

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	42252.1.1 (B-5114)	1	13

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

STRUCTURE
SUBSURFACE INVESTIGATION

PROJ. REFERENCE NO. 42252.1.1 (B-5114) F.A. PROJ. BRZ-1619 (5)
COUNTY RANDOLPH
PROJECT DESCRIPTION BRIDGE NO. 136 OVER US 29-701-85
BUSINESS ON SR 1619 (PROSPECT ST.)

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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. NEITHER THE SUBSURFACE PLANS AND REPORTS, NOR THE FIELD BORING LOGS, ROCK CORES, OR SOIL TEST DATA ARE 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.

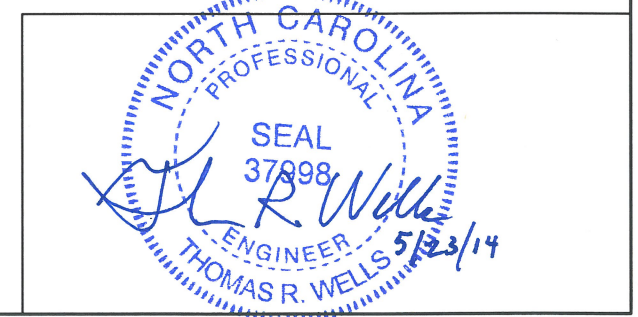
THE BIDDER OR CONTRACTOR IS CAUTIONED THAT DETAILS SHOWN ON THE SUBSURFACE PLANS ARE PRELIMINARY ONLY AND IN MANY CASES THE FINAL DESIGN DETAILS ARE DIFFERENT. FOR BIDDING AND CONSTRUCTION PURPOSES, REFER TO THE CONSTRUCTION PLANS AND DOCUMENTS FOR FINAL DESIGN INFORMATION ON THIS PROJECT. THE DEPARTMENT 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 THIS 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.

PROJECT: 42252.1.1 ID: B-5114

PERSONNEL

- R. TOOTHMAN
- D. GOODNIGHT
- G. LOWDERMILK
- W. FELDER

INVESTIGATED BY T. WELLS
CHECKED BY X. BARRETT
SUBMITTED BY KLEINFELDER
DATE MAY 2014



DRAWN BY: W. FELDER

NOTE - THE INFORMATION CONTAINED HEREIN IS NOT IMPLIED OR GUARANTEED BY THE N.C. DEPARTMENT OF TRANSPORTATION AS BEING ACCURATE NOR IT IS CONSIDERED TO BE PART OF THE PLANS, SPECIFICATIONS, OR CONTRACT FOR THE PROJECT.

NOTE - 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.

