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REFERENCE: B-5142

PROJECT: 42303

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

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-5142	1	13

CONTENTS

SHEET NO.	DESCRIPTION
1	TITLE SHEET
2	LEGEND
3	SITE PLAN
4	PROFILE(S)
5-8	CROSS SECTION(S)
9-11	BORE LOG(S)
12	SOIL TEST RESULTS
13	SITE PHOTOGRAPH(S)

STRUCTURE
SUBSURFACE INVESTIGATION

COUNTY IREDELL
PROJECT DESCRIPTION BRIDGE 057 ON SR 1302
(CORNELIUS RD.) OVER CORNELIUS CREEK /
LAKE NORMAN
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

J.K. STICKNEY

C.L. SMITH

M.R. MOORE

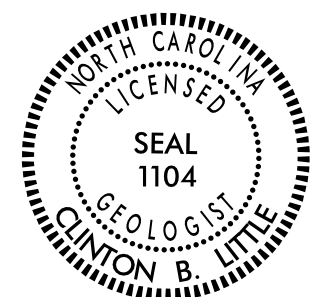
INVESTIGATED BY J.E. BEVERLY

DRAWN BY J.K. McCLURE

CHECKED BY C.B. LITTLE

SUBMITTED BY C.B. LITTLE

DATE NOVEMBER 2014



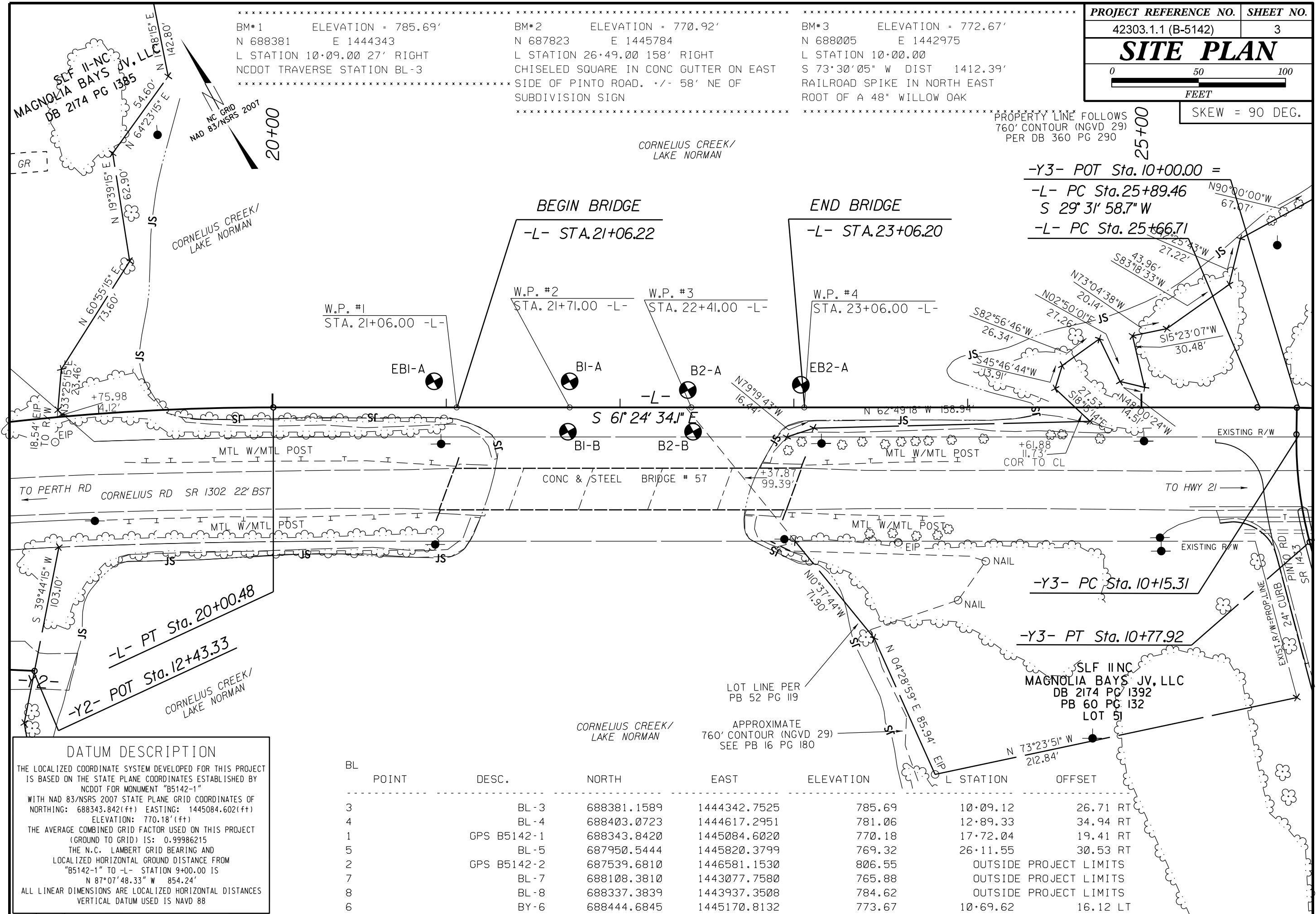
DocuSigned by:
Clinton B. Little 11/18/2014
SIGNATURE DATE

