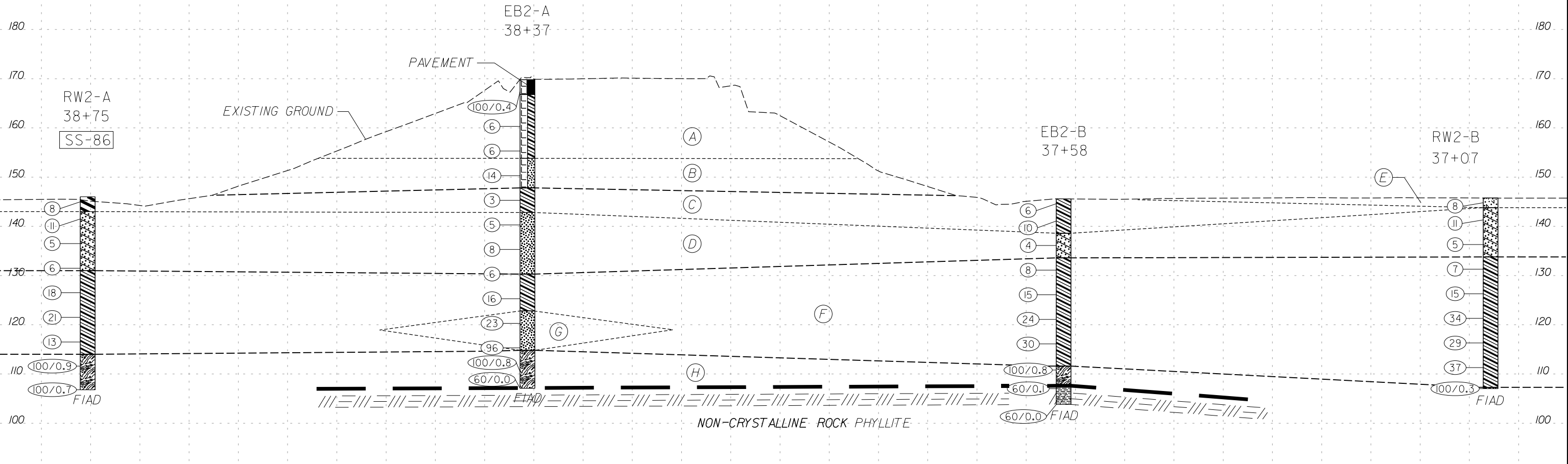
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250 240 230 220 210 200 190 180 170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160

SOIL TEST RESULTS															
SAMPLE NO.	STATION	OFFSET	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING SIEVE			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
SS-86	38+75	110' LT	0.0-1.5	A-7-6 (4)	43	21	43	19	8	30	100	66	39.6	17.6	-

- (A) ROADWAY EMBANKMENT Dark brown to gray, medium stiff, sandy CLAY (A-6), moist
- (B) Gray, medium dense, silty SAND (A-2-4), moist
- (C) UNDIVIDED COASTAL PLAIN Gray to orange-gray to brown-tan, soft to stiff, coarse sandy moderately plastic CLAY (A-6, A-7-6), saturated
- (D) Tan to gray to tan-orange, loose to medium dense, clayey and silty fine to coarse SAND (A-2-4, A-2-6, A-2-7), saturated
- (E) Tan, medium stiff, sandy clayey SILT (A-5), saturated
- (F) RESIDUAL Light tan to orange to gray, medium stiff to hard, silty sandy to fine sandy CLAY (A-6), saturated
- (G) Green, medium dense to very dense, silty gravelly SAND (A-2-4), saturated
- (H) WEATHERED ROCK PHYLLITE



