

PROJECT: SF-490159 REFERENCE: 17BP.14.R.212

SEE SHEET 3 FOR PLAN SHEET LAYOUT AT TIME OF INVESTIGATION

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

Table with 4 columns: STATE (N.C.), STATE PROJECT REFERENCE NO. (17BP.14.R.212), SHEET NO. (1), TOTAL SHEETS (14)

CONTENTS

Table with 4 columns: LINE, STATION, PLAN, CROSS SECTIONS. Rows for -L- and -YI-.

ROADWAY SUBSURFACE INVESTIGATION

COUNTY JACKSON PROJECT DESCRIPTION SR 1336 (MONTEITH GAP RD) FROM N OF SR 1002 TO N OF SR 1337

INVENTORY

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.

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 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.

- 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

C.D. JOHNSON

D.O. CHEEK

C.J. COFFEY

INVESTIGATED BY D.M. MULLEN

DRAWN BY DMM

CHECKED BY JCK

SUBMITTED BY JCK

DATE 7/11/2019



DocuSigned by:

Signature of Jody C. Kuhne





7/29/2019

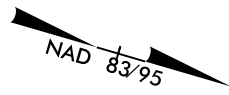
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DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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 209, 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, <i>VERY STIFF, GRAY, SILTY CLAY, MOIST WITH INTERBEDDED FINE SAND LAYERS, HIGHLY PLASTIC, A-7-6</i>												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 DISLOGGED 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 (N 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 THE ANGULARITY OR ROUNDNESS OF SOIL GRAINS IS DESIGNATED BY THE TERMS: ANGULAR, SUBANGULAR, SUBROUNDED, OR ROUNDED.												WEATHERED ROCK (WR)  NON-COASTAL PLAIN MATERIAL THAT WOULD YIELD SPT N VALUES > 100 BLOWS PER FOOT IF TESTED.												CRYSTALLINE ROCK (CR)  FINE TO COARSE GRAIN IGNEOUS AND METAMORPHIC ROCK THAT WOULD YIELD SPT REFUSAL IF TESTED. ROCK TYPE INCLUDES GRANITE, GNEISS, GABBRO, SCHIST, ETC.																																																																															
MINERALOGICAL COMPOSITION MINERAL NAMES SUCH AS QUARTZ, FELDSPAR, MICA, TALC, KAOLIN, ETC. ARE USED IN DESCRIPTIONS WHEN THEY ARE CONSIDERED OF SIGNIFICANCE.												COMPRESSION SLIGHTLY COMPRESSIBLE LL < 31 MODERATELY COMPRESSIBLE LL = 31 - 50 HIGHLY COMPRESSIBLE LL > 50												NON-CRYSTALLINE ROCK (NCR)  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.												COASTAL PLAIN SEDIMENTARY ROCK (CP)  COASTAL PLAIN SEDIMENTS CEMENTED INTO ROCK, BUT MAY NOT YIELD SPT REFUSAL. ROCK TYPE INCLUDES LIMESTONE, SANDSTONE, CEMENTED SHELL BEDS, ETC.																																																																															
PERCENTAGE OF MATERIAL												GROUND WATER												WEATHERING												WEATHERED ROCK (WR) ROCK FRESH, CRYSTALS BRIGHT, FEW JOINTS MAY SHOW SLIGHT STAINING. ROCK RINGS UNDER HAMMER IF CRYSTALLINE.																																																																															
ORGANIC MATERIAL TRACE OF ORGANIC MATTER 2 - 3% LITTLE ORGANIC MATTER 3 - 5% MODERATELY ORGANIC 5 - 10% HIGHLY ORGANIC > 10%												GRANULAR SOILS SILT - CLAY SOILS OTHER MATERIAL TRACE 1 - 10% LITTLE 10 - 20% SOME 20 - 35% HIGHLY 35% AND ABOVE												FRESH 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.												VERY SLIGHT (IV SL.) 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.																																																																															
WATER LEVEL IN BORE HOLE IMMEDIATELY AFTER DRILLING												STATIC WATER LEVEL AFTER 24 HOURS												PERCHED WATER, SATURATED ZONE, OR WATER BEARING STRATA												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.																																																																															
MISCELLANEOUS SYMBOLS												ROADWAY EMBANKMENT (RE) WITH SOIL DESCRIPTION												DIP & DIP DIRECTION OF ROCK STRUCTURES												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, WOULD YIELD SPT N VALUES > 100 BPF</i>																																																																															
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COLOR DESCRIPTIONS MAY INCLUDE COLOR OR COLOR COMBINATIONS (TAN, RED, YELLOW-BROWN, BLUE-GRAY). MODIFIERS SUCH AS LIGHT, DARK, STREAKED, ETC. ARE USED TO DESCRIBE APPEARANCE.												EQUIPMENT USED ON SUBJECT PROJECT												FRACATURE SPACING												BEDDING																																																																															
<table border="1"> <tr> <th>DRILL UNITS:</th> <th>ADVANCING TOOLS:</th> <th>HAMMER TYPE:</th> </tr> <tr> <td><input checked="" type="checkbox"/> CME-45C</td> <td><input type="checkbox"/> CLAY BITS</td> <td><input checked="" type="checkbox"/> AUTOMATIC <input type="checkbox"/> MANUAL</td> </tr> <tr> <td><input type="checkbox"/> CME-55</td> <td><input type="checkbox"/> 6" CONTINUOUS FLIGHT AUGER</td> <td></td> </tr> <tr> <td><input type="checkbox"/> CME-550</td> <td><input checked="" type="checkbox"/> 8" HOLLOW AUGERS</td> <td></td> </tr> <tr> <td><input type="checkbox"/> VANE SHEAR TEST</td> <td><input type="checkbox"/> HARD FACED FINGER BITS</td> <td></td> </tr> <tr> <td><input type="checkbox"/> PORTABLE HOIST</td> <td><input type="checkbox"/> TUNG.-CARBIDE INSERTS</td> <td></td> </tr> <tr> <td></td> <td><input type="checkbox"/> CASING <input type="checkbox"/> W/ ADVANCER</td> <td></td> </tr> <tr> <td></td> <td><input type="checkbox"/> TRICONE _____ *STEEL TEETH</td> <td></td> </tr> <tr> <td></td> <td><input type="checkbox"/> TRICONE _____ *TUNG.-CARB.</td> <td></td> </tr> <tr> <td></td> <td><input type="checkbox"/> CORE BIT</td> <td></td> </tr> </table>												DRILL UNITS:	ADVANCING TOOLS:	HAMMER TYPE:	<input checked="" type="checkbox"/> CME-45C	<input type="checkbox"/> CLAY BITS	<input checked="" type="checkbox"/> AUTOMATIC <input type="checkbox"/> MANUAL	<input type="checkbox"/> CME-55	<input type="checkbox"/> 6" CONTINUOUS FLIGHT AUGER		<input type="checkbox"/> CME-550	<input checked="" type="checkbox"/> 8" HOLLOW AUGERS		<input type="checkbox"/> VANE SHEAR TEST	<input type="checkbox"/> HARD FACED FINGER BITS		<input type="checkbox"/> PORTABLE HOIST	<input type="checkbox"/> TUNG.-CARBIDE INSERTS			<input type="checkbox"/> CASING <input type="checkbox"/> W/ ADVANCER			<input type="checkbox"/> TRICONE _____ *STEEL TEETH			<input type="checkbox"/> TRICONE _____ *TUNG.-CARB.			<input type="checkbox"/> CORE BIT		<table border="1"> <tr> <th>TERM</th> <th>SPACING</th> <th>TERM</th> <th>THICKNESS</th> </tr> <tr> <td>VERY WIDE</td> <td>MORE THAN 10 FEET</td> <td>VERY THICKLY BEDDED</td> <td>4 FEET</td> </tr> <tr> <td>WIDE</td> <td>3 TO 10 FEET</td> <td>THICKLY BEDDED</td> <td>1.5 - 4 FEET</td> </tr> <tr> <td>MODERATELY CLOSE</td> <td>1 TO 3 FEET</td> <td>THINLY BEDDED</td> <td>0.16 - 1.5 FEET</td> </tr> <tr> <td>CLOSE</td> <td>0.16 TO 1 FOOT</td> <td>VERY THINLY BEDDED</td> <td>0.03 - 0.16 FEET</td> </tr> <tr> <td>VERY CLOSE</td> <td>LESS THAN 0.16 FEET</td> <td>THICKLY LAMINATED</td> <td>0.008 - 0.03 FEET</td> </tr> <tr> <td></td> <td></td> <td>THINLY LAMINATED</td> <td>< 0.008 FEET</td> </tr> </table>												TERM	SPACING	TERM	THICKNESS	VERY WIDE	MORE THAN 10 FEET	VERY THICKLY BEDDED	4 FEET	WIDE	3 TO 10 FEET	THICKLY BEDDED	1.5 - 4 FEET	MODERATELY CLOSE	1 TO 3 FEET	THINLY BEDDED	0.16 - 1.5 FEET	CLOSE	0.16 TO 1 FOOT	VERY THINLY BEDDED	0.03 - 0.16 FEET	VERY CLOSE	LESS THAN 0.16 FEET	THICKLY LAMINATED	0.008 - 0.03 FEET			THINLY LAMINATED	< 0.008 FEET	<table border="1"> <tr> <th>INDURATION</th> <th>DESCRIPTION</th> </tr> <tr> <td>FRIABLE</td> <td>RUBBING WITH FINGER FREES NUMEROUS GRAINS; GENTLE BLOW BY HAMMER DISINTEGRATES SAMPLE.</td> </tr> <tr> <td>MODERATELY INDURATED</td> <td>GRAINS CAN BE SEPARATED FROM SAMPLE WITH STEEL PROBE; BREAKS EASILY WHEN HIT WITH HAMMER.</td> </tr> <tr> <td>INDURATED</td> <td>GRAINS ARE DIFFICULT TO SEPARATE WITH STEEL PROBE; DIFFICULT TO BREAK WITH HAMMER.</td> </tr> <tr> <td>EXTREMELY INDURATED</td> <td>SHARP HAMMER BLOWS REQUIRED TO BREAK SAMPLE; SAMPLE BREAKS ACROSS GRAINS.</td> </tr> </table>												INDURATION	DESCRIPTION	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.	BENCH MARK: N/A ELEVATIONS DERIVED FROM DTM ELEVATION: N/A FEET											
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NOTES:																																																																																																																			