BM*1 ELEVATION = 785.69'
 N 688381 E 1444343
 L STATION 10+09.00 27' RIGHT
 NCDOT TRAVERSE STATION BL-3

BM*2 ELEVATION = 770.92'
 N 687823 E 1445784
 L STATION 26+49.00 158' RIGHT
 CHISELED SQUARE IN CONC GUTTER ON EAST
 SIDE OF PINTO ROAD, +/- 58' NE OF
 SUBDIVISION SIGN

BM*3 ELEVATION = 772.67'
 N 688005 E 1442975
 L STATION 10+00.00
 S 73°30'05" W DIST 1412.39'
 RAILROAD SPIKE IN NORTH EAST
 ROOT OF A 48" WILLOW OAK

PROPERTY LINE FOLLOWS
 760' CONTOUR (NGVD 29)
 PER DB 360 PG 290



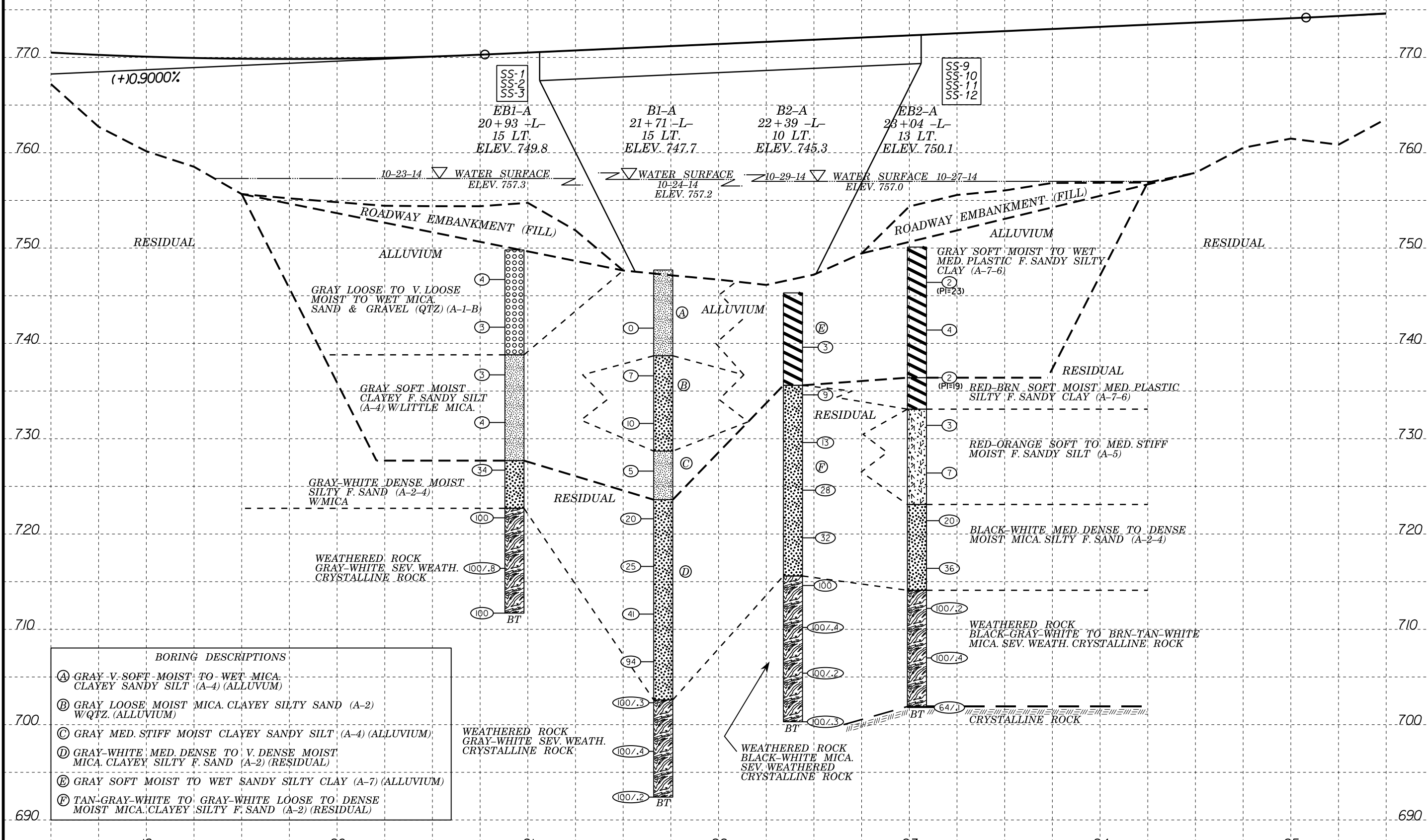
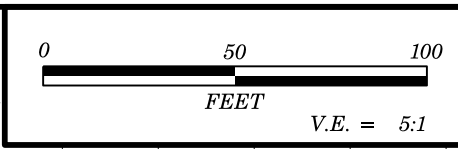
DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "B5142-1" WITH NAD 83/NSRS 2007 STATE PLANE GRID COORDINATES OF NORTHING: 688343.842(ft) EASTING: 1445084.602(ft) ELEVATION: 770.18'(ft)

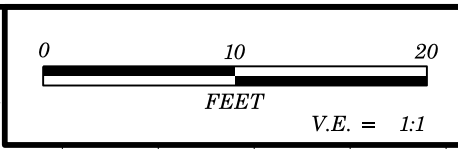
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99986215
 THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "B5142-1" TO -L- STATION 9+00.00 IS N 87°07'48.33" W 854.24'

ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
 VERTICAL DATUM USED IS NAVD 88

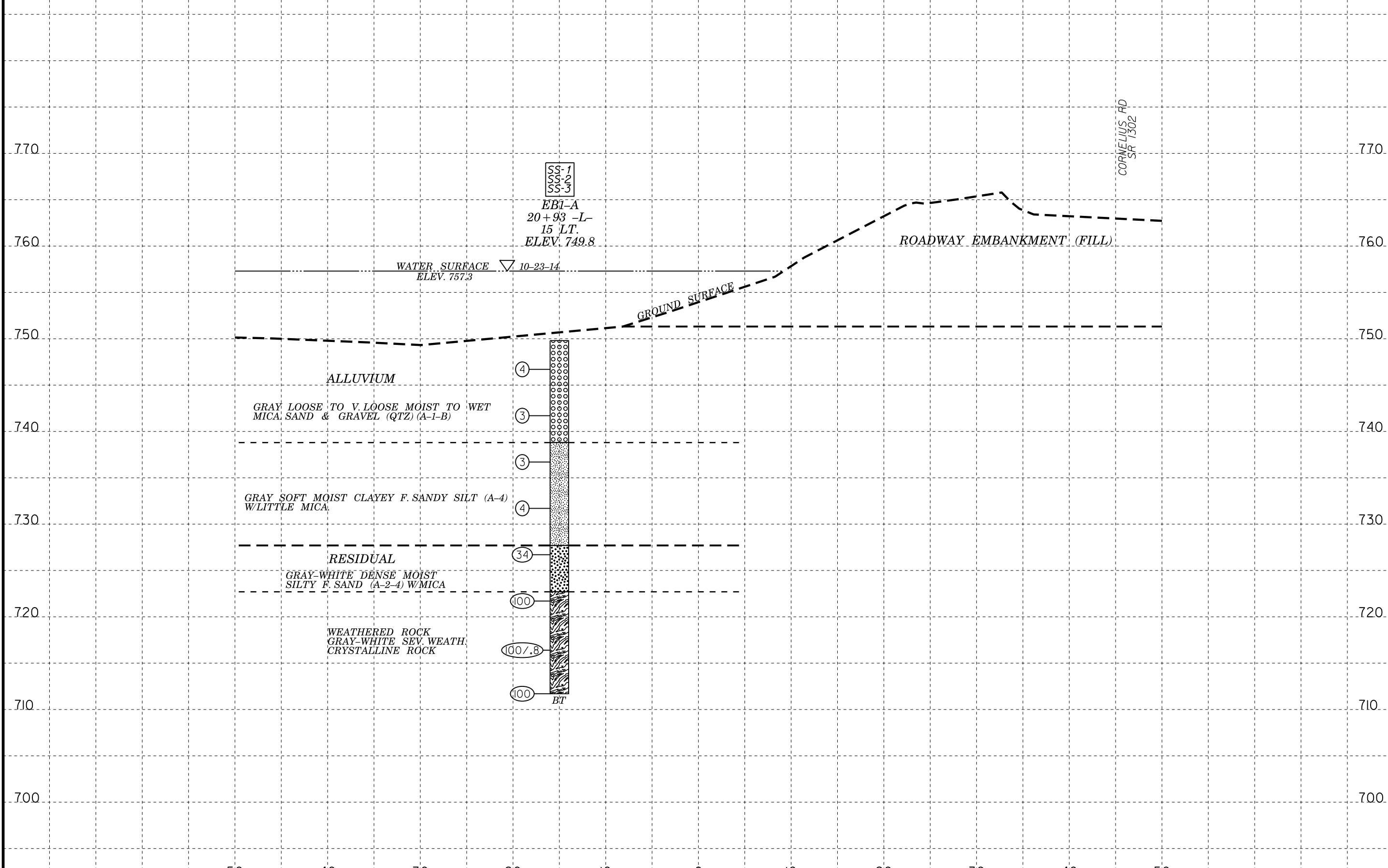
BL	POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
3		BL-3	688381.1589	1444342.7525	785.69	10+09.12	26.71 RT
4		BL-4	688403.0723	1444617.2951	781.06	12+89.33	34.94 RT
1		GPS B5142-1	688343.8420	1445084.6020	770.18	17+72.04	19.41 RT
5		BL-5	687950.5444	1445820.3799	769.32	26+11.55	30.53 RT
2		GPS B5142-2	687539.6810	1446581.1530	806.55		OUTSIDE PROJECT LIMITS
7		BL-7	688108.3810	1443077.7580	765.88		OUTSIDE PROJECT LIMITS
8		BL-8	688337.3839	1443937.3508	784.62		OUTSIDE PROJECT LIMITS
6		BY-6	688444.6845	1445170.8132	773.67	10+69.62	16.12 LT



BORING DESCRIPTIONS	
(A)	GRAY V. SOFT MOIST TO WET MICA CLAYEY SANDY SILT (A-4) (ALLUVIUM)
(B)	GRAY LOOSE MOIST MICA CLAYEY SILTY SAND (A-2) W/QTZ. (ALLUVIUM)
(C)	GRAY MED. STIFF MOIST CLAYEY SANDY SILT (A-4) (ALLUVIUM)
(D)	GRAY-WHITE MED. DENSE TO V. DENSE MOIST MICA CLAYEY SILTY F. SAND (A-2) (RESIDUAL)
(E)	GRAY SOFT MOIST TO WET SANDY SILTY CLAY (A-7) (ALLUVIUM)
(F)	TAN-GRAY-WHITE TO GRAY-WHITE LOOSE TO DENSE MOIST MICA CLAYEY SILTY F. SAND (A-2) (RESIDUAL)



PROJECT REFERENCE NO.	SHEET
42303.1.1 (B-5142)	5
Section Through End Bent One Sta. 21+06 -L- (W.P. #1) Skew=90 Deg.	