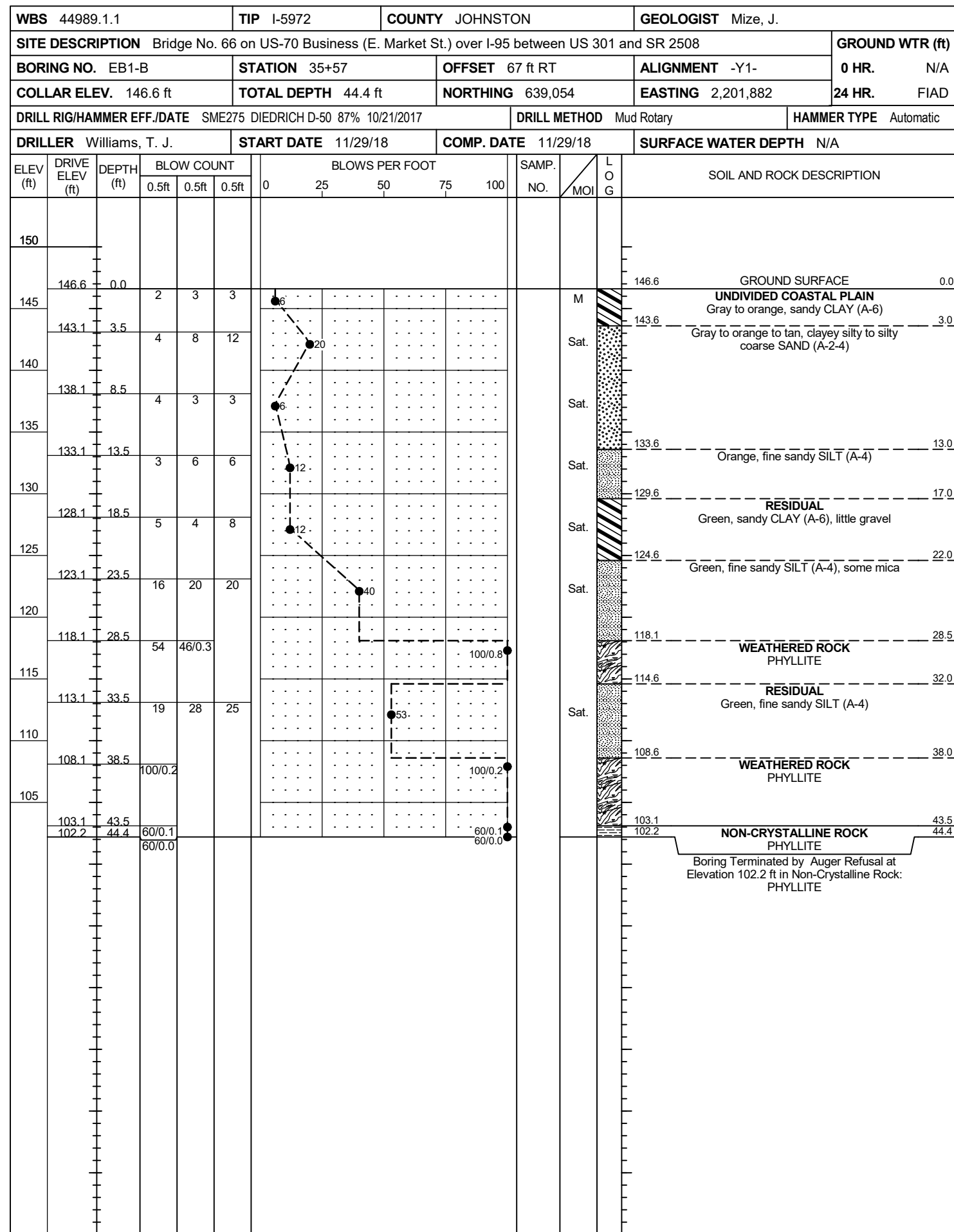
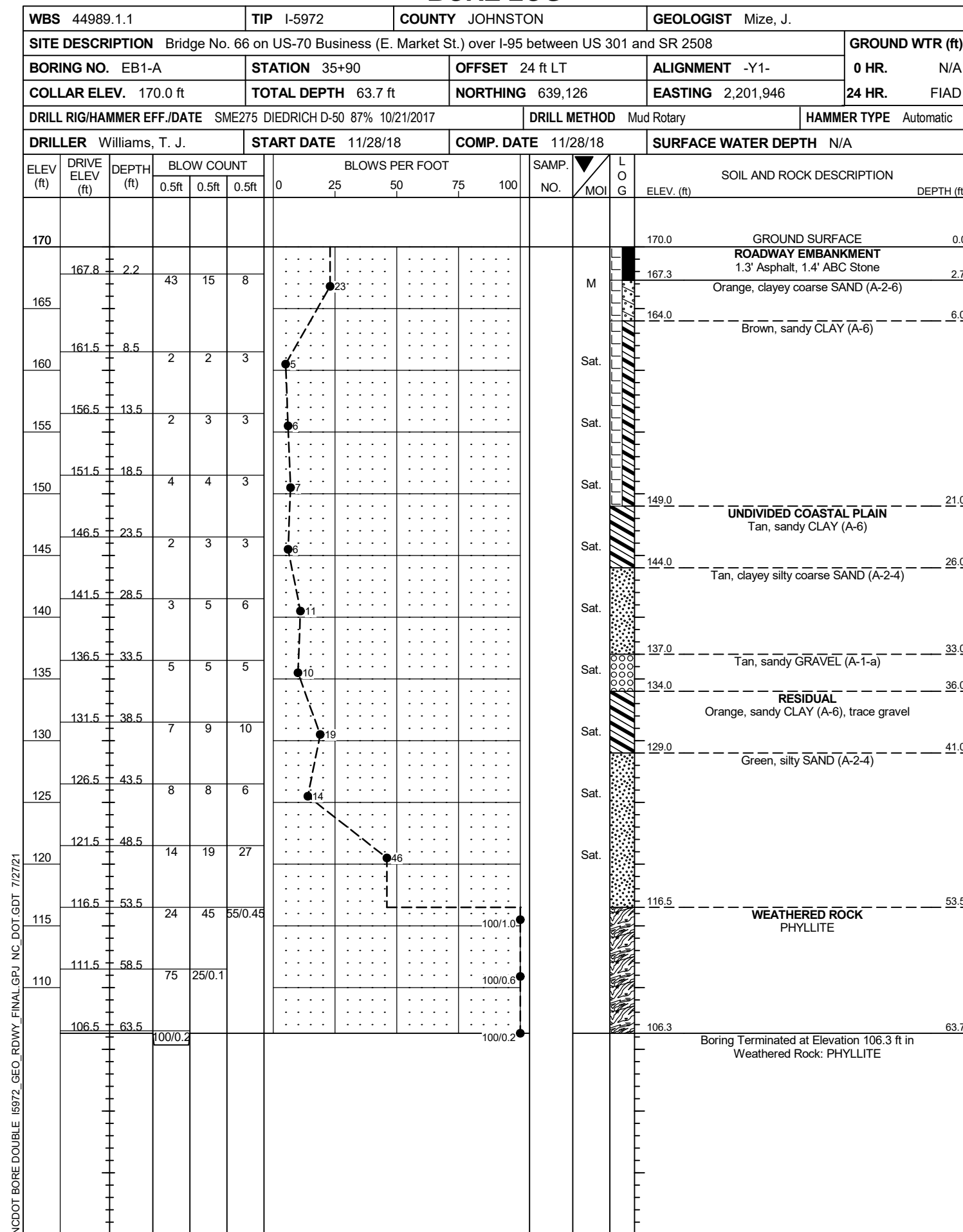
NOTE: INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION

