

PROJECT: 45355.1.12

ID: BD-5109L

CONTENTS DESCRIPTION

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

STRUCTURE
 SUBSURFACE INVESTIGATION

PROJ. REFERENCE NO. 45355.1.12 (BD-5109L) F.A. PROJ. BRZ-1837(1)
 COUNTY DAVIDSON
 PROJECT DESCRIPTION REPLACE BRIDGE 361 OVER LEONARD CREEK
 ON SR 1837 (BUD SINK RD.)

SITE DESCRIPTION

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 USED FOR CONSTRUCTION PURPOSES ONLY AT THE RISK OF THE USER. THE SUBSURFACE PLANS AND REPORTS, INCLUDING 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 UNPLACED TEST DATA CAN BE RELIED ON ONLY TO THE DEGREE OF RELIABILITY INHERENT IN THE STANDARD TEST METHOD. INVESTIGATIONS WERE AS REQUESTED AT THE TIME OF THE INVESTIGATION. THESE WATER LEVELS OR SOIL TEST RESULTS ARE NOT INTENDED TO BE USED FOR DESIGN OR CONSTRUCTION PURPOSES INCLUDING TEMPERATURES, PRECIPITATION, AND WIND, AS WELL AS OTHER NON-CLIMATE FACTORS.

THE BORED OR CONTRACTOR IS CAUTIONED THAT DETAILS SHOWN ON THE SUBSURFACE PLANS AND PRELIMINARY ONLY AND IN MANY CASES THE FINAL DESIGN DETAILS ARE DIFFERENT. FOR FINAL DESIGN 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 ACCURACY OR ADEQUACY OF THE INVESTIGATION MADE, NOR THE INTERPRETATION MADE, OR OPINION OF THE DEPARTMENT AS TO THE TYPE OF MATERIALS AND CONDITIONS TO BE ENCOUNTERED. THE BODGER OR CONTRACTOR IS CAUTIONED TO MAKE SUCH INDEPENDENT SUBSURFACE INVESTIGATIONS AS HE DEEMS NECESSARY. 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.

STATE	PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	45355.1.12 (BD-5109L)	1	10

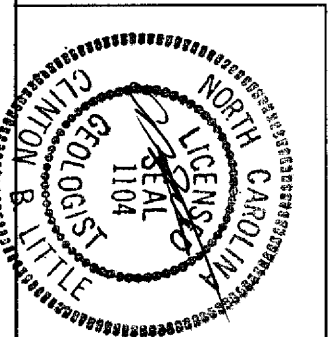
DRAWN BY: JK McCLURE

NOTE - THE INFORMATION CONTAINED HEREIN IS NOT IMPLIED OR GUARANTEED BY THE N.C. DEPARTMENT OF TRANSPORTATION AS BEING ACCURATE NOR IS IT 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.

PERSONNEL
 J.K. STICKNEY
 C.L. SMITH

INVESTIGATED BY J.R. BEVERLY
 CHECKED BY C.B. LITTLE
 SUBMITTED BY C.B. LITTLE
 DATE MARCH 2012



4/10-12

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

DIVISION OF HIGHWAYS

GEOTECHNICAL ENGINEERING UNIT

SUBSURFACE INVESTIGATION

SOIL AND ROCK LEGEND, TERMS, SYMBOLS, AND ABBREVIATIONS

PROJECT REFERENCE NO. 45355.112 (BD-51091) SHEET NO. 2

SOIL DESCRIPTION

SOIL IS CONSIDERED TO BE THE UNCONSOLIDATED, SAND-CORDED, OR HEAVY SAND MATERIALS...

SOIL LEGEND AND AASHTO CLASSIFICATION

Table with columns for GENERAL CLASS, SOIL CLASS, GROUP, and AASHTO CLASSIFICATION.

CONSISTENCY OR DENSITY

Table with columns for PRIMARY SOIL TYPE, COMPACTNESS OR CONSISTENCY, RANGE OF STANDARD PENETRATION RESISTANCE, and RANGE OF UNCONSOLIDATED COMPRESSION STRENGTH.

TEXTURE OR GRAIN SIZE

Table with columns for U.S. STD. SIEVE SIZE, PERCENT PASSING, and GRAIN SIZE.

SOIL MOISTURE - CORRELATION OF TERMS

Table with columns for SOIL MOISTURE SCALE, FIELD MOISTURE DESCRIPTION, and GUIDE FOR FIELD MOISTURE DESCRIPTION.

PLASTICITY

Table with columns for LIQUID LIMIT, PLASTIC LIMIT, and PLASTICITY INDEX (PI).

NON-PLASTIC LOW PLASTICITY MED PLASTICITY HIGH PLASTICITY

GRADATION

WELL GRADDED - INDICATES A GOOD REPRESENTATION OF PARTICLE SIZES FROM FINE TO COARSE.

MINERALOGICAL COMPOSITION

MINERAL NAMES SUCH AS QUARTZ, FELDSPAR, MICA, TALC, KAOLIN, ETC. ARE USED IN DESCRIPTIONS.