50 40 30 20 10 0 10 20 30 40 50

770
760
750
740
730
720
710
700

770
760
750
740
730
720
710
700

SS-1
SS-2
SS-3

EB1-A
20+93 -L-
15 LT.
ELEV. 749.8

WATER SURFACE ∇ 10-23-14
ELEV. 757.3

ROADWAY EMBANKMENT (FILL)

GROUND SURFACE

ALLUVIUM

GRAY LOOSE TO V. LOOSE MOIST TO WET
MICA SAND & GRAVEL (QTZ) (A-1-B)

GRAY SOFT MOIST CLAYEY F. SANDY SILT (A-4)
W/LITTLE MICA

RESIDUAL

GRAY-WHITE DENSE MOIST
SILTY F. SAND (A-2-4) W/MICA

WEATHERED ROCK
GRAY-WHITE SEV. WEATH.
CRYSTALLINE ROCK

4

3

3

4

34

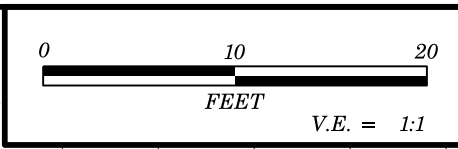
100

100/.8

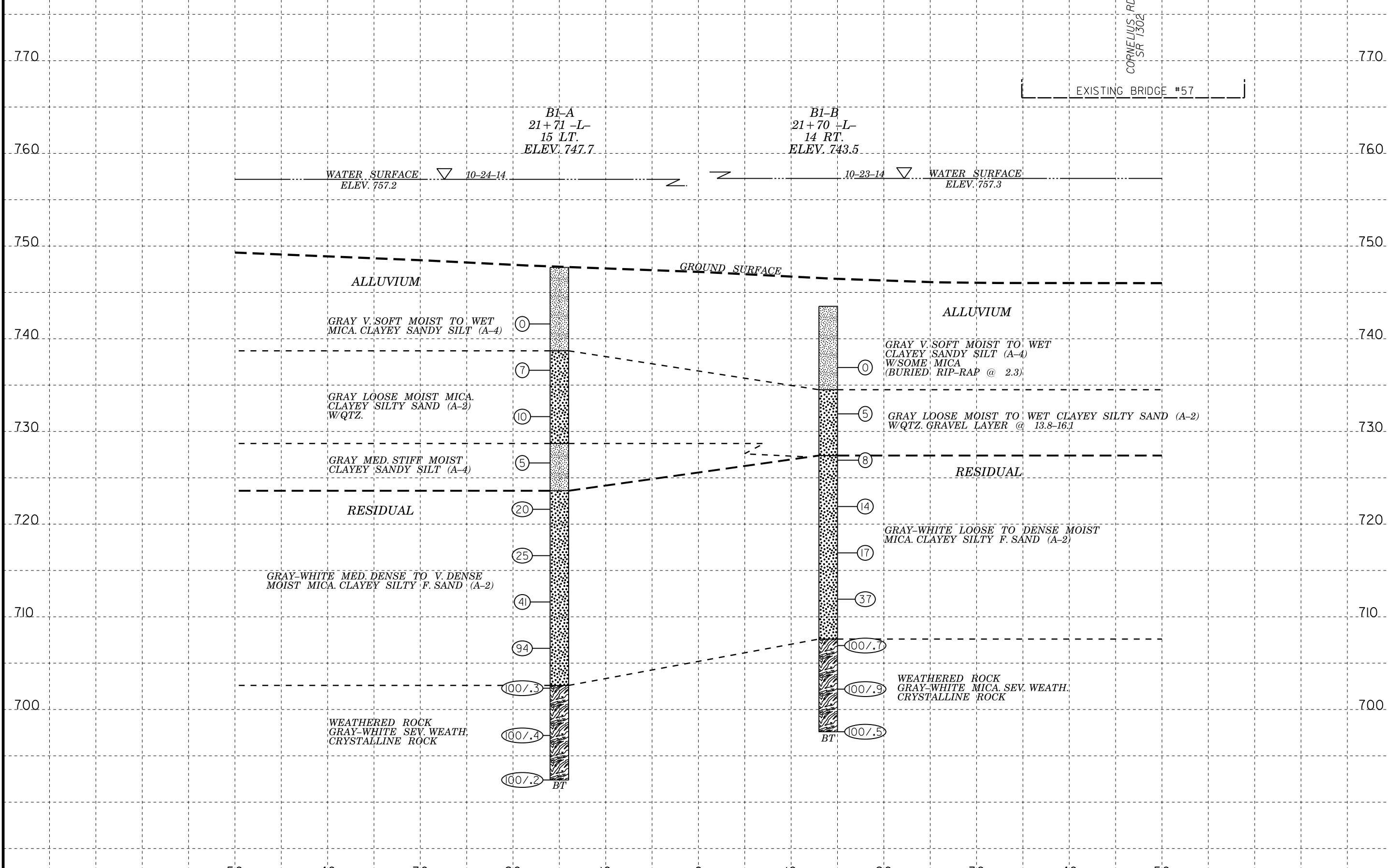
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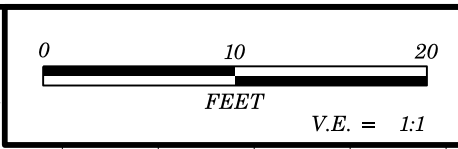
BT

