

SEE SHEET 3 FOR PLAN SHEET LAYOUT
AT TIME OF INVESTIGATION

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

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-5014	1	65

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.

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- 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

Lindsay Pugh

Ted Triantis

Bill Miller

INVESTIGATED BY Lee Stone, P.G.

DRAWN BY Lee Stone P.G.

CHECKED BY Steve Hudson, P.G.

SUBMITTED BY Lee Stone, P.G.

DATE October 2016

**ROADWAY
SUBSURFACE INVESTIGATION**

COUNTY DARE
PROJECT DESCRIPTION SR 1217 (COLINGTON RD.) FROM
DEAD END TO US 158 CROATAN HIGHWAY IN
KILL DEVIL HILLS

INVENTORY

CONTENTS

LINE	STATION	PLAN	PROFILE
-L-	11+00 to 240+00	4-20	21-37
-Y1-	12+18 to 13+85	20	-
-Y2-	10+15 TO 11+57	8	38
-Y3-	11+00 to 12+78	8	38
-Y4-	10+15 TO 11+73	11	38
-Y5-	10+70 TO 12+74	11	38
-Y1A-	11+70 TO 13+63	7	39
-Y3A-	11+60 TO 12+81	9	39
-Y3B-	11+92 TO 12+21	10	39
-Y3C-	10+00 TO 11+00	10	39
-MUP-	10+11 to 37+55	15-18	40-41

LINE	STATION	CROSS SECTIONS
-L-	53+50 to 56+98	42-45
-L-	66+00 to 68+50	45-48
-L-	71+50 to 74+00	49-51
-L-	76+50	52
-L-	85+00 to 87+00	52-54
-L-	101+00 to 104+00	54-57
-L-	115+50 to 117+00	58-59
-L-	130+50 to 133+00	60-61
-L-	163+00 to 177+00	62-71
-Y3A-	11+65 to 12+50	72

REFERENCE: R-5014

PROJECT: 41162



DocuSigned by:

Joseph L. Stone

12/2/2016

SIGNATURE	DATE	SIGNATURE	DATE

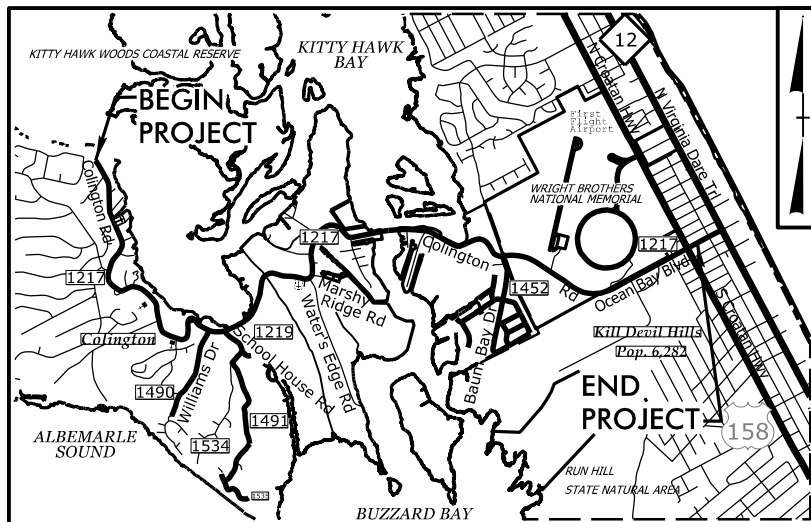
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NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
GEOTECHNICAL ENGINEERING UNIT
SUBSURFACE INVESTIGATION
SOIL AND ROCK LEGEND, TERMS, SYMBOLS, AND ABBREVIATIONS

SOIL DESCRIPTION										GRADATION										ROCK DESCRIPTION										TERMS AND DEFINITIONS									
<p>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 208, 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, VERY STIFF, GRAY, SILTY CLAY, MOIST WITH INTERBEDDED FINE SAND LAYERS, HIGHLY PLASTIC, A-7-6</p>										<p>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.</p>										<p>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:</p>										<p><u>ALLUVIUM (ALLUV.)</u> - SOILS THAT HAVE BEEN TRANSPORTED BY WATER. <u>AQUIFER</u> - A WATER BEARING FORMATION OR STRATA. <u>ARENACEOUS</u> - APPLIED TO ROCKS THAT HAVE BEEN DERIVED FROM SAND OR THAT CONTAIN SAND. <u>ARGILLACEOUS</u> - 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. <u>ARTESIAN</u> - 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. <u>CALCAREOUS (CALC.)</u> - SOILS THAT CONTAIN APPRECIABLE AMOUNTS OF CALCIUM CARBONATE. <u>COLLUVIUM</u> - ROCK FRAGMENTS MIXED WITH SOIL DEPOSITED BY GRAVITY ON SLOPE OR AT BOTTOM OF SLOPE. <u>CORE RECOVERY (REC.)</u> - TOTAL LENGTH OF ALL MATERIAL RECOVERED IN THE CORE BARREL DIVIDED BY TOTAL LENGTH OF CORE RUN AND EXPRESSED AS A PERCENTAGE. <u>DIKE</u> - A TABULAR BODY OF IGNEOUS ROCK THAT CUTS ACROSS THE STRUCTURE OF ADJACENT ROCKS OR CUTS MASSIVE ROCK. <u>DIP</u> - THE ANGLE AT WHICH A STRATUM OR ANY PLANAR FEATURE IS INCLINED FROM THE HORIZONTAL. <u>DIP DIRECTION (DIP AZIMUTH)</u> - THE DIRECTION OR BEARING OF THE HORIZONTAL TRACE OF THE LINE OF DIP, MEASURED CLOCKWISE FROM NORTH. <u>FAULT</u> - A FRACTURE OR FRACTURE ZONE ALONG WHICH THERE HAS BEEN DISPLACEMENT OF THE SIDES RELATIVE TO ONE ANOTHER PARALLEL TO THE FRACTURE. <u>FISSILE</u> - A PROPERTY OF SPLITTING ALONG CLOSELY SPACED PARALLEL PLANES. <u>FLOAT</u> - ROCK FRAGMENTS ON SURFACE NEAR THEIR ORIGINAL POSITION AND DISLOGGED FROM PARENT MATERIAL. <u>FLOOD PLAIN (FP)</u> - LAND BORDERING A STREAM, BUILT OF SEDIMENTS DEPOSITED BY THE STREAM. <u>FORMATION (FM)</u> - A MAPPABLE GEOLOGIC UNIT THAT CAN BE RECOGNIZED AND TRACED IN THE FIELD. <u>JOINT</u> - FRACTURE IN ROCK ALONG WHICH NO APPRECIABLE MOVEMENT HAS OCCURRED. <u>LEDGE</u> - A SHELF-LIKE RIDGE OR PROJECTION OF ROCK WHOSE THICKNESS IS SMALL COMPARED TO ITS LATERAL EXTENT. <u>LENS</u> - A BODY OF SOIL OR ROCK THAT THINS OUT IN ONE OR MORE DIRECTIONS. <u>MOTTLED (MOT.)</u> - IRREGULARLY MARKED WITH SPOTS OF DIFFERENT COLORS, MOTTLING IN SOILS USUALLY INDICATES POOR AERATION AND LACK OF GOOD DRAINAGE. <u>PERCHED WATER</u> - WATER MAINTAINED ABOVE THE NORMAL GROUND WATER LEVEL BY THE PRESENCE OF AN INTERVENING IMPERVIOUS STRATUM. <u>RESIDUAL (RES.) SOIL</u> - SOIL FORMED IN PLACE BY THE WEATHERING OF ROCK. <u>ROCK QUALITY DESIGNATION (RQD)</u> - 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. <u>SAPROLITE (SAP.)</u> - RESIDUAL SOIL THAT RETAINS THE RELIC STRUCTURE OR FABRIC OF THE PARENT ROCK. <u>SILL</u> - 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. <u>SLICKENSIDE</u> - POLISHED AND STRIATED SURFACE THAT RESULTS FROM FRICTION ALONG A FAULT OR SLIP PLANE. <u>STANDARD PENETRATION TEST (PENETRATION RESISTANCE) (SPT)</u> - 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. <u>STRATA CORE RECOVERY (SREC.)</u> - TOTAL LENGTH OF STRATA MATERIAL RECOVERED DIVIDED BY TOTAL LENGTH OF STRATUM AND EXPRESSED AS A PERCENTAGE. <u>STRATA ROCK QUALITY DESIGNATION (SROD)</u> - 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. <u>TOPSOIL (TS)</u> - SURFACE SOILS USUALLY CONTAINING ORGANIC MATTER.</p>									
SOIL LEGEND AND AASHTO CLASSIFICATION										MINERALOGICAL COMPOSITION										WEATHERING										ELEVATION: FEET									
<p>GENERAL CLASS. GRANULAR MATERIALS (<= 35% PASSING #200) SILT-CLAY MATERIALS (> 35% PASSING #200) ORGANIC MATERIALS</p> <p>GROUP CLASS. A-1, A-3, A-2, A-4, A-5, A-6, A-7, A-1, A-2, A-3, A-4, A-5, A-6, A-7</p> <p>SYMBOL</p> <p>% PASSING #10 #40 #200</p> <p>MATERIAL PASSING #40 LL PI</p> <p>GROUP INDEX</p> <p>USUAL TYPES OF MAJOR MATERIALS</p> <p>GEN. RATING AS SUBGRADE</p>										<p>ANGULARITY OF GRAINS</p> <p>THE ANGULARITY OR ROUNDNESS OF SOIL GRAINS IS DESIGNATED BY THE TERMS: ANGULAR, SUBANGULAR, SUBROUNDED, OR ROUNDED.</p> <p>MINERAL NAMES SUCH AS QUARTZ, FELDSPAR, MICA, TALC, KAOLIN, ETC. ARE USED IN DESCRIPTIONS WHEN THEY ARE CONSIDERED OF SIGNIFICANCE.</p> <p>COMPRESSIBILITY</p> <p>PERCENTAGE OF MATERIAL</p> <p>GROUND WATER</p>										<p>WEATHERED ROCK (WR)</p> <p>CRYSTALLINE ROCK (CR)</p> <p>NON-CRYSTALLINE ROCK (NCR)</p> <p>COASTAL PLAIN SEDIMENTARY ROCK (CP)</p> <p>FRESH</p> <p>VERY SLIGHT (V SL.)</p> <p>SLIGHT (SL.)</p> <p>MODERATE (MOD.)</p> <p>MODERATELY SEVERE (MOD. SEV.)</p> <p>SEVERE (SEV.)</p> <p>VERY SEVERE (V SEV.)</p> <p>COMPLETE</p>										<p>ROCK HARDNESS</p> <p>VERY HARD</p> <p>HARD</p> <p>MODERATELY HARD</p> <p>MEDIUM HARD</p> <p>SOFT</p> <p>VERY SOFT</p>									
CONSISTENCY OR DENSENESS										MISCELLANEOUS SYMBOLS										RECOMMENDATION SYMBOLS										ABBREVIATIONS									
<p>PRIMARY SOIL TYPE COMPACTNESS OR CONSISTENCY RANGE OF STANDARD PENETRATION RESISTANCE (N-VALUE) RANGE OF UNCONFINED COMPRESSIVE STRENGTH (TONS/FT²)</p>										<p>ROADWAY EMBANKMENT (RE) WITH SOIL DESCRIPTION</p> <p>SOIL SYMBOL</p> <p>ARTIFICIAL FILL (AF) OTHER THAN ROADWAY EMBANKMENT</p> <p>INFERRED SOIL BOUNDARY</p> <p>INFERRED ROCK LINE</p> <p>ALLUVIAL SOIL BOUNDARY</p> <p>DIP & DIP DIRECTION OF ROCK STRUCTURES</p> <p>SPT TEST BORING</p> <p>AUGER BORING</p> <p>CORE BORING</p> <p>MONITORING WELL</p> <p>PIEZOMETER INSTALLATION</p> <p>SLOPE INDICATOR INSTALLATION</p> <p>CONE PENETROMETER TEST</p> <p>SOUNDING ROD</p> <p>TEST BORING WITH CORE</p> <p>SPT N-VALUE</p>										<p>UNDERCUT</p> <p>SHALLOW UNDERCUT</p> <p>UNCLASSIFIED EXCAVATION - UNSUITABLE WASTE</p> <p>UNCLASSIFIED EXCAVATION - ACCEPTABLE DEGRADABLE ROCK</p>										<p>AR - AUGER REFUSAL</p> <p>BT - BORING TERMINATED</p> <p>CL - CLAY</p> <p>CPT - CONE PENETRATION TEST</p> <p>CSE - COARSE</p> <p>DPT - DILATOMETER TEST</p> <p>DMT - DYNAMIC PENETRATION TEST</p> <p>e - VOID RATIO</p> <p>F - FINE</p> <p>FOSS. - FOSSILIFEROUS</p> <p>FRAC. - FRACTURED, FRACTURES</p> <p>FRAGS. - FRAGMENTS</p> <p>HI. - HIGHLY</p> <p>MED. - MEDIUM</p> <p>MICA - MICACEOUS</p> <p>MOD. - MODERATELY</p> <p>NP - NON PLASTIC</p> <p>ORG. - ORGANIC</p> <p>PMT - PRESSUREMETER TEST</p> <p>SAP. - SAPROLITIC</p> <p>SD. - SAND, SANDY</p> <p>SL. - SILT, SILTY</p> <p>SLI. - SLIGHTLY</p> <p>TCR - TRICONE REFUSAL</p> <p>w - MOISTURE CONTENT</p> <p>V - VERY</p> <p>VST - VANE SHEAR TEST</p> <p>w/ - WITH</p> <p>WEA. - WEATHERED</p> <p>Wt - UNIT WEIGHT</p> <p>Wt - DRY UNIT WEIGHT</p> <p>S - BULK</p> <p>SS - SPLIT SPOON</p> <p>ST - SHELBY TUBE</p> <p>RS - ROCK</p> <p>RT - RECOMPACTED TRIAXIAL</p> <p>CBR - CALIFORNIA BEARING RATIO</p>									
TEXTURE OR GRAIN SIZE										EQUIPMENT USED ON SUBJECT PROJECT										FRACTURE SPACING										BEDDING									
<p>U.S. STD. SIEVE SIZE OPENING (MM)</p> <p>BOULDER (BLDR.)</p> <p>COBBLE (COB.)</p> <p>GRAVEL (GR.)</p> <p>COARSE SAND (CSE, SD.)</p> <p>FINE SAND (F SD.)</p> <p>SILT (SL.)</p> <p>CLAY (CL.)</p> <p>GRAIN SIZE</p>										<p>DRILL UNITS:</p> <p>ADVANCING TOOLS:</p> <p>HAMMER TYPE:</p> <p>CORE SIZE:</p> <p>HAND TOOLS:</p>										<p>TERM SPACING</p> <p>VERY WIDE</p> <p>WIDE</p> <p>MODERATELY CLOSE</p> <p>CLOSE</p> <p>VERY CLOSE</p> <p>TERM THICKNESS</p> <p>VERY THICKLY BEDDED</p> <p>THICKLY BEDDED</p> <p>THINLY BEDDED</p> <p>VERY THINLY BEDDED</p> <p>THICKLY LAMINATED</p> <p>THINLY LAMINATED</p>										<p>FRAC. SPACING</p> <p>VERY WIDE</p> <p>WIDE</p> <p>MODERATELY CLOSE</p> <p>CLOSE</p> <p>VERY CLOSE</p> <p>TERM THICKNESS</p> <p>VERY THICKLY BEDDED</p> <p>THICKLY BEDDED</p> <p>THINLY BEDDED</p> <p>VERY THINLY BEDDED</p> <p>THICKLY LAMINATED</p> <p>THINLY LAMINATED</p>									
SOIL MOISTURE - CORRELATION OF TERMS										INDURATION										NOTES:																			
<p>SOIL MOISTURE SCALE (ATTERBERG LIMITS)</p> <p>FIELD MOISTURE DESCRIPTION</p> <p>GUIDE FOR FIELD MOISTURE DESCRIPTION</p> <p>LL - LIQUID LIMIT</p> <p>PL - PLASTIC LIMIT</p> <p>OM - OPTIMUM MOISTURE SHRINKAGE LIMIT</p> <p>SL - SL</p>										<p>FOR SEDIMENTARY ROCKS, INDURATION IS THE HARDENING OF MATERIAL BY CEMENTING, HEAT, PRESSURE, ETC.</p> <p>FRIABLE</p> <p>MODERATELY INDURATED</p> <p>INDURATED</p> <p>EXTREMELY INDURATED</p>										<p>U.C.P. - UNDIVIDED COASTAL PLAIN</p> <p>NM - GROUNDWATER NOT MEASURED (SEE SHEET 76 FOR EXAMPLE)</p> <p>— — — — — APPROXIMATE LIMIT OF ORGANIC SOILS</p>																			
PLASTICITY										INDURATION										NOTES:																			
<p>NON PLASTIC</p> <p>SLIGHTLY PLASTIC</p> <p>MODERATELY PLASTIC</p> <p>HIGHLY PLASTIC</p> <p>PLASTICITY INDEX (PI)</p> <p>DRY STRENGTH</p> <p>VERY LOW</p> <p>SLIGHT</p> <p>MEDIUM</p> <p>HIGH</p>										<p>FOR SEDIMENTARY ROCKS, INDURATION IS THE HARDENING OF MATERIAL BY CEMENTING, HEAT, PRESSURE, ETC.</p> <p>FRIABLE</p> <p>MODERATELY INDURATED</p> <p>INDURATED</p> <p>EXTREMELY INDURATED</p>										<p>U.C.P. - UNDIVIDED COASTAL PLAIN</p> <p>NM - GROUNDWATER NOT MEASURED (SEE SHEET 76 FOR EXAMPLE)</p> <p>— — — — — APPROXIMATE LIMIT OF ORGANIC SOILS</p>																			
COLOR										INDURATION										NOTES:																			
<p>DESCRIPTORS MAY INCLUDE COLOR OR COLOR COMBINATIONS (TAN, RED, YELLOW-BROWN, BLUE-BROWN). MODIFIERS SUCH AS LIGHT, DARK, STREAKED, ETC. ARE USED TO DESCRIBE APPEARANCE.</p>										<p>FOR SEDIMENTARY ROCKS, INDURATION IS THE HARDENING OF MATERIAL BY CEMENTING, HEAT, PRESSURE, ETC.</p> <p>FRIABLE</p> <p>MODERATELY INDURATED</p> <p>INDURATED</p> <p>EXTREMELY INDURATED</p>										<p>U.C.P. - UNDIVIDED COASTAL PLAIN</p> <p>NM - GROUNDWATER NOT MEASURED (SEE SHEET 76 FOR EXAMPLE)</p> <p>— — — — — APPROXIMATE LIMIT OF ORGANIC SOILS</p>																			

09/08/19

See Sheet 1-A For Index of Sheets



VICINITY MAP

STATE OF NORTH CAROLINA
 DIVISION OF HIGHWAYS
DARE COUNTY

**APPROVED
 25% PLANS**

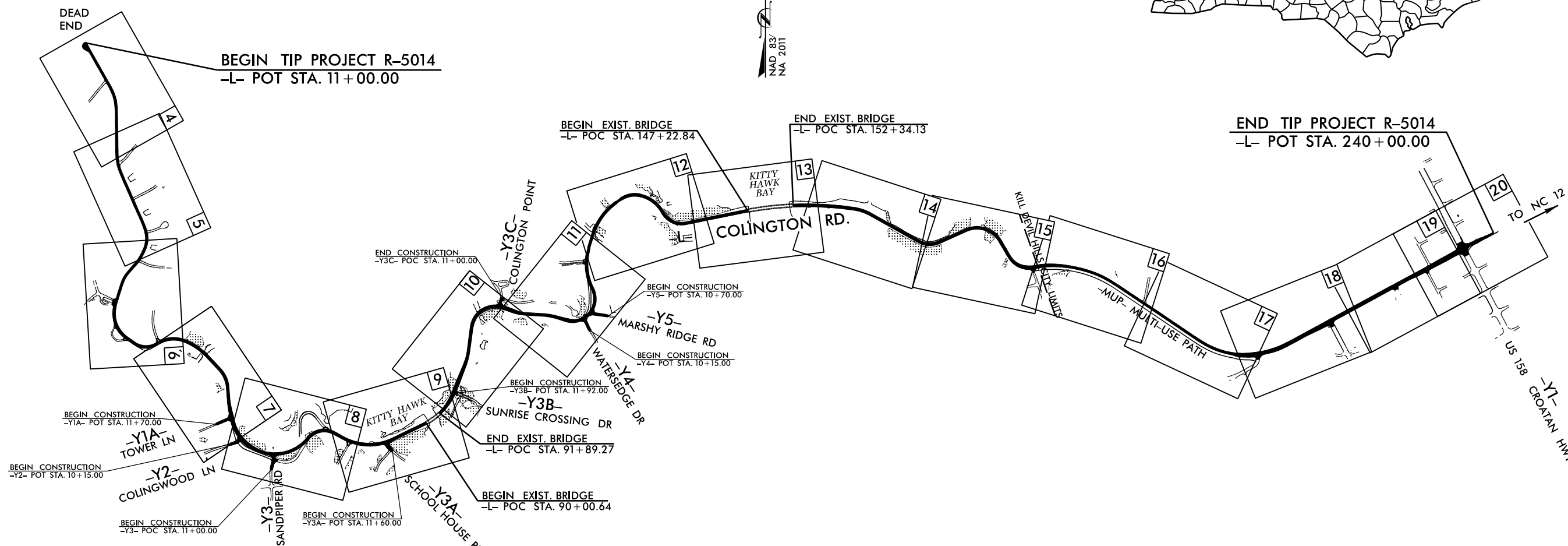
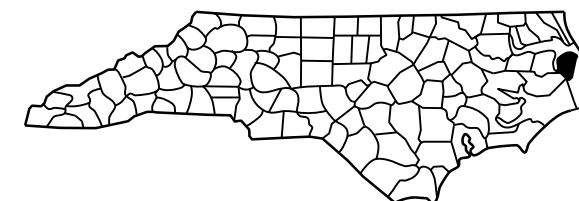
**LOCATION: SR 1217 (COLINGTON RD.) FROM DEAD END TO US 158
 CROATAN HIGHWAY IN KILL DEVIL HILLS**

TYPE OF WORK: GRADING, DRAINAGE, & PAVING

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-5014	3	65
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
41162.1.1	STP-1217(6)	PE	

**INCOMPLETE PLANS
 DO NOT USE FOR R/W ACQUISITION**

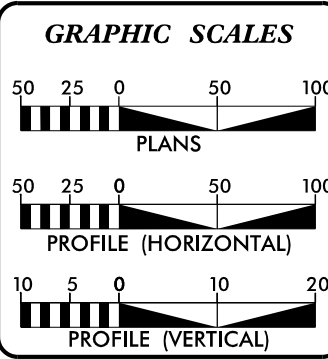
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 UNLESS ALL SIGNATURES COMPLETED**



THERE IS A DESIGN EXCEPTION FOR HORIZONTAL CURVE RADIUS AND ASSOCIATED HORIZONTAL STOPPING SIGHT DISTANCE.
 THERE IS NO CONTROL OF ACCESS ON THIS PROJECT.
 A PORTION OF THIS PROJECT IS WITHIN THE MUNICIPAL BOUNDARIES OF KILL DEVIL HILLS.
 CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD

TIP PROJECT: R-5014

CONTRACT:



DESIGN DATA

ADT 2018 =	13,970
ADT 2038 =	19,300
DHV =	11 %
D =	65 %
T =	3 % *
V =	40 MPH
* TTST = 1% DUAL 2%	
FUNC CLASS = LOCAL STATEWIDE TIER	

PROJECT LENGTH

TOTAL LENGTH ROADWAY TIP PROJECT R-5014 = 4.337 MILES

Prepared in the Office of:
CALYX
 ENGINEERS + CONSULTANTS

FOR THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
 2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
 MAY 19, 2017

LETTING DATE:
 NOVEMBER 20, 2018

NCDOT CONTACT: GARY LOVERING, PE
 ROADWAY DESIGN - PROJECT ENGINEER

JOHNNY BANKS
 CALYX E & C
 PROJECT MANAGER

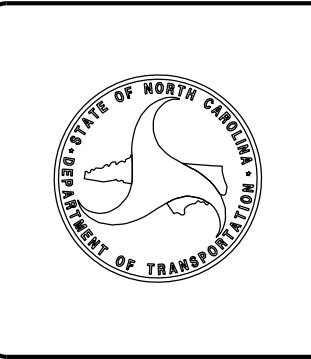
STEPHEN C. BROWDE, PE
 CALYX E & C
 PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

SIGNATURE: _____ P.E.

ROADWAY DESIGN ENGINEER

SIGNATURE: _____ P.E.



28-OCT-2016 08:30
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 istone AT MICROSTATIONPCE

October 28, 2016

WBS Number: 41162.1.1
 TIP Number: R-5014
 F.A .Project: STP-1217(6)
 County: Dare
 Description: SR 1217 (Colington Rd.) from Dead End to US 158 Croatan Hwy. in Kill Devil Hills
 CATLIN Number: 216070

SUBJECT: Geotechnical Inventory Report

Project Description

This project begins at the dead end of SR 1217 (Colington Rd.) and extends east along existing SR 1217 for approximately 4.3 miles to the intersection of SR 1217 and US 158. This geotechnical investigation was confined to the areas of proposed construction.

Fieldwork was conducted in August, September, and October of 2016. SPT, hand auger, and push probe borings were completed at various offsets along the project corridor. Representative soil samples were collected for visual classification in the field and for laboratory analysis.

The following alignments were investigated. Subsurface profiles and selected cross sections of these alignments are included in this report.

<u>Line</u>	<u>Station(±)</u>
-L-	11+00 to 240+00
-Y1-	12+18 to 13+85
-Y2-	10+15 to 11+57
-Y3-	11+00 to 12+78
-Y4-	10+15 to 11+73
-Y5-	10+70 to 12+74
-Y1A-	11+70 to 13+63
-Y3A-	11+60 to 12+81
-Y3B-	11+92 to 12+21
-Y3C-	10+00 to 11+00
-MUP-	10+11 to 37+55

Areas of Special Geotechnical Interest

1) The entire project exhibits seasonal high groundwater except the following sections:

<u>Line</u>	<u>Station(±)</u>
-L-	59+50 to 65+50
-L-	69+00 to 71+00
-L-	78+00 to 80+00
-L-	177+00 to 183+00

<u>Line</u>	<u>Station(±)</u>
-L-	229+00 to 240+00
-Y2-	10+15 to 11+34
-Y3-	11+00 to 12+00

2) The following sections contain organic soils that have the potential to cause embankment/subgrade and or slope stability problems during construction.

<u>Line</u>	<u>Station(±)</u>
-L-	53+85 to 55+75
-L-	56+25 to 56+75
-L-	57+74 to 59+08
-L-	66+45 to 68+47
-L-	71+56 to 73+80
-L-	76+01 to 77+80
-L-	85+25 to 95+82
-L-	101+87 to 102+25
-L-	115+64 to 116+85
-L-	131+28 to 132+75
-L-	163+08 to 173+60
-L-	174+75 to 176+85
-Y3A-	11+60 to 12+81
-Y3B-	11+92 to 12+21

Physiography and Geology

This project corridor is located within the Coastal Plain Physiographic Province. Topography along the project is nearly flat to gently sloping. Natural ground elevations ranged from sea level to 13± feet above sea level.

Surficial soils in this area are generally classified as undivided coastal plain sediments.

Ground Water

Ground water data was collected in August, September, and October 2016, and was found at elevations ranged from 1± feet below sea level to 2± feet above sea level.

Soils

Soils encountered within this project area have been divided into three categories, undivided coastal plain soils, artificial fill, and roadway embankment.

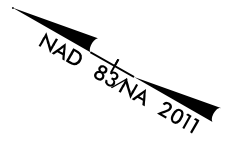
Soils identified as undivided coastal plain are composed of 6 or more feet of very loose to medium dense sand (A-2-4, A-3); with 1± to 6 ± feet of very soft muck, very loose moderately organic sand, very loose sand with little organic content and moderately organic silty clay (A-7-5.) Samples taken within these organic soils returned organic percentages ranging from 4% to 79%.

Roadway embankment soils were found along the existing SR 1217 corridor and associated intersecting side roads. Where encountered it was composed of 1± to 15± feet of very loose sand (A-2-4, A-3).

Soils identified as artificial fill were primarily comprised of less than 2 feet of loose to medium dense sand with gravel (A-3, A-1-b.)

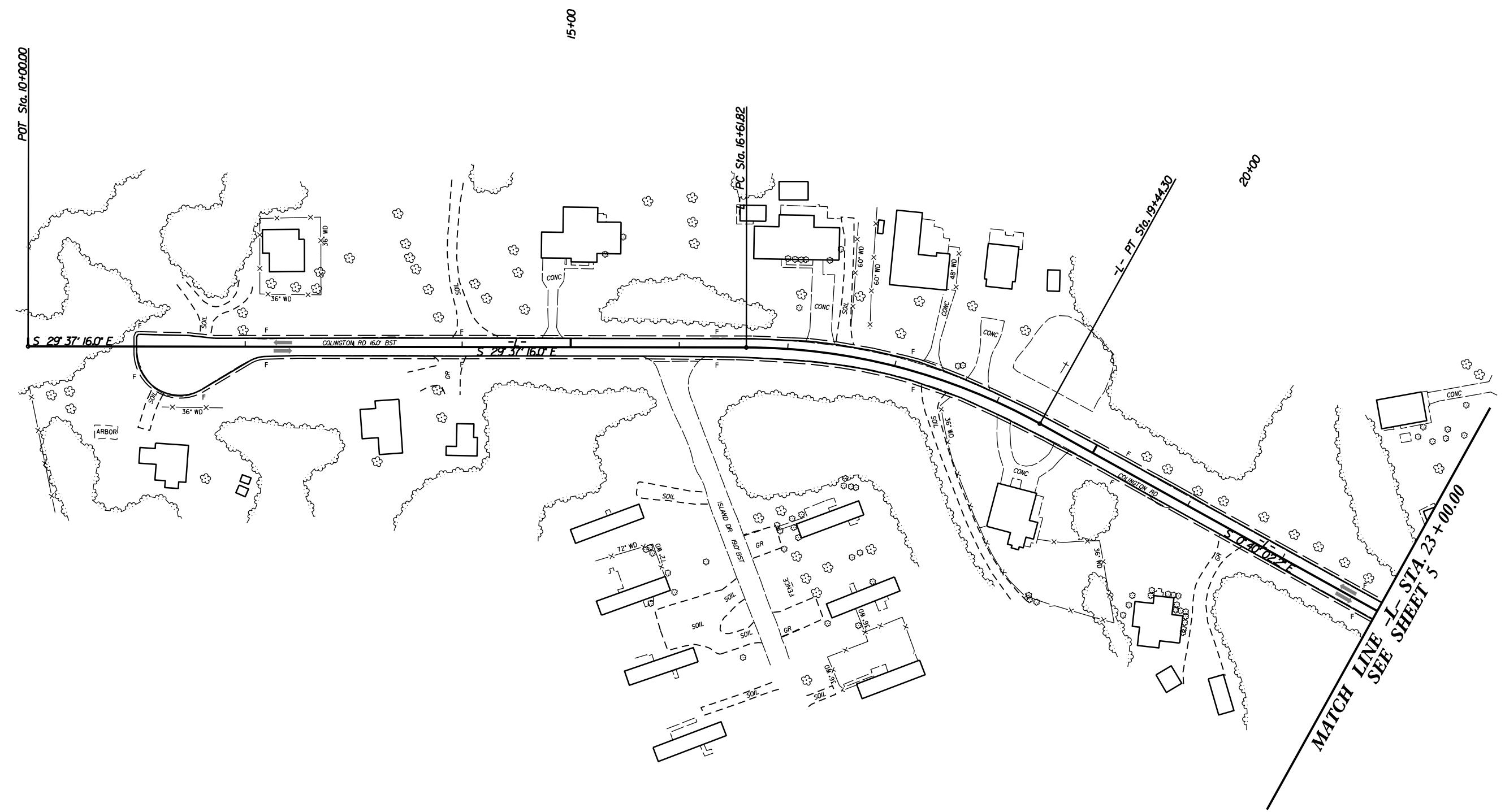
PROJECT REFERENCE NO.	SHEET NO.
R-5014	4
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR A/W ACQUISITION	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

-L-
 PI Sta 18+06.15
 $\Delta = 28^{\circ} 57' 13.8" (RT)$
 $D = 10' 15" 00.0"$
 $L = 282.48'$
 $T = 144.32'$
 $R = 558.98'$
 SE = EXIST.
 V = EXIST.

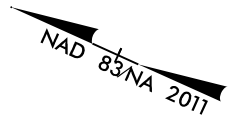


REVISIONS

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PROJECT REFERENCE NO.	SHEET NO.
R-5014	5
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR A/W ACQUISITION	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	



-L-

PI Sta 25+43.98	PI Sta 34+44.90
$\Delta = 23^\circ 04' 34.3" (LT)$	$\Delta = 48^\circ 32' 06.7" (RT)$
$D = 9' 00" 00.0"$	$D = 17' 30" 00.0"$
$L = 256.40'$	$L = 277.34'$
$T = 129.96'$	$T = 147.61'$
$R = 636.62'$	$R = 327.40'$
SE = EXIST.	SE = EXIST.
V = EXIST.	V = EXIST.

