

REFERENCE: 46098

PROJECT: B-5383

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

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	46098	1	9

CONTENTS

SHEET NO.	DESCRIPTION
1	TITLE SHEET
2	LEGEND
3	SITE PLAN
4	PROFILE
5-7	CROSS SECTIONS
8-9	BORE LOGS & CORE REPORTS

STRUCTURE
SUBSURFACE INVESTIGATION

COUNTY AVERY

PROJECT DESCRIPTION REPLACE BRIDGE #143 ON
SRI536 OVER LINVILLE RIVER

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 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:
1. 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.
 2. 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


D.O. CHEEK

C.J. COFFEY

D.C. ELLIOT

INVESTIGATED BY D.M. MULLEN

DRAWN BY DMM

CHECKED BY JCK 

SUBMITTED BY DMM

DATE 1.15.2016



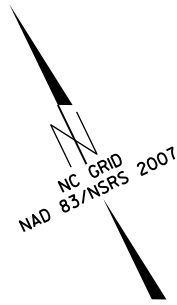
DocuSign
D. Matthew Mullen

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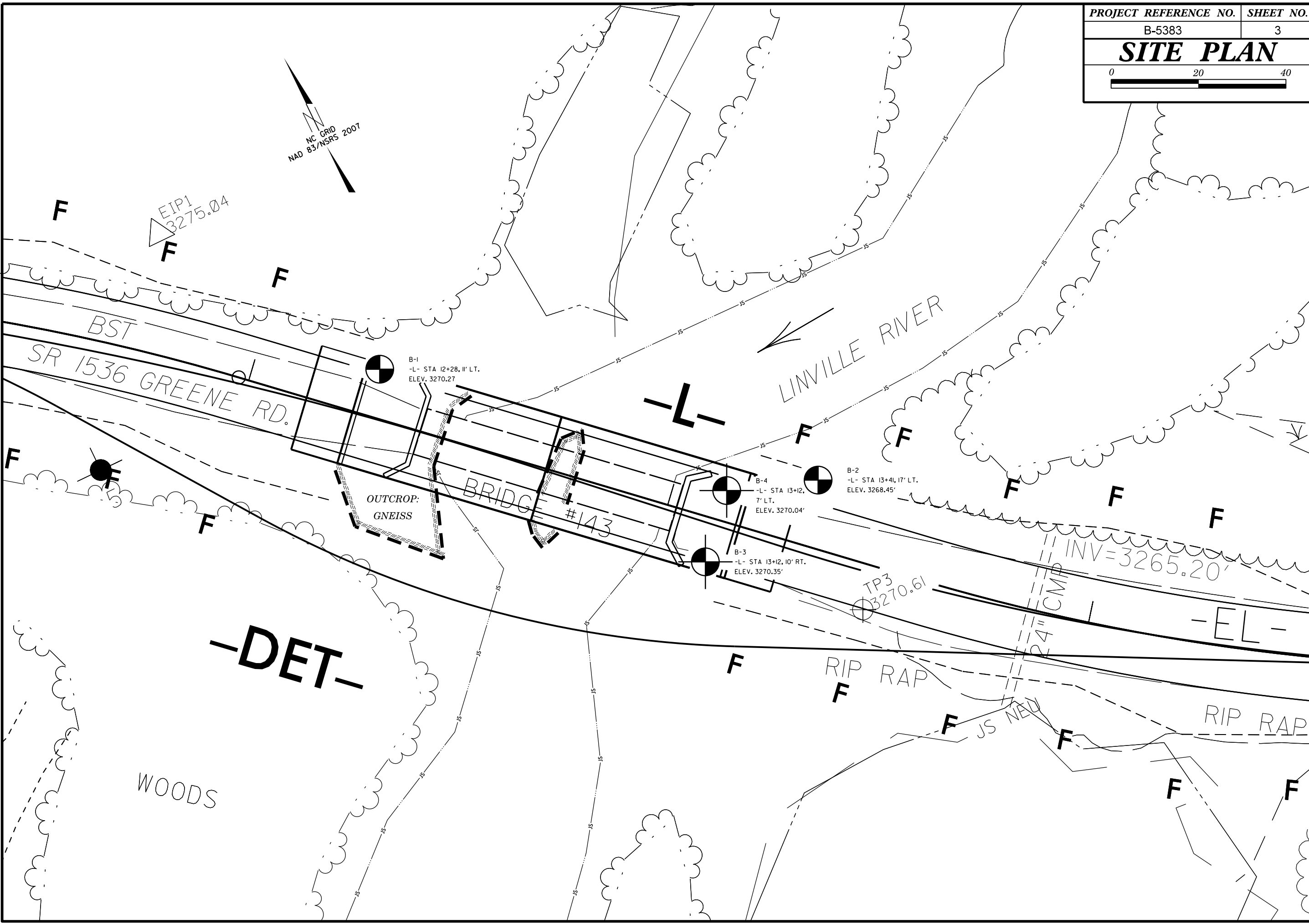
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NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
GEOTECHNICAL ENGINEERING UNIT
SUBSURFACE INVESTIGATION
SOIL AND ROCK LEGEND, TERMS, SYMBOLS, AND ABBREVIATIONS