CORNELIUS RD
SR 1302

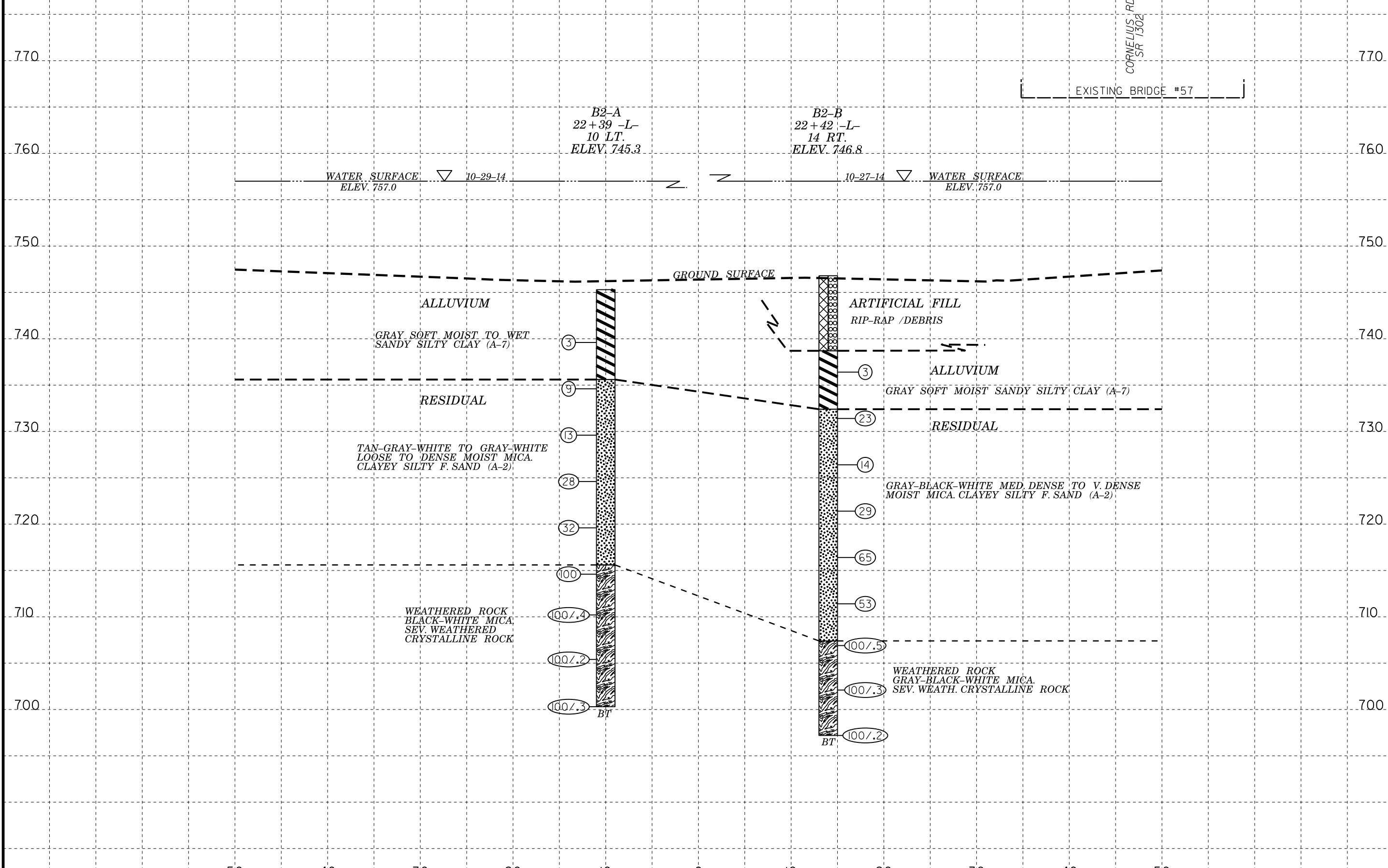


PROJECT REFERENCE NO.	SHEET
42303.1.1 (B-5142)	6
Section Through Bent One Sta. 21+71 -L- (W.P. #2) Skew = 90 Deg.	





PROJECT REFERENCE NO.	SHEET
42303.1.1 (B-5142)	7
Section Through Bent Two Sta. 22+41 -L- (W.P. #3) Skew=90 Deg.	