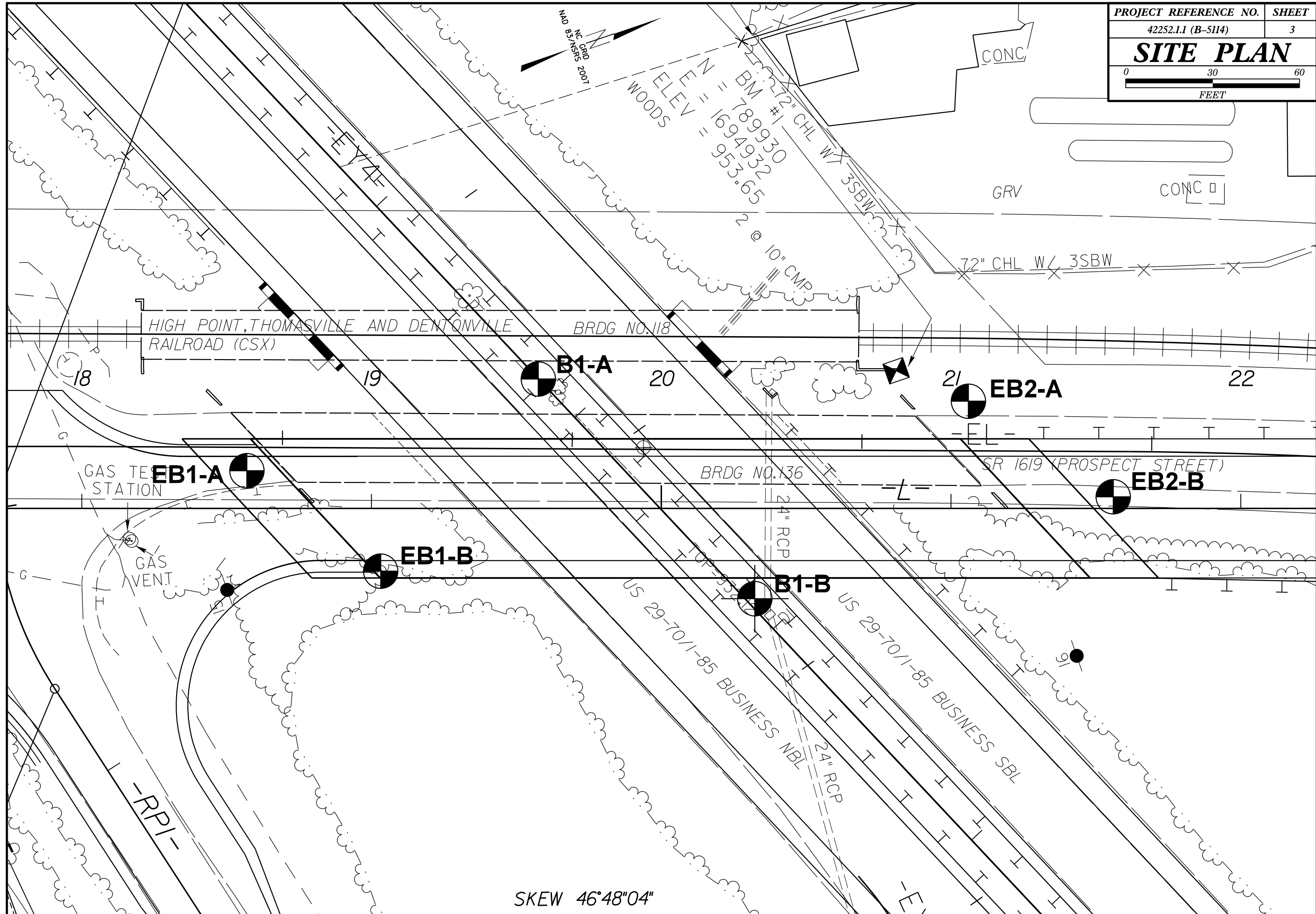
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
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PROJECT REFERENCE NO. 42252.J.1(B-5114)	SHEET NO. 2
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SUBSURFACE INVESTIGATION