REVISIONS

29-SEP-2016 10:24:11 S:\wpmk\19\PROJECTS\2016\216070 NCDOT - R-5014 Kill Devil Hills Roadway\RS014_GEO_RDWY\CADD_GEO\TECH_Site&Sub\RS014_GEO_mv_05.dgn 8/17/99



MATCH LINE -L- STA. 23+00.00
SEE SHEET 4

MATCH LINE -L- STA. 35+00.00
SEE SHEET 6

-L- PC Sta. 32+97.29

-L- PT Sta. 26+70.42

S 23° 44' 36.5" E

COLINGTON RD

SHERIFF CT

QUEEN CT

PRINCESS CT

25+00

30+00

35+00

60" VINYL

60" VINYL

60" VINYL

60" VINYL

60" VINYL

60" VINYL

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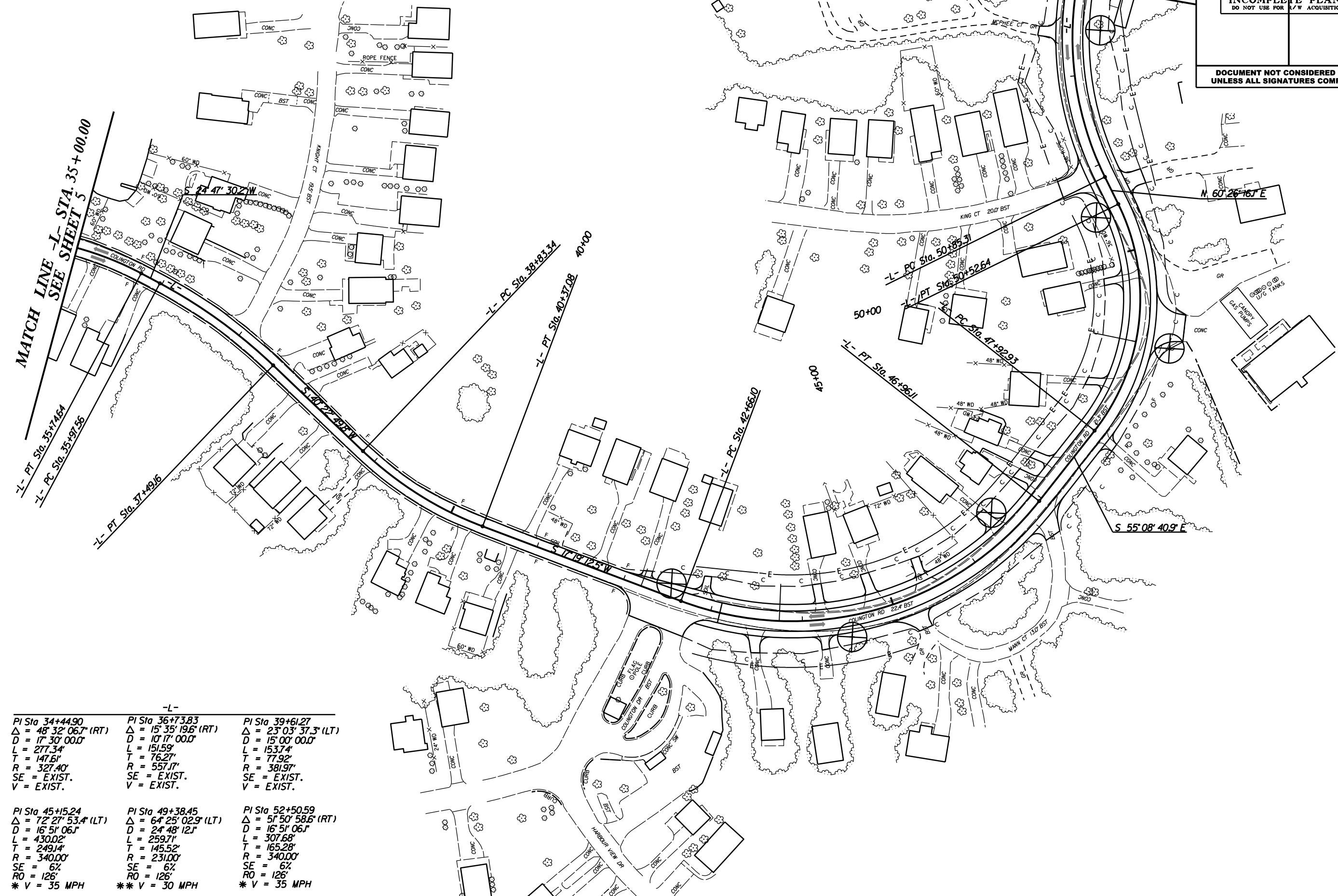
60" VINYL

PROJECT REFERENCE NO. R-5014	SHEET NO. 6
R/W SHEET NO.	HYDRAULICS ENGINEER
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

NAD 83/NA 2011

MATCH LINE -L- STA. 53+00.00
SEE SHEET 7

MATCH LINE -L- STA. 35+00.00
SEE SHEET 5



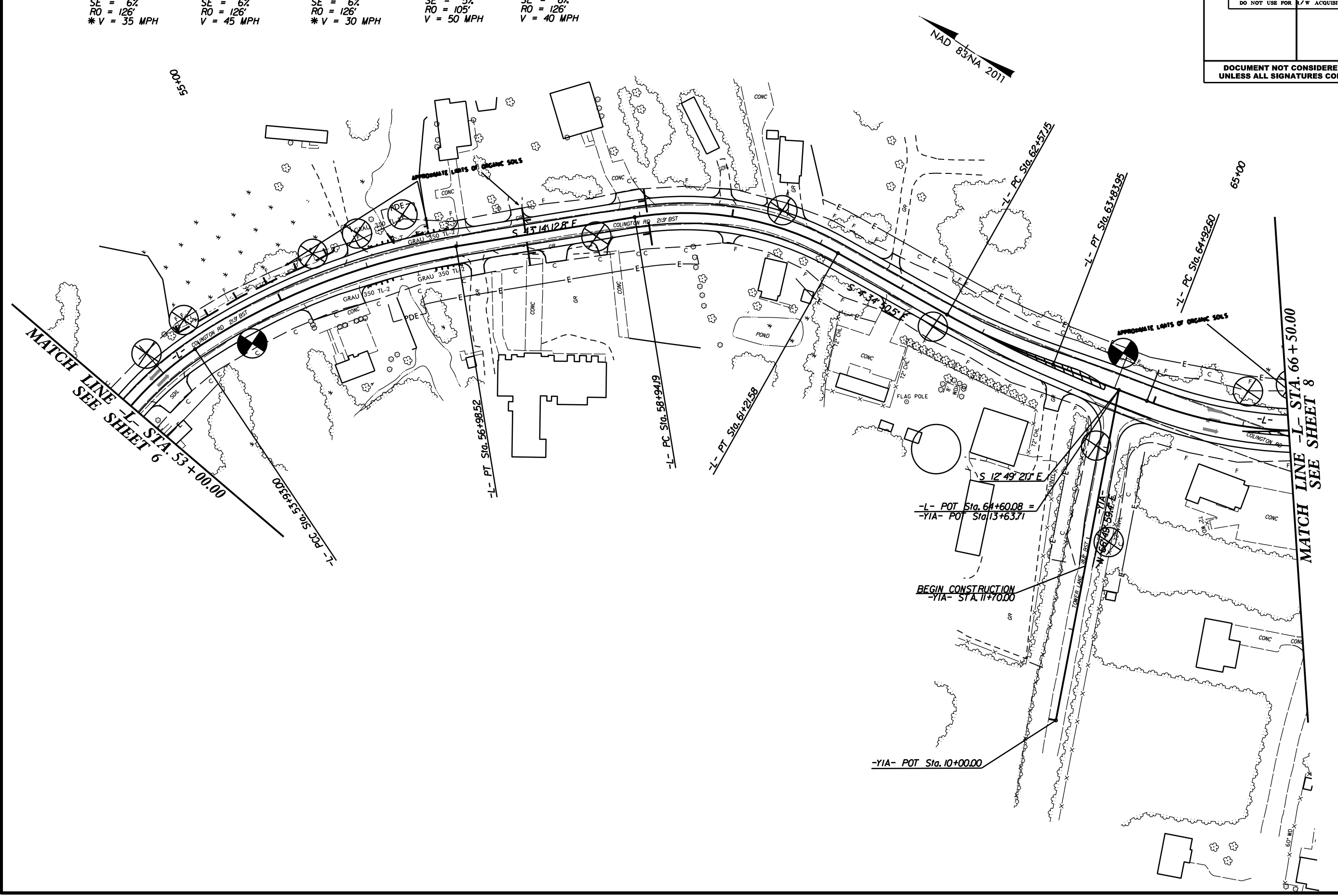
-L-		
PI Sta 34+44.90	PI Sta 36+73.83	PI Sta 39+61.27
$\Delta = 48^{\circ} 32' 06.7''$ (RT)	$\Delta = 15^{\circ} 35' 19.6''$ (RT)	$\Delta = 23^{\circ} 03' 37.3''$ (LT)
D = 17' 30' 00.0"	D = 10' 17' 00.0"	D = 15' 00' 00.0"
L = 277.34'	L = 151.59'	L = 153.74'
T = 147.61'	T = 76.27'	T = 77.92'
R = 327.40'	R = 557.17'	R = 381.97'
SE = EXIST.	SE = EXIST.	SE = EXIST.
V = EXIST.	V = EXIST.	V = EXIST.
PI Sta 45+15.24	PI Sta 49+38.45	PI Sta 52+50.59
$\Delta = 72^{\circ} 27' 53.4''$ (LT)	$\Delta = 64^{\circ} 25' 02.9''$ (LT)	$\Delta = 51^{\circ} 50' 58.6''$ (RT)
D = 16' 51' 06.1"	D = 24' 48' 12.1"	D = 16' 51' 06.1"
L = 430.02'	L = 259.71'	L = 307.68'
T = 249.14'	T = 145.52'	T = 165.28'
R = 340.00'	R = 231.00'	R = 340.00'
SE = 6%	SE = 6%	SE = 6%
RO = 126'	RO = 126'	RO = 126'
* V = 35 MPH	** V = 30 MPH	* V = 35 MPH

REVISIONS
 29-SEP-2016, 12:41 PM, PROJECT: 2016, 216070 NCDOT - R-5014 Kill Devil Hills Roadway, R5014.GEO.RDWAY.CADD.GEOTECH.Site&Sub.R5014.GEO.rv_06.dgn
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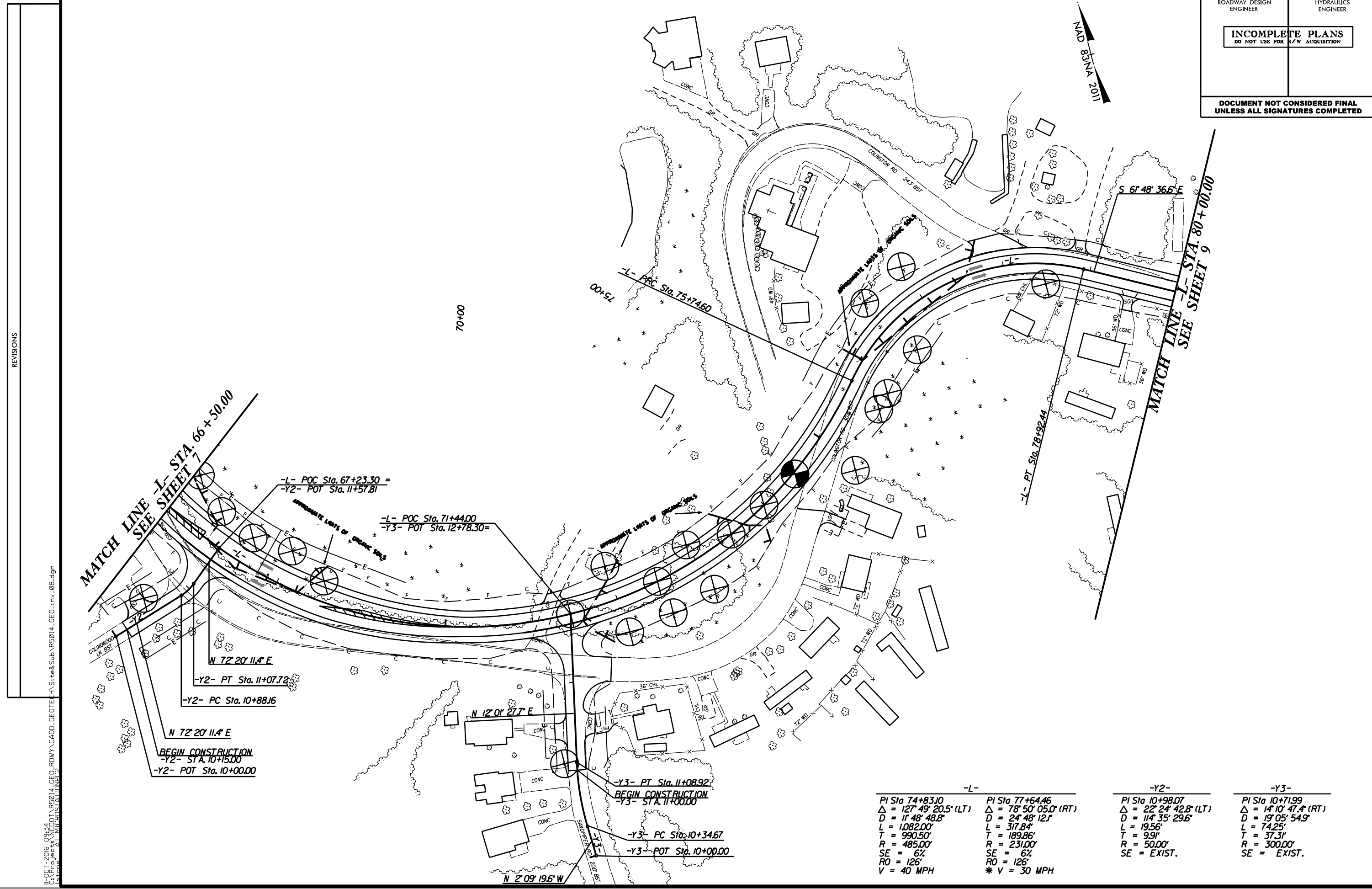
PROJECT REFERENCE NO.	SHEET NO.
R-5014	7
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR A/W ACQUISITION	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

-L-				
PI Sta 52+50.59 Δ = 51° 50' 58.6" (RT) D = 16' 51' 06.1" L = 307.68' T = 165.28' R = 340.00' SE = 6% RO = 126' * V = 35 MPH	PI Sta 55+48.13 Δ = 24° 28' 32.5" (RT) D = 8' 00' 39.4" L = 305.53' T = 155.13' R = 715.22' SE = 6% RO = 126' V = 45 MPH	PI Sta 60+12.41 Δ = 38° 39' 22.3" (RT) D = 17' 00' 00.0" L = 227.39' T = 118.21' R = 337.03' SE = 6% RO = 126' * V = 30 MPH	PI Sta 63+20.66 Δ = 8° 14' 30.6" (LT) D = 6' 30' 00.0" L = 126.80' T = 63.51' R = 881.47' SE = 5% RO = 105' V = 50 MPH	PI Sta 74+83.10 Δ = 127° 49' 20.5" (LT) D = 11' 48' 48.8" L = 1082.00' T = 990.50' R = 485.00' SE = 6% RO = 126' V = 40 MPH

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 REVISIONS
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PROJECT REFERENCE NO. R-5014	SHEET NO. 8
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR A/W ACQUISITION	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	



REVISIONS

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 1:1000

MATCH LINE -L- STA. 66+50.00
 SEE SHEET 7

MATCH LINE -L- STA. 80+00.00
 SEE SHEET 9

-L- POC Sta. 67+23.30 =
 -Y2- POT Sta. 11+57.81

APPROXIMATE LIMITS OF ORIGINAL SURF

-L- POC Sta. 71+44.00
 -Y3- POT Sta. 12+78.30 =

N 72° 20' 11.4" E

-Y2- PT Sta. 11+07.72

-Y2- PC Sta. 10+88.16

N 72° 20' 11.4" E

BEGIN CONSTRUCTION
 -Y2- STA. 10+15.00

-Y2- POT Sta. 10+00.00

-Y3- PT Sta. 11+08.92
 BEGIN CONSTRUCTION
 -Y3- STA. 11+00.00

-Y3- PC Sta. 10+34.67

-Y3- POT Sta. 10+00.00

-L-	-Y2-	-Y3-
PI Sta 74+83.10	PI Sta 10+98.07	PI Sta 10+71.99
Δ = 127° 49' 20.5" (LT)	Δ = 22° 24' 42.8" (LT)	Δ = 14° 10' 47.4" (RT)
D = 11° 48' 48.8"	D = 114° 35' 29.6"	D = 19° 05' 54.9"
L = 1082.00'	L = 19.56'	L = 74.25'
T = 990.50'	T = 9.91'	T = 37.31'
R = 485.00'	R = 50.00'	R = 300.00'
SE = 6%	SE = EXIST.	SE = EXIST.
RO = 126'		
V = 40 MPH	* V = 30 MPH	

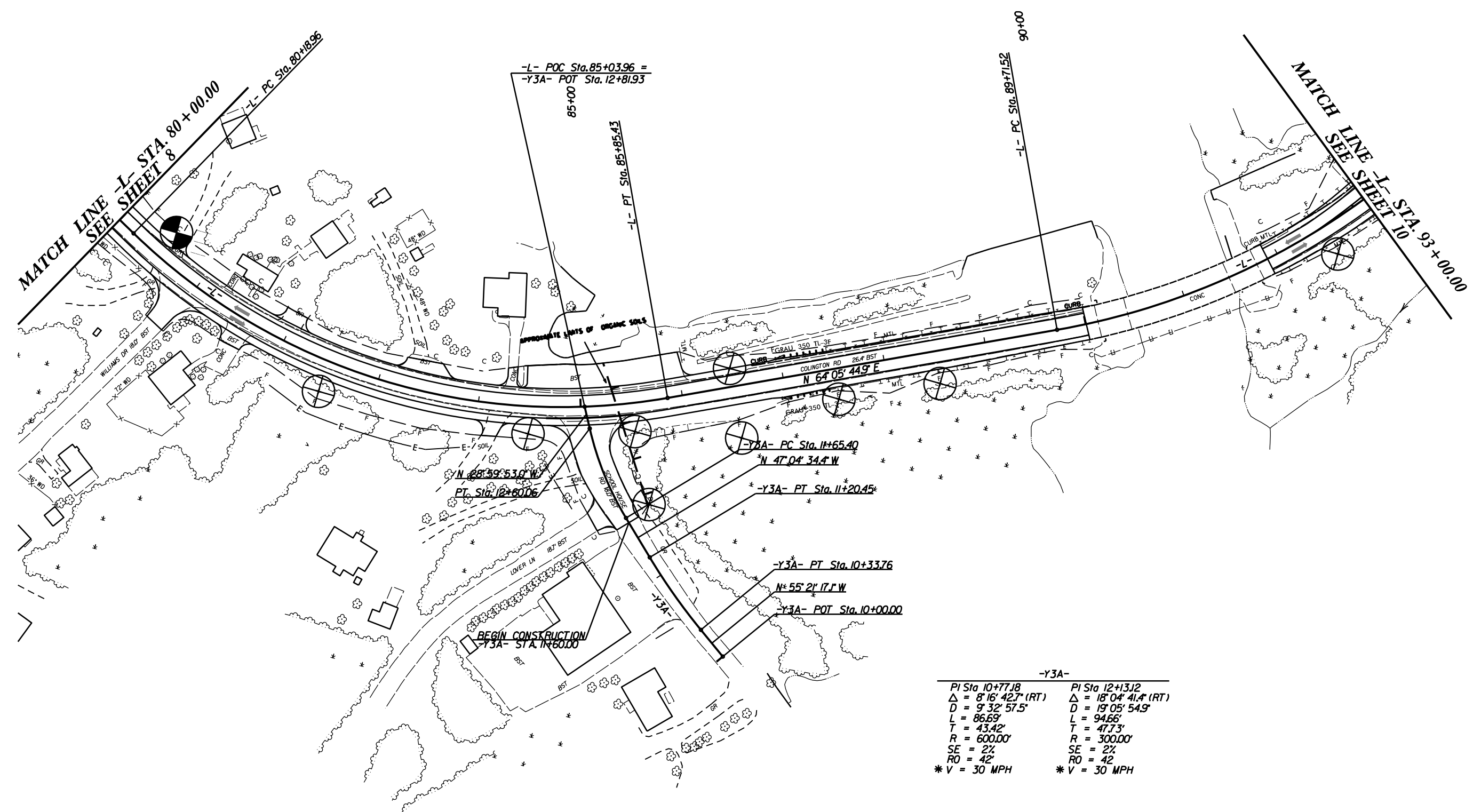
N 2° 09' 19.6" W

PROJECT REFERENCE NO.	SHEET NO.
R-5014	9
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR A/W ACQUISITION	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

-L-	
PI Sta 83+25.29	PI Sta 92+55.51
$\Delta = 54^{\circ}05'38.6"$ (LT)	$\Delta = 43^{\circ}15'31.2"$ (LT)
D = 9'32'57.5"	D = 8'00'00.0"
L = 566.47'	L = 540.73'
T = 306.34'	T = 283.99'
R = 600.00'	R = 716.20'
SE = 6%	SE = 6%
RO = 126'	RO = 126'
V = 40 MPH	V = 45 MPH

NAD 83 N/A 2017

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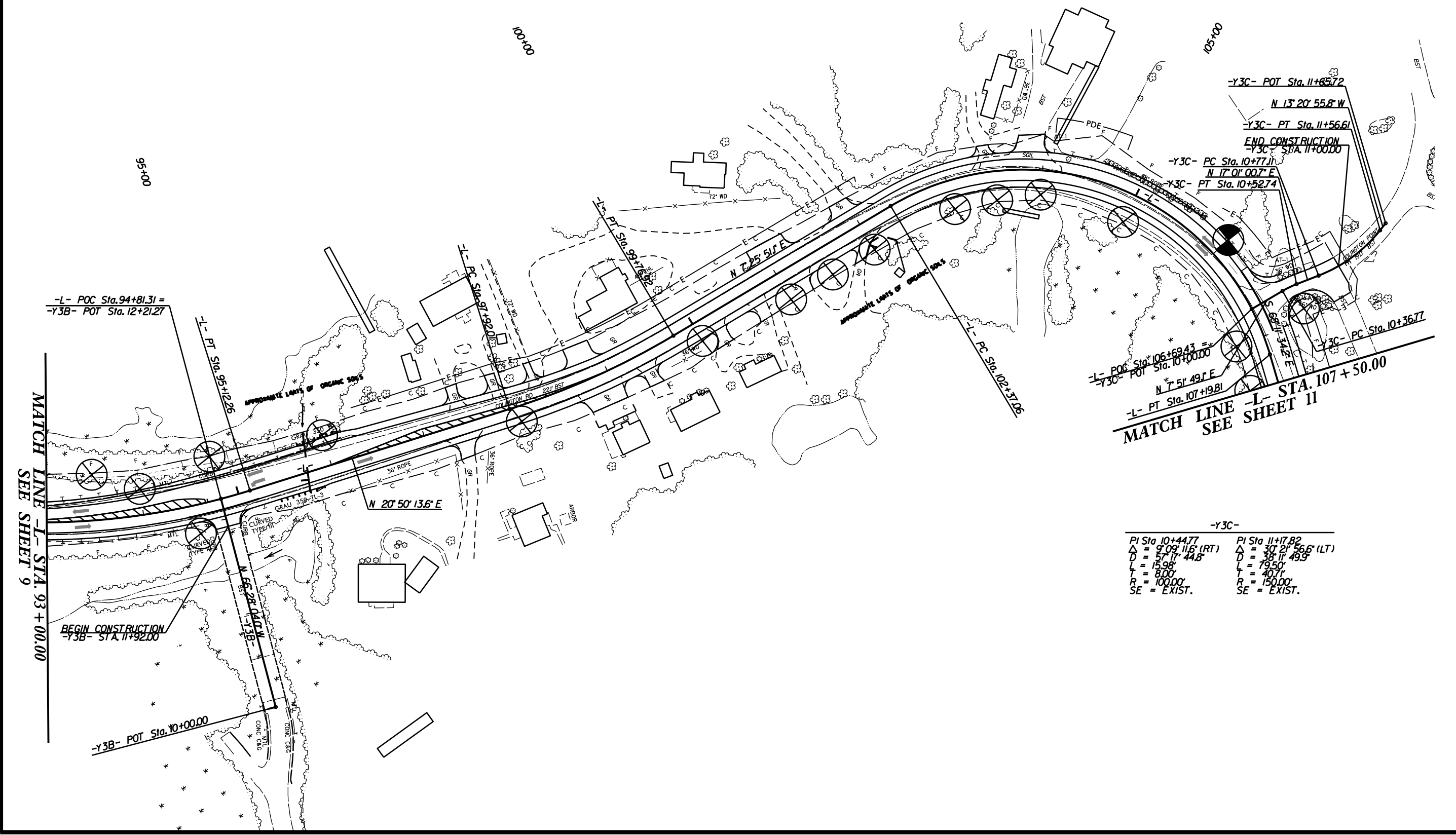


-Y3A-	
PI Sta 10+77.18	PI Sta 12+13.12
$\Delta = 8^{\circ}16'42.7"$ (RT)	$\Delta = 18^{\circ}04'41.4"$ (RT)
D = 9'32'57.5"	D = 19'05'54.9"
L = 86.69'	L = 94.66'
T = 43.42'	T = 47.73'
R = 600.00'	R = 300.00'
SE = 2%	SE = 2%
RO = 42'	RO = 42'
* V = 30 MPH	* V = 30 MPH

PROJECT REFERENCE NO. R-5014	SHEET NO. 10
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR A/W ACQUISITION	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

-L-

PI Sta 92+55.51 $\Delta = 43^{\circ}15'31.2"$ (LT) $D = 8^{\circ}00'00.0"$ $L = 540.73'$ $T = 283.99'$ $R = 716.20'$ $SE = 6\%$ $RO = 126'$ $V = 45$ MPH	PI Sta 98+84.89 $\Delta = 13^{\circ}24'22.6"$ (LT) $D = 7^{\circ}15'00.0"$ $L = 184.91'$ $T = 92.88'$ $R = 790.29'$ $SE = 5\%$ $RO = 105'$ $V = 45$ MPH	PI Sta 105+78.55 $\Delta = 10^{\circ}42'34.7"$ (RT) $D = 2^{\circ}37'15.8"$ $L = 482.75'$ $T = 341.49'$ $R = 265.00'$ $SE = 6\%$ $RO = 126'$ $* V = 30$ MPH
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MATCH LINE -L- STA. 93 + 00.00
SEE SHEET 9

MATCH LINE -L- STA. 107 + 50.00
SEE SHEET 11

-Y3C-

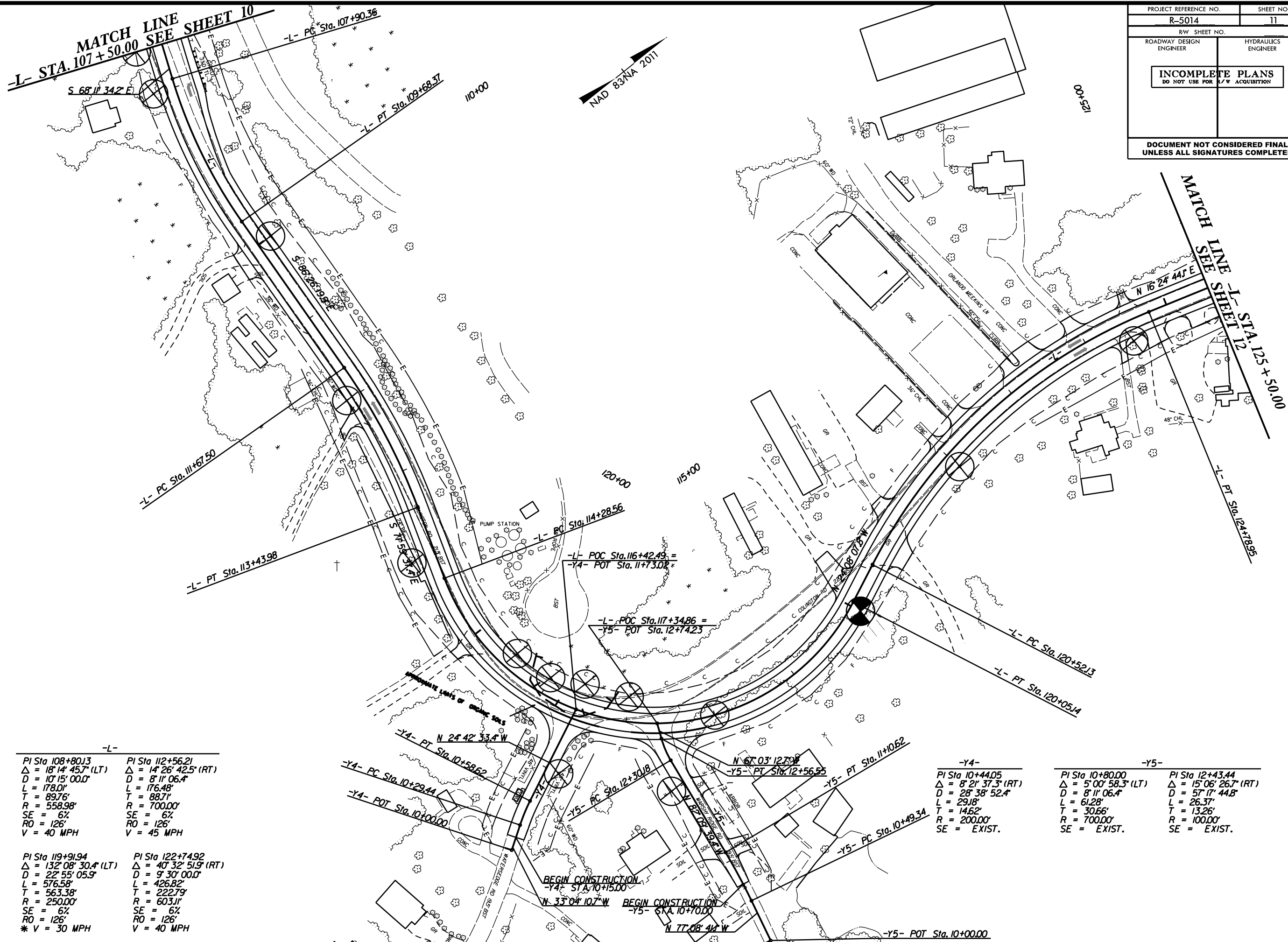
PI Sta 10+44.77 $\Delta = 9^{\circ}09'11.6"$ (RT) $D = 57^{\circ}17'44.8"$ $L = 15.98'$ $T = 8.00'$ $R = 100.00'$ $SE =$ EXIST.	PI Sta 11+17.82 $\Delta = 30^{\circ}21'56.6"$ (LT) $D = 38^{\circ}21'49.9"$ $L = 79.50'$ $T = 40.71'$ $R = 150.00'$ $SE =$ EXIST.
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REVISIONS

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21-OCT-2016 09:52
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File: M...
Plot: ...

PROJECT REFERENCE NO.	SHEET NO.
R-5014	11
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR A/W ACQUISITION	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	



REVISIONS

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 21-OCT-2016 09:53
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 11/11/2016 11:11:12

-L-	-L-
PI Sta 108+80.13	PI Sta 112+56.21
Δ = 18° 14' 45.7" (LT)	Δ = 14° 26' 42.5" (RT)
D = 10' 15" 00.0"	D = 8' 11" 06.4"
L = 178.01'	L = 176.48'
T = 89.76'	T = 88.71'
R = 558.98'	R = 700.00'
SE = 6%	SE = 6%
RO = 126'	RO = 126'
V = 40 MPH	V = 45 MPH

PI Sta 119+91.94	PI Sta 122+74.92
Δ = 132° 08' 30.4" (LT)	Δ = 40° 32' 51.9" (RT)
D = 22° 55' 05.9"	D = 9° 30' 00.0"
L = 576.58'	L = 426.82'
T = 563.38'	T = 222.79'
R = 250.00'	R = 603.11'
SE = 6%	SE = 6%
RO = 126'	RO = 126'
* V = 30 MPH	V = 40 MPH

-Y4-
PI Sta 10+44.05
Δ = 8° 21' 37.3" (RT)
D = 28° 38' 52.4"
L = 29.18'
T = 14.62'
R = 200.00'
SE = EXIST.

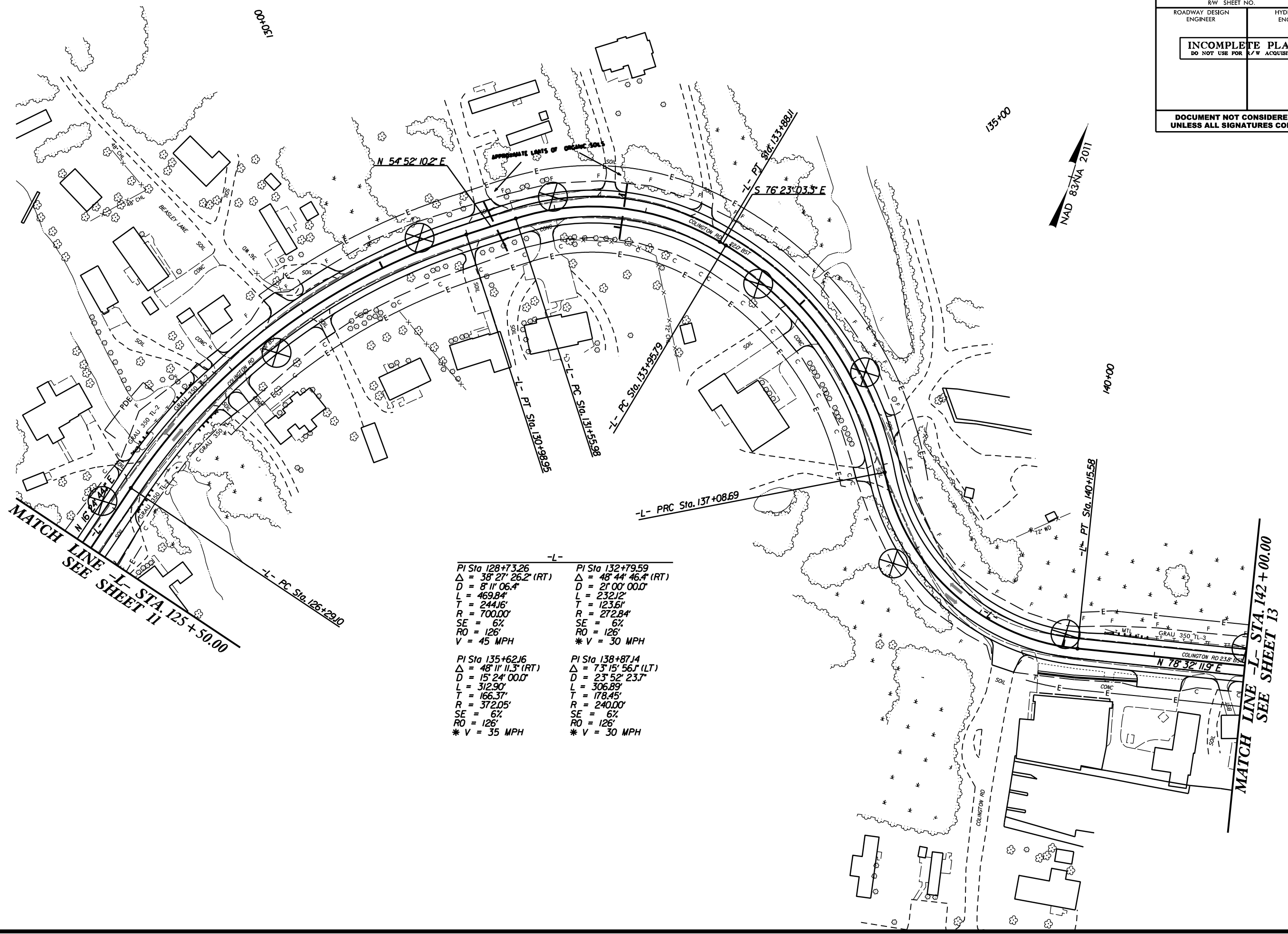
-Y5-	-Y5-
PI Sta 10+80.00	PI Sta 12+43.44
Δ = 5° 00' 58.3" (LT)	Δ = 15° 06' 26.7" (RT)
D = 8' 11" 06.4"	D = 57' 17" 44.8"
L = 61.28'	L = 26.37'
T = 30.66'	T = 13.26'
R = 700.00'	R = 100.00'
SE = EXIST.	SE = EXIST.

BEGIN CONSTRUCTION -Y4- STA. 10+15.00

BEGIN CONSTRUCTION -Y5- STA. 10+70.00

PROJECT REFERENCE NO.	SHEET NO.
R-5014	12
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR A/W ACQUISITION	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

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 REVISIONS
 24-OCT-2016 14:59
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 8/17/99



<p>-L-</p> <p>PI Sta 128+73.26 $\Delta = 38^\circ 27' 26.2''$ (RT) $D = 8^\circ 11' 06.4''$ $L = 469.84'$ $T = 244.16'$ $R = 700.00'$ $SE = 6\%$ $RO = 126'$ $V = 45$ MPH</p>	<p>PI Sta 132+79.59 $\Delta = 48^\circ 44' 46.4''$ (RT) $D = 2^\circ 00' 00.0''$ $L = 232.12'$ $T = 123.61'$ $R = 272.84'$ $SE = 6\%$ $RO = 126'$ $* V = 30$ MPH</p>
<p>PI Sta 135+62.16 $\Delta = 48^\circ 11' 11.3''$ (RT) $D = 15^\circ 24' 00.0''$ $L = 312.90'$ $T = 166.37'$ $R = 372.05'$ $SE = 6\%$ $RO = 126'$ $* V = 35$ MPH</p>	<p>PI Sta 138+87.14 $\Delta = 73^\circ 15' 56.1''$ (LT) $D = 23^\circ 52' 23.7''$ $L = 306.89'$ $T = 178.45'$ $R = 240.00'$ $SE = 6\%$ $RO = 126'$ $* V = 30$ MPH</p>

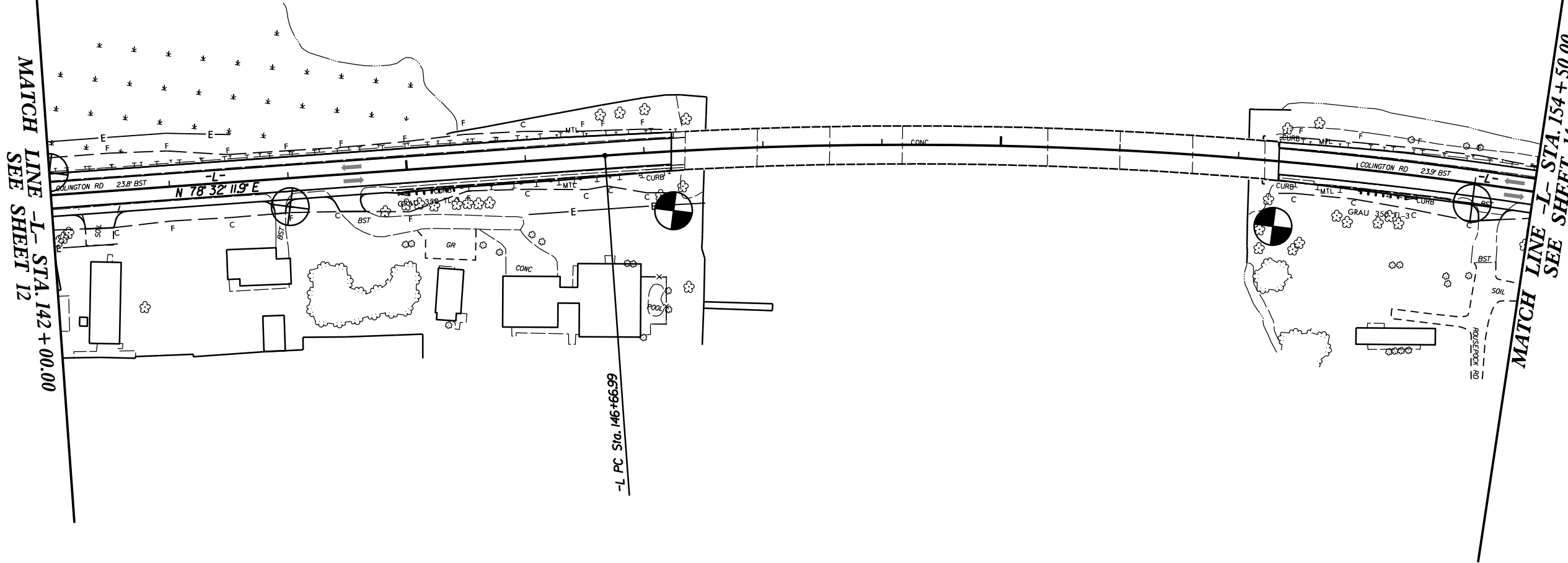
MATCH LINE -L- STA. 125+50.00
SEE SHEET 11

MATCH LINE -L- STA. 142+00.00
SEE SHEET 13

29-SEP-2016 12:41 S:\pmpk\g\PROJECTS\2016\216070 NCDOT - R-5014 Kill Devil Hills Roadway\RDWY\CADD_GEO\RDWY\RS014_GEO_rv.13.dgn 8/17/99

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MATCH LINE -L- STA. 142+00.00
SEE SHEET 12



-L PC Sta. 146+66.99

-L-
PI Sta 151+21.7
 $\Delta = 14^{\circ} 36' 20.0\"$ (RT)
D = 1' 37' 00.0"
L = 903.44'
T = 454.18'
R = 3,544.07'
SE = 2%
RO = 42'
V = 80 MPH

145+00

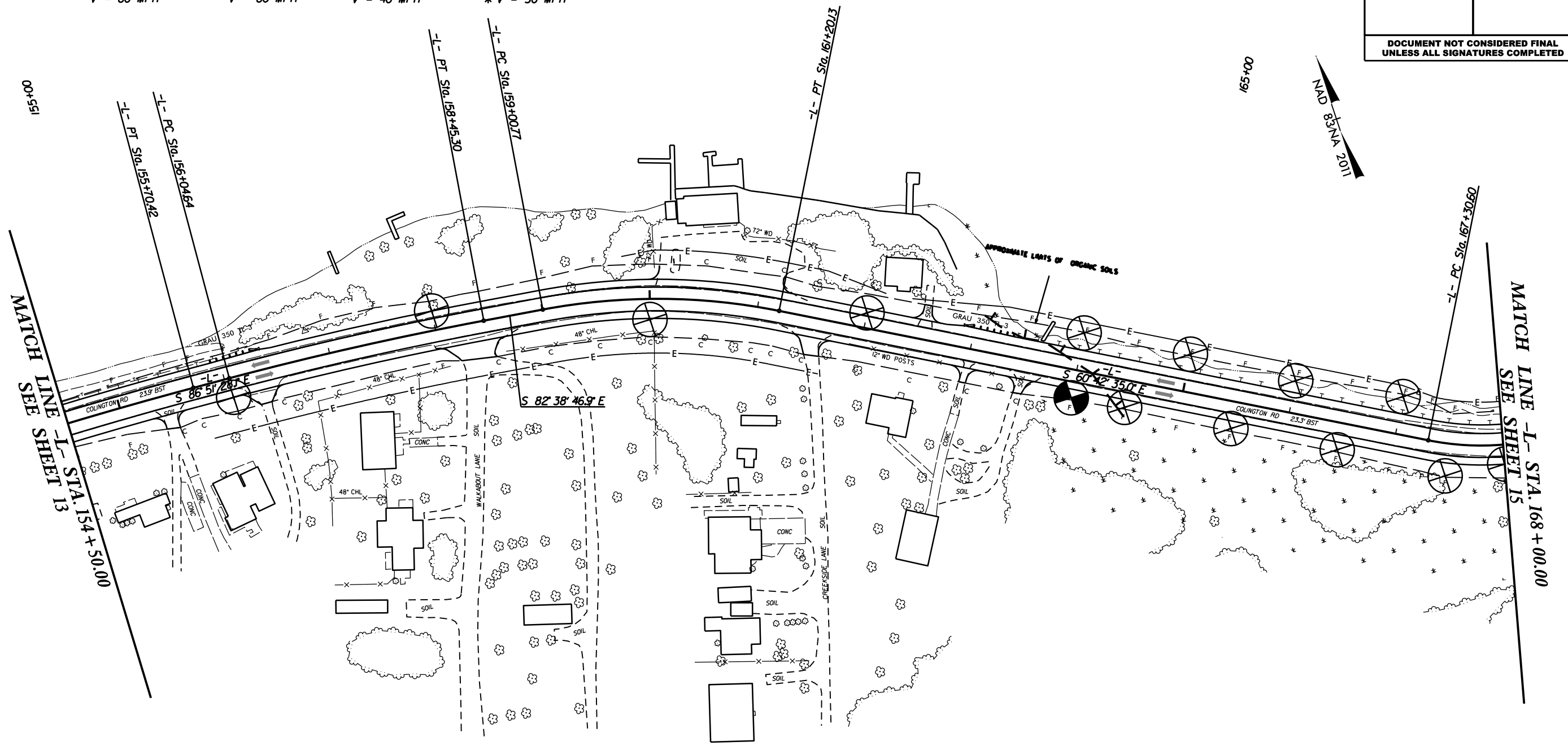
150+00

NAD 83/NA 2011

PROJECT REFERENCE NO.	SHEET NO.
R-5014	13
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR A/W ACQUISITION	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

