

REFERENCE: R-5809A

PROJECT: 46976

SEE SHEET 3 FOR PLAN SHEET LAYOUT
AT TIME OF INVESTIGATION

CONTENTS

LINE	STATION	PLAN	PROFILE
-L-	65+00 TO 403+00	4 TO 16*	(NA)

(* = SELECT PLANS
SEE SHEET 3 FOR LAYOUT)

CROSS SECTIONS

LINE	STATION	SHEETS
-L-	58+00 TO 437+50	38 TO 247**

(** = SHEET NUMBERING FROM ROADWAY FILES
SHEETS LIMITED TO BORING LOCATIONS)

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

ROADWAY

SUBSURFACE INVESTIGATION

COUNTY BERTIE
PROJECT DESCRIPTION NC 45 FROM THREE
SISTERS BRIDGE TO US ROUTE 17

INVENTORY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-5809A	1	83

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 1919 T07-6850. THE SUBSURFACE PLANS AND REPORTS, FIELD BORING LOGS, ROCK CORES AND SOIL TEST DATA ARE NOT PART OF THE CONTRACT.

GENERAL SOIL AND ROCK STRATA DESCRIPTIONS AND INDICATED BOUNDARIES ARE BASED ON A GEOTECHNICAL INTERPRETATION OF ALL AVAILABLE SUBSURFACE DATA AND MAY NOT NECESSARILY REFLECT THE ACTUAL SUBSURFACE CONDITIONS BETWEEN BORINGS OR BETWEEN SAMPLED STRATA WITHIN THE BOREHOLE. THE LABORATORY SAMPLE DATA AND THE IN SITU (IN-PLACE) TEST DATA CAN BE RELIED ON ONLY TO THE DEGREE OF RELIABILITY INHERENT IN THE STANDARD TEST METHOD. THE OBSERVED WATER LEVELS OR SOIL MOISTURE CONDITIONS INDICATED IN THE SUBSURFACE INVESTIGATIONS ARE AS RECORDED AT THE TIME OF THE INVESTIGATION. THESE WATER LEVELS OR SOIL MOISTURE CONDITIONS MAY VARY CONSIDERABLY WITH TIME ACCORDING TO CLIMATIC CONDITIONS INCLUDING TEMPERATURES, PRECIPITATION AND WIND, AS WELL AS OTHER NON-CLIMATIC FACTORS.

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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

THOMAS PARK

JACK BURKE

M. D. MASON

INVESTIGATED BY CATLIN

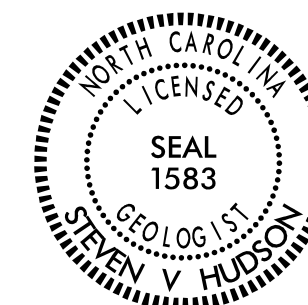
DRAWN BY S. V. HUDSON, LG

CHECKED BY J. LEE STONE, LG

SUBMITTED BY S. V. HUDSON, LG

DATE JANUARY 2023

CATLIN
Engineers and Scientists



SIGNATURE

DATE

**DOCUMENT NOT CONSIDERED FINAL
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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
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 206, 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

SOIL LEGEND AND AASHTO CLASSIFICATION
GENERAL CLASS., GROUP CLASS., SYMBOL, PERCENTAGE PASSING #10 #40 #200, MATERIAL PASSING #40 LL PI, GROUP INDEX, USUAL TYPES OF MAJOR MATERIALS, GEN. RATING AS SUBGRADE

CONSISTENCY OR DENSENESS
PRIMARY SOIL TYPE, COMPACTNESS OR CONSISTENCY, RANGE OF STANDARD PENETRATION RESISTANCE (N-VALUE), RANGE OF UNCONFINED COMPRESSIVE STRENGTH (TONS/FT²)

TEXTURE OR GRAIN SIZE
U.S. STD. SIEVE SIZE OPENING (MM), BOULDER (BLDR.), COBBLE (COB.), GRAVEL (GR.), COARSE SAND (CSE. SD.), FINE SAND (F SD.), SILT (SL.), CLAY (CL.), GRAIN MM SIZE IN., COBLES IN., GRAVEL IN., SAND IN., SILT IN., CLAY IN.

SOIL MOISTURE - CORRELATION OF TERMS
SOIL MOISTURE SCALE (ATTERBERG LIMITS), FIELD MOISTURE DESCRIPTION, GUIDE FOR FIELD MOISTURE DESCRIPTION, PLASTIC RANGE (PI), LIQUID LIMIT, PLASTIC LIMIT, OPTIMUM MOISTURE SHRINKAGE LIMIT

PLASTICITY
NON PLASTIC, SLIGHTLY PLASTIC, MODERATELY PLASTIC, HIGHLY PLASTIC, PLASTICITY INDEX (PI), DRY STRENGTH

COLOR
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.

GRADATION
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. ANGULARITY OF GRAINS

MINERALOGICAL COMPOSITION
MINERAL NAMES SUCH AS QUARTZ, FELDSPAR, MICA, TALC, KAOLIN, ETC. ARE USED IN DESCRIPTIONS WHEN THEY ARE CONSIDERED OF SIGNIFICANCE. COMPRESSIBILITY
SLIGHTLY COMPRESSIBLE, MODERATELY COMPRESSIBLE, HIGHLY COMPRESSIBLE

PERCENTAGE OF MATERIAL
ORGANIC MATERIAL, GRANULAR SOILS, SILT - CLAY SOILS, OTHER MATERIAL

GROUND WATER
WATER LEVEL IN BORE HOLE IMMEDIATELY AFTER DRILLING, STATIC WATER LEVEL AFTER 24 HOURS, PERCHED WATER, SATURATED ZONE, OR WATER BEARING STRATA, SPRING OR SEEP

MISCELLANEOUS SYMBOLS
ROADWAY EMBANKMENT (RE) WITH SOIL DESCRIPTION, SOIL SYMBOL, ARTIFICIAL FILL (AF) OTHER THAN ROADWAY EMBANKMENT, INFERRED SOIL BOUNDARY, INFERRED ROCK LINE, ALLUVIAL SOIL BOUNDARY, DIP & DIP DIRECTION OF ROCK STRUCTURES, TEST BORING, AUGER BORING, CORE BORING, MONITORING WELL, PIEZOMETER INSTALLATION, SLOPE INDICATOR INSTALLATION, CONE PENETROMETER TEST, SOUNDING ROD, TEST BORING WITH CORE, SPT N-VALUE

RECOMMENDATION SYMBOLS
UNDERCUT, SHALLOW UNDERCUT, UNCLASSIFIED EXCAVATION - UNSUITABLE WASTE, UNCLASSIFIED EXCAVATION - ACCEPTABLE DEGRADABLE ROCK, UNCLASSIFIED EXCAVATION - ACCEPTABLE, BUT NOT TO BE USED IN THE TOP 3 FEET OF EMBANKMENT OR BACKFILL

ABBREVIATIONS
AR - AUGER REFUSAL, BT - BORING TERMINATED, CL. - CLAY, CPT - CONE PENETRATION TEST, CSE. - COARSE, DMT - DILATOMETER TEST, DPT - DYNAMIC PENETRATION TEST, e - VOID RATIO, F - FINE, FOSS. - FOSSILIFEROUS, FRAC. - FRACTURED, FRACTURES, FRAGS. - FRAGMENTS, HI. - HIGHLY, MED. - MEDIUM, MICA. - MICACEOUS, MOD. - MODERATELY, NP - NON PLASTIC, ORG. - ORGANIC, PMT - PRESSUREMETER TEST, SAP. - SAPROLITIC, SD. - SAND, SANDY, SL. - SILT, SILTY, SLLI. - SLIGHTLY, TCR - TRICONE REFUSAL, w - MOISTURE CONTENT, V - VERY, VST - VANE SHEAR TEST, WEA. - WEATHERED, Wt - UNIT WEIGHT, Wg - DRY UNIT WEIGHT, SAMPLE ABBREVIATIONS: S - BULK, SS - SPLIT SPOON, ST - SHELBY TUBE, RS - ROCK, RT - RECOMPACTED TRIAXIAL, CBR - CALIFORNIA BEARING RATIO

EQUIPMENT USED ON SUBJECT PROJECT
DRILL UNITS: CME-45C, CME-55, CME-550, VANE SHEAR TEST, PORTABLE HOIST, ADVANCING TOOLS: CLAY BITS, 6" CONTINUOUS FLIGHT AUGER, 8" HOLLOW AUGERS, HARD FACED FINGER BITS, TUNG-CARBIDE INSERTS, CASING w/ ADVANCER, TRICONE STEEL TEETH, TRICONE TUNG-CARB., CORE BIT, HAMMER TYPE: AUTOMATIC, MANUAL, CORE SIZE: B, H, N, HAND TOOLS: POST HOLE DIGGER, HAND AUGER, SOUNDING ROD, VANE SHEAR TEST

ROCK DESCRIPTION
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 IS PENETRATION BY A SPLIT SPOON SAMPLER EQUAL TO OR LESS THAN 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: WEATHERED ROCK (WR), CRYSTALLINE ROCK (CR), NON-CRYSTALLINE ROCK (NCR), COASTAL PLAIN SEDIMENTARY ROCK (CP)

WEATHERING
FRESH, VERY SLIGHT (V SLI), SLIGHT (SLI), MODERATE (MOD.), MODERATELY SEVERE (MOD. SEV.), SEVERE (SEV.), VERY SEVERE (V SEV.), COMPLETE

ROCK HARDNESS
VERY HARD, HARD, MODERATELY HARD, MEDIUM HARD, SOFT, VERY SOFT

FRACTURE SPACING, BEDDING
TERM, SPACING, THICKNESS

INDURATION
FOR SEDIMENTARY ROCKS, INDURATION IS THE HARDENING OF MATERIAL BY CEMENTING, HEAT, PRESSURE, ETC. FRIABLE, MODERATELY INDURATED, INDURATED, EXTREMELY INDURATED

TERMS AND DEFINITIONS
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 (ROD) - 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. SLICKENISE - 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 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. BENCH MARK: ELEVATION: FEET. NOTES: FIAD = FILLED IMMEDIATELY AFTER DRILLING, U.C.P. = UNDIVIDED COASTAL PLAIN. DATE: 8-15-14

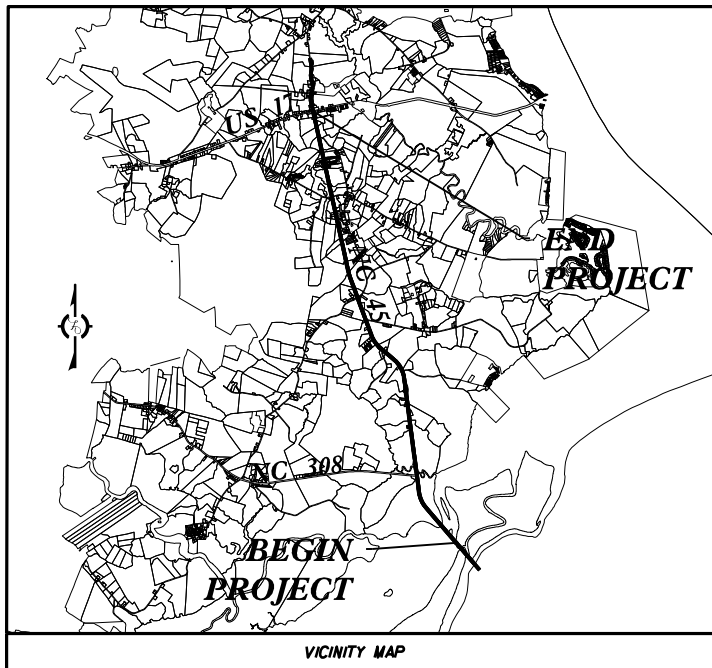
09/08/22

TIP PROJECT: R-5809A

CONTRACT:

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

BERTIE COUNTY



STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-5809A	3	
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION	
46976.12		PE	

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

65% PLANS

LOCATION: NC 45 FROM THREE SISTERS BRIDGE TO US ROUTE 17

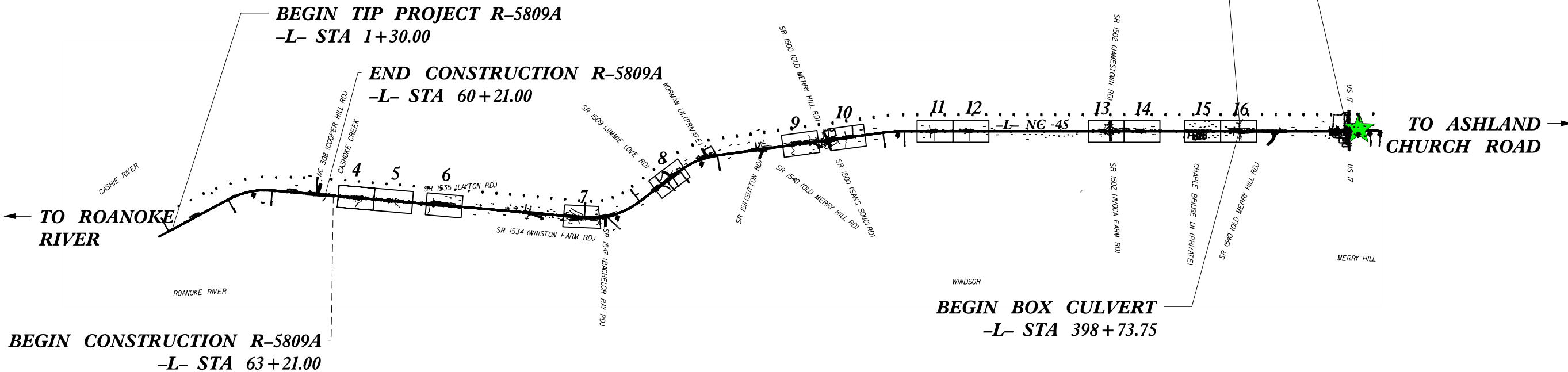
TYPE OF WORK: GRADING, DRAINAGE, PAVING, WIDENING, AND CULVERT REPLACEMENT

END TIP PROJECT R-5809A
-L- STA 438+00.00

END BOX CULVERT
-L- STA 398+98.75

BEGIN TIP PROJECT R-5809A
-L- STA 1+30.00

END CONSTRUCTION R-5809A
-L- STA 60+21.00



BEGIN CONSTRUCTION R-5809A
-L- STA 63+21.00

BEGIN BOX CULVERT
-L- STA 398+73.75

TO ASHLAND
CHURCH ROAD

TO ROANOKE
RIVER

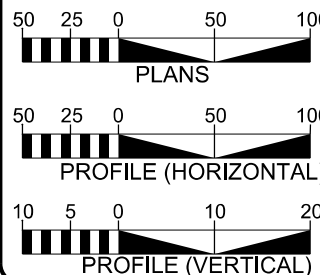
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

SUBMITTAL:
DATE: September, 2022

CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD II.

GRAPHIC SCALES



DESIGN DATA

ADT 2022 =	3,200
ADT 2044 =	4,100
K =	8%
D =	52%
T =	22%
V =	60 MPH
CLASSIFICATION:	
MAJOR COLLECTOR	
* 17% TTST 5% DUAL	
REGIONAL TIER	

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT R-5809A	= 8.203 MILES
LENGTH OF STRUCTURE TIP PROJECT R-5809A	= .005 MILES
TOTAL LENGTH TIP PROJECT R-5809A	= 8.198 MILES

Prepared in the Office of:

Kimley»Horn

2018 STANDARD SPECIFICATIONS
RIGHT OF WAY DATE:
NOVEMBER 15, 2022

LETTING DATE:
JUNE 20, 2023

VINCENT RICCIO, PE
PROJECT ENGINEER

KEVIN PUNINSKE, PE
PROJECT DESIGN ENGINEER

ROHAM LAHIJI
PROJECT MANAGER
NCDOT HIGHWAY DIVISION

HYDRAULICS ENGINEER

SIGNATURE: _____ P.E.

ROADWAY DESIGN
ENGINEER

SIGNATURE: _____ P.E.



January 11, 2023

WBS Number: 46976.1.2
TIP Number: R-5809A
County: Bertie
Description: NC 45 from Three Sisters Bridge to US Route 17
CATLIN Number: 222278

SUBJECT: Geotechnical Inventory Report

Project Description

Based on the 65% plan submittal dated September, 2020, this project begins approximately 5,800 feet south of the intersection of NC 308 (Cooper Hill Road) and NC 45 and continues north for approximately 8.2 miles to the intersection of NC 45 and US 17. This investigation focused on the area of construction beginning at -L- Station 58+00 near the intersection of NC 308 and extended north to -L- Station 438+00 near the intersection with US 17. The proposed construction will consist primarily of pavement replacement and symmetrical widening of the existing embankment along NC 45. This geotechnical investigation was conducted by Richard Catlin and Associates (DBA Catlin Engineers and Scientists – CATLIN) and was confined to the areas of proposed construction.

Fieldwork was conducted by CATLIN personnel in June 2022. Hand auger borings were advanced along the project corridor to six (6) feet below land surface (BLS) at an average spacing of 600 linear feet between borings. Representative soil samples were collected for visual classification in the field and for laboratory analysis.

The following alignment was investigated. No subsurface profiles were generated for this report. Cross sections at or near the location of the borings have been included.

<u>Line</u>	<u>Station(±)</u>
-L-	58+00 to 438+00

Areas of Special Geotechnical Interest

1) Seasonal high groundwater was encountered at the following locations:

<u>Line</u>	<u>Station(±)</u>
-L-	96+00 to 120+00
-L-	161+00 to 169+00
-L-	259+00 to 265+00
-L-	283+00 to 301+00
-L-	337+00 to 355+00
-L-	399+00 to 416+00

2) Cohesive soils that may have the potential to cause embankment/subgrade and or slope stability problems during construction were identified along the following locations:

<u>Line</u>	<u>Station(±)</u>
-L-	58+00 to 61+00
-L-	78+00 to 84+00
-L-	96+00 to 247+00
-L-	265+00 to 277+00
-L-	283+00 to 307+00
-L-	313+00 to 337+00
-L-	349+00 to 367+00
-L-	373+00 to 404+25
-L-	416+00 to 438+00

Physiography and Geology

This project corridor is located within the Coastal Plain physiographic province. Topography along the project is nearly flat to gently sloping. Ground elevations average approximately 31± feet above sea level with ground elevations ranging from 13.3 feet near the start of the project increasing to the north to an elevation of 41.2 feet at the end of the project.

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

Ground Water

Ground water data was collected in June 2022. Ground water was encountered within 0.3 to greater than six (6) feet (deepest soil borings) of the ground surface throughout the project area.

Soils

Soils encountered along the project site include Roadway Embankment and Undivided Coastal Plain sediments.

- Roadway Embankment soils were identified adjacent to existing roadways and consist of approximately less than one (1) to four (4) feet of loose to medium dense silty and clayey, fine sand (A-2-4 and A-2-6) fine, sandy silt (A-4), and fine, sandy clay (A-6).
- Undivided coastal plain sediments were encountered across most of the project from land surface where borings were advanced beyond the limits of existing roadway embankment or under the existing embankment to a depth of at least six (6) feet. The sediments consisted primarily of medium stiff to stiff, sandy clay and clay (A-6 and A-7), loose to medium dense, sand, silty sand, and clayey sand (A-1, A-2-4, and A-2-6) and to a lesser extent, medium stiff to stiff, fine sandy silt (A-4).

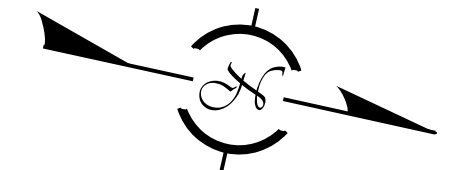
Culvert at -L- Station 399+00(±)

Natural ground elevations range from approximately 0.04 feet at the bottom of the ditch to seven (7) feet along the adjacent floodplain. Borings completed in the vicinity show approximately 0.3 feet of Roadway Embankment consisting of soft, sandy silt (A-4) and loose, silty sand (A-2-4) underlain by U.C.P., soft to medium dense, sandy clay (A-6 with PI of 16) to a depth of at least six (6) feet.

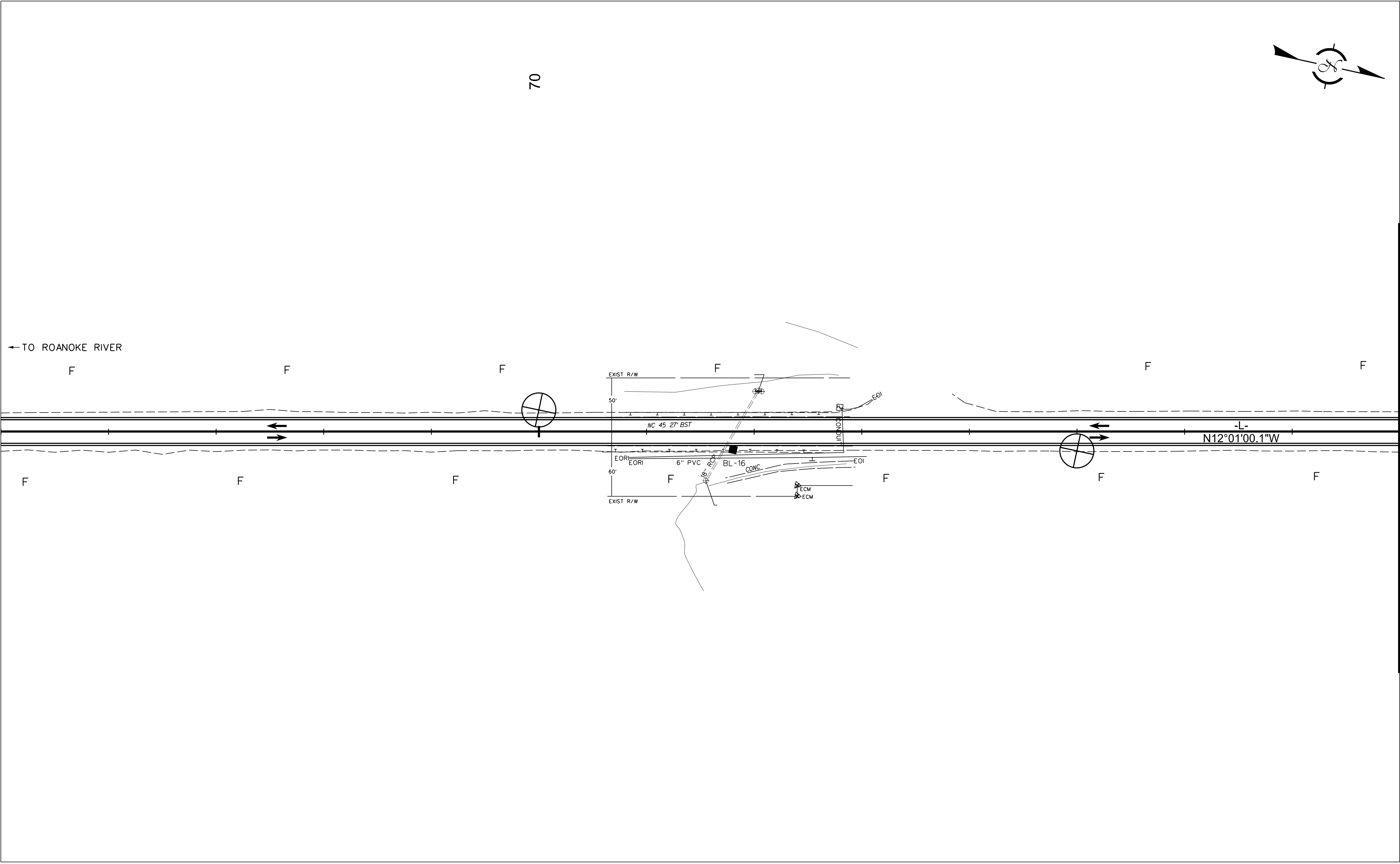
PROJECT REFERENCE NO. <i>R-5809 A</i>	SHEET NO. 4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

5/14/99

REVISIONS



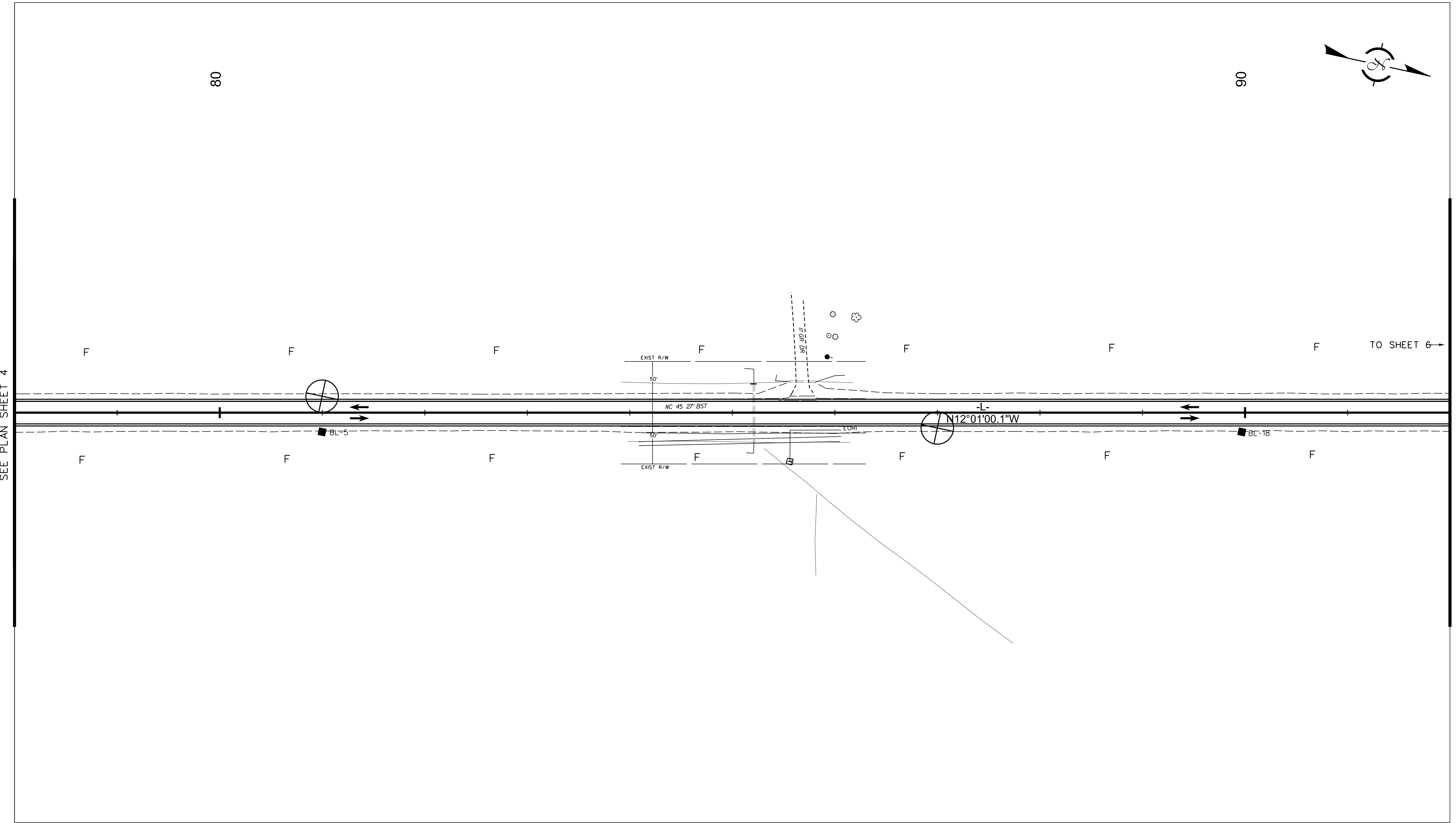
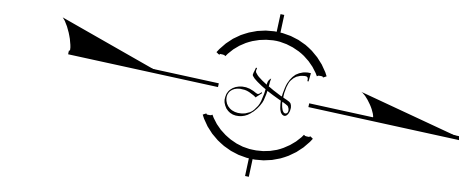
70



MATCHLINE -L- STA 78+00.00
SEE PLAN SHEET 5

5/6/2022

PROJECT REFERENCE NO. <i>R-5809 A</i>	SHEET NO. 5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	



5/14/99

REVISIONS

MATCHLINE -L- STA 78+00.00
SEE PLAN SHEET 4

-L- STA 92+00.00

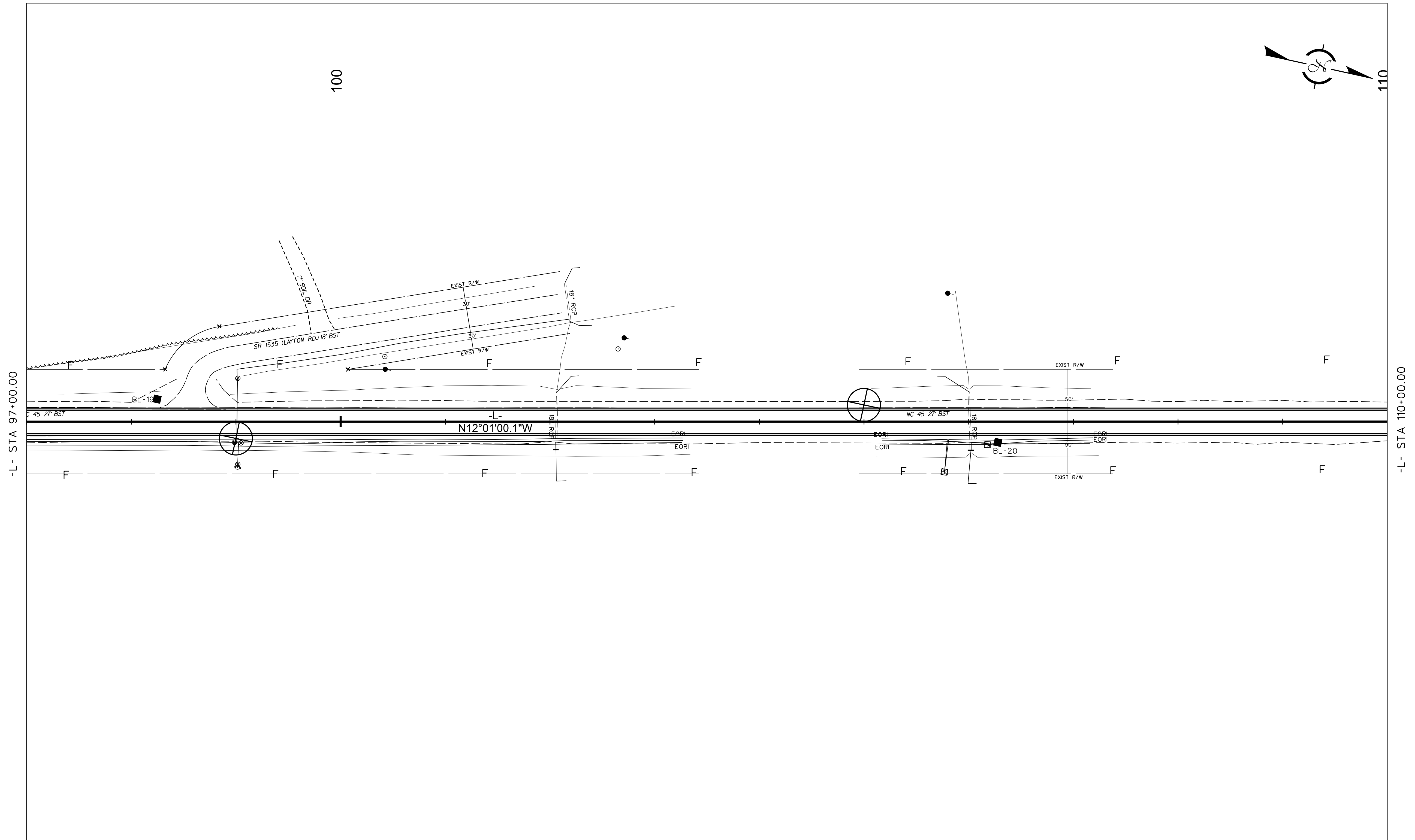
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

5/6/2022

PROJECT REFERENCE NO. <i>R-5809 A</i>	SHEET NO. 6
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
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5/14/99

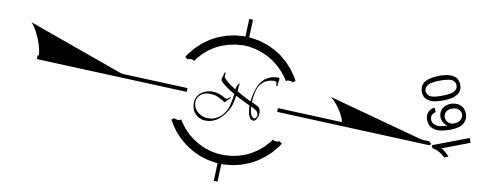
REVISIONS



5/6/2022

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

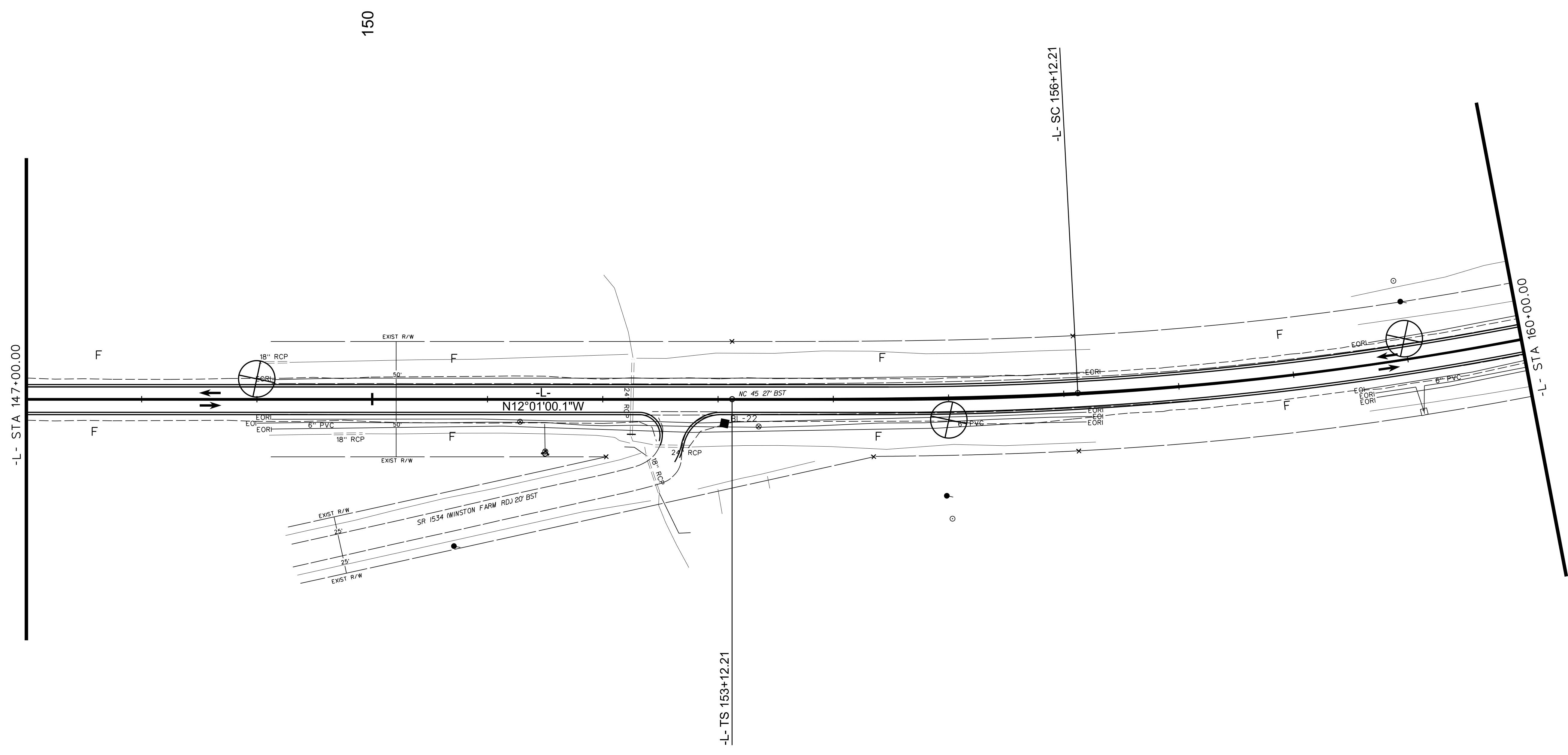
PROJECT REFERENCE NO. R-5809 A	SHEET NO. 7
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	