Table with 4 main columns: SOIL DESCRIPTION, GRADATION, ROCK DESCRIPTION, and TERMS AND DEFINITIONS. It includes various sub-sections like SOIL LEGEND AND AASHTO CLASSIFICATION, CONSISTENCY OR DENSENESS, TEXTURE OR GRAIN SIZE, SOIL MOISTURE - CORRELATION OF TERMS, PLASTICITY, COLOR, MISCELLANEOUS SYMBOLS, RECOMMENDATION SYMBOLS, ABBREVIATIONS, EQUIPMENT USED ON SUBJECT PROJECT, FRACTURE SPACING, BEDDING, and INDURATION.



EIP1
3275.04



B-1
-L- STA 12+28, 11' LT.
ELEV. 3270.27

B-2
-L- STA 13+41, 17' LT.
ELEV. 3268.45'

B-3
-L- STA 13+12, 10' RT.
ELEV. 3270.35'

B-4
-L- STA 13+12, 7' LT.
ELEV. 3270.04'

TP3
3270.61

INV=3265.20'

BST
SR 1536 GREENE RD.

OUTCROP:
GNEISS

BRIDGE
#143

LINVILLE RIVER

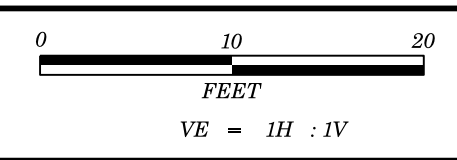
-DET-

WOODS

RIP RAP

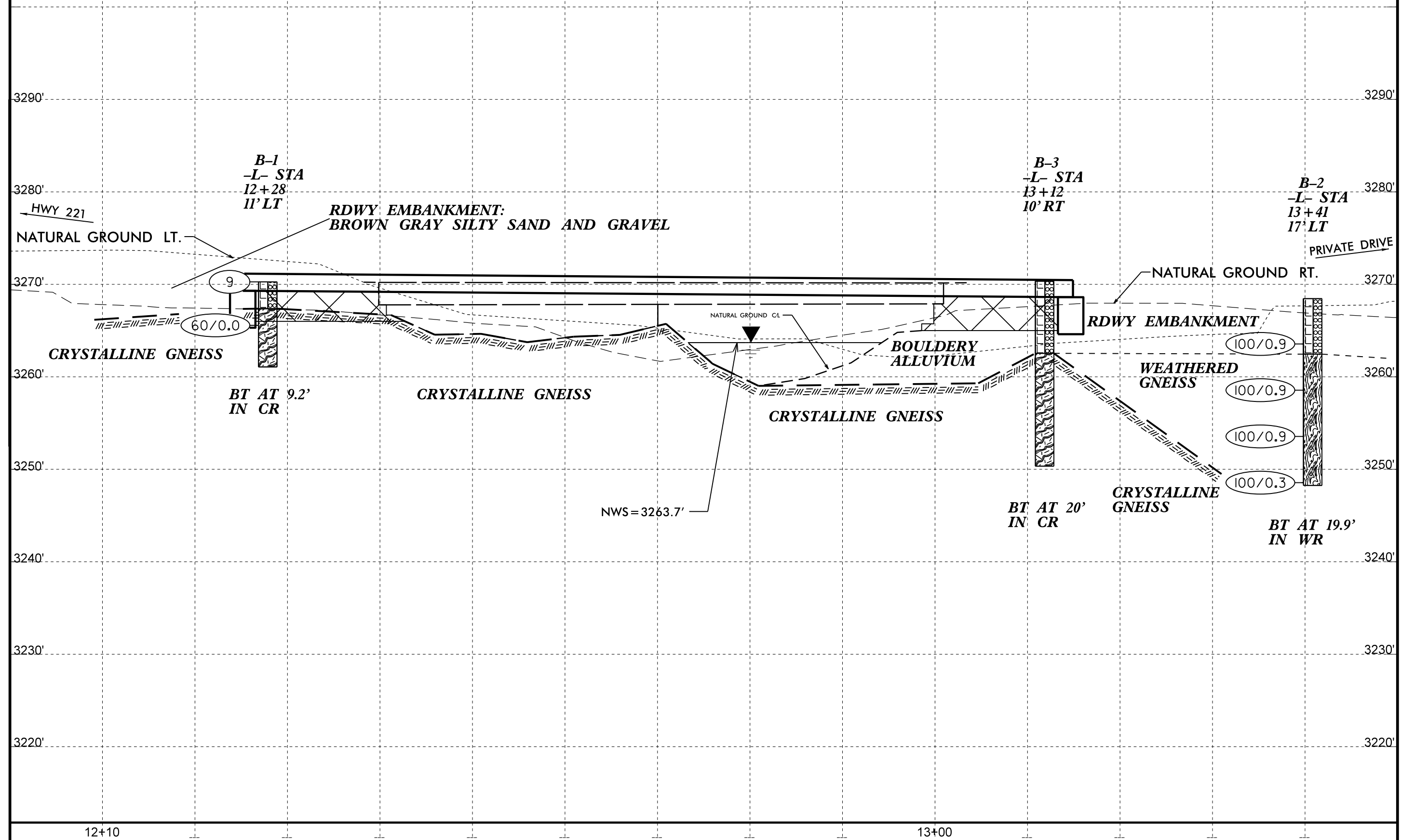
RIP RAP

-EL-



PROJECT REFERENCE NO.	SHEET NO.
46098	4
B-5383 AVERY CO. BRDG. #143 ON SR 1536 OVER LINVILLE RIVER	

PROFILE ALONG -L- STA. 12+00 - 13+50



3290'

3280'

3270'

3260'

3250'

3240'

3230'

3220'

HWY 221

NATURAL GROUND LT.

B-1
-L- STA
12+28
11' LT

RDWY EMBANKMENT:
BROWN GRAY SILTY SAND AND GRAVEL

60/0.0

9

CRYSTALLINE GNEISS

BT AT 9.2'
IN CR

CRYSTALLINE GNEISS

NATURAL GROUND CL

NWS = 3263.7'

BOULDERY ALLUVIUM

B-3
-L- STA
13+12
10' RT

RDWY EMBANKMENT

NATURAL GROUND RT.