COMPRESSIBILITY

SLIGHTLY COMPRESSIBLE MODERATELY COMPRESSIBLE HIGHLY COMPRESSIBLE

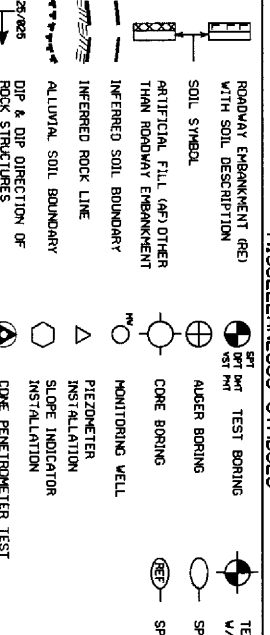
PERCENTAGE OF MATERIAL

ORGANIC MATERIAL SOILS TRACE OF ORGANIC MATTER LITTLE ORGANIC MATTER MODERATELY ORGANIC HIGHLY ORGANIC

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

MISCELLANEOUS SYMBOLS



ROCK DESCRIPTION

HARD ROCK IS NON-CRYSTALLINE PLAIN MATERIAL THAT IF TESTED WOULD YIELD SPT REFUSAL. AN IMPERFECT ROCK LINE INDICATES THE LEVEL AT WHICH NON-CRYSTALLINE PLAIN MATERIAL WOULD YIELD SPT REFUSAL.

WEATHERING

ROCK FRESH CRYSTALS BRIGHT, FEW JOINTS MAY SHOW SLIGHT STAINING, ROCK RINGS UNDER HAMMER IF CRYSTALLINE.

ROCK HARDNESS

VERY HARD CANNOT BE SPATCHED BY KNIFE OR SHARP PICK, BREAKING OF HARD SPECIMENS REQUIRES SEVERAL HARD BLOWS OF THE GEOLGIST'S PICK.

FRACTURE SPACING

VERY WIDE MORE THAN 18 FEET VERY THINLY BEDDED THICKLY BEDDED

BEDDING

VERY THINLY BEDDED THICKLY BEDDED VERY THINLY BEDDED THICKLY LAMINATED

TERMS AND DEFINITIONS

ALLUVIUM (ALLUV.) - SOILS THAT HAVE BEEN TRANSPORTED BY WATER. BOUTER - A WATER BEARING FORMATION OR STRATA.

APPARENTLY

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.

DISE

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 PLANE FEATURE IS INCLINED FROM THE HORIZONTAL.

DIP DIRECTION OR AZIMUTH

THE DIRECTION OR BEARING OF THE HORIZONTAL TRACE OF THE LINE OF DIP, MEASURED CLOCKWISE FROM NORTH.

FALLI

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. FLAG - ROCK FRAGMENTS ON SURFACE NEAR THEIR ORIGINAL POSITION AND DISLOOSED FROM PARENT MATERIAL.

FLAG PLAIN (FP)

LAND BORROWING A STREAM-BUILT OF SEDIMENTS DEPOSITED BY TERRACE.

FORMATION (F.M.)

A Mappable geological unit that can be recognized and traced in the field.

JOINT

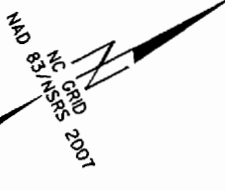
FRACTURE IN ROCK ALONG WHICH NO APPRECIABLE MOVEMENT HAS OCCURRED. LEDE - A SHELF-LIKE RIDGE OR PROJECTION OF ROCK WHOSE THICKNESS IS SMALL COMPARED TO ITS LATERAL EXTENT.

LENS

A BODY OF SOIL OR ROCK THAT THINS OUT IN ONE OR MORE DIRECTIONS. MOTTLED (MOT.) - IRREGULARLY MARKED WITH SPOTS OF DIFFERENT COLORS, NOTTING IN SOILS USUALLY INDICATES POOR MIXING AND LACK OF GOOD DRAINAGE.