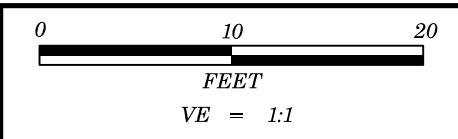
SOIL AND ROCK LEGEND, TERMS, SYMBOLS, AND ABBREVIATIONS

SOIL DESCRIPTION				GRADATION				ROCK DESCRIPTION				TERMS AND DEFINITIONS																																																																																																																																																									
SOIL IS CONSIDERED TO BE THE 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 STANDARD PENETRATION TEST (AASHTO T206, ASTM D-1586). SOIL CLASSIFICATION IS BASED ON THE AASHTO SYSTEM. BASIC DESCRIPTIONS GENERALLY SHALL INCLUDE: CONSISTENCY, COLOR, TEXTURE, MOISTURE, AASHTO CLASSIFICATION, AND OTHER PERTINENT FACTORS SUCH AS MINERALOGICAL COMPOSITION, ANGULARITY, STRUCTURE, PLASTICITY, ETC. EXAMPLE: VERY STIFF, GRAY SILTY CLAY, MOST WITH INTERBEDDED FINE SAND LAYERS, HIGHLY PLASTIC, A-7-6				WELL GRADED - INDICATES A GOOD REPRESENTATION OF PARTICLE SIZES FROM FINE TO COARSE. UNIFORM - INDICATES THAT SOIL PARTICLES ARE ALL APPROXIMATELY THE SAME SIZE. (ALSO POORLY GRADED). GAP-GRADED - INDICATES A MIXTURE OF UNIFORM PARTICLES OF TWO OR MORE SIZES.				HARD ROCK IS NON-COASTAL PLAIN MATERIAL THAT IF TESTED, WOULD YIELD SPT REFUSAL, 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, 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 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 (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 (SRQD) - A MEASURE OF ROCK QUALITY DESCRIBED BY TOTAL LENGTH OF ROCK SEGMENTS WITHIN A STRATUM EQUAL TO OR GREATER THAN 4 INCHES DIVIDED BY THE TOTAL LENGTH OF STRATA AND EXPRESSED AS A PERCENTAGE. TOPSOIL (TS) - SURFACE SOILS USUALLY CONTAINING ORGANIC MATTER.																																																																																																																																																									
				ANGULARITY OF GRAINS THE ANGULARITY OR ROUNDNESS OF SOIL GRAINS IS DESIGNATED BY THE TERMS: <u>ANGULAR</u> , <u>SUBANGULAR</u> , <u>SUBROUNDED</u> , OR <u>ROUNDED</u> .				WEATHERED ROCK (WR) CRYSTALLINE ROCK (CR) NON-CRYSTALLINE ROCK (NCR) COASTAL PLAIN SEDIMENTARY ROCK (CP)																																																																																																																																																													