REVISIONS

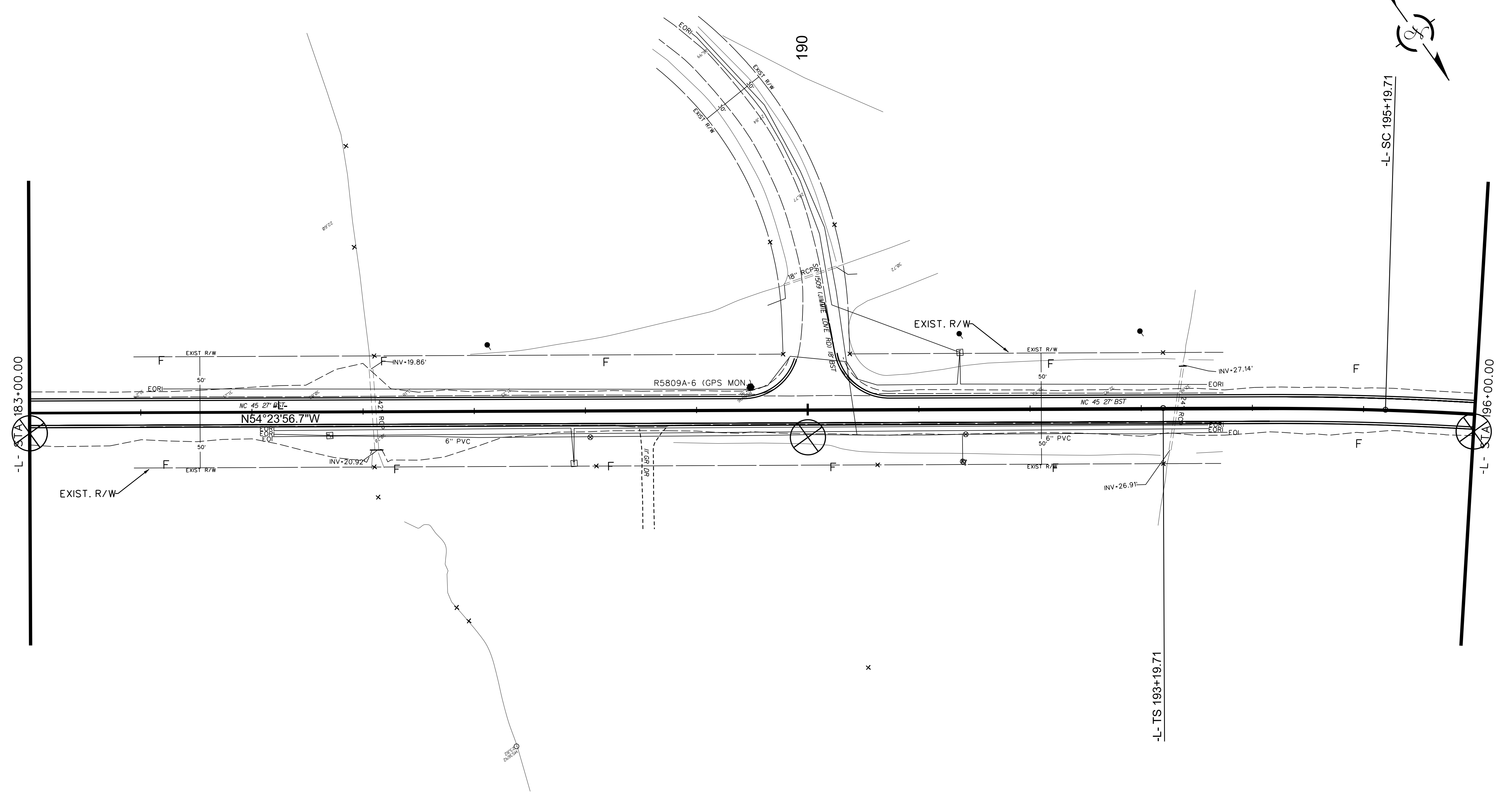
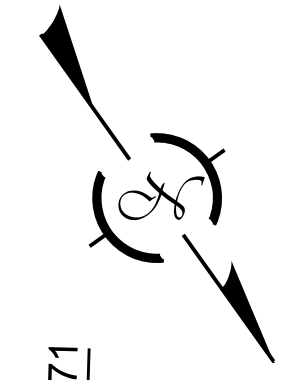
5/14/99

5/6/2022



INCOMPLETE PLANS
 DO NOT USE FOR R/W ACQUISITION

PROJECT REFERENCE NO. <i>R-5809 A</i>	SHEET NO. 8
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	



REVISIONS

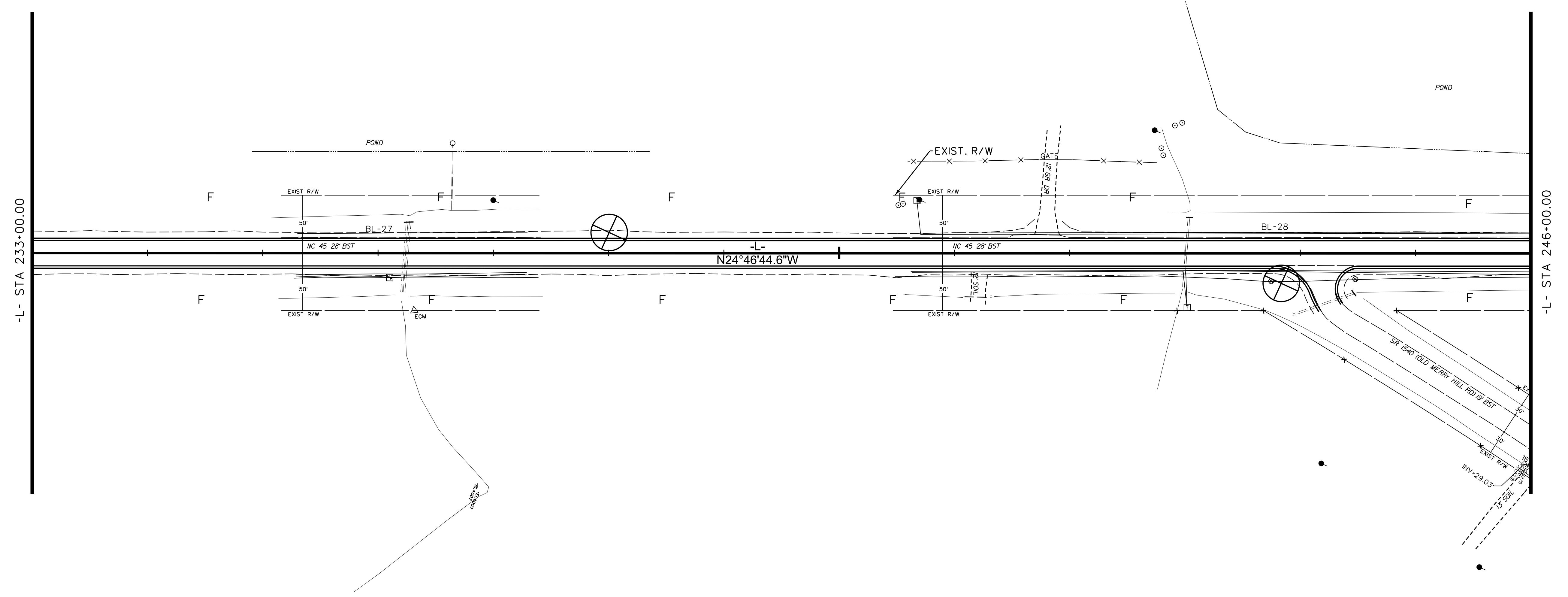
5/14/99

5/6/2022

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PROJECT REFERENCE NO. <i>R-5809 A</i>	SHEET NO. 9
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

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REVISIONS

5/14/99

5/6/2022

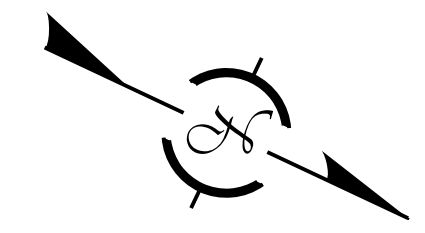
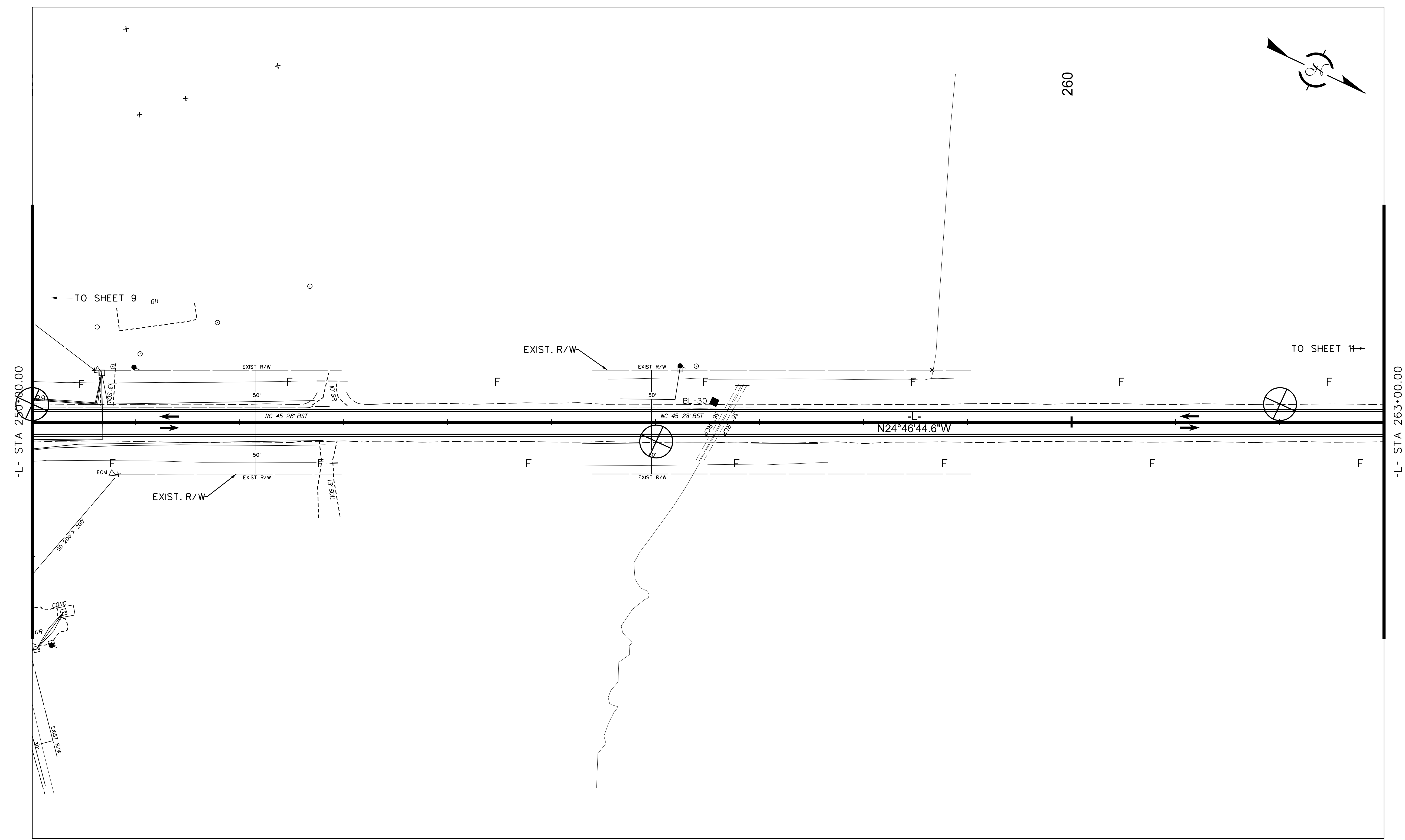
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PROJECT REFERENCE NO. <i>R-5809 A</i>	SHEET NO. 10
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

REVISIONS

5/14/99

5/6/2022

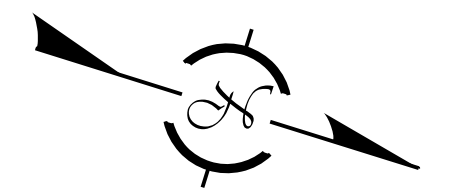
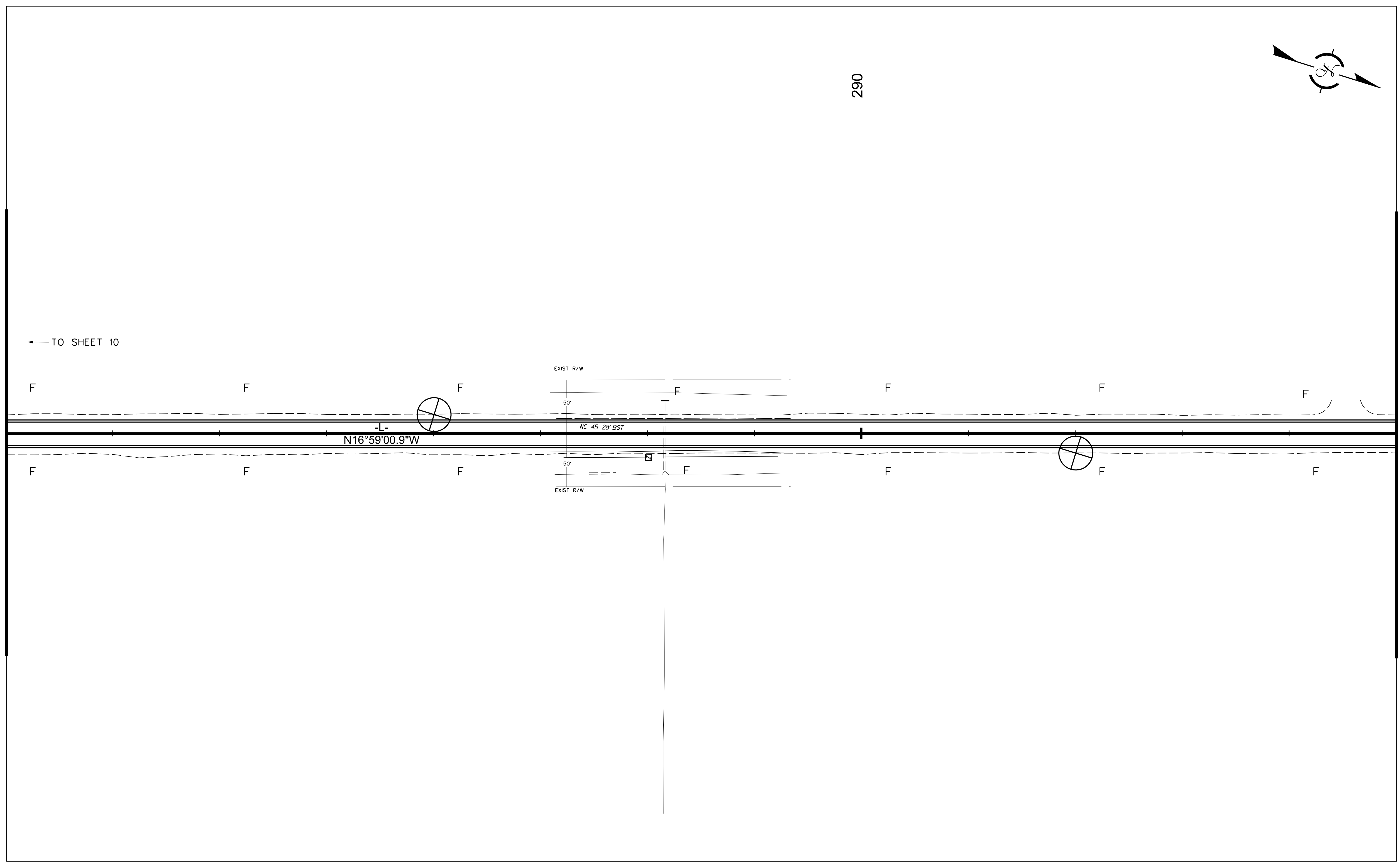


INCOMPLETE PLANS
 DO NOT USE FOR R/W ACQUISITION

PROJECT REFERENCE NO. <i>R-5809 A</i>	SHEET NO. 11
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

5/14/99

REVISIONS



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← TO SHEET 10

-L- STA 282+00.00

MATCHLINE -L- STA 295+00.00
SEE PLAN SHEET 12

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

5/6/2022

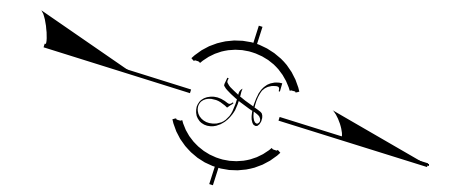
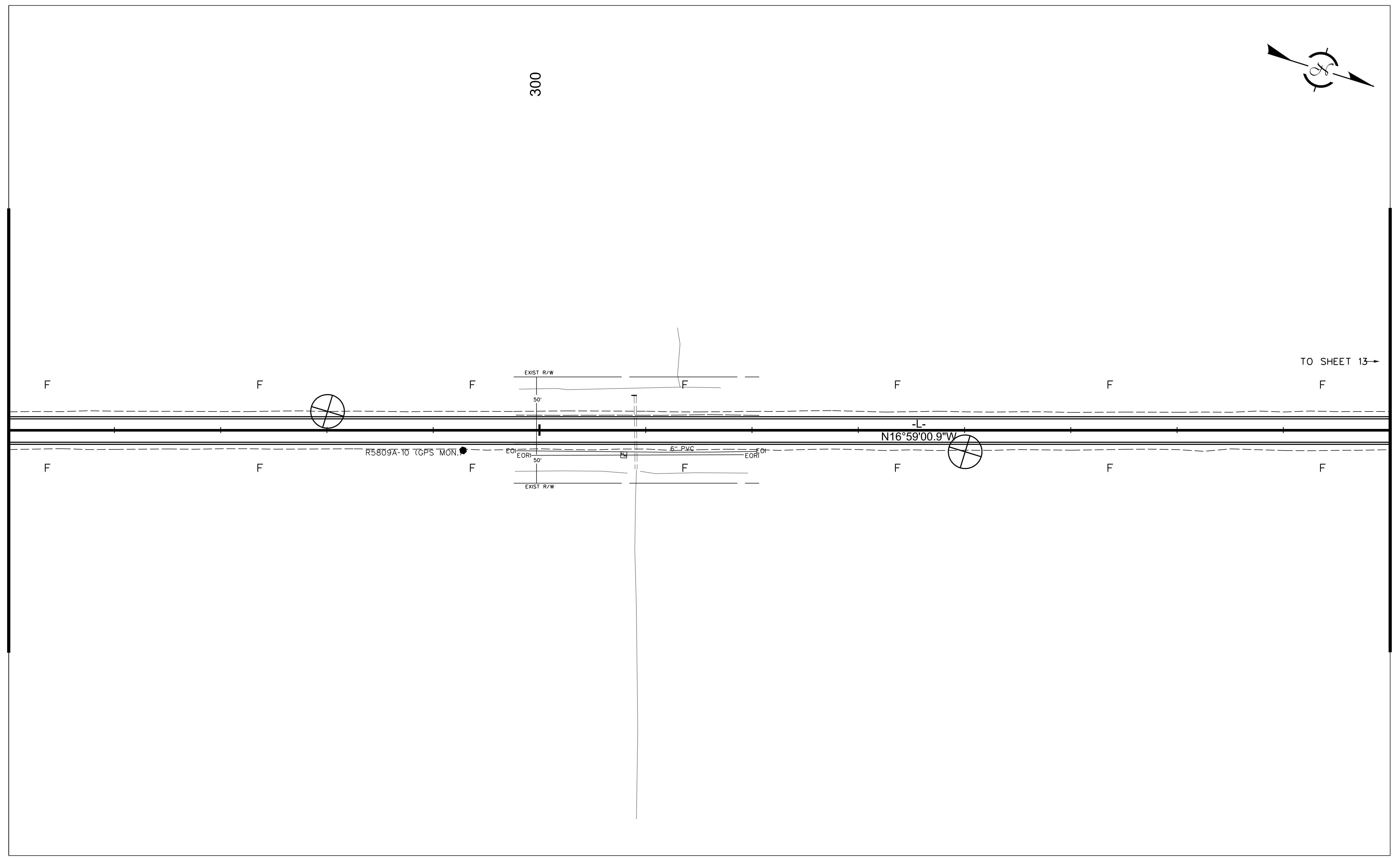
5/14/99

Kimley»Horn
4525 MAIN STREET, SUITE 1000
VIRGINIA BEACH, VA 23462

PROJECT REFERENCE NO. <i>R-5809 A</i>	SHEET NO. 12
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

REVISIONS

MATCHLINE -L- STA 295+00.00
SEE PLAN SHEET 11



5/6/2022

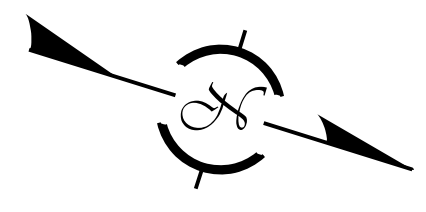
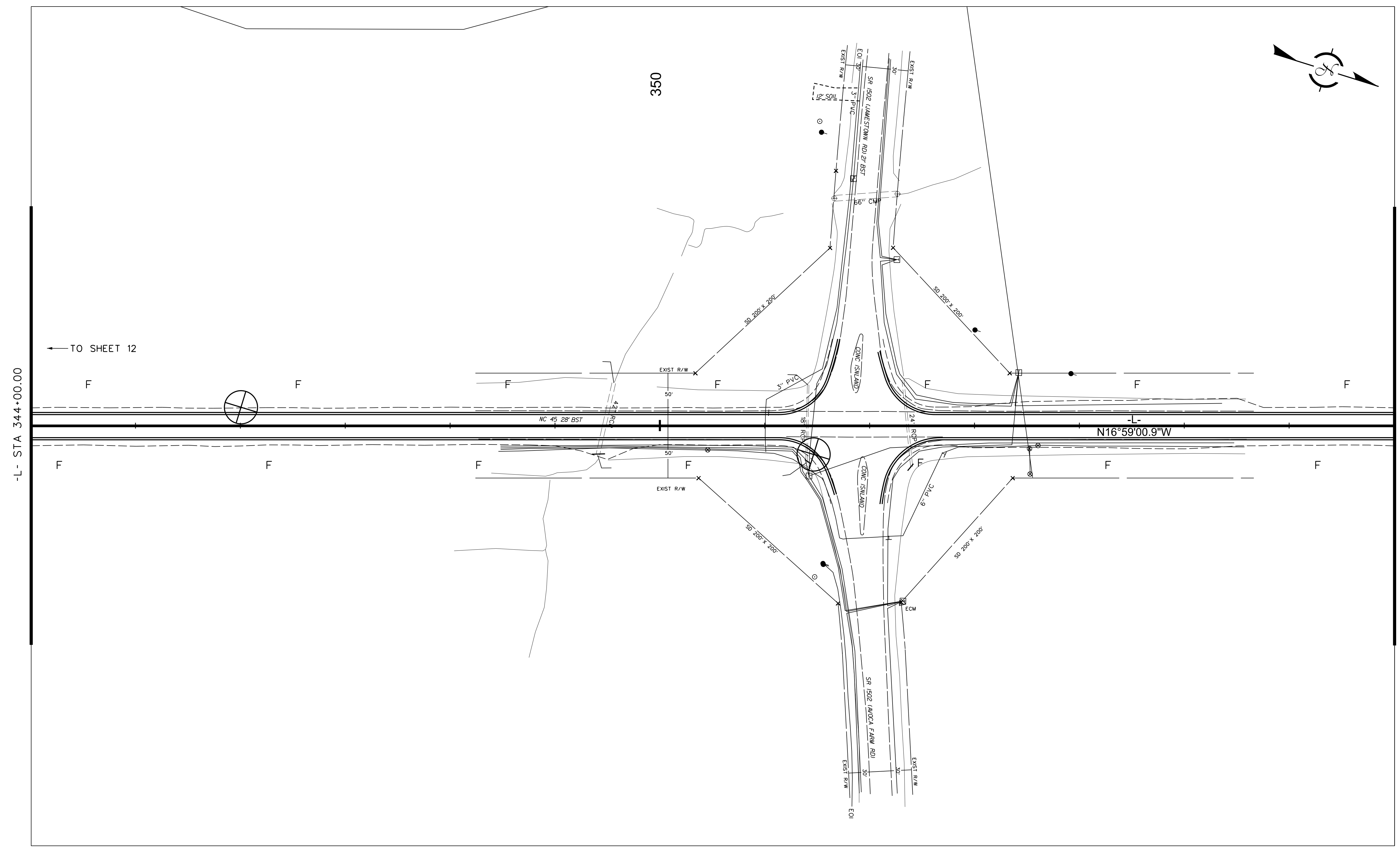
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PROJECT REFERENCE NO. <i>R-5809 A</i>	SHEET NO. 13
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

REVISIONS

5/14/99

5/6/2022



← TO SHEET 12

MATCHLINE -L- STA 357+00.00
SEE PLAN SHEET 14

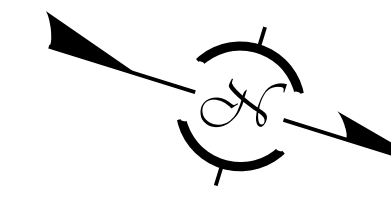
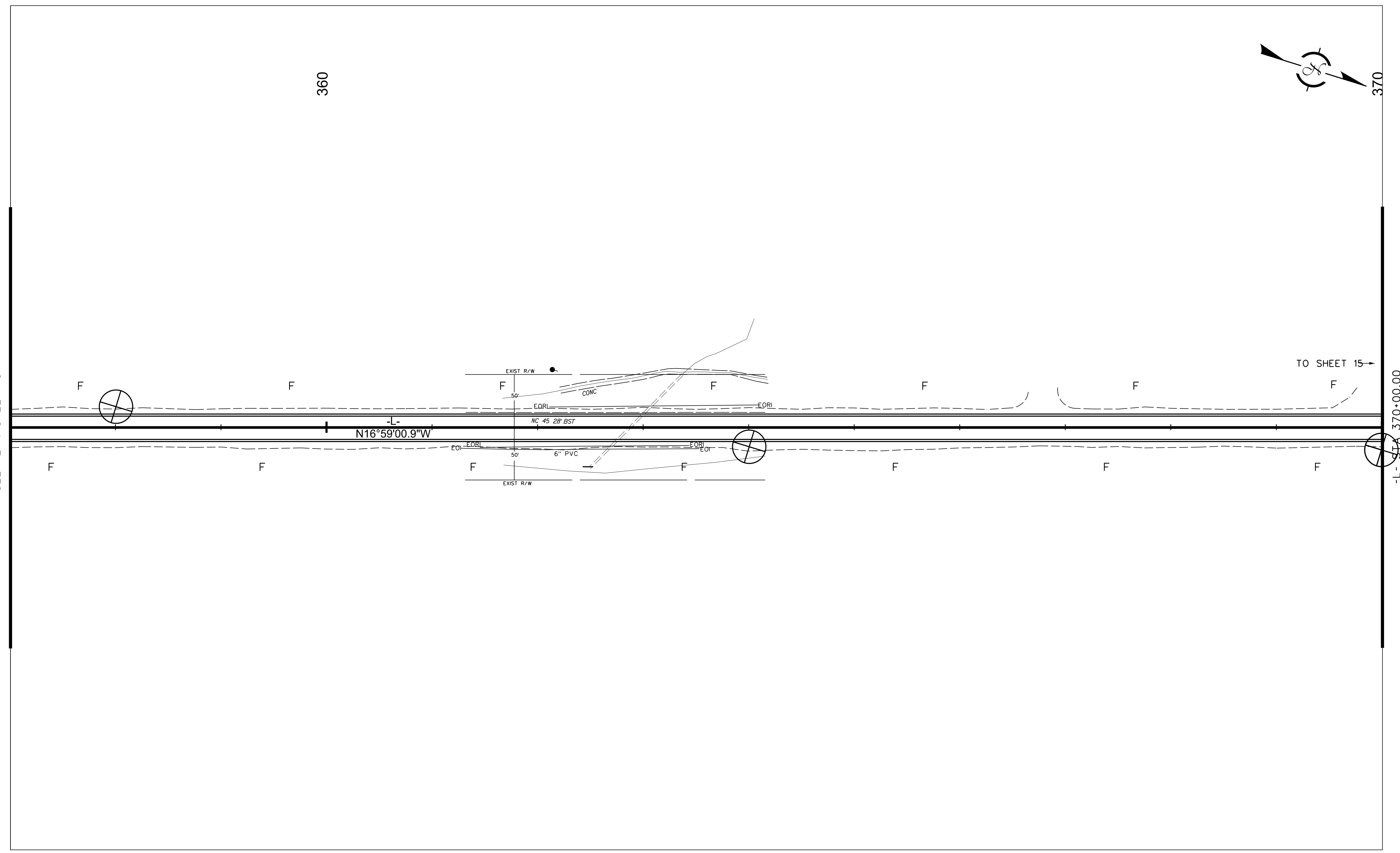
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PROJECT REFERENCE NO. <i>R-5809 A</i>	SHEET NO. 14
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

5/14/99

REVISIONS

MATCHLINE -L- STA 357+00.00
SEE PLAN SHEET 13



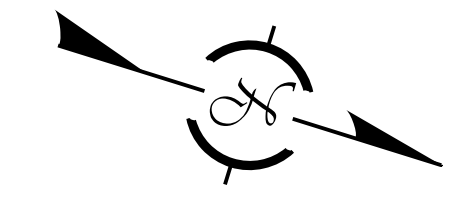
TO SHEET 15 →

-L- STA 370+00.00

5/6/2022

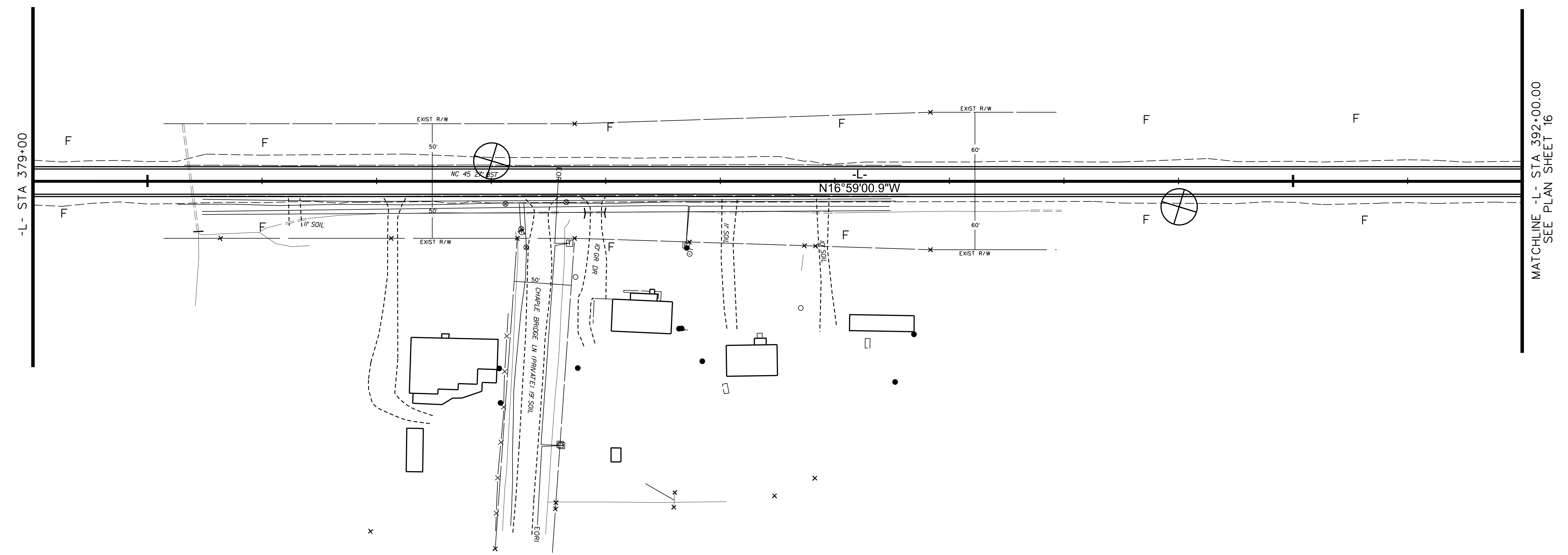
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PROJECT REFERENCE NO. <i>R-5809 A</i>	SHEET NO. 15
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	



380

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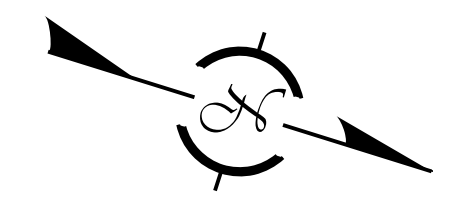
REVISIONS

5/14/99

5/6/2022

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PROJECT REFERENCE NO. <i>R-5809 A</i>	SHEET NO. 16
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