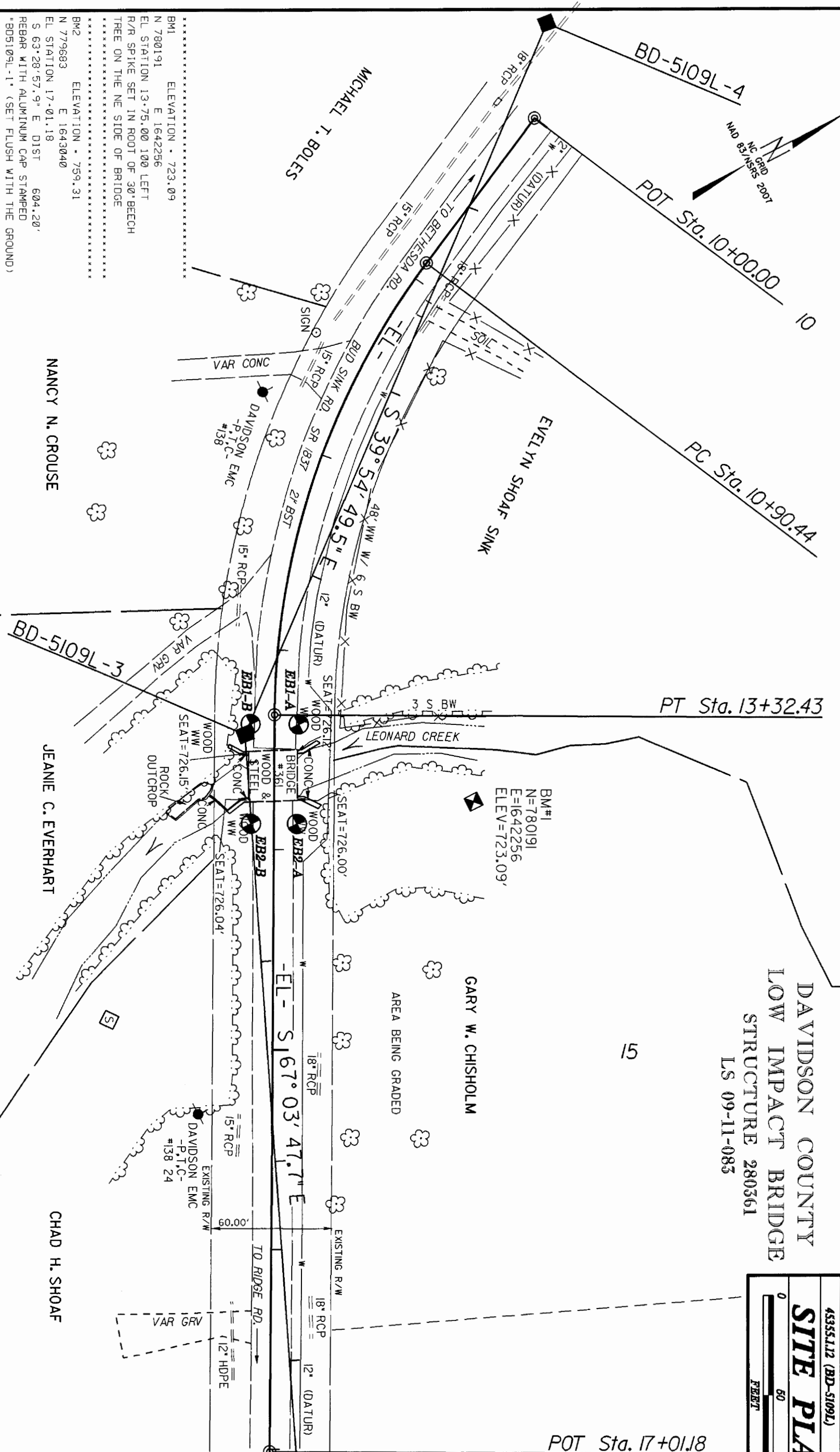
PERCHED WATER

WATER MAINTAINED ABOVE THE NORMAL GROUND WATER LEVEL BY THE PRESENCE OF AN INTERVENING IMPERVIOUS STRATUM.



DAVIDSON COUNTY
 LOW IMPACT BRIDGE
 STRUCTURE 280361
 LS 09-11-083

PROJECT REFERENCE NO.	4355.112 (BD-5109L)	SHEET	3
SITE PLAN		FEET	
0		50	
		100	



DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NC DOT FOR MONUMENT "B05109L-1" WITH NAD 83/NSRS 2007 STATE PLANE GRID COORDINATES OF NORTHING: 779682.5254(±) EASTING: 1643039.8384(±) ELEVATION: 759.31'(±) THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.9999925041 THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "B05109L-1" TO "EL-1" STATION 10+00.00 IS N 57°15'30.0" W 1277.11' ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES VERTICAL DATUM USED IS NAVD 88