CROSS SECTION FOR END BENT 2 (STA. 38 + 04.00)

CL - Y / -

GEOTECHNICAL BORING REPORT

BORE LOG



NCDOT BORE DOUBLE I5972_GEO_RDWY_FINAL.GPJ_NC_DOT_GDT_7/27/21

GEOTECHNICAL BORING REPORT

BORE LOG

WBS 44989.1.1		TIP I-5972		COUNTY JOHNSTON		GEOLOGIST Mize, J.	
SITE DESCRIPTION Bridge No. 66 on US-70 Business (E. Market St.) over I-95 between US 301 and SR 2508							GROUND WTR (ft)
BORING NO. RW1-A		STATION 36+76		OFFSET 111 ft LT		ALIGNMENT -Y1-	
COLLAR ELEV. 146.0 ft		TOTAL DEPTH 40.0 ft		NORTHING 639,175		EASTING 2,202,059	
DRILL RIG/HAMMER EFF./DATE SME275 DIEDRICH D-50 87% 10/21/2017				DRILL METHOD Mud Rotary		HAMMER TYPE Automatic	
DRILLER Williams, T. J.		START DATE 11/26/18		COMP. DATE 11/26/18		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		
			0.5ft	0.5ft	0.5ft	0	25	50	75	100				ELEV. (ft)	DEPTH (ft)	
150																
146.0	146.0	0.0													146.0	GROUND SURFACE
145			2	3	4										143.0	UNDIVIDED COASTAL PLAIN Red to orange, sandy silty moderately plastic CLAY (A-7-6), trace mica
140			6	6	5										143.0	Orange to brown, silty fine to coarse SAND (A-2-4)
135			4	3	4											
130			5	5	6											
125			7	13	16										129.0	RESIDUAL Gray, silty fine to coarse SAND (A-2-4)
120			8	12	14											
115			22	73	27/0.2										118.0	WEATHERED ROCK PHYLLITE
110			7	11	14										115.0	RESIDUAL Orange to gray, silty fine SAND (A-2-4), trace rock fragments
107.5			7	12	18										106.0	Boring Terminated at Elevation 106.0 ft in Residual: silty SAND (A-2-4)