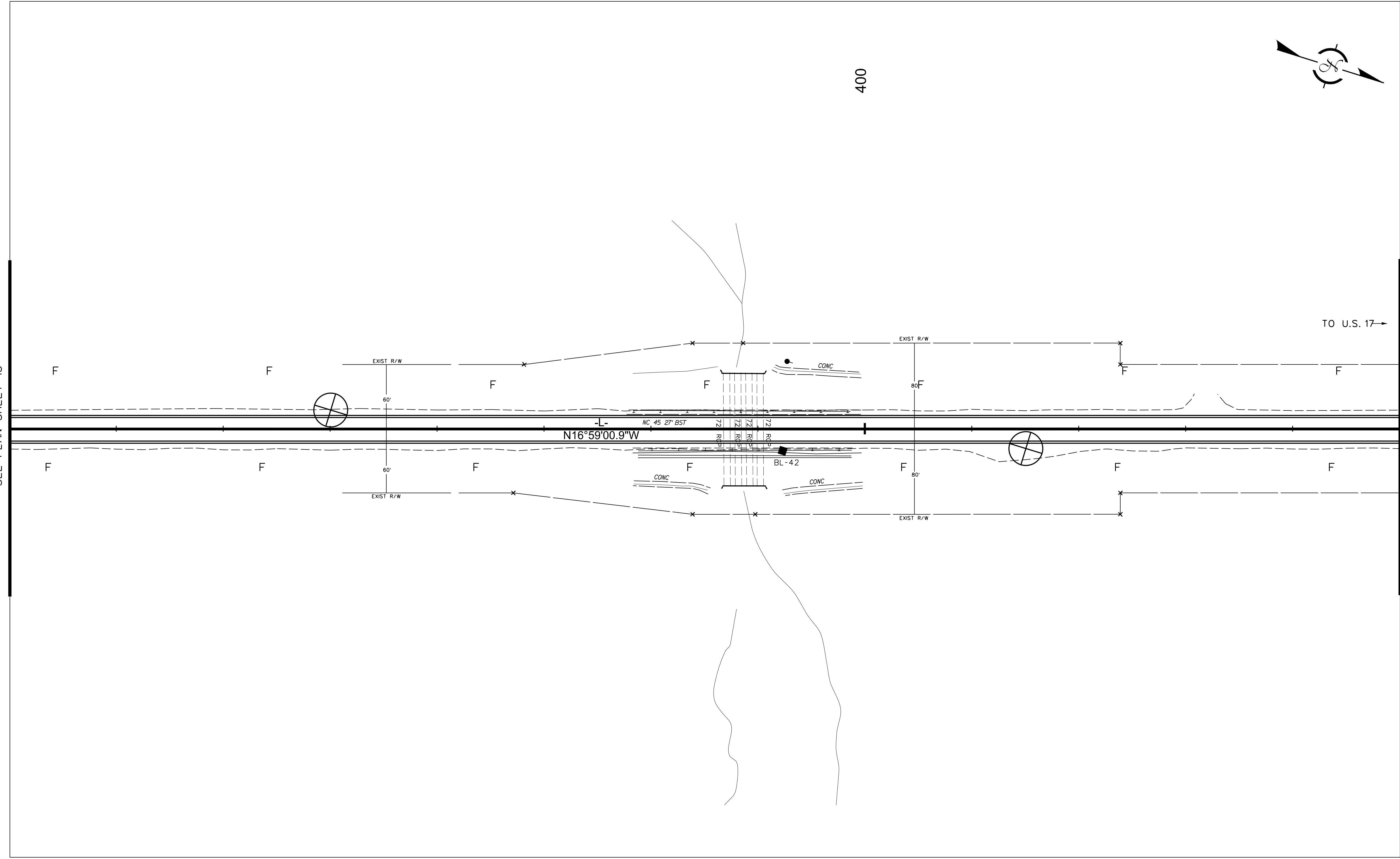


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TO U.S. 17 →

MATCHLINE -L- STA 392+00
SEE PLAN SHEET 15

-L- STA 405+00.00



REVISIONS

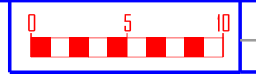
5/14/99

5/6/2022

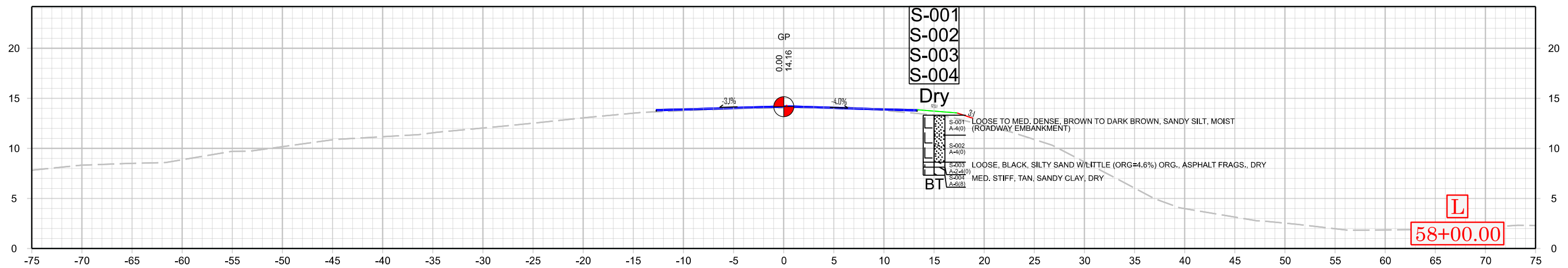
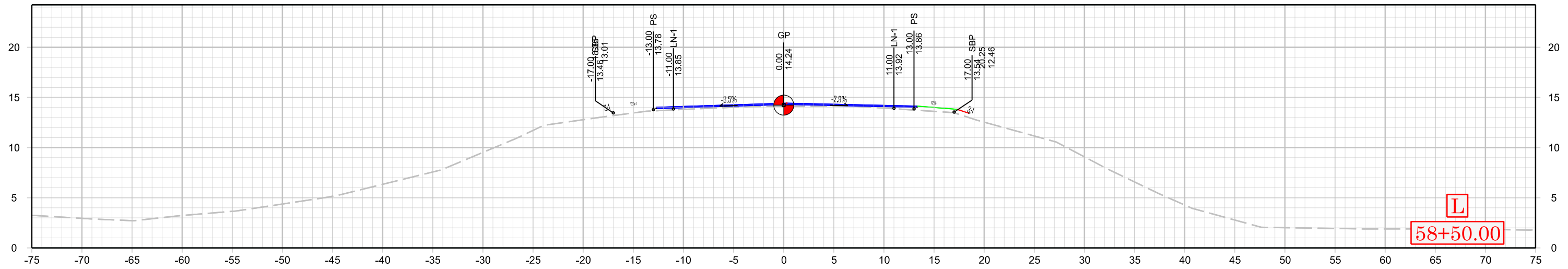
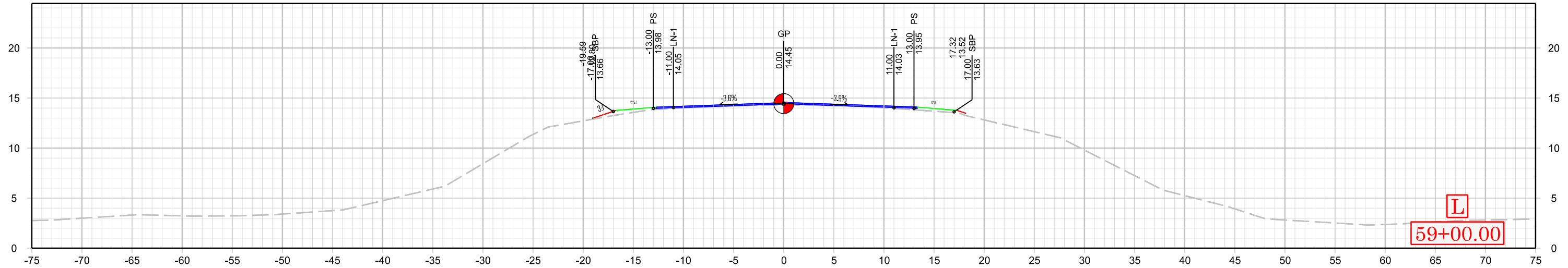
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

SOIL TEST RESULTS

SAMPLE NUMBER	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-001	15 ft RT	58+00	0.0 - 2.0	A-4(0)	22	5	22.9	33.7	23.4	20.0	95.6	90	49	-	-
S-002	15 ft RT	58+00	2.0 - 4.7	A-4(0)	20	5	18.4	34.1	26.2	21.4	97.5	93	53	17	-
S-003	15 ft RT	58+00	4.7 - 5.2	A-2-4(0)	NP	NP	50.8	34.8	9.7	4.7	97.7	82	16	-	4.6
S-004	15 ft RT	58+00	5.2 - 6.0	A-6(8)	32	18	11.4	33.3	21.3	34.0	99	96	61	-	-



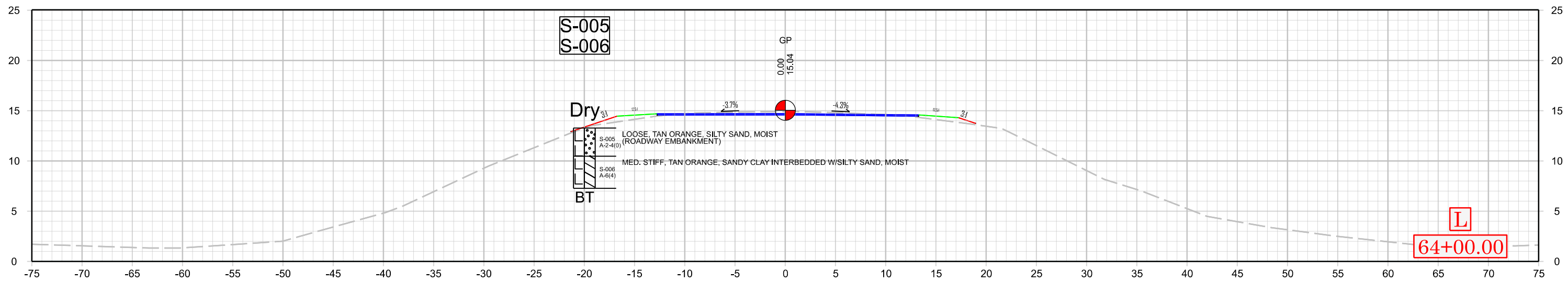
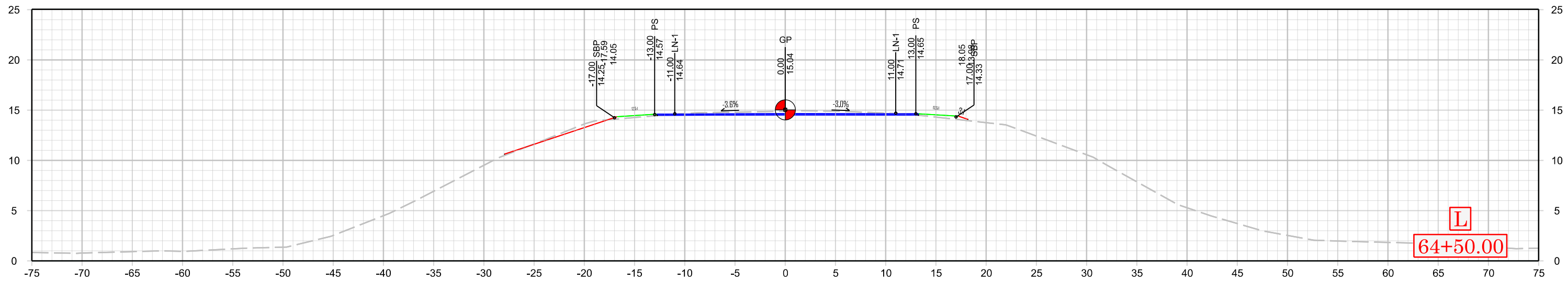
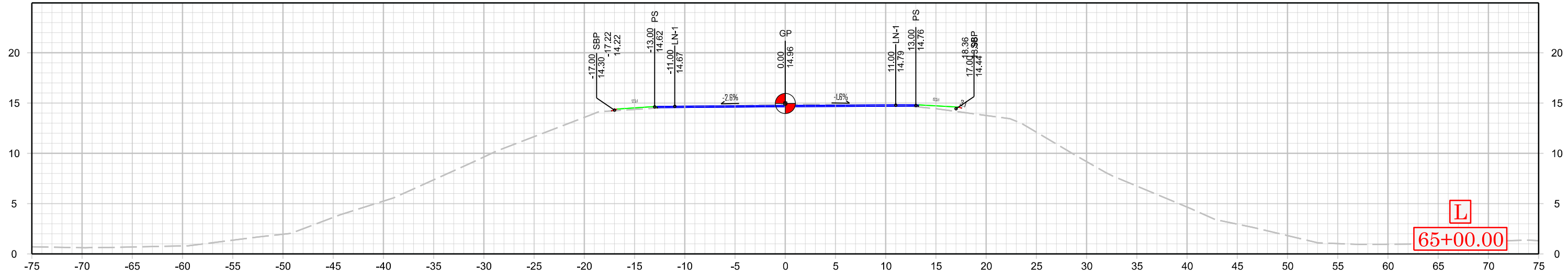
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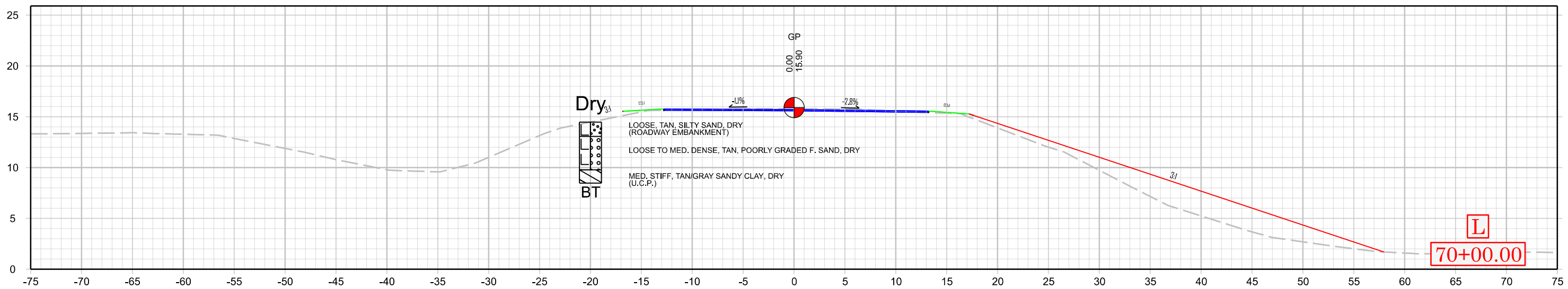
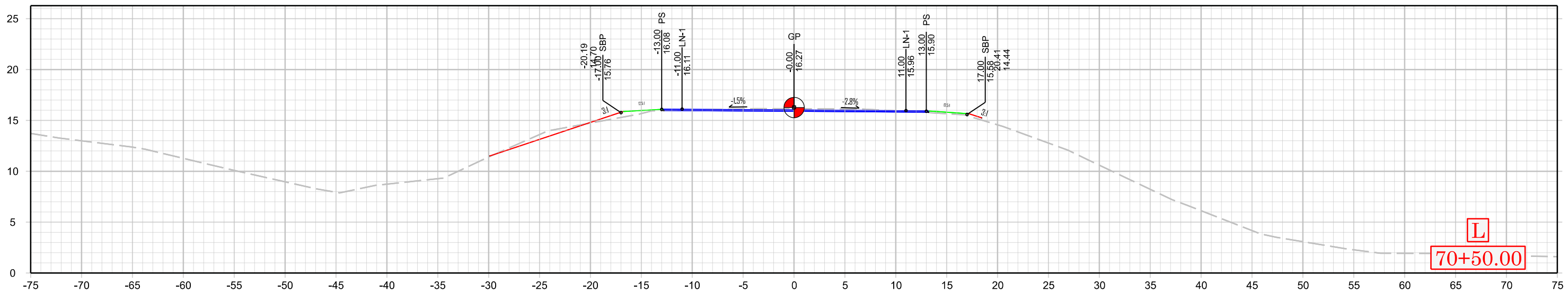
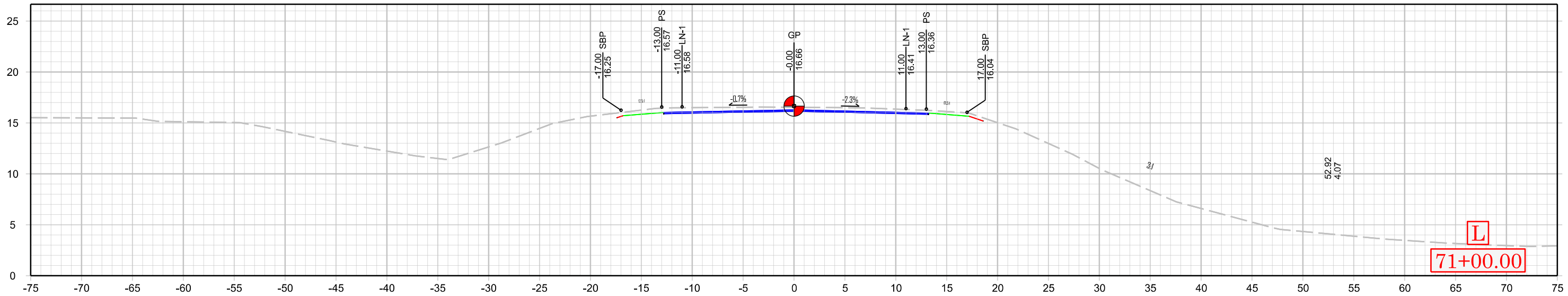


SOIL TEST RESULTS

SAMPLE NUMBER	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-005	20 ft LT	64+00	0.0 - 2.8	A-2-4(0)	NP	NP	41.2	36.7	7.3	14.8	99.4	85	24	9	-
S-006	20 ft LT	64+00	2.8 - 6.0	A-6(4)	32	15	15.9	38.5	12.3	33.2	99.7	94	48	-	-

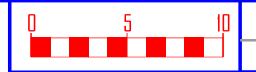
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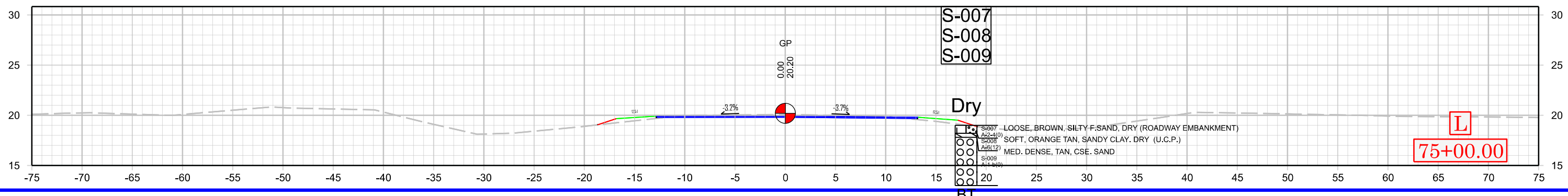
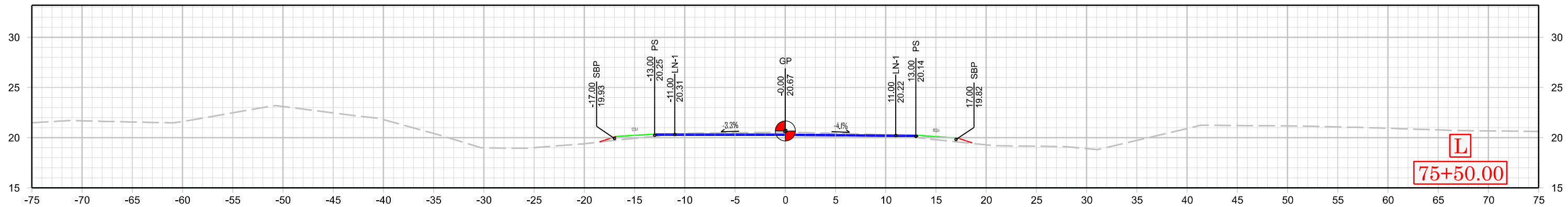
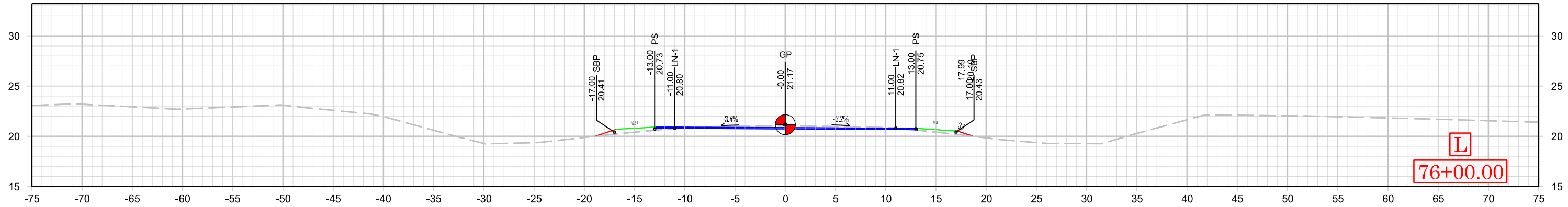
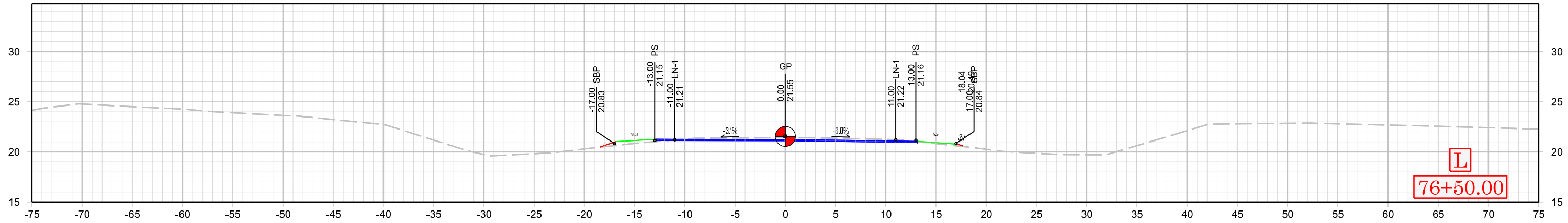


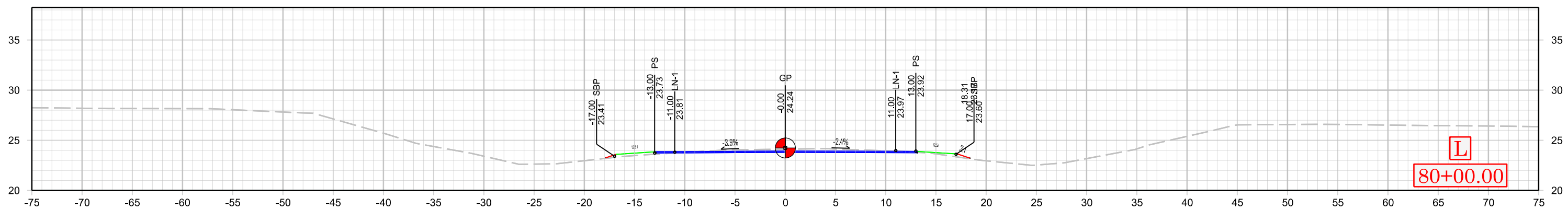
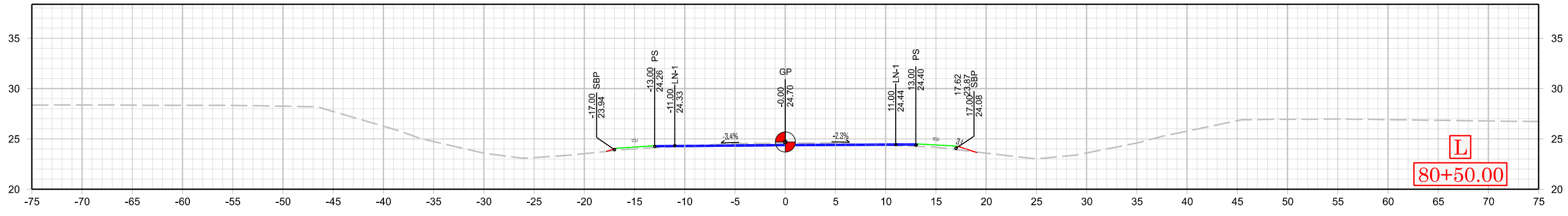
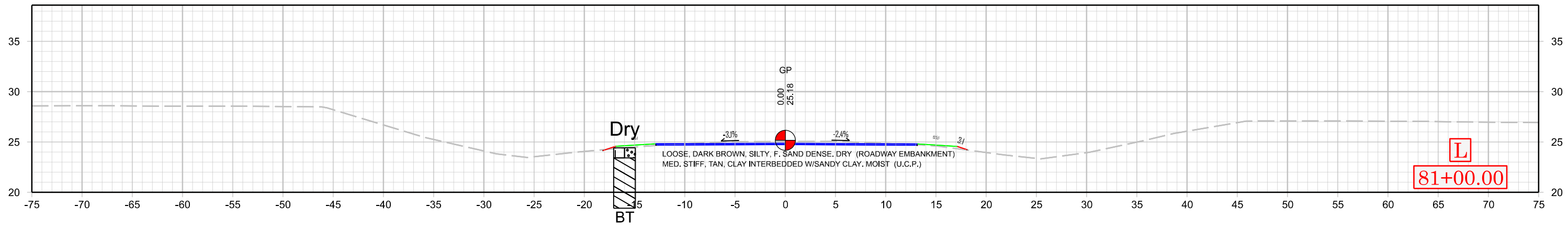
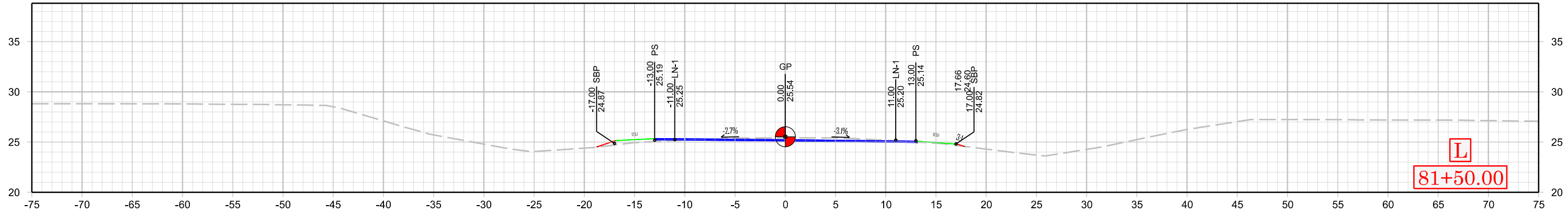
SOIL TEST RESULTS

SAMPLE NUMBER	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-007	18 ft RT	75+00	0.0 - 0.8	A-2-4(0)	23	5	23.9	44.7	10.5	20.9	98.4	88	34	-	-
S-008	18 ft RT	75+00	0.8 - 1.2	A-6(12)	39	21	12.3	29.0	22.3	36.4	99.3	93	67	14	-
S-009	18 ft RT	75+00	1.2 - 6.0	A-1-b(0)	NP	NP	89.0	8.2	1.9	0.9	87.5	32	3	-	-

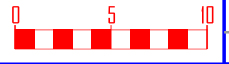


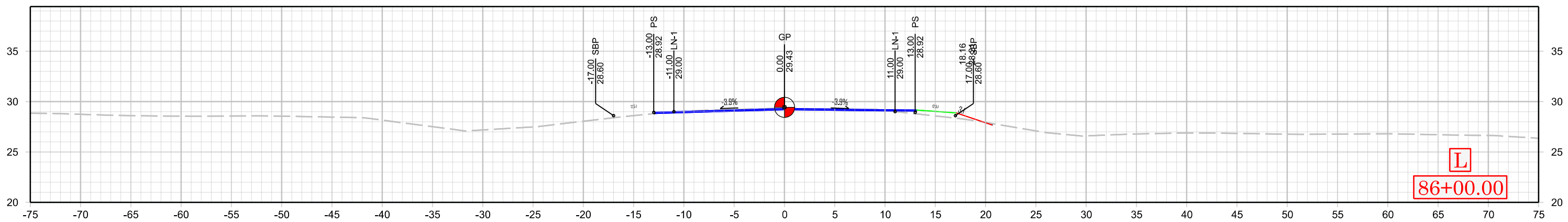
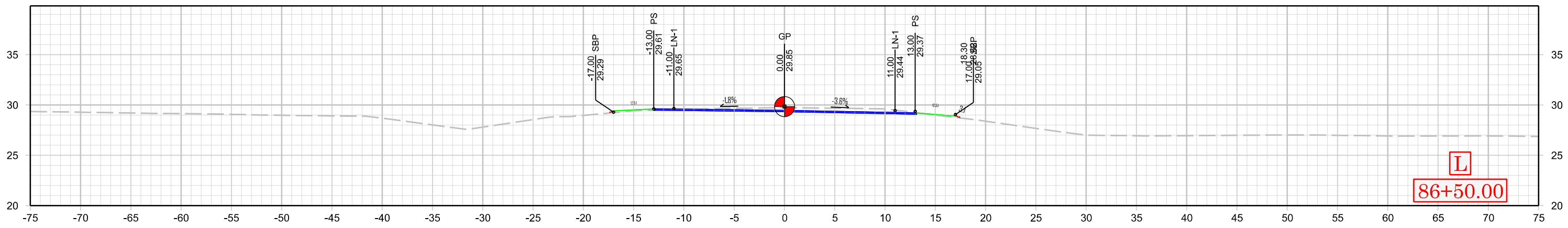
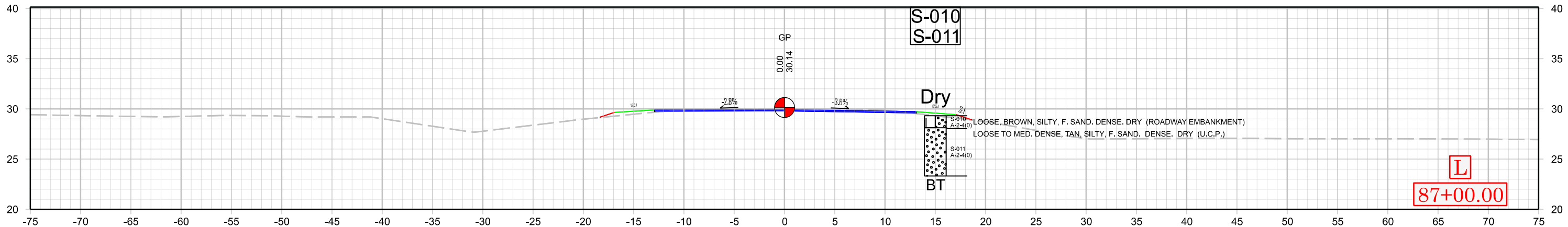
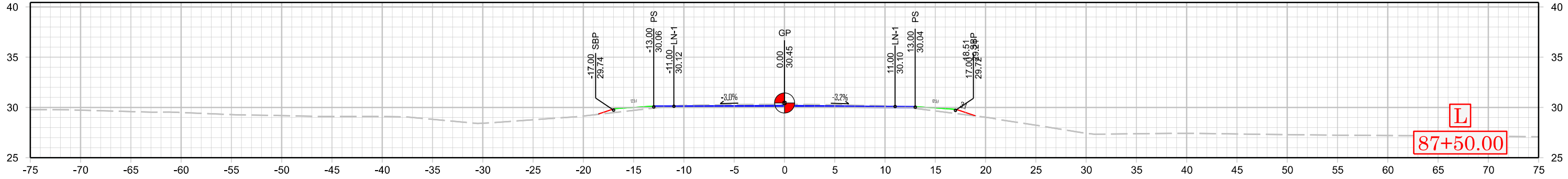
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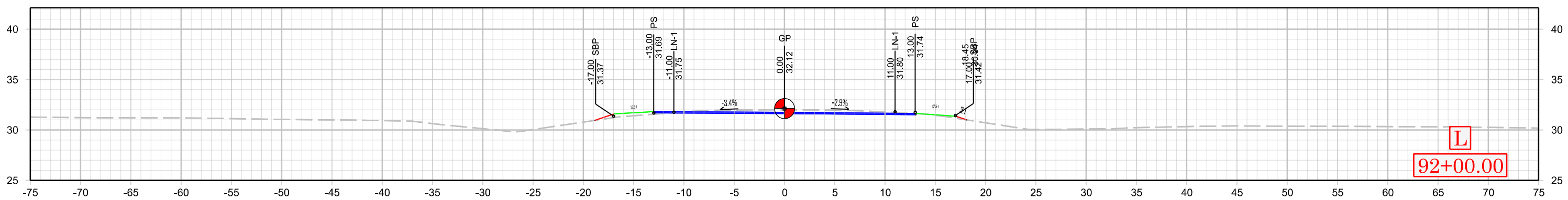
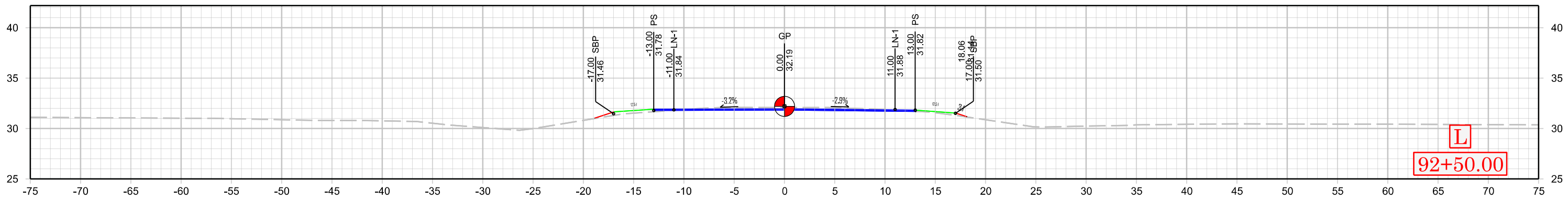
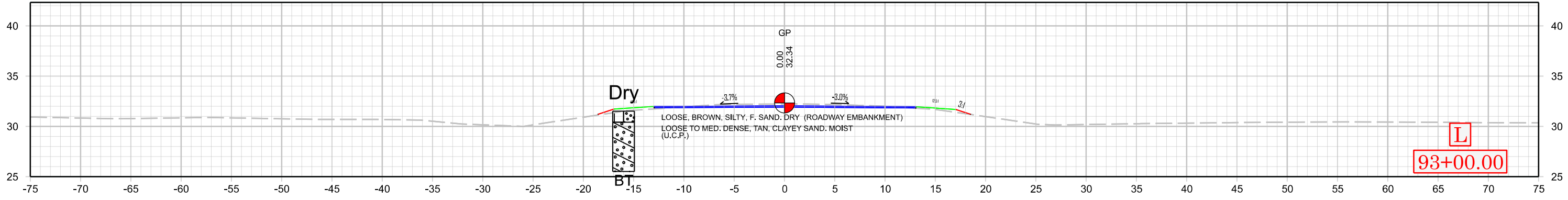
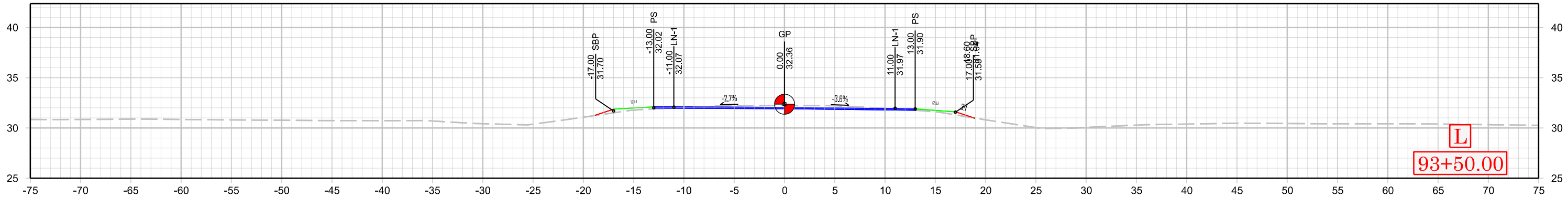