PROJECT REFERENCE NO.	SHEET NO.
R-5014	14
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR A/W ACQUISITION	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

-L-			
PI Sta 151+21.7	PI Sta 157+25.02	PI Sta 160+11.81	PI Sta 168+56.10
$\Delta = 14^{\circ} 36' 20.0"$ (RT)	$\Delta = 4^{\circ} 12' 41.2"$ (RT)	$\Delta = 21^{\circ} 56' 11.8"$ (RT)	$\Delta = 53^{\circ} 18' 40.2"$ (LT)
D = 1' 37' 00.0"	D = 1' 45' 00.0"	D = 10' 00' 00.0"	D = 22' 55' 05.9"
L = 903.44'	L = 240.65'	L = 219.37'	L = 232.61'
T = 454.18'	T = 120.38'	T = 111.04'	T = 125.49'
R = 3,544.07'	R = 3,274.04'	R = 572.96'	R = 250.00'
SE = 2%	SE = 2%	SE = 6%	SE = 6%
RO = 42'	RO = 42'	RO = 126'	RO = 126'
V = 80 MPH	V = 80 MPH	V = 40 MPH	* V = 30 MPH

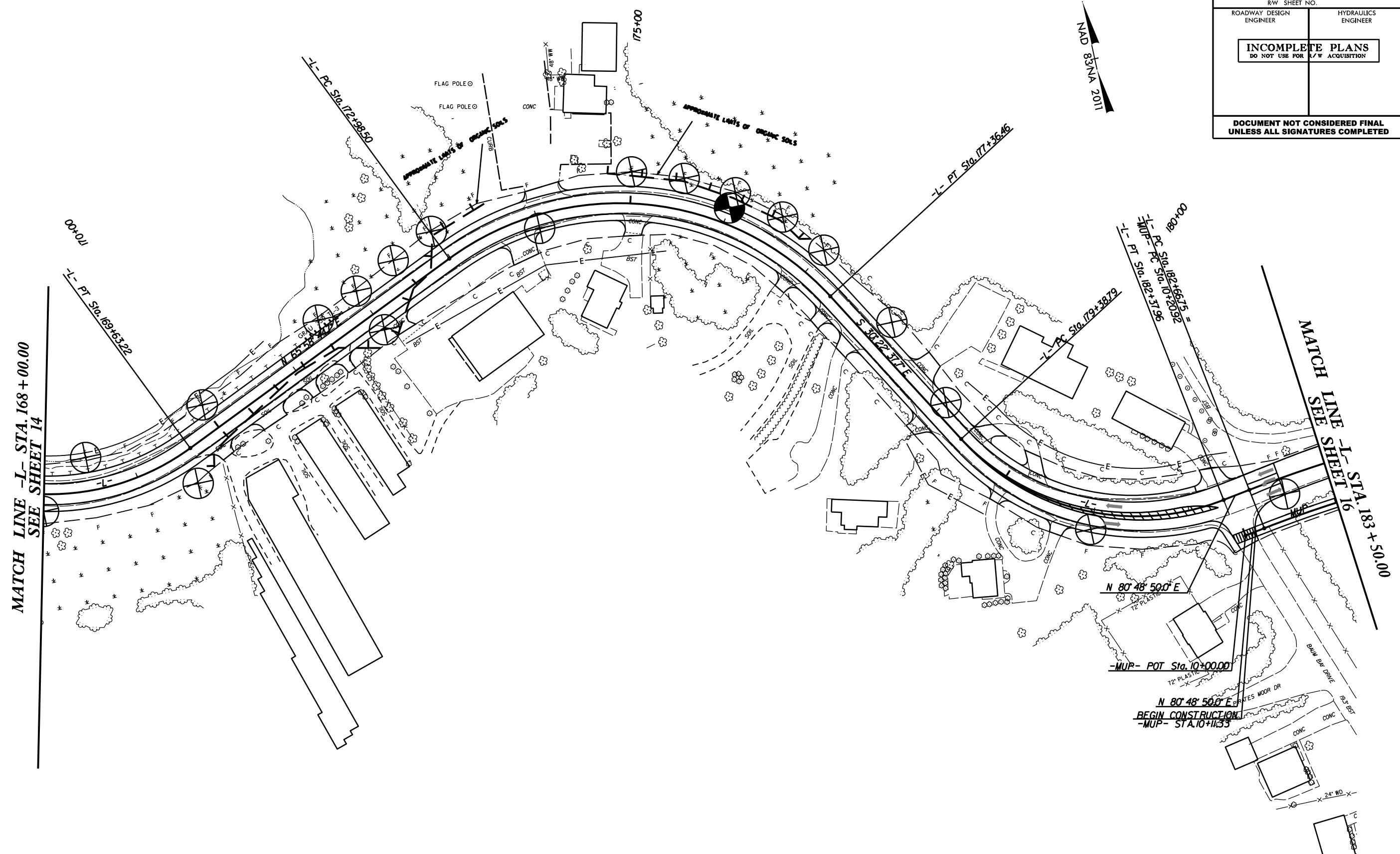


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PROJECT REFERENCE NO.	SHEET NO.
R-5014	15
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR A/W ACQUISITION	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	



MATCH LINE -L- STA. 168 + 00.00
SEE SHEET 14

MATCH LINE SHEET 16
-L- STA. 183 + 50.00

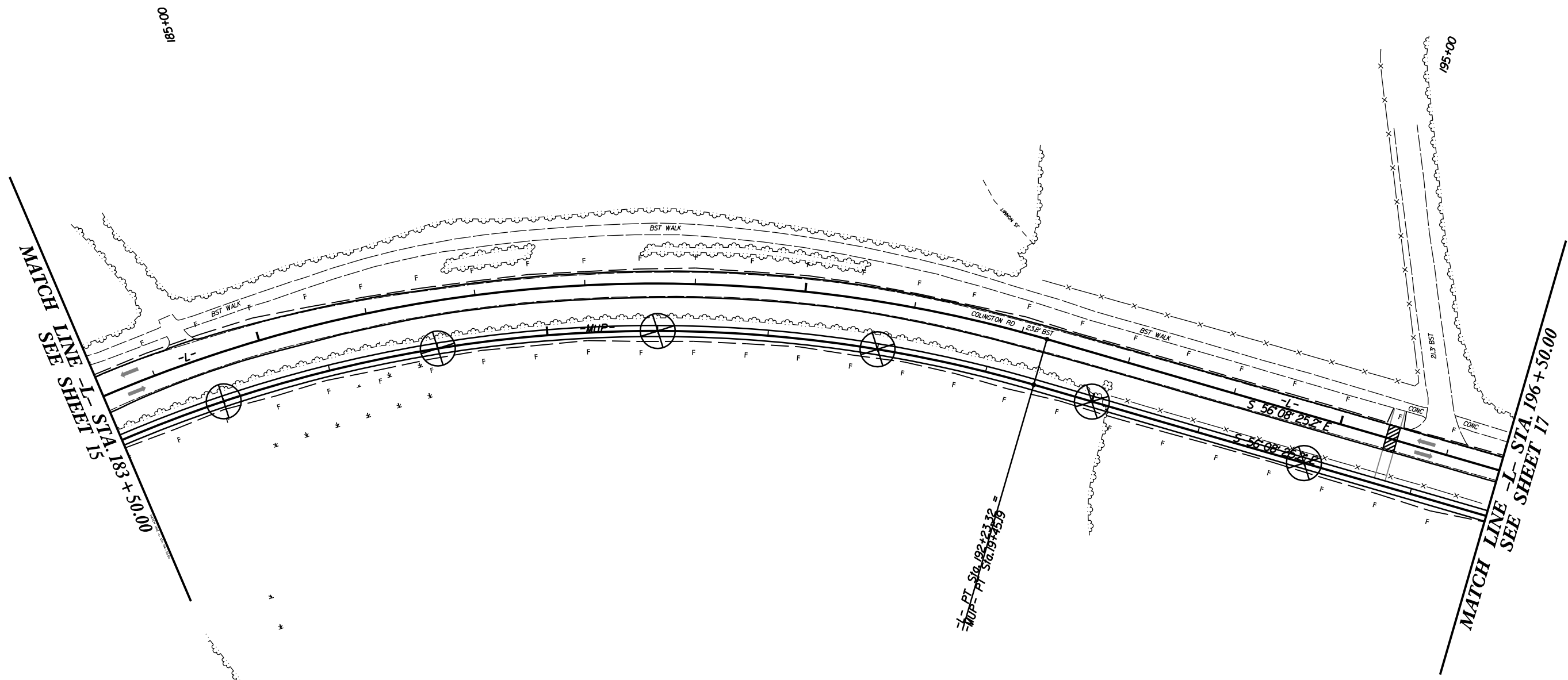
REVISIONS

28-OCT-2016 10:17
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8/17/99

-L-				-MUP-	
PI Sta 168+56.10	PI Sta 175+66.94	PI Sta 181+09.39	PI Sta 187+68.88	PI Sta 15+06.09	
$\Delta = 53^{\circ} 18' 40.2''$ (LT)	$\Delta = 83^{\circ} 38' 37.6''$ (RT)	$\Delta = 68^{\circ} 48' 32.2''$ (LT)	$\Delta = 43^{\circ} 02' 44.8''$ (RT)	$\Delta = 43^{\circ} 02' 44.8''$ (RT)	
D = 22' 55' 05.9"	D = 19' 05' 54.9"	D = 23' 00' 00.0"	D = 4' 30' 00.0"	D = 4' 39' 26.2"	
L = 232.61'	L = 437.96'	L = 299.17'	L = 956.57'	L = 924.27'	
T = 125.49'	T = 268.44'	T = 170.60'	T = 502.13'	T = 485.17'	
R = 250.00'	R = 300.00'	R = 249.11'	R = 1273.24'	R = 1230.24'	
SE = 6%	SE = 6%	SE = 6%	SE = EXIST.		
RO = 126'	RO = 126'	RO = 126'	V = 55 MPH		
* V = 30 MPH	* V = 30 MPH	* V = 30 MPH			

PROJECT REFERENCE NO. R-5014	SHEET NO. 16
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

-L-	-MUP-
PI Sta 187+68.88	PI Sta 15+06.09
$\Delta = 43^{\circ} 02' 44.8" (RT)$	$\Delta = 43^{\circ} 02' 44.8" (RT)$
$D = 4^{\circ} 30' 00.0"$	$D = 4^{\circ} 39' 26.2"$
$L = 956.57'$	$L = 924.27'$
$T = 502.13'$	$T = 485.17'$
$R = 1273.24'$	$R = 1230.24'$
SE = EXIST.	
V = 55 MPH	



REVISIONS

29-SEP-2016 16:24 Kill Devil Hills Roadway\RS014_GEO.RDWAY\CADD_GEO\TECH_Site&Sub\RS014_GEO.rv.16.dgn
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 8/17/99

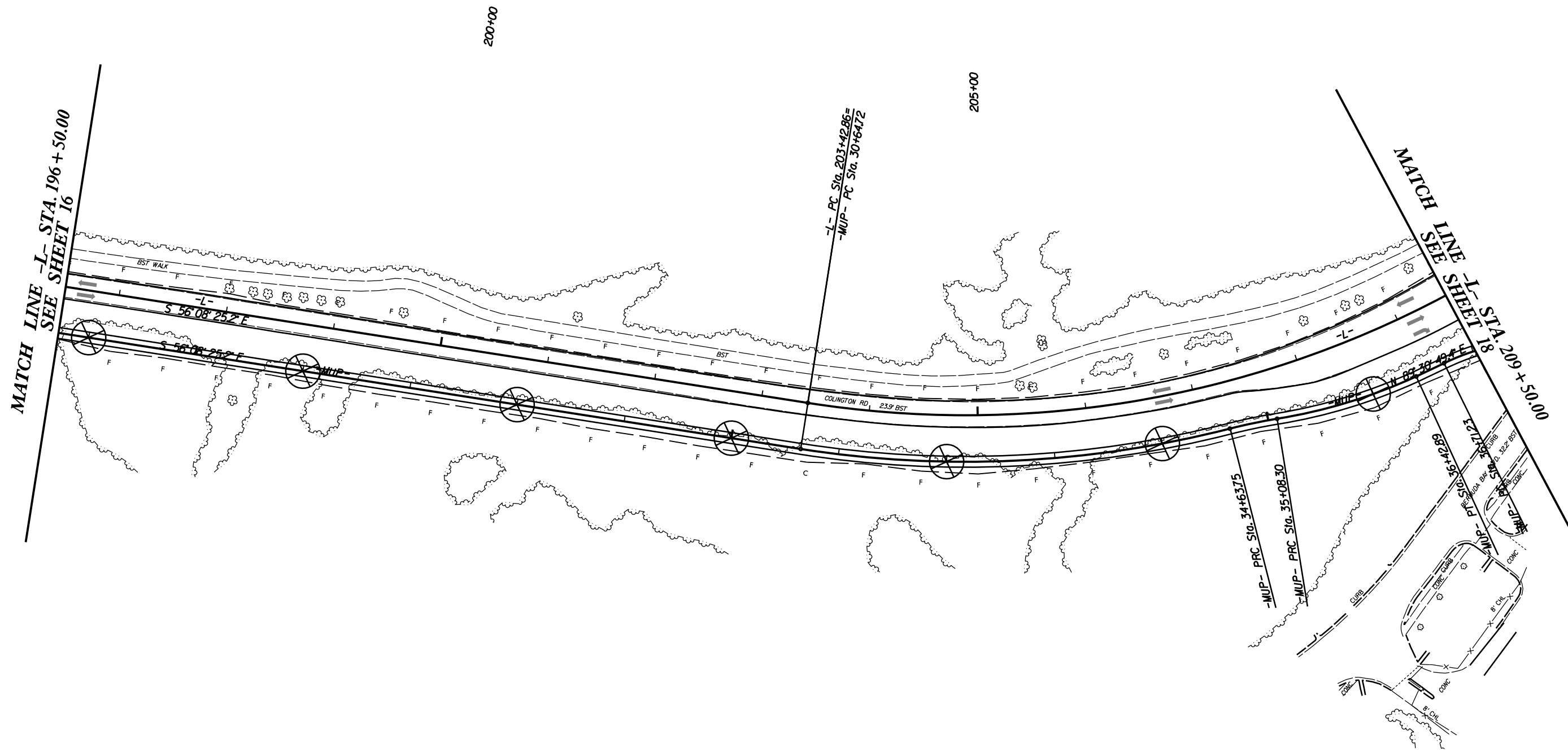
PROJECT REFERENCE NO. R-5014	SHEET NO. 17
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	



-L-		-MUP-
PI Sta 209+11.27		PI Sta 32+67.01
$\Delta = 62^\circ 13' 20.7''$ (LT)		$\Delta = 23^\circ 12' 51.8''$ (LT)
D = 6' 05' 00.0"		D = 5' 49' 03.8"
L = 1,022.83'		L = 399.03'
T = 568.41'		T = 202.29'
R = 941.85'		R = 984.85'
SE = EXIST.		
V = 50 MPH		

		PI Sta 34+86.04
		$\Delta = 5^\circ 06' 18.4''$ (RT)
		D = 1' 27' 33.0"
		L = 44.55'
		T = 22.29'
		R = 500.00'

PI Sta 35+76.00		PI Sta 37+12.08
$\Delta = 15^\circ 25' 19.7''$ (LT)		$\Delta = 23^\circ 05' 12.6''$ (RT)
D = 1' 27' 33.0"		D = 28' 38' 52.4"
L = 134.58'		L = 80.59'
T = 67.70'		T = 40.85'
R = 500.00'		R = 200.00'



REVISIONS

29-SEP-2016 16:24 Kill Devil Hills Roadway\RS014_GEO.RDWAY\CADD_GEO\TECH_Site&Sub\RS014_GEO.mv.17.dgn
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 8/17/99

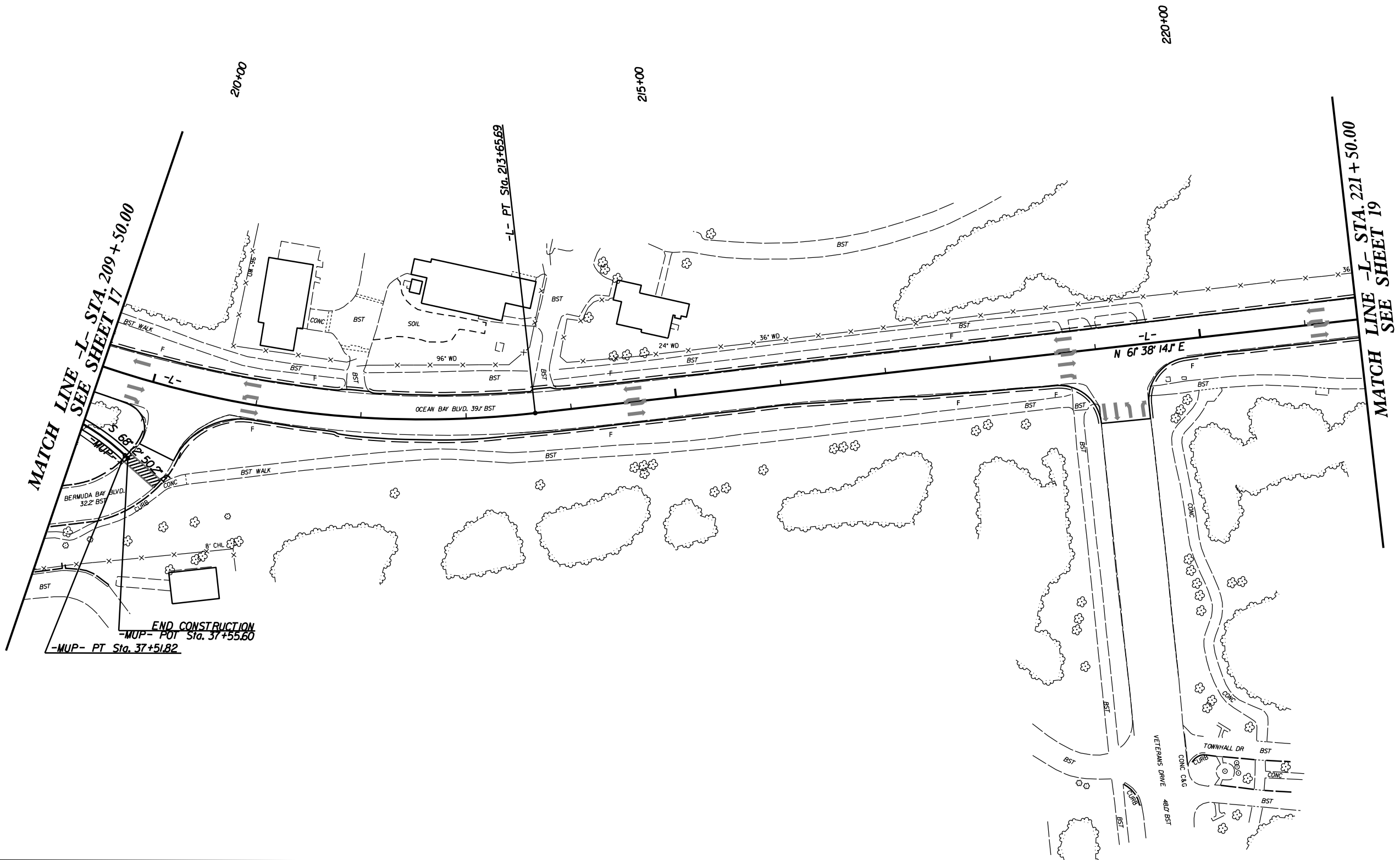
PROJECT REFERENCE NO.	SHEET NO.
R-5014	18
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

-L-	-MUP-
PI Sta 209+11.27	PI Sta 37+12.08
$\Delta = 62^{\circ} 13' 20.7"$ (LT)	$\Delta = 23^{\circ} 05' 12.6"$ (RT)
D = 6' 05' 00.0"	D = 28' 38' 52.4"
L = 1,022.83'	L = 80.59'
T = 568.41'	T = 40.85'
R = 941.85'	R = 200.00'
SE = EXIST.	
V = 50 MPH	



REVISIONS

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 8/17/99



MATCH LINE -L- STA. 209 + 50.00
SEE SHEET 17

MATCH LINE -L- STA. 221 + 50.00
SEE SHEET 19

END CONSTRUCTION
 -MUP- POT Sta. 37+55.60
 -MUP- PT Sta. 37+51.82

210+00

215+00

220+00

OCEAN BAY BLVD. 39' BST

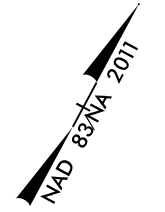
BERMUDA BAY BLVD. 32.2' BST

VETERANS DRIVE 48' BST

N 61° 38' 14" E

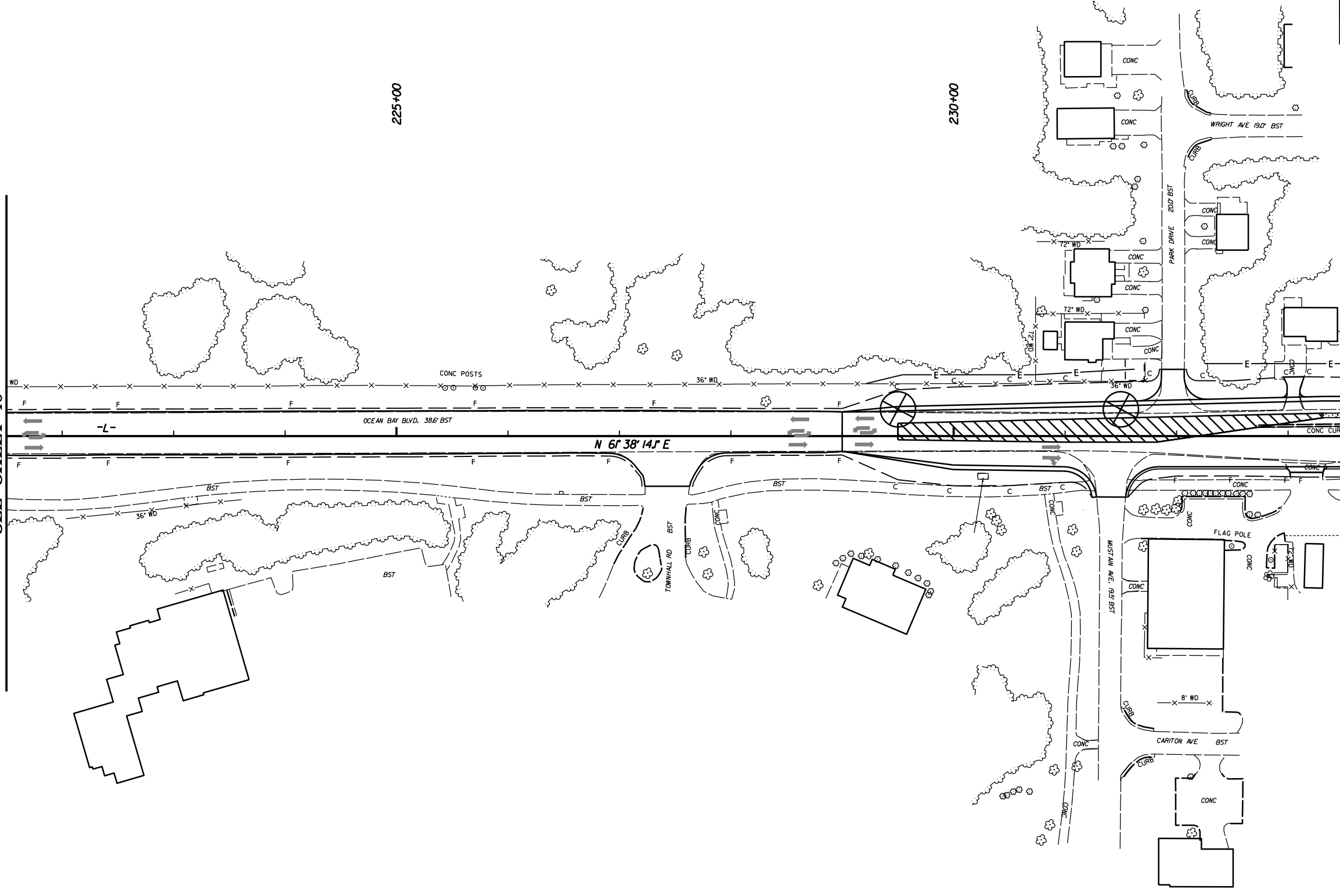
-L- PT Sta. 213+65.62

PROJECT REFERENCE NO.	SHEET NO.
R-5014	19
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR A/W ACQUISITION	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	



MATCH LINE -L- STA. 221 + 50.00
SEE SHEET 18

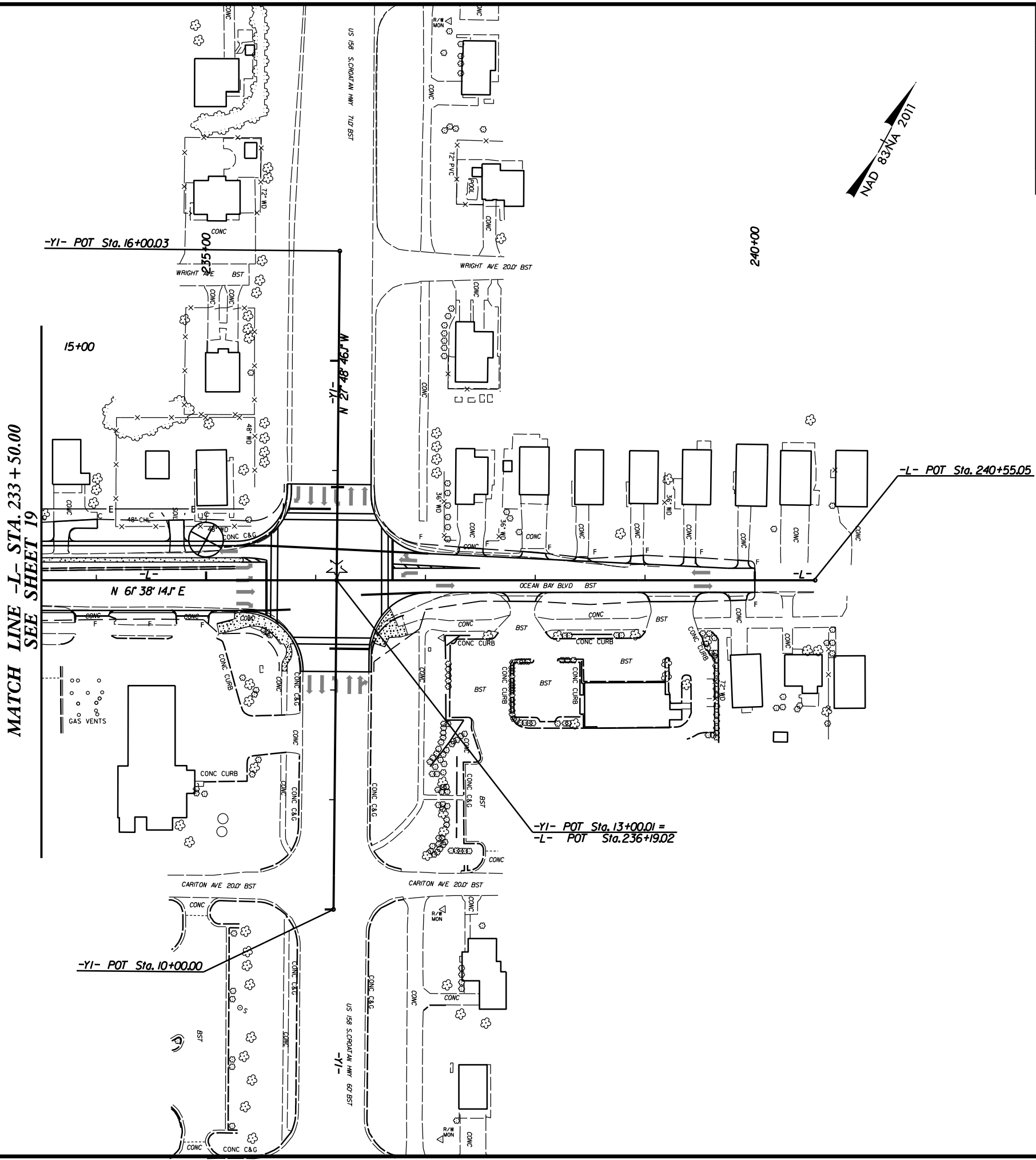
MATCH LINE -L- STA. 233 + 50.00
SEE SHEET 20



REVISIONS

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 8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-5014	20
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR A/W ACQUISITION	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	



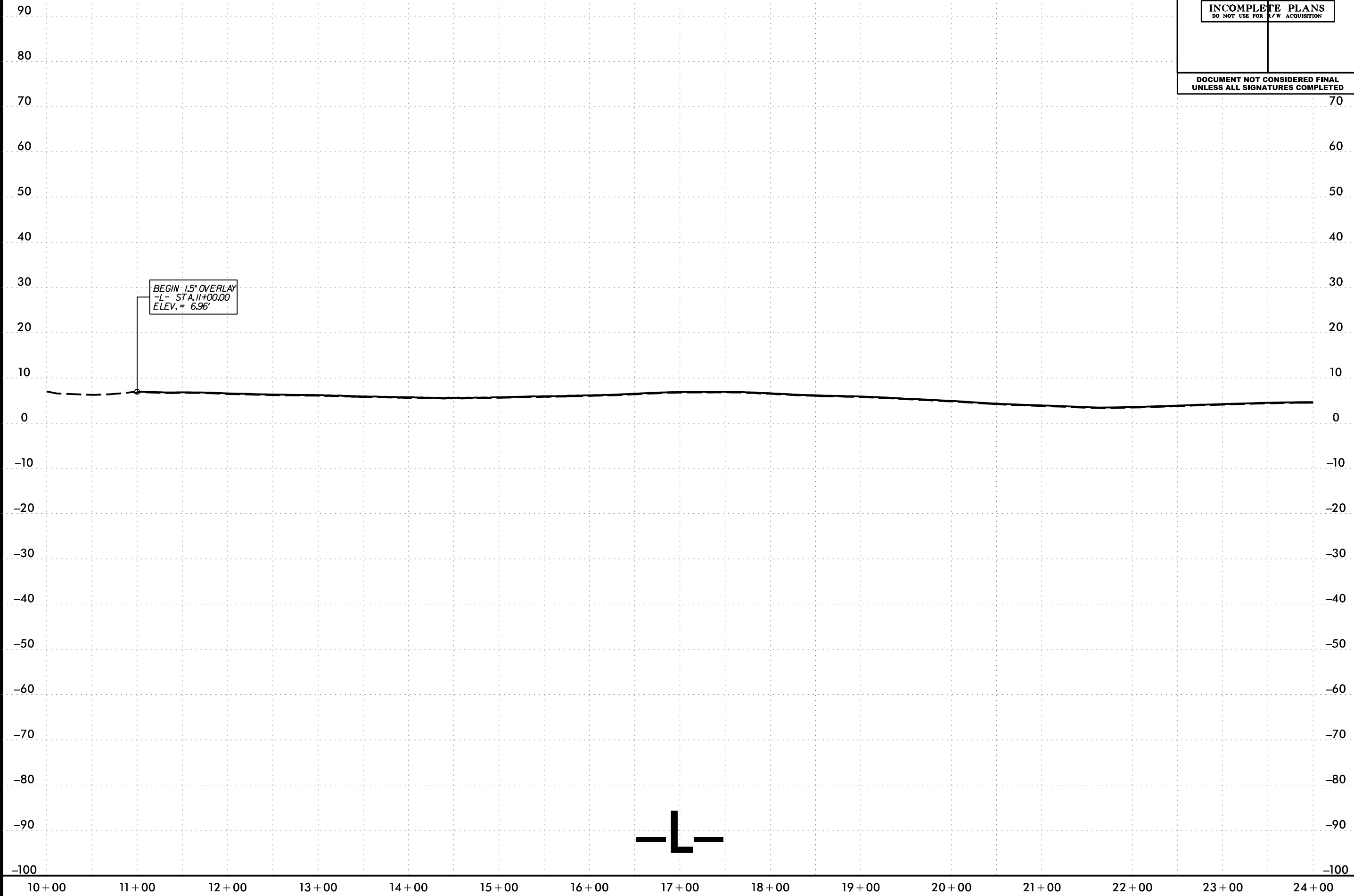
MATCH LINE -L- STA. 233+50.00
SEE SHEET 19

REVISIONS

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 8/17/99

5/14/99

PROJECT REFERENCE NO.	SHEET NO.
R-5014	21
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

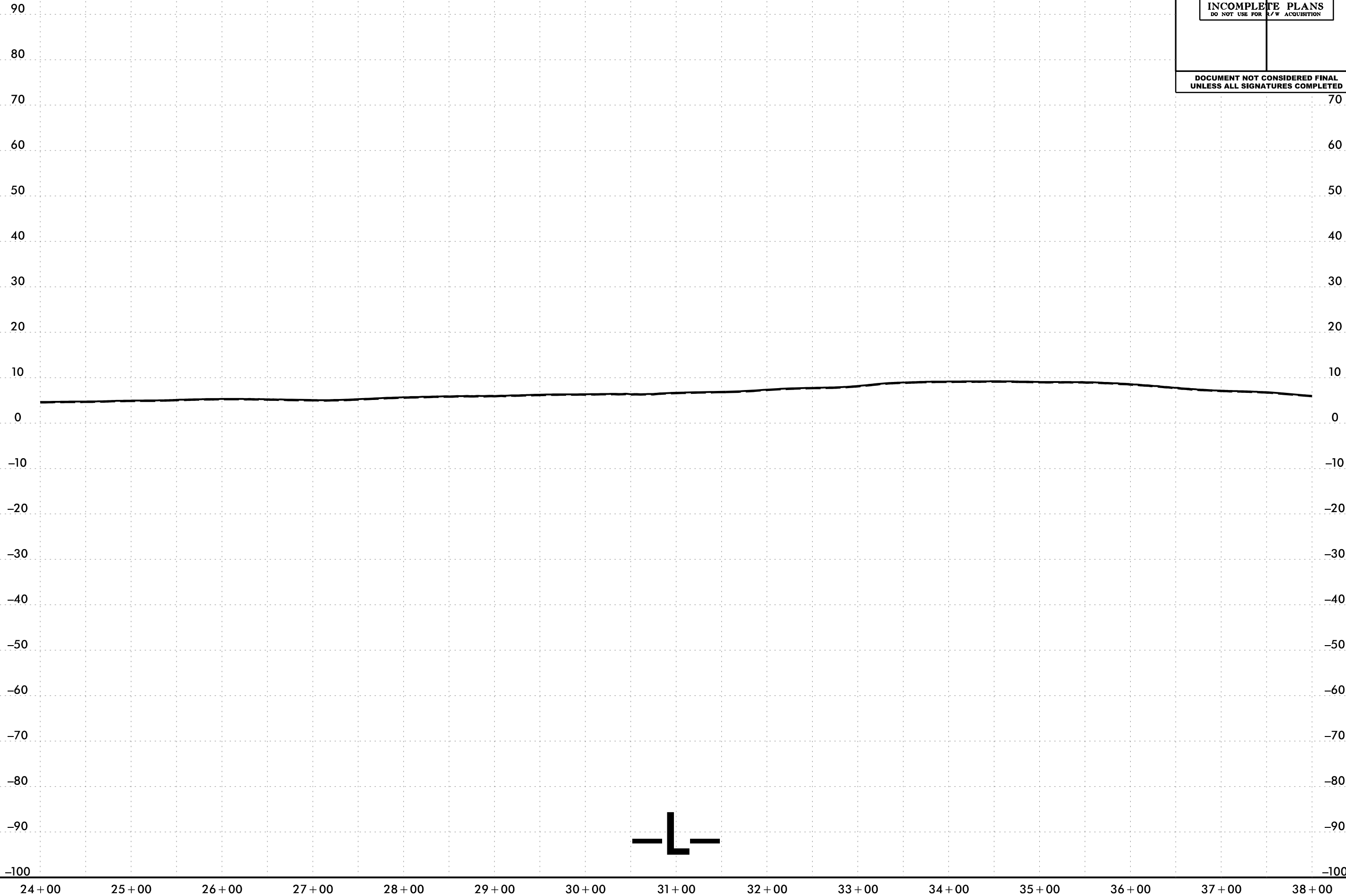


BEGIN 1.5" OVERLAY
 L = STA. 11+00.00
 ELEV. = 6.96'

28-OCT-2016 11:51
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 User: AL_MIRANDA

5/14/99

PROJECT REFERENCE NO.	SHEET NO.
R-5014	22
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