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RATING AS A SUBGRADE	EXCELLENT TO GOOD				FAIR TO POOR				FAIR TO POOR	POOR	UNSATURABLE						MINERALOGICAL COMPOSITION MINERAL NAMES SUCH AS QUARTZ, FELDSPAR, MICA, TALC, KAOLIN, ETC. ARE USED IN DESCRIPTIONS WHENEVER THEY ARE CONSIDERED OF SIGNIFICANCE.				WEATHERING FRESH - ROCK FRESH, CRYSTALLINE BRIGHT, FEW JOINTS MAY SHOW SLIGHT STAINING, ROCK RINGS UNDER HAMMER IF CRYSTALLINE. VERY SLIGHT (V SLI.) - 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. SLIGHT (SLI.) - ROCK GENERALLY FRESH, JOINTS STAINED AND DISCOLORATION EXTENDS INTO ROCK UP TO 1 INCH, OPEN JOINTS MAY CONTAIN CLAY, IN GRANITOID ROCKS SOME OCCASIONAL FELDSPAR CRYSTALS ARE DULL AND DISCOLORED, CRYSTALLINE ROCKS RING UNDER HAMMER BLOWS. MODERATE (MOD.) - SIGNIFICANT PORTIONS OF ROCK SHOW DISCOLORATION AND WEATHERING EFFECTS. IN GRANITOID ROCKS, MOST FELDSPARS ARE DULL AND DISCOLORED, SOME SHOW CLAY, ROCK HAS DULL SOUND UNDER HAMMER BLOWS AND SHOWS SIGNIFICANT LOSS OF STRENGTH AS COMPARED WITH FRESH ROCK. MODERATELY SEVERE (MOD. SEV.) - ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. IN GRANITOID ROCKS, ALL FELDSPARS DULL AND DISCOLORED AND A MAJORITY SHOW KAOLINIZATION, ROCK SHOWS SEVERE LOSS OF STRENGTH AND CAN BE EXCAVATED WITH A GEOLOGIST'S PICK, ROCK GIVES "CLUNK" SOUND WHEN STRUCK. <i>IF TESTED, WOULD YIELD SPT REFUSAL</i> SEVERE (SEV.) - ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED, ROCK FABRIC CLEAR AND EVIDENT BUT REDUCED IN STRENGTH TO STRONG SOIL. IN GRANITOID ROCKS ALL FELDSPARS ARE KAOLINIZED TO SOME EXTENT, SOME FRAGMENTS OF STRONG ROCK USUALLY REMAIN. <i>IF TESTED, YIELDS SPT N VALUES > 100 BPF</i> VERY SEVERE (V SEV.) - ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED, ROCK FABRIC ELEMENTS ARE DISCERNIBLE BUT THE MASS IS EFFECTIVELY REDUCED TO SOIL STATUS, WITH ONLY FRAGMENTS OF STRONG ROCK REMAINING, SAPROLITE IS AN EXAMPLE OF ROCK WEATHERED TO A DEGREE SUCH THAT ONLY MINOR VESTIGES OF THE ORIGINAL ROCK FABRIC REMAIN. <i>IF TESTED, YIELDS SPT N VALUES < 100 BPF</i> COMPLETE - ROCK REDUCED TO SOIL, ROCK FABRIC NOT DISCERNIBLE, OR DISCERNIBLE ONLY IN SMALL AND SCATTERED CONCENTRATIONS, QUARTZ MAY BE PRESENT AS DIKES OR STRINGERS, SAPROLITE IS ALSO AN EXAMPLE.			
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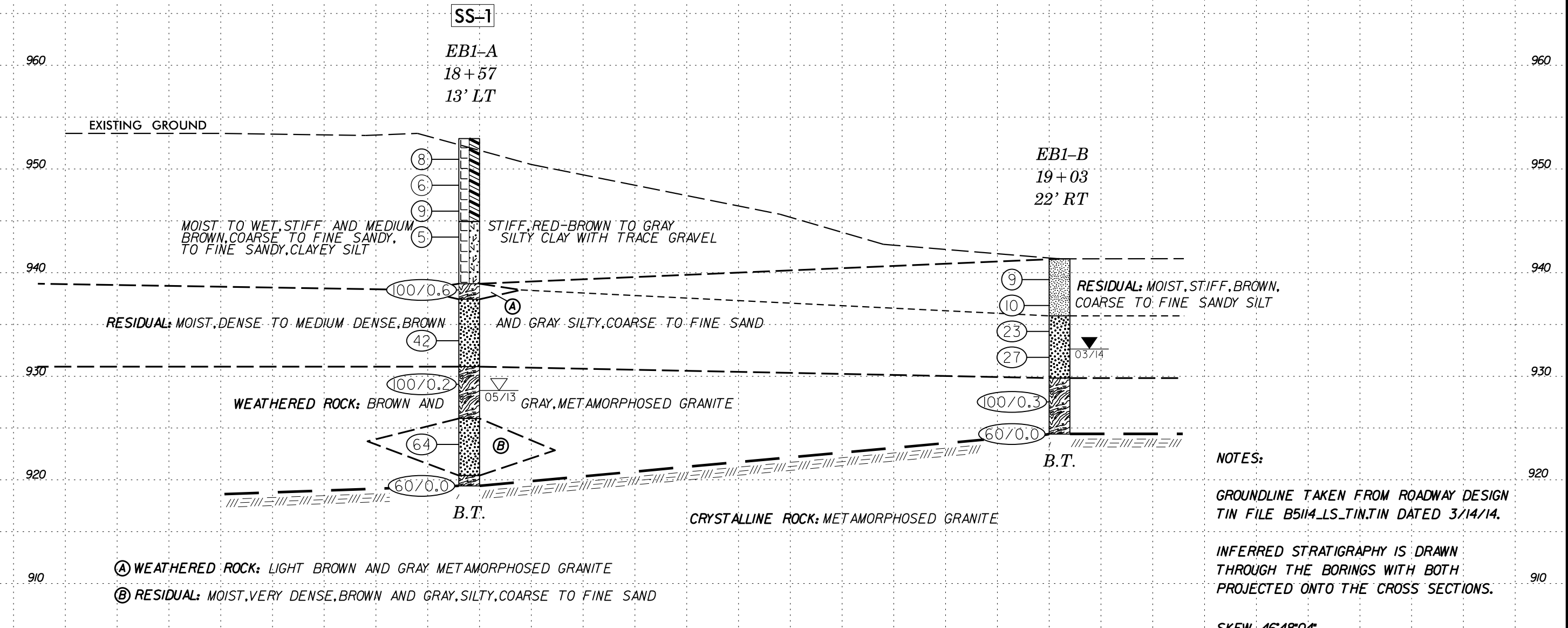