BEGIN CONSTRUCTION
-Y1- POC Sta. 10+60.00

BEGIN CONSTRUCTION
-DR2- PC Sta. 10+19.75

3600 SQ YDS OF FILL
THIS SIDE OF BRIDGE TO THE Y LINE
INCLUDES 1158 SQ YDS OVER WETLANDS

-Y1- PT Sta. 12+60.90

1158 SQ YDS FILL OVER WETLAND AREA

BEGIN CONSTRUCTION
-DRI- POT Sta. 10+52.00

END CONSTRUCTION
-Y2- POC Sta. 12+00.00

END STATE PROJECT 17BP.14.R.212
-L- POC Sta. 28+00.00

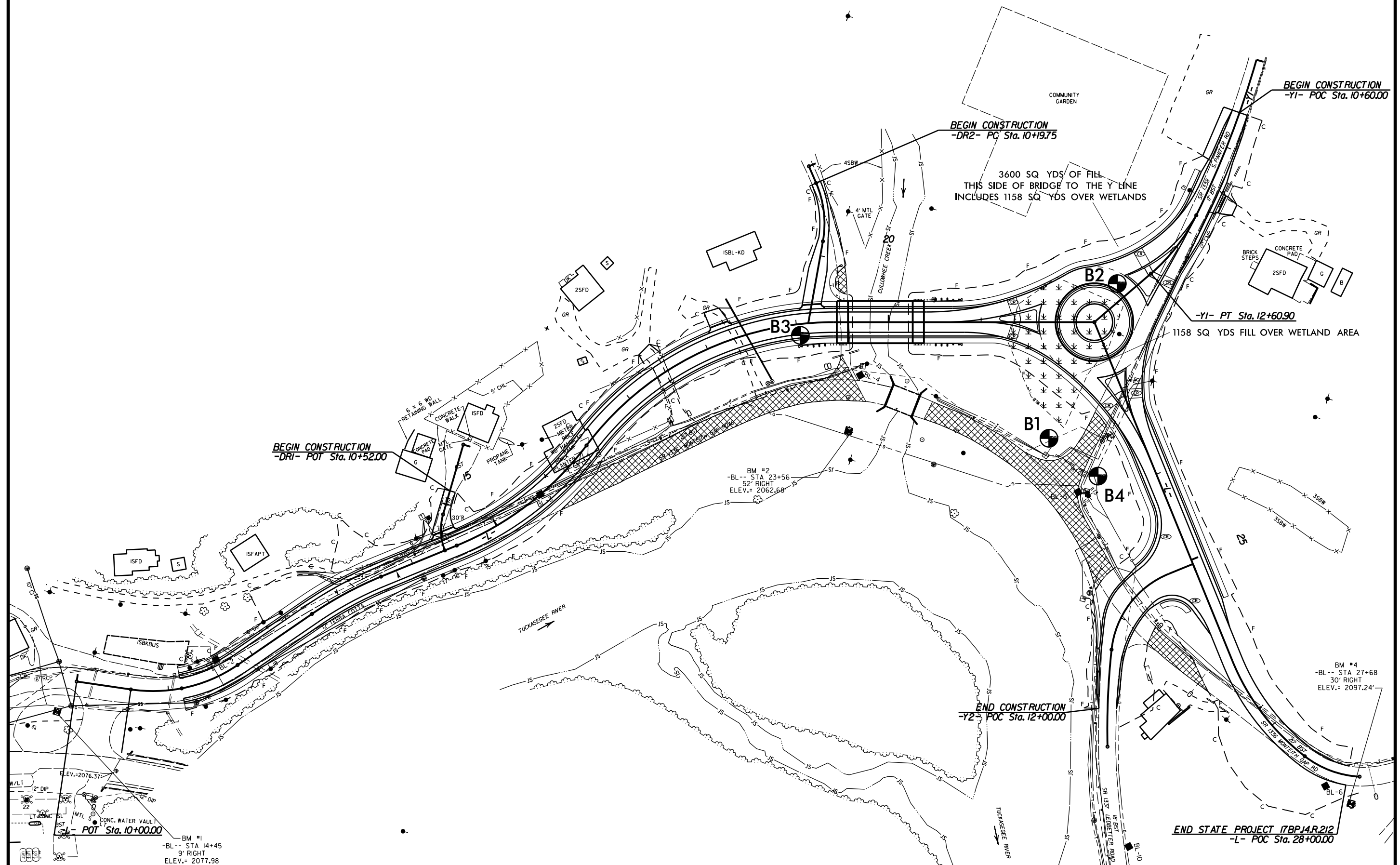
BM #2
-BL-- STA 23+56
52' RIGHT
ELEV.= 2062.68

BM #4
-BL-- STA 27+68
30' RIGHT
ELEV.= 2097.24'

BM #1
-BL-- STA 14+45
9' RIGHT
ELEV.= 2077.98

POT Sta. 10+00.00

REVISIONS



DATUM DESCRIPTION

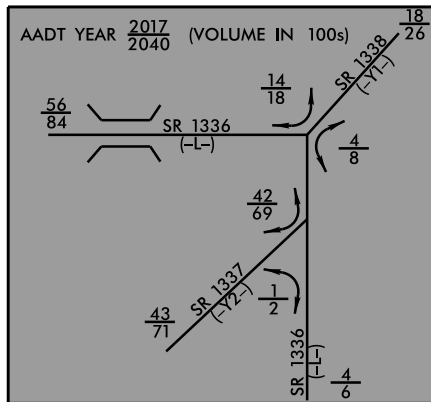
THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCGS FOR MONUMENT "B-4159 GPS-101" WITH NAD 83/95 STATE PLANE GRID COORDINATES OF NORTHING: 595248.141 (ft) EASTING: 754526.411(ft) ELEVATION: ELEV 2127.671(ft) THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.999772 THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM " " TO -L- STATION IS

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

Description	North	East	Elevation
BCL1	596617.38	753453.65	2062.89
BCL2	596648.08	753454.07	2062.90
S1	596617.03	753465.26	2059.88
E1	596646.50	753467.94	2059.77
N1	596648.71	753441.93	2059.85
W1	596619.48	753439.36	2059.86

-L-
 PI Sta 10+87.11 Δ = 19° 09' 54.6" (LT) D = 34' 43" 29.0" L = 55.9' T = 27.86' R = 165.00'
 PI Sta 11+47.95 Δ = 23° 38' 58.2" (LT) D = 35' 48" 35.5" L = 66.04' T = 33.50' R = 150.00' e = NC (LOW SPEED)