WBS 44989.1.1		TIP I-5972		COUNTY JOHNSTON		GEOLOGIST Mize, J.	
SITE DESCRIPTION Bridge No. 66 on US-70 Business (E. Market St.) over I-95 between US 301 and SR 2508							GROUND WTR (ft)
BORING NO. RW1-B		STATION 35+15		OFFSET 104 ft RT		ALIGNMENT -Y1-	
COLLAR ELEV. 146.2 ft		TOTAL DEPTH 38.8 ft		NORTHING 639,036		EASTING 2,201,829	
DRILL RIG/HAMMER EFF./DATE SME275 DIEDRICH D-50 87% 10/21/2017				DRILL METHOD Mud Rotary		HAMMER TYPE Automatic	
DRILLER Williams, T. J.		START DATE 11/29/18		COMP. DATE 11/29/18		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		
			0.5ft	0.5ft	0.5ft	0	25	50	75	100				ELEV. (ft)	DEPTH (ft)	
150																
146.2	146.2	0.0													146.2	GROUND SURFACE
145			2	3	3										143.2	UNDIVIDED COASTAL PLAIN Gray to orange, silty sandy slightly plastic CLAY (A-6)
140			6	8	10										143.2	Orange, clayey silty coarse SAND (A-2-4)
135			2	2	2											
130			2	4	6										134.2	RESIDUAL Orange, fine sandy CLAY (A-6)
125			10	8	16										129.2	Green to gray, silty fine SAND (A-2-4)
120			20	27	73/0.3										123.2	WEATHERED ROCK PHYLLITE
115			100/0.3													
110			100/0.2													
107.7			100/0.3												107.4	Boring Terminated at Elevation 107.4 ft in Weathered Rock: PHYLLITE

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GEOTECHNICAL BORING REPORT

BORE LOG

WBS 44989.1.1		TIP I-5972		COUNTY JOHNSTON		GEOLOGIST Bozorgi, A.									
SITE DESCRIPTION Bridge No. 66 on US-70 Business (E. Market St.) over I-95 between US 301 and SR 2508							GROUND WTR (ft)								
BORING NO. B1-A		STATION 37+38		OFFSET 44 ft LT		ALIGNMENT -Y1-									
COLLAR ELEV. 150.1 ft		TOTAL DEPTH 46.6 ft		NORTHING 639,090		EASTING 2,202,091									
DRILL RIG/HAMMER EFF./DATE SME275 DIEDRICH D-50 87% 10/21/2017				DRILL METHOD Mud Rotary		HAMMER TYPE Automatic									
DRILLER Williams, T. J.		START DATE 11/26/18		COMP. DATE 11/26/18		SURFACE WATER DEPTH N/A									
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG MOI	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100					
155															
150	150.1	0.0	3	10	11								W	150.1 GROUND SURFACE 0.0	
145	146.6	3.5	2	3	4								W	149.1 ROADWAY EMBANKMENT 1.0	
140	141.6	8.5	4	3	3								Sat.	UNDIVIDED COASTAL PLAIN 7.0	
135	136.6	13.5	3	3	6								Sat.	Dark brown to brown-gray, sandy CLAY (A-6)	
130	131.6	18.5	3	5	7								Sat.	143.1 Light brown, silty SAND (A-2-4) 7.0	
125	126.6	23.5	5	10	10								Sat.	133.1 RESIDUAL 17.0	
120	121.6	28.5	6	10	13								Sat.	Gray, silty sandy CLAY (A-6)	
115	116.6	33.5	5	9	11								Sat.		
110	111.6	38.5	8	10	14								Sat.		
105	106.6	43.5	100/0.3										Sat.	106.6 WEATHERED ROCK 43.5	
	103.6	46.5	60/0.1										Sat.	103.6 NON-CRYSTALLINE ROCK 46.5	
														103.5 Boring Terminated by Auger Refusal at Elevation 103.5 ft in Non-Crystalline Rock: PHYLLITE 46.6	