CORNELIUS RD
SR 1302

EXISTING BRIDGE #57

B2-A
22+39 -L-
10 LT.
ELEV. 745.3

B2-B
22+42 -L-
14 RT.
ELEV. 746.8

WATER SURFACE
ELEV. 757.0

WATER SURFACE
ELEV. 757.0

GROUND SURFACE

ALLUVIUM

GRAY SOFT MOIST TO WET
SANDY SILTY CLAY (A-7)

ARTIFICIAL FILL
RIP-RAP / DEBRIS

ALLUVIUM

GRAY SOFT MOIST SANDY SILTY CLAY (A-7)

RESIDUAL

TAN-GRAY-WHITE TO GRAY-WHITE
LOOSE TO DENSE MOIST MICA.
CLAYEY SILTY F. SAND (A-2)

RESIDUAL

GRAY-BLACK-WHITE MED. DENSE TO V. DENSE
MOIST MICA. CLAYEY SILTY F. SAND (A-2)

WEATHERED ROCK
BLACK-WHITE MICA,
SEV. WEATHERED
CRYSTALLINE ROCK

WEATHERED ROCK
GRAY-BLACK-WHITE MICA,
SEV. WEATH. CRYSTALLINE ROCK

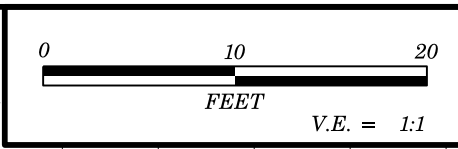
- ③
- ⑨
- ⑬
- ⑳
- ⑳
- ⑳
- ⑩①
- ⑩①/.4
- ⑩①/.2
- ⑩①/.3

- ③
- ⑳
- ⑭
- ⑳
- ⑳
- ⑥⑤
- ⑤③
- ⑩①/.5
- ⑩①/.3
- ⑩①/.2

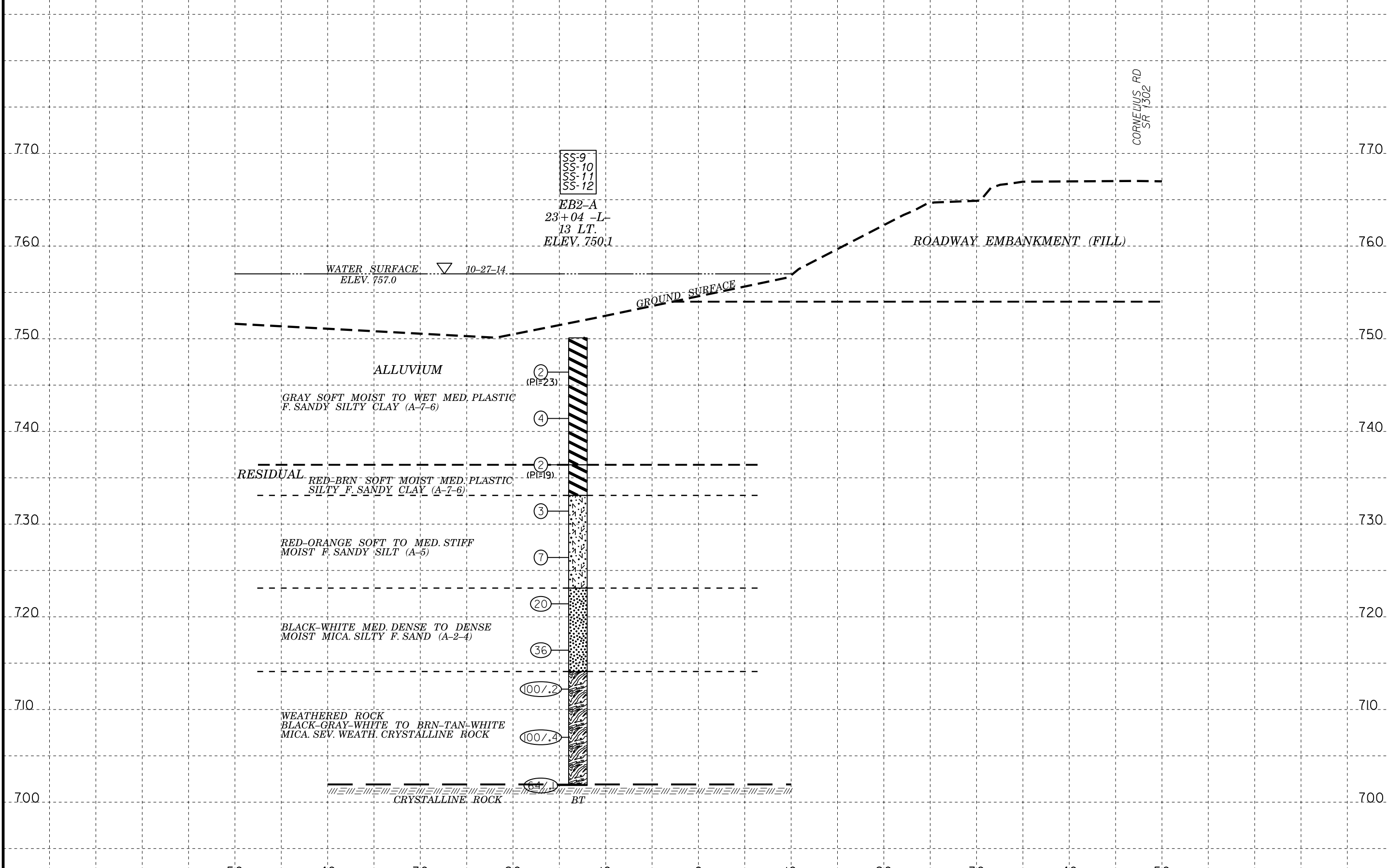
BT

BT

50 40 30 20 10 0 10 20 30 40 50



PROJECT REFERENCE NO.	SHEET
42303.1.1 (B-5142)	8
Section Through End Bent Two Sta. 23+06 -L- (W.P. #4) Skew=90 Deg.	