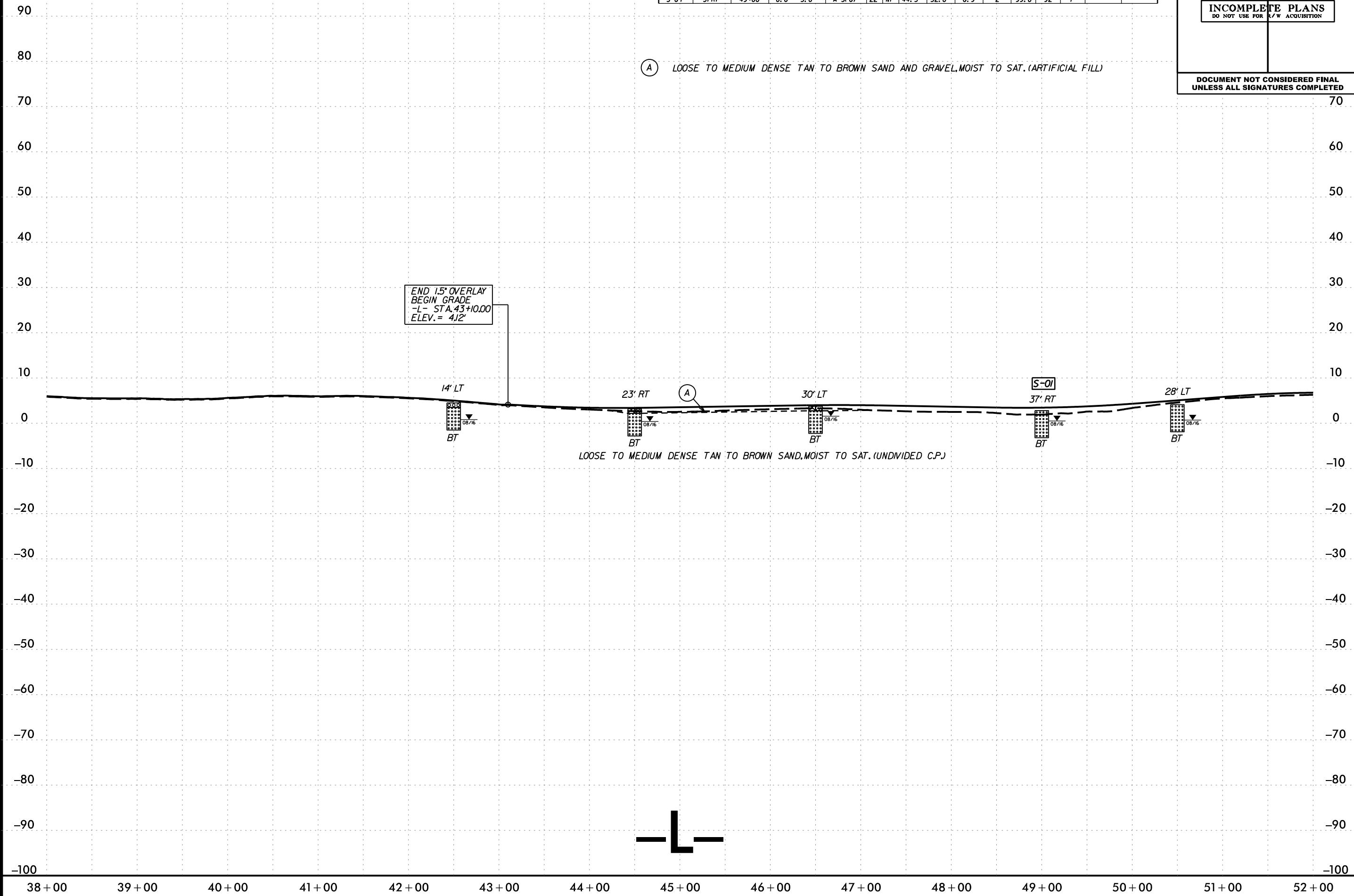


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5/14/99

PROJECT REFERENCE NO.	SHEET NO.
R-5014	23
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

SOIL TEST RESULTS															
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
S-01	37' RT	49+00	0.0 - 5.0	A-3(0)	22	NP	C.SAND	F.SAND	SILT	CLAY	10	40	200		
							44.5	52.6	0.9	2	99.6	92	1	-	-



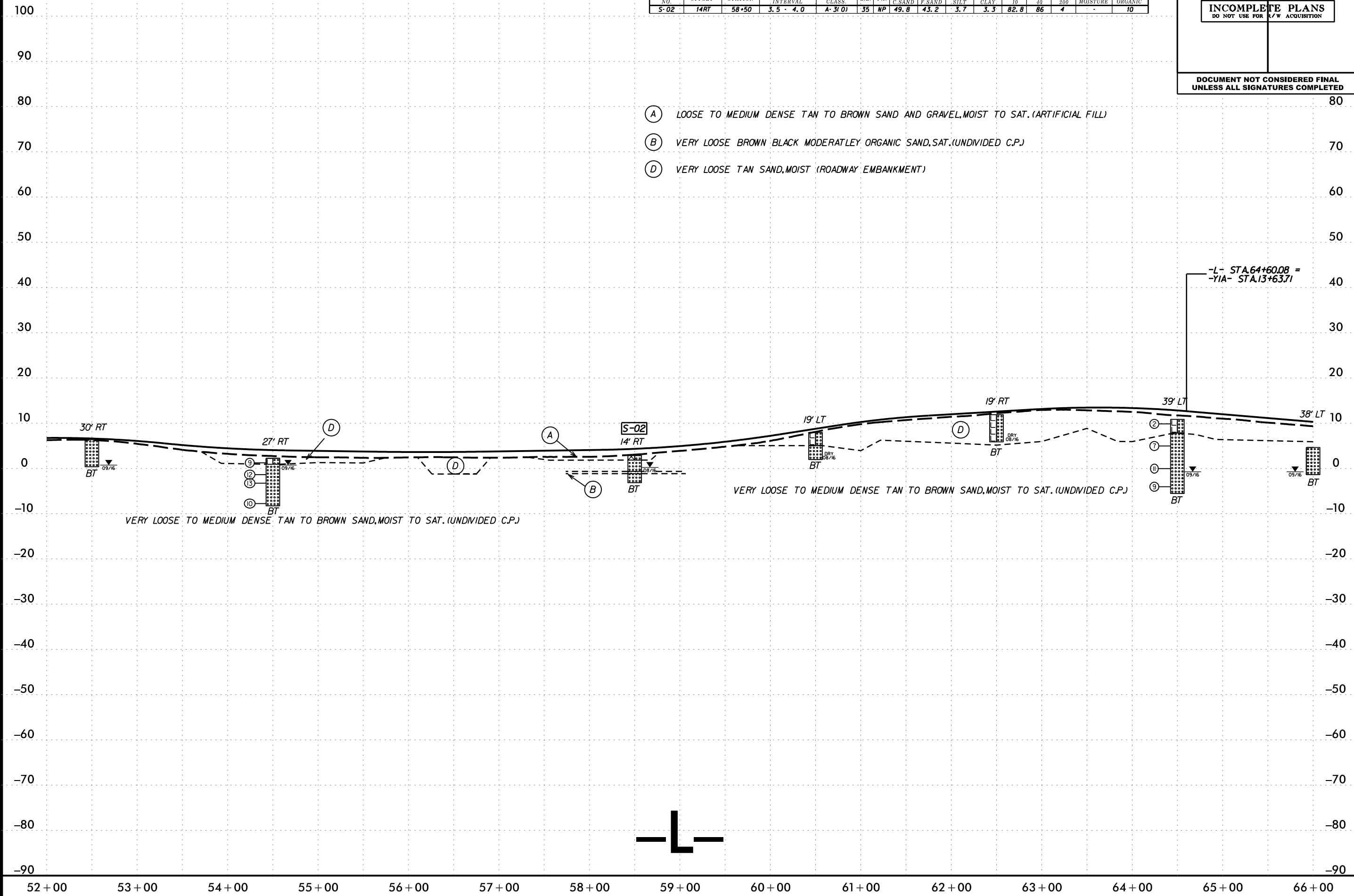
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5/14/99

PROJECT REFERENCE NO. R-5014	SHEET NO. 24
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

SOIL TEST RESULTS															
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
S-02	14RT	58+50	3.5 - 4.0	A-3(0)	35	NP	49.8	43.2	3.7	3.3	82.8	86	4	-	10

- (A) LOOSE TO MEDIUM DENSE TAN TO BROWN SAND AND GRAVEL, MOIST TO SAT. (ARTIFICIAL FILL)
- (B) VERY LOOSE BROWN BLACK MODERATELY ORGANIC SAND, SAT. (UNDIVIDED C.P.)
- (D) VERY LOOSE TAN SAND, MOIST (ROADWAY EMBANKMENT)

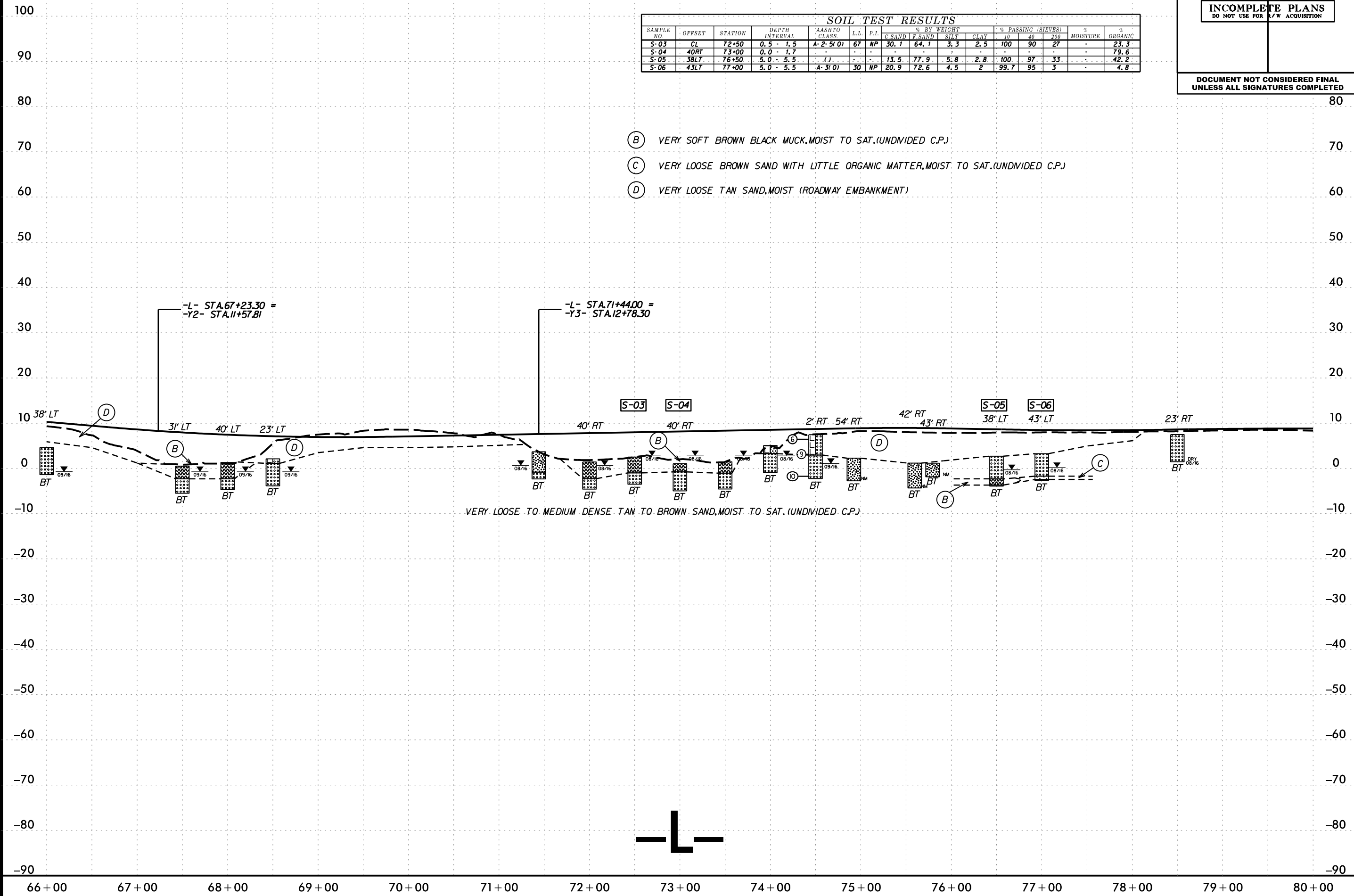


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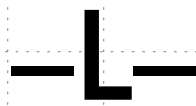
5/14/99

SOIL TEST RESULTS															
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							F. SAND	F. SAND	SILT	CLAY	10	40	200		
S-03	CL	72+50	0.5 - 1.5	A-2-5(0)	67	NP	30.1	64.1	3.3	2.5	100	90	27	-	23.3
S-04	40RT	73+00	0.0 - 1.7	-	-	-	-	-	-	-	-	-	-	-	79.6
S-05	38LT	76+50	5.0 - 5.5	(J)	-	-	13.5	77.9	5.8	2.8	100	97	33	-	42.2
S-06	43LT	77+00	5.0 - 5.5	A-3(0)	30	NP	20.9	72.6	4.5	2	99.7	95	3	-	4.8

- (B) VERY SOFT BROWN BLACK MUCK, MOIST TO SAT. (UNDIVIDED C.P.)
- (C) VERY LOOSE BROWN SAND WITH LITTLE ORGANIC MATTER, MOIST TO SAT. (UNDIVIDED C.P.)
- (D) VERY LOOSE TAN SAND, MOIST (ROADWAY EMBANKMENT)



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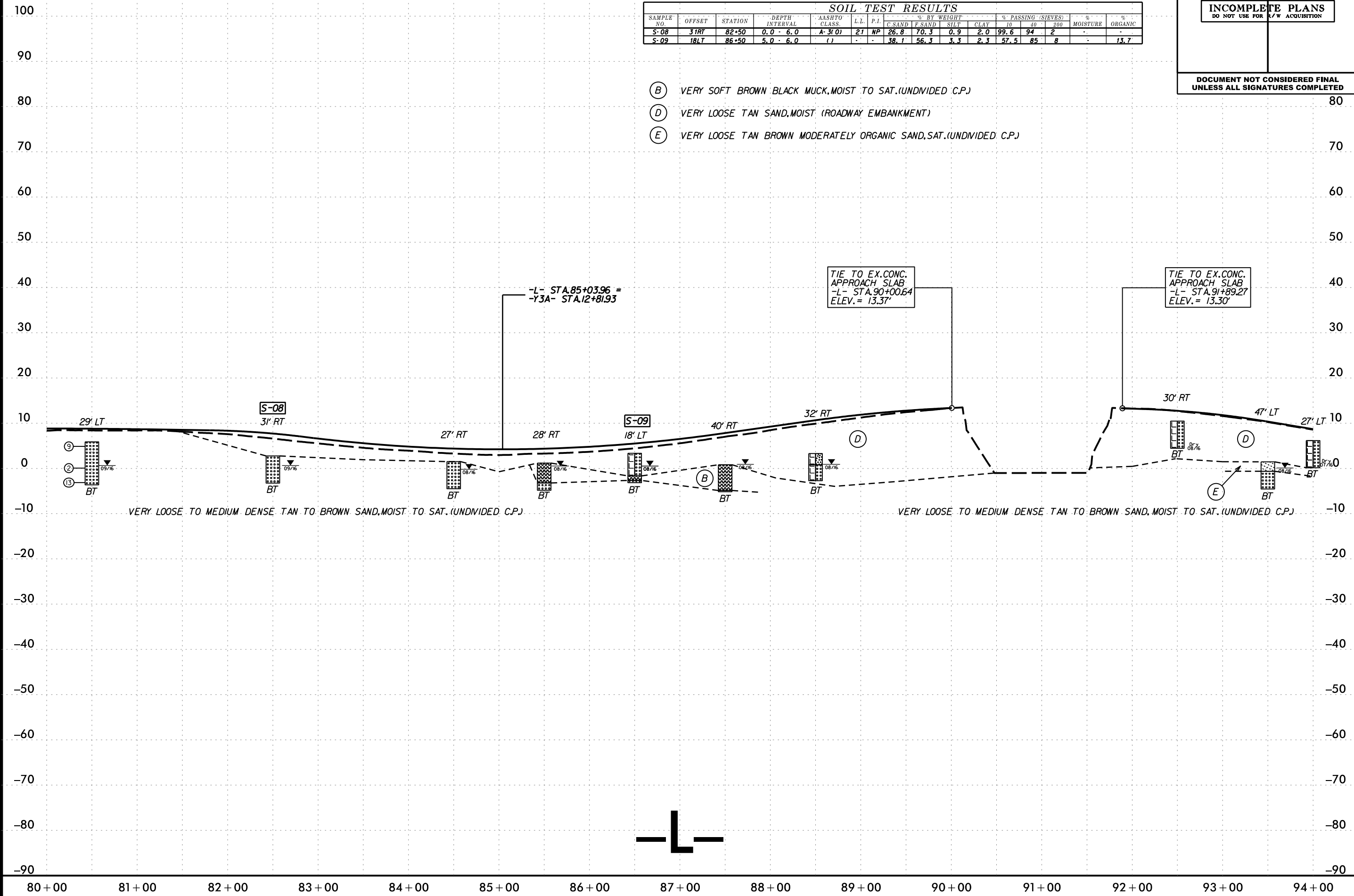


5/14/99

PROJECT REFERENCE NO. R-5014	SHEET NO. 26
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

SOIL TEST RESULTS															
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			MOISTURE	% ORGANIC
							C.SAND	F.SAND	SILT	CLAY	10	40	200		
S-08	31RT	82+50	0.0 - 6.0	A-3(0)	21	NP	26.8	70.3	0.9	2.0	99.6	94	2	-	-
S-09	18LT	86+50	5.0 - 6.0	()	-	-	38.1	56.3	3.3	2.3	57.5	85	8	-	13.7

- (B) VERY SOFT BROWN BLACK MUCK, MOIST TO SAT. (UNDIVIDED C.P.)
- (D) VERY LOOSE TAN SAND, MOIST (ROADWAY EMBANKMENT)
- (E) VERY LOOSE TAN BROWN MODERATELY ORGANIC SAND, SAT. (UNDIVIDED C.P.)



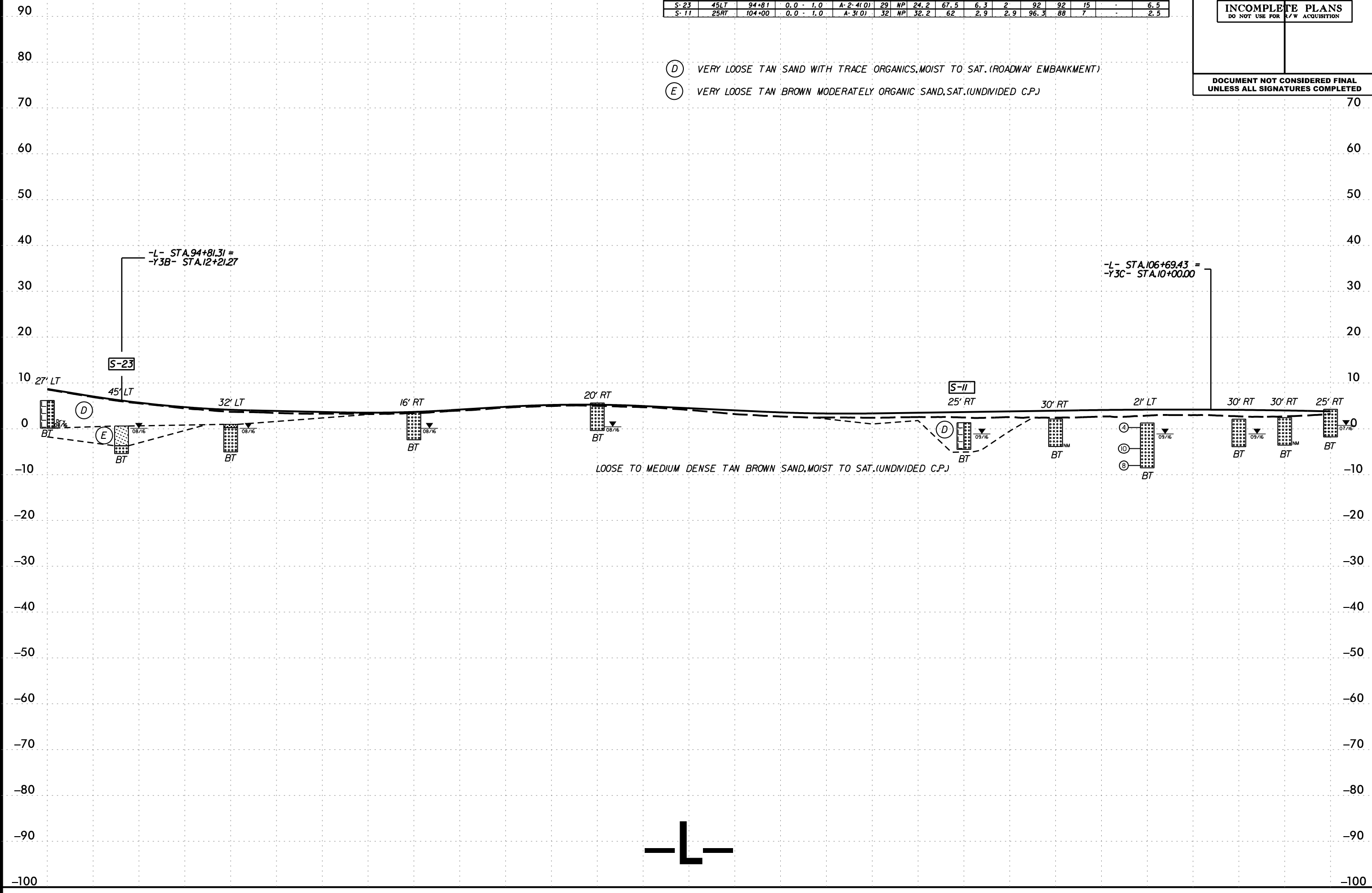
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PROJECT REFERENCE NO.	SHEET NO.
R-5014	27
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C.SAND	F.SAND	SILT	CLAY	10	40	200		
S-23	45LT	94+81	0.0 - 1.0	A-2-4(0)	29	NP	24.2	67.5	6.3	2	92	92	15	-	6.5
S-11	25RT	104+00	0.0 - 1.0	A-3(0)	32	NP	32.2	62	2.9	2.9	96.3	88	7	-	2.5

- (D) VERY LOOSE TAN SAND WITH TRACE ORGANICS, MOIST TO SAT. (ROADWAY EMBANKMENT)
- (E) VERY LOOSE TAN BROWN MODERATELY ORGANIC SAND, SAT. (UNDIVIDED C.P.)



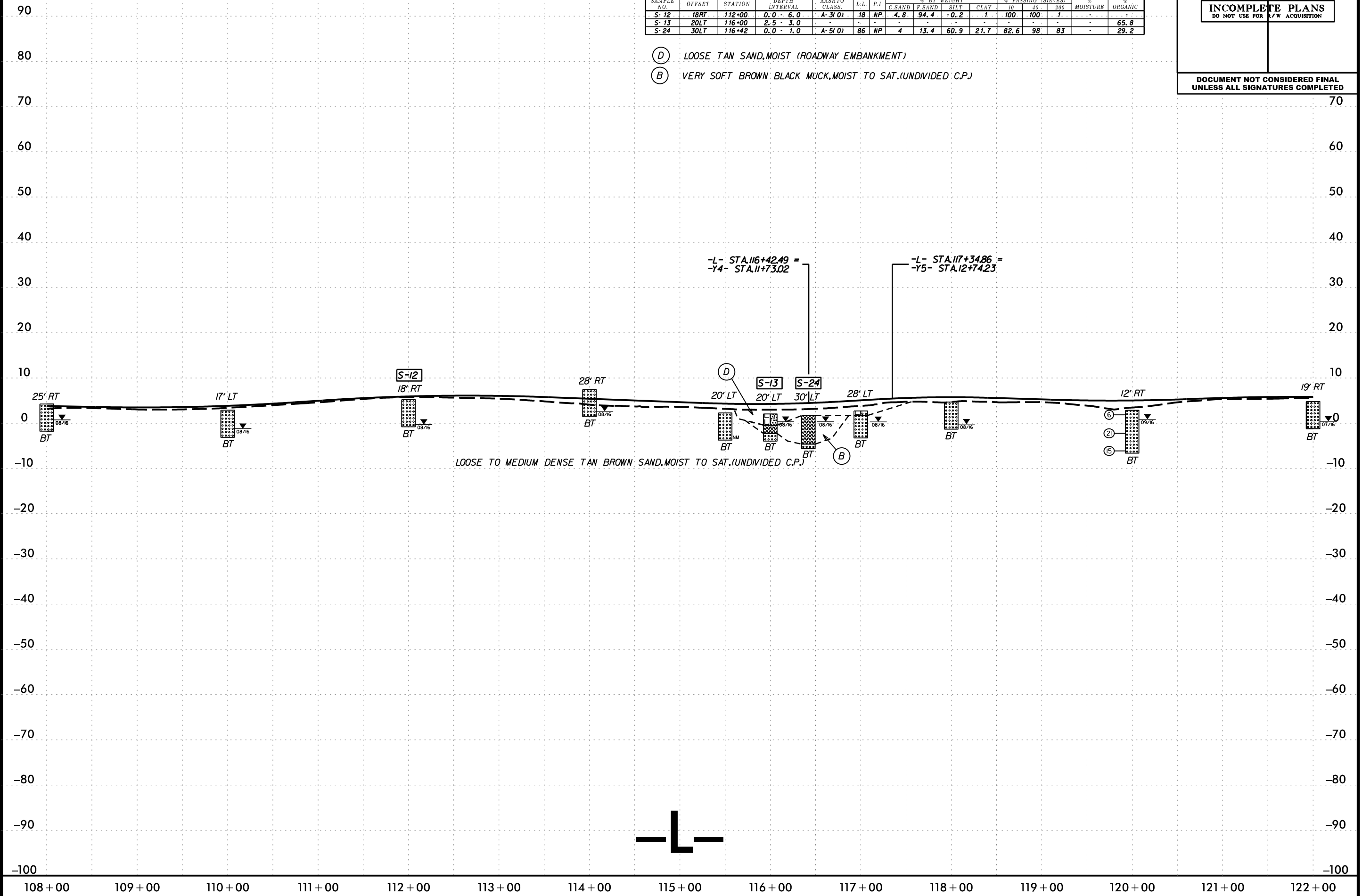
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PROJECT REFERENCE NO. R-5014	SHEET NO. 28
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

SOIL TEST RESULTS															
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C SAND	F SAND	SILT	CLAY	10	40	200		
S-12	18RT	112+00	0.0 - 6.0	A-3(0)	18	NP	4.8	94.4	0.2	1	100	100	1	-	-
S-13	20LT	116+00	2.5 - 3.0	-	-	-	-	-	-	-	-	-	-	65.8	
S-24	30LT	116+42	0.0 - 1.0	A-5(0)	86	NP	4	13.4	60.9	21.7	82.6	98	83	-	29.2

- (D) LOOSE TAN SAND, MOIST (ROADWAY EMBANKMENT)
- (B) VERY SOFT BROWN BLACK MUCK, MOIST TO SAT. (UNDIVIDED C.P.)



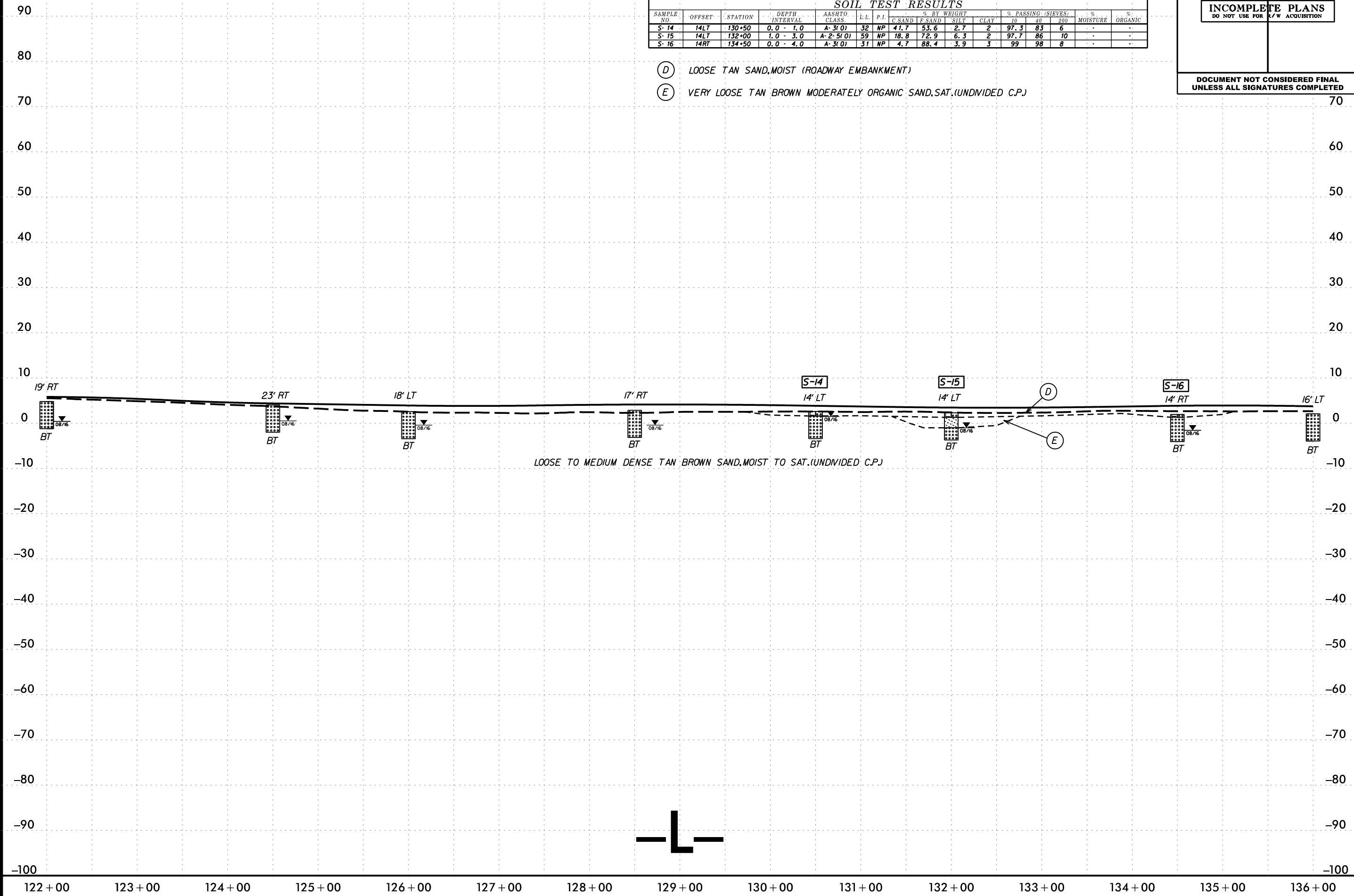
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PROJECT REFERENCE NO. R-5014	SHEET NO. 29
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

SOIL TEST RESULTS														
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)		% MOISTURE	% ORGANIC
							C.SAND	F.SAND	SILT	CLAY	#10	#200		
S-14	14LT	130+50	0.0 - 1.0	A-3(0)	32	NP	41.7	53.6	2.7	2	97.3	83	6	..
S-15	14LT	132+00	1.0 - 3.0	A-2-S(0)	59	NP	18.8	72.9	6.3	2	97.7	86	10	..
S-16	14RT	134+50	0.0 - 4.0	A-3(0)	31	NP	4.7	88.4	3.9	3	99	98	8	..

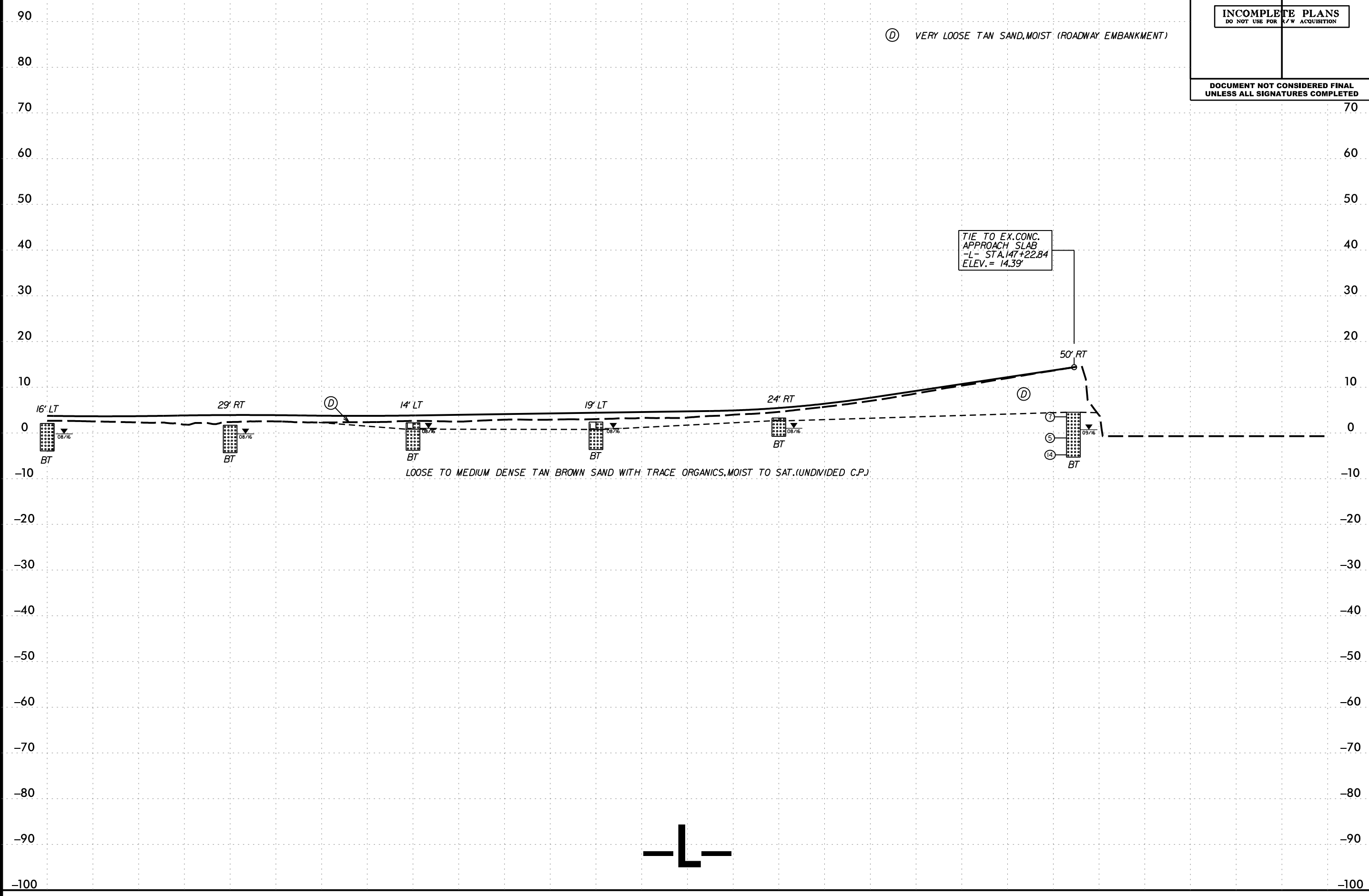
- (D) LOOSE TAN SAND, MOIST (ROADWAY EMBANKMENT)
- (E) VERY LOOSE TAN BROWN MODERATELY ORGANIC SAND, SAT. (UNDIVIDED C.P.)