WBS 44989.1.1		TIP I-5972		COUNTY JOHNSTON		GEOLOGIST Bozorgi, A.									
SITE DESCRIPTION Bridge No. 66 on US-70 Business (E. Market St.) over I-95 between US 301 and SR 2508							GROUND WTR (ft)								
BORING NO. B1-B		STATION 36+78		OFFSET 36 ft RT		ALIGNMENT -Y1-									
COLLAR ELEV. 150.1 ft		TOTAL DEPTH 45.0 ft		NORTHING 639,038		EASTING 2,202,006									
DRILL RIG/HAMMER EFF./DATE SME275 DIEDRICH D-50 87% 10/21/2017				DRILL METHOD Mud Rotary		HAMMER TYPE Automatic									
DRILLER Williams, T. J.		START DATE 11/26/18		COMP. DATE 11/26/18		SURFACE WATER DEPTH N/A									
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG MOI	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100					
155															
150	150.1	0.0	3	6	4								W	150.1 GROUND SURFACE 0.0	
145	146.6	3.5	6	4	6								W	149.1 ROADWAY EMBANKMENT 1.0	
140	141.6	8.5	4	4	2								Sat.	UNDIVIDED COASTAL PLAIN 7.0	
135	136.6	13.5	2	2	2								Sat.	Brown, silty sandy CLAY (A-6)	
130	131.6	18.5	5	8	11								Sat.	143.1 Gray-brown to gray-tan, silty fine to coarse SAND (A-2-4) 7.0	
125	126.6	23.5	5	5	11								Sat.	133.1 RESIDUAL 17.0	
120	121.6	28.5	5	10	13								Sat.	Gray, silty sandy CLAY (A-6)	
115	116.6	33.5	11	15	16								Sat.		
110	111.6	38.5	40	60/0.4									Sat.		
	106.6	43.5	100/0.2										Sat.	106.6 WEATHERED ROCK 43.5	
	105.1	45.0	60/0.0										Sat.	105.1 NON-CRYSTALLINE ROCK 45.0	
														Boring Terminated by Auger Refusal at Elevation 105.1 ft on Non-Crystalline Rock: PHYLLITE	

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GEOTECHNICAL BORING REPORT

BORE LOG

WBS 44989.1.1		TIP I-5972		COUNTY JOHNSTON		GEOLOGIST Mize, J.										
SITE DESCRIPTION Bridge No. 66 on US-70 Business (E. Market St.) over I-95 between US 301 and SR 2508							GROUND WTR (ft)									
BORING NO. EB2-A		STATION 38+37		OFFSET 27 ft LT		ALIGNMENT -Y1-										
COLLAR ELEV. 169.8 ft		TOTAL DEPTH 62.7 ft		NORTHING 639,037		EASTING 2,202,177										
DRILL RIG/HAMMER EFF./DATE SME275 DIETRICH D-50 87% 10/21/2017			DRILL METHOD Mud Rotary			HAMMER TYPE Automatic										
DRILLER Williams, T. J.		START DATE 11/28/18		COMP. DATE 11/28/18		SURFACE WATER DEPTH N/A										
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)		
			0.5ft	0.5ft	0.5ft	0	25	50	75	100						
170														169.8	GROUND SURFACE	0.0
	167.8	2.0												166.8	ROADWAY EMBANKMENT 2' Asphalt, 1' ABC Stone	3.0
165			100/0.4												Dark brown to gray, sandy CLAY (A-6)	
160	161.3	8.5	2	2	4											
155	156.3	13.5	2	2	4											
150	151.3	18.5	4	6	8											
145	146.3	23.5	3	1	2											
140	141.3	28.5	3	2	3											
135	136.3	33.5	4	4	4											
130	131.3	38.5	2	1	5											
125	126.3	43.5	5	8	8											
120	121.3	48.5	6	12	11											
115	116.3	53.5	20	42	54											
110	111.3	58.5	36	64/0.3												
	107.1	62.7	60/0.0													