SKEW 46°48'04"

70 60 50 40 30 20 10 0 10 20 30



PROJECT REFERENCE NO.	SHEET
B-5114	4
BRIDGE NO 136	



- Ⓐ WEATHERED ROCK: LIGHT BROWN AND GRAY METAMORPHOSED GRANITE
- Ⓑ RESIDUAL: MOIST, VERY DENSE, BROWN AND GRAY, SILTY, COARSE TO FINE SAND

NOTES:
 GROUNDLINE TAKEN FROM ROADWAY DESIGN
 TIN FILE B5114_LS_TIN.TIN DATED 3/14/14.
 INFERRED STRATIGRAPHY IS DRAWN
 THROUGH THE BORINGS WITH BOTH
 PROJECTED ONTO THE CROSS SECTIONS.

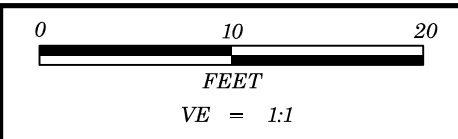
SKEW 46°48'04"

END BENT 1 CROSS SECTION AT STA 18+74

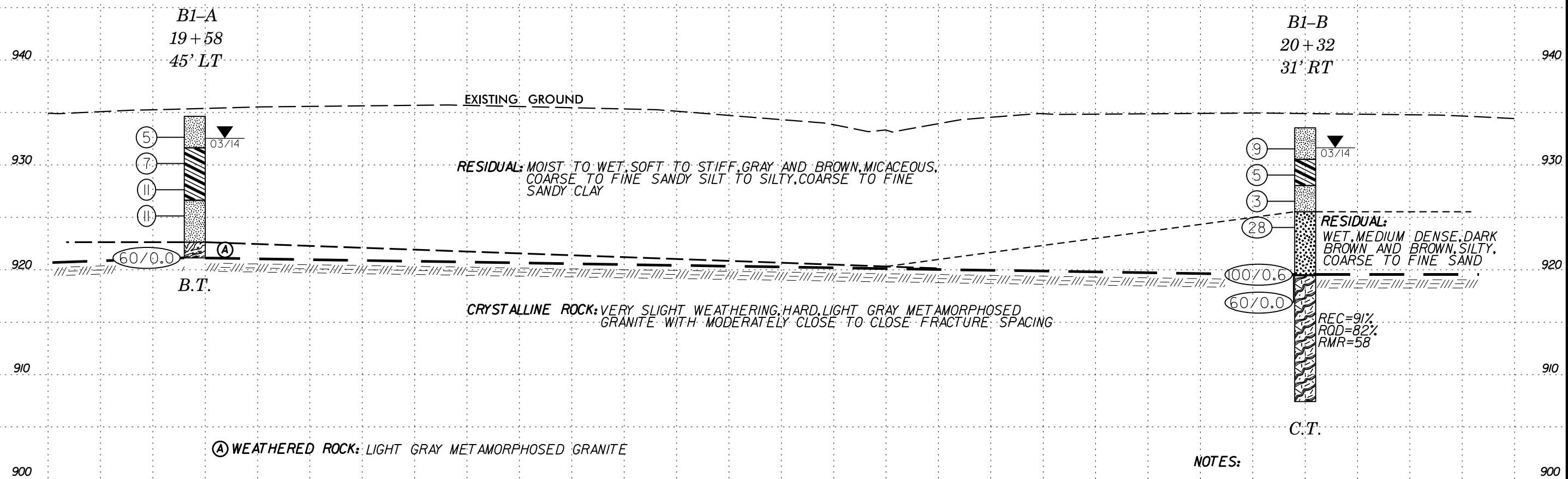
INCOMPLETE PLANS
 DO NOT USE FOR R/W ACQUISITION
 PRELIMINARY PLANS
 DO NOT USE FOR CONSTRUCTION

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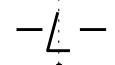
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PROJECT REFERENCE NO.	SHEET
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BRIDGE 136	



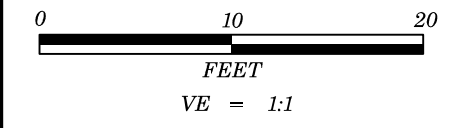
BENT 1 CROSS SECTION AT STA 20+02



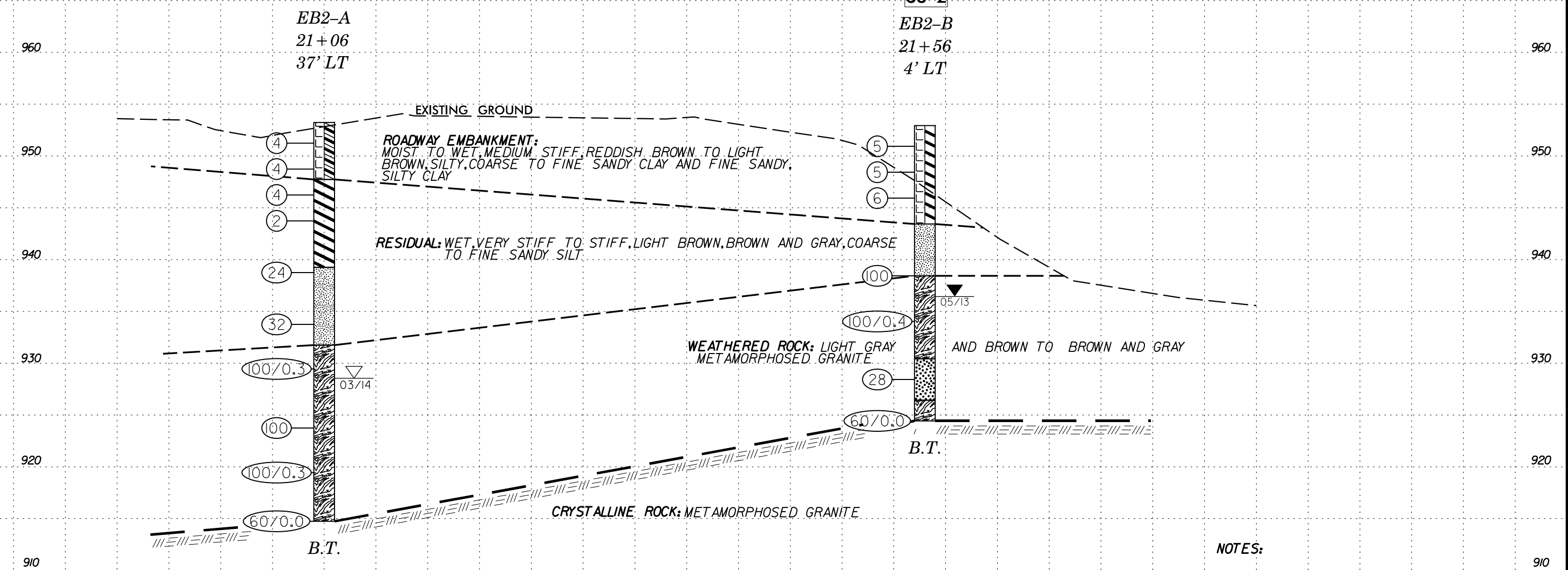
80 70 60 50 40 30 20 10 0 10 20 30 40 50 60