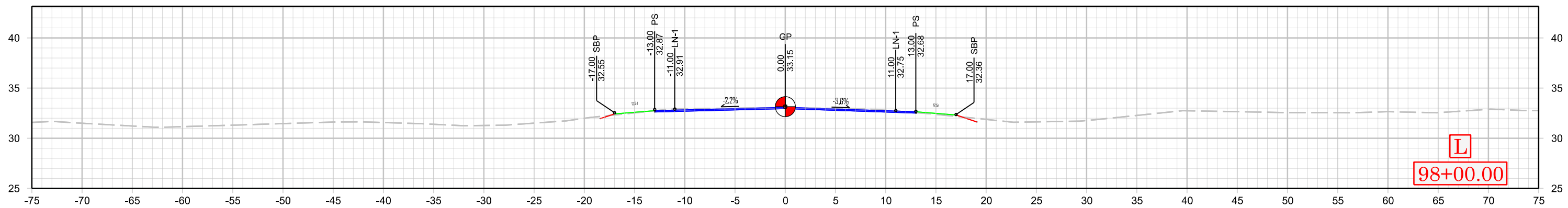
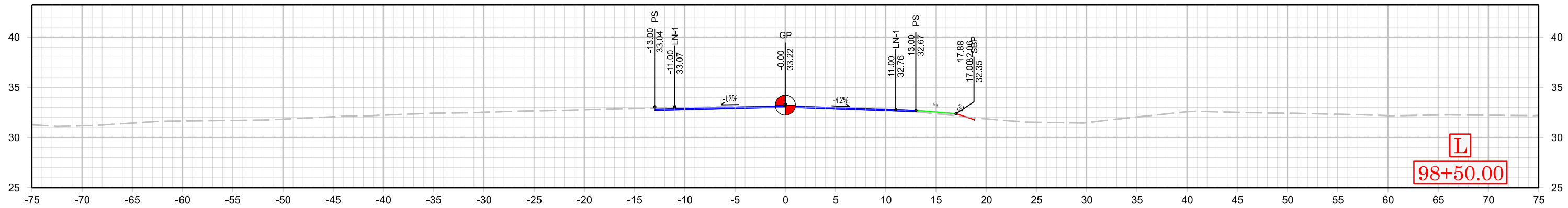
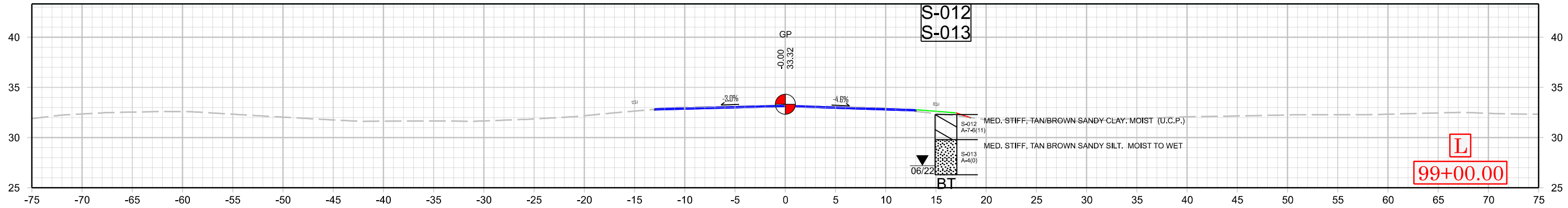
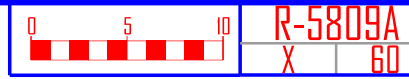
SOIL TEST RESULTS															
SAMPLE NUMBER	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P. I.	% BY WEIGHT				% PASSING SIEVES			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
S-010	15 ft RT	87+00	0.0 - 1.2	A-2-4(0)	25	4	34.8	35.8	13.5	15.9	98.2	83	31	-	-
S-011	15 ft RT	87+00	1.2 - 6.0	A-2-4(0)	23	8	34.8	34.7	9.3	21.1	99.3	83	32	14	-

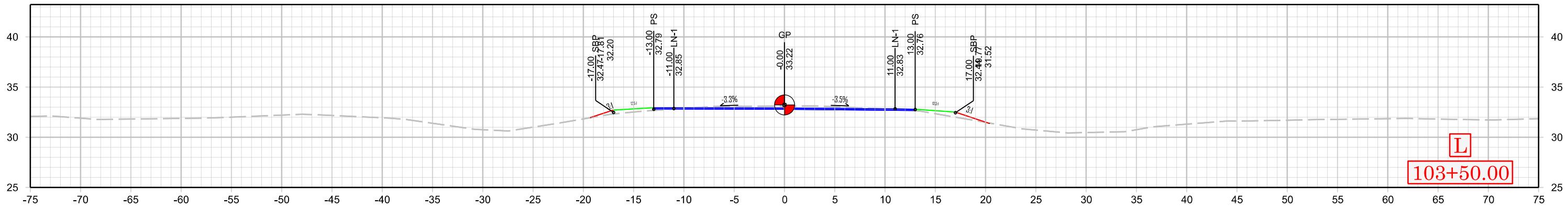
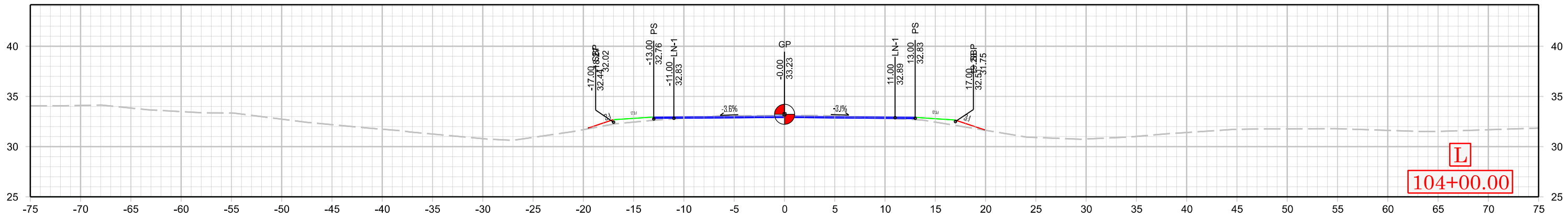
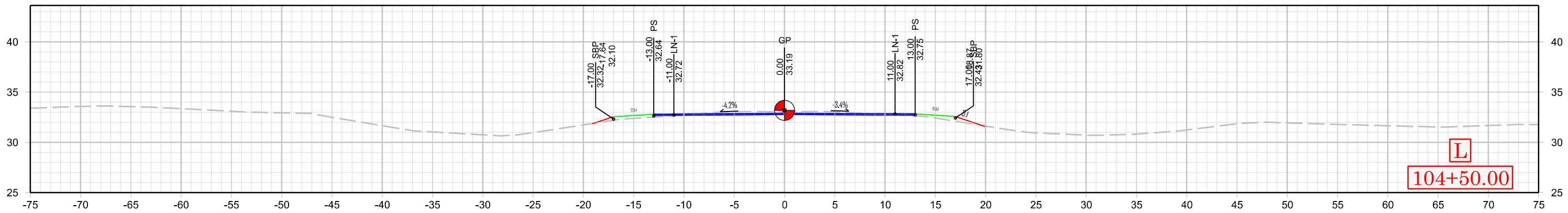
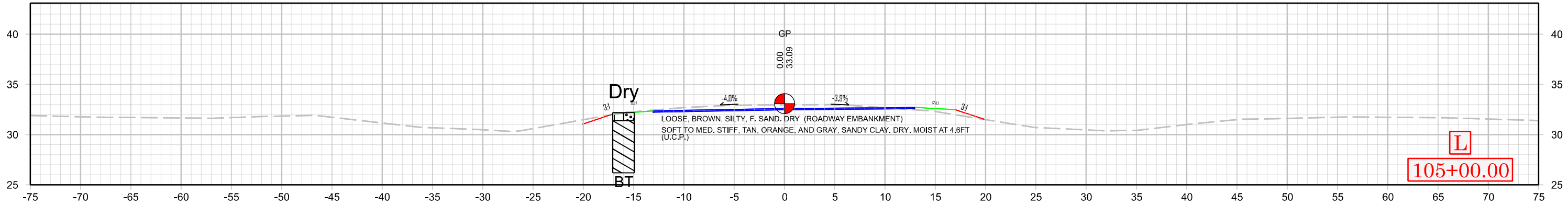
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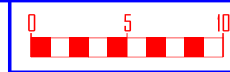
SOIL TEST RESULTS															
SAMPLE NUMBER	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P. I.	% BY WEIGHT				% PASSING SIEVES			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
S-012	16 ft RT	99+00	0.0 - 2.5	A-7-6(11)	43	23	12.6	29.7	16.2	41.5	99.8	96	59	17	-
S-013	16 ft RT	99+00	2.5 - 6.0	A-4(0)	NP	NP	7.8	34.9	43.5	13.8	100	98	59	-	-



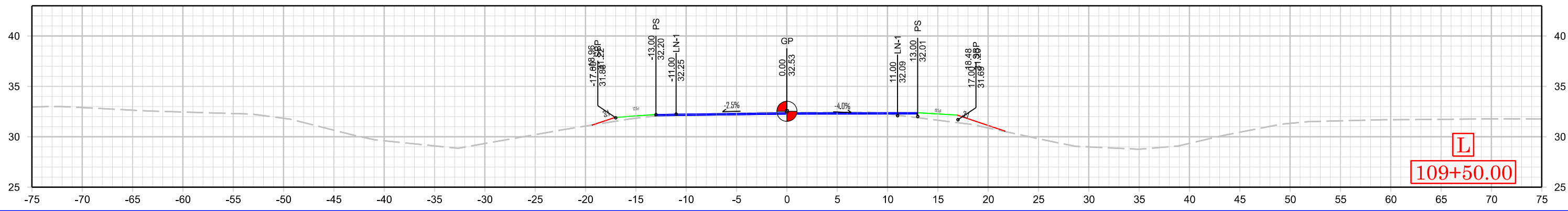
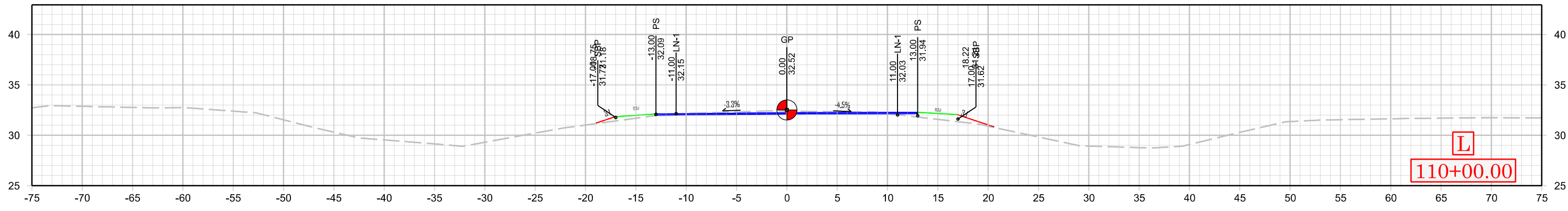
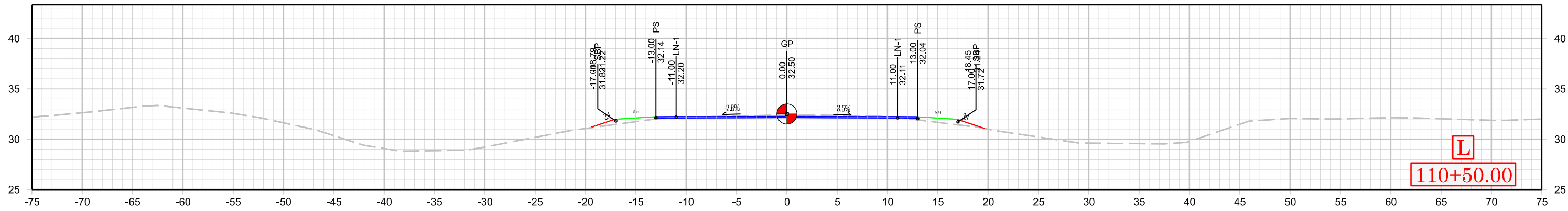
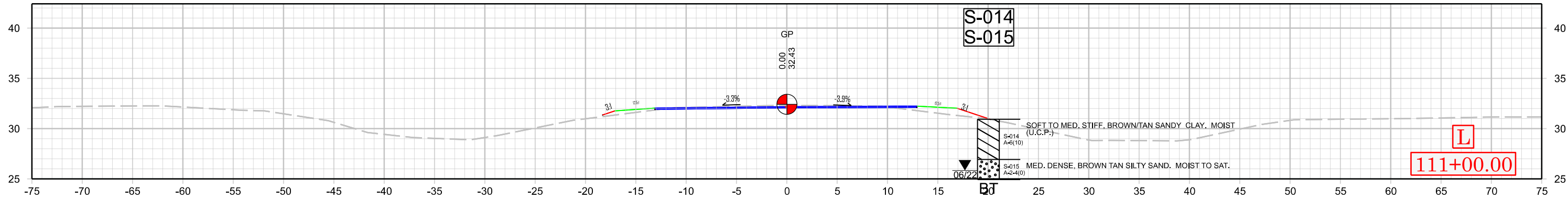


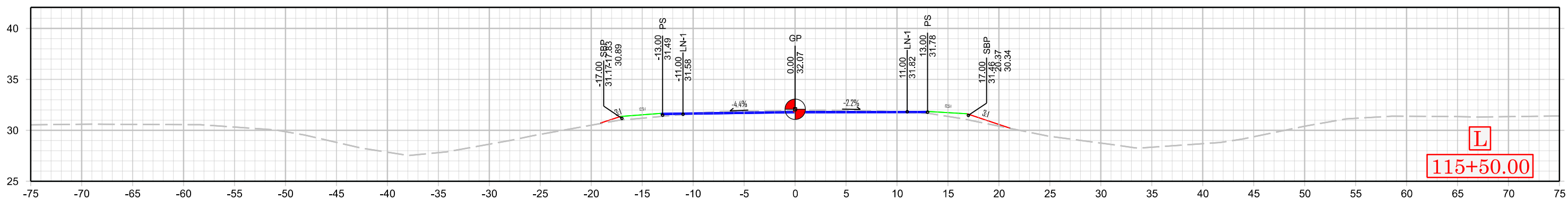
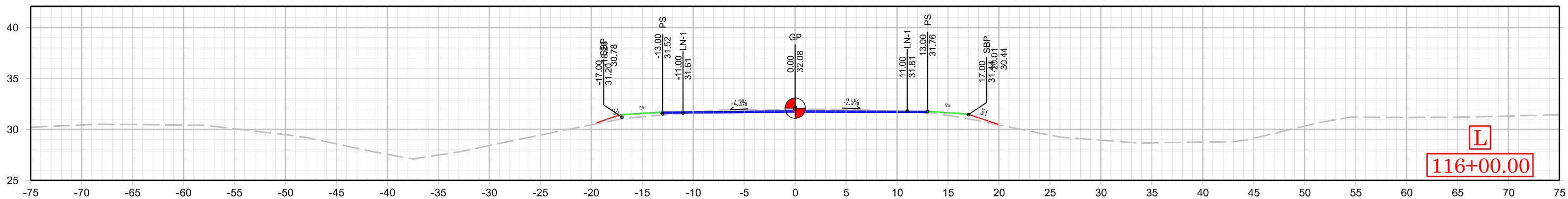
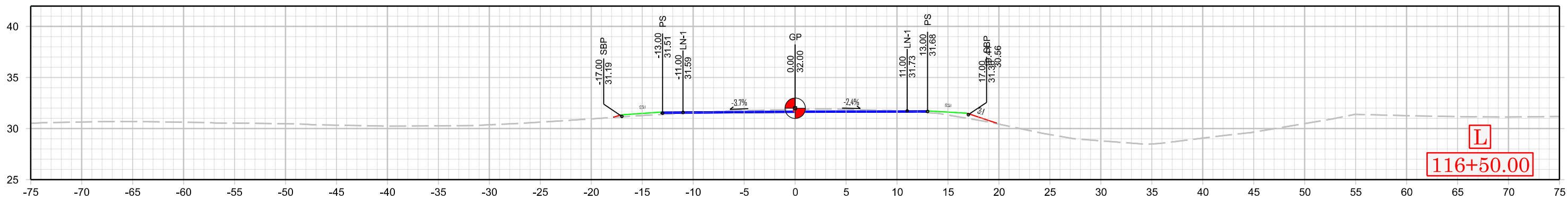
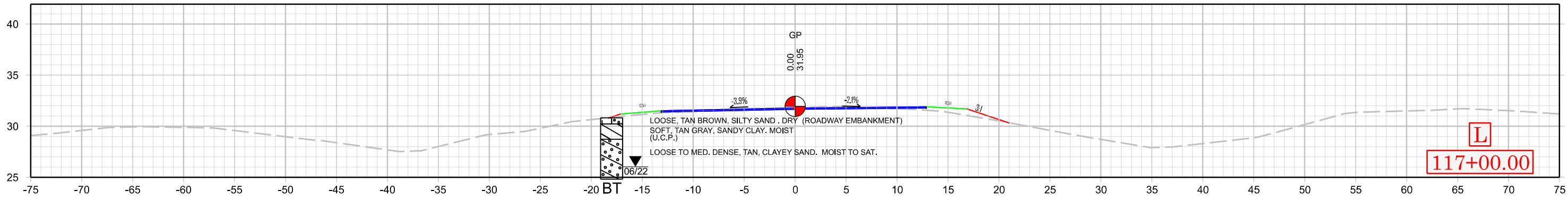
SOIL TEST RESULTS

SAMPLE NUMBER	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	PL. I.	% BY WEIGHT				% PASSING SIEVES			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
S-014	20 ft RT	111+00	0.0 - 4.0	A-6(10)	37	18	21.9	10.8	23.6	43.7	100	95	68		NA
S-015	20 ft RT	111+00	4.0 - 6.0	A-2-4(0)	NP	NP	6.5	81.5	4.5	7.4	100	99	14		NA



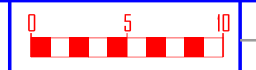
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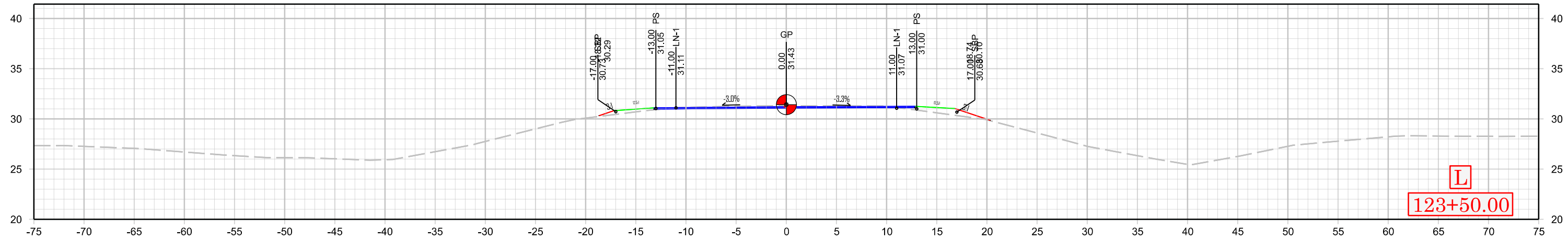


SOIL TEST RESULTS

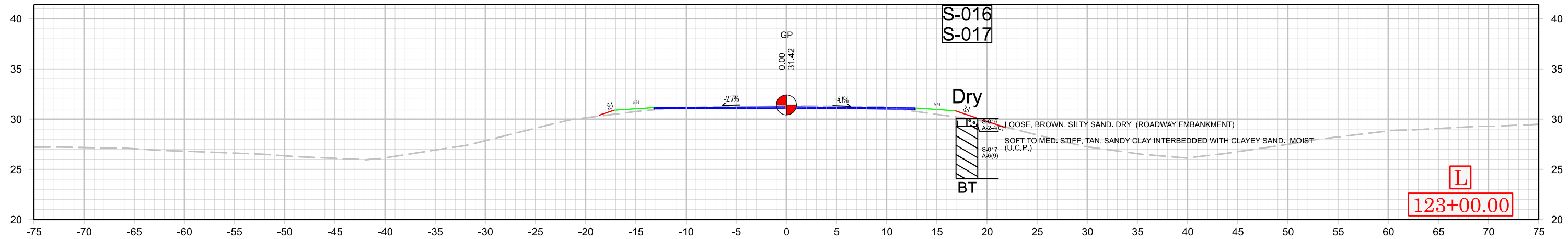
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							C. SAND	F. SAND	SILT	CLAY	10	40	200		
S-016	18 ft RT	123+00	0.0 - 0.8	A-2-4(0)	21	2	21.9	48.7	10.4	18.9	99.9	93	32	20	NA
S-017	18 ft RT	123+00	0.8 - 6.0	A-6(9)	40	22	3.0	43.4	15.0	38.6	100	100	57		NA



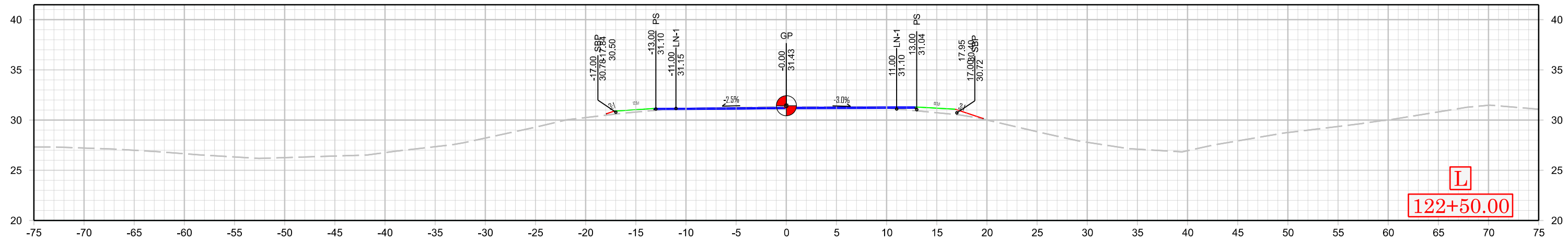
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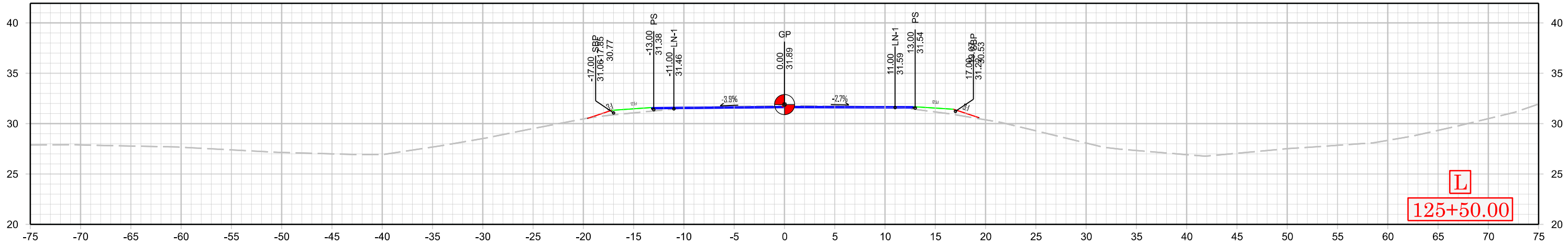
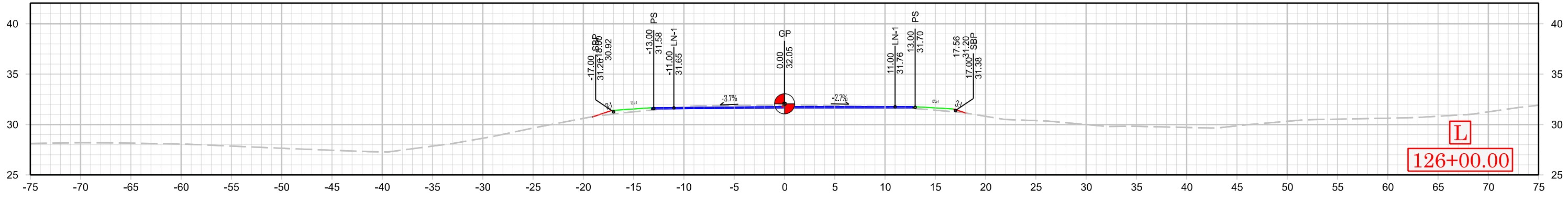
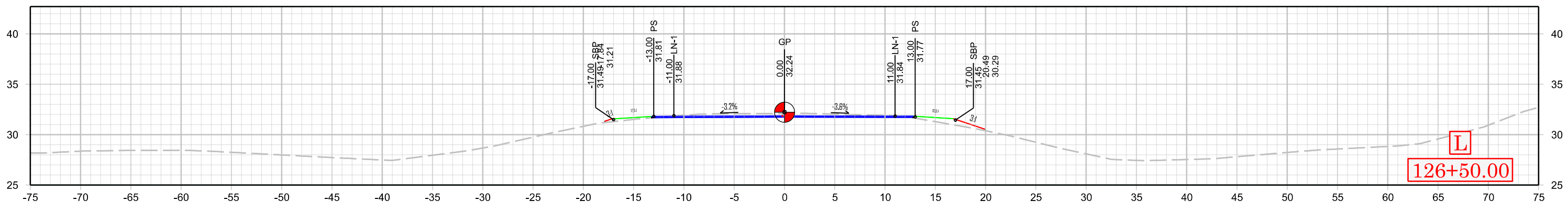
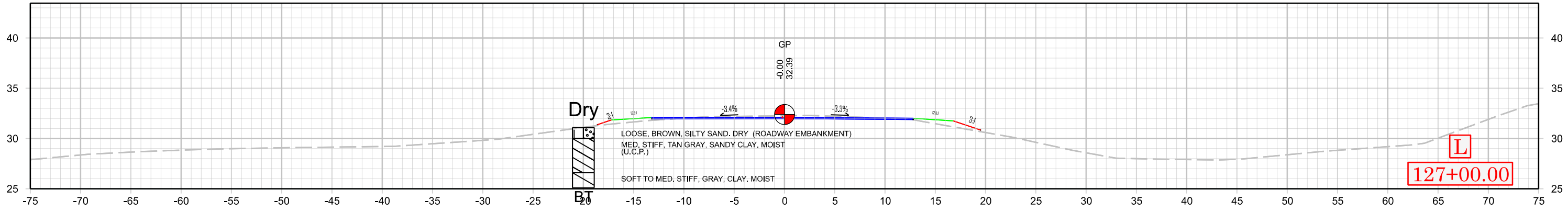
L
123+50.00



L
123+00.00

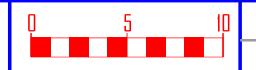


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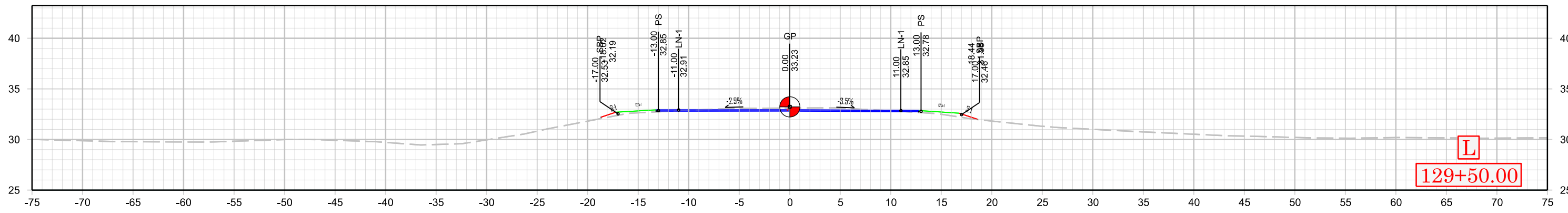
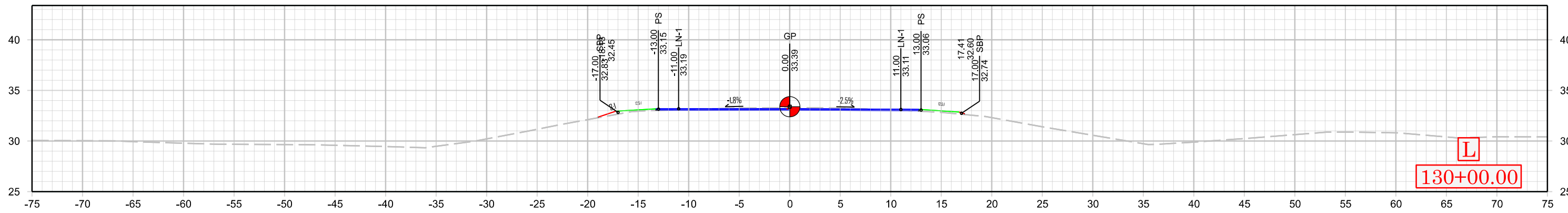
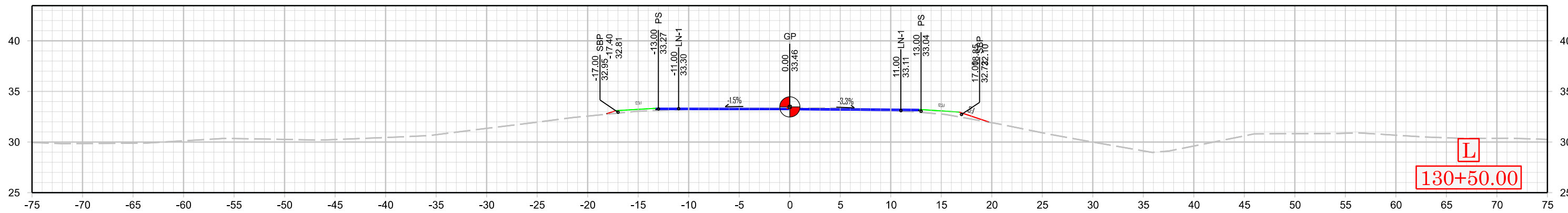
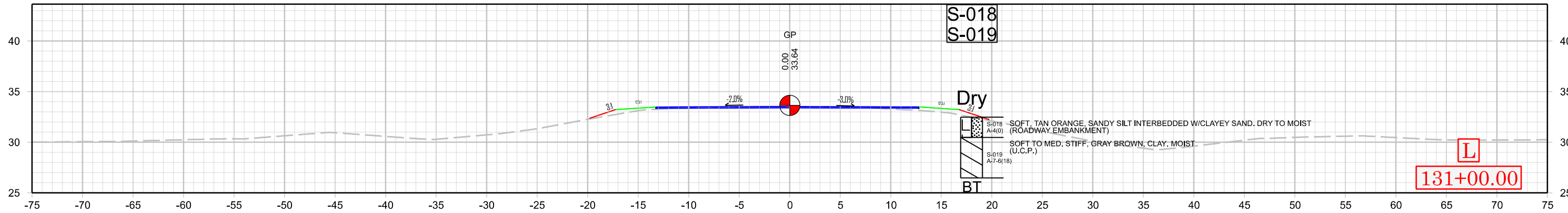