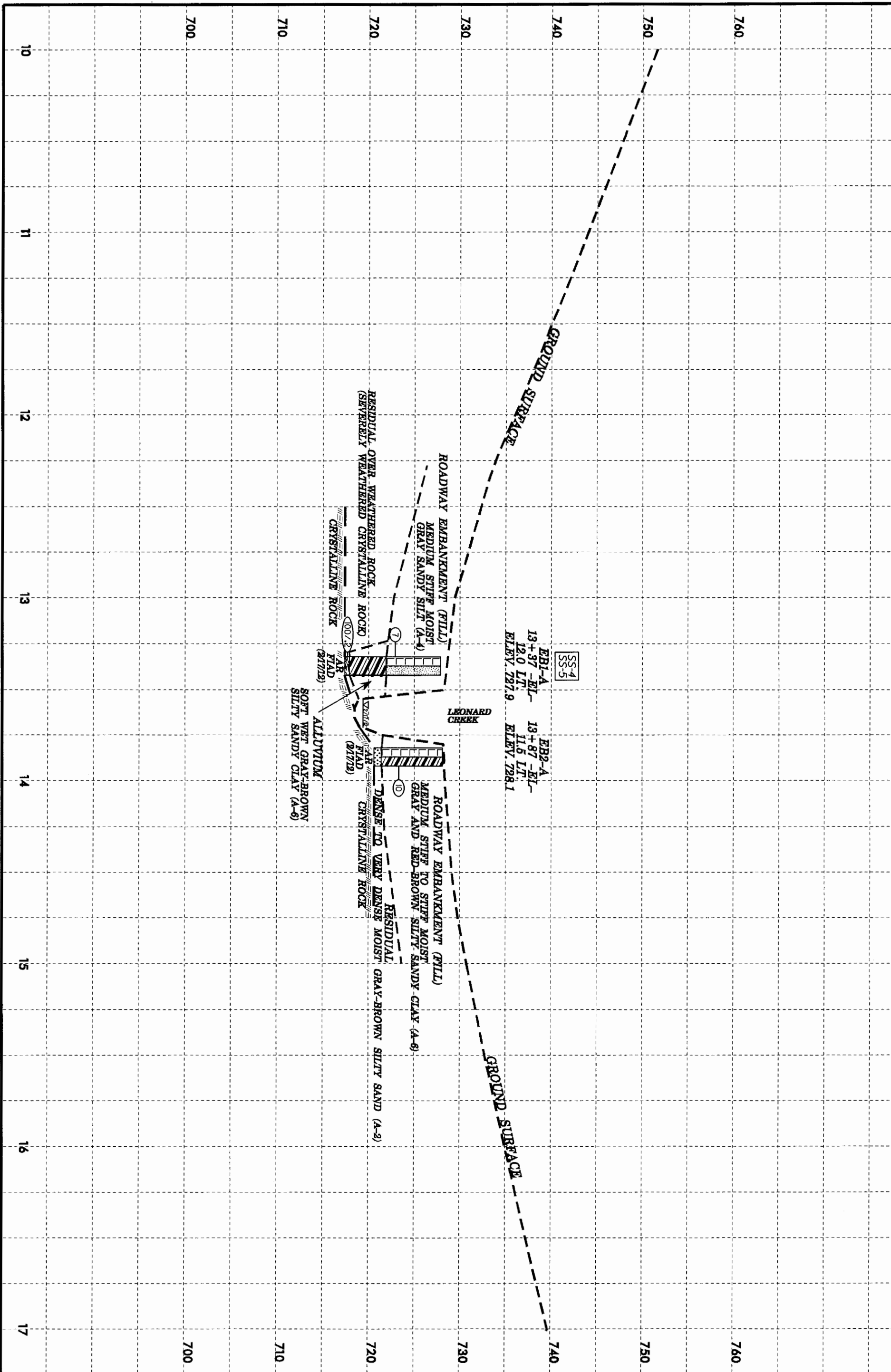
BL POINT	DESC.	NORTH	EAST	ELEVATION	EL STATION	OFFSET
4	BD-5109L-4	780400.4589	1641925.9826	752.89		OUTSIDE PROJECT LIMITS
3	BD-5109L-3	780104.2985	1642173.7318	727.40	13+42.26	OUTSIDE PROJECT LIMITS
2	BD-5109L-2	779953.8720	1642529.2050	740.33		OUTSIDE PROJECT LIMITS
1	BD-5109L-1	779682.5250	1643039.8380	759.31		OUTSIDE PROJECT LIMITS

BMI1 ELEVATION = 723.09
 N 780191 E 1642256
 EL STATION 13+75.00 100' LEFT
 R/R SPIKE SET IN ROOT OF 30" BEECH
 TREE ON THE NE SIDE OF BRIDGE

 BMI2 ELEVATION = 759.31
 N 779683 E 1643040
 EL STATION 17+01.18
 S 63°28'57.9" E DIST 604.20'
 REBAR WITH ALUMINUM CAP STAMPED
 "B05109L-1" (SET FLUSH WITH THE GROUND)



PROJECT REFERENCE NO. SHEET
 4335112 (BD-5109L) 4
 Profile - EL -
 Replace Bridge 361
 on SR 1837 (Bud Sink Rd.)



EB1-A
 13+37-EL-
 12.0 LT
 ELEV. 727.9

EB2-A
 13+87-EL-
 11.6 LT
 ELEV. 728.1

ROADWAY EMBANKMENT (FILL)
 MEDIUM STIFF MOIST
 GRAY SANDY SILT (A-4)

RESIDUAL OVER WEATHERED CRYSTALLINE ROCK
 (SEVERELY WEATHERED CRYSTALLINE ROCK)

CRYSTALLINE ROCK

ROADWAY EMBANKMENT (FILL)
 MEDIUM STIFF TO STIFF MOIST
 GRAY AND RED-BROWN SILTY SANDY CLAY (A-6)

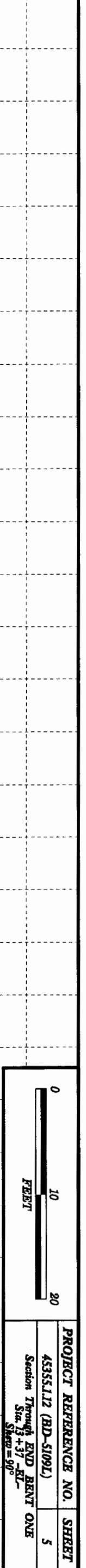
RESIDUAL
 DENSE TO VERY DENSE MOIST
 GRAY-BROWN SILTY SAND (A-3)