WBS 44989.1.1		TIP I-5972		COUNTY JOHNSTON		GEOLOGIST Cary, P.										
SITE DESCRIPTION Bridge No. 66 on US-70 Business (E. Market St.) over I-95 between US 301 and SR 2508							GROUND WTR (ft)									
BORING NO. EB2-B		STATION 37+58		OFFSET 50 ft RT		ALIGNMENT -Y1-										
COLLAR ELEV. 145.6 ft		TOTAL DEPTH 41.8 ft		NORTHING 638,995		EASTING 2,202,075										
DRILL RIG/HAMMER EFF./DATE SME275 DIETRICH D-50 87% 10/21/2017			DRILL METHOD Mud Rotary			HAMMER TYPE Automatic										
DRILLER Williams, T. J.		START DATE 11/14/18		COMP. DATE 11/14/18		SURFACE WATER DEPTH N/A										
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)		
			0.5ft	0.5ft	0.5ft	0	25	50	75	100						
150														145.6	GROUND SURFACE	0.0
145	145.6	0.0	WOH	3	3											
140	142.1	3.5	5	4	6											
135	137.1	8.5	2	2	2											
130	132.1	13.5	4	3	5											
125	127.1	18.5	4	5	10											
120	122.1	23.5	7	9	15											
115	117.1	28.5	8	12	18											
110	112.1	33.5	19	80	20/0.3											
105	107.1	38.5	60/0.1													
	103.8	41.8	60/0.0													

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GEOTECHNICAL BORING REPORT

BORE LOG

WBS 44989.1.1		TIP I-5972		COUNTY JOHNSTON		GEOLOGIST Cary, P.									
SITE DESCRIPTION Bridge No. 66 on US-70 Business (E. Market St.) over I-95 between US 301 and SR 2508							GROUND WTR (ft)								
BORING NO. RW2-A		STATION 38+75		OFFSET 110 ft LT		ALIGNMENT -Y1-									
COLLAR ELEV. 146.0 ft		TOTAL DEPTH 39.2 ft		NORTHING 639,100		EASTING 2,202,243									
DRILL RIG/HAMMER EFF./DATE SME275 DIEDRICH D-50 87% 10/21/2017			DRILL METHOD Mud Rotary		HAMMER TYPE Automatic										
DRILLER Williams, T. J.		START DATE 11/16/18		COMP. DATE 11/16/18		SURFACE WATER DEPTH N/A									
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG MOI	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100					
150															
145	146.0	0.0	3	3	5									146.0	GROUND SURFACE
	142.5	3.5	5	6	5									143.0	UNDIVIDED COASTAL PLAIN Brown-tan, coarse sandy silty moderately plastic CLAY (A-7-6) Tan, clayey fine to coarse SAND (A-2-7), little gravel
140															
	137.5	8.5	2	2	3										
135															
	132.5	13.5	4	4	2									131.0	RESIDUAL Tan to gray, silty sandy CLAY (A-6)
130															
	127.5	18.5	10	8	10										
125															
	122.5	23.5	7	8	13										
120															
	117.5	28.5	4	6	7										
115															
	112.5	33.5	70	30/0.4										114.0	WEATHERED ROCK PHYLLITE
110															
	107.5	38.5	80	20/0.2										106.8	Boring Terminated at Elevation 106.8 ft in Weathered Rock: PHYLLITE

WBS 44989.1.1		TIP I-5972		COUNTY JOHNSTON		GEOLOGIST Cary, P.									
SITE DESCRIPTION Bridge No. 66 on US-70 Business (E. Market St.) over I-95 between US 301 and SR 2508							GROUND WTR (ft)								
BORING NO. RW2-B		STATION 37+07		OFFSET 120 ft RT		ALIGNMENT -Y1-									
COLLAR ELEV. 145.8 ft		TOTAL DEPTH 38.8 ft		NORTHING 638,949		EASTING 2,202,001									
DRILL RIG/HAMMER EFF./DATE SME275 DIEDRICH D-50 87% 10/21/2017			DRILL METHOD Mud Rotary		HAMMER TYPE Automatic										
DRILLER Williams, T. J.		START DATE 11/14/18		COMP. DATE 11/14/18		SURFACE WATER DEPTH N/A									
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG MOI	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100					
150															
145	145.8	0.0	3	3	5									145.8	GROUND SURFACE
	142.3	3.5	4	5	6									143.8	UNDIVIDED COASTAL PLAIN Tan, sandy clayey SILT (A-5) Tan to orange, clayey SAND (A-2-7)
140															
	137.3	8.5	4	2	3										
135														133.8	RESIDUAL Tan-orange to gray, silty fine sandy CLAY (A-6)
130															
	127.3	18.5	4	5	10										
125															
	122.3	23.5	8	16	18										
120															
	117.3	28.5	4	11	18										
115															
	112.3	33.5	11	14	23										
110															
	107.3	38.5	100/0.3											107.3	WEATHERED ROCK PHYLLITE Boring Terminated at Elevation 107.0 ft in Weathered Rock: PHYLLITE

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