PRIVATE DRIVE

100/0.9

100/0.9

100/0.9

100/0.3

CRYSTALLINE GNEISS

WEATHERED GNEISS

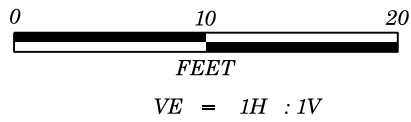
CRYSTALLINE GNEISS

BT AT 20'
IN CR

BT AT 19.9'
IN WR

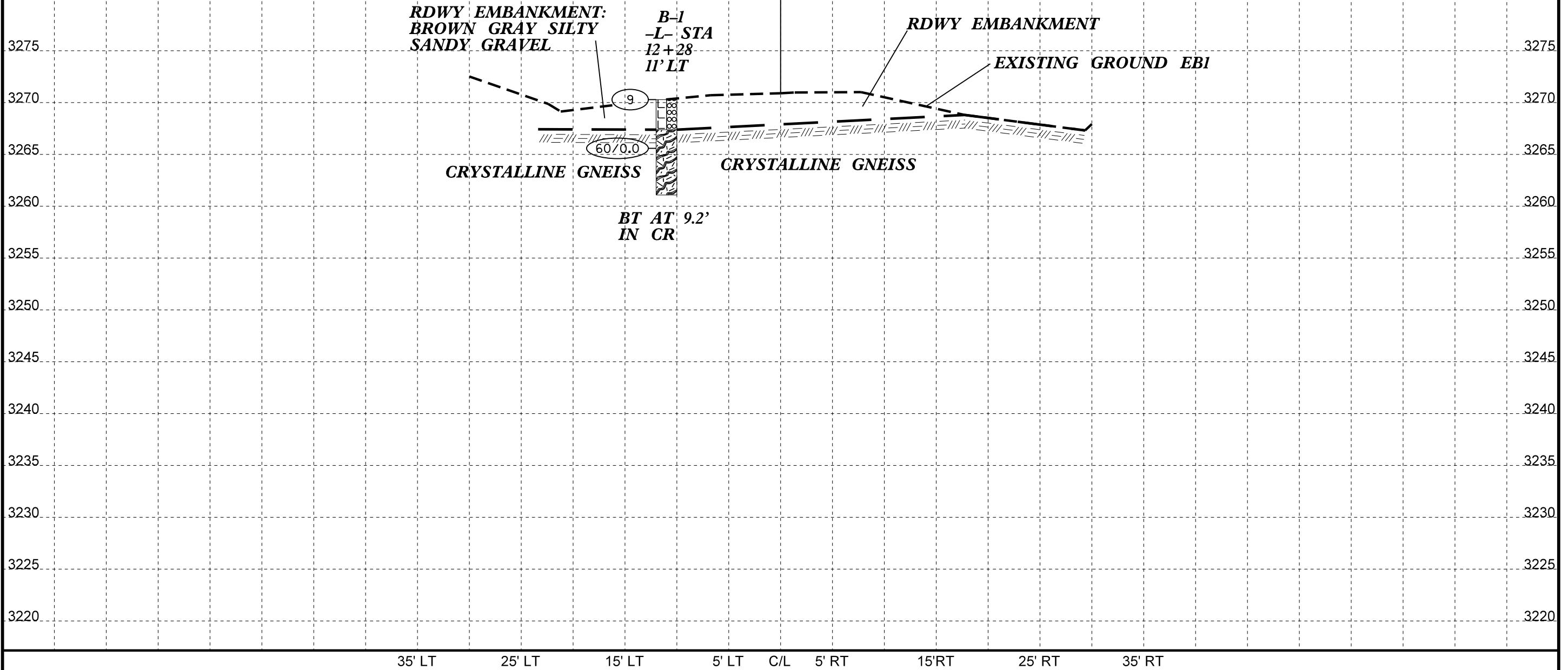
12+10

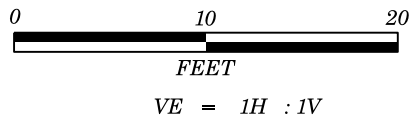
13+00



PROJECT REFERENCE NO.	SHEET NO.
46098	5
B-5383 EBI	

-L- STA.
12+24.81
C/L





PROJECT REFERENCE NO.	SHEET NO.
46098	6
B-5383 B-1	

-L- STA.
12+81
C/L

B-1A
AS STAKED
-L- STA 12+81
12.4' LT.

B-1B
AS STAKED
-L- STA 12+81
12.4' RT.

EXISTING BRIDGE

NWS

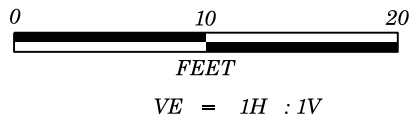
CRYSTALLINE GNEISS

3263.7'