CRYSTALLINE ROCK

ALLUVIUM
 SOFT WET GRAY-BROWN
 SILTY SANDY CLAY (A-6)

LEONARD
 CREEK

SS-4
 SS-5



PROJECT REFERENCE NO. 4355112 (RD-S109L)
 SHEET 5
 Section Through END BENT ONE
 Sta. 13+37-EL
 Skew = 90°



SS-4
SS-5

SS-1
SS-2
SS-3

EHI-A
13+37-EL-
12.0 LT
ELEV. 727.9

EHI-B
13+37-EL-
12.0 RT
ELEV. 728.1

ROADWAY EMBANKMENT (FILL)
MEDIUM STEEP MOIST
GRAY SANDY SILT (A-4)

GROUND SURFACE
ROADWAY EMBANKMENT
(FILL)

ROADWAY EMBANKMENT (FILL)
LOOSE TO MEDIUM DENSE DRY
TAN-BROWN CLAYEY SILTY SAND (A-2-6)

ALLUVIUM
SOFT WET GRAY-BROWN
SILTY SANDY CLAY (A-6)

CRYSTALLINE ROCK

RESIDUAL

WEATHERED ROCK
SEVERELY WEATHERED
CRYSTALLINE ROCK

CRYSTALLINE ROCK

ALLUVIUM
MEDIUM STEEP MOIST GRAY-BROWN
CLAYEY SANDY SILT (A-4)

WEATHERED ROCK
SEVERELY WEATHERED
CRYSTALLINE ROCK

MEDIUM DENSE TO VERY DENSE MOIST BROWN GRAY SILTY SAND (A-2-4)

BUD-SINK RD.

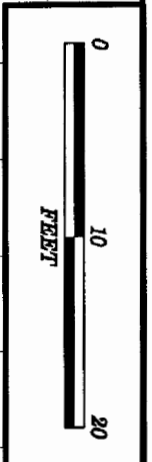
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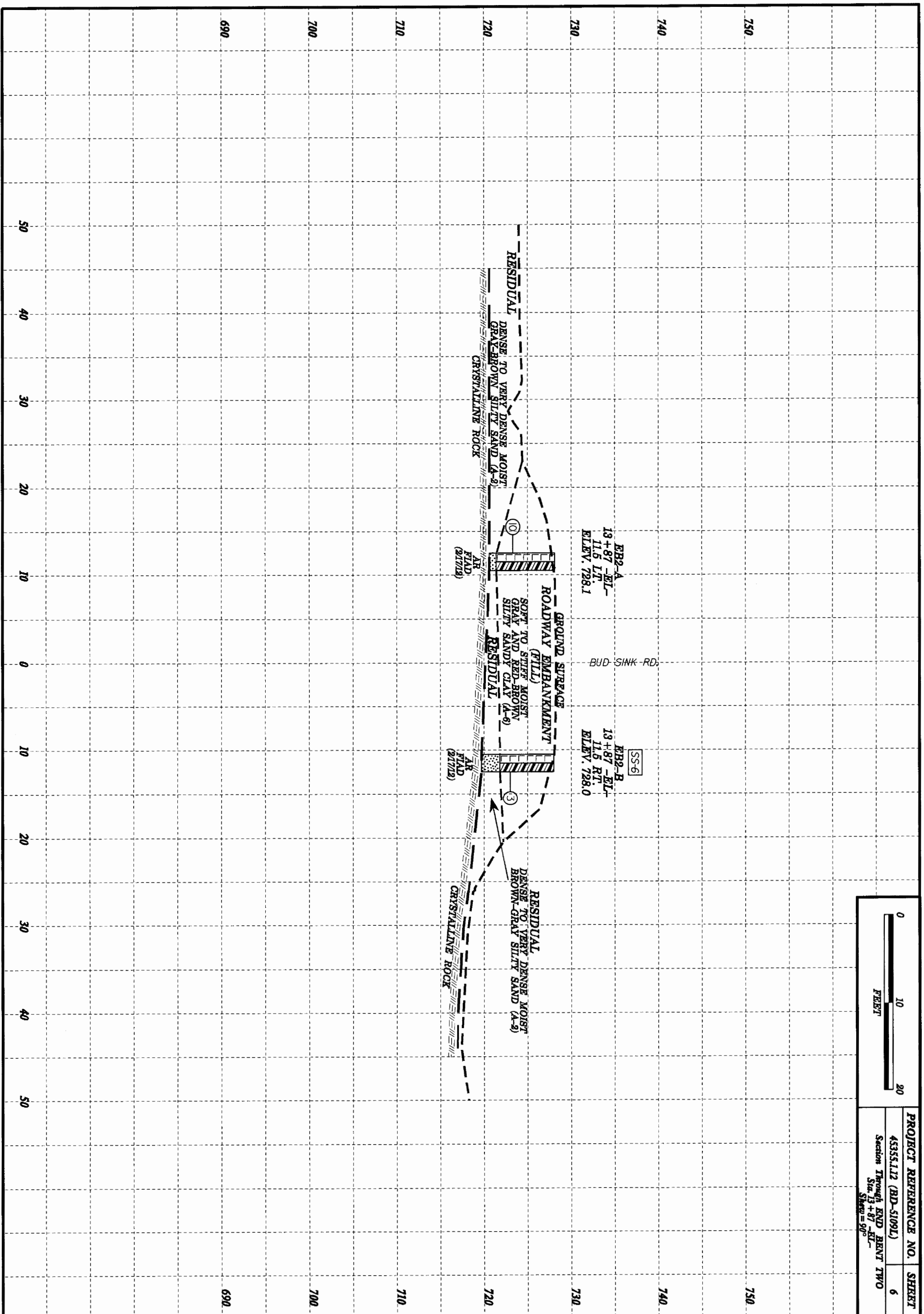
750
740
730
720
710
700
690