-Y2-
 PI Sta 10+88.11 Δ = 6' 39' 45.8" (LT) D = 57' 17' 44.8" L = 107.62' T = 59.69' R = 100.00' e = -0.05 (LOW SPEED)
 PI Sta 11+88.65 Δ = 7' 31' 27.0" (LT) D = 7' 09' 43.1" L = 105.06' T = 52.60' R = 800.00' e = -0.02 (LOW SPEED)



-DRI-
 PI Sta 10+99.13 Δ = 37° 56' 18.5" (LT) D = 95' 29' 34.7" L = 39.73' T = 20.62' R = 60.00'

-L-
 PI Sta 13+20.70 Δ = 12° 10' 28.7" (RT) D = 14' 19' 26.2" L = 84.99' T = 42.66' R = 400.00' V = 30 MPH e = NC (LOW SPEED)
 PI Sta 15+43.44 Δ = 30° 40' 51.0" (LT) D = 17' 06' 11.6" L = 179.39' T = 91.90' R = 335.00' V = 30 MPH e = NC (LOW SPEED)
 PI Sta 17+97.87 Δ = 52° 58' 42.5" (RT) D = 17' 06' 11.6" L = 309.76' T = 166.95' R = 335.00' V = 30 MPH e = NC (LOW SPEED)

-L-
 PI Sta 26+84.87 Δ = 30° 02' 16.6" (LT) D = 22' 55' 05.9" L = 131.07' T = 67.08' R = 250.00' V = 30 MPH Lr = 144'
 PI Sta 27+81.99 Δ = 34° 43' 05.8" (LT) D = 54' 03' 09.4" L = 64.23' T = 33.14' R = 106.00' V = 20 MPH e = 0.08 (EXISTING)

-DR2-
 PI Sta 10+52.86 Δ = 33° 30' 07.2" (RT) D = 52' 05' 13.5" L = 64.32' T = 33.14' R = 110.00'

HDR HDR Engineering, Inc. of the Carolinas
 555 Fayetteville St, Suite 900 Raleigh, N.C. 27601
 N.C.B.E.L.S. License Number: F-0116

PROJECT REFERENCE NO. 17BP.14.R.212	SHEET NO. 3
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

SEE SHEET NO. 2B-1 FOR ROUNDABOUT DETAIL.
 SEE SHEET NO. 2B-2 FOR BRIDGE SKETCH.
 SEE SHEET NO. 5 FOR -L- PROFILE.
 SEE SHEET NO. 6 FOR -Y1- AND -Y2- PROFILES.
 SEE SHEET NO. 6 -DRI- AND -DR2- PROFILES.

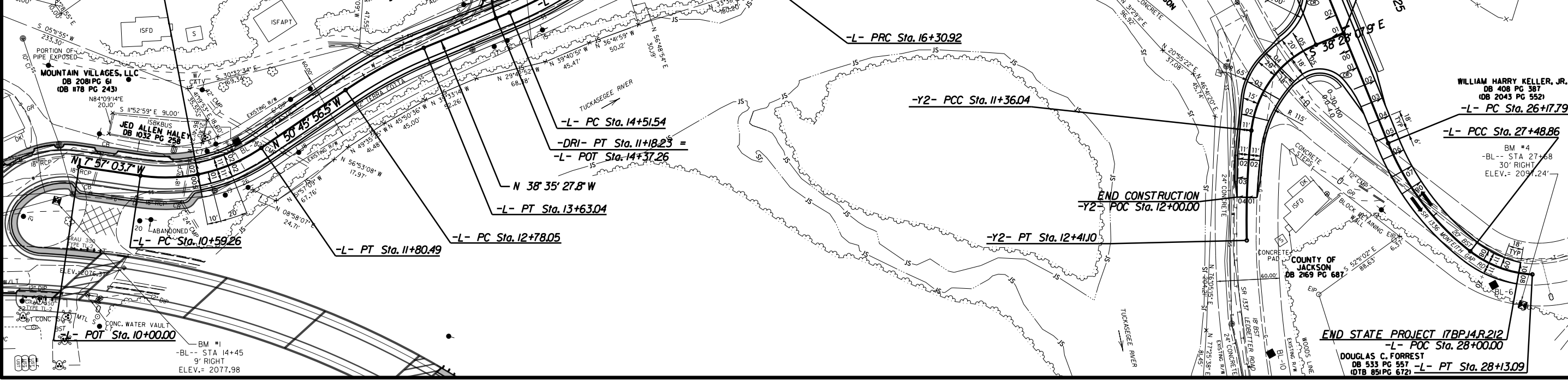
-Y1-
 PI Sta 10+90.48 Δ = 10° 20' 22.6" (RT) D = 5' 43' 46.5" L = 180.46' T = 90.48' R = 1,000.00' V = 40 MPH e = NC (LOW SPEED)
 PI Sta 12+21.23 Δ = 23° 02' 42.2" (RT) D = 28' 38" 52.4" L = 80.44' T = 40.77' R = 200.00' V = 25 MPH e = NC (LOW SPEED)

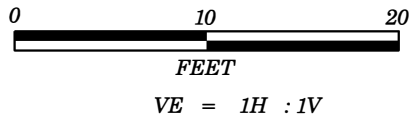
BEGIN STATE PROJECT
 17BP.14.R.212
 -L- PCC Sta. 11+14.45
 TIE TO TIP PROJECT B-4159
 -Y1- POC Sta. 11+20.00

END STATE PROJECT 17BP.14.R.212
 -L- POC Sta. 28+00.00
 DOUGLAS C. FORREST
 DB 533 PG 557 -L- PT Sta. 28+13.09
 DB 851 PG 672

PLOT DRIVER: \$PLTDVRS\$
 USER: \$USERS\$
 FILE: \$PWYVAULTPATHDSC\$
 DATE: \$DATES\$
 PENTABLE: \$PENTBL\$
 TIME: \$TIME\$