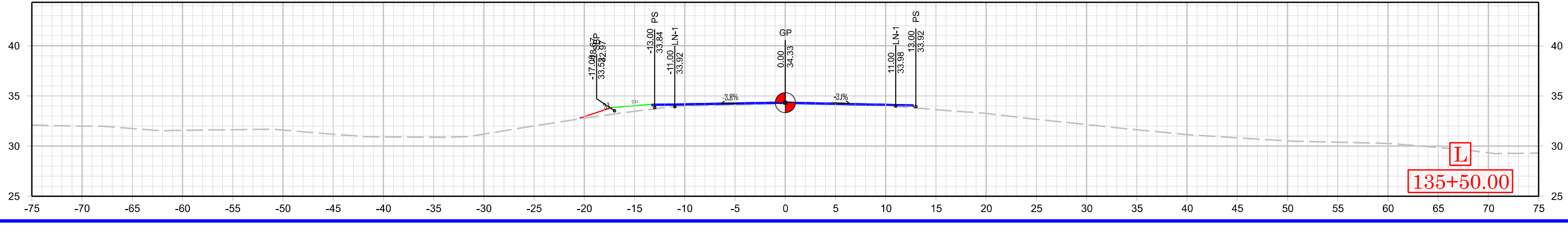
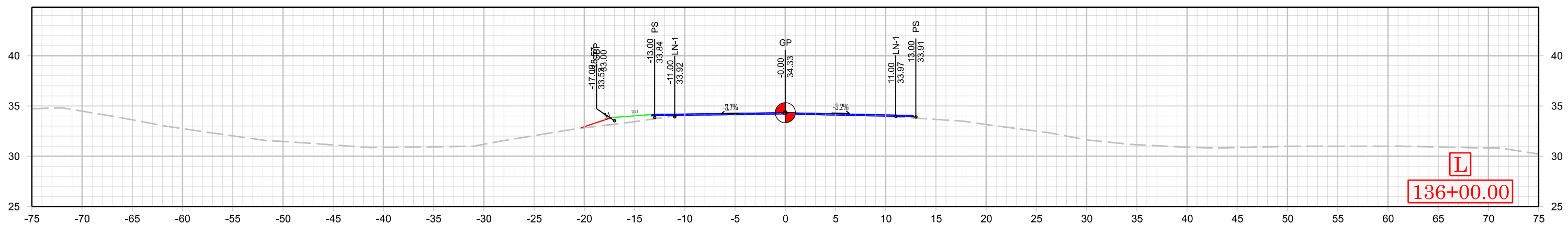
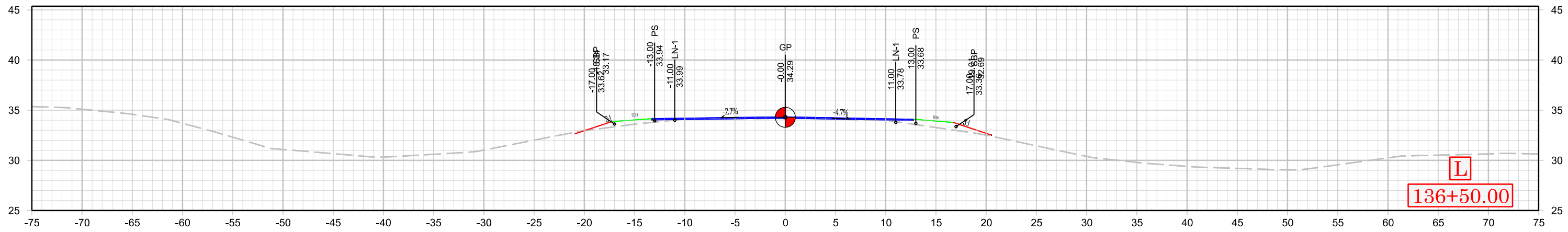
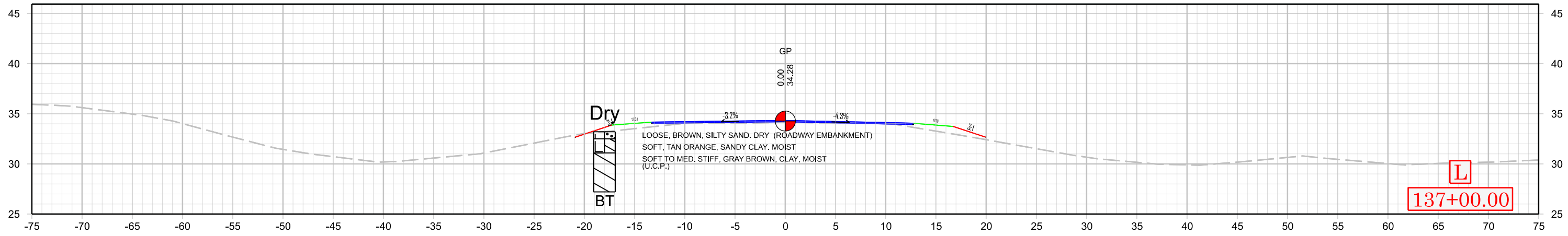
SOIL TEST RESULTS

SAMPLE NUMBER	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	PL. I.	% BY WEIGHT				% PASSING SIEVES			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
S-018	18 ft RT	131+00	0.0 - 2.0	A-4(0)	26	9	12.4	51.3	10.5	25.8	100	97	39		NA
S-019	18 ft RT	131+00	2.0 - 6.0	A-7-6(18)	42	21	1.4	16.3	29.4	52.9	100	99	85		NA



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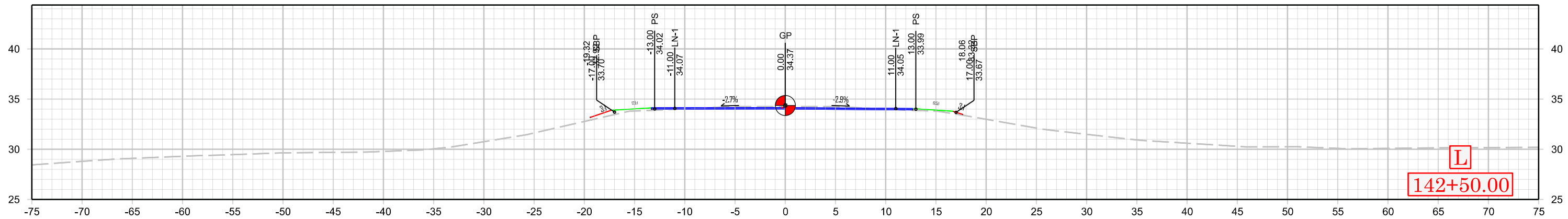
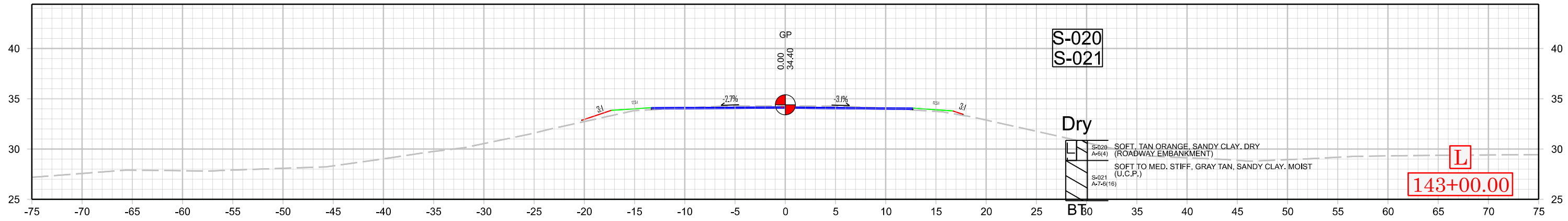
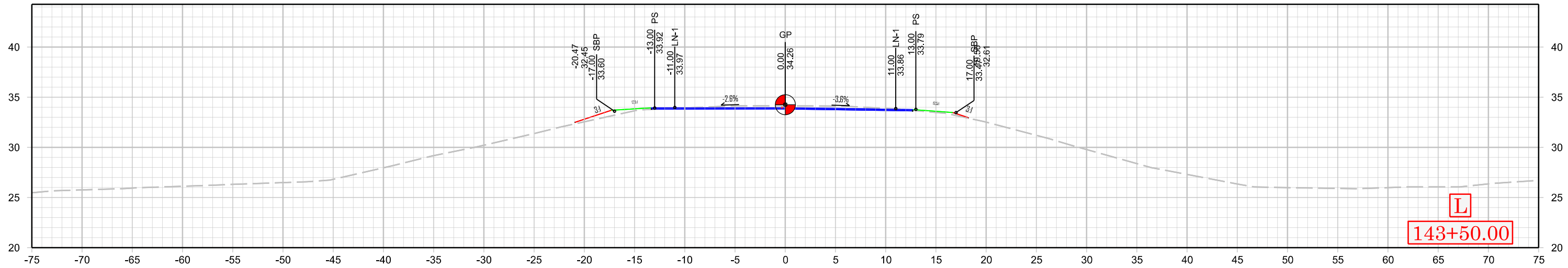


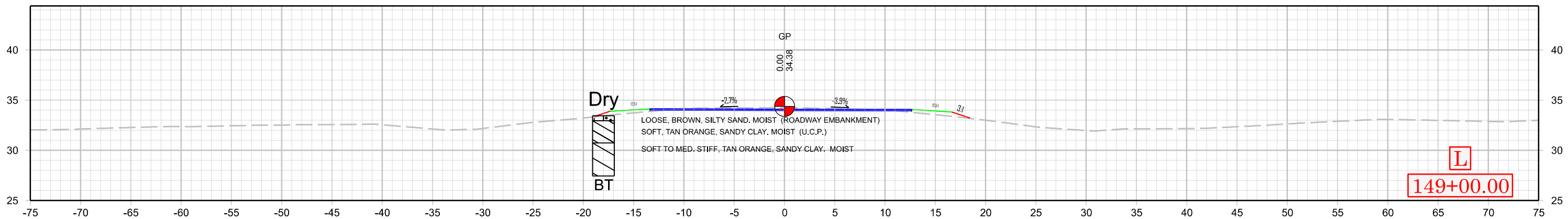
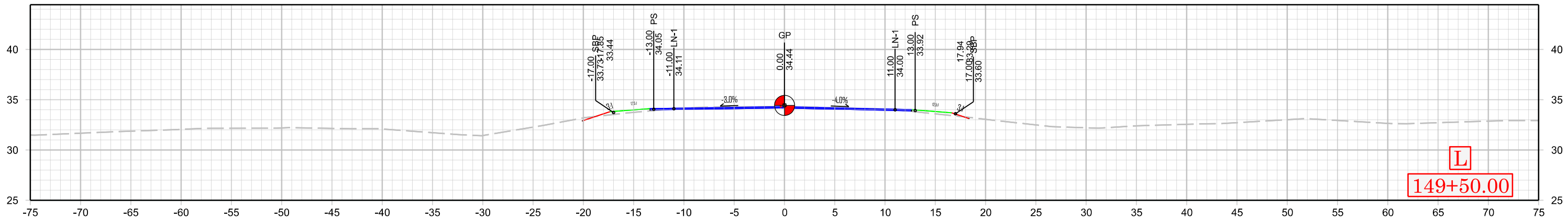
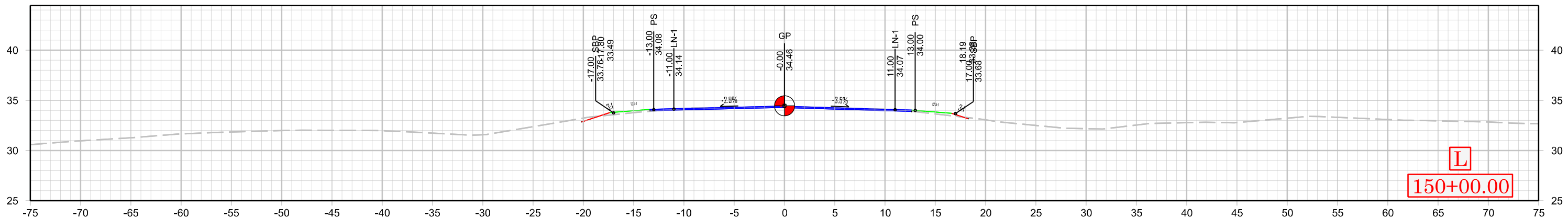
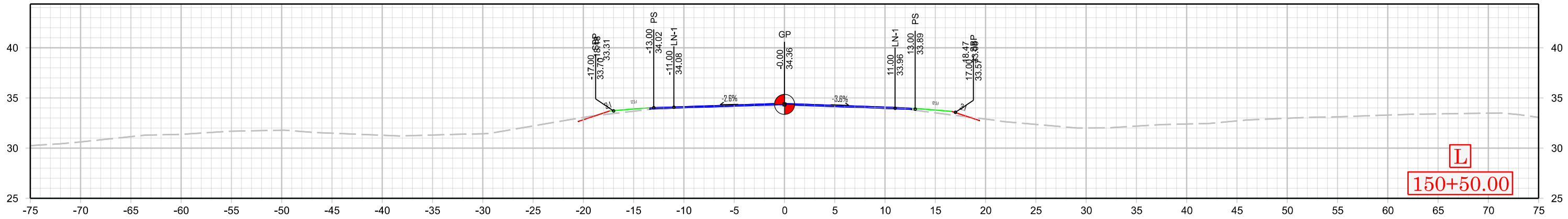


SOIL TEST RESULTS

SAMPLE NUMBER	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.L. I.	% BY WEIGHT				% PASSING SIEVES			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
S-020	29 ft RT	143+00	0.0 - 2.0	A-6(4)	33	15	3.7	50.5	13.6	32.2	99.9	99	50		NA
S-021	29 ft RT	143+00	2.0 - 6.0	A-7-6(16)	46	26	0.6	33.0	15.4	50.9	100	100	69	28	NA

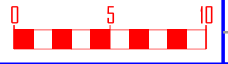
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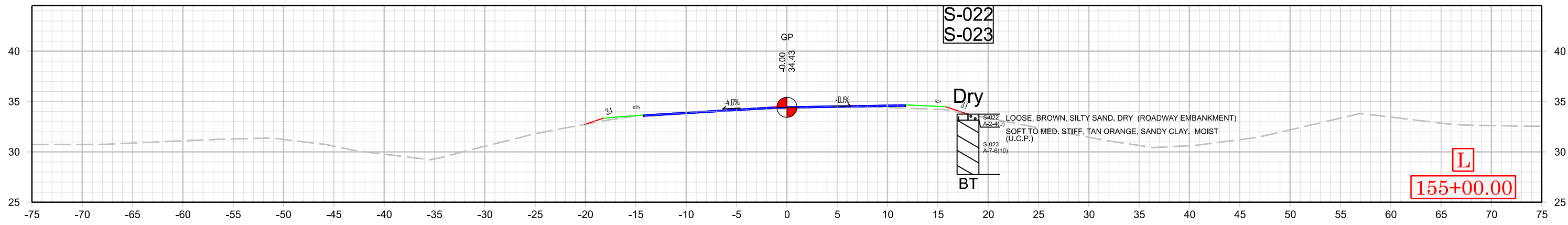
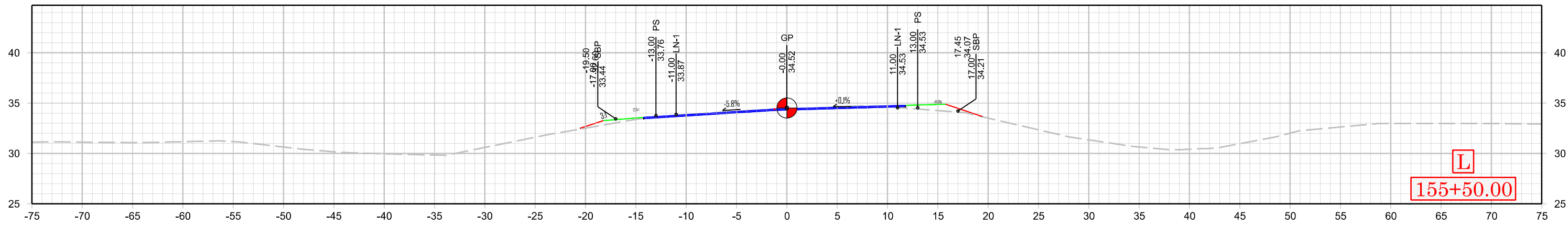
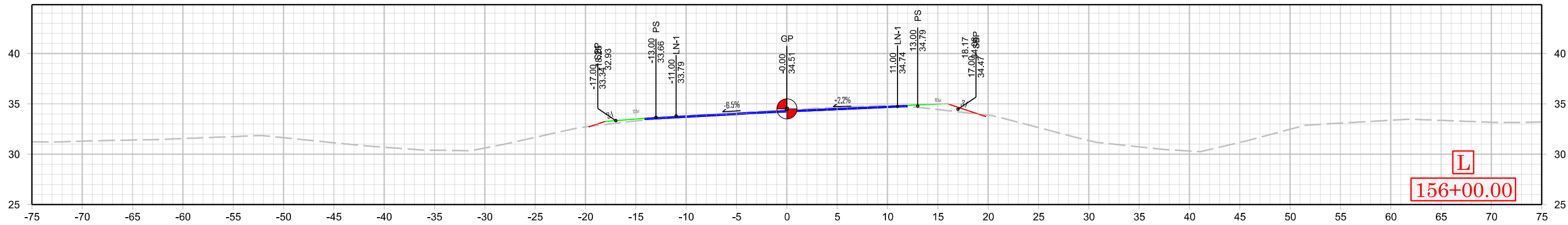
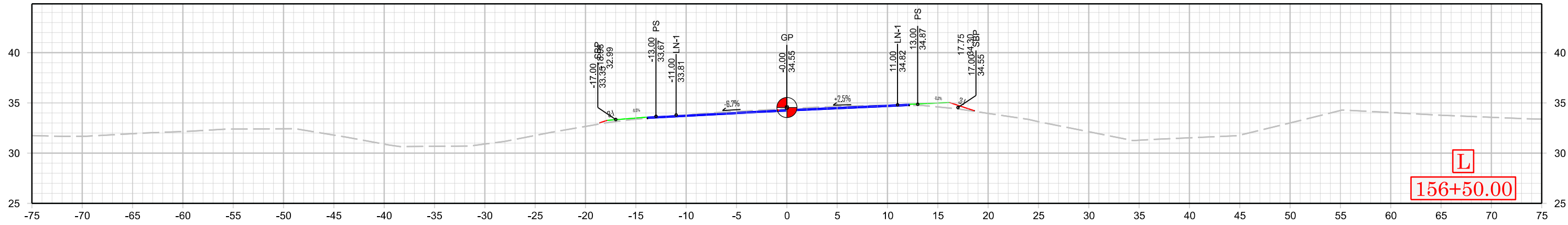


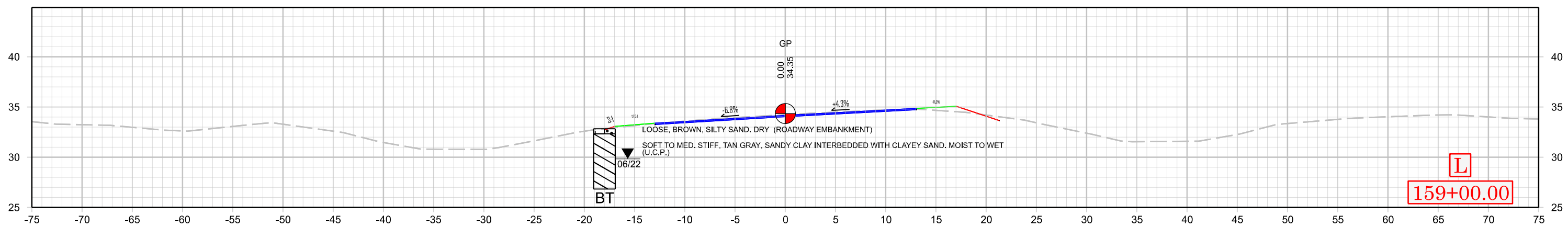
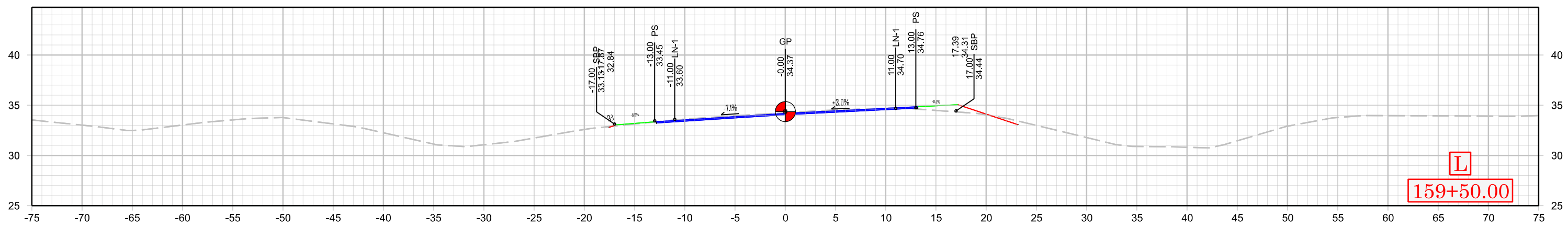
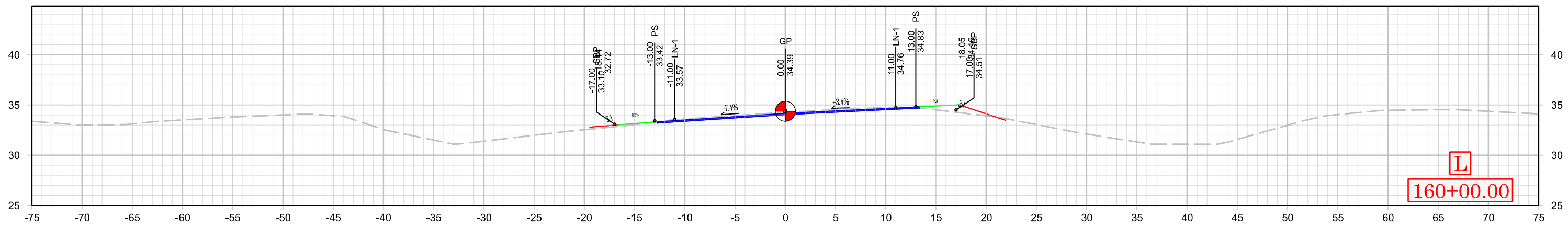
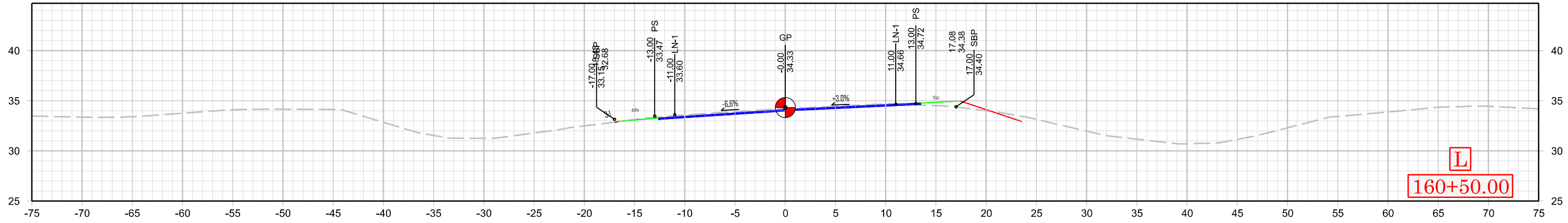


SOIL TEST RESULTS

SAMPLE NUMBER	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.L. I.	% BY WEIGHT				% PASSING SIEVES			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
S-022	18 ft RT	155+00	0.0 - 0.6	A-2-4(0)	NP	NP	32.6	47.7	10.9	8.8	99.9	91	22		NA
S-023	18 ft RT	155+00	0.6 - 6.0	A-7-6(10)	41	22	3.4	40.6	12.4	43.6	100	99	58	25	NA

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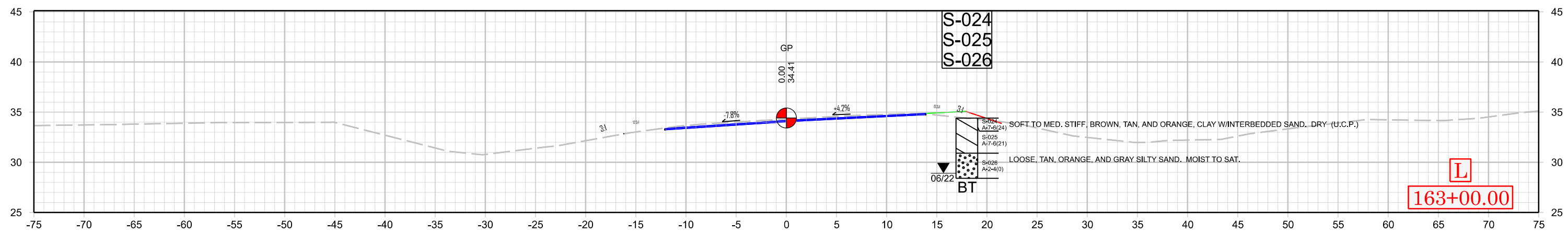
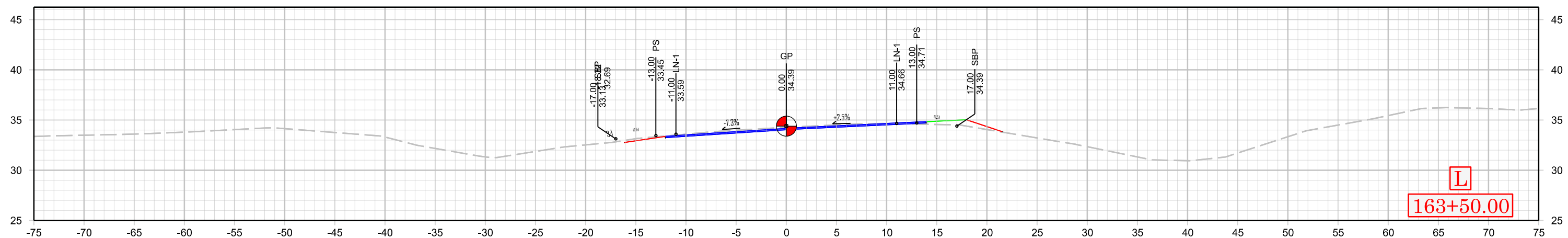
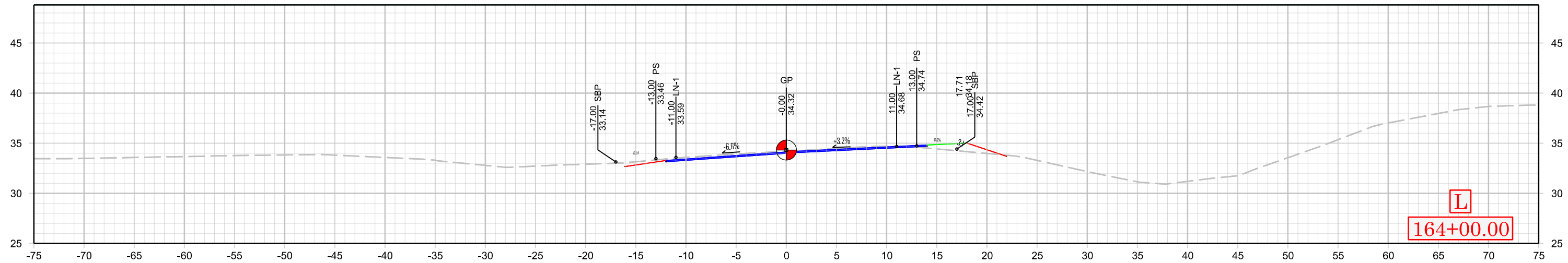


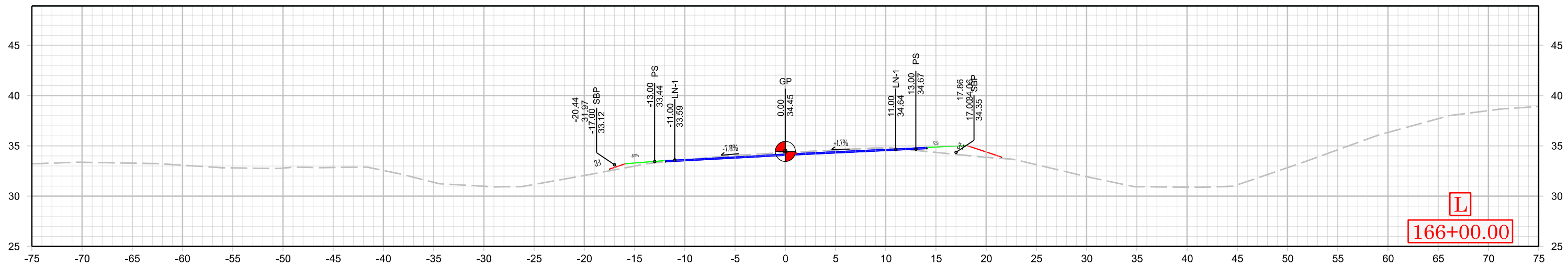
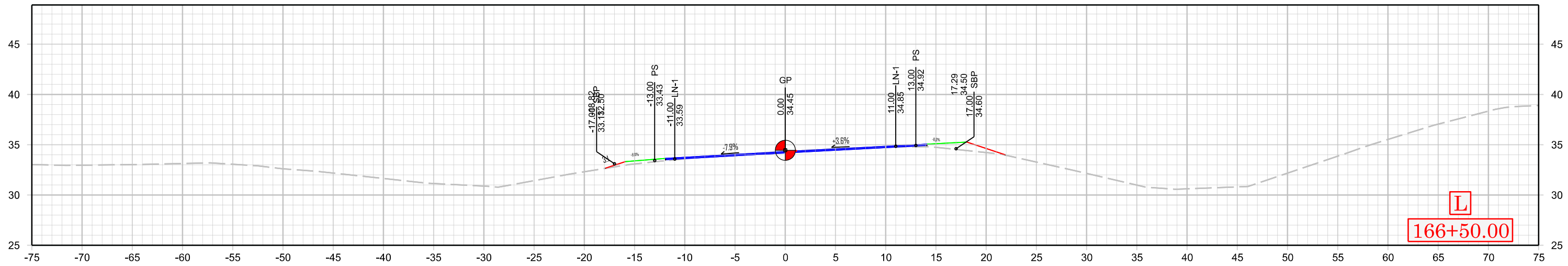
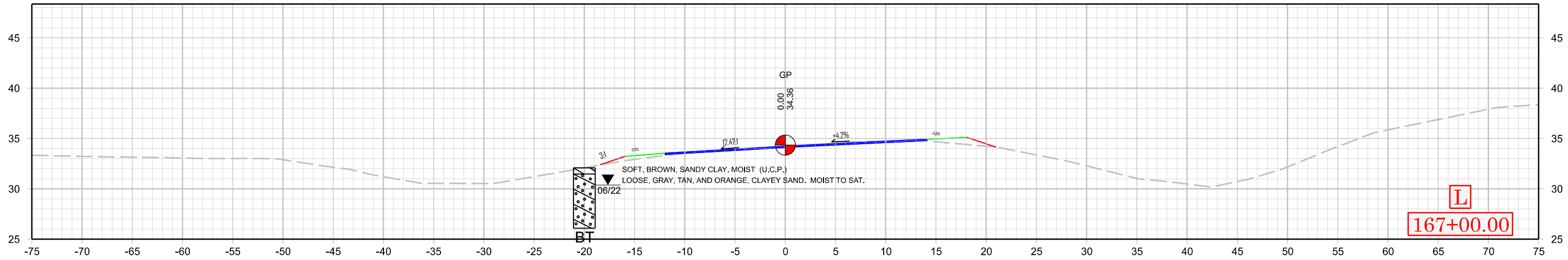
SOIL TEST RESULTS

SAMPLE NUMBER	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.L. I.	% BY WEIGHT				% PASSING SIEVES			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
S-024	18 ft RT	163+00	0.0 - 0.9	A-7-6(24)	44	25	2.7	9.3	37.8	50.2	100	99	91		NA
S-025	18 ft RT	163+00	0.9 - 3.5	A-7-6(21)	50	30	2.8	27.8	16.5	52.9	100	99	72	23	NA
S-026	18 ft RT	163+00	3.5 - 6.0	A-2-4(0)	20	4	5.1	77.4	4.7	12.8	100	100	19		NA



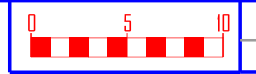
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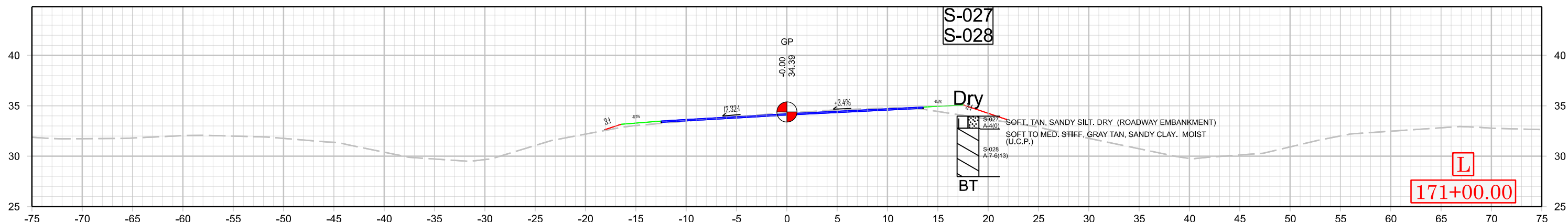
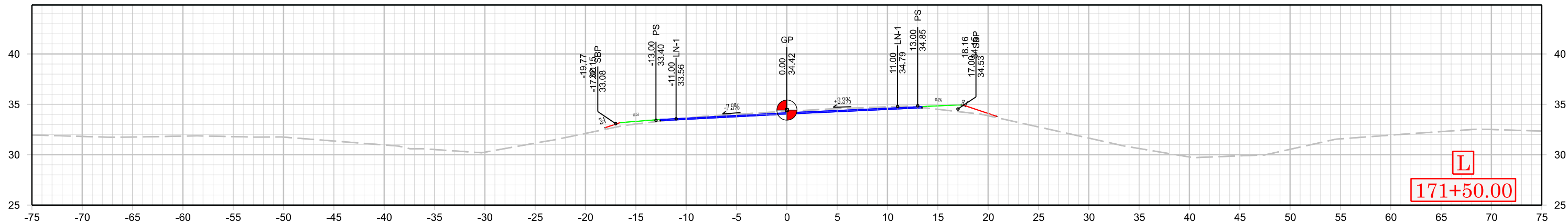
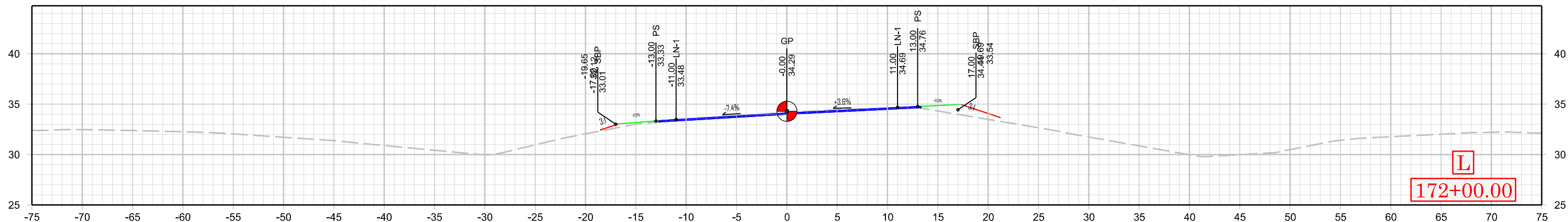
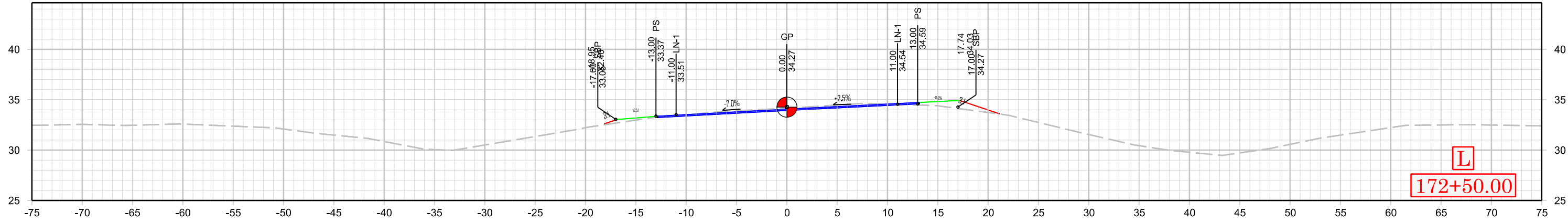