SS-9
SS-10
SS-11
SS-12

EB2-A
23+04 -L-
13 LT.
ELEV. 750.1

WATER SURFACE ∇ 10-27-14
ELEV. 757.0

GROUND SURFACE

ROADWAY EMBANKMENT (FILL)

CORNELIUS RD
SR 1302

ALLUVIUM

GRAY SOFT MOIST TO WET MED. PLASTIC
F. SANDY SILTY CLAY (A-7-6)

RESIDUAL RED-BRN SOFT MOIST MED. PLASTIC
SILTY F. SANDY CLAY (A-7-6)

RED-ORANGE SOFT TO MED. STIFF
MOIST F. SANDY SILT (A-5)

BLACK-WHITE MED. DENSE TO DENSE
MOIST MICA SILTY F. SAND (A-2-4)

WEATHERED ROCK
BLACK-GRAY-WHITE TO BRN-TAN-WHITE
MICA SEV. WEATH. CRYSTALLINE ROCK

CRYSTALLINE ROCK

BT

(PI) 23

(PI) 19

(PI) 7

(PI) 20

(PI) 36

(PI) 100/.2

(PI) 100/.4

(PI) 64

770

770

760

760

750

750

740

740

730

730

720

720

710

710

700

700

50

40

30

20

10

0

10

20

30

40

50

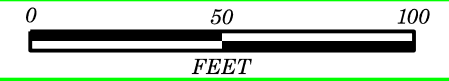
NCDOT GEOTECHNICAL ENGINEERING UNIT
BORELOG REPORT

WBS 42303.1.1		TIP B-5142		COUNTY IREDELL		GEOLOGIST Stickney, J. K.										
SITE DESCRIPTION BRIDGE 057 ON SR 1302 (CORNELIUS RD.) OVER CORNELIUS CREEK (LAKE NORMAN)							GROUND WTR (ft)									
BORING NO. B1-B		STATION 21+70		OFFSET 14 ft RT		ALIGNMENT -L-										
COLLAR ELEV. 743.5 ft		TOTAL DEPTH 45.9 ft		NORTHING 688,177		EASTING 1,445,442										
DRILL RIG/HAMMER EFF./DATE HFO0065 CME-45C 85% 01/09/2013		DRILL METHOD NW Casing w/ SPT		HAMMER TYPE Automatic												
DRILLER Smith, C. L.		START DATE 10/23/14		COMP. DATE 10/23/14		SURFACE WATER DEPTH 13.8ft										
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						
745														743.5	GROUND SURFACE	0.0
740	737.9	5.6	0	0	0								MW	ALLUVIAL GRAY V. SOFT MOIST TO WET CLAYEY SANDY SILT (A-4) W/ SOME MICA (BURIED RIP-RAP @ 2.3)		
735	732.9	10.6	1	2	3								MW	ALLUVIAL GRAY LOOSE MOIST TO WET CLAYEY SILTY SAND (A-2) W/ QTZ. GRAVEL LAYER @ 13.8-16.1	9.0	
730	727.9	15.6	9	5	3								M	RESIDUAL GRAY-WHITE LOOSE TO DENSE MOIST MICA. CLAYEY SILTY F. SAND (A-2)	16.1	
725	722.9	20.6	3	6	8								M			
720	717.9	25.6	6	8	9								M			
715	712.9	30.6	14	17	20								M			
710	708.1	35.4	18	62	38/0.2								M			
705	703.1	40.4	41	59/0.4									M	WEATHERED ROCK GRAY-WHITE MICA. SEV. WEATH. CRYSTALLINE ROCK	35.9	
700	698.1	45.4	100/0.5													
														697.6	Boring Terminated at Elevation 697.6 ft IN SEV. WEATH. CRYSTALLINE ROCK	45.9

WBS 42303.1.1		TIP B-5142		COUNTY IREDELL		GEOLOGIST Stickney, J. K.										
SITE DESCRIPTION BRIDGE 057 ON SR 1302 (CORNELIUS RD.) OVER CORNELIUS CREEK (LAKE NORMAN)							GROUND WTR (ft)									
BORING NO. B2-A		STATION 22+39		OFFSET 10 ft LT		ALIGNMENT -L-										
COLLAR ELEV. 745.3 ft		TOTAL DEPTH 45.0 ft		NORTHING 688,165		EASTING 1,445,514										
DRILL RIG/HAMMER EFF./DATE HFO0065 CME-45C 85% 01/09/2013		DRILL METHOD NW Casing w/ SPT		HAMMER TYPE Automatic												
DRILLER Smith, C. L.		START DATE 10/24/14		COMP. DATE 10/24/14		SURFACE WATER DEPTH 11.7ft										
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						
750														745.3	GROUND SURFACE	0.0
745													MW	ALLUVIAL GRAY SOFT MOIST TO WET SANDY SILTY CLAY (A-7)		
740	740.6	4.7	0	1	2								MW			
735	735.6	9.7	3	4	5								M	RESIDUAL TAN-GRAY-WHITE TO GRAY-WHITE LOOSE TO DENSE MOIST MICA. CLAYEY SILTY F. SAND (A-2)	9.7	
730	730.6	14.7	7	5	8								M			
725	725.6	19.7	9	12	16								M			
720	720.6	24.7	13	14	18								M			
715	715.6	29.7	33	67/0.5									M			
710	710.6	34.7	100/0.4										M	WEATHERED ROCK BLACK-WHITE MICA. SEV. WEATH. CRYSTALLINE ROCK	29.7	
705	705.6	39.7	100/0.2										M			
700	700.6	44.7	100/0.3										M			
														700.3	Boring Terminated at Elevation 700.3 ft IN SEV. WEATH. CRYSTALLINE ROCK	45.0