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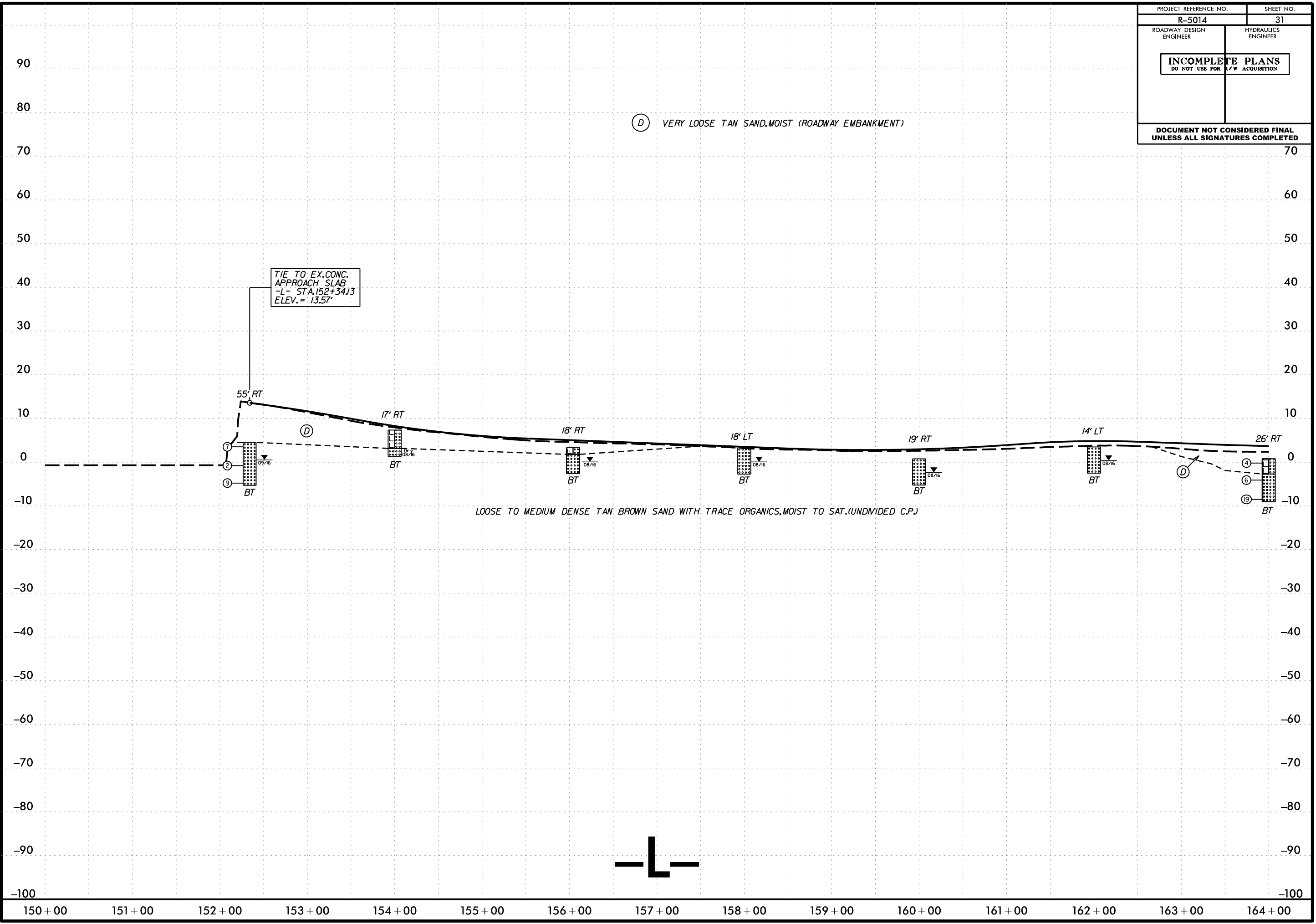
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ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	



28-OCT-2016 11:57
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PROJECT REFERENCE NO.	SHEET NO.
R-5014	31
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

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28-OCT-2016 14:51
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11/11/2016 11:11:12 AM



TIE TO EX. CONC. APPROACH SLAB
-L- STA. 152+34.13
ELEV. = 13.57'

55' RT

17' RT

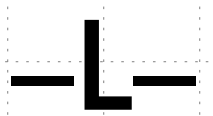
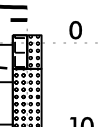
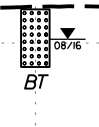
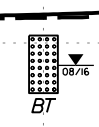
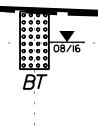
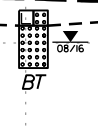
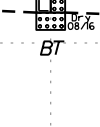
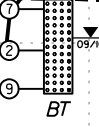
18' RT

18' LT

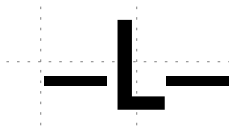
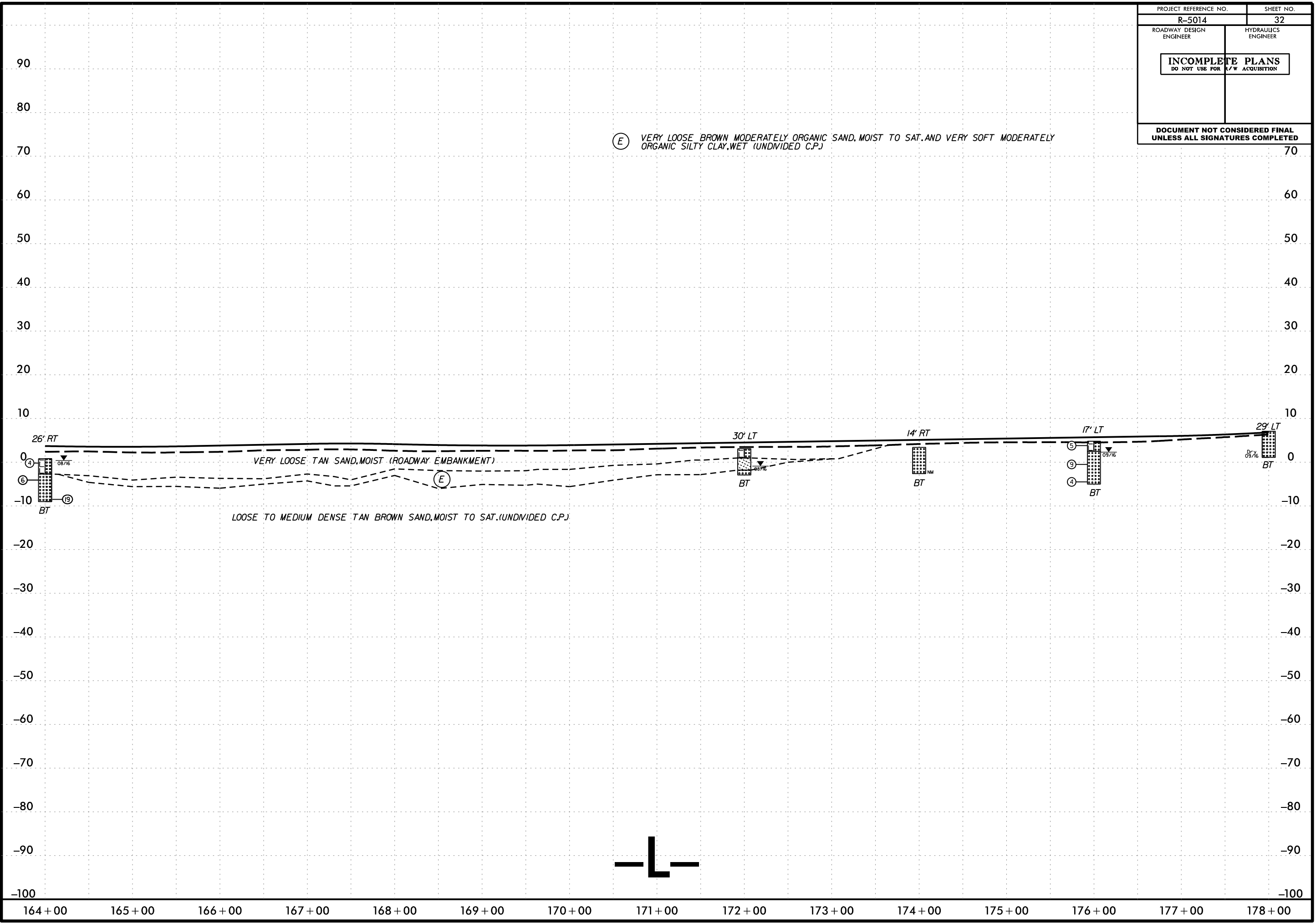
19' RT

14' LT

26' RT

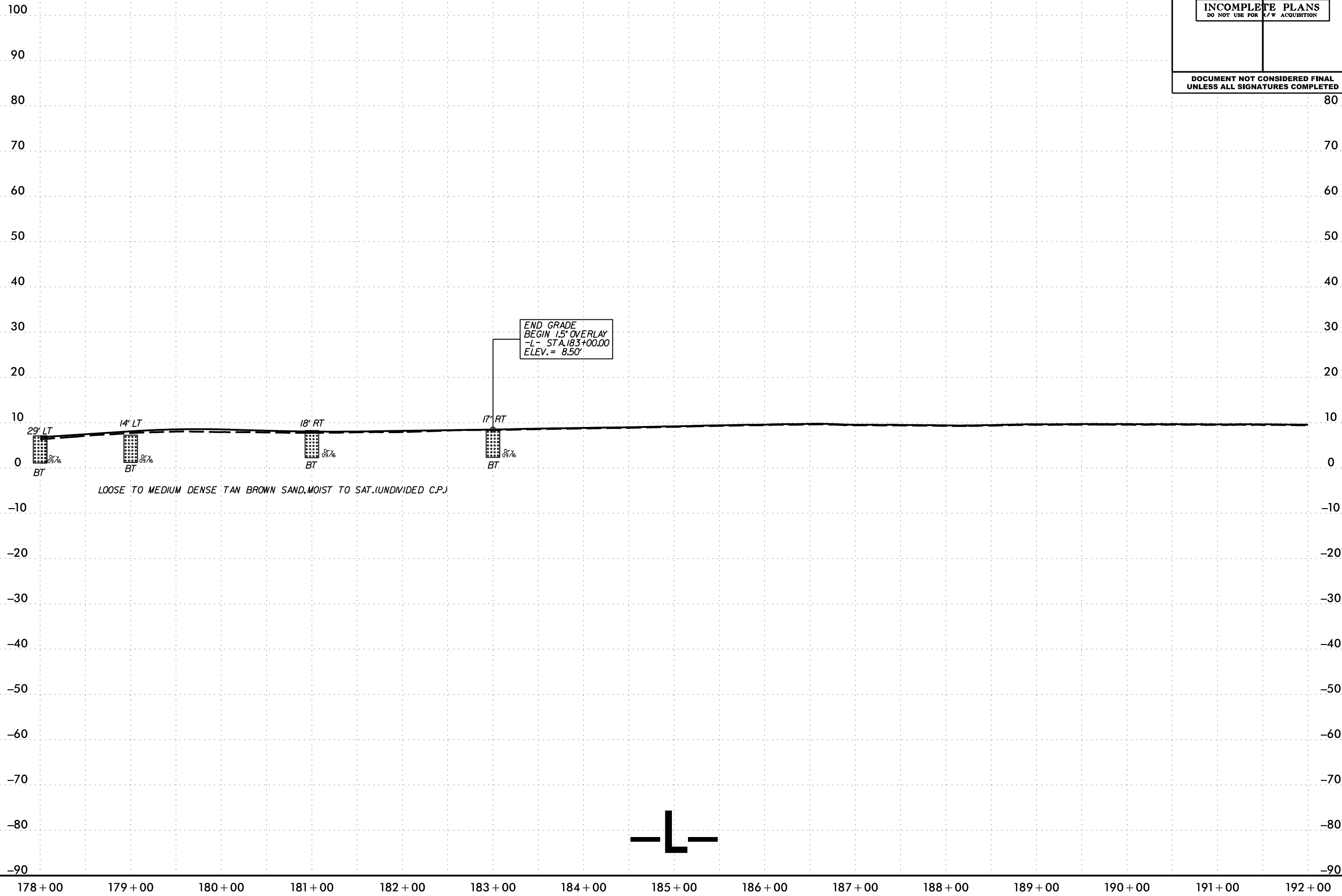


5/14/99
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5/14/99

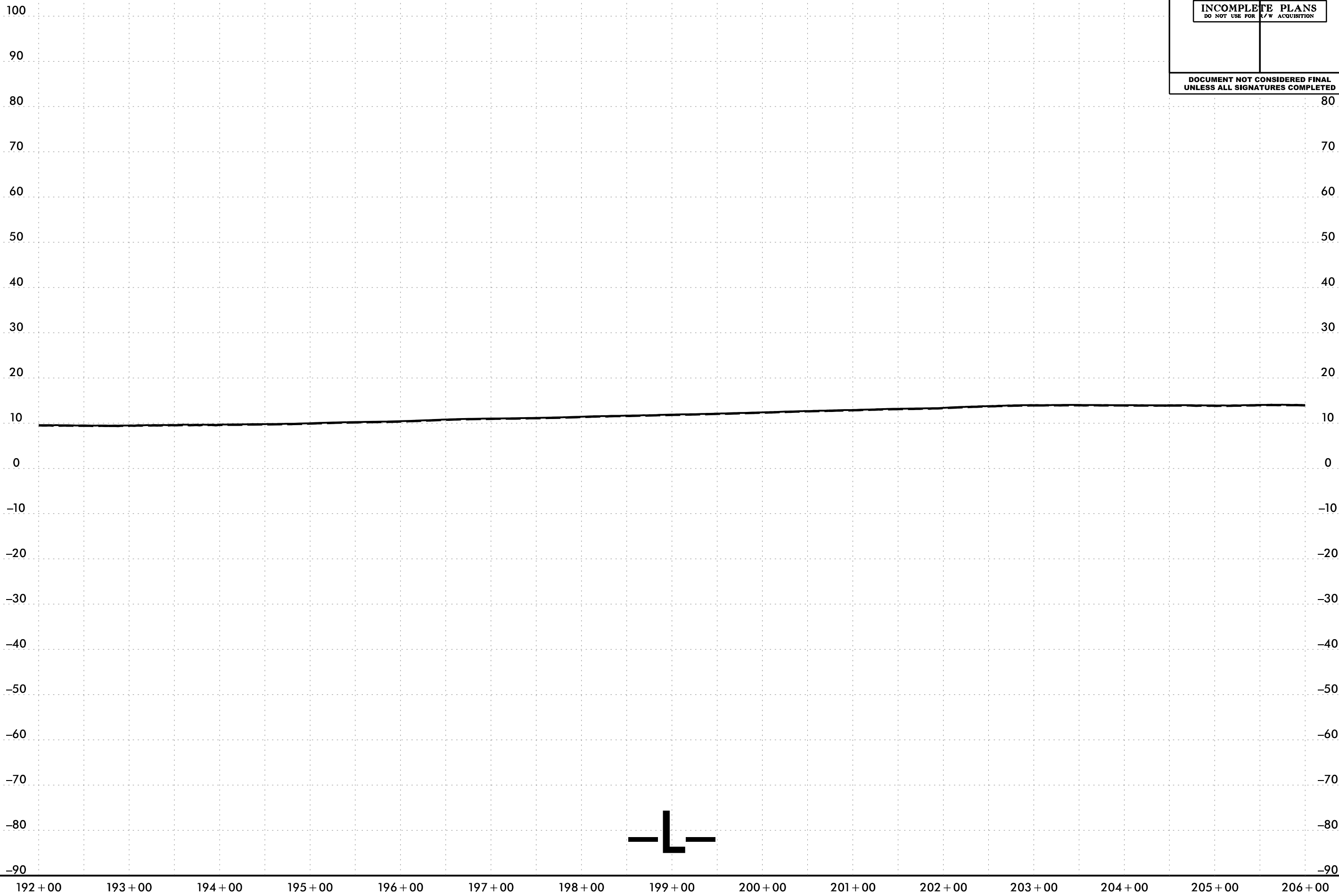
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R-5014	33
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	



28-OCT-2016 14:51 C:\p\projects\NCDOT\RS014_GEO_RDWY\CADD_GEO\TECH\Plan\Prof\PTI_RS014_GEO_pf.L.dgn

5/14/99

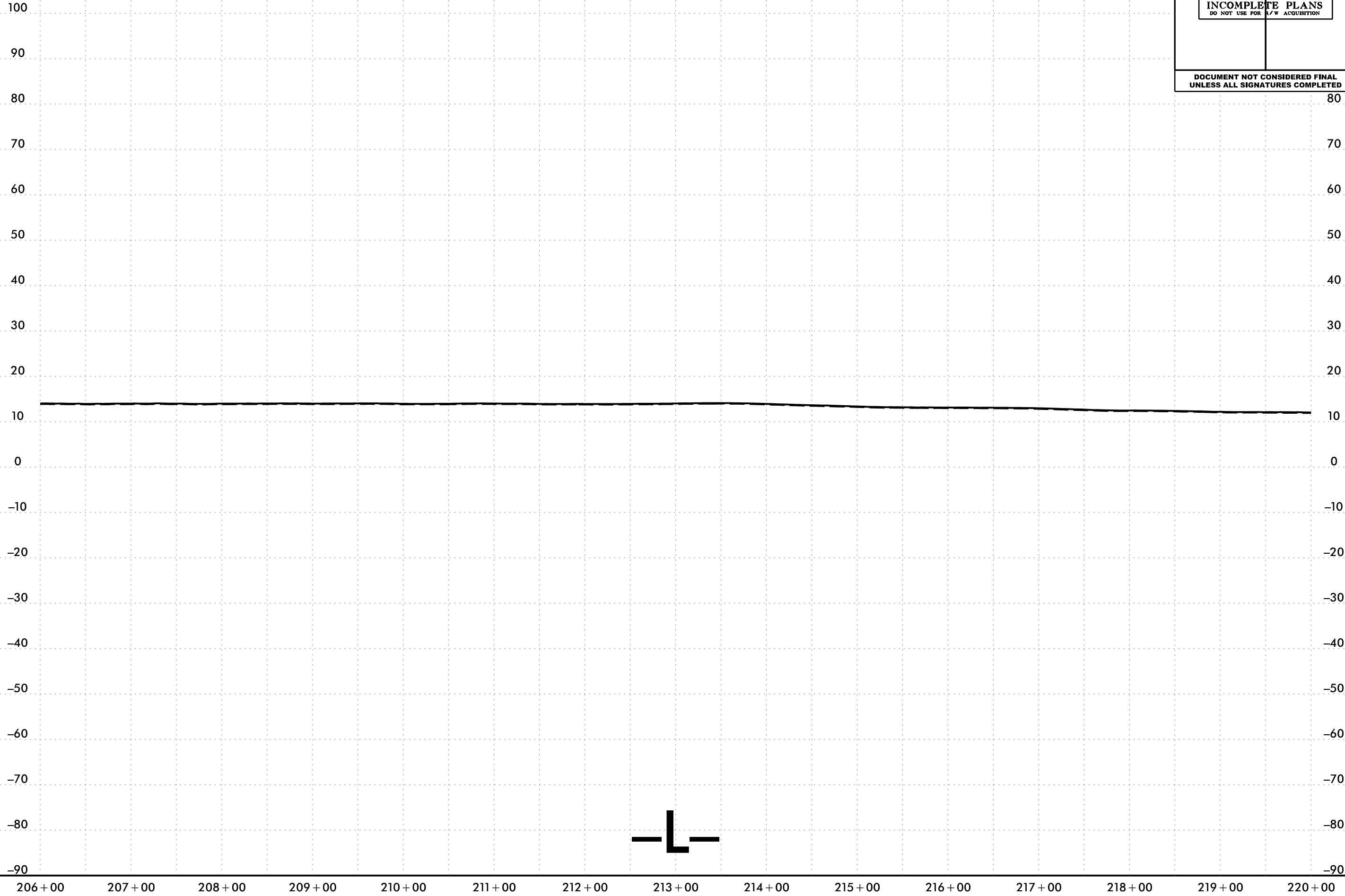
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5/14/99

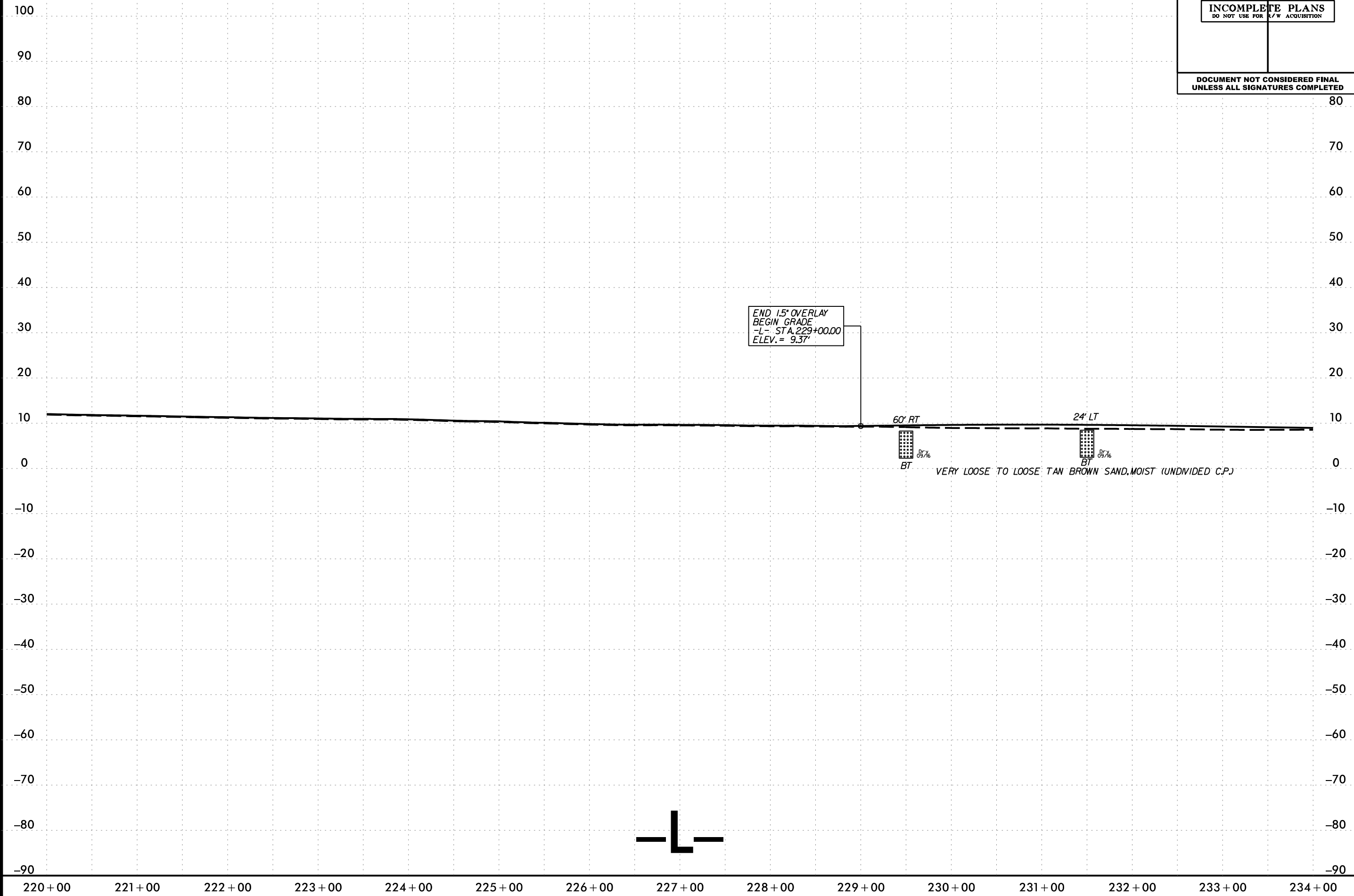
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R-5014	35
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DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	



28-OCT-2016 11:51
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5/14/99

PROJECT REFERENCE NO.	SHEET NO.
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DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	



28-OCT-2016 11:51
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 AL MERRITT

5/14/99

28-OCT-2016 14:51
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PROJECT REFERENCE NO.	SHEET NO.
R-5014	37
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

**DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED**

100
90
80
70
60
50
40
30
20
10
0
-10
-20
-30
-40
-50
-60
-70
-80
-90

80
70
60
50
40
30
20
10
0
-10
-20
-30
-40
-50
-60
-70
-80
-90

234+00 235+00 236+00 237+00 238+00 239+00 240+00

END GRADE
BEGIN 1.5" OVERLAY
-L- STA.235+77.02
ELEV. = 9.44'

-L- STA.236+19.02 =
-YI- STA.13+00.01

END OVERLAY
-L- STA.240+00.00
ELEV. = 7.72'

37' LT

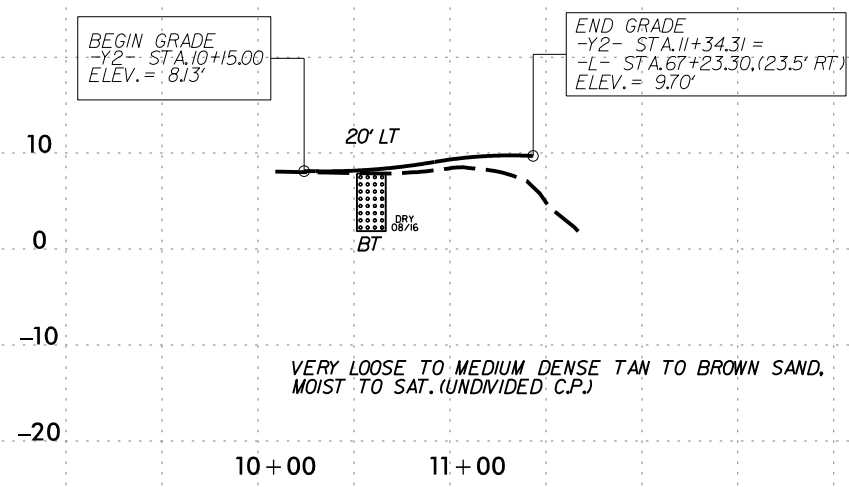


VERY LOOSE TO LOOSE TAN BROWN SAND, MOIST (UNDIVIDED C.P.)

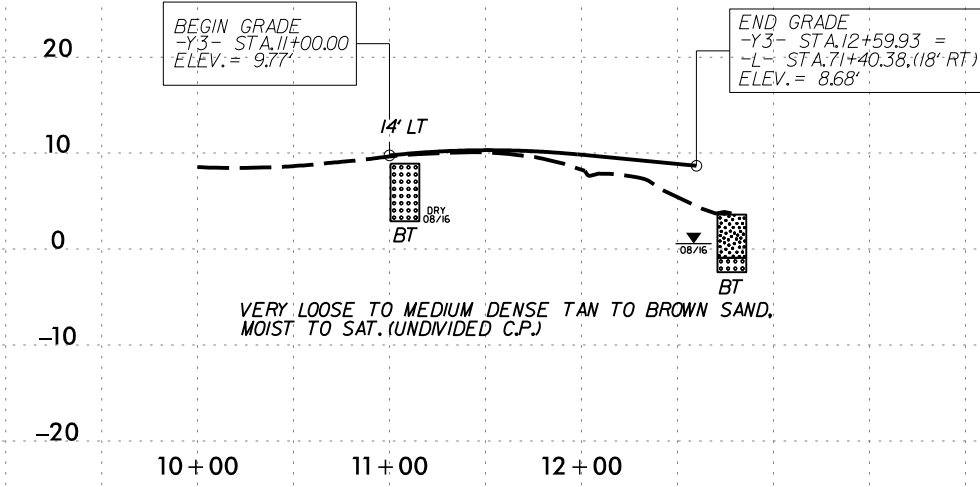


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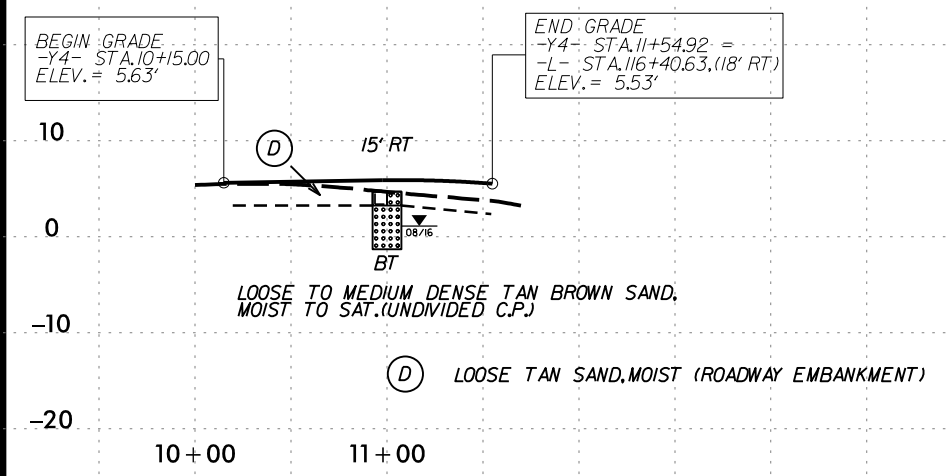
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R-5014	38
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	



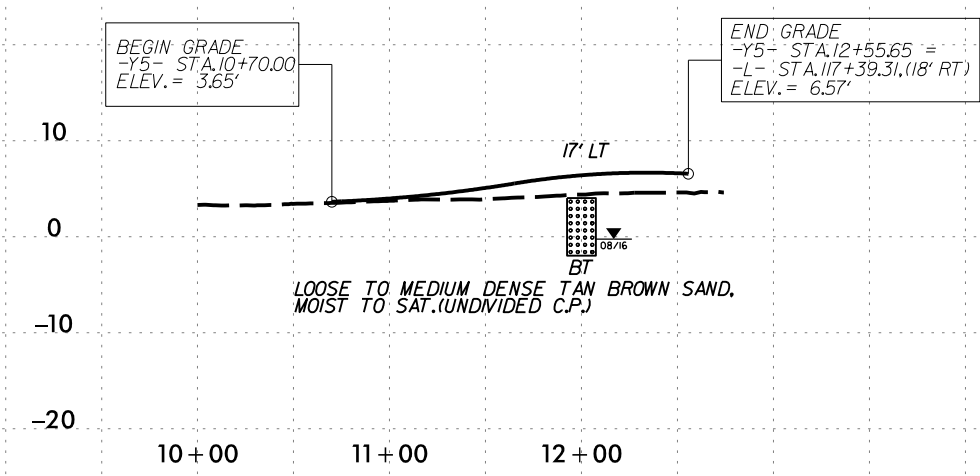
-Y2-



-Y3-

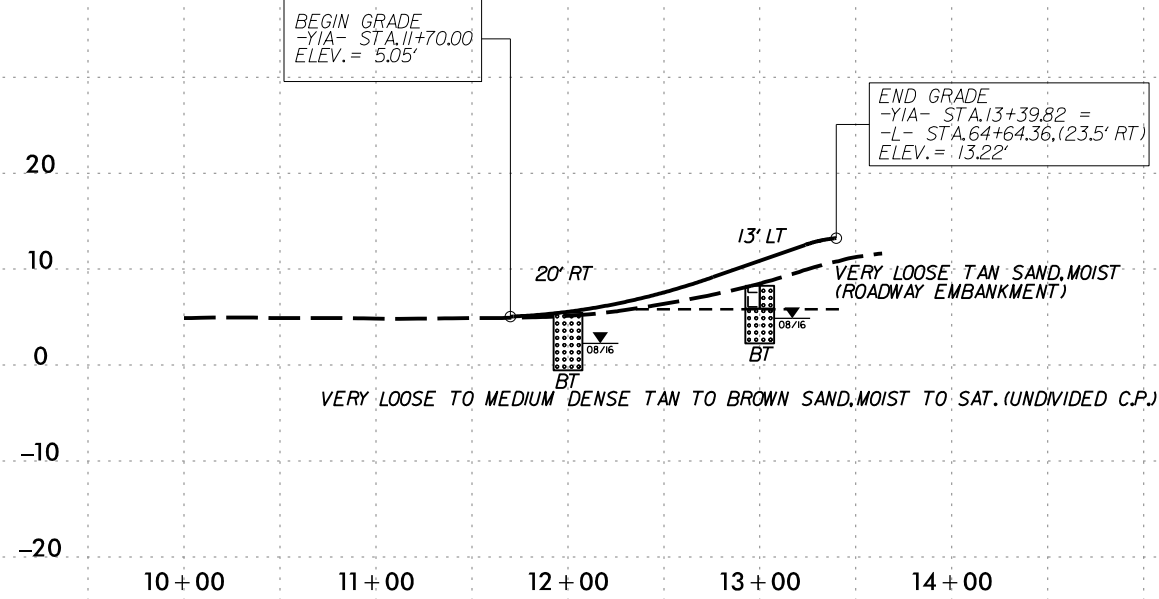


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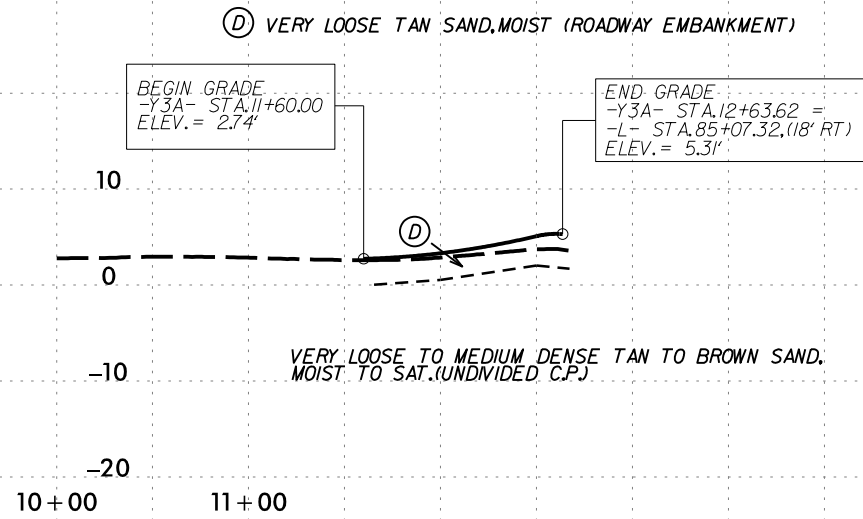


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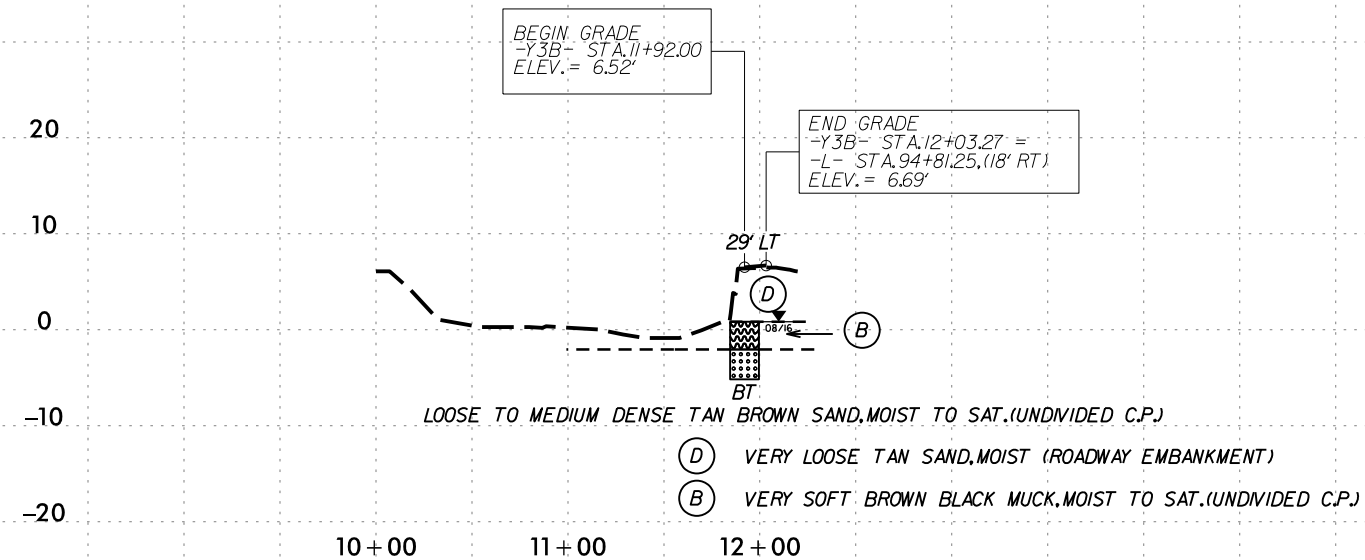
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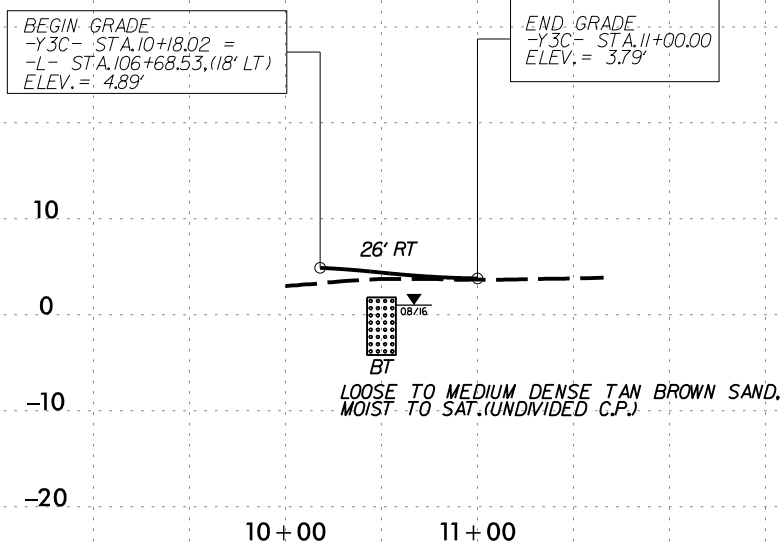
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-Y3A-



-Y3B-

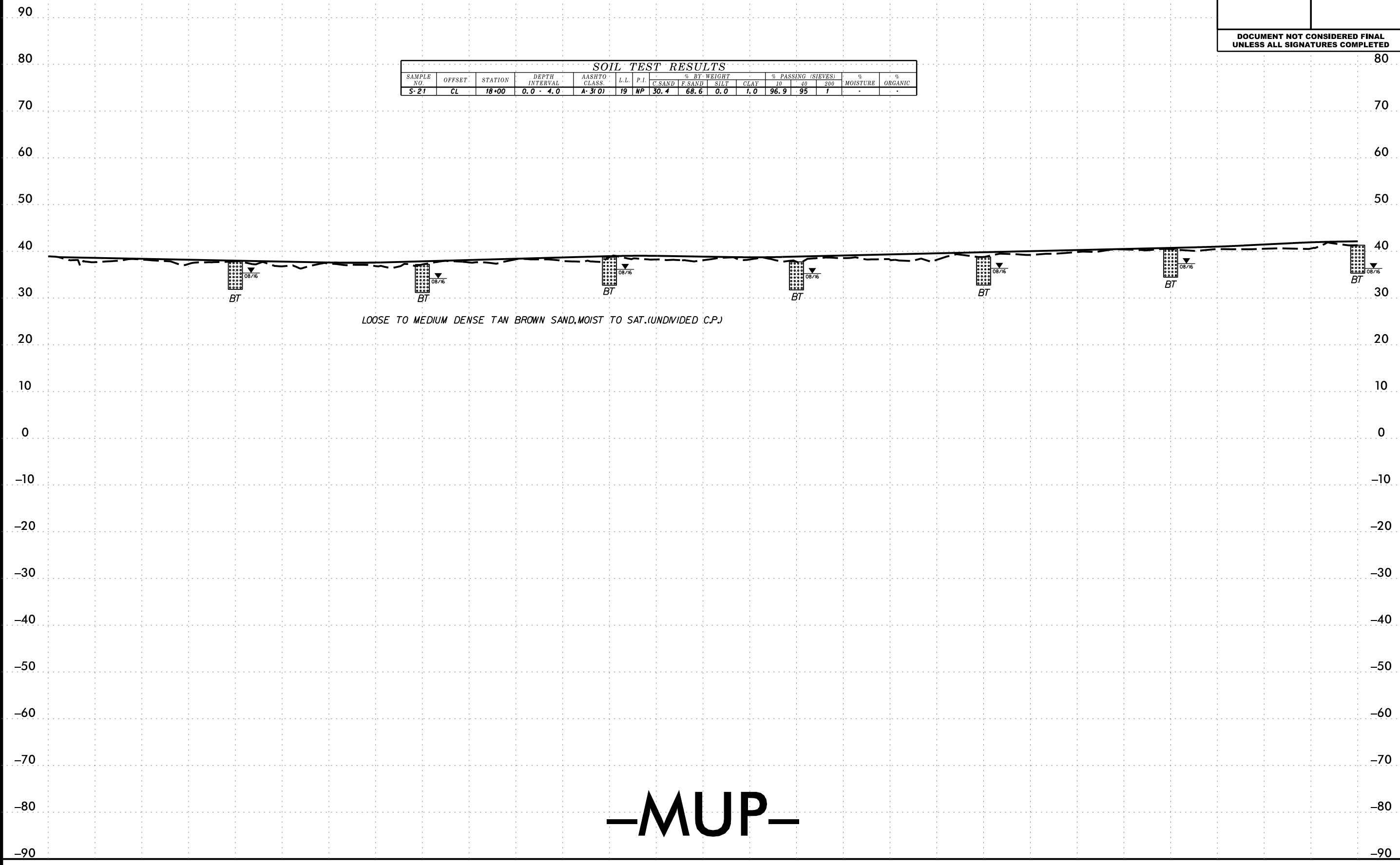


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5/14/99

PROJECT REFERENCE NO. R-5014	SHEET NO. 40
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

SOIL TEST RESULTS															
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C.SAND	F.SAND	SILT	CLAY	10	40	200		
S-27	CL	18+00	0.0 - 4.0	A-3(0)	19	NP	30.4	68.6	0.0	1.0	96.9	95	1	-	-



LOOSE TO MEDIUM DENSE TAN BROWN SAND, MOIST TO SAT. (UNDIVIDED C.P.)

-MUP-

28-OCT-2016 12:39
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10+00 11+00 12+00 13+00 14+00 15+00 16+00 17+00 18+00 19+00 20+00 21+00 22+00 23+00 24+00

PROJECT REFERENCE NO.		SHEET NO.	
R-5014		41	
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION			
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			

100

90

80

70

60

50

40

30

20

10

0

-10

-20

-30

-40

-50

-60

-70

-80

-90

80

70

60

50

40

30

20

10

0

-10

-20

-30

-40

-50

-60

-70

-80

-90

LOOSE TO MEDIUM DENSE TAN BROWN SAND, MOIST TO SAT. (UNDIVIDED C.P.)

LOOSE TO MEDIUM DENSE TAN BROWN SAND, MOIST TO SAT. (UNDIVIDED C.P.)