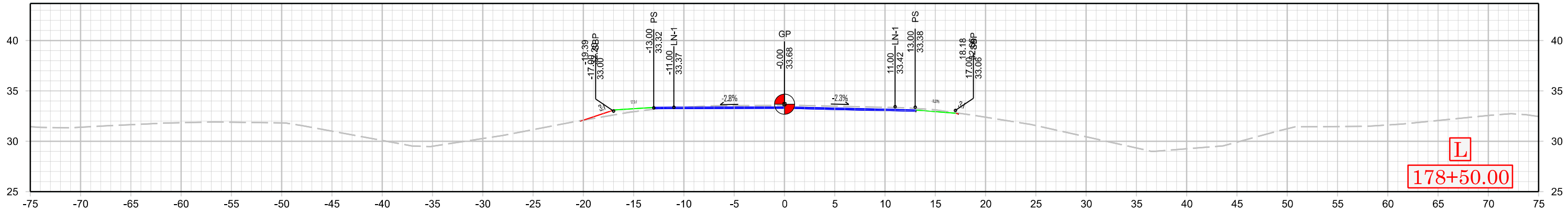
SOIL TEST RESULTS

SAMPLE NUMBER	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.L. I.	% BY WEIGHT				% PASSING SIEVES			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
S-027	18 ft RT	171+00	0.0 - 1.2	A-4(0)	19	2	8.1	37.2	35.2	19.5	99.9	97	60		NA
S-028	18 ft RT	171+00	1.2 - 6.0	A-7-6(13)	42	22	5.7	32.6	16.7	45.0	100	98	65	25	NA

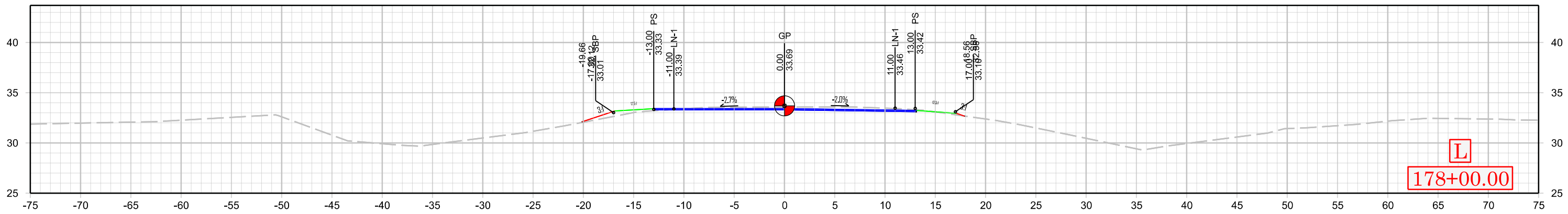


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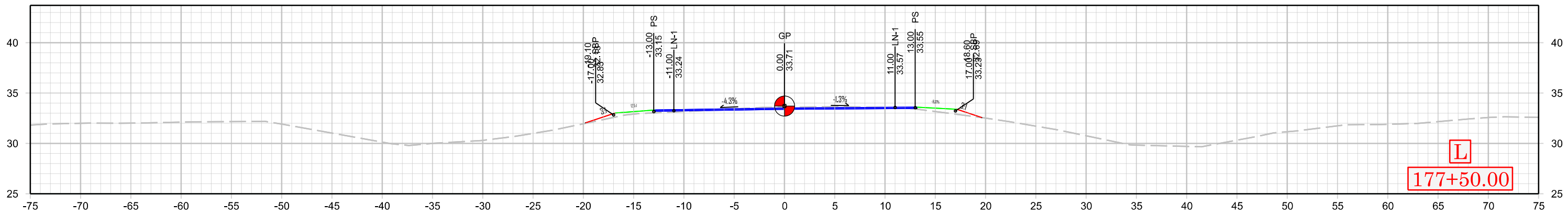




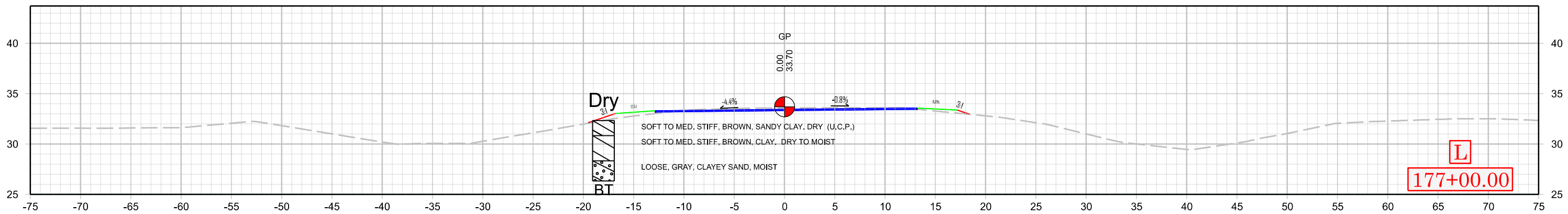
L
 178+50.00



L
 178+00.00



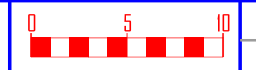
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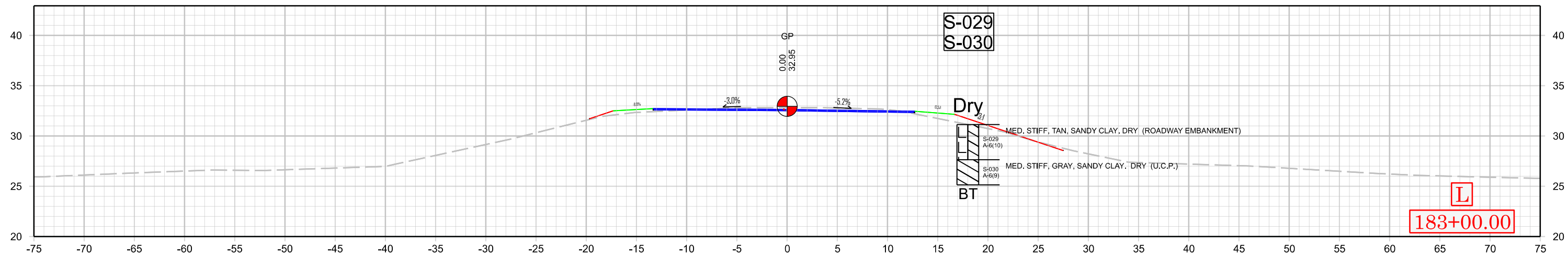
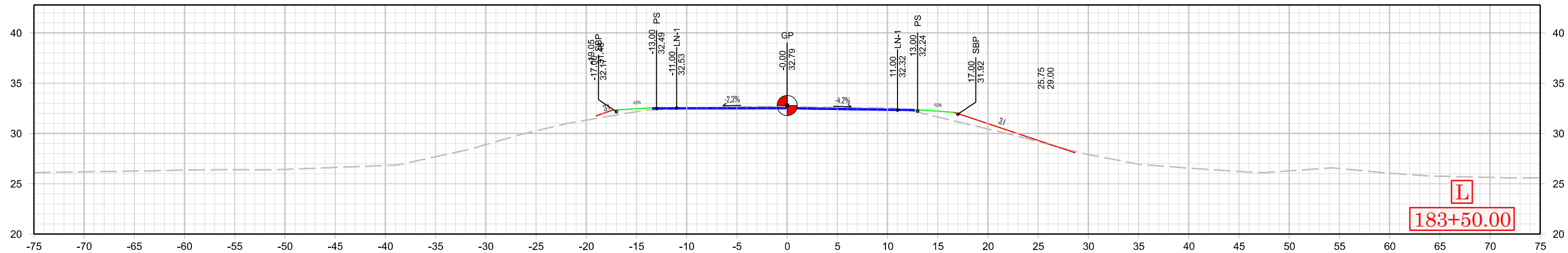
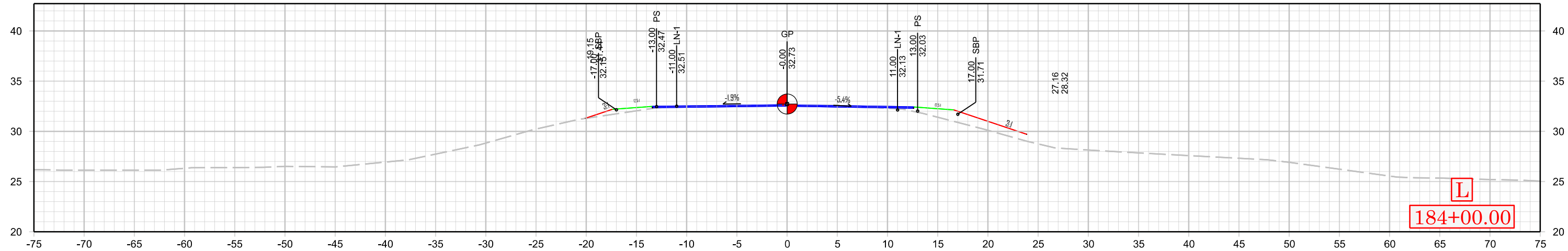
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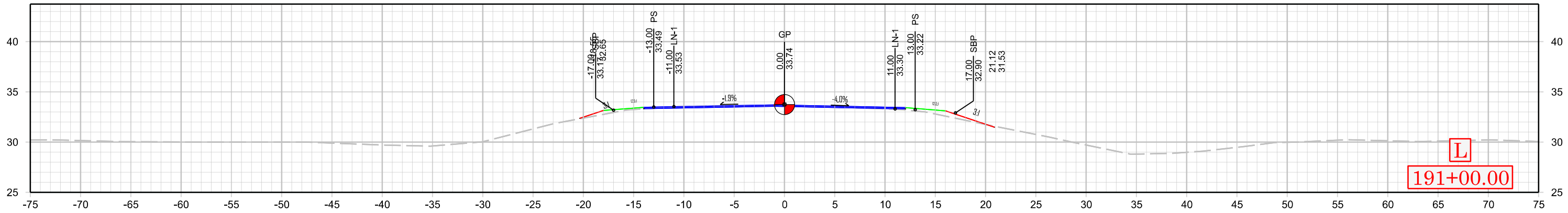
SOIL TEST RESULTS

SAMPLE NUMBER	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.L. I.	% BY WEIGHT				% PASSING SIEVES			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
S-029	18 ft RT	183+00	0.0 - 3.5	A-6(10)	37	19	16.8	27.3	17.2	38.7	100	100	63	24	NA
S-030	18 ft RT	183+00	3.5 - 6.0	A-6(9)	30	13	2.3	18.8	38.5	40.4	99.5	99	81		NA

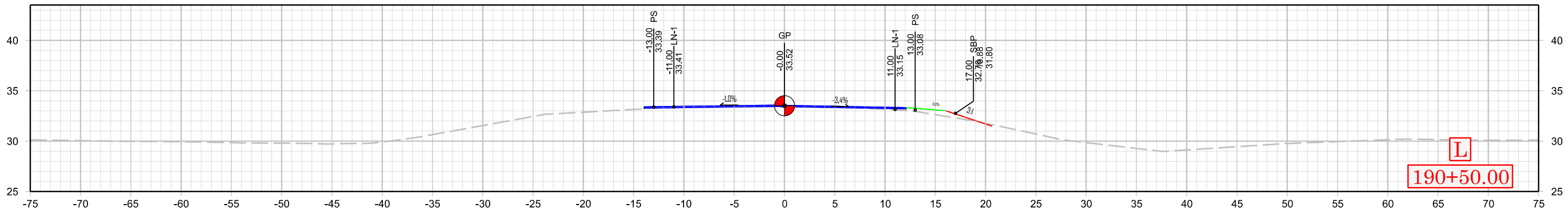


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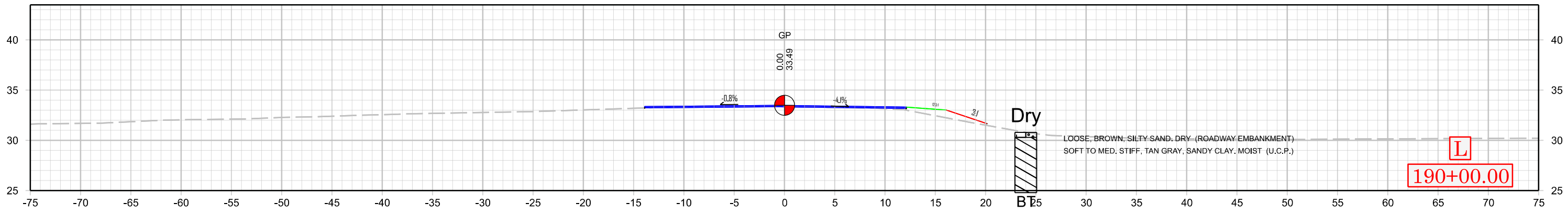




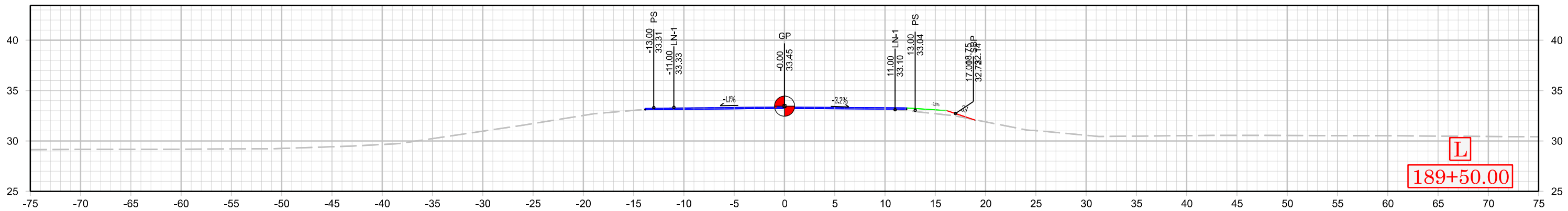
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191+00.00



L
190+50.00



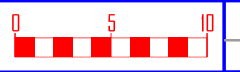
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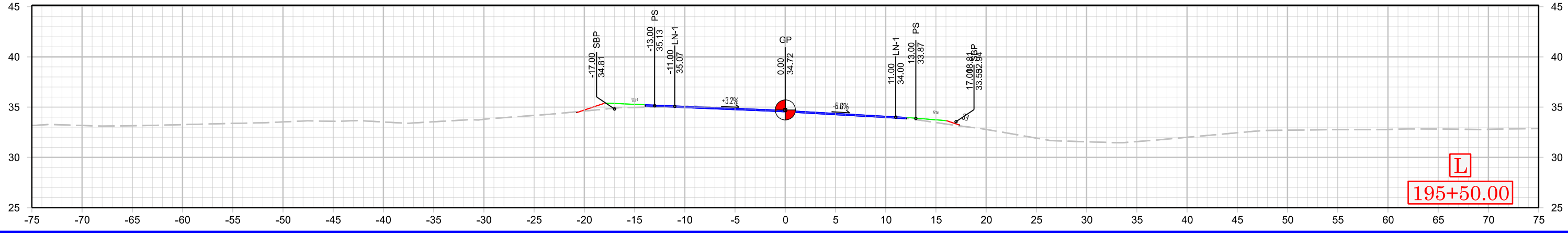
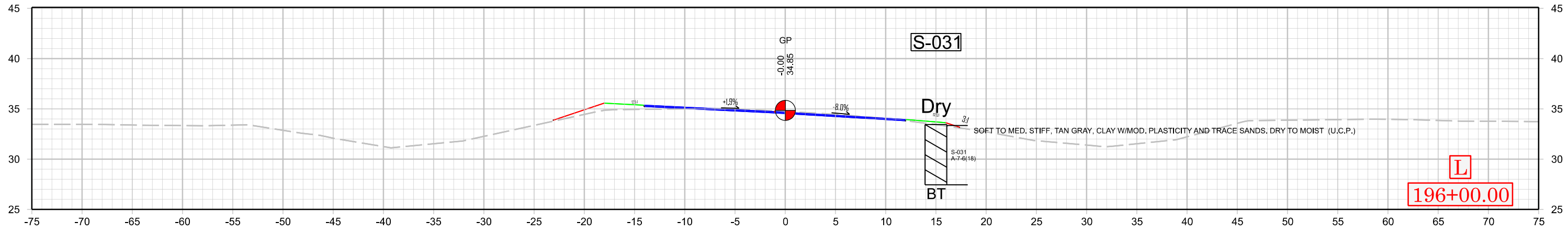
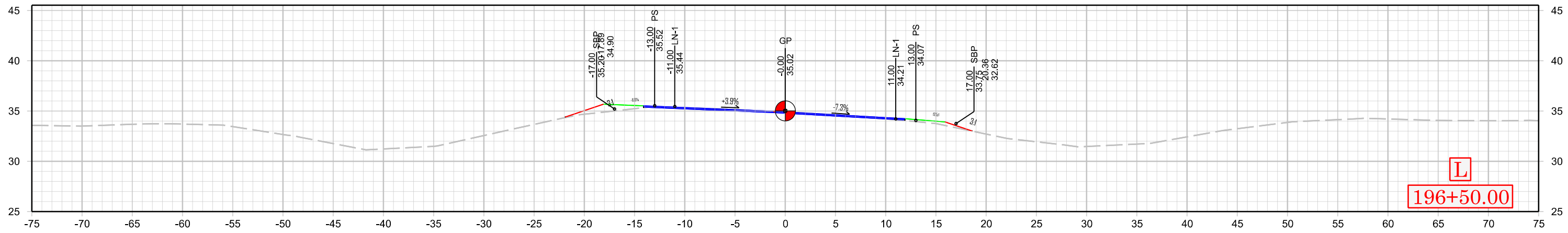
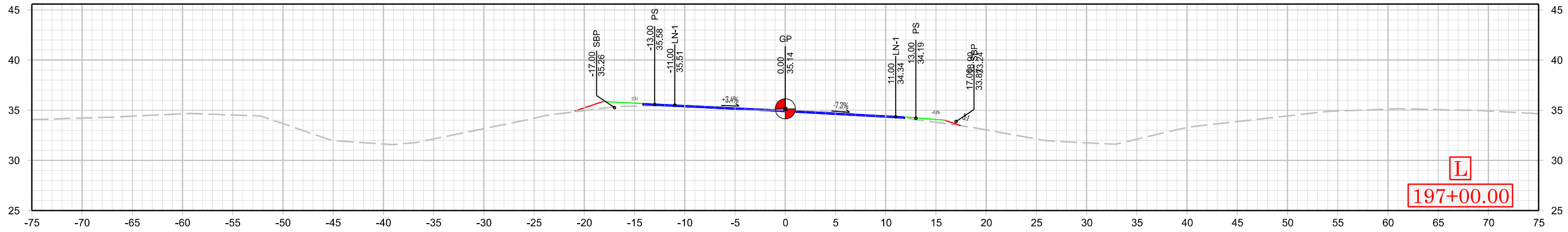
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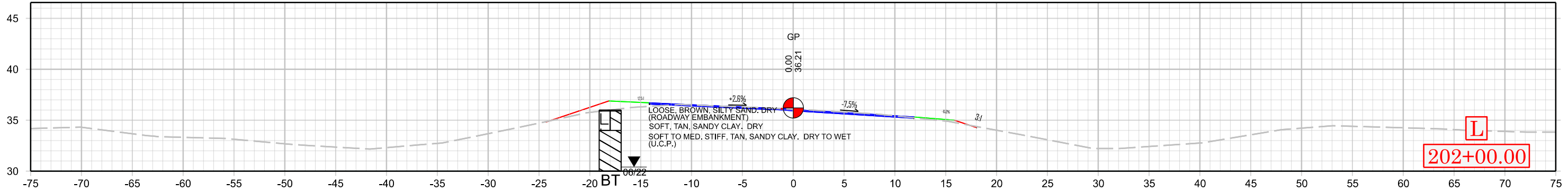
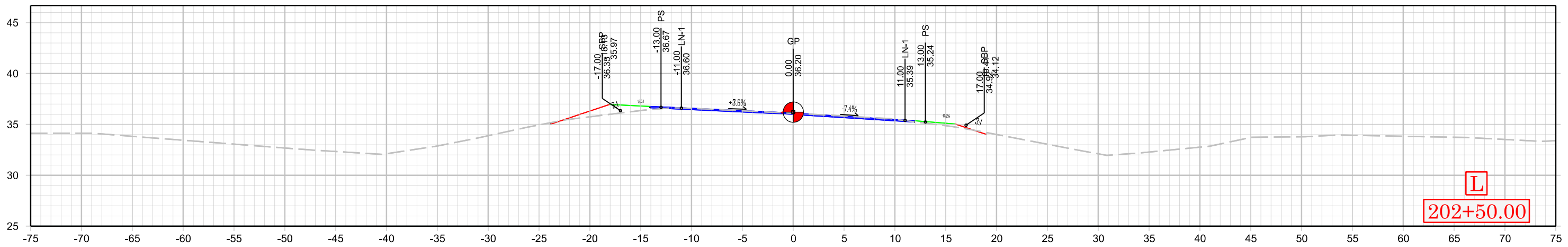
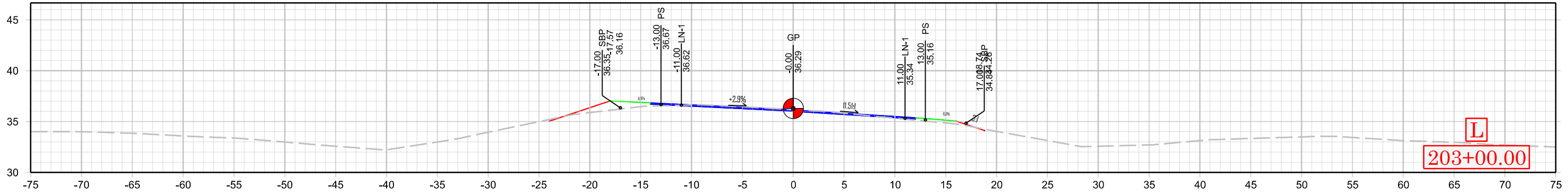
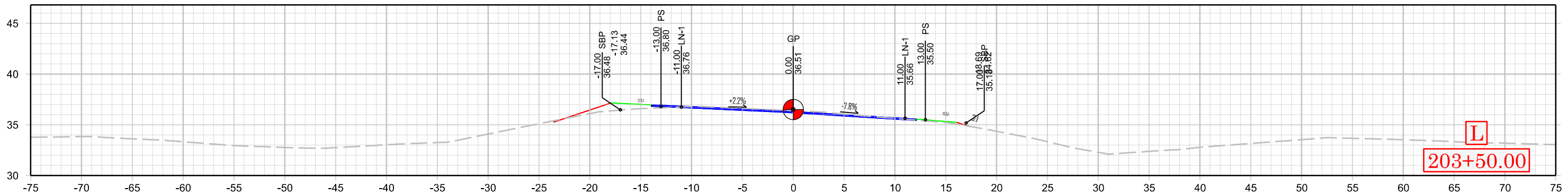
SOIL TEST RESULTS

SAMPLE NUMBER	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	PL. I.	% BY WEIGHT				% PASSING SIEVES			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
S-031	15 ft RT	196+00	0.1 - 6.0	A-7-6(18)	44	22	2.2	19.1	20.8	57.9	99.9	99	81	29	NA



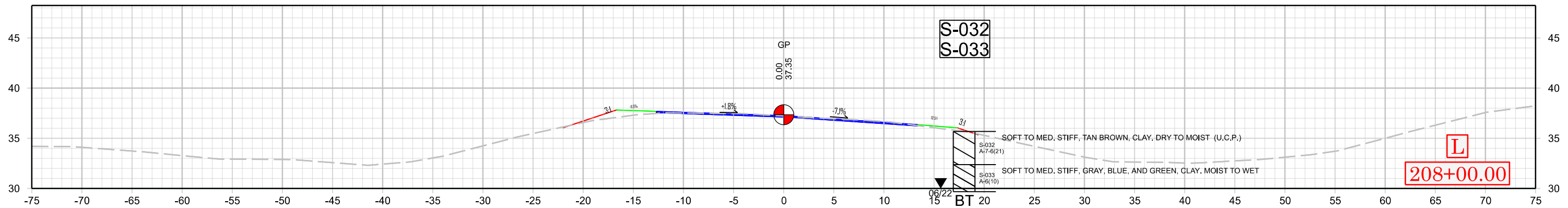
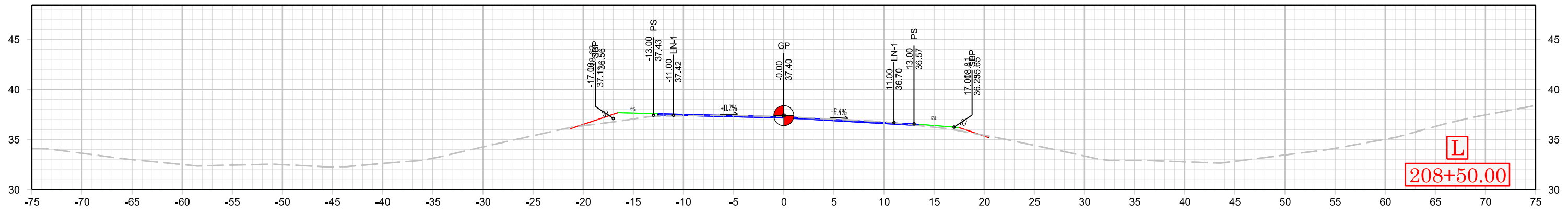
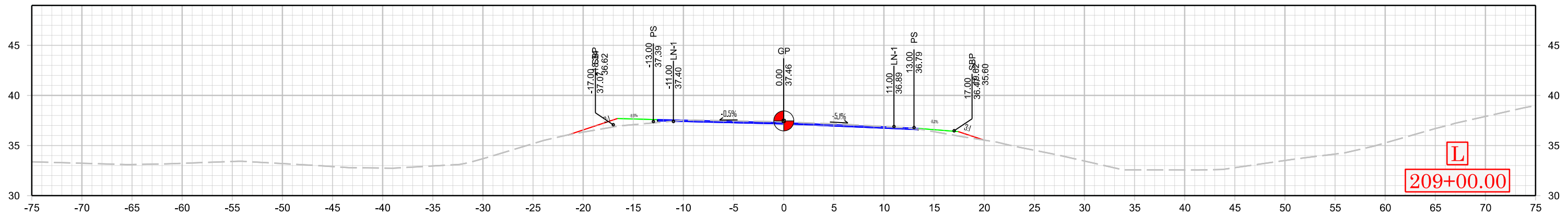
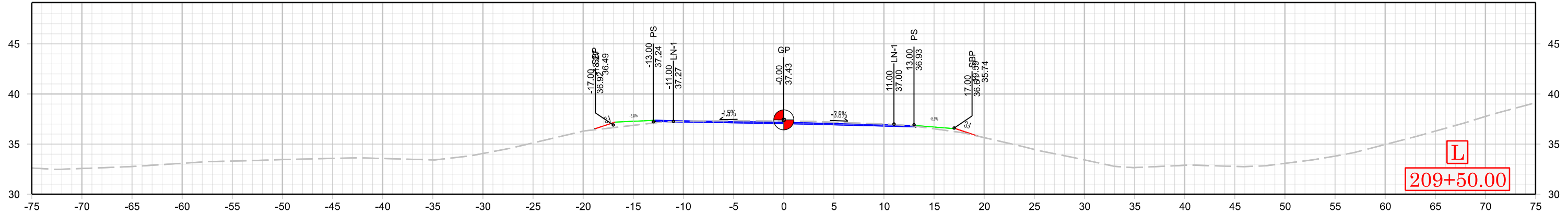
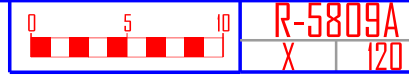
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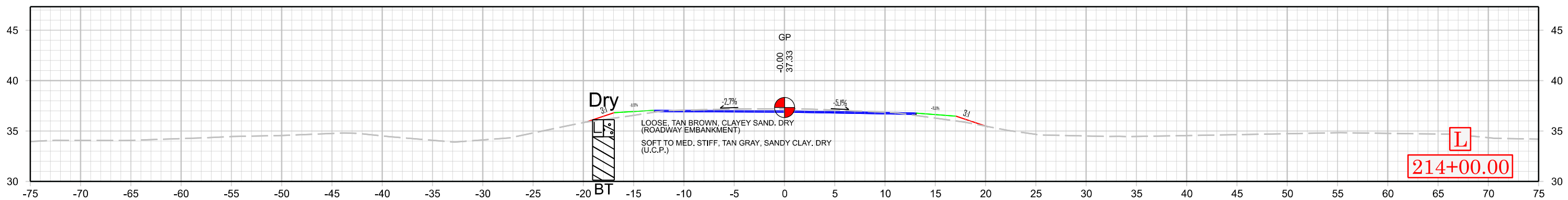
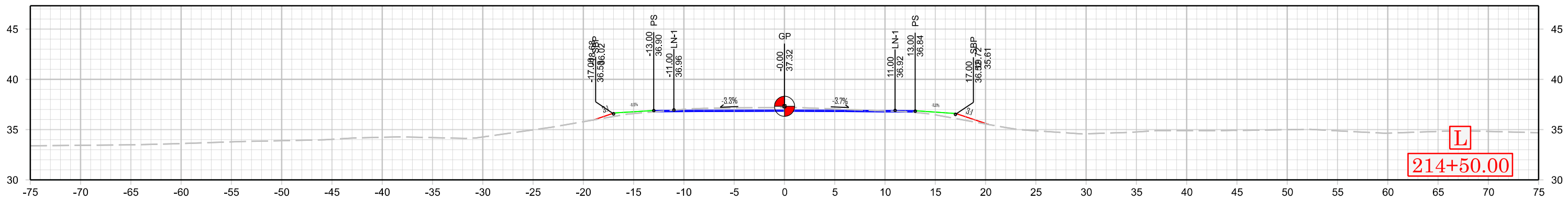
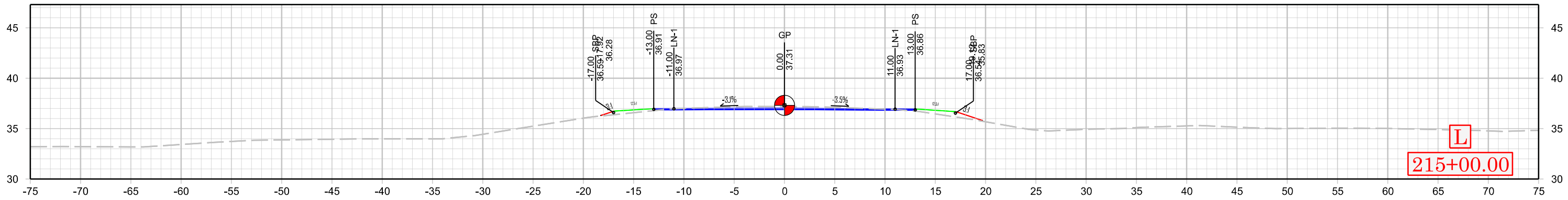
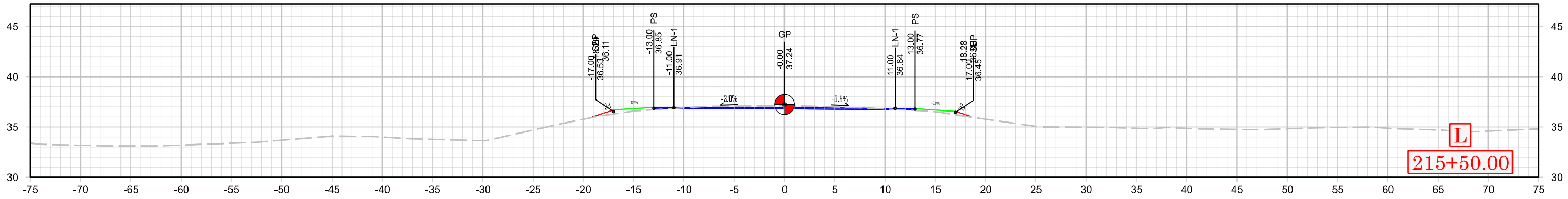




SOIL TEST RESULTS

SAMPLE NUMBER	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.L. I.	% BY WEIGHT				% PASSING SIEVES			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
S-032	18 ft RT	208+00	0.0 - 3.3	A-7-6(21)	45	24	1.7	15.3	29.7	53.3	100	100	86	36	NA
S-033	18 ft RT	208+00	3.3 - 6.0	A-6(10)	38	19	0.2	40.9	17.1	41.8	100	100	65		NA



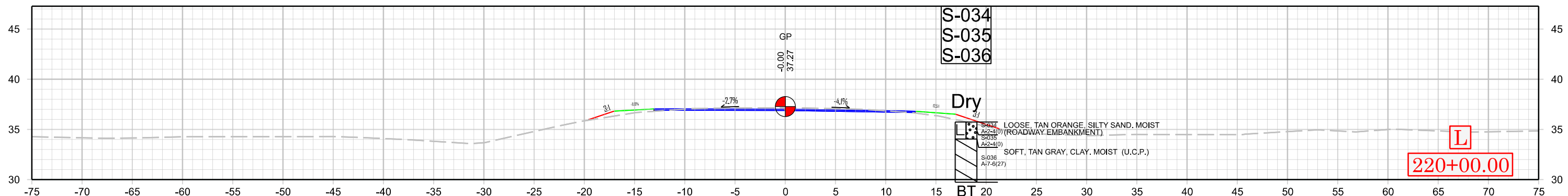
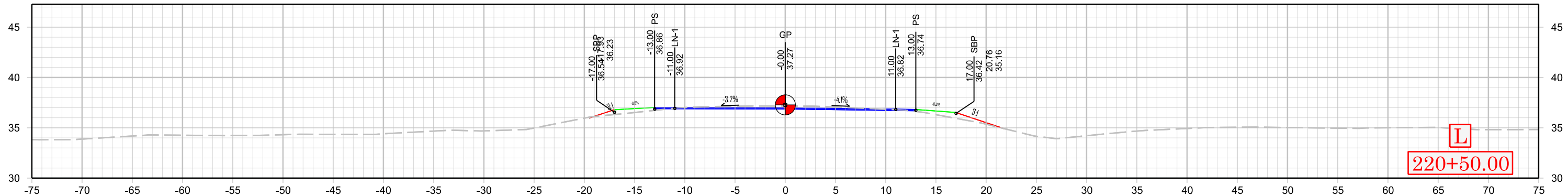
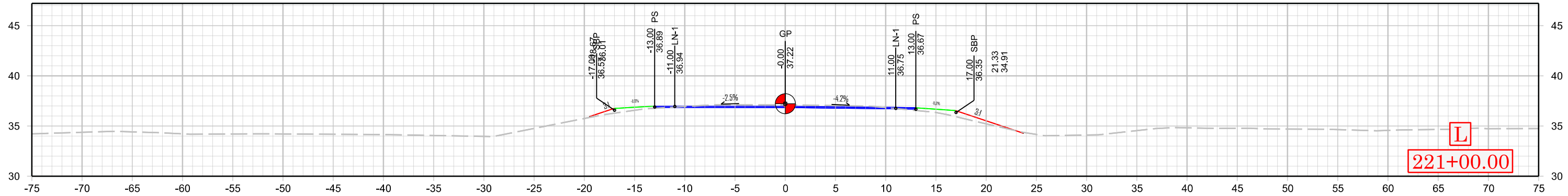
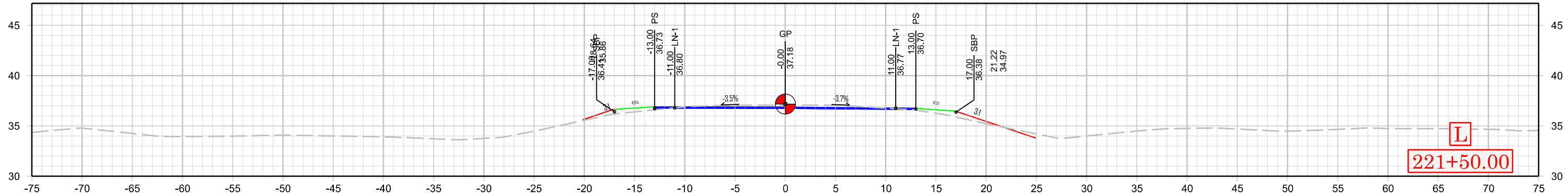