NCDOT BORE DOUBLE B5142_GEO_BH_BRDG0057.GPJ NC_DOT.GDT 11/17/14

Aerial Photo

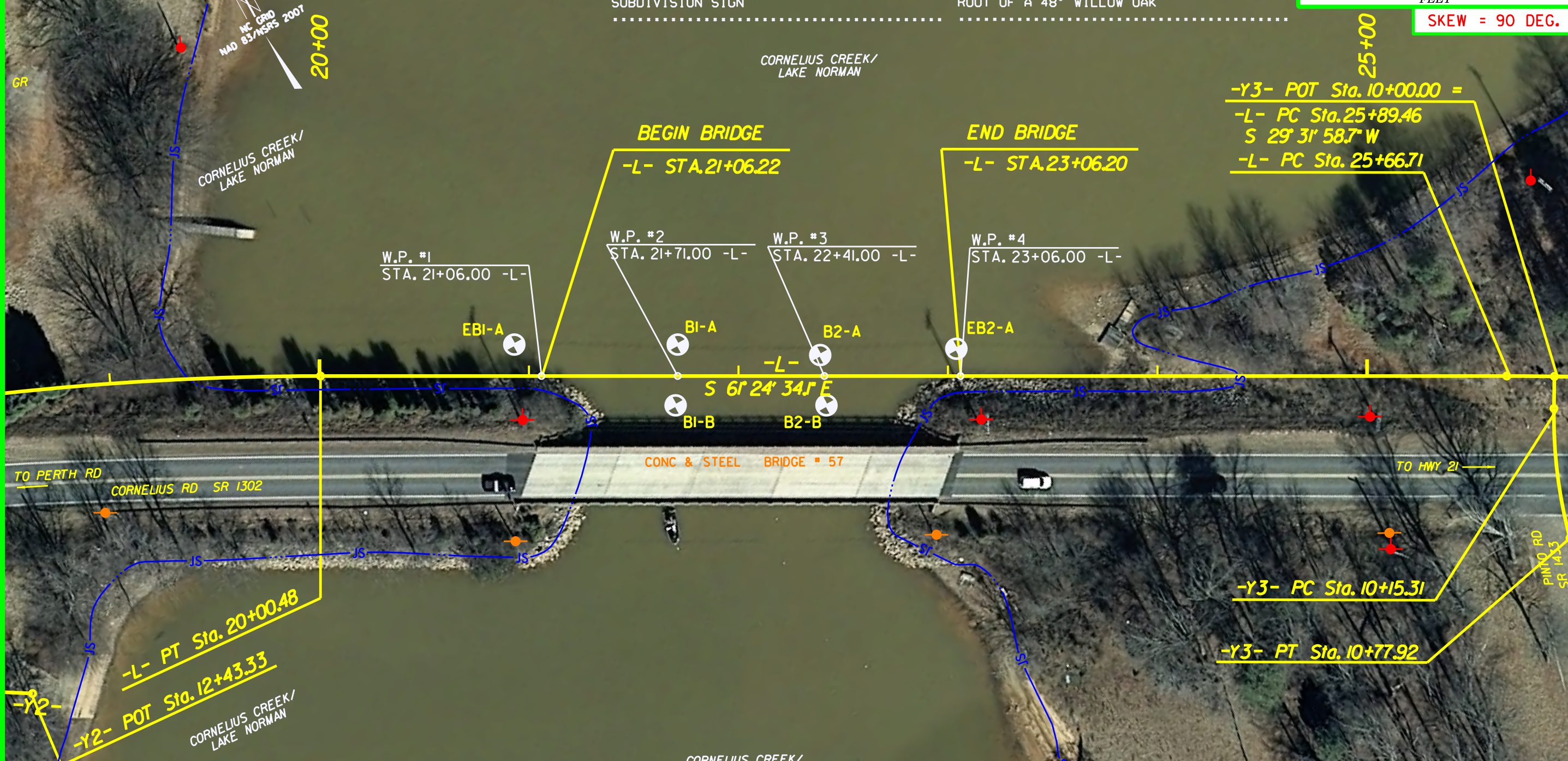


SKEW = 90 DEG.

BM*1 ELEVATION - 785.69'
N 688381 E 1444343
L STATION 10+09.00 27' RIGHT
NCDOT TRAVERSE STATION BL-3

BM*2 ELEVATION - 770.92'
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S 73°30'05" W DIST 1412.39'
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ROOT OF A 48" WILLOW OAK



DATUM DESCRIPTION
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BL	POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
3		BL-3	688381.1589	1444342.7525	785.69	10+09.12	26.71 RT
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