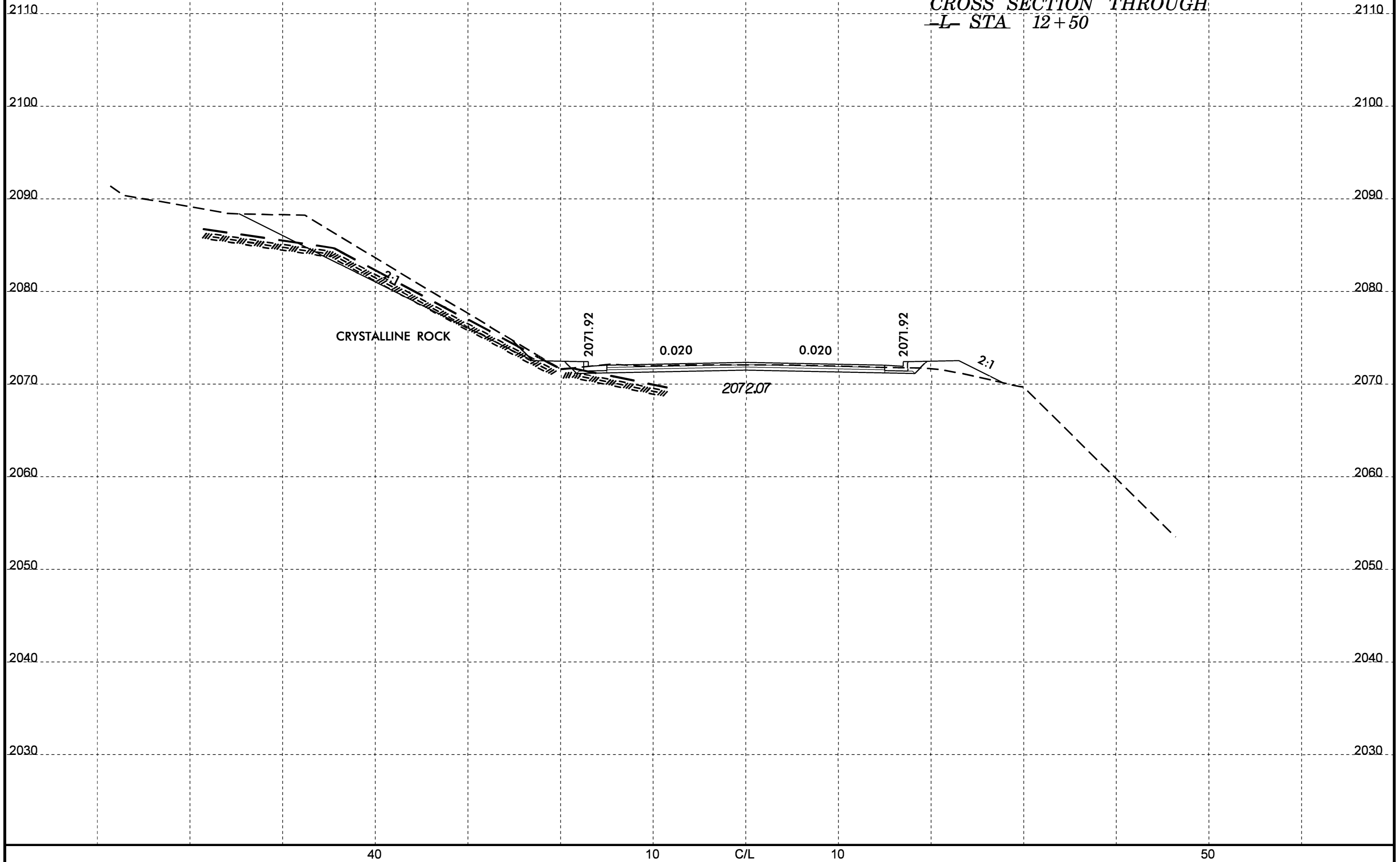
REVISIONS

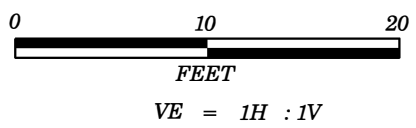




PROJECT REFERENCE NO.	SHEET NO.
17BP.14.R.212	5
SR 1336 FROM NORTH OF SR 1002 TO NORTH OF SR 1337	

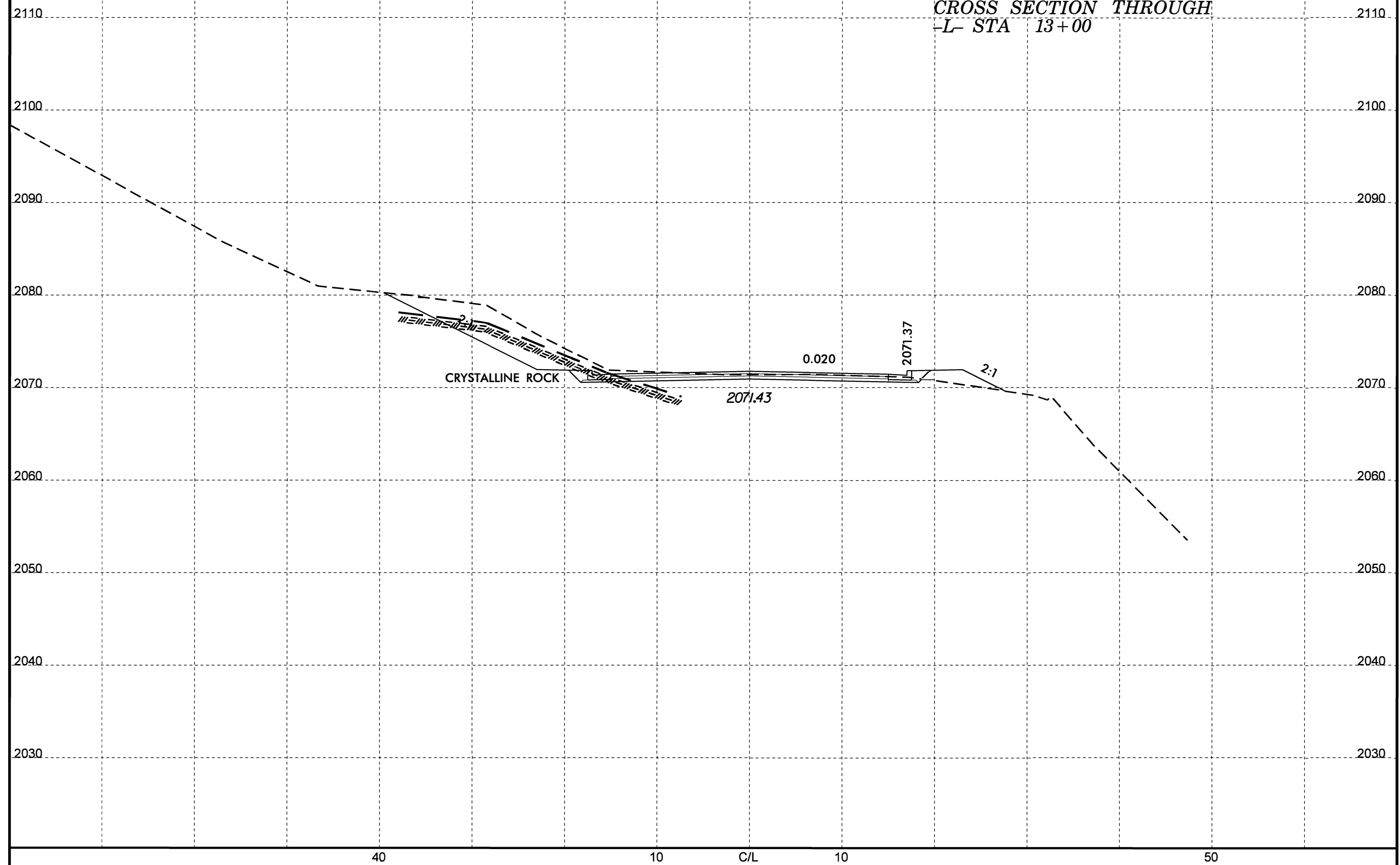
SF-550079
CROSS SECTION THROUGH
-L- STA 12+50

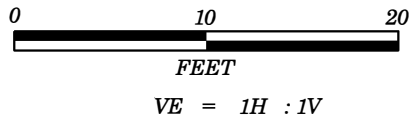




PROJECT REFERENCE NO.	SHEET NO.
17BP.14.R.212	6
SR 1336 FROM NORTH OF SR 1002 TO NORTH OF SR 1337	

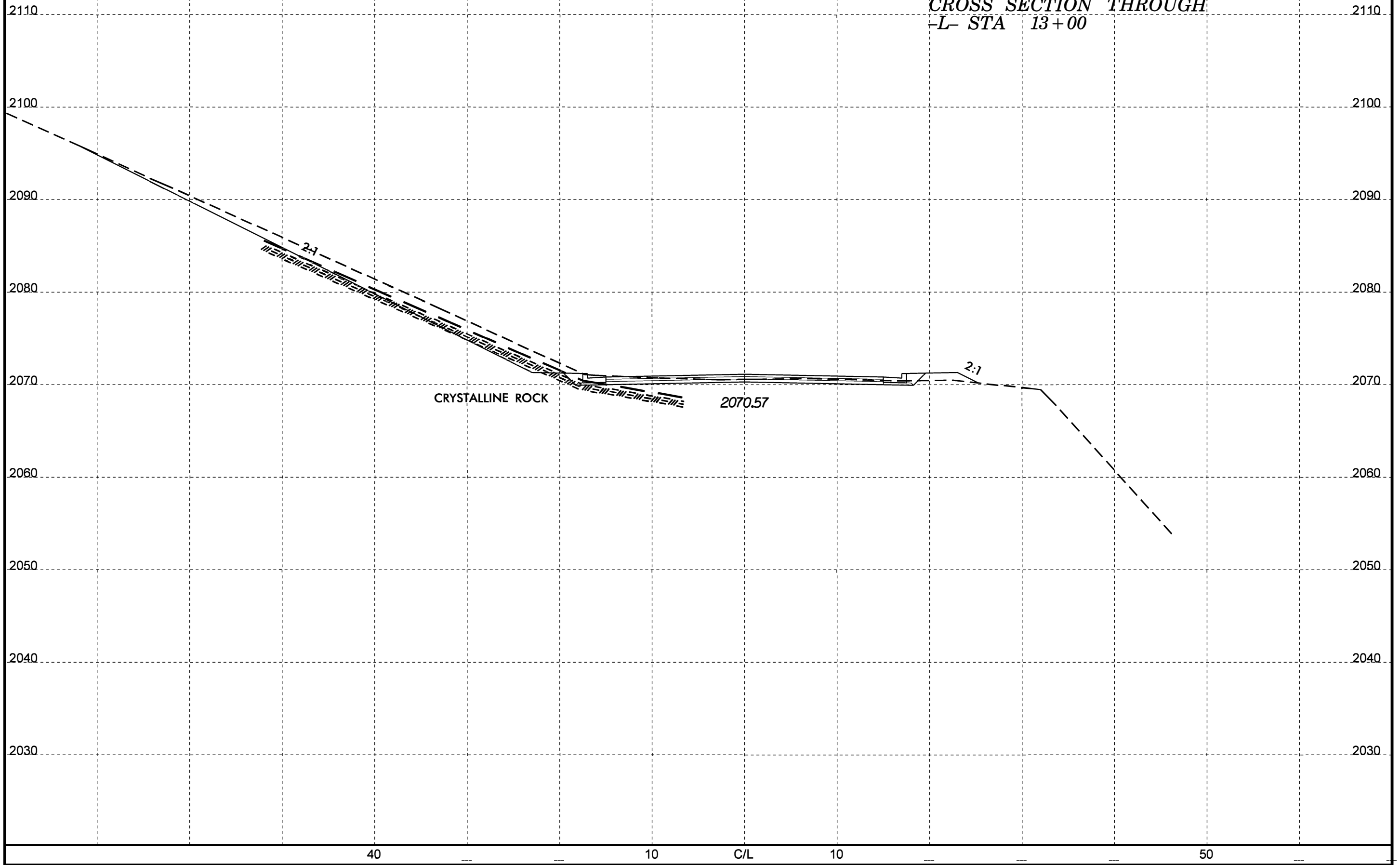
SF-550079
 CROSS SECTION THROUGH
 -L- STA 13+00