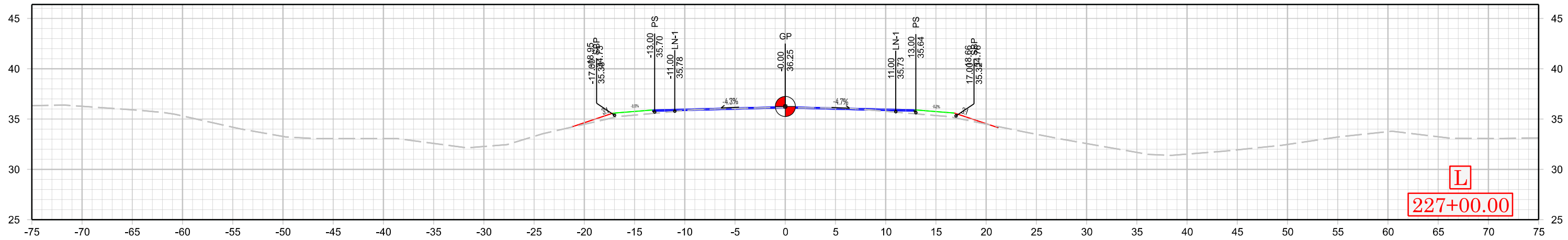
SOIL TEST RESULTS

SAMPLE NUMBER	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	PL. I.	% BY WEIGHT				% PASSING SIEVES			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
S-034	18 ft RT	220+00	0.0 - 0.9	A-2-4(0)	NP	NP	26.4	53.5	10.9	9.2	98.4	93	23		NA
S-035	18 ft RT	220+00	0.9 - 1.7	A-2-4(0)	21	1	22.3	55.1	7.2	15.4	99.6	94	25		NA
S-036	18 ft RT	220+00	1.7 - 6.0	A-7-6(27)	47	26	1.3	9.2	38.4	51.1	100	99	94	25	NA

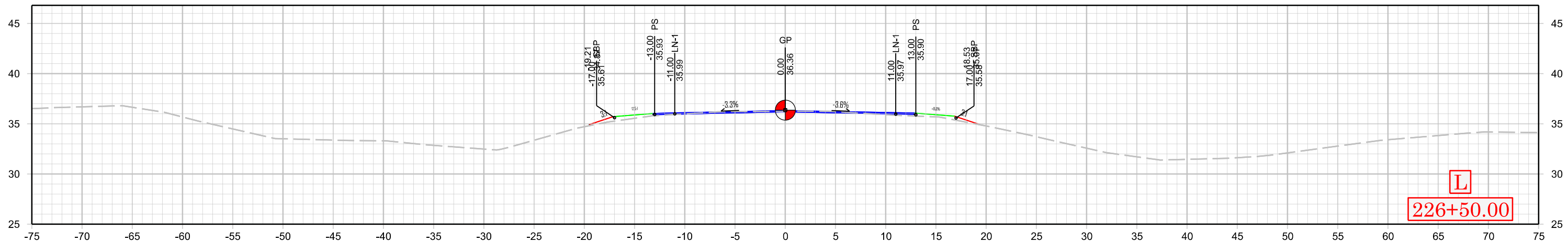


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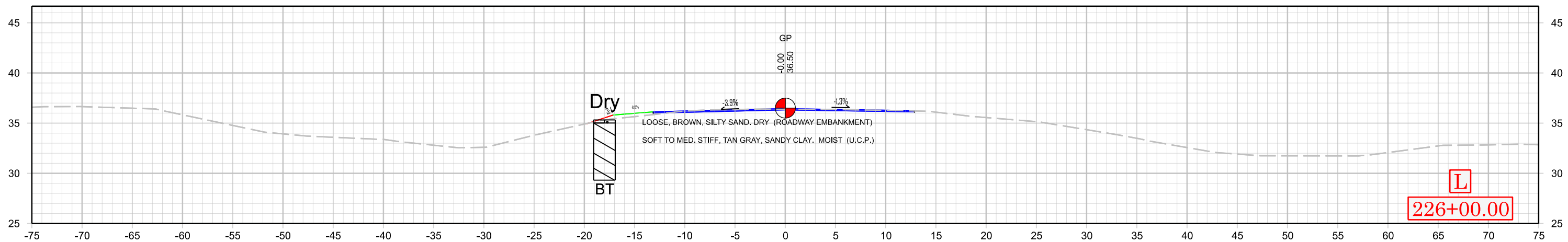




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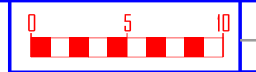
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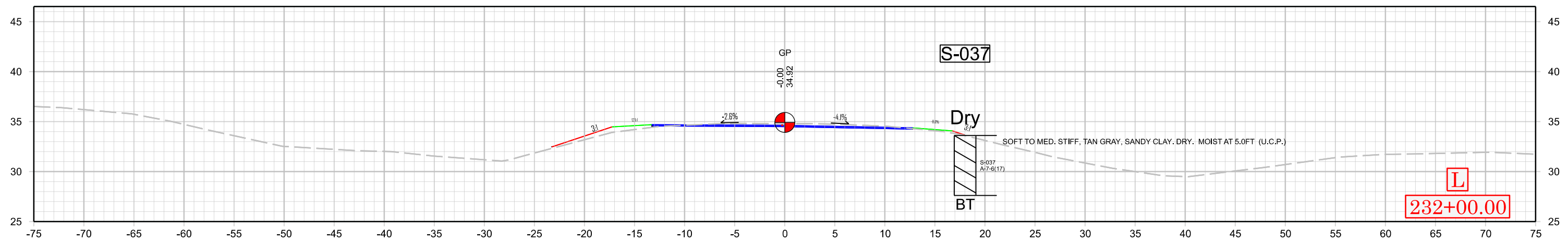
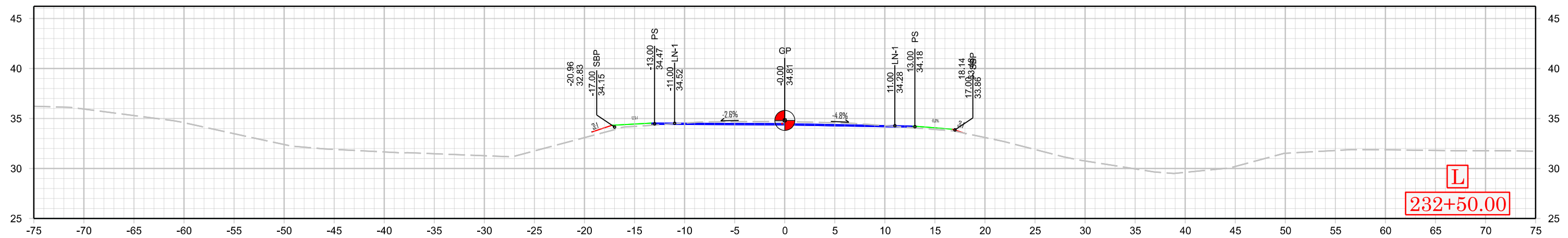
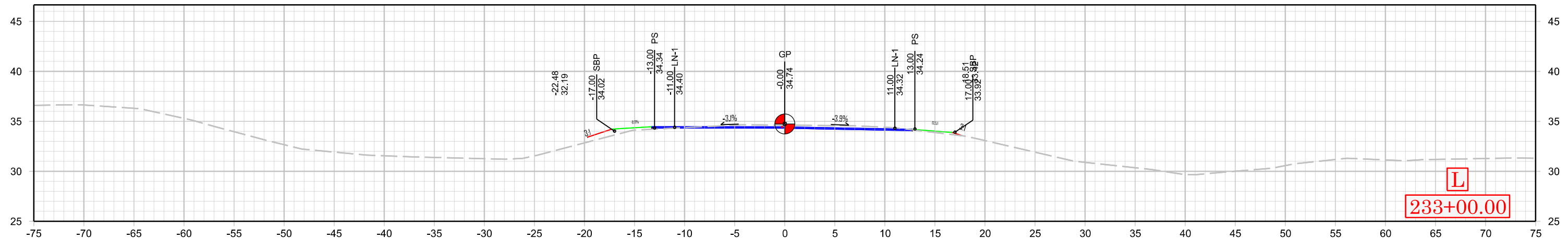
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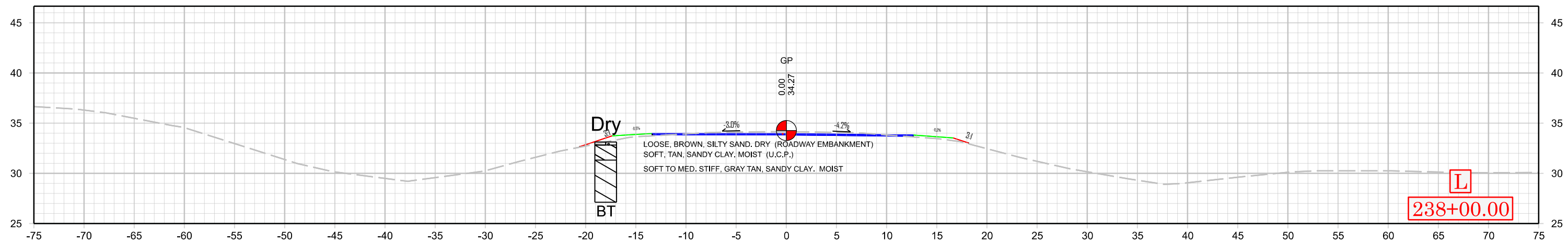
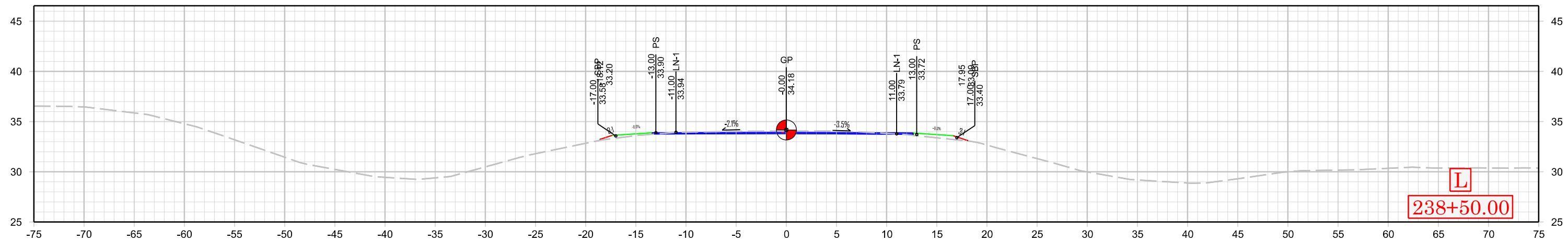
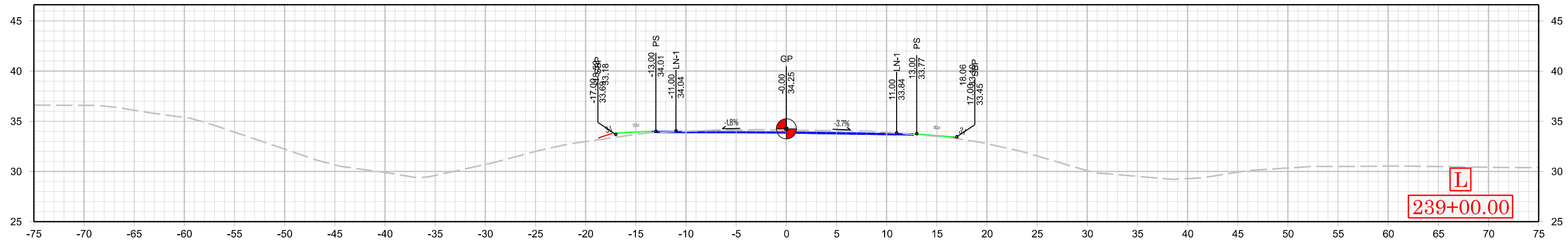
SOIL TEST RESULTS

SAMPLE NUMBER	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.L. I.	% BY WEIGHT				% PASSING SIEVES			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
S-037	18 ft RT	232+00	0.0 - 6.0	A-7-6(17)	41	24	1.5	27.2	24.3	47.0	100	100	77	21	NA

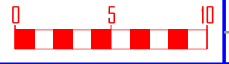


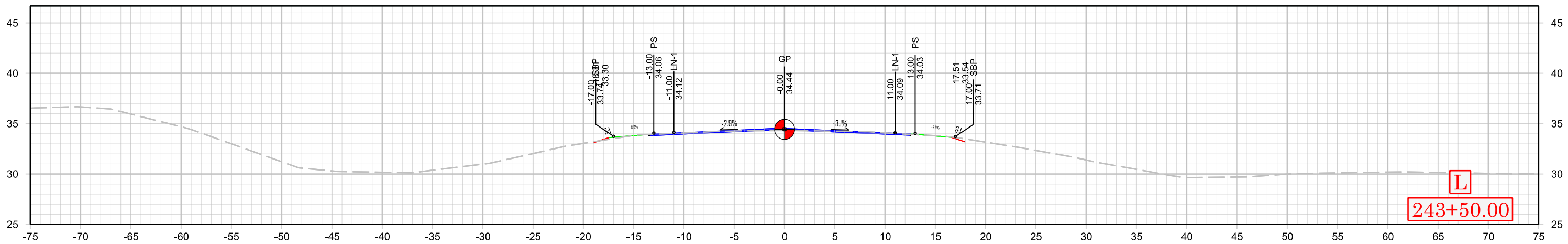
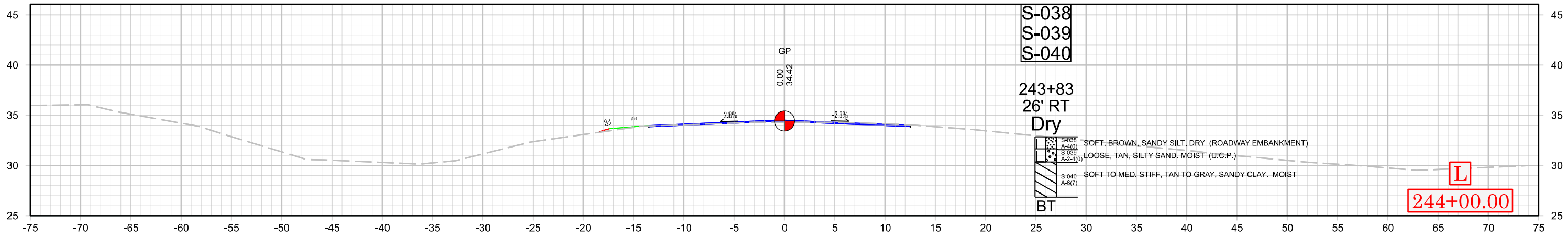
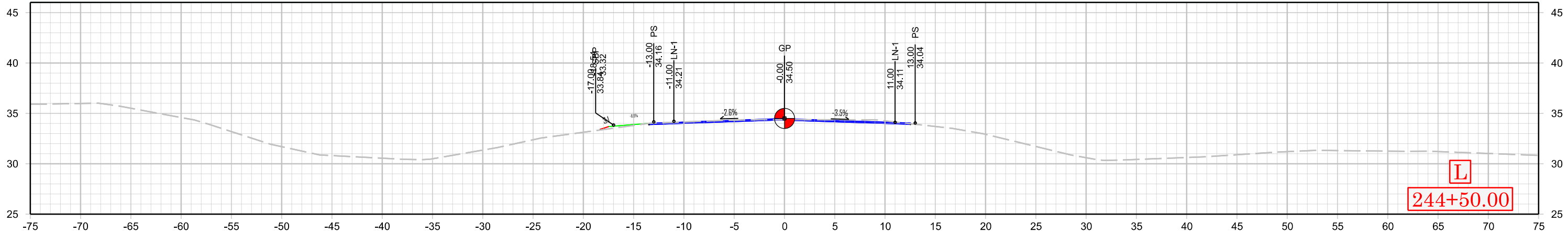
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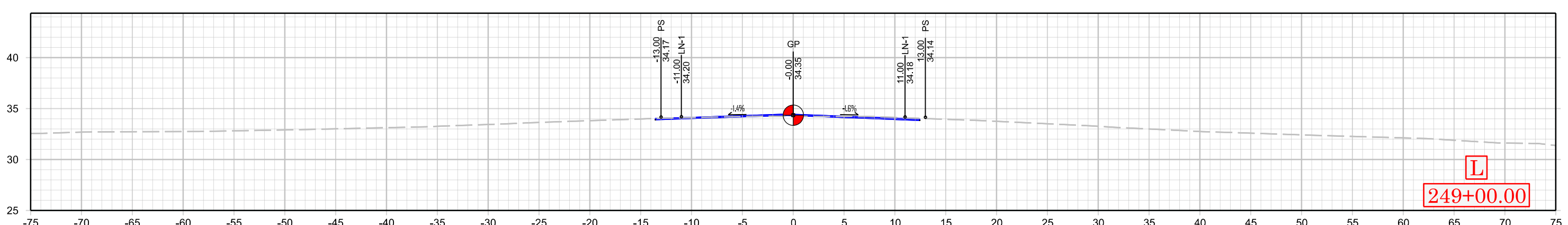
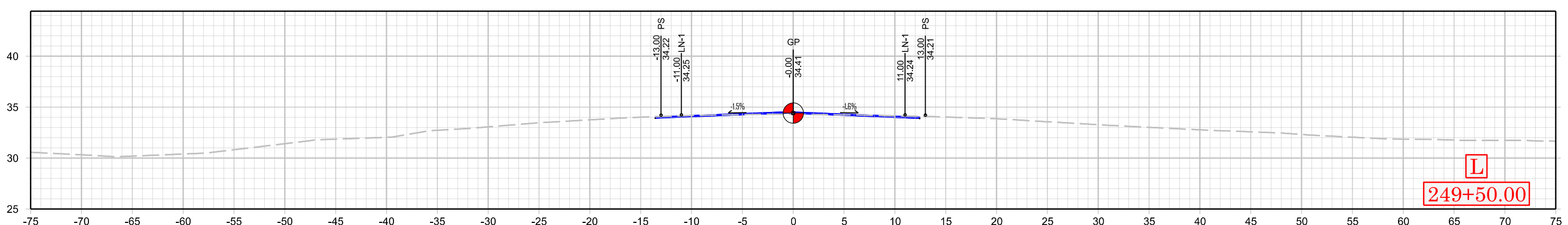
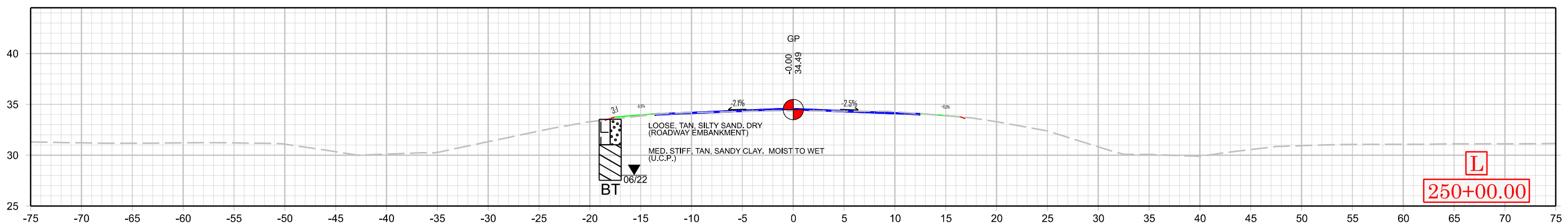
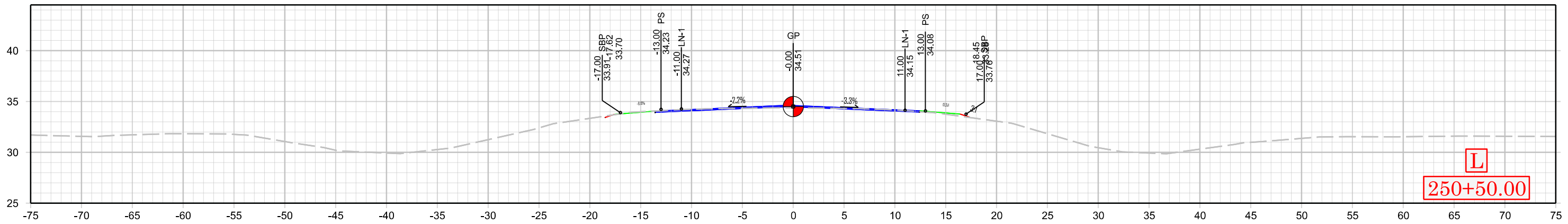




SOIL TEST RESULTS																
SAMPLE NUMBER	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.L. I.	% BY WEIGHT				% PASSING SIEVES			% MOISTURE	% ORGANIC	
							C. SAND	F. SAND	SILT	CLAY	10	40	200			
S-038	27 ft RT	243+83	0.0 - 1.2	A-4(0)	23	8	32.2	33.3	19.5	15.0	92.9	83	39		NA	
S-039	27 ft RT	243+83	1.2 - 2.5	A-2-4(0)	20	4	14.8	63.3	5.9	16.0	99.1	97	25		NA	
S-040	27 ft RT	243+83	2.5 - 6.0	A-6(7)	32	14	5.2	33.6	21.7	39.5	100	99	66		NA	

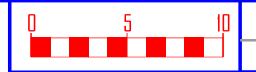
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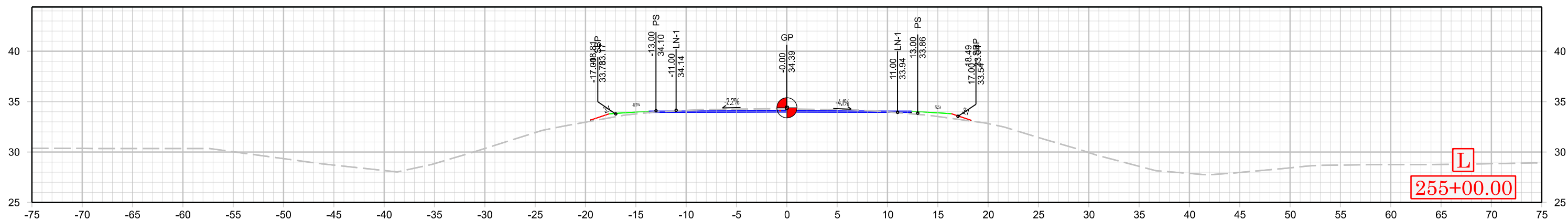
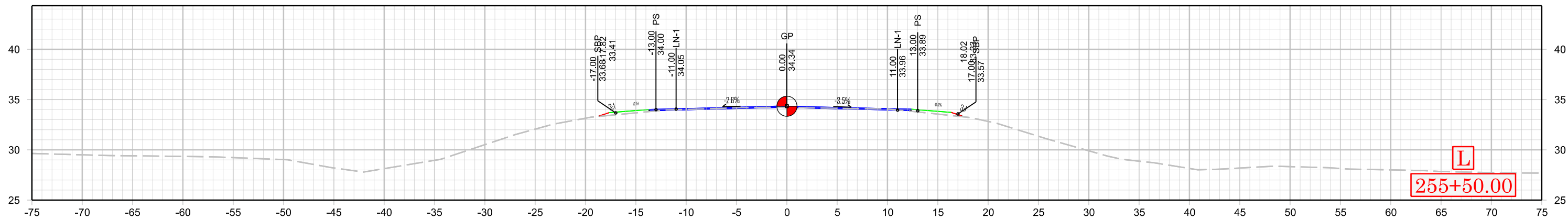
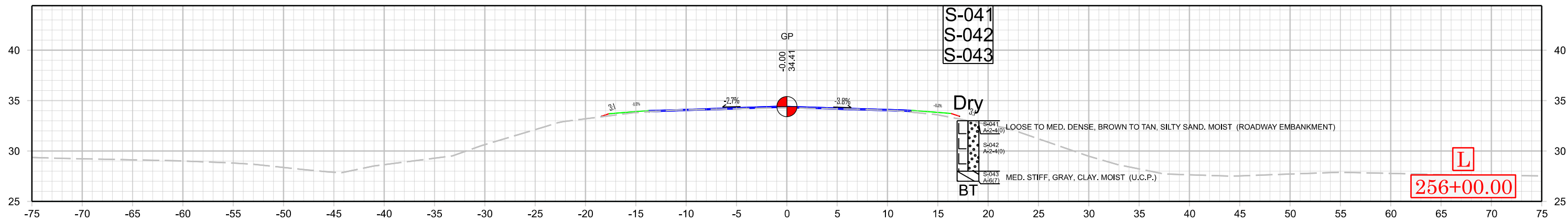
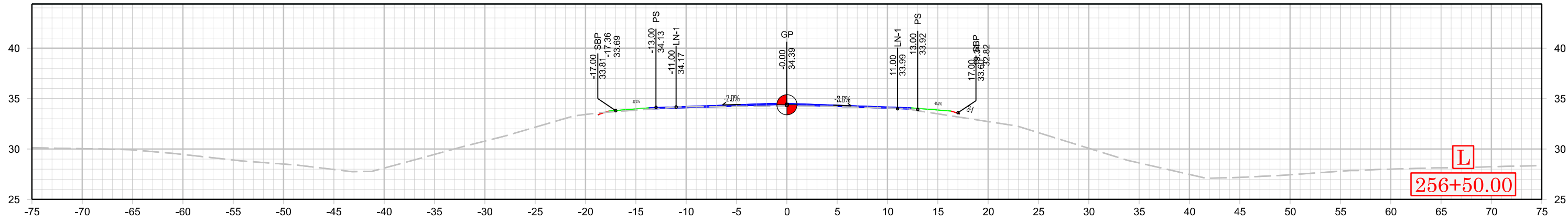


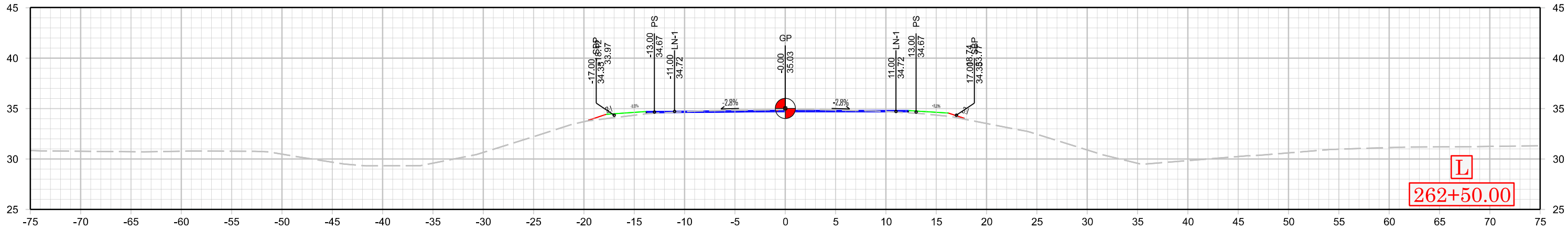
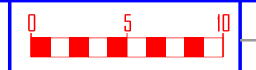
SOIL TEST RESULTS

SAMPLE NUMBER	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.L.	% BY WEIGHT				% PASSING SIEVES			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
S-041	18 ft RT	256+00	0.0 - 0.4	A-2-4(0)	18	3	23.5	57.6	10.9	8.0	99.3	93	22		NA
S-042	18 ft RT	256+00	0.4 - 5.0	A-2-4(0)	20	2	38.8	44.9	6.3	10.0	99.5	87	18	13	NA
S-043	18 ft RT	256+00	5.0 - 6.0	A-6(7)	29	12	4.7	26.7	34.3	34.4	99.9	98	78		NA

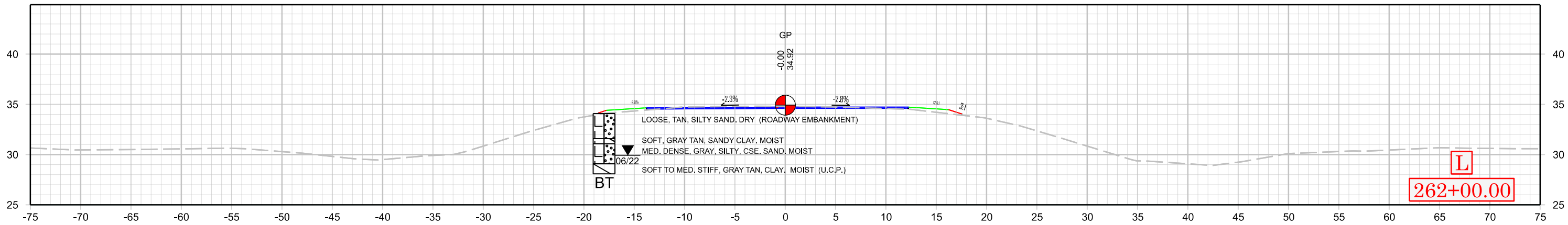


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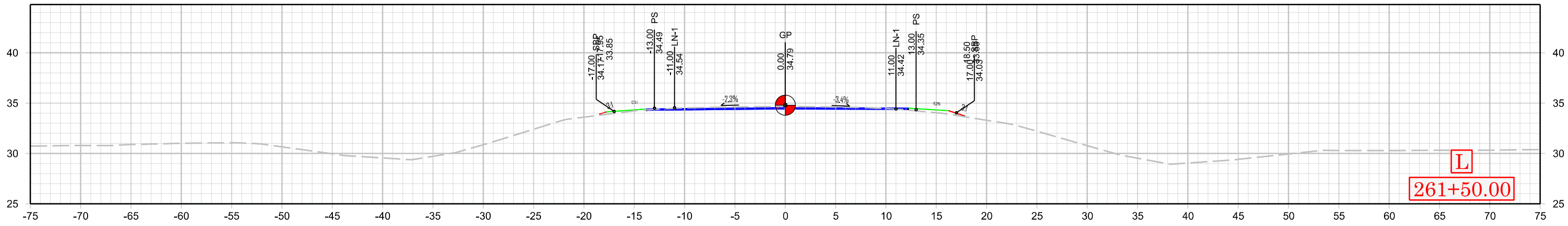