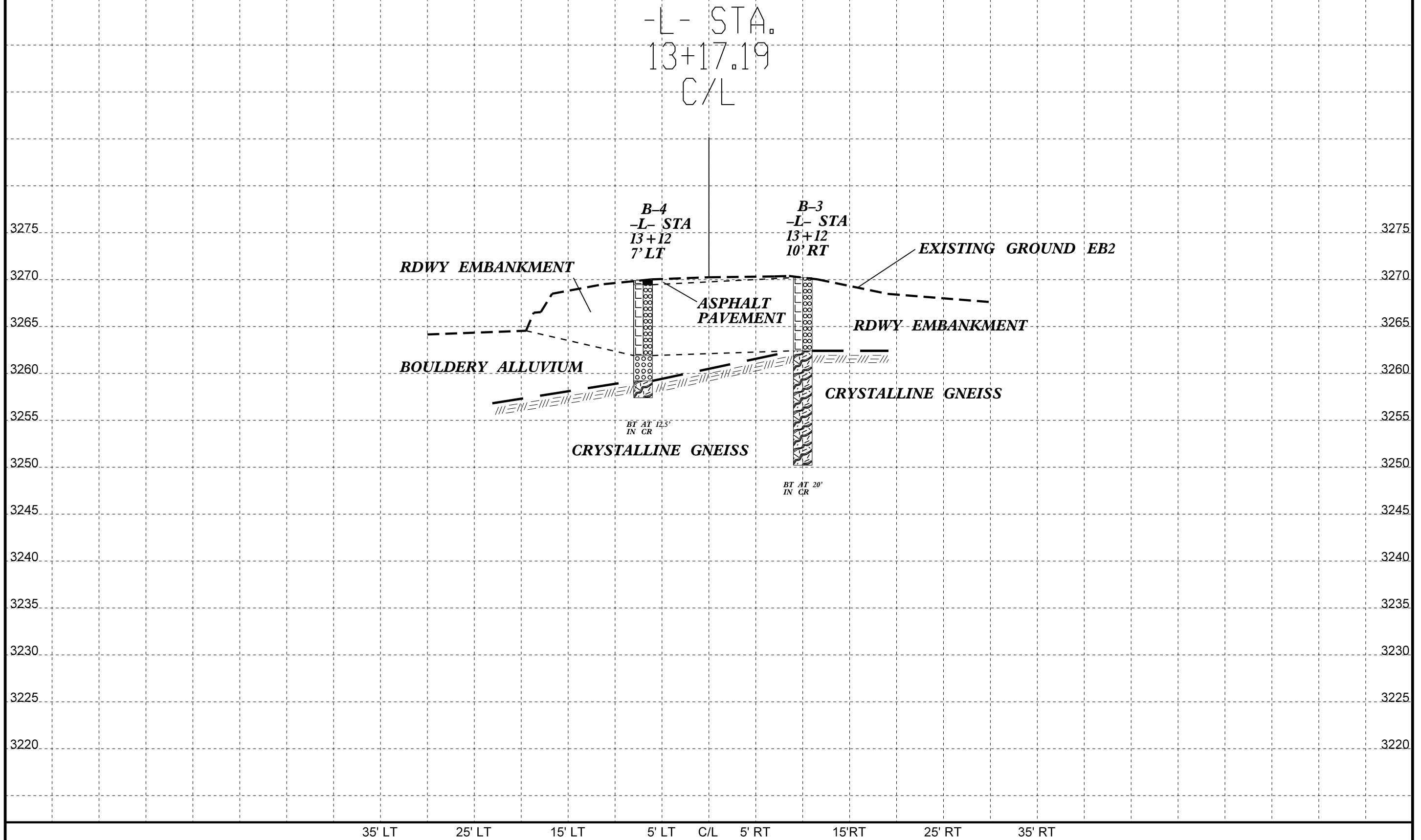
3275
3270
3265
3260
3255
3250
3245
3240
3235
3230
3225
3220

3275
3270
3265
3260
3255
3250
3245
3240
3235
3230
3225
3220

35' LT 25' LT 15' LT 5' LT C/L 5' RT 15' RT 25' RT 35' RT



PROJECT REFERENCE NO.	SHEET NO.
46098	7
B-5383 EB2	



GEOTECHNICAL BORING REPORT

BORE LOG

WBS 46098.1.1		TIP B-5383		COUNTY AVERY		GEOLOGIST Hager, M. M.									
SITE DESCRIPTION Bridge No. 143 on SR-1536 over the Linville River.							GROUND WTR (ft)								
BORING NO. B-1		STATION 12+28		OFFSET 11 ft LT		ALIGNMENT L									
COLLAR ELEV. 3,270.3 ft		TOTAL DEPTH 9.2 ft		NORTHING N/A		EASTING N/A									
DRILL RIG/HAMMER EFF./DATE AFO0071 CME-550X 72% 09/03/2009			DRILL METHOD NW Casing W/SPT & Core			HAMMER TYPE Automatic									
DRILLER Coffey, Jr., C.		START DATE 05/10/12		COMP. DATE 05/10/12		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					
3275															
3270	3,270.3	0.0												3,270.3	0.0
			3	3	6									3,267.4	2.9
3265	3,265.6	4.7												3,261.1	9.2