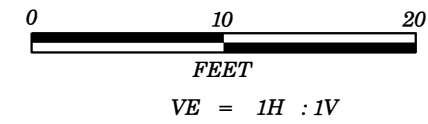




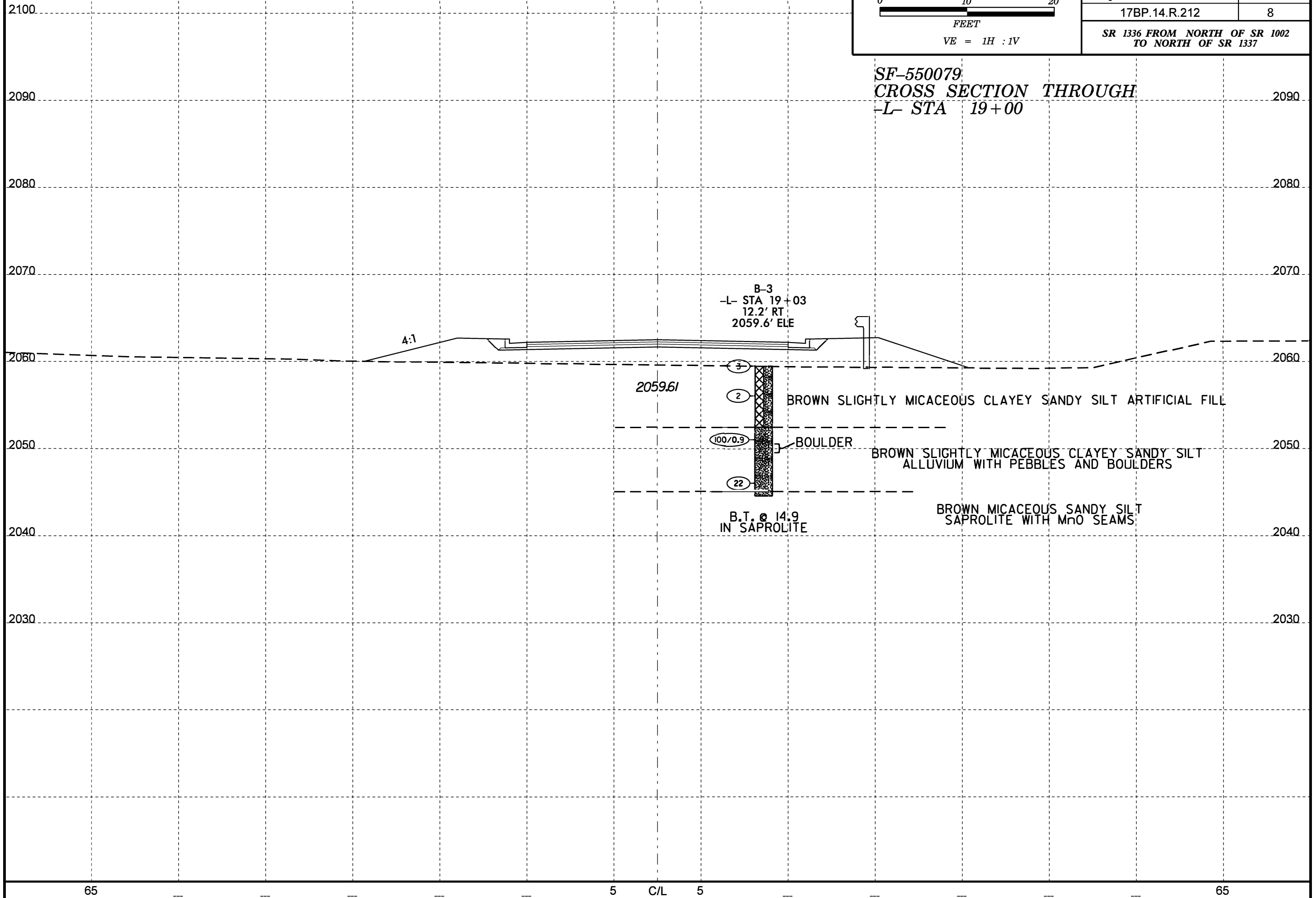
PROJECT REFERENCE NO.	SHEET NO.
17BP.14.R.212	7
SR 1336 FROM NORTH OF SR 1002 TO NORTH OF SR 1337	