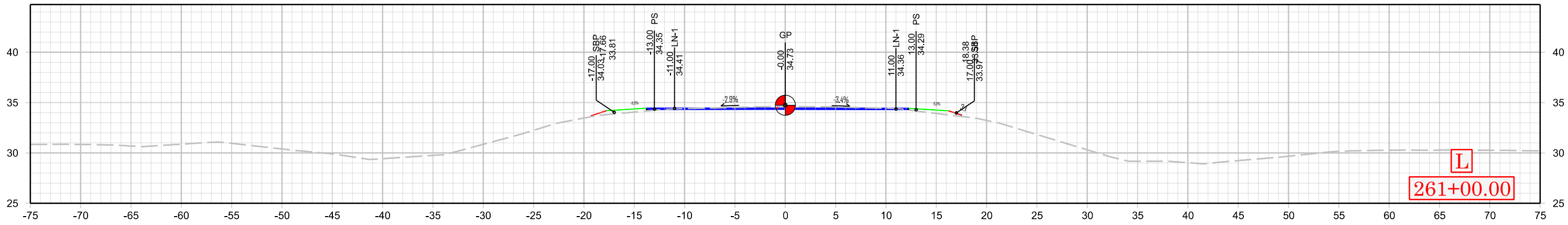
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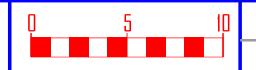
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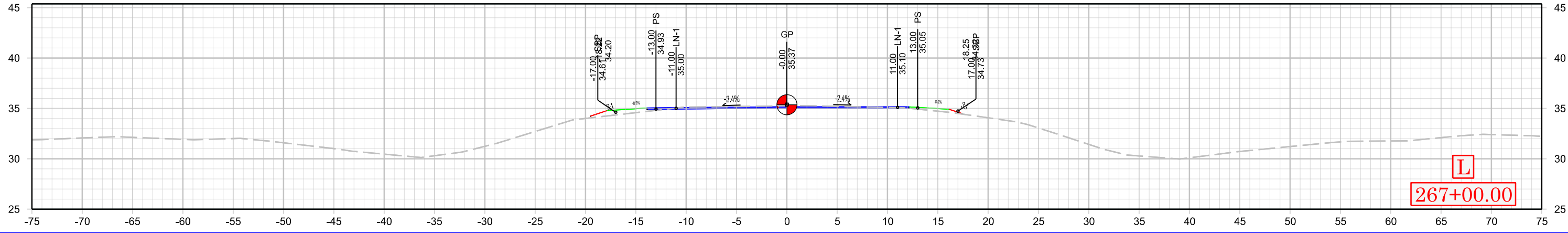
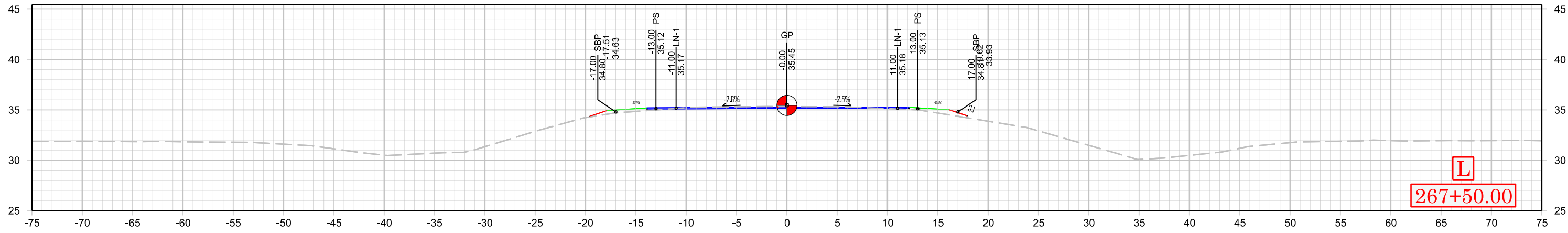
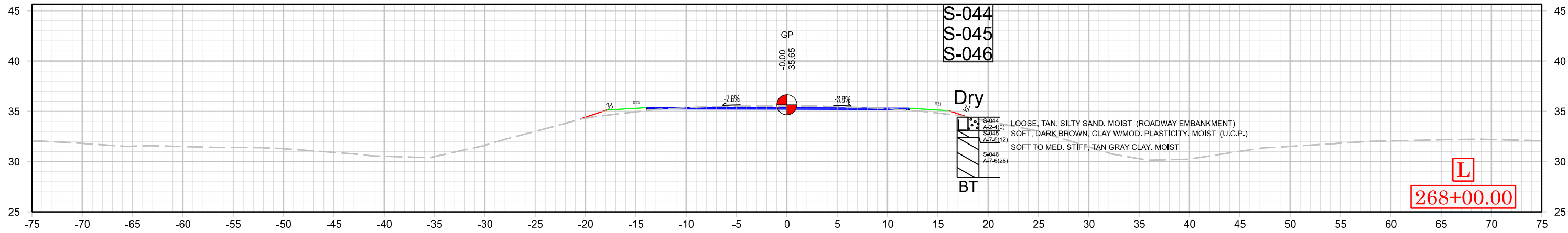
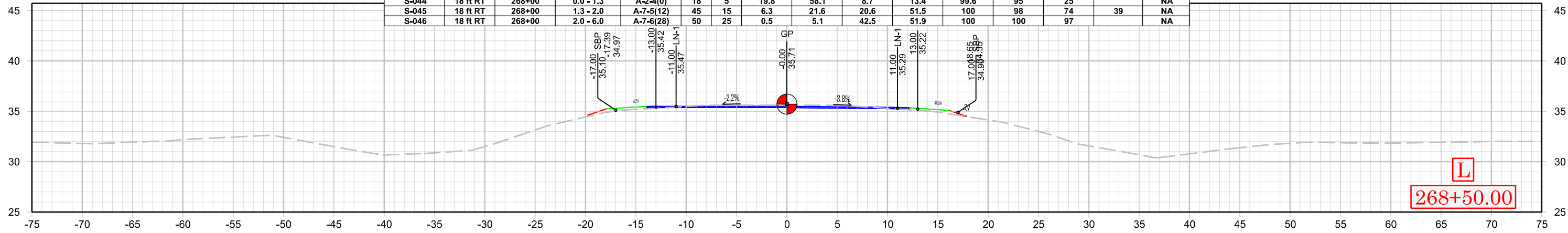
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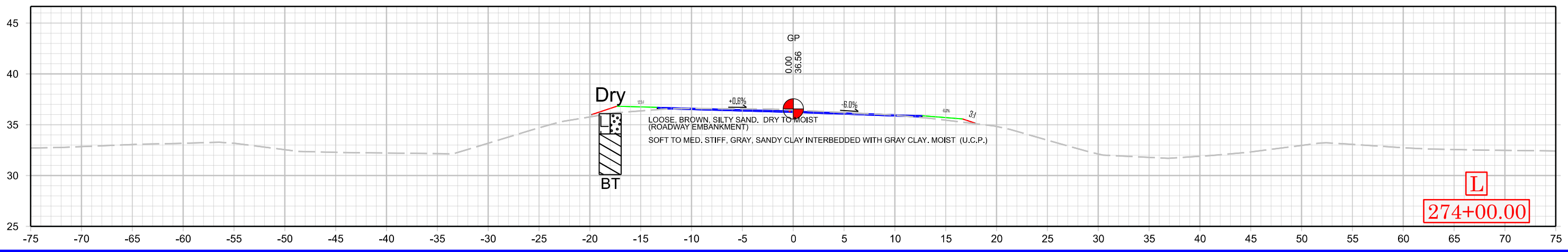
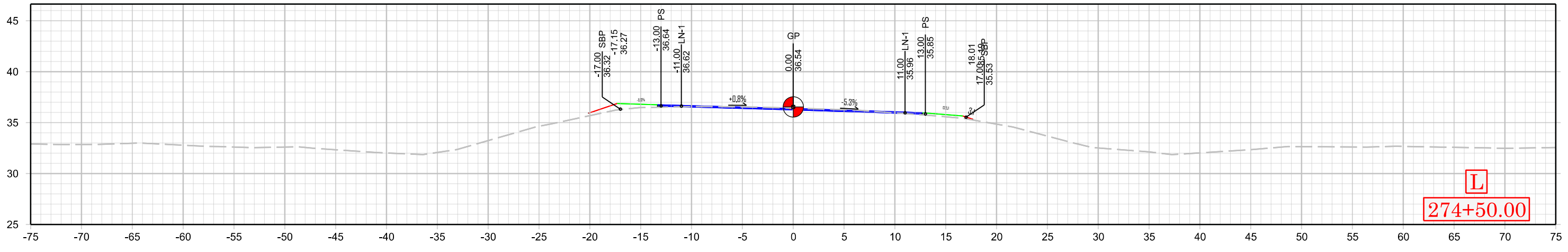
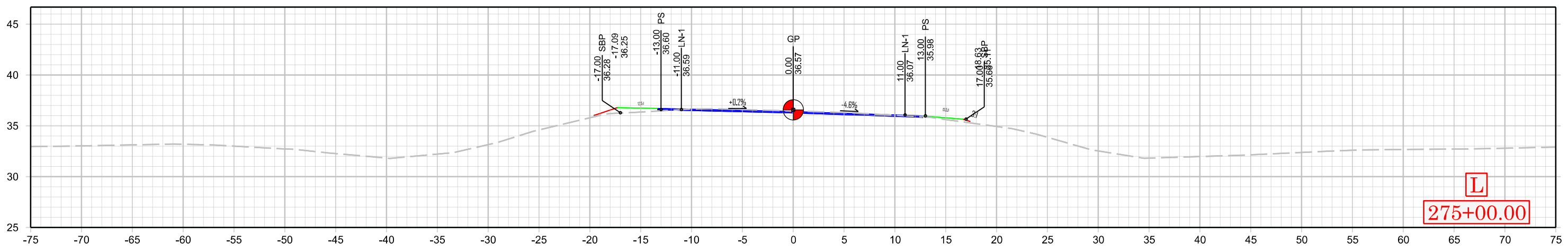
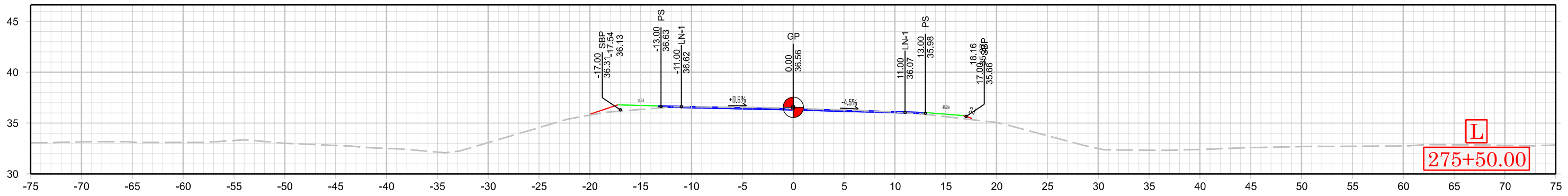
SOIL TEST RESULTS

SAMPLE NUMBER	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	PL. I.	% BY WEIGHT				% PASSING SIEVES			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
S-044	18 ft RT	268+00	0.0 - 1.3	A-2-4(0)	18	5	19.8	58.1	8.7	13.4	99.6	95	25		NA
S-045	18 ft RT	268+00	1.3 - 2.0	A-7-5(12)	45	15	6.3	21.6	20.6	51.5	100	98	74	39	NA
S-046	18 ft RT	268+00	2.0 - 6.0	A-7-6(28)	50	25	0.5	5.1	42.5	51.9	100	100	97		NA

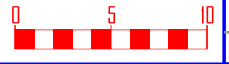


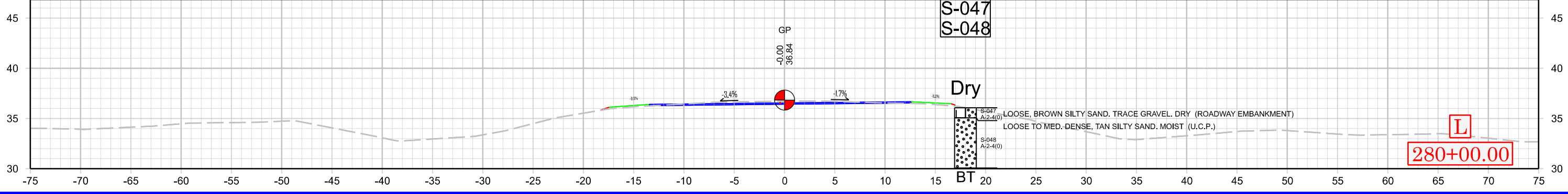
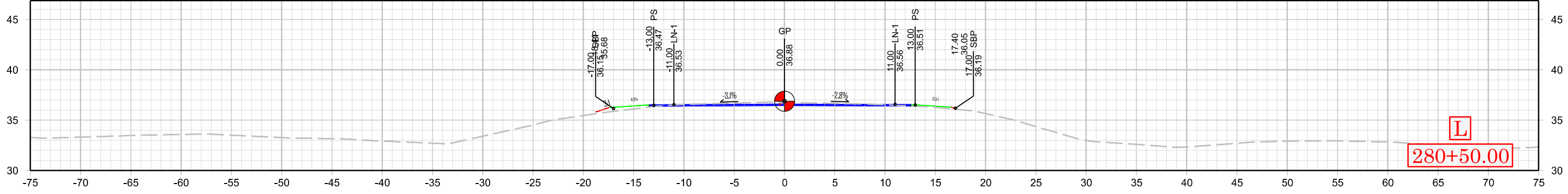
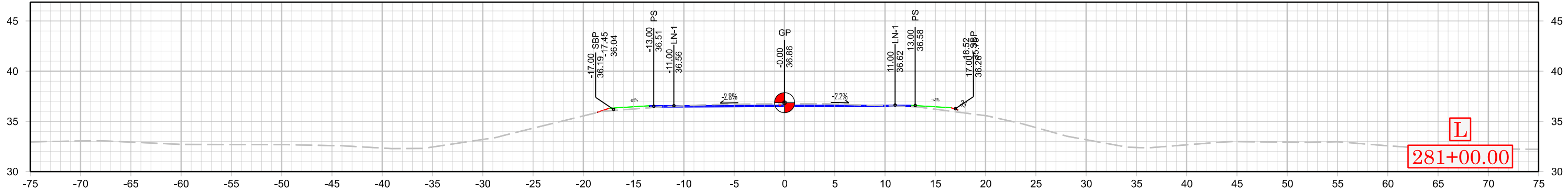
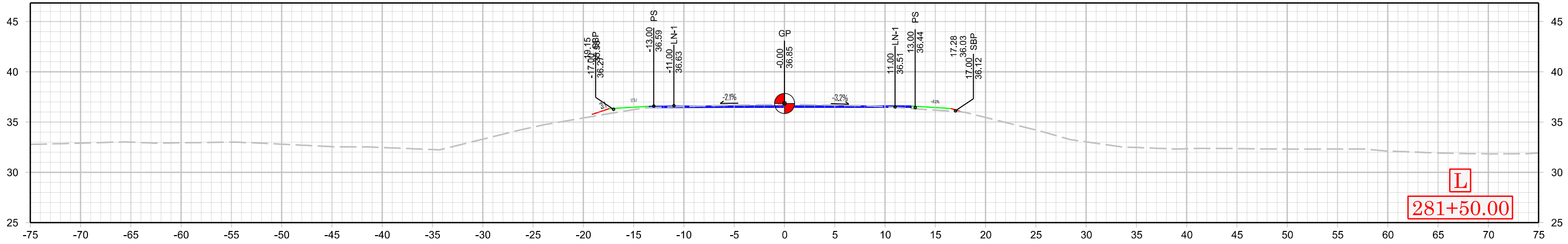
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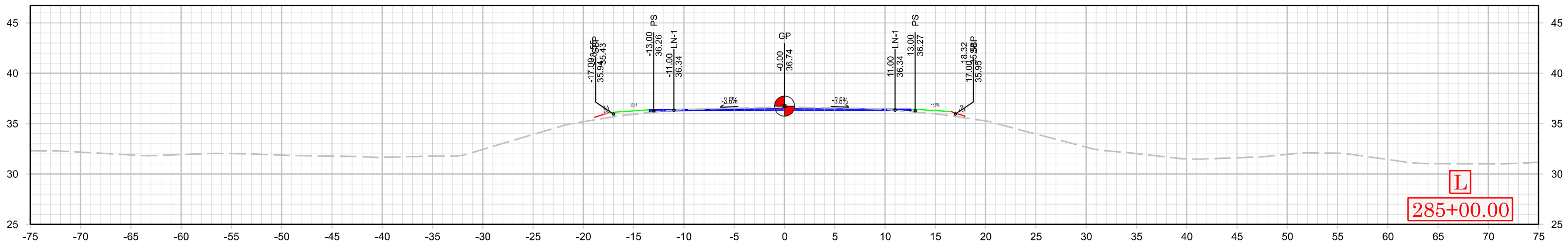
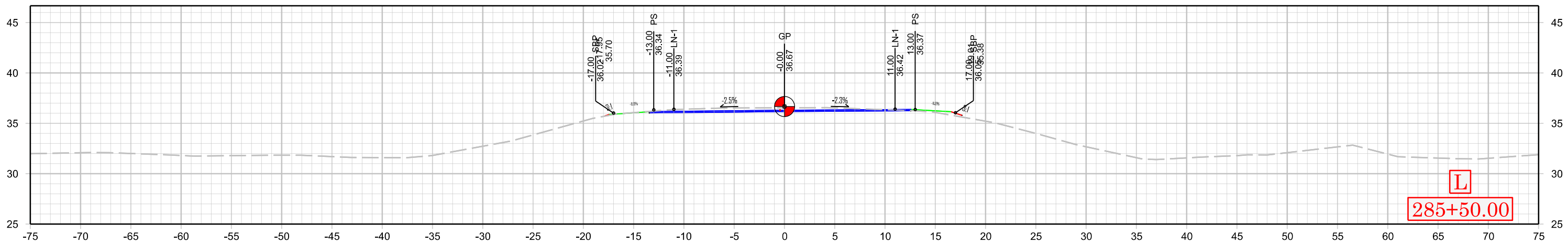
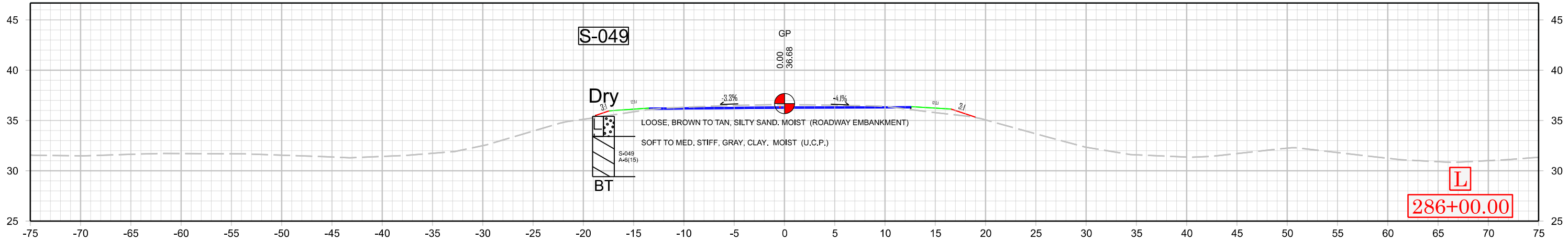
SOIL TEST RESULTS															
SAMPLE NUMBER	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.L. I.	% BY WEIGHT				% PASSING SIEVES			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
S-047	18 ft RT	280+00	0.0 - 1.0	A-2-4(0)	NP	NP	27.0	47.5	16.4	9.1	74.7	89	29		NA
S-048	18 ft RT	280+00	1.0 - 6.0	A-2-4(0)	NP	NP	22.1	61.3	6.6	10.0	99.0	94	19		NA

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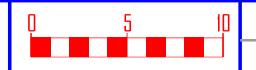
SOIL TEST RESULTS															
SAMPLE NUMBER	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	PL. I.	% BY WEIGHT				% PASSING SIEVES			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
S-049	18 ft LT	286+00	2.0 - 6.0	A-6(15)	40	15	2.8	7.5	38.5	51.2	99.4	99	92	39	NA

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X 162

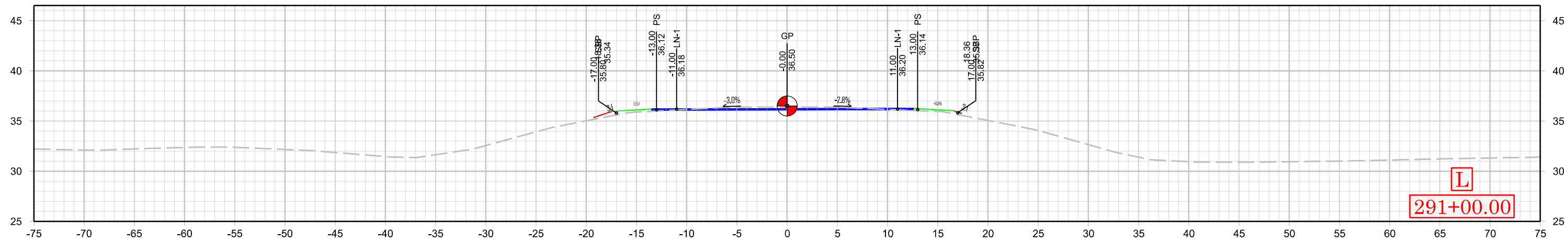
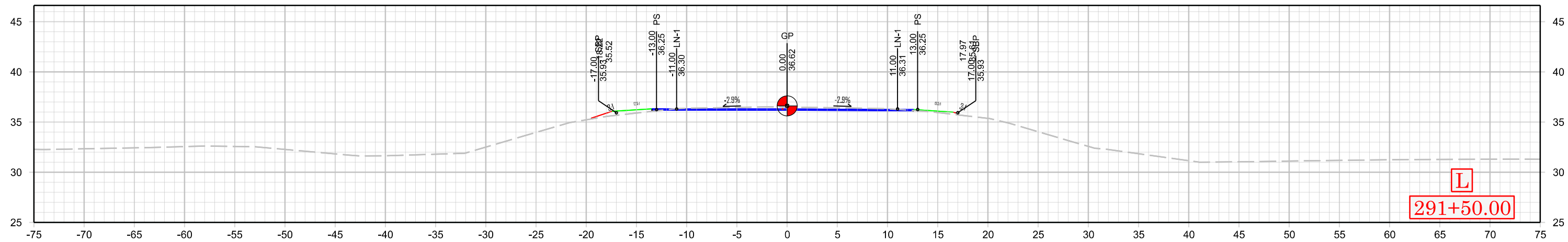
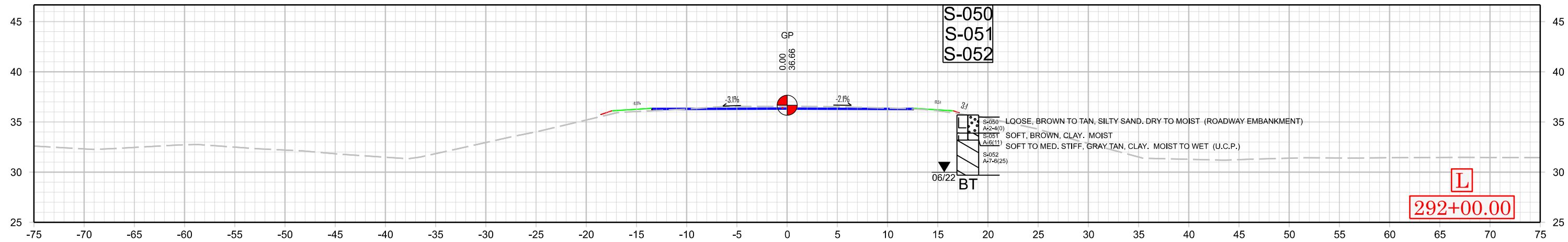


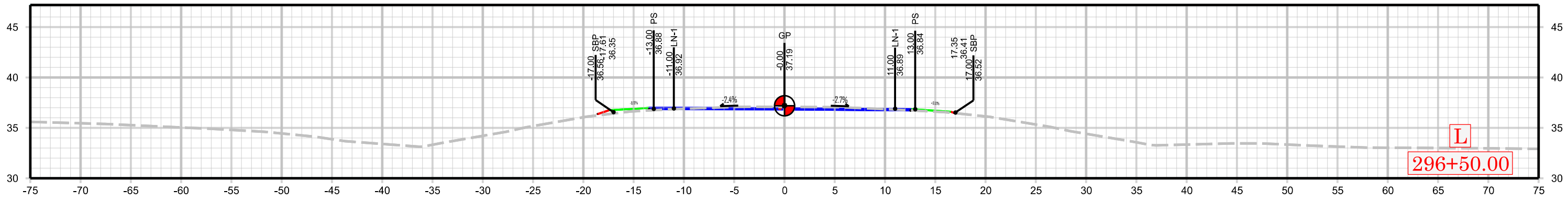
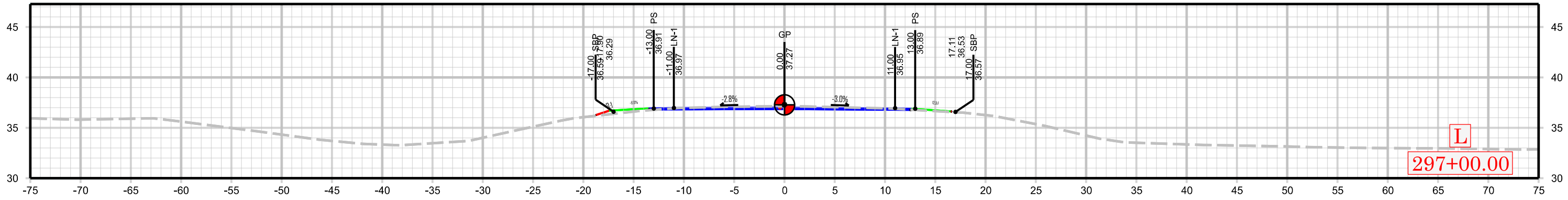
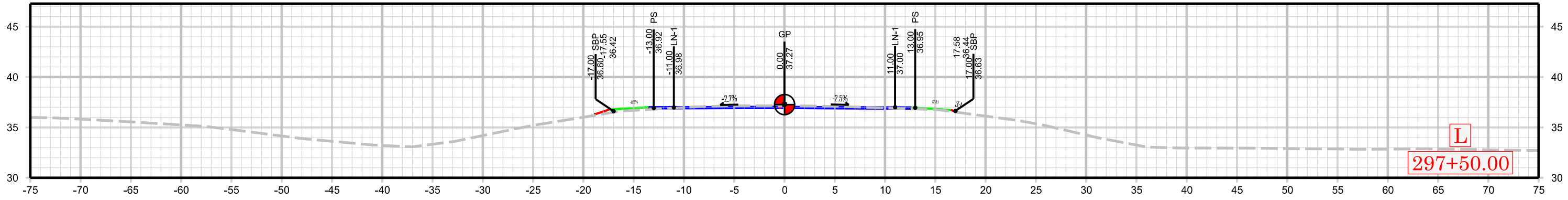
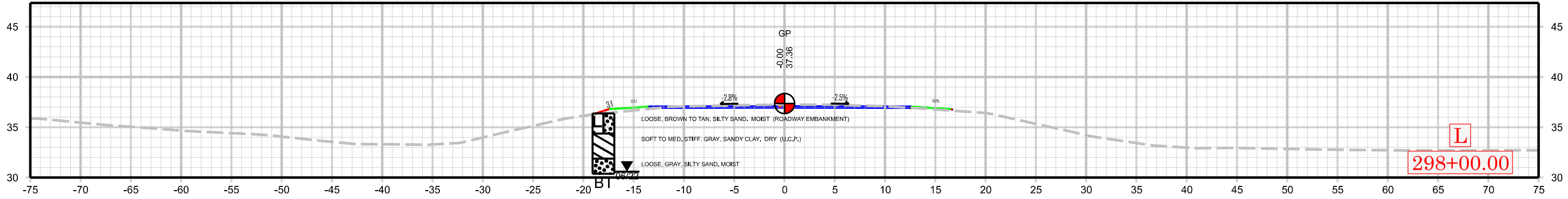
SOIL TEST RESULTS

SAMPLE NUMBER	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.L. I.	% BY WEIGHT				% PASSING SIEVES			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
S-050	18 ft RT	292+00	0.2 - 1.8	A-2-4(0)	17	2	31.6	49.0	7.4	12.0	99.5	89	22		NA
S-051	18 ft RT	292+00	1.8 - 2.5	A-6(11)	38	14	5.8	19.9	35.6	38.7	100	98	79	33	NA
S-052	18 ft RT	292+00	2.5 - 6.0	A-7-6(25)	50	24	1.1	11.1	30.3	57.6	100	100	92		NA

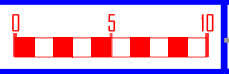


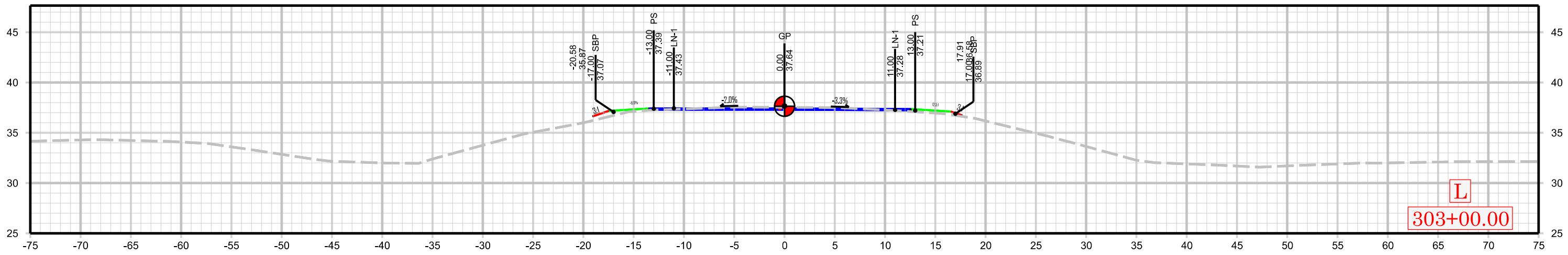
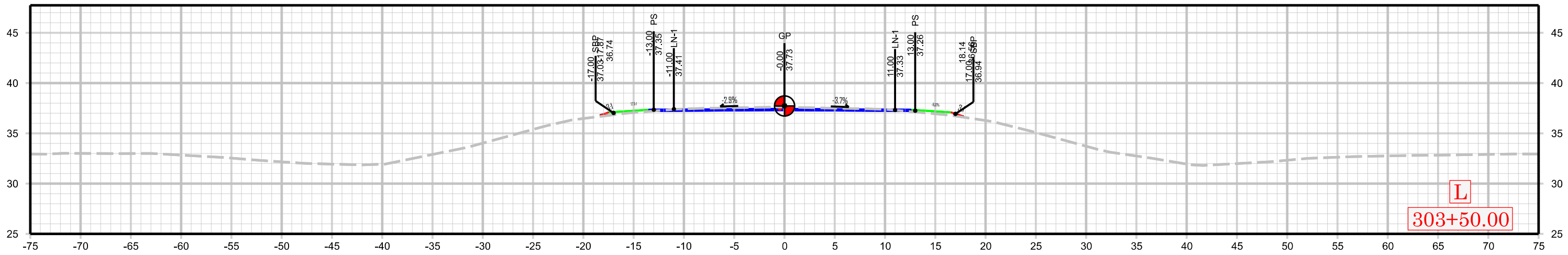
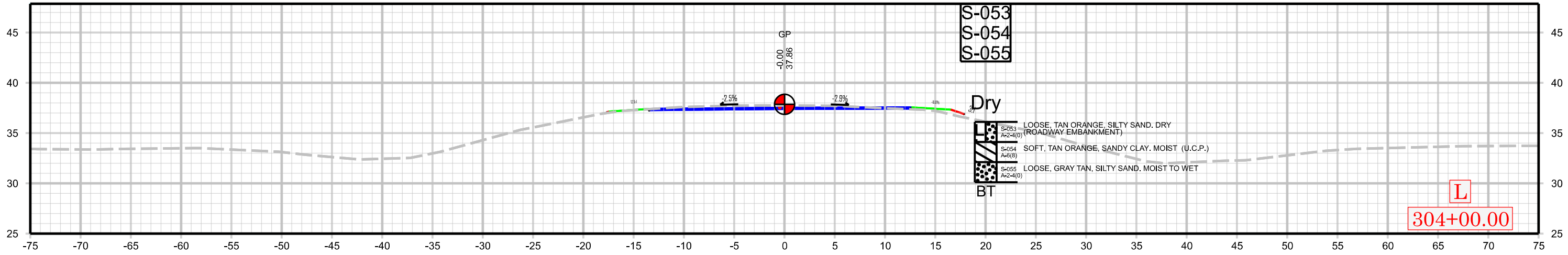
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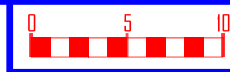
SOIL TEST RESULTS															
SAMPLE NUMBER	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	PL. I.	% BY WEIGHT				% PASSING SIEVES			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
S-053	20 ft RT	304+00	0.0 - 2.0	A-2-4(0)	21	4	31.0	42.7	7.3	19.0	99.3	89	28		NA
S-054	20 ft RT	304+00	2.0 - 4.0	A-6(8)	34	19	17.0	27.5	19.1	36.4	100	94	59	17	NA
S-055	20 ft RT	304+00	4.0 - 6.0	A-2-4(0)	NP	NP	41.7	39.1	8.3	11.0	99.2	81	22		NA

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R-5809A
X 173

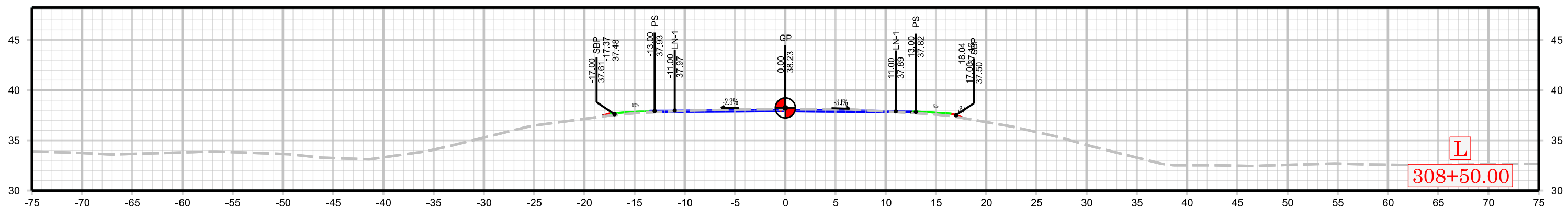
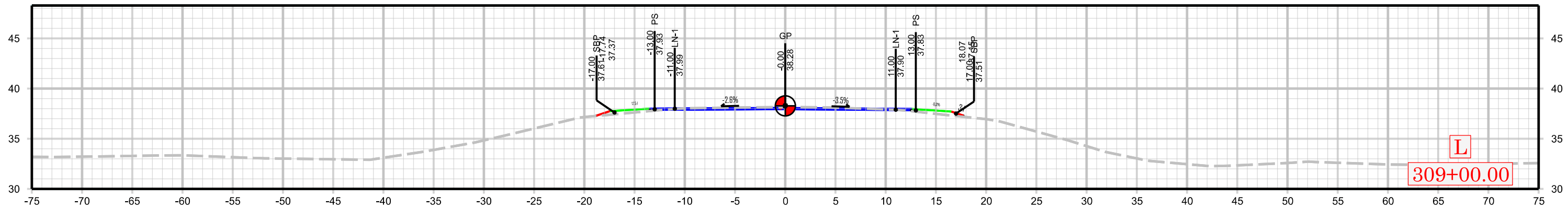
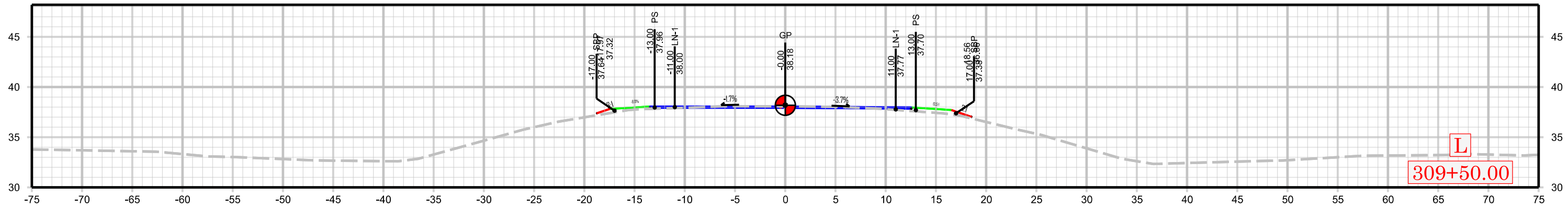
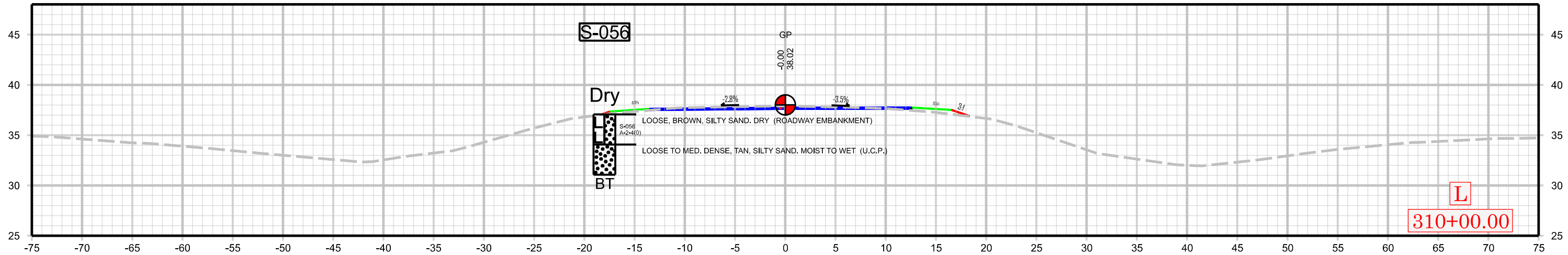