INCOMPLETE PLANS
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70 60 50 40 30 20 10 0 10 20 30



PROJECT REFERENCE NO.	SHEET
B-5114	6
BRIDGE NO. 136	



NOTES:

GROUNDLINE TAKEN FROM ROADWAY DESIGN TIN FILE B5114_LS_TIN.TIN DATED 3/14/14.

INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTIONS.

SKEW 46°48'04"

END BENT 2 CROSS SECTION AT STA 21+69

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

70 60 50 40 30 20 10 0 10 20 30 40 50 60 70

NCDOT GEOTECHNICAL ENGINEERING UNIT
BORELOG REPORT

WBS 42252.1.1	TIP B-5114	COUNTY RANDOLPH	GEOLOGIST Wells, T. R.
SITE DESCRIPTION Bridge No. 136 over US 29-70/I-85 Business on SR 1619 (Prospect St.)			GROUND WTR (ft)
BORING NO. EB1-A	STATION 18+57	OFFSET 13 ft LT	ALIGNMENT -L-
COLLAR ELEV. 952.8 ft	TOTAL DEPTH 33.5 ft	NORTHING 789,707	EASTING 1,694,892
DRILL RIG/HAMMER EFF./DATE TRI0055 CME-55 74% 02/15/2013		DRILL METHOD H.S. Augers	HAMMER TYPE Automatic
DRILLER Toothman, R. E.	START DATE 05/13/13	COMP. DATE 05/13/13	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)	
955															952.8	GROUND SURFACE
	951.8	1.0	2	4	4											ROADWAY EMBANKMENT
950	949.3	3.5	3	3	3											Red-Brown, Coarse to Fine Sandy, Silty CLAY with Trace Gravel
	946.8	6.0	4	4	5											
945	944.3	8.5	2	2	3											Gray-Brown, Fine Sandy, Clayey SILT
	939.3	13.5	3	77	23/0.1											
940	934.3	18.5	15	21	21											WEATHERED ROCK
	929.3	23.5	100/0.2													Light Brown and Gray METAMORPHOSED GRANITE
935	924.3	28.5	23	21	43											RESIDUAL
	919.3	33.5	60/0.0													Brown and Gray, Silty Coarse to Fine SAND
930																WEATHERED ROCK
																Brown and Gray METAMORPHOSED GRANITE
925																RESIDUAL
																Brown and Gray, Silty Coarse to Fine SAND
920																WEATHERED ROCK
																Brown and Gray METAMORPHOSED GRANITE
																Boring Terminated with Standard Penetration Test Refusal at Elevation 919.3 ft on Crystalline Rock: METAMORPHOSED GRANITE

WBS 42252.1.1	TIP B-5114	COUNTY RANDOLPH	GEOLOGIST Wells, T. R.
SITE DESCRIPTION Bridge No. 136 over US 29-70/I-85 Business on SR 1619 (Prospect St.)			GROUND WTR (ft)
BORING NO. EB1-B	STATION 19+03	OFFSET 22 ft RT	ALIGNMENT -L-
COLLAR ELEV. 941.2 ft	TOTAL DEPTH 16.9 ft	NORTHING 789,739	EASTING 1,694,940
DRILL RIG/HAMMER EFF./DATE TRI8016 MOBILE B-57 92% 02/07/2014		DRILL METHOD H.S. Augers	HAMMER TYPE Automatic
DRILLER Toothman, R. E.	START DATE 03/22/14	COMP. DATE 03/22/14	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)	
945															941.2	GROUND SURFACE
	940.2	1.0	3	3	6											RESIDUAL
940	937.7	3.5	3	4	6											Brown, Coarse to Fine Sandy SILT
	935.2	6.0	7	10	13											
935	932.7	8.5	8	12	15											Brown, Silty, Coarse to Fine SAND
	927.7	13.5	100/0.3													
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																Brown and Gray, Silty Coarse to Fine SAND
																WEATHERED ROCK
																Light Brown METAMORPHOSED GRANITE
																Boring Terminated with Standard Penetration Test Refusal at Elevation 924.3 ft on Crystalline Rock: METAMORPHOSED GRANITE