			60	0	0										
Boring Terminated at Elevation 3,261.1 ft in gray meta-arkose.															

WBS 46098.1.1		TIP B-5383		COUNTY AVERY		GEOLOGIST Hager, M. M.									
SITE DESCRIPTION Bridge No. 143 on SR-1536 over the Linville River.							GROUND WTR (ft)								
BORING NO. B-2		STATION 13+41		OFFSET 17 ft LT		ALIGNMENT L									
COLLAR ELEV. 3,268.5 ft		TOTAL DEPTH 20.2 ft		NORTHING N/A		EASTING N/A									
DRILL RIG/HAMMER EFF./DATE AFO0071 CME-550X 72% 09/03/2009			DRILL METHOD NW Casing w/ SPT			HAMMER TYPE Automatic									
DRILLER Coffey, Jr., C.		START DATE 05/10/12		COMP. DATE 05/10/12		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					
3270														3,268.5	0.0
3265	3,263.6	4.9												3,262.5	6.0
			32	38	0	4									
3260	3,258.6	9.9													
			37	63	0	4									
3255	3,253.6	14.9													
			37	34	66	0	4								
3250	3,248.6	19.9												3,248.3	20.2
			100	0	3										
Boring Terminated at Elevation 3,248.3 ft in weathered rock of meta-arkose.															