50
40
30
20
10
0
10
20
30
40
50

690
700
710
720
730
740
750



PROJECT REFERENCE NO. SHEET
 4355.112 (BD-S109L) 6
 Section Through END BENT TWO
 Sta. 13+87 - EL -
 Slope = 90°



WBS 45355.1.12		TIP BD-5109L		COUNTY DAVIDSON		GEOLOGIST Stickney, J. K.	
SITE DESCRIPTION BRIDGE NO. 361 OVER LEONARD CREEK ON SR 1837 (BUD SINK RD.)				STATION 13+37		GROUND WTR (ft) 0 HR. DRY	
BORING NO. EB1-A		TOTAL DEPTH 10.5 ft		OFFSET 12 ft LT		ALIGNMENT -EL-	
COLLAR ELEV. 727.9 ft		NORTHING 780,130		EASTING 1,642,181		24 HR. FIAD	
DRILL RIGHAMMER EFF./DATE HFC0064 CME-550 88% 09/02/2009				DRILL METHOD H.S. Augers		HAMMER TYPE Automatic	
DRILLER Smith, C.L.		START DATE 02/17/12		COMP. DATE 02/17/12		SURFACE WATER DEPTH N/A	
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT	BLOWS PER FOOT	SAMP. NO.	MOI	SOIL AND ROCK DESCRIPTION
730							GROUND SURFACE
725	723.9	4.0	2	4	SS-4	M	ROADWAY EMBANKMENT MEDIUM STIFF GRAY SANDY SILT (A-4)
720	718.9	9.0	1	2	SS-5	W	ALLUVIAL SOFT GRAY-BROWN SILTY SANDY CLAY (A-6)
							WEATHERED ROCK SEVERELY WEATHERED CRYSTALLINE ROCK Boring Terminated by Auger Refusal at Elevation 717.4 ft ON CRYSTALLINE ROCK

WBS 45355.1.12		TIP BD-5109L		COUNTY DAVIDSON		GEOLOGIST Stickney, J. K.	
SITE DESCRIPTION BRIDGE NO. 361 OVER LEONARD CREEK ON SR 1837 (BUD SINK RD.)				STATION 13+37		GROUND WTR (ft) 0 HR. DRY	
BORING NO. EB1-B		TOTAL DEPTH 11.0 ft		OFFSET 12 ft RT		ALIGNMENT -EL-	
COLLAR ELEV. 728.1 ft		NORTHING 780,109		EASTING 1,642,170		24 HR. FIAD	
DRILL RIGHAMMER EFF./DATE HFC0064 CME-550 88% 09/02/2009				DRILL METHOD H.S. Augers		HAMMER TYPE Automatic	
DRILLER Smith, C.L.		START DATE 02/17/12		COMP. DATE 02/17/12		SURFACE WATER DEPTH N/A	
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT	BLOWS PER FOOT	SAMP. NO.	MOI	SOIL AND ROCK DESCRIPTION
730							GROUND SURFACE
725	724.2	3.9	2	9	SS-1	D	ROADWAY EMBANKMENT LOOSE TO MEDIUM DENSE TAN-BROWN CLAYEY SILTY SAND (A-2-6)
720	719.2	8.9	22	55	SS-3	D	ALLUVIAL MEDIUM STIFF GRAY-BROWN CLAYEY SANDY SILT (A-4)
							RESIDUAL MEDIUM DENSE TO VERY DENSE BROWN-GRAY SILTY SAND (A-2-4) WEATHERED ROCK SEVERELY WEATHERED CRYSTALLINE ROCK Boring Terminated by Auger Refusal at Elevation 717.1 ft ON CRYSTALLINE ROCK

NCDOT GEOTECHNICAL ENGINEERING UNIT
BORELOG REPORT

WBS 45355.1.12 TIP BD-5109L COUNTY DAVIDSON GEOLOGIST Stickney, J. K.