NCDOT BORE DOUBLE GEO_B5114_BRDG0136_GINT.GPJ NC_DOT.GDT 5/23/14



NCDOT GEOTECHNICAL ENGINEERING UNIT
BORELOG REPORT

WBS 42252.1.1	TIP B-5114	COUNTY RANDOLPH	GEOLOGIST Wells, T. R.	
SITE DESCRIPTION Bridge No. 136 over US 29-70/I-85 Business on SR 1619 (Prospect St.)				GROUND WTR (ft)
BORING NO. B1-A	STATION 19+58	OFFSET 45 ft LT	ALIGNMENT -L-	0 HR. 9.0
COLLAR ELEV. 934.5 ft	TOTAL DEPTH 13.5 ft	NORTHING 789,812	EASTING 1,694,895	24 HR. 2.1
DRILL RIG/HAMMER EFF./DATE TRI8016 MOBILE B-57 92% 02/07/2014		DRILL METHOD H.S. Augers	HAMMER TYPE Automatic	
DRILLER Toothman, R. E.	START DATE 03/22/14	COMP. DATE 03/22/14	SURFACE WATER DEPTH N/A	

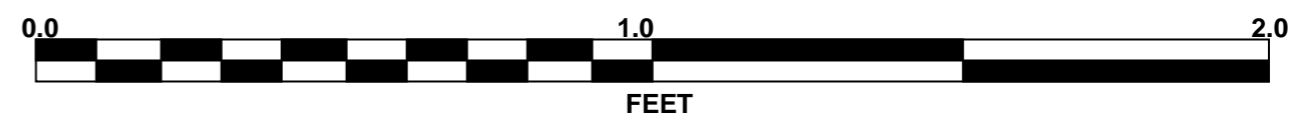
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG	SOIL AND ROCK DESCRIPTION			
			0.5ft	0.5ft	0.5ft	0	25	50	75	100			ELEV. (ft)	DEPTH (ft)		
935														934.5	0.0	GROUND SURFACE
	933.5	1.0	2	2	3											RESIDUAL Brown, Coarse to Fine Sandy SILT
	931.0	3.5	2	3	4									931.5	3.0	Brown, Silty, Coarse to Fine Sandy CLAY
930	928.5	6.0	3	4	7											
	926.0	8.5	3	3	8									926.5	8.0	Brown, Silty, Coarse to Fine SAND
925														922.5	12.0	
	921.0	13.5												921.0	13.5	WEATHERED ROCK METAMORPHOSED GRANITE Boring Terminated with Standard Penetration Test Refusal at Elevation 921.0 ft on Crystalline Rock: METAMORPHOSED GRANITE

NCDOT BORE DOUBLE GEO_B5114_BRDG0136_GINT.GPJ NC_DOT.GDT 5/23/14

CORE PHOTOGRAPHS

B1-B

BOXES 1 and 2: 14.1 - 26.1 FEET





NCDOT GEOTECHNICAL ENGINEERING UNIT

BORELOG REPORT

WBS 42252.1.1	TIP B-5114	COUNTY RANDOLPH	GEOLOGIST Wells, T. R.
SITE DESCRIPTION Bridge No. 136 over US 29-70/I-85 Business on SR 1619 (Prospect St.)			GROUND WTR (ft)
BORING NO. EB2-A	STATION 21+06	OFFSET 37 ft LT	ALIGNMENT -L-
COLLAR ELEV. 953.1 ft	TOTAL DEPTH 38.5 ft	NORTHING 789,950	EASTING 1,694,951
DRILL RIG/HAMMER EFF./DATE TRI8016 MOBILE B-57 92% 02/07/2014		DRILL METHOD H.S. Augers	HAMMER TYPE Automatic
DRILLER Toothman, R. E.	START DATE 03/24/14	COMP. DATE 03/24/14	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						
955														953.1	0.0	GROUND SURFACE
	952.1	1.0	1	2	2											ROADWAY EMBANKMENT
	949.6	3.5	1	2	2											Reddish Brown, Silty, Coarse to Fine Sandy CLAY
	947.1	6.0	1	2	2											RESIDUAL
	944.6	8.5	WOH	1	1											Reddish Brown, Coarse to Fine Sandy, Silty CLAY
	939.6	13.5	2	12	12											Light Brown, Coarse to Fine Sandy SILT
	934.6	18.5	5	9	23											WEATHERED ROCK
	929.6	23.5	100/0.3													Light Gray and Brown METAMORPHOSED GRANITE
	924.6	28.5	48	37	63											WEATHERED ROCK
	919.6	33.5	100/0.3													Brown and Gray METAMORPHOSED GRANITE
	914.6	38.5	60/0.0													Boring Terminated with Standard Penetration Test Refusal at Elevation 914.6 ft on Crystalline Rock: METAMORPHOSED GRANITE