SF-550079
CROSS SECTION THROUGH
L- STA 13+00





SF-550079
 CROSS SECTION THROUGH
 -L- STA 19+00



B-3
 -L- STA 19+03
 12.2' RT
 2059.6' ELE

4:1

2059.61

3

2

100/0.9

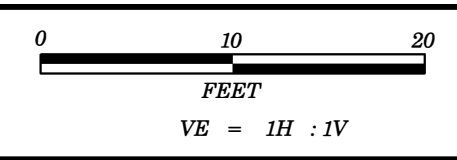
22

B.T. @ 14.9
 IN SAPROLITE

BROWN SLIGHTLY MICACEOUS CLAYEY SANDY SILT ARTIFICIAL FILL

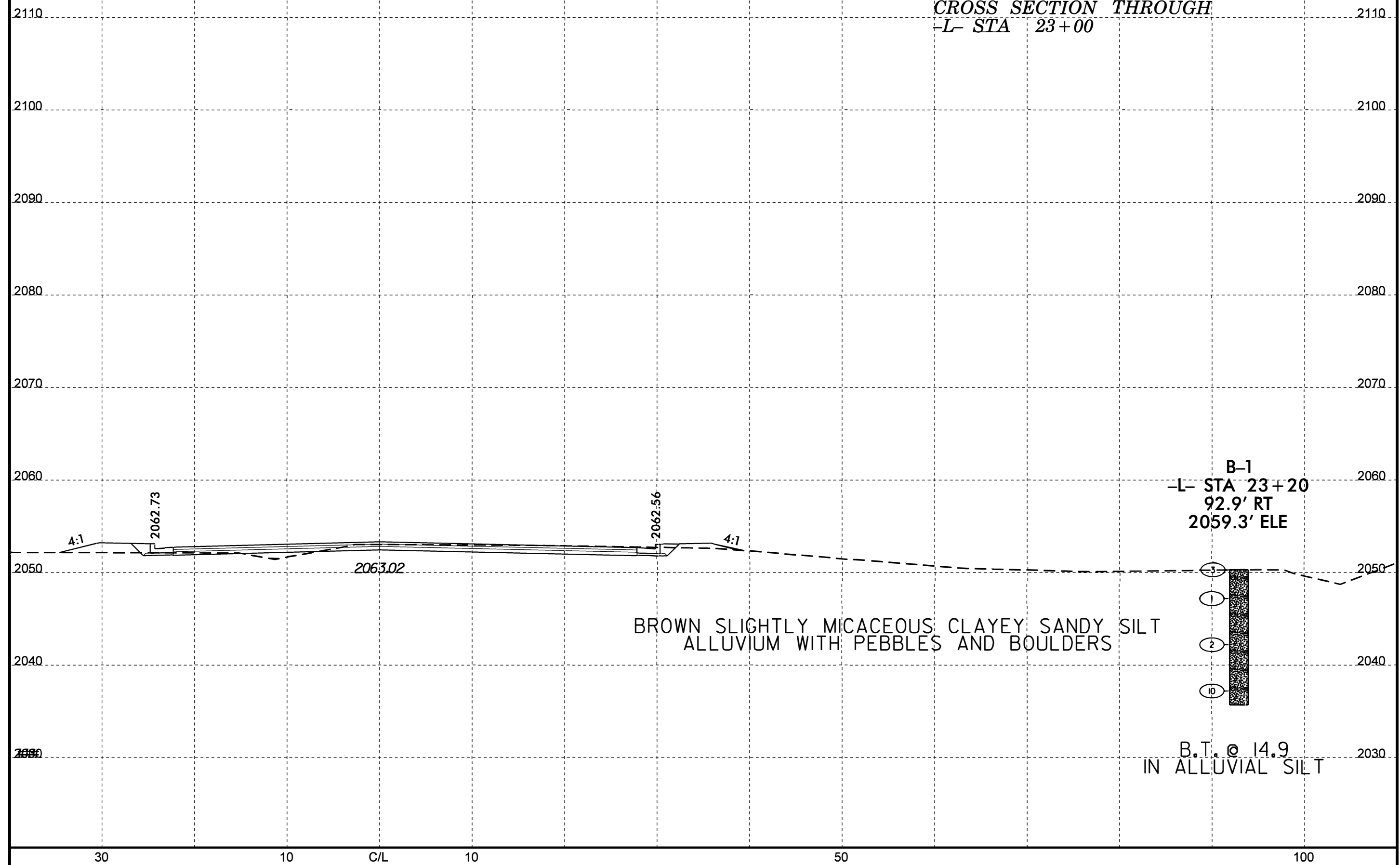
BOULDER
 BROWN SLIGHTLY MICACEOUS CLAYEY SANDY SILT ALLUVIUM WITH PEBBLES AND BOULDERS

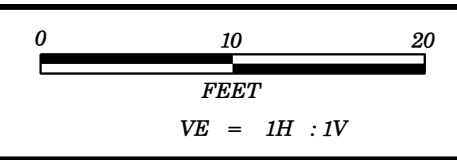
BROWN MICACEOUS SANDY SILT SAPROLITE WITH MnO SEAMS



PROJECT REFERENCE NO.	SHEET NO.
17BP.14.R.212	9
SR 1336 FROM NORTH OF SR 1002 TO NORTH OF SR 1337	

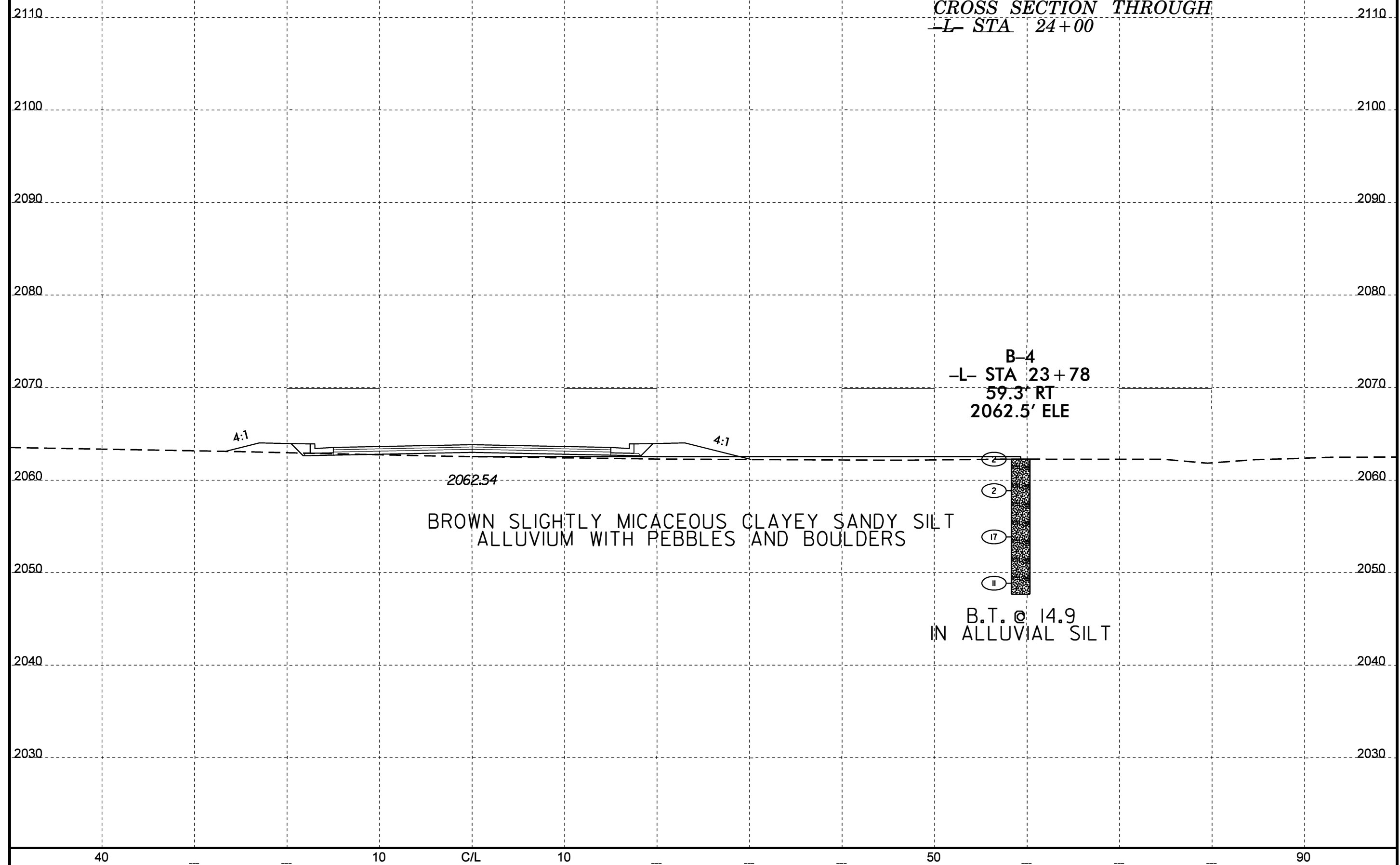
SF-550079
CROSS SECTION THROUGH
-L- STA 23+00