SITE DESCRIPTION BRIDGE NO. 361 OVER LEONARD CREEK ON SR 1837 (BUD SINK RD.) GROUND WTR (ft)

BORING NO. EB2-A STATION 13+87 OFFSET 12 ft LT ALIGNMENT -EL- 0 HR. Dry

COLLAR ELEV. 728.1 ft TOTAL DEPTH 7.5 ft NORTHING 780.107 EASTING 1,642,226 24 HR. FIAD

DRILL RIG/HAMMER EFF./DATE HF00064 CME-550 88% 09/02/2009 DRILL METHOD H.S. Augers HAMMER TYPE Automatic

DRILLER Smith, C.L. START DATE 02/17/12 COMP. DATE 02/17/12 SURFACE WATER DEPTH N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT	SAMP. NO.	MOI	L O G	SURFACE WATER DEPTH (ft)	SOIL AND ROCK DESCRIPTION	DEPTH (ft)
			0.5ft	0.5ft	0.5ft							
730										0.0	GROUND SURFACE	
725	724.3	3.8	1	3	7					6.7	ROADWAY EMBANKMENT MEDIUM STIFF TO STIFF GRAY AND RED-BROWN SILTY SANDY CLAY (A-6)	
										7.5	RESIDUAL DENSE TO VERY DENSE GRAY-BROWN SILTY SAND (A-2) Boring Terminated by Auger Refusal at Elevation 720.6 ft ON CRYSTALLINE ROCK	

WBS 45355.1.12 TIP BD-5109L COUNTY DAVIDSON GEOLOGIST Stickney, J. K.

SITE DESCRIPTION BRIDGE NO. 361 OVER LEONARD CREEK ON SR 1837 (BUD SINK RD.) GROUND WTR (ft)

BORING NO. EB2-B STATION 13+87 OFFSET 12 ft RT ALIGNMENT -EL- 0 HR. Dry

COLLAR ELEV. 728.0 ft TOTAL DEPTH 8.3 ft NORTHING 780.087 EASTING 1,642,215 24 HR. FIAD

DRILL RIG/HAMMER EFF./DATE HF00064 CME-550 88% 09/02/2009 DRILL METHOD H.S. Augers HAMMER TYPE Automatic

DRILLER Smith, C.L. START DATE 02/17/12 COMP. DATE 02/17/12 SURFACE WATER DEPTH N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT	SAMP. NO.	MOI	L O G	SURFACE WATER DEPTH (ft)	SOIL AND ROCK DESCRIPTION	DEPTH (ft)
			0.5ft	0.5ft	0.5ft							
730										0.0	GROUND SURFACE	
725	724.0	4.0	2	1	2					8.2	ROADWAY EMBANKMENT SOFT GRAY AND RED-BROWN SILTY SANDY CLAY (A-6)	
720										8.3	RESIDUAL DENSE TO VERY DENSE BROWN-GRAY SILTY SAND (A-2) Boring Terminated by Auger Refusal at Elevation 719.7 ft ON CRYSTALLINE ROCK	

TEST RESULTS

PROJECT: 45355.112 (BD-5109L)

COUNTY: DAVIDSON

SITE DESCRIPTION: BRIDGE NO. 361 OVER LEONARD CREEK ON SR 1837 (BUD SINK RD.)