-MUP-

-90

24+00

25+00

26+00

27+00

28+00

29+00

30+00

31+00

32+00

33+00

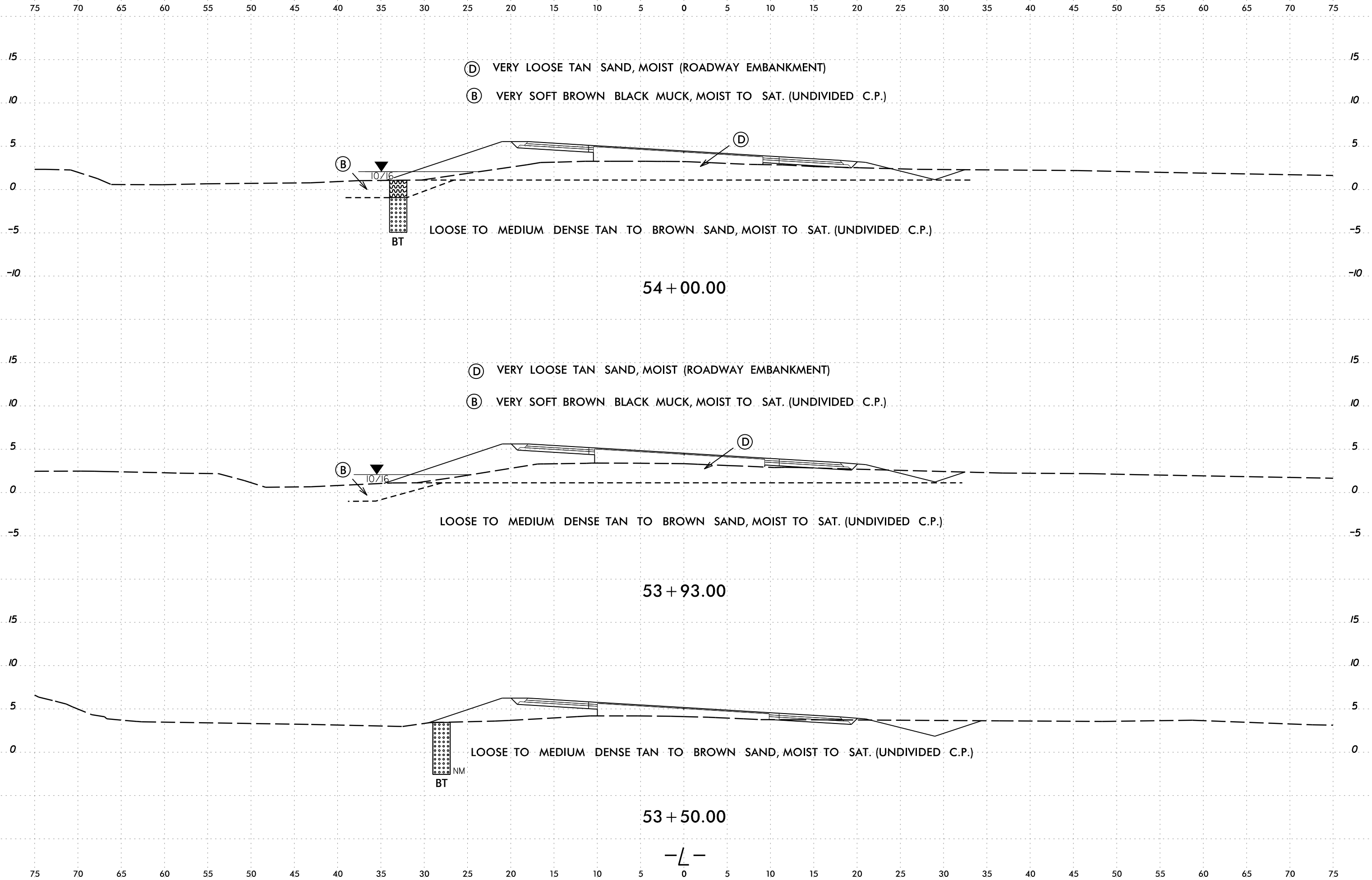
34+00

35+00

36+00

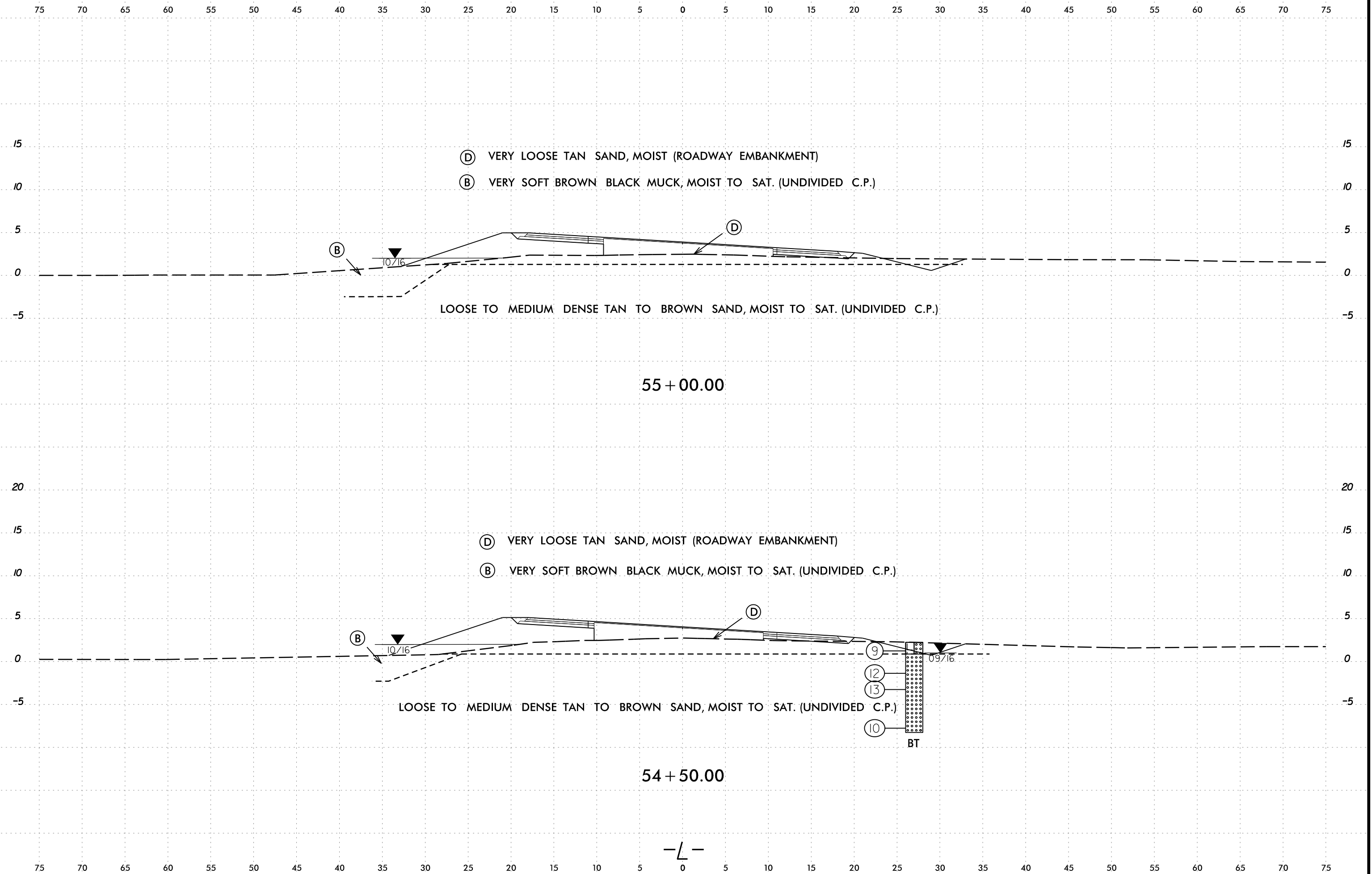
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28-OCT-2016 13:31
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LSTONE AT MICROSTATIONPC2

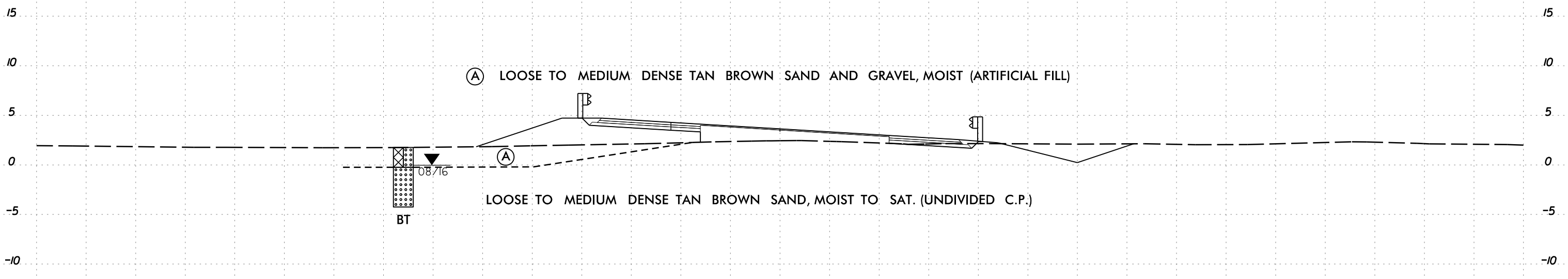
6/23/16
28-OCT-2016 13:31
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LSTONE AT MICROSTATIONPC2



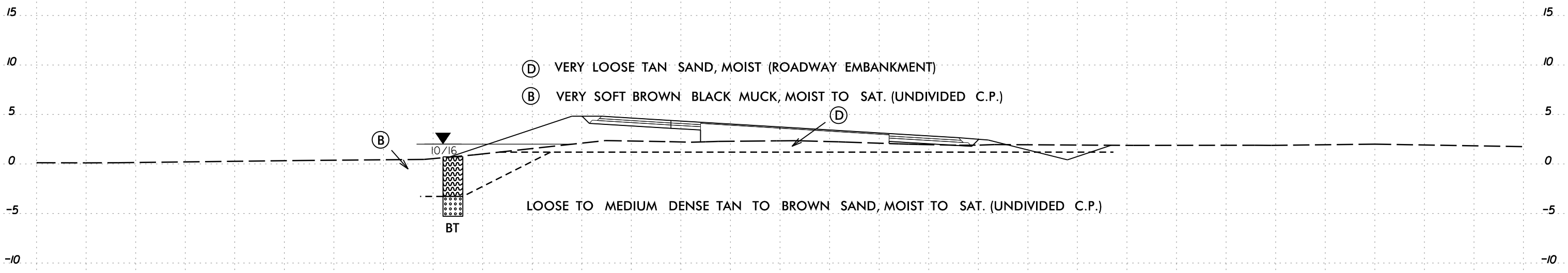
-L-

6/23/16

75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75



56 + 00.00

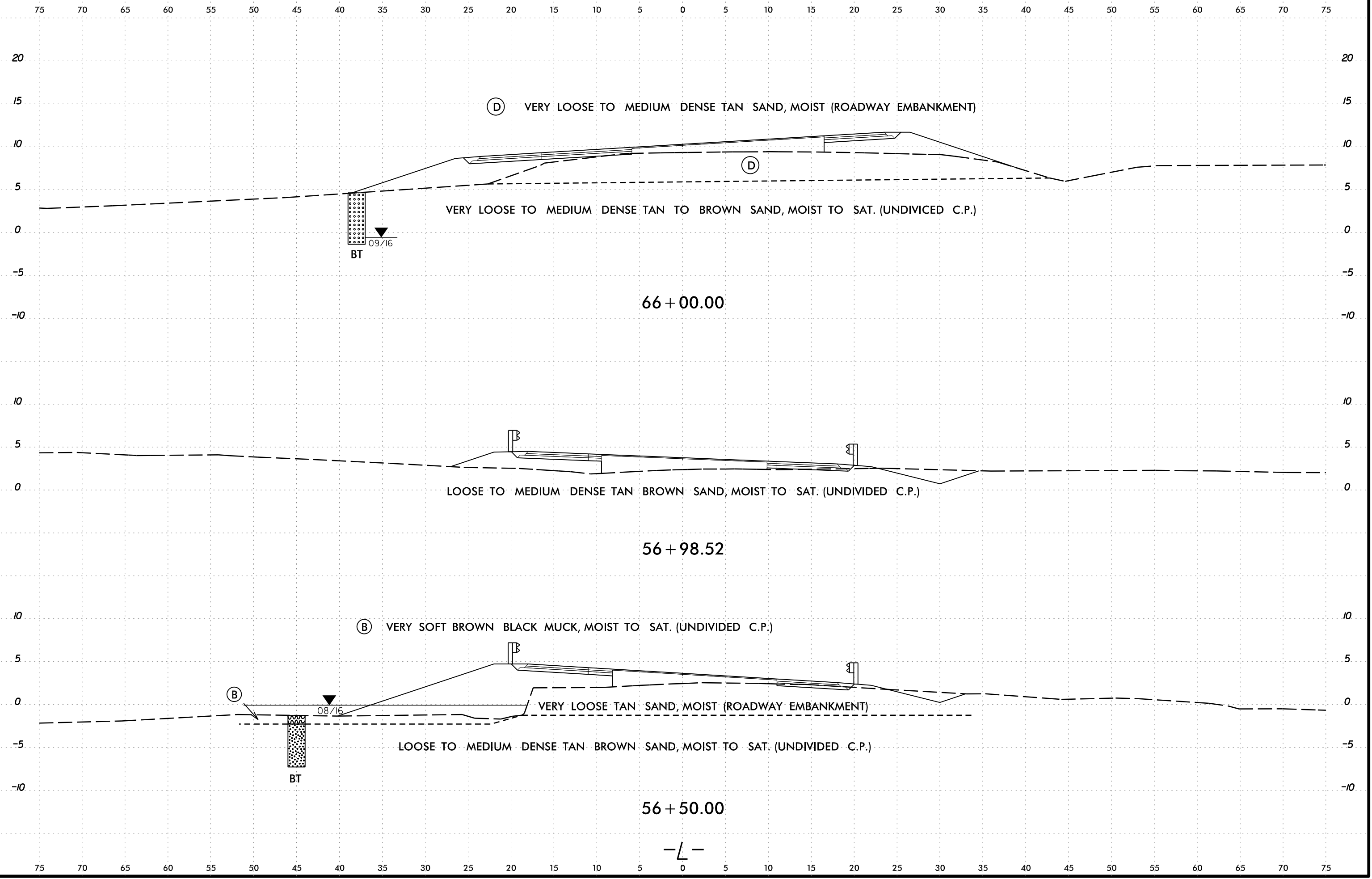


55 + 50.00

-L-

28-OCT-2016 13:31
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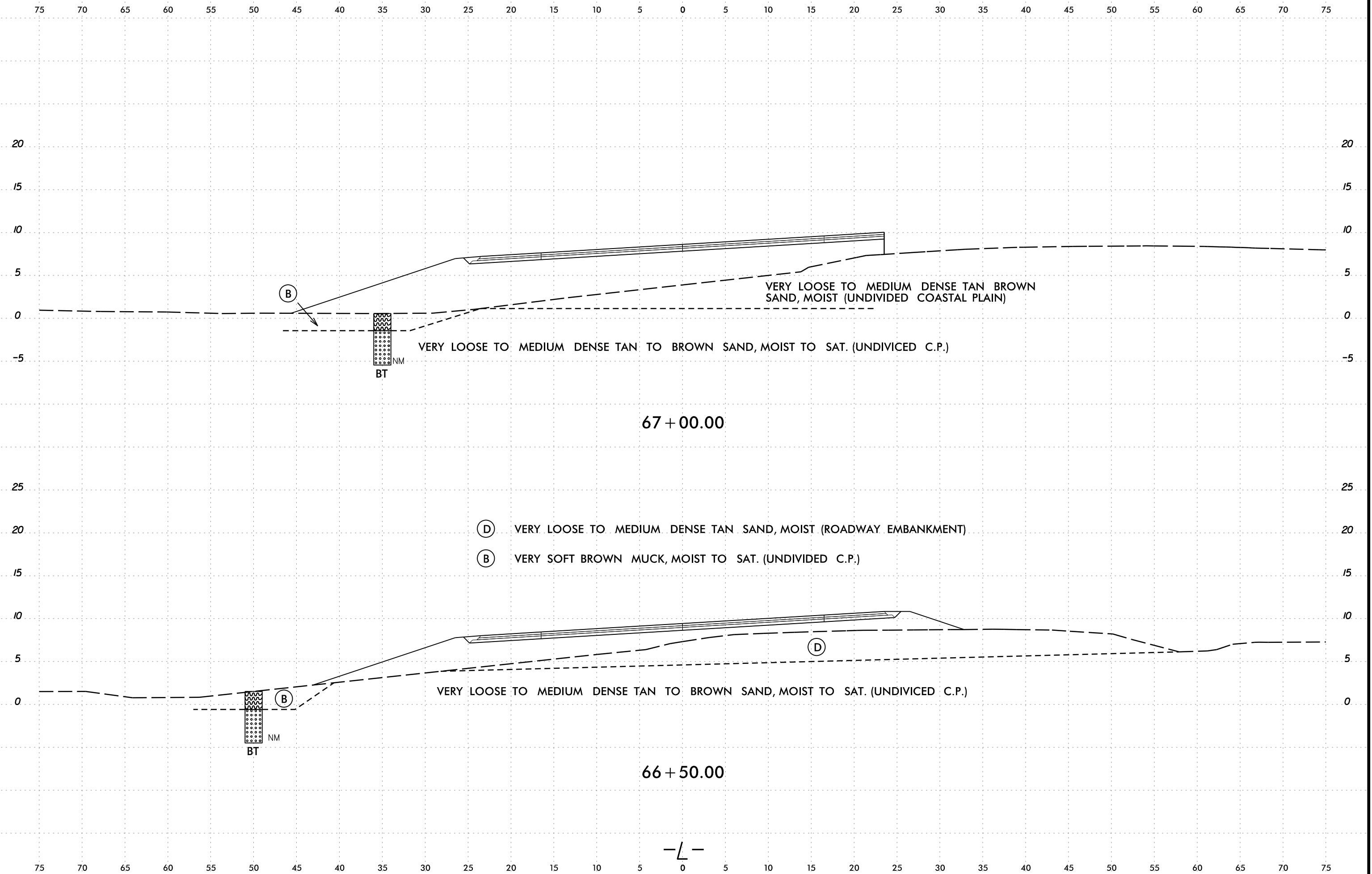
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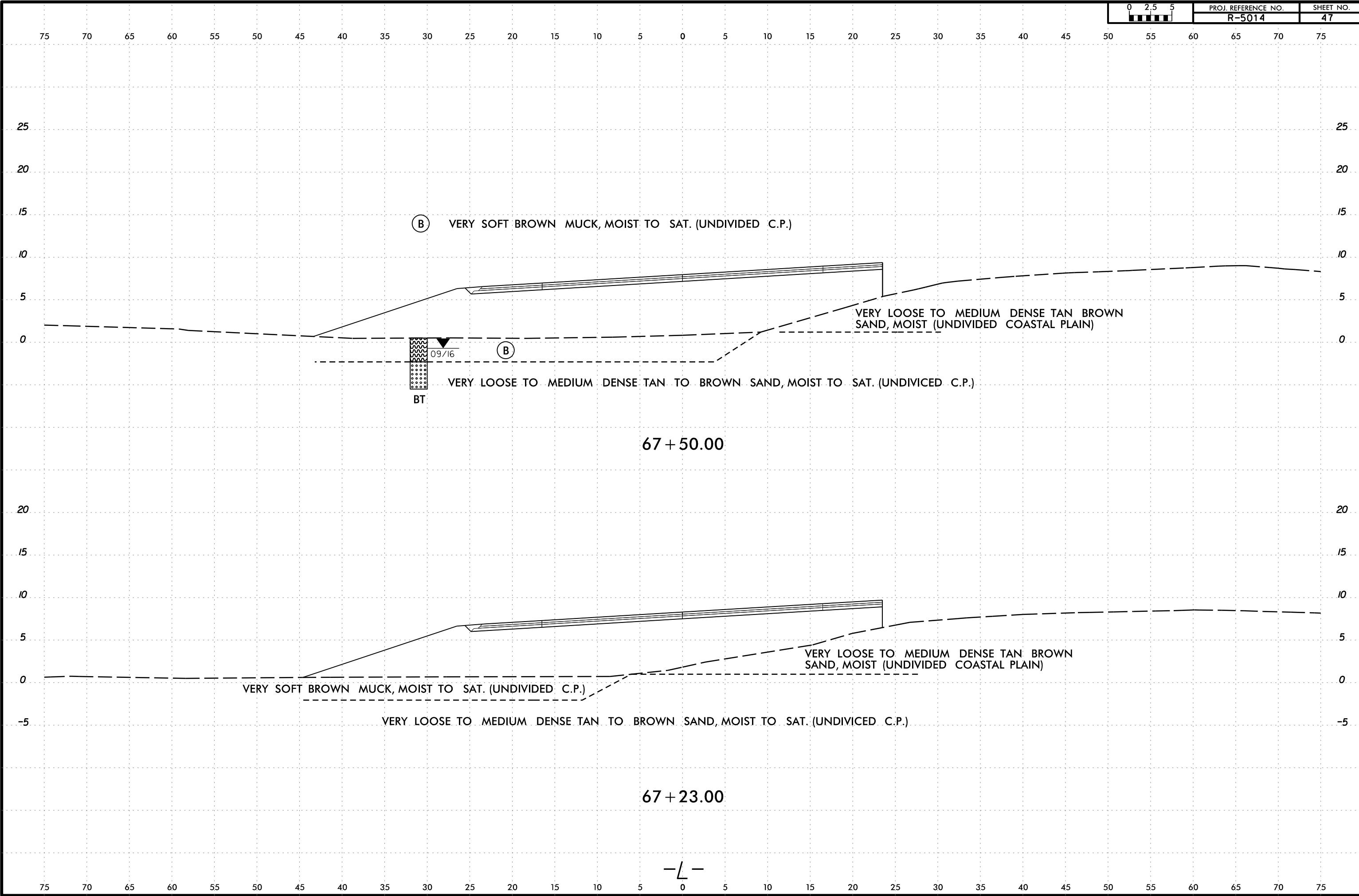


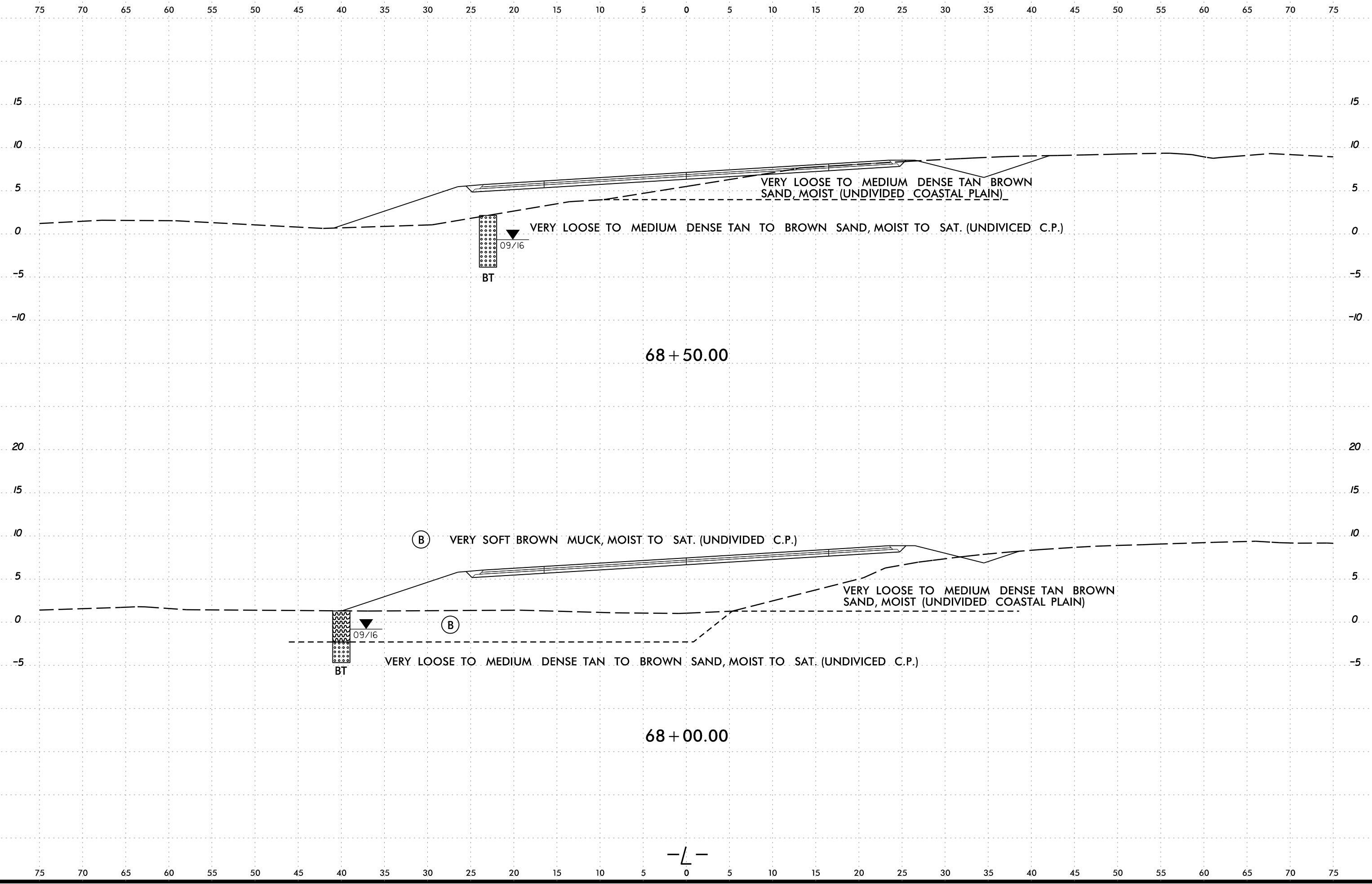
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LSTONE AT MICROSTATIONPC2

-L-

6/23/16
28-OCT-2016 13:31
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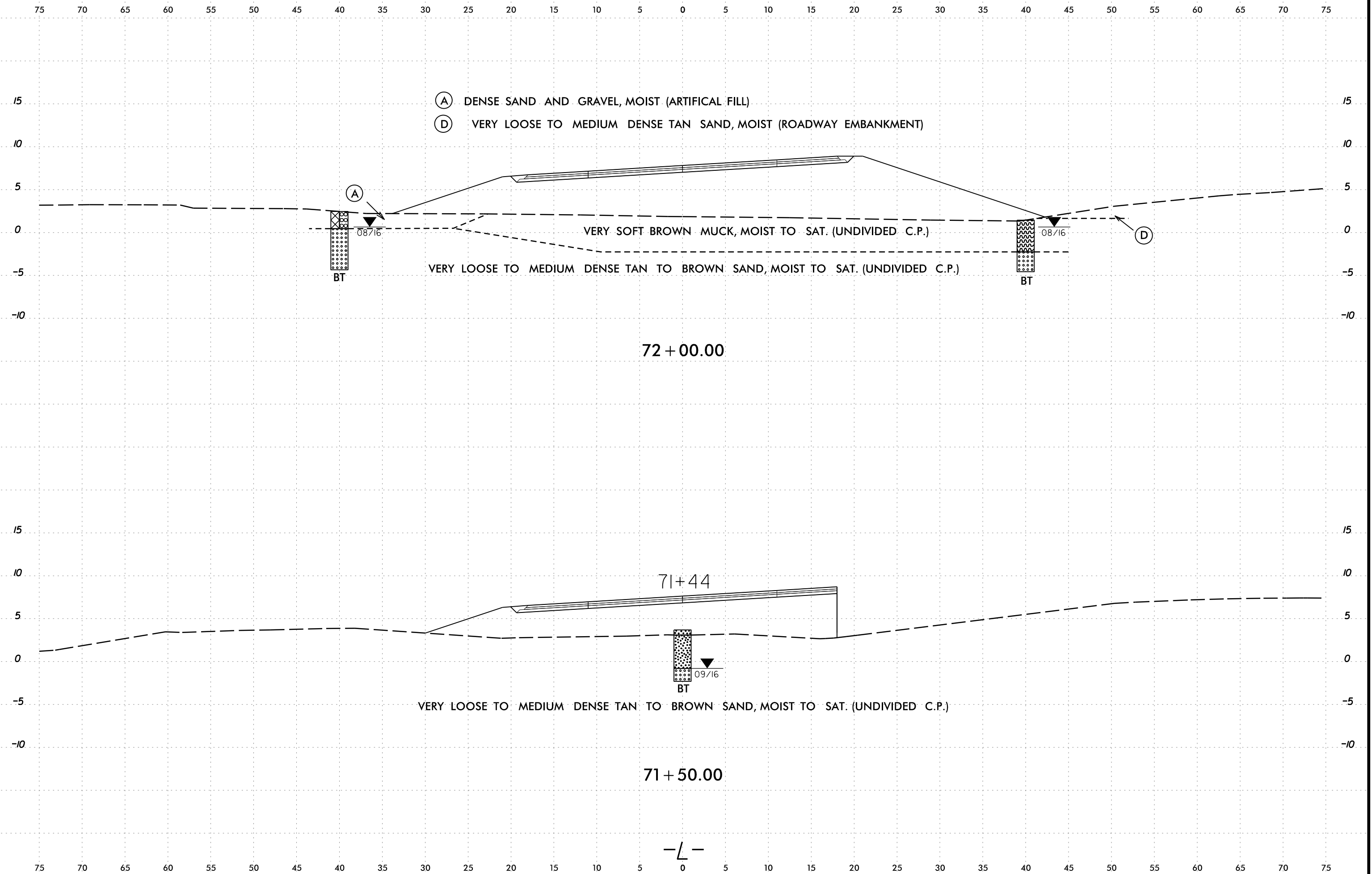






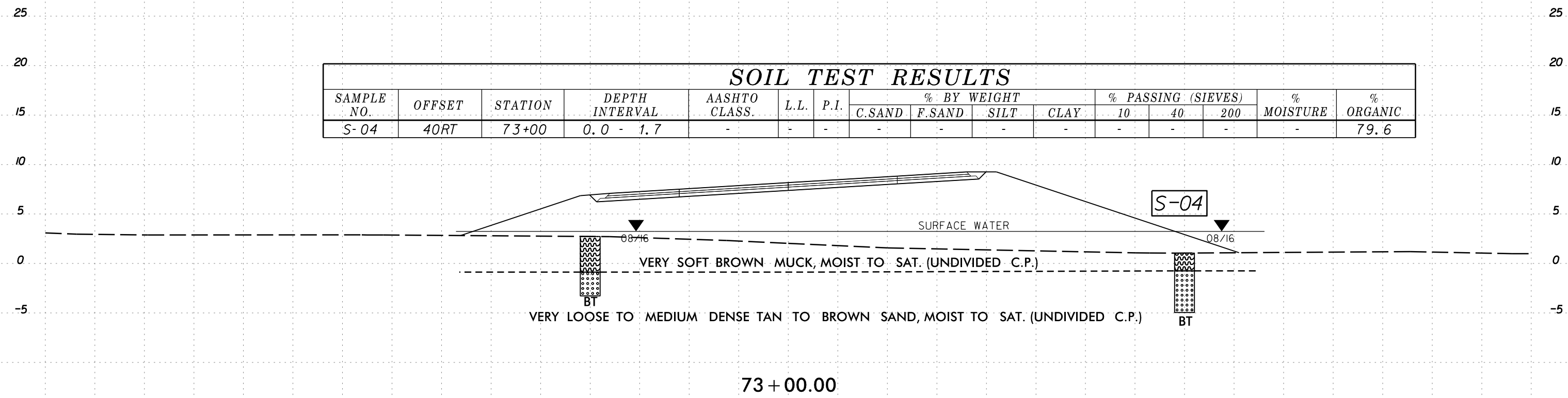
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 Is:stone AT MICROSTATIONPC2

6/23/16
28-OCT-2016 13:31
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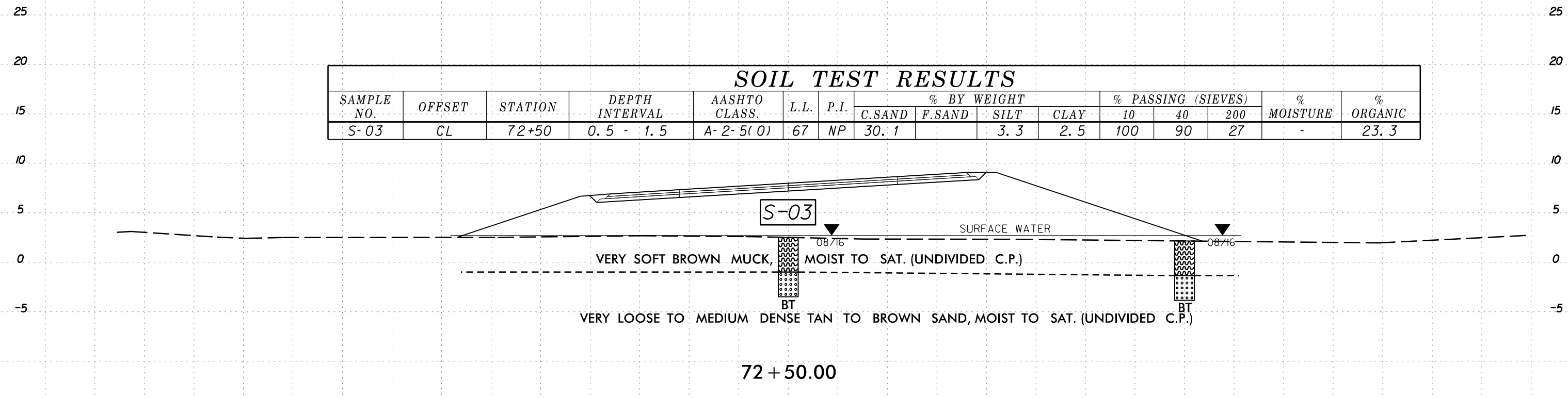


75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

SOIL TEST RESULTS															
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C.SAND	F.SAND	SILT	CLAY	10	40	200		
S-04	40RT	73+00	0.0 - 1.7	-	-	-	-	-	-	-	-	-	-	-	79.6

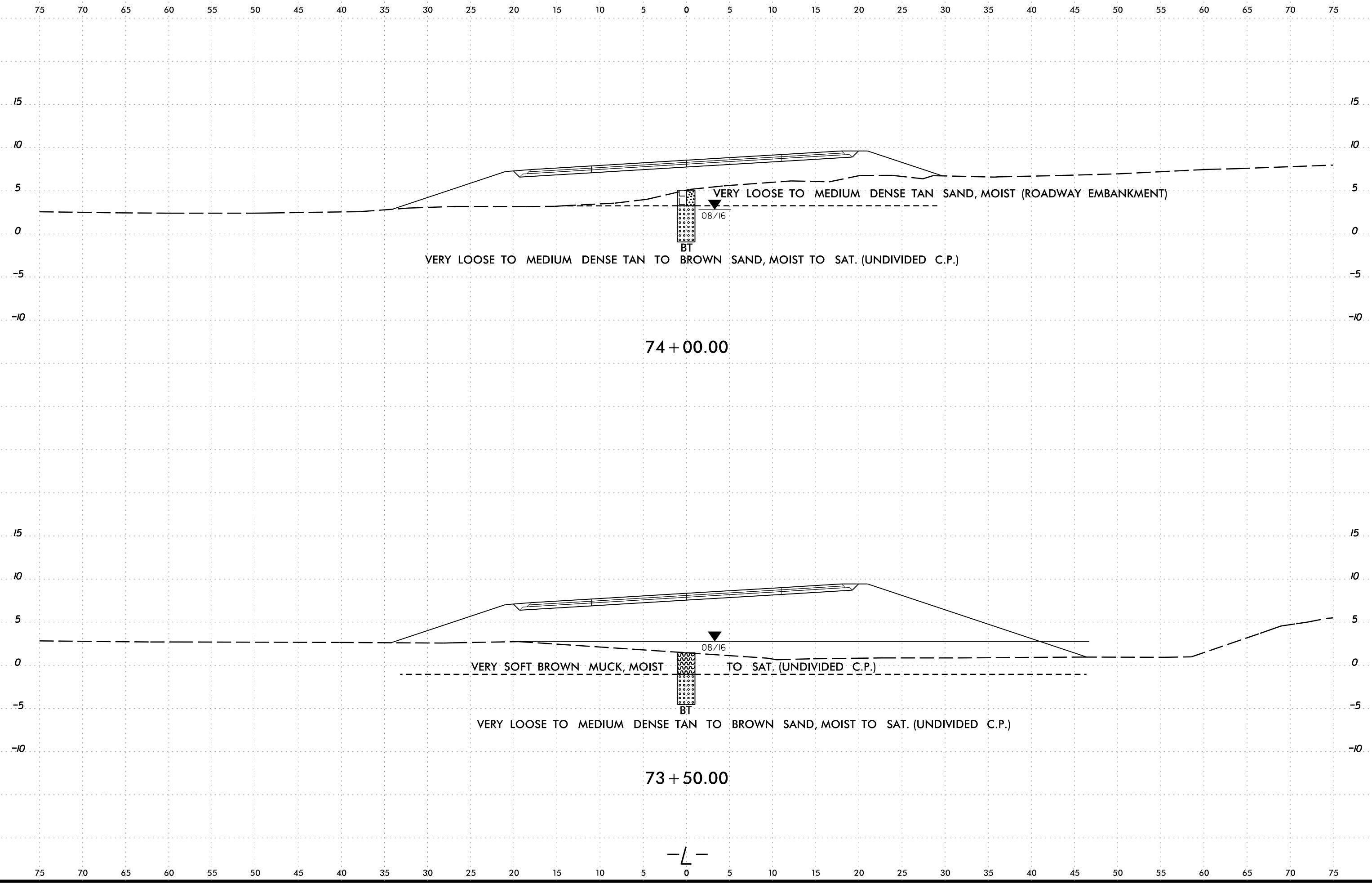


SOIL TEST RESULTS															
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C.SAND	F.SAND	SILT	CLAY	10	40	200		
S-03	CL	72+50	0.5 - 1.5	A-2-5(0)	67	NP	30.1	-	3.3	2.5	100	90	27	-	23.3