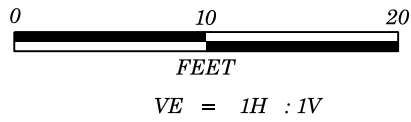




PROJECT REFERENCE NO.	SHEET NO.
17BP.14.R.212	10
SR 1336 FROM NORTH OF SR 1002 TO NORTH OF SR 1337	

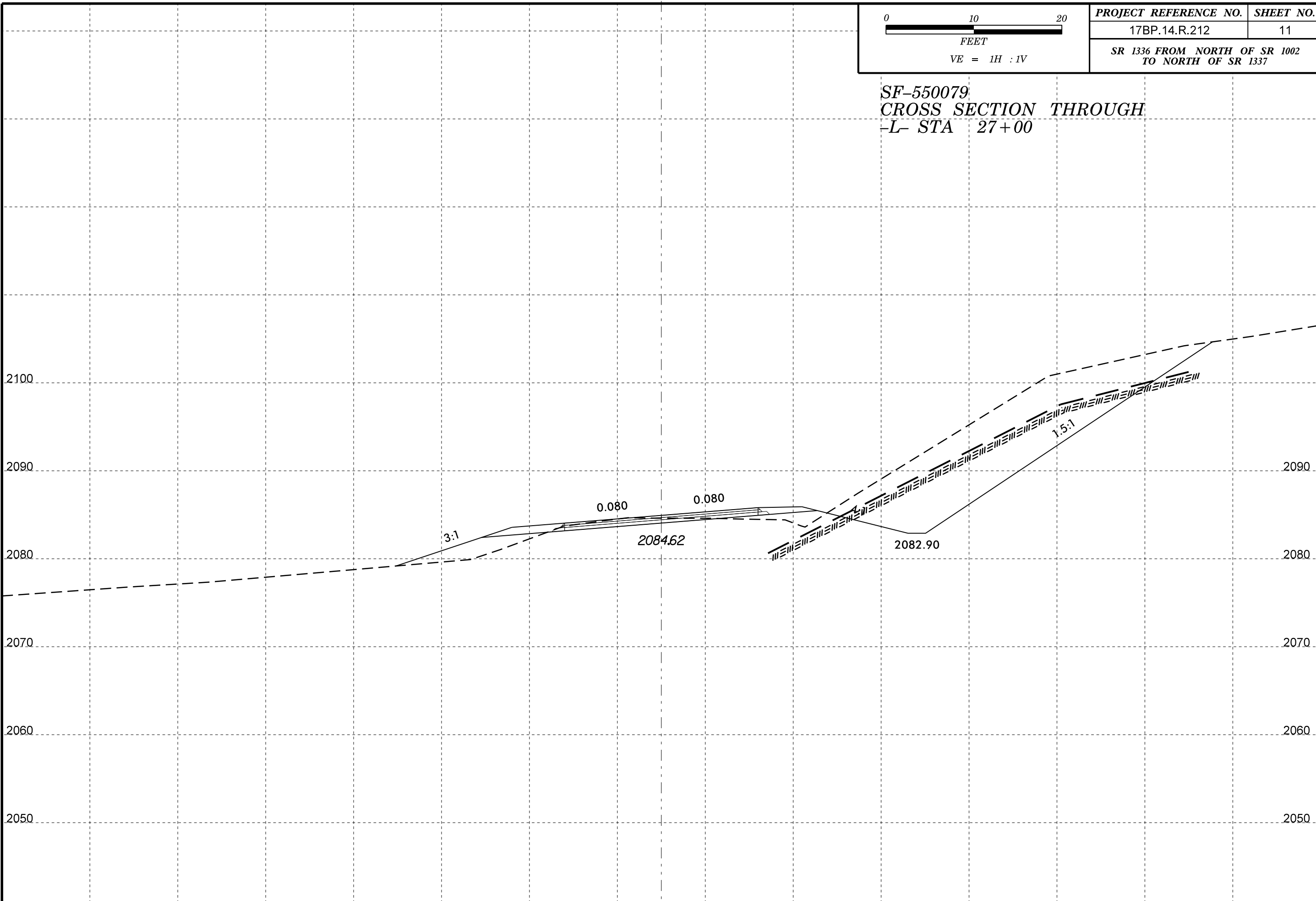
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 CROSS SECTION THROUGH
 -L- STA 24+00





PROJECT REFERENCE NO.	SHEET NO.
17BP.14.R.212	11
SR 1336 FROM NORTH OF SR 1002 TO NORTH OF SR 1337	

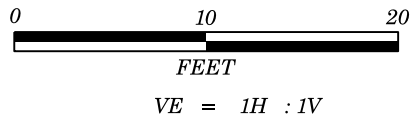
SF-550079
 CROSS SECTION THROUGH
 -L- STA 27+00



2100
 2090
 2080
 2070
 2060
 2050

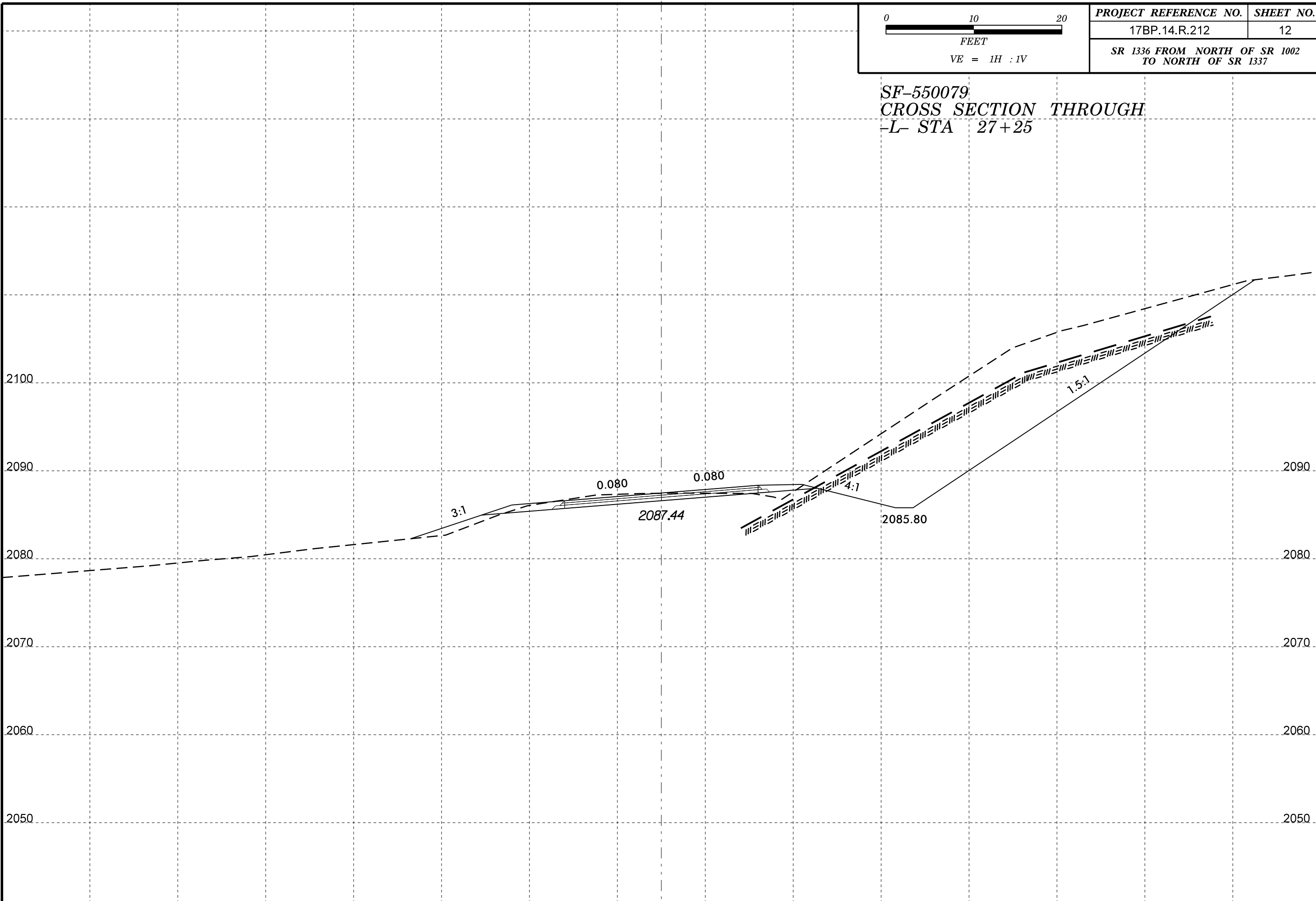
2090
 2080
 2070
 2060
 2050

65 5 C/L 5 65



PROJECT REFERENCE NO.	SHEET NO.
17BP.14.R.212	12
SR 1336 FROM NORTH OF SR 1002 TO NORTH OF SR 1337	

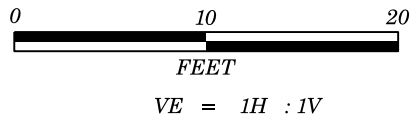
SF-550079
 CROSS SECTION THROUGH
 -L- STA 27+25