WBS 42252.1.1	TIP B-5114	COUNTY RANDOLPH	GEOLOGIST Wells, T. R.
SITE DESCRIPTION Bridge No. 136 over US 29-70/I-85 Business on SR 1619 (Prospect St.)			GROUND WTR (ft)
BORING NO. EB2-B	STATION 21+56	OFFSET 4 ft LT	ALIGNMENT -L-
COLLAR ELEV. 952.8 ft	TOTAL DEPTH 28.5 ft	NORTHING 789,986	EASTING 1,694,998
DRILL RIG/HAMMER EFF./DATE TRI0055 CME-55 74% 02/15/2013		DRILL METHOD H.S. Augers	HAMMER TYPE Automatic
DRILLER Toothman, R. E.	START DATE 05/13/13	COMP. DATE 05/13/13	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						
955														952.8	0.0	GROUND SURFACE
	951.8	1.0	2	2	3											ROADWAY EMBANKMENT
	949.3	3.5	1	2	3											Red-Brown to Light Brown, Fine Sandy, Silty CLAY
	946.8	6.0	1	2	4											RESIDUAL
	939.3	13.5	12	31	69											Brown and Gray, Fine Sandy SILT
	934.3	18.5	100/0.4													WEATHERED ROCK
	929.3	23.5	12	15	13											Brown and Gray, Silty Coarse to Fine SAND
	924.3	28.5	60/0.0													WEATHERED ROCK
																Boring Terminated with Standard Penetration Test Refusal at Elevation 924.3 ft on Crystalline Rock: METAMORPHOSED GRANITE

NCDOT BORE DOUBLE GEO_B5114_BRDG0136_GINT.GPJ NC_DOT.GDT 5/23/14

LABORATORY SUMMARY FOR SOIL TEST DATA

PROJECT NO. 42252.1.1 (B-5114)
FA NO. BRZ-1619(5)
COUNTY: RANDOLPH
BRIDGE NO. 136 OVER US 29-70/I-85 BUSINESS ON SR 1619 IN HIGH POINT

Boring Number	Station	Offset	Alignment	Sample Depth (ft.)	Sample No.	Natural Moisture Content (%)	AASHTO Class (Group Index)	N-Value (blows/ ft.)	Atterberg Limits			Gradation Results							
									L.L.	P.L.	P.I.	Pass #10 Sieve	Pass #40 Sieve	Pass #200 Sieve	Retained #270 Sieve	Coarse Sand (%)	Fine Sand (%)	Silt (%)	Clay (%)
EB1-A	18+57	13' LT	-L-	1.0 - 2.5	SS-1	10.9	A-6 (5)	8	32	21	11	92.5	92.5	66.7	39.1	13.4	25.7	33.7	27.2
EB2-B	21+56	4' LT	-L-	3.5 -5.0	SS-2	32.3	A-7-5 (19)	5	51	32	19	99.7	98.0	84.2	18.5	4.1	14.4	40.7	40.8

SS = Split-Barrel Sample (ASTM-D-1586) ST = Shelby Tube (Undisturbed) Sample

S = Grab Sample

NP -- Non Plastic

NA-- Non Applicable

Page: 1 of 1

Lab Technician: NCDOT Certification No.: 111-06-1203


 Christopher Carroll

LABORATORY SUMMARY FOR ROCK CORE SAMPLES

Sample No.	Boring No.	Depth (ft)	Rock Type	Geologic Map Unit	Run RQD	Length (in)	Diameter (in)	Unit Weight (PCF)	Unconfined Compressive Strength (PSI)	Young's Modulus (PSI)	Splitting Tensile Strength (PSI)	Remarks
RS-1	B1-B	19.9-20.2	META. GRANITE	CZg	86	3.97	1.95	N/A	10,180	N/M	N/M	RMR=58

SITE PHOTOGRAPHS



View Looking North along -L- from End Bent 1



Profile of Bridge From B1-B Looking West