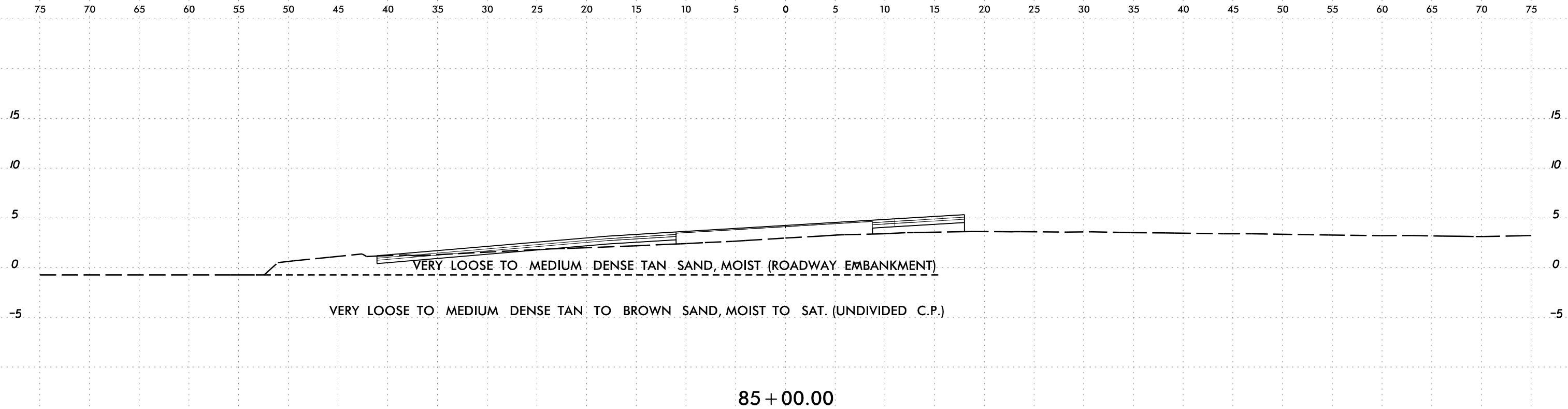
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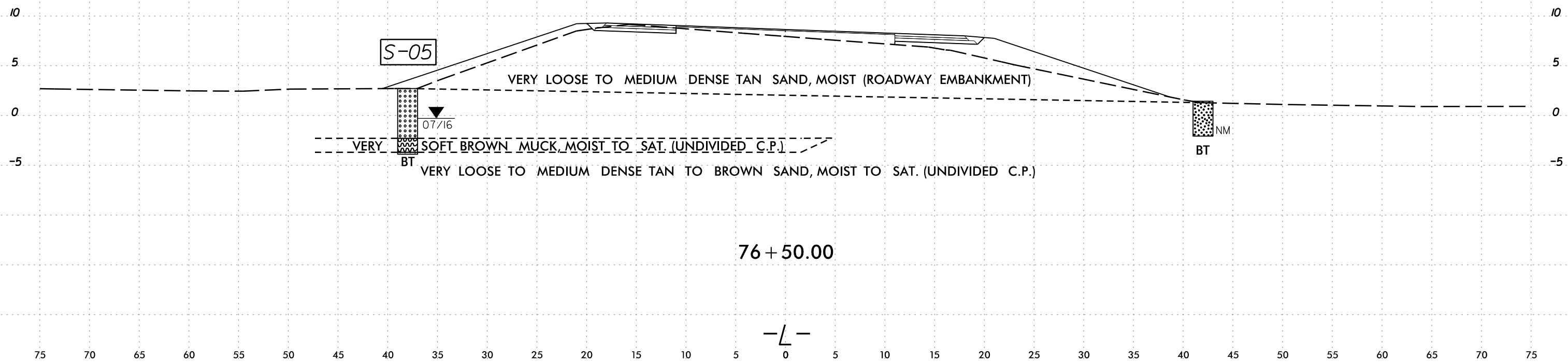


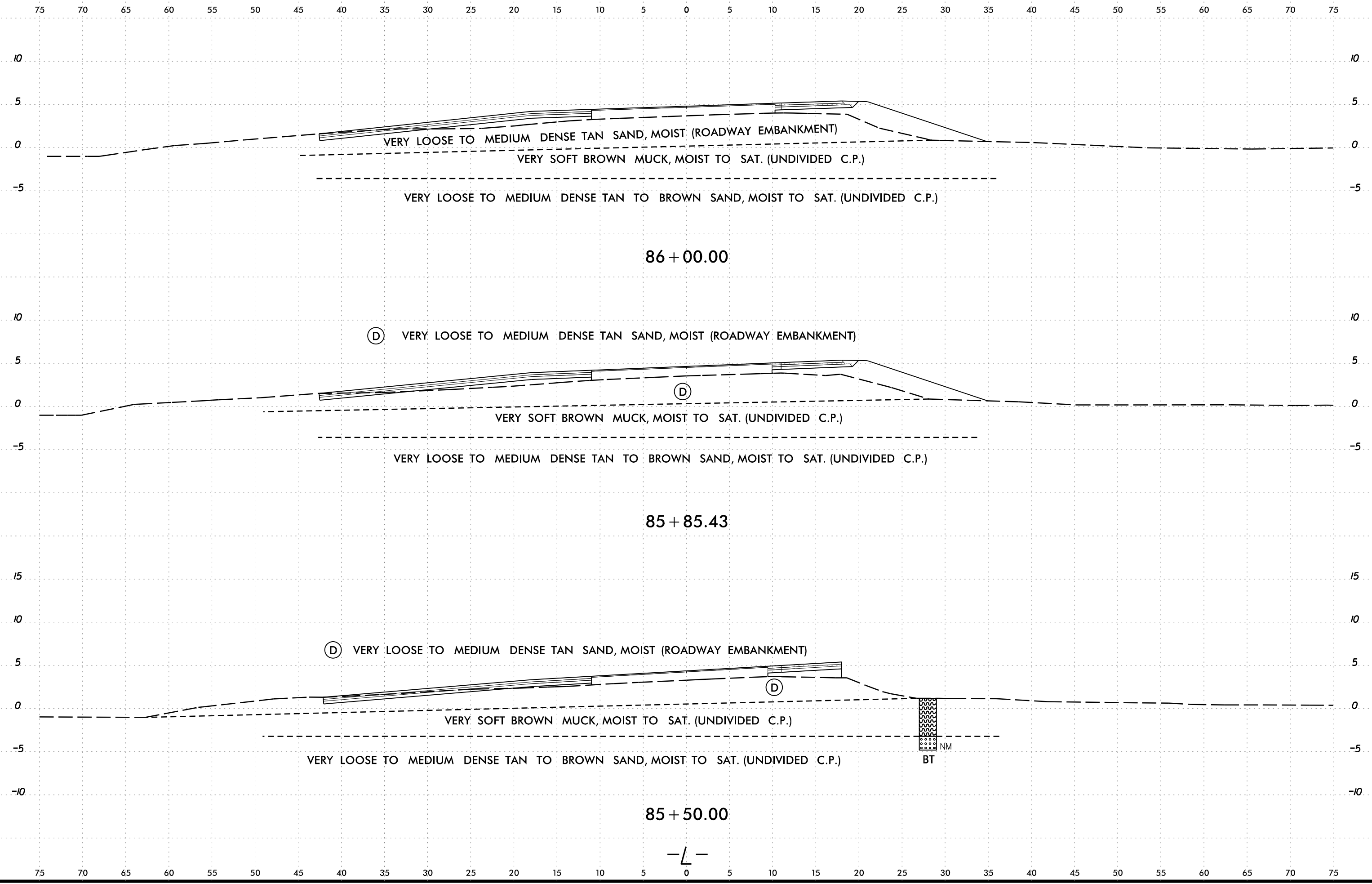
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 Isotone AT MICROSTATIONPC2

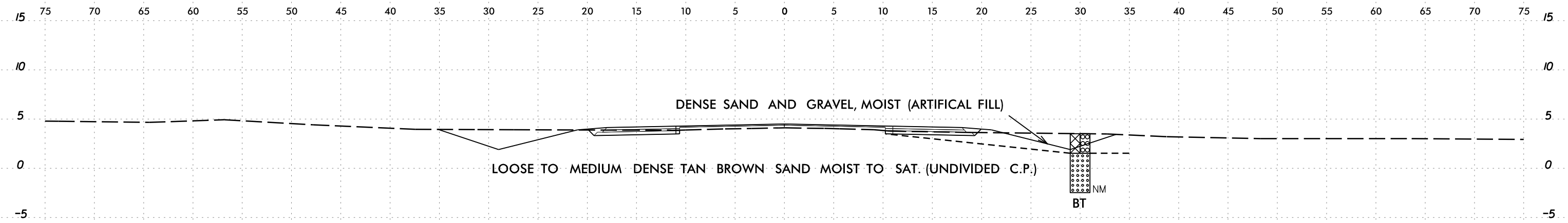
-L-



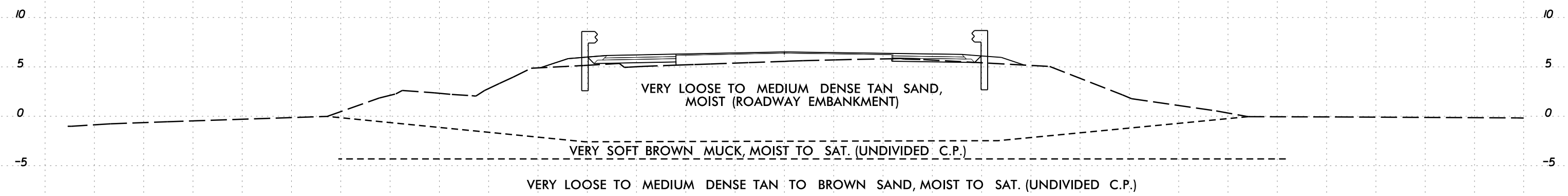
SOIL TEST RESULTS															
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C.SAND	F.SAND	SILT	CLAY	10	40	200		
S-05	38LT	76+50	5.0 - 5.5	()	-	-	13.5	77.9	5.8	2.8	100	97	33	-	42.2





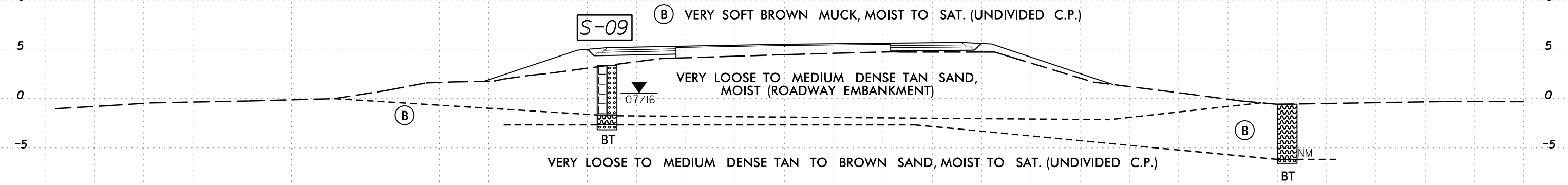


101 + 00.00



87 + 00.00

SOIL TEST RESULTS															
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C.SAND	F.SAND	SILT	CLAY	10	40	200		
S-09	18LT	86+50	5.0 - 6.0	()	-	-	38.1		3.3	2.3	57.5	85	8	-	13.7



86 + 50.00

-L-

75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

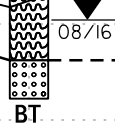
SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C.SAND	F.SAND	SILT	CLAY	10	40	200		
S-10	30RT	102+00	0.0 - 4.0	A-2-4(0)	33	NP	26.2	50.3	20.8	2.7	72.6	89	25	-	21.6

- (B) VERY LOOSE BROWN BLACK MUCK, MOIST TO SAT. (UNDIVIDED C.P.)
- (A) DENSE SAND AND GRAVEL, MOIST (ARTIFICIAL FILL)

LOOSE TO MEDIUM DENSE TAN BROWN SAND MOIST TO SAT. (UNDIVIDED C.P.)

S-10



102 + 00.00

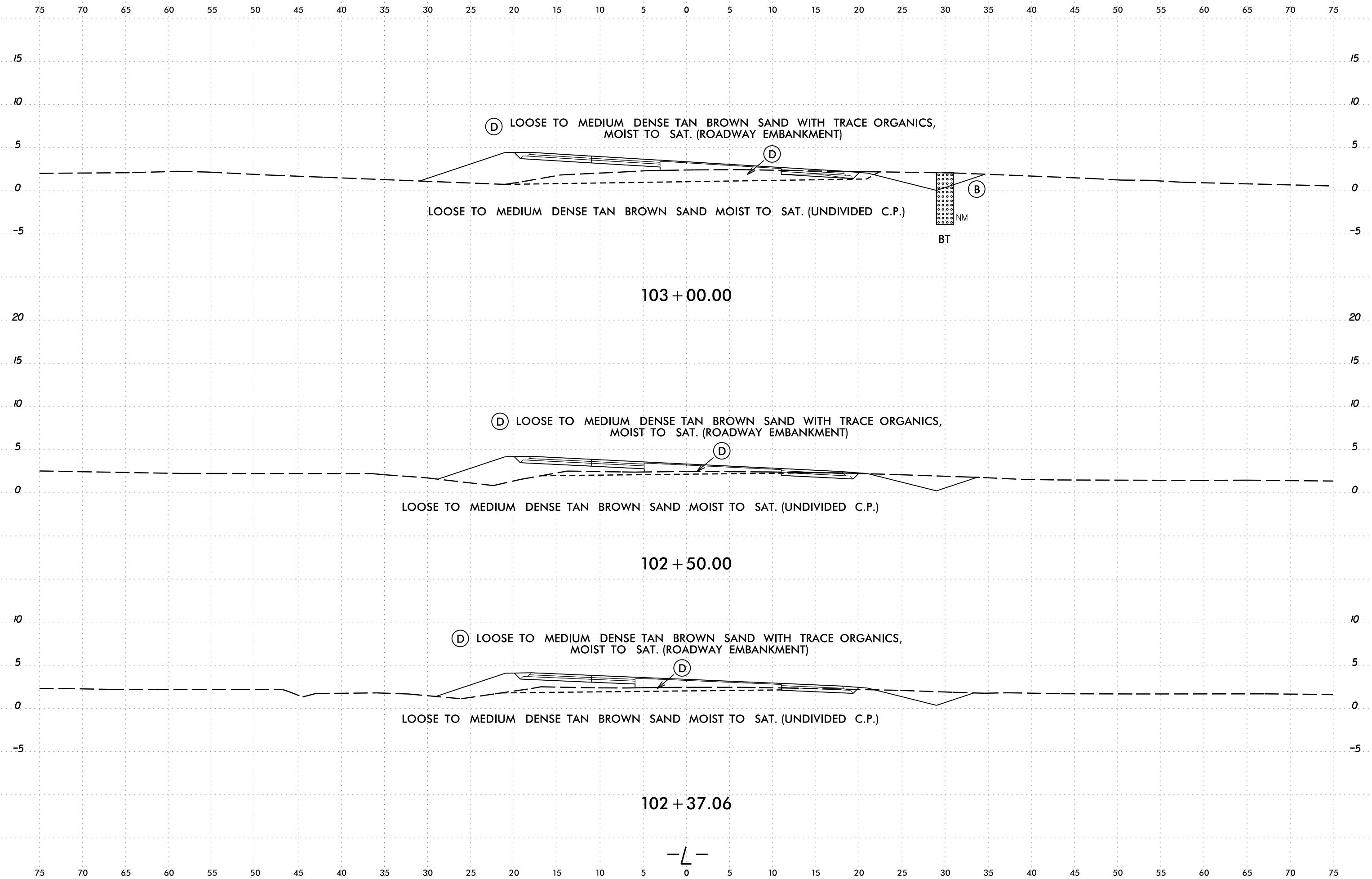
LOOSE TO MEDIUM DENSE TAN BROWN SAND MOIST TO SAT. (UNDIVIDED C.P.)



101 + 50.00

-L-

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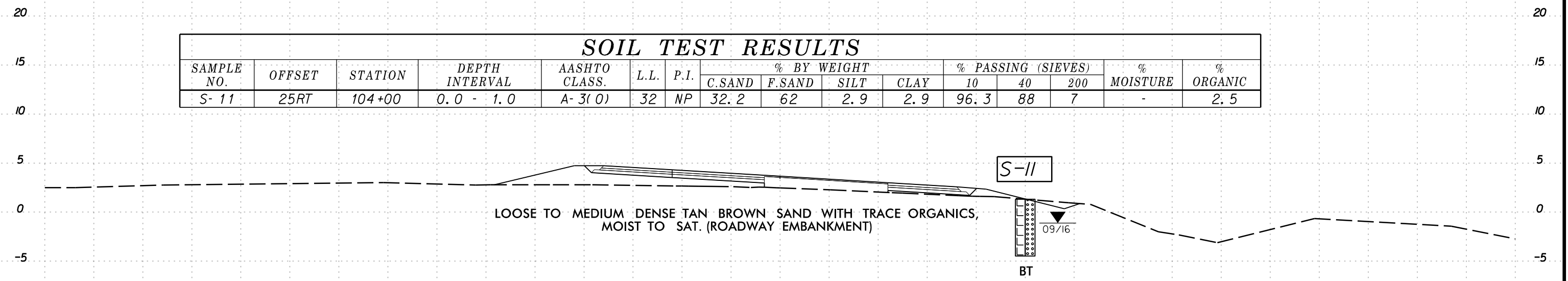


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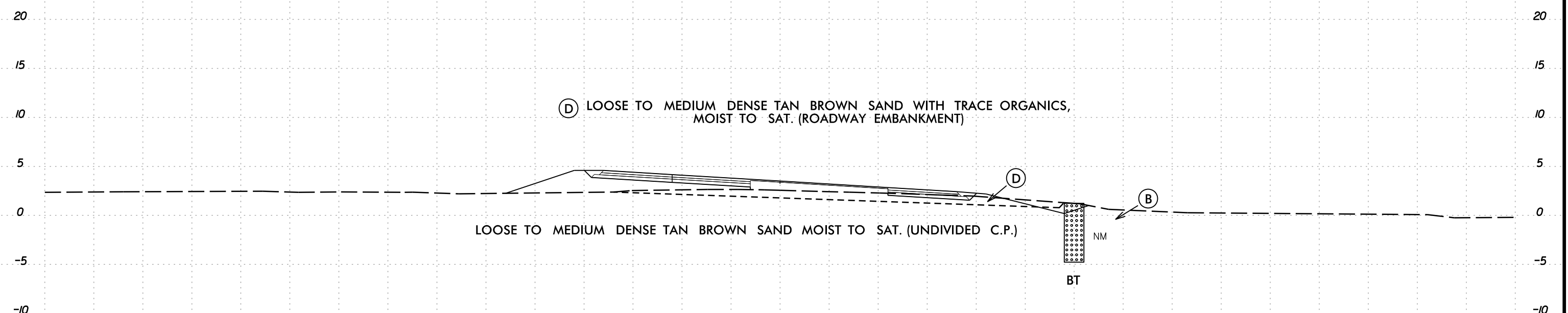
-L-

75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

SOIL TEST RESULTS															
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C.SAND	F.SAND	SILT	CLAY	10	40	200		
S-11	25RT	104+00	0.0 - 1.0	A-3(0)	32	NP	32.2	62	2.9	2.9	96.3	88	7	-	2.5



104 + 00.00



103 + 50.00

-L-

75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C.SAND	F.SAND	SILT	CLAY	10	40	200		
S-13	20LT	116+00	2.5 - 3.0	-	-	-	-	-	-	-	-	-	-	65.8	

S-13

LOOSE TAN SAND, MOIST TO SAT. (ROADWAY EMBANKMENT)

VERY SOFT BROWN BLACK MUCK SAT. (UNDIVIDED C.P.)

LOOSE TO MEDIUM DENSE TAN BROWN SAND, SAT. (UNDIVIDED C.P.)

BT

116 + 00.00

07/16

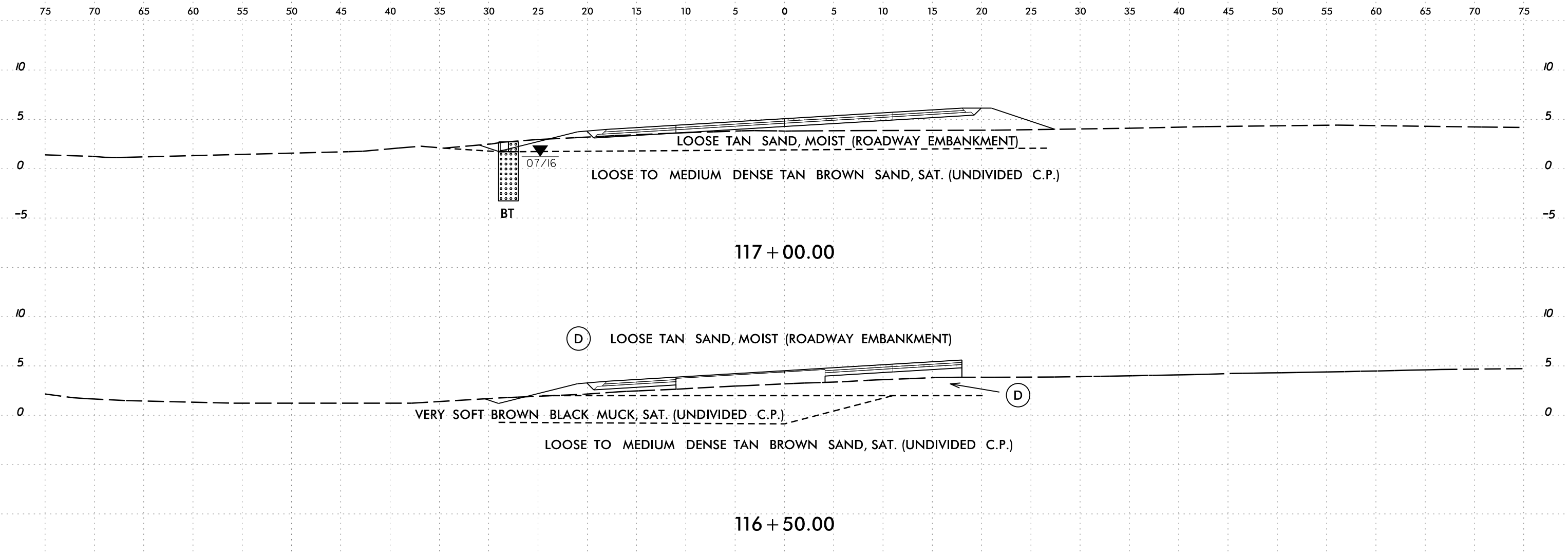
LOOSE TO MEDIUM DENSE TAN BROWN SAND, SAT. (UNDIVIDED C.P.)

BT

115 + 50.00

-L-

75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

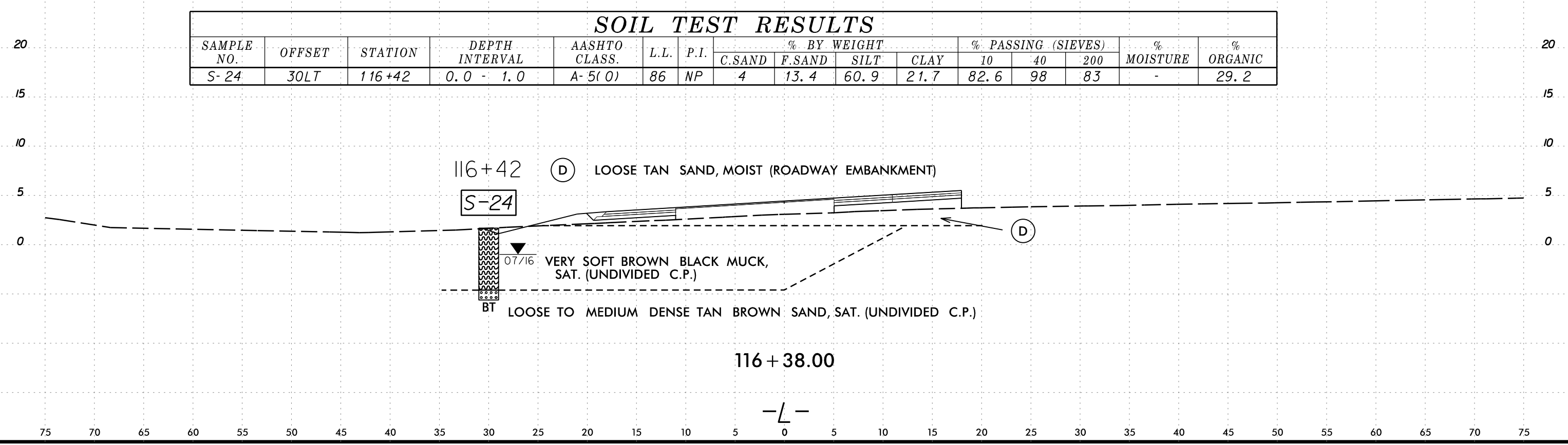


117 + 00.00

116 + 50.00

SOIL TEST RESULTS

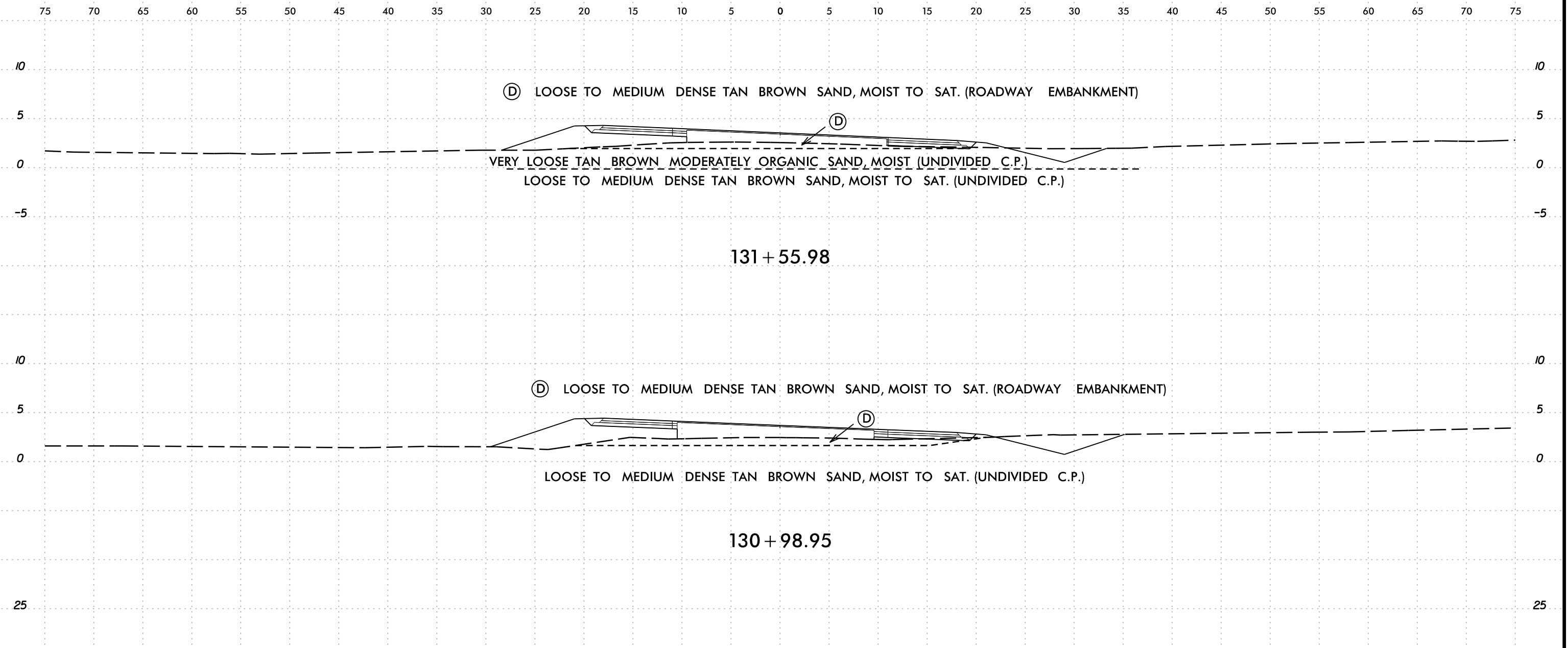
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C.SAND	F.SAND	SILT	CLAY	10	40	200		
S-24	30LT	116+42	0.0 - 1.0	A-5(0)	86	NP	4	13.4	60.9	21.7	82.6	98	83	-	29.2



116 + 38.00

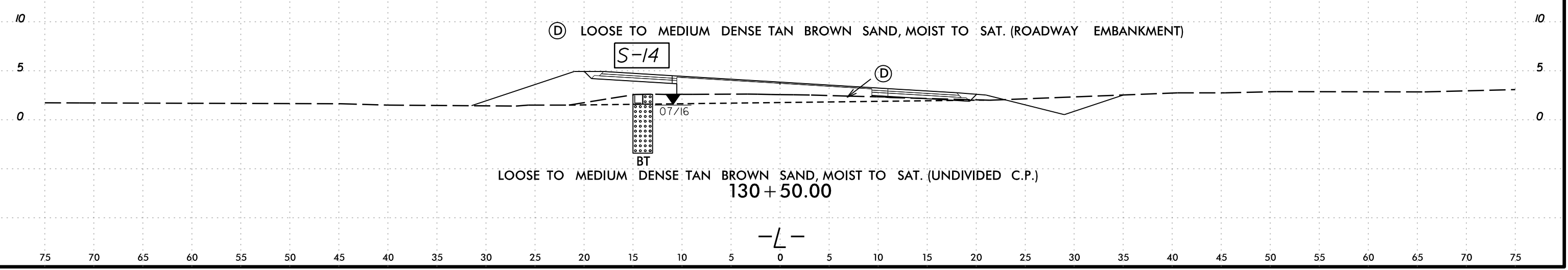
-L-

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 1:stone AT MICROSTATIONPC2



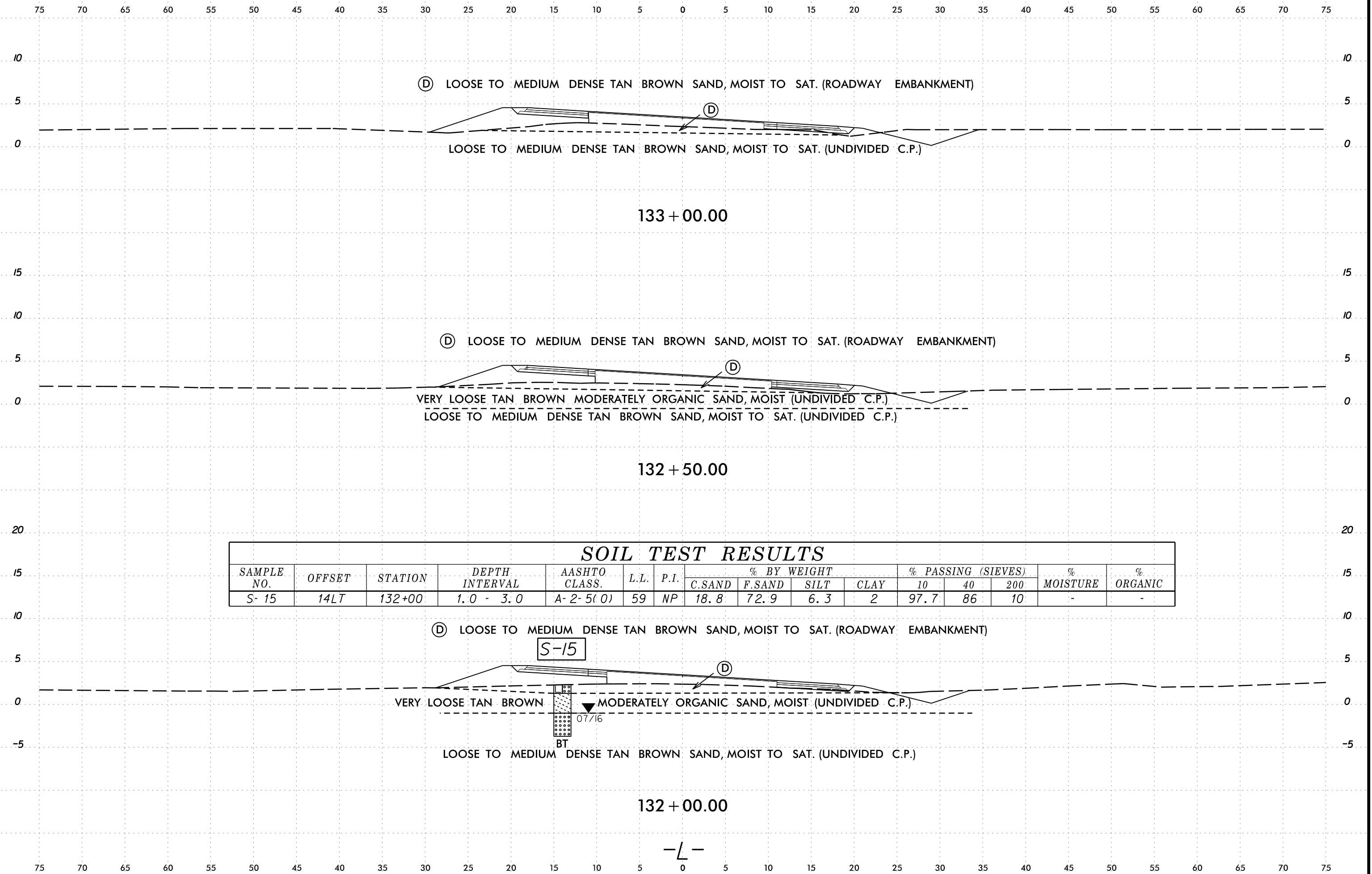
SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C.SAND	F.SAND	SILT	CLAY	10	40	200		
S-14	14LT	130+50	0.0 - 1.0	A-3(0)	32	NP	41.7	53.6	2.7	2	97.3	83	6	-	-



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 Isotone AT MICROSTATION PC2



133 + 00.00

132 + 50.00

132 + 00.00

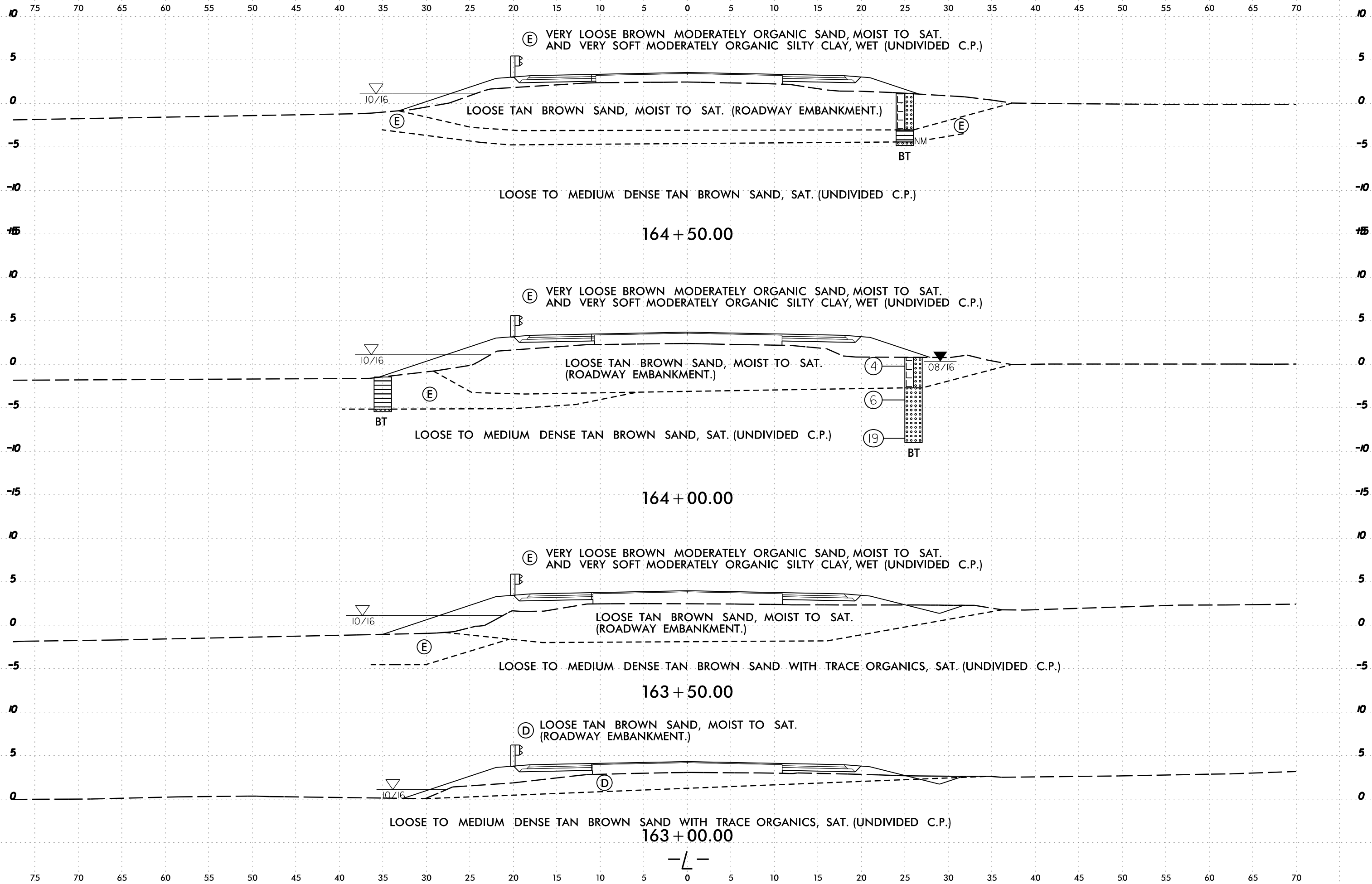
SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C.SAND	F.SAND	SILT	CLAY	10	40	200		
S-15	14LT	132+00	1.0 - 3.0	A-2-5(0)	59	NP	18.8	72.9	6.3	2	97.7	86	10	-	-