SHEET
9

SOIL SAMPLE RESULTS

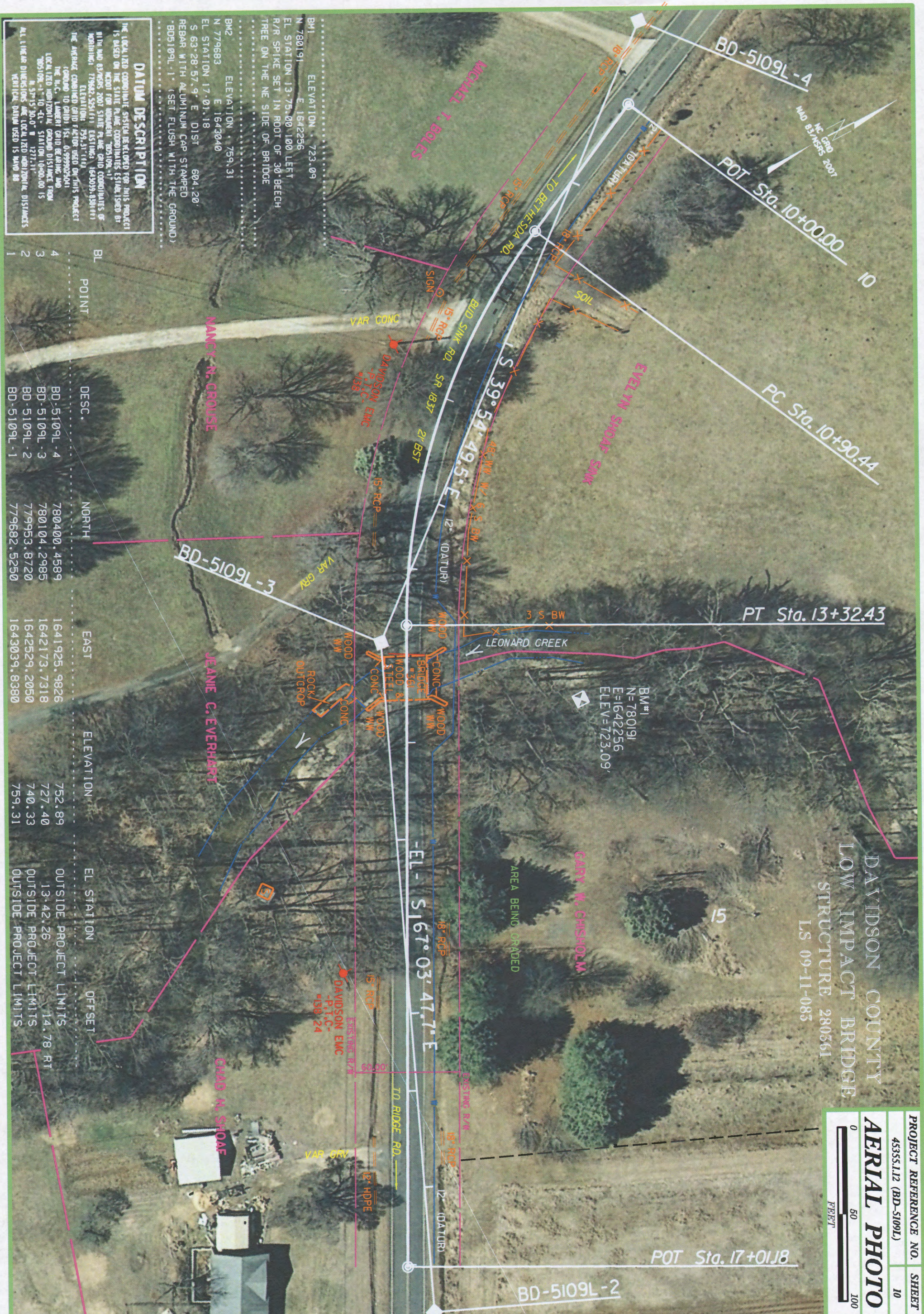
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS	N	L.L.	P.L.	C. SAND	F. SAND	SILT	CLAY	10	40	200	MOISTURE %	ORGANIC %	UNIT WT. (d)	VOID RATIO	
EB1-A																			
SS-4	12.0 LT.	13+37 -EL-	4.5-5.5	A-4(0)	7	28	2	21.9	24.9	45.2	8.0	84	72	46	-	-			
SS-5	12.0 LT.	13+37 -EL-	9.0-10.0	A-6(1)	3	31	12	27.1	31.9	18.9	22.1	98	87	41	-	-			
EB1-B																			
SS-1	12.0 RT.	13+37 -EL-	4.4-5.4	A-2-6(0)	15	30	11	35.9	18.3	25.7	20.1	73	54	34	-	-			
S-2	12.0 RT.	13+37 -EL-	6.5-8.4	A-4(0)		21	4	28.3	28.1	23.5	20.1	98	83	43	-	-			
SS-3	12.0 RT.	13+37 -EL-	9.4-10.1	A-2-4(0)	100+	24	NP	26.3	35.7	31.9	6.0	69	60	27	-	-			
EB2-B																			
SS-6	12.0 RT.	13+87 -EL-	4.5-5.5	A-6(1)	3	30	11	35.7	19.9	24.3	20.1	91	68	41	-	-			

ROCK SAMPLE RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	RQD	UNIT WT. (pcf)	Q(ksf)	EM(ksi)
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DAVIDSON COUNTY
 LOW IMPACT BRIDGE
 STRUCTURE 280361
 LS 09-11-085

PROJECT REFERENCE NO. SHEET
 4355.112 (BD-5109L) 10
AERIAL PHOTO
 0 50 100
 FEET



BM1 ELEVATION 723.09
 N 780191 E 1642256
 EL STATION 13+75.00 100 LEFT
 R/R SPIKE SET IN ROOT OF 30" BEECH
 TREE ON THE NE SIDE OF BRIDGE

BM2 ELEVATION 759.31
 N 779683 E 1643040
 EL STATION 17+01.18
 S 63°28'57.9" E DIST 804.20'
 REBAR WITH ALUMINUM CAP STAMPED
 -B05109L-1 (SET FLUSH WITH THE GROUND)

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY THE MASSACHUSETTS DEPARTMENT OF TRANSPORTATION (MAD 81/MS-2007) WITH MAD 83/MS-2007 STATE PLANE GRID COORDINATES OF NORTHING: 779682.554(11) EASTING: 1643039.838(11) ELEVATION: 759.31(11) THE AIRSPEED CORRECTED GRID FACTOR USED ON THIS PROJECT (CORRECTED TO GRID) IS: 0.9999925441 THE N.T.C. LAURENCE GRID BEARING AND LOCALIZED HORIZONTAL GRID DISTANCE FROM BOSTON: N 10° 41' 10" E STATION 10+00.00 IS N 57° 15' 30.0" E STATION 1277.11 ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES VERTICAL DATUM USED IS NAVD 83

BL POINT	DESC.	NORTH	EAST	ELEVATION	EL STATION	OFFSET
4	BD-5109L-4	780400.4589	1641925.9826	752.89	OUTSIDE PROJECT LIMITS	14.78 RT
3	BD-5109L-3	780104.2985	1642173.7318	727.40	13+42.26	
2	BD-5109L-2	779953.8720	1642529.2050	740.33	OUTSIDE PROJECT LIMITS	
1	BD-5109L-1	779682.5250	1643039.8380	759.31	OUTSIDE PROJECT LIMITS	