65

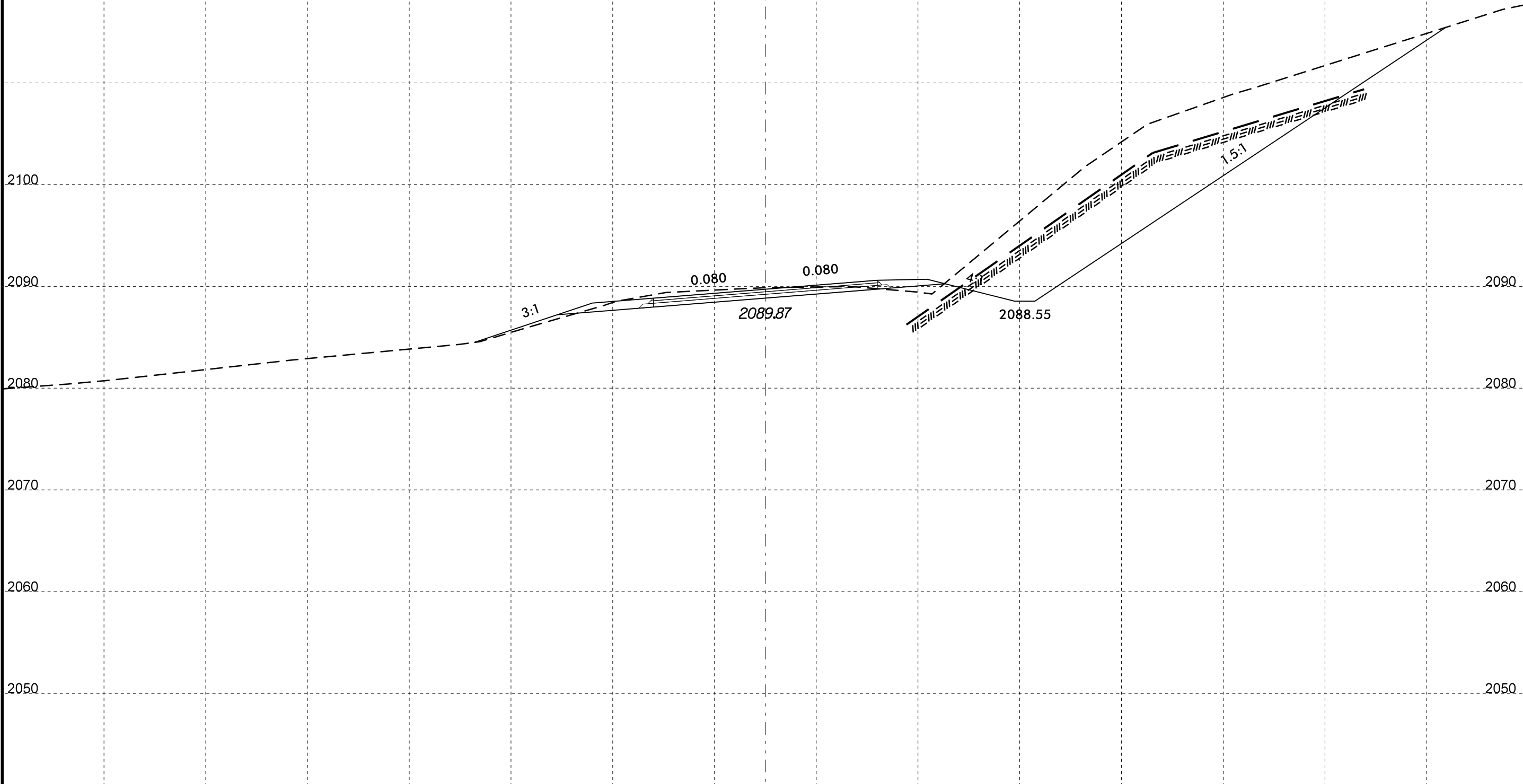
5 C/L 5

65



PROJECT REFERENCE NO.	SHEET NO.
17BP.14.R.212	13
SR 1336 FROM NORTH OF SR 1002 TO NORTH OF SR 1337	

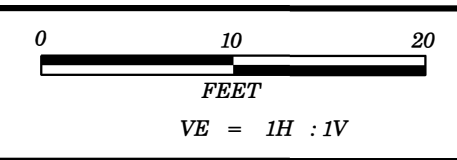
SF-550079
CROSS SECTION THROUGH
-L- STA 27+48.86



2100
2090
2080
2070
2060
2050

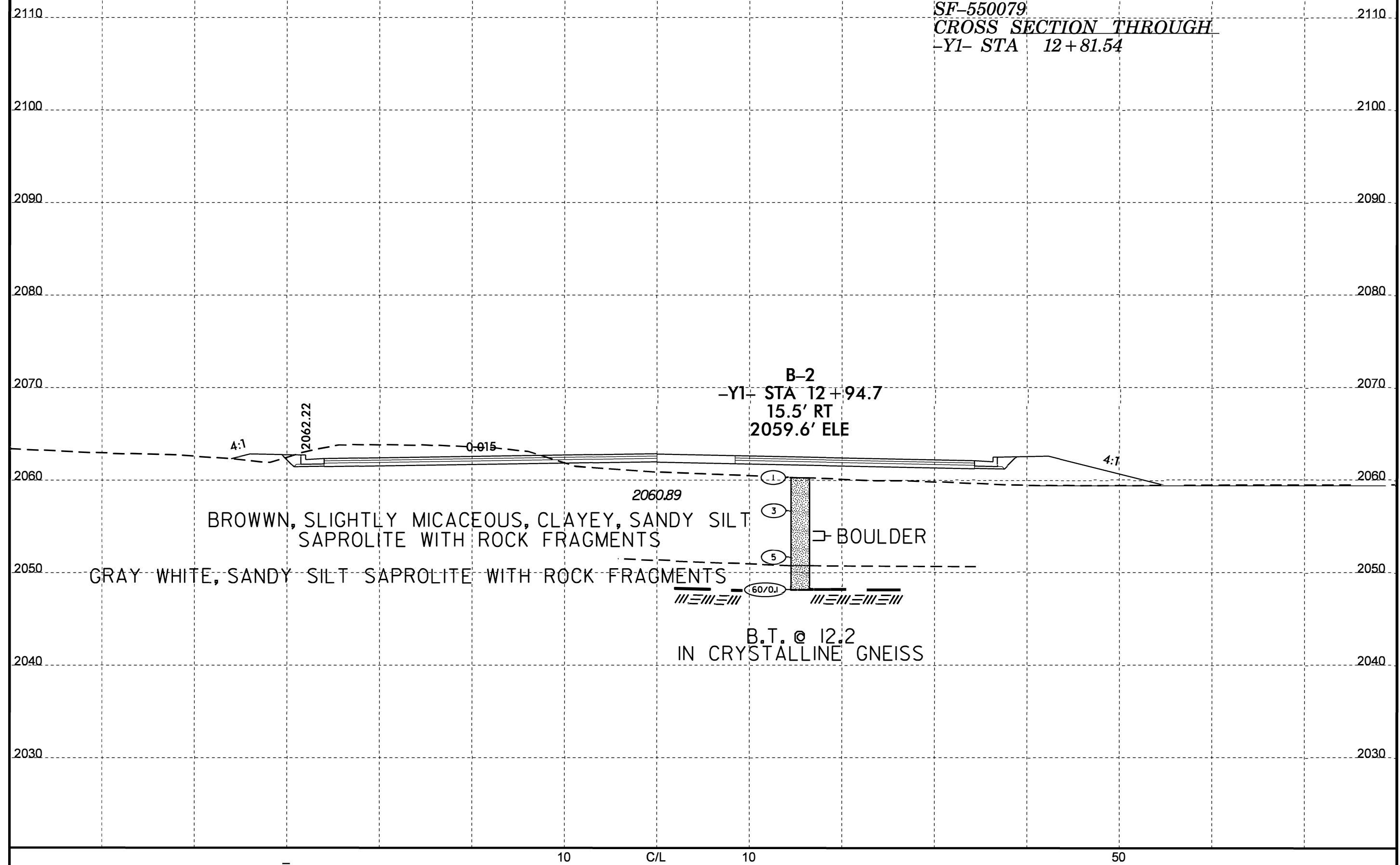
2090
2080
2070
2060
2050

65 5 C/L 5 65



PROJECT REFERENCE NO.	SHEET NO.
17BP.14.R.212	14
SR 1336 FROM NORTH OF SR 1002 TO NORTH OF SR 1337	

SF-550079
 CROSS SECTION THROUGH
 -Y1- STA 12+81.54



BROWN, SLIGHTLY MICACEOUS, CLAYEY, SANDY SILT
 SAPROLITE WITH ROCK FRAGMENTS

GRAY WHITE, SANDY SILT SAPROLITE WITH ROCK FRAGMENTS

B-2
 -Y1- STA 12+94.7
 15.5' RT
 2059.6' ELE

BOULDER

B.T. @ 12.2
 IN CRYSTALLINE GNEISS

2060.89

2062.22

0.015

1

3

5

60/0J

10

C/L

10

50

2110

2100

2090

2080

2070

2060

2050

2040

2030

2110

2100

2090

2080

2070

2060

2050

2040

2030