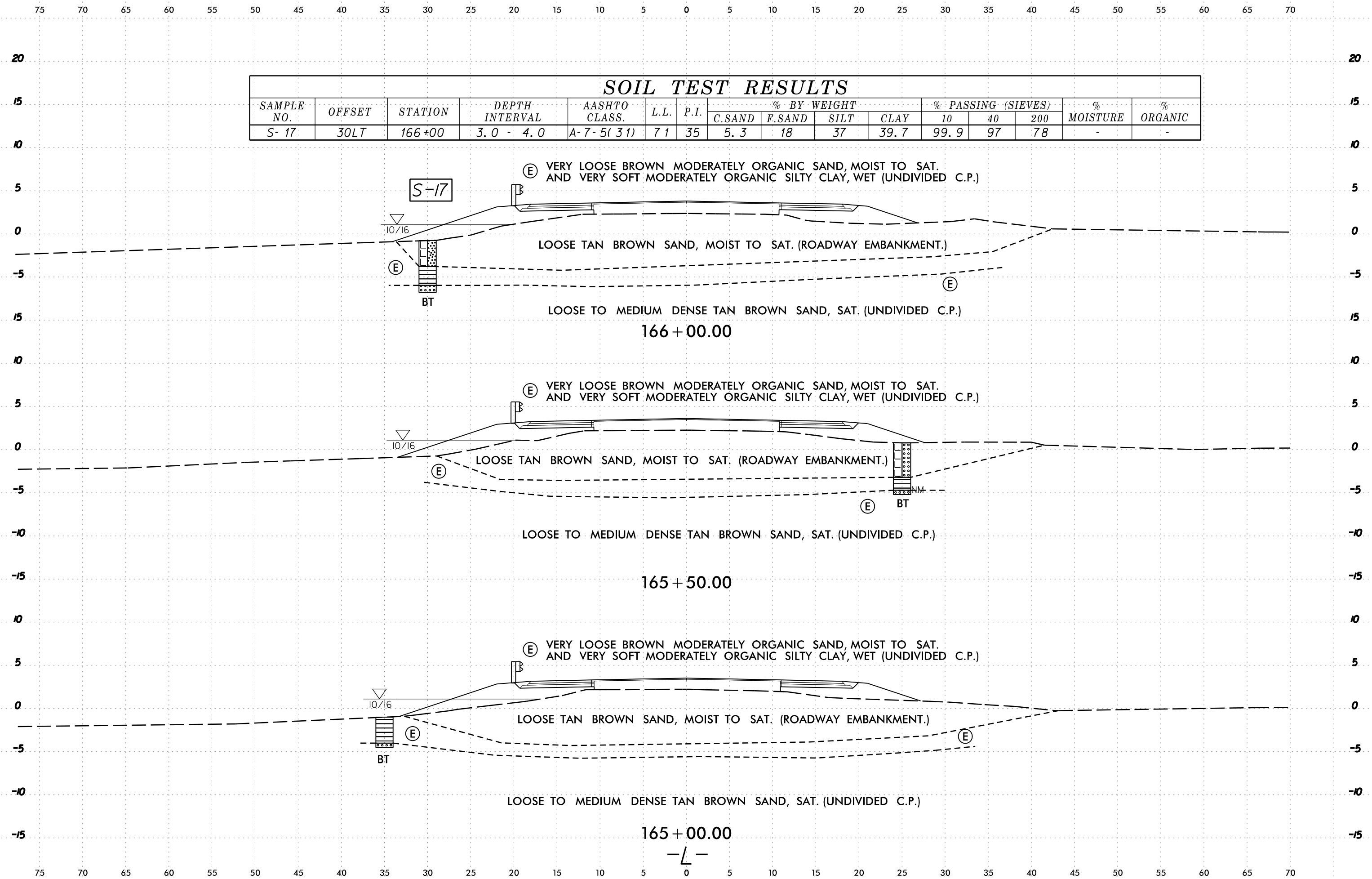
S-15

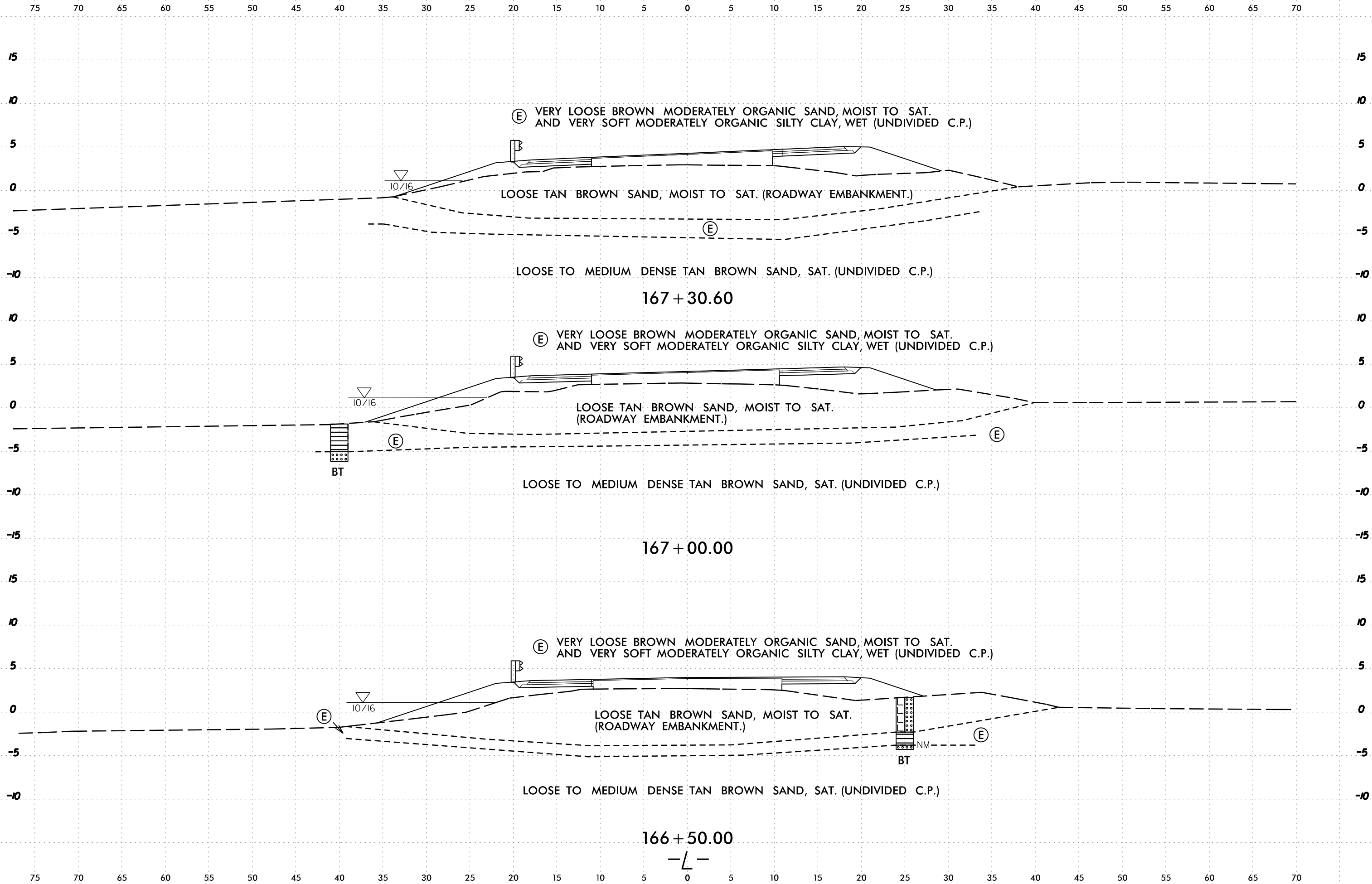


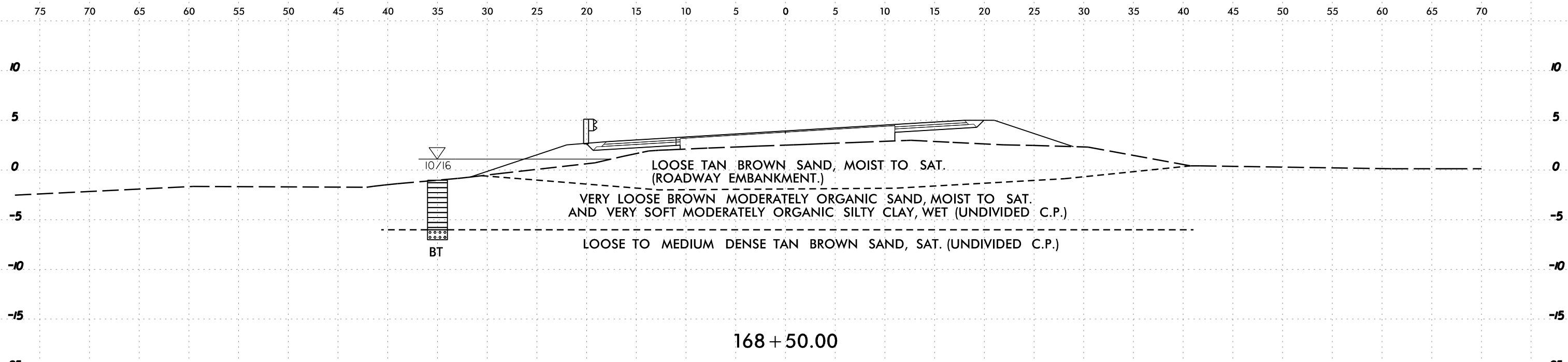
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SOIL TEST RESULTS															
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C.SAND	F.SAND	SILT	CLAY	10	40	200		
S-17	30LT	166+00	3.0 - 4.0	A-7-5(31)	71	35	5.3	18	37	39.7	99.9	97	78	-	-

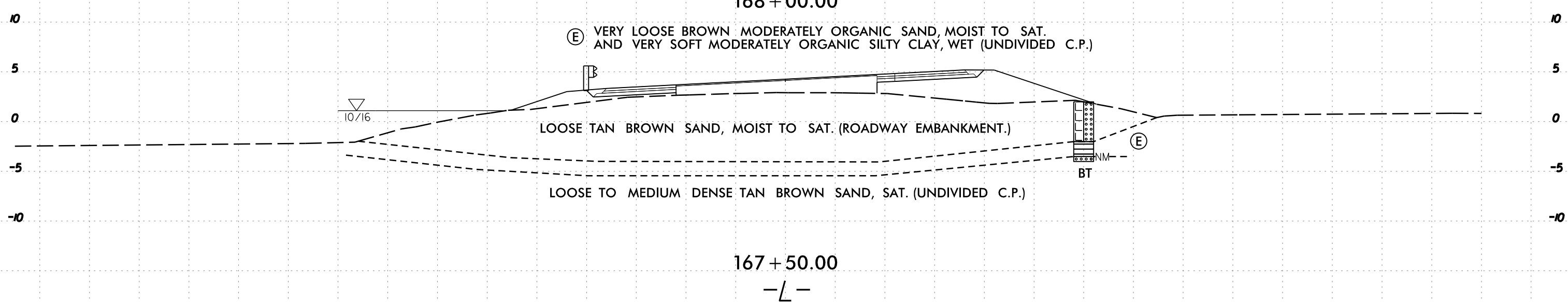
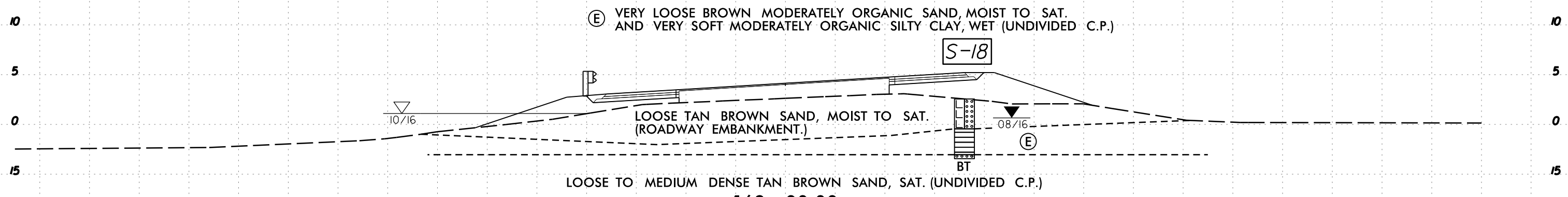






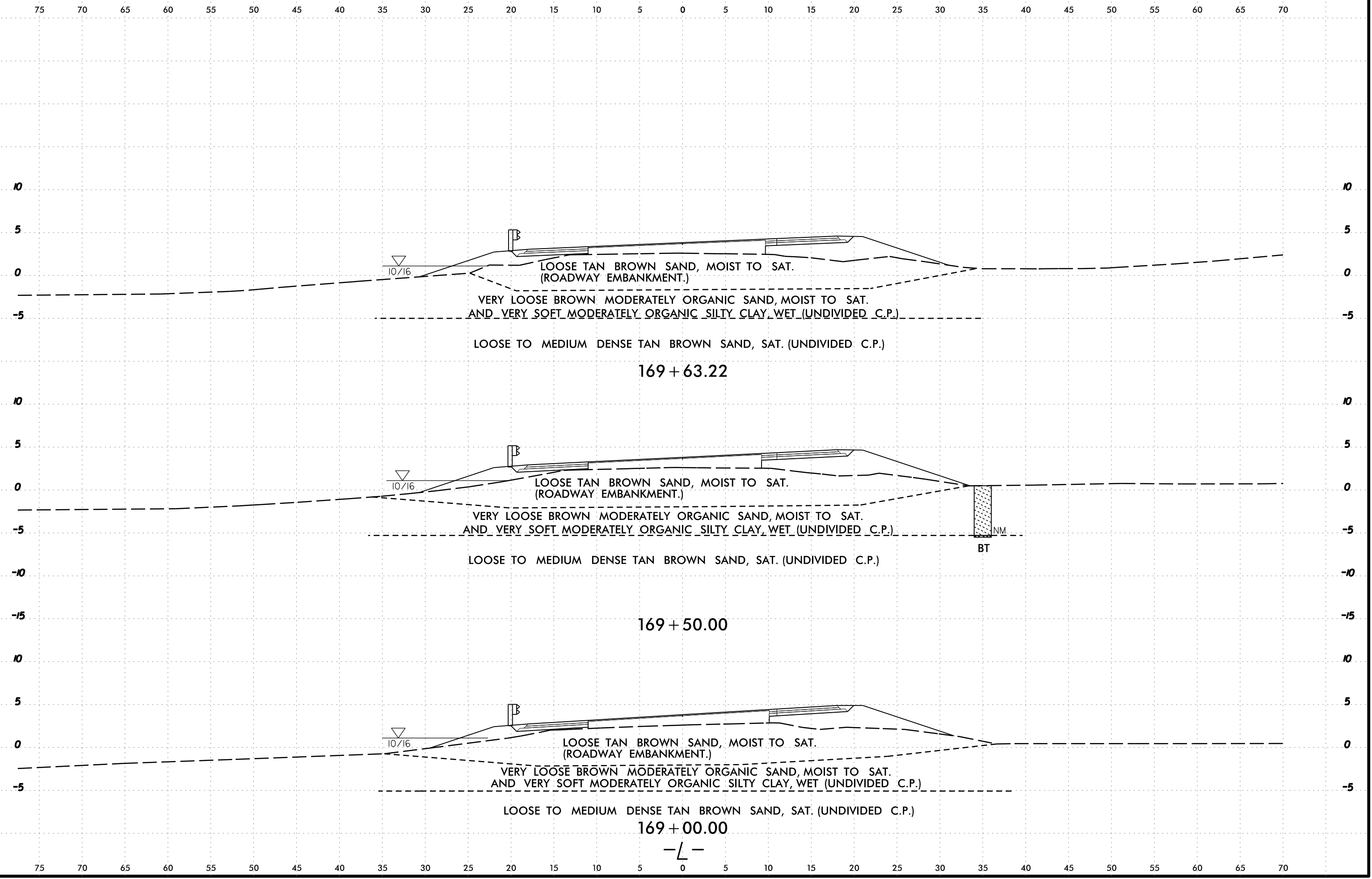
SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C.SAND	F.SAND	SILT	CLAY	10	40	200		
S-18	18RT	168+00	3.0 - 4.0	A-7-5(28)	78	33	9.7	18.8	32.7	38.8	91.4	93	73	-	13.3



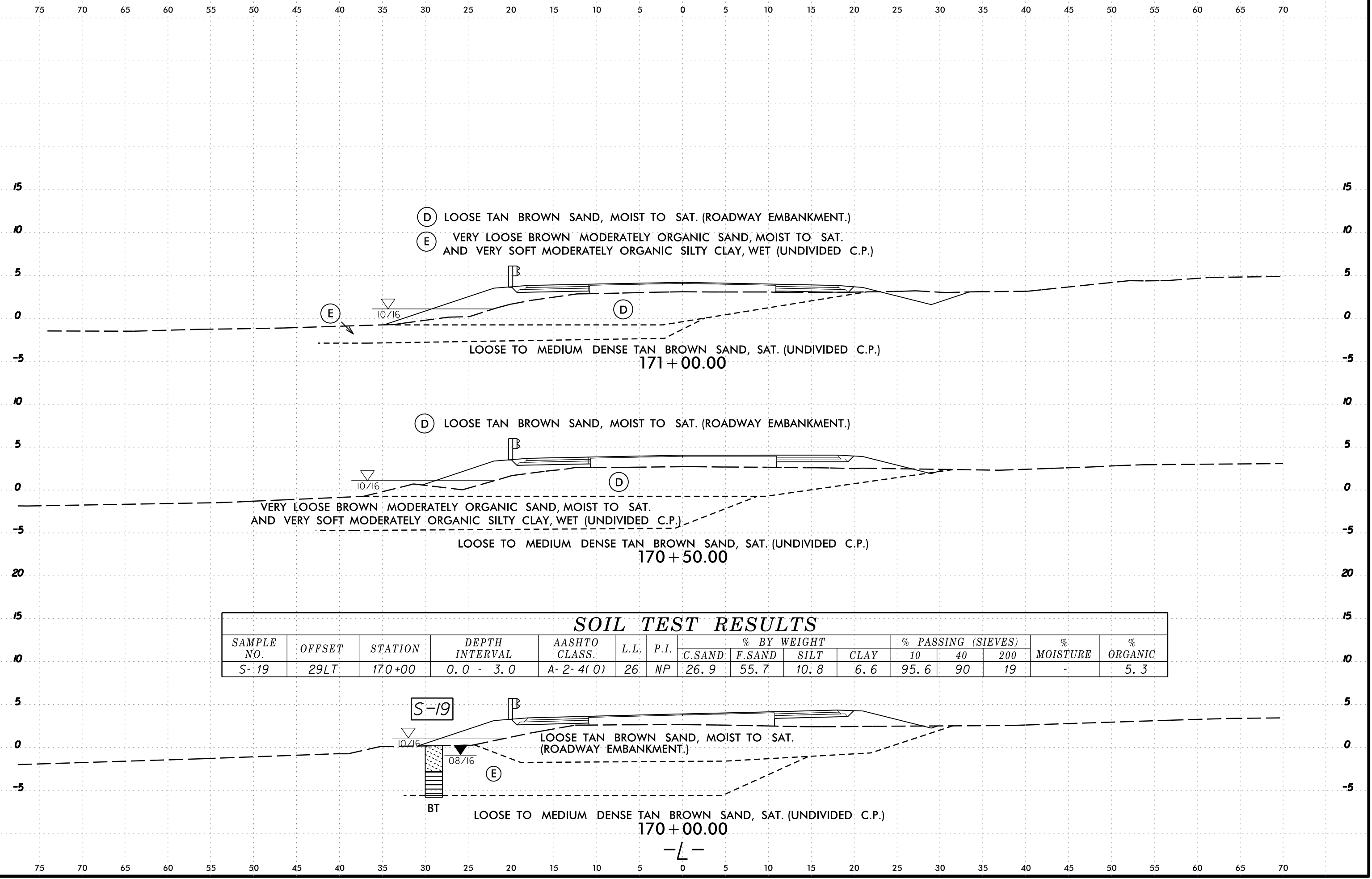
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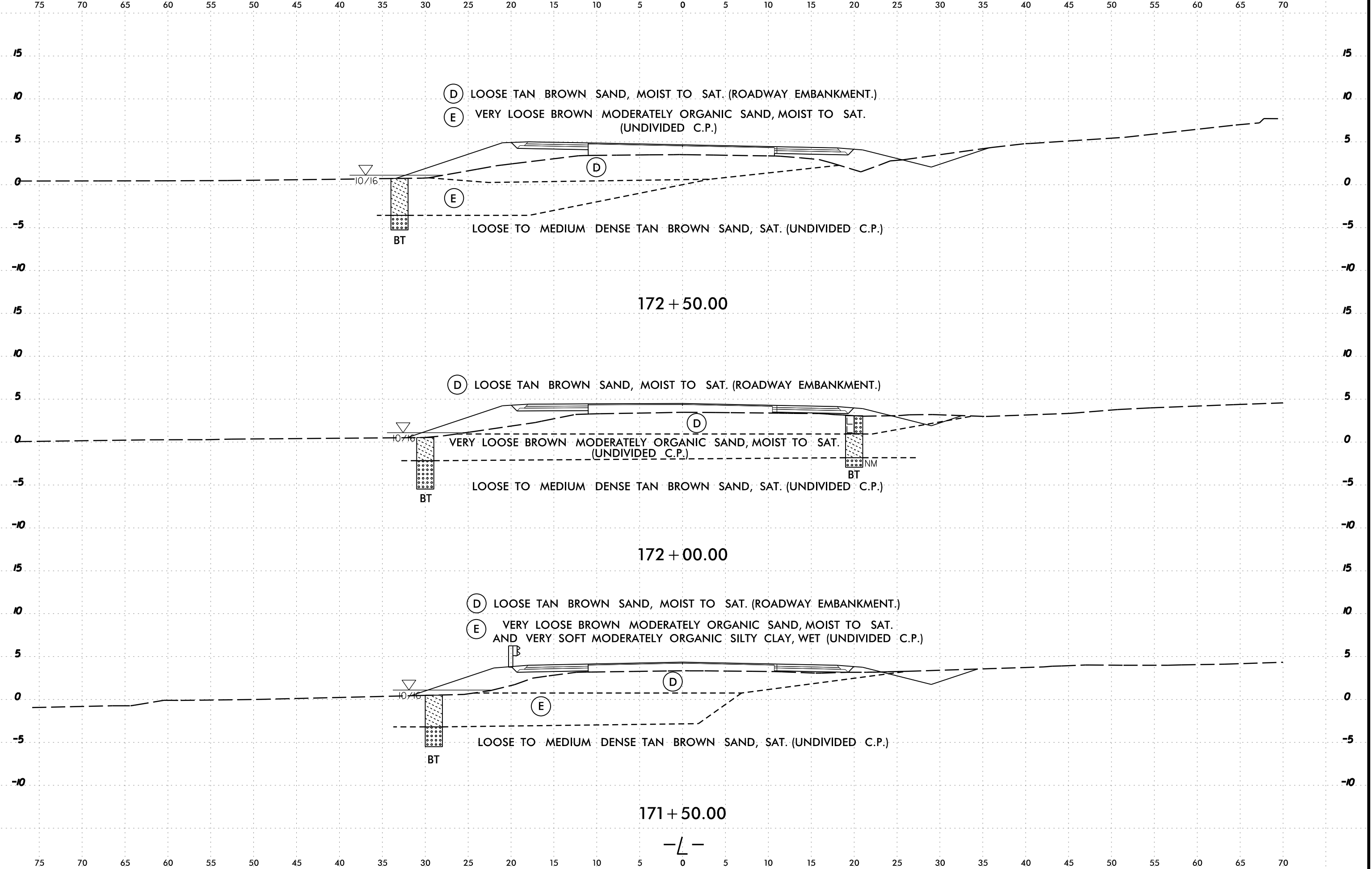


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163-174.dgn
STONE

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 Istone AT MICROSTATIONPC2



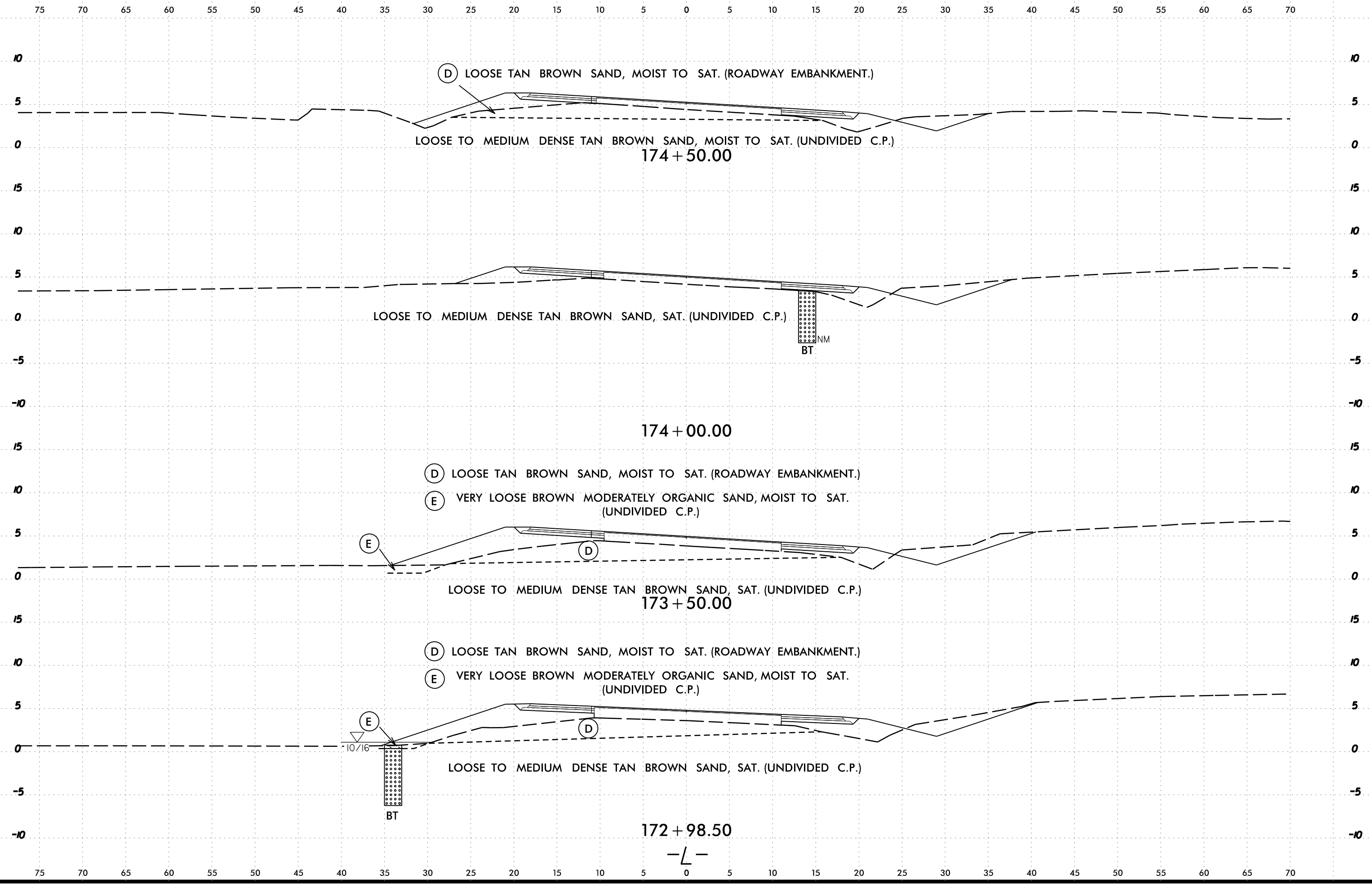
6/23/16



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6/23/16



(D) LOOSE TAN BROWN SAND, MOIST TO SAT. (ROADWAY EMBANKMENT.)

LOOSE TO MEDIUM DENSE TAN BROWN SAND, MOIST TO SAT. (UNDIVIDED C.P.)
174 + 50.00

LOOSE TO MEDIUM DENSE TAN BROWN SAND, SAT. (UNDIVIDED C.P.)

174 + 00.00

(D) LOOSE TAN BROWN SAND, MOIST TO SAT. (ROADWAY EMBANKMENT.)

(E) VERY LOOSE BROWN MODERATELY ORGANIC SAND, MOIST TO SAT. (UNDIVIDED C.P.)

LOOSE TO MEDIUM DENSE TAN BROWN SAND, SAT. (UNDIVIDED C.P.)
173 + 50.00

(D) LOOSE TAN BROWN SAND, MOIST TO SAT. (ROADWAY EMBANKMENT.)

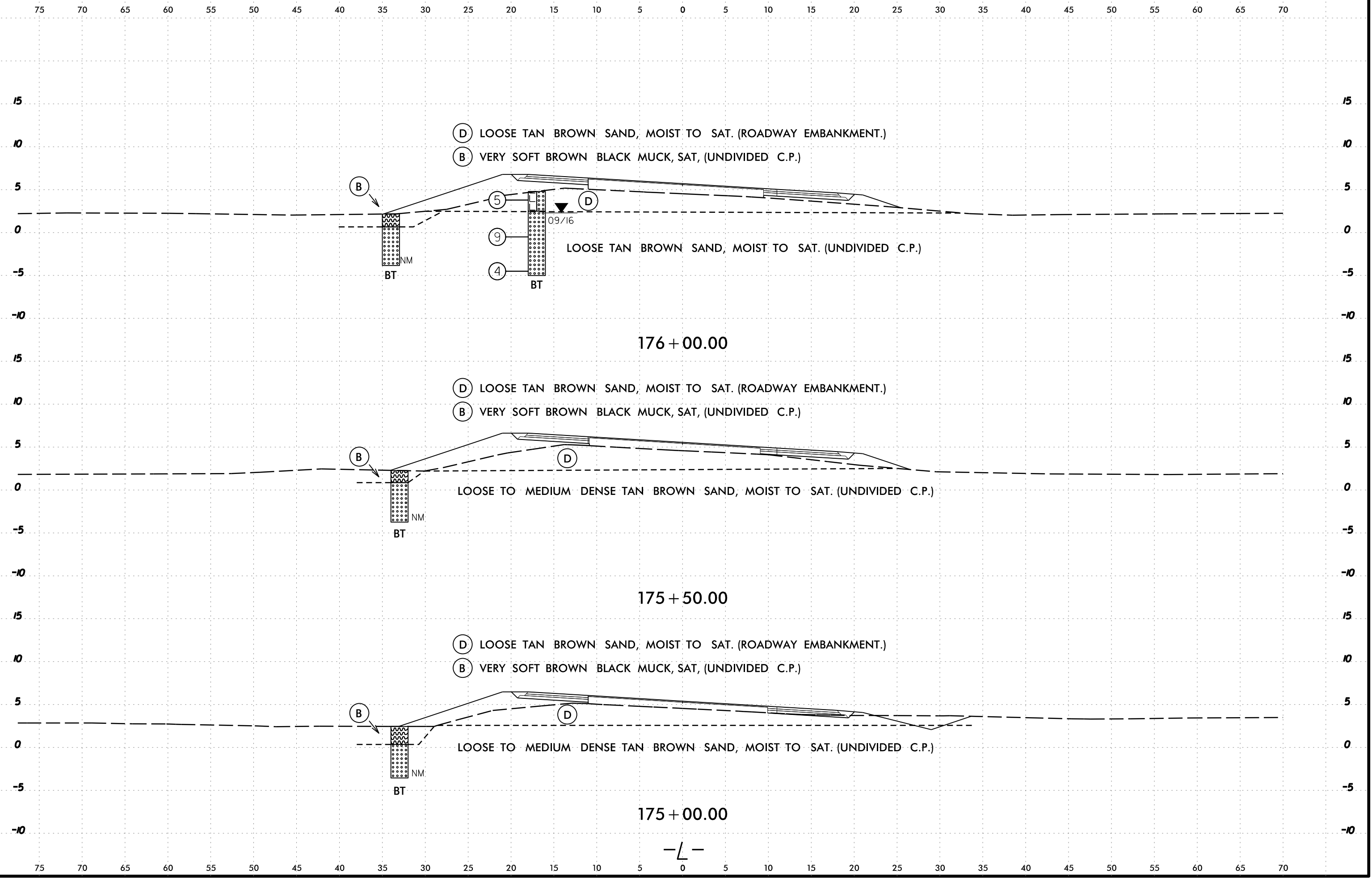
(E) VERY LOOSE BROWN MODERATELY ORGANIC SAND, MOIST TO SAT. (UNDIVIDED C.P.)

LOOSE TO MEDIUM DENSE TAN BROWN SAND, SAT. (UNDIVIDED C.P.)

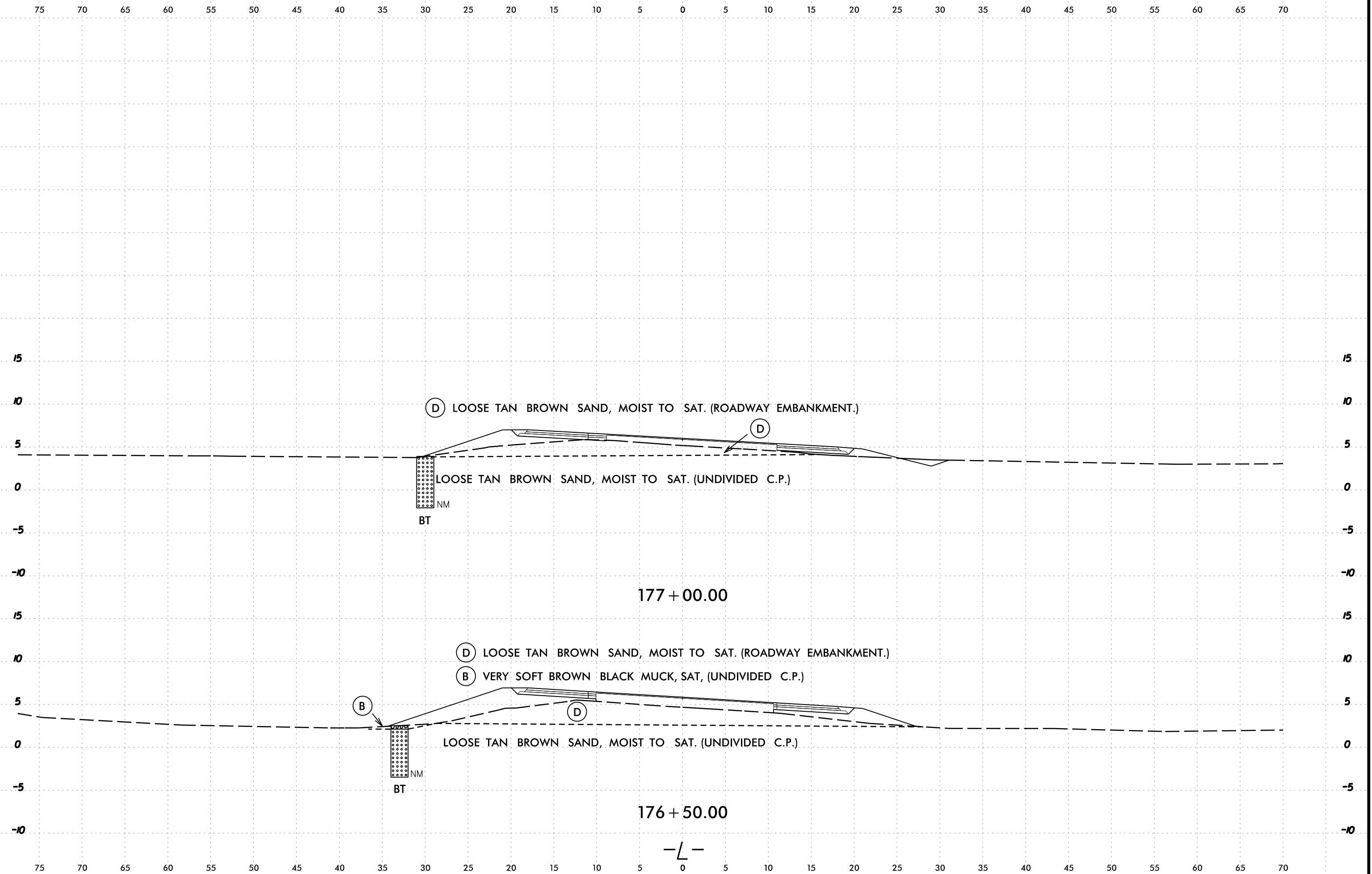
172 + 98.50

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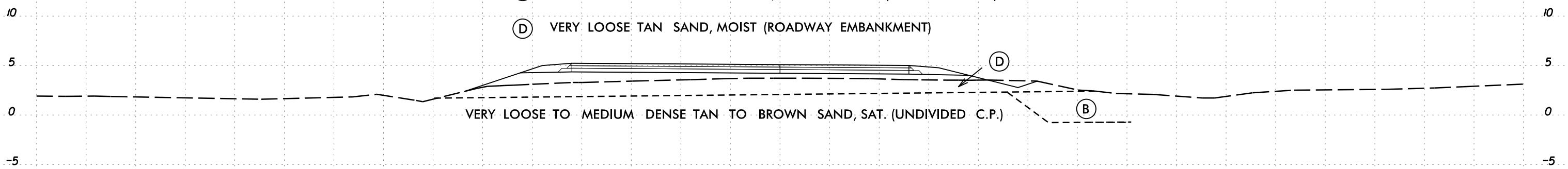
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LSTONE AT MICROSTATIONPC2



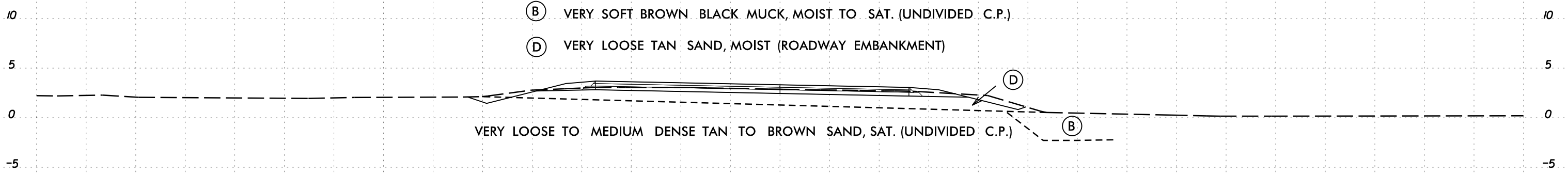
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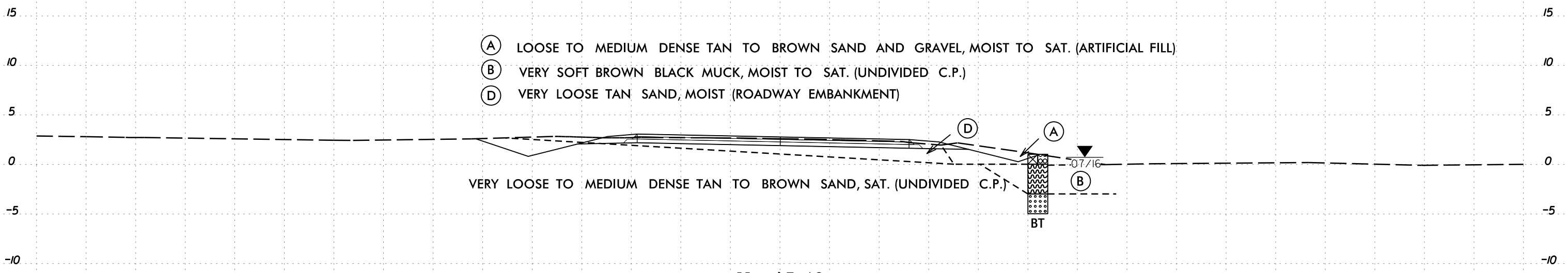
- (B) VERY SOFT BROWN BLACK MUCK, MOIST TO SAT. (UNDIVIDED C.P.)
- (D) VERY LOOSE TAN SAND, MOIST (ROADWAY EMBANKMENT)



- (B) VERY SOFT BROWN BLACK MUCK, MOIST TO SAT. (UNDIVIDED C.P.)
- (D) VERY LOOSE TAN SAND, MOIST (ROADWAY EMBANKMENT)



- (A) LOOSE TO MEDIUM DENSE TAN TO BROWN SAND AND GRAVEL, MOIST TO SAT. (ARTIFICIAL FILL)
- (B) VERY SOFT BROWN BLACK MUCK, MOIST TO SAT. (UNDIVIDED C.P.)
- (D) VERY LOOSE TAN SAND, MOIST (ROADWAY EMBANKMENT)



11 + 65.40

-Y3A-

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1:stone AT MICROSTATIONPC2