GEOTECHNICAL BORING REPORT

CORE LOG

WBS 46098.1.1		TIP B-5383		COUNTY AVERY		GEOLOGIST Elliott, D. C.						
SITE DESCRIPTION Bridge No. 143 on SR-1536 over the Linville River.							GROUND WTR (ft)					
BORING NO. B-3		STATION 13+12		OFFSET 10 ft RT		ALIGNMENT L						
COLLAR ELEV. 3,270.4 ft		TOTAL DEPTH 20.0 ft		NORTHING N/A		EASTING N/A						
DRILL RIG/HAMMER EFF./DATE AFO6744 CME - 45C 83% 01/29/2015				DRILL METHOD NW Casing W/SPT & Core		HAMMER TYPE Automatic						
DRILLER Cheek, D. O.		START DATE 07/10/15		COMP. DATE 07/10/15		SURFACE WATER DEPTH N/A						
CORE SIZE NXWL		TOTAL RUN 20.0 ft										
ELEV (ft)	RUN ELEV (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	RUN REC. (ft) %	RQD (ft) %	SAMP. NO.	STRATA REC. (ft) %	RQD (ft) %	LOG	DESCRIPTION AND REMARKS	DEPTH (ft)
3279.35	3,270.4	0.0	5.0		(2.4) 48%			(5.0) 100%	(2.4) 48%		Ground Surface	
	3,265.4	5.0									ROADWAY EMBANKMENT bouldery roadway embankment	5.0
3265	3,265.4	5.0	2.8		(1.9) 68%			(2.8) 100%	(1.9) 68%		ROADWAY EMBANKMENT bouldery roadway embankment	7.8
	3,262.6	7.8									CRYSTALLINE ROCK crystalline gneiss	
3260	3,260.4	10.0	2.2		(1.8) 82%	(0.4) 18%		(2.2) 100%	(1.8) 15%			
	3,255.4	15.0	5.0		(5.0) 100%	(2.2) 44%						
3255	3,255.4	15.0	5.0		(4.0) 80%	(2.6) 52%						
	3,250.4	20.0									Boring Terminated at Elevation 3,250.4 ft in crystalline gneiss	20.0

WBS 46098.1.1		TIP B-5383		COUNTY AVERY		GEOLOGIST Elliott, D. C.						
SITE DESCRIPTION Bridge No. 143 on SR-1536 over the Linville River.							GROUND WTR (ft)					
BORING NO. B-4		STATION 13+12		OFFSET 7 ft LT		ALIGNMENT L						
COLLAR ELEV. 3,270.0 ft		TOTAL DEPTH 12.5 ft		NORTHING N/A		EASTING N/A						
DRILL RIG/HAMMER EFF./DATE AFO6744 CME - 45C 83% 01/29/2015				DRILL METHOD NW Casing W/SPT & Core		HAMMER TYPE Automatic						
DRILLER Cheek, D. O.		START DATE 07/15/15		COMP. DATE 07/15/15		SURFACE WATER DEPTH N/A						
CORE SIZE NXWL		TOTAL RUN 22.0 ft										
ELEV (ft)	RUN ELEV (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	RUN REC. (ft) %	RQD (ft) %	SAMP. NO.	STRATA REC. (ft) %	RQD (ft) %	LOG	DESCRIPTION AND REMARKS	DEPTH (ft)
3269.59	3,269.6	0.5	4.6								Begin Coring @ 0.5 ft	
	3,265.0	5.0									ROADWAY EMBANKMENT Bouldery embankment	0.5
3265	3,265.0	5.0	5.0								ROADWAY EMBANKMENT Bouldery embankment	5.0
	3,262.0	8.0									ALLUVIAL Gravelly, bouldery alluvium	8.0
3260	3,260.0	10.0	10.7								CRYSTALLINE ROCK Crystalline gneiss	10.7
	3,257.5	12.5	1.8		(1.5) 83%						Boring Terminated at Elevation 3,257.5 ft in crystalline gneiss	12.5
	3,249.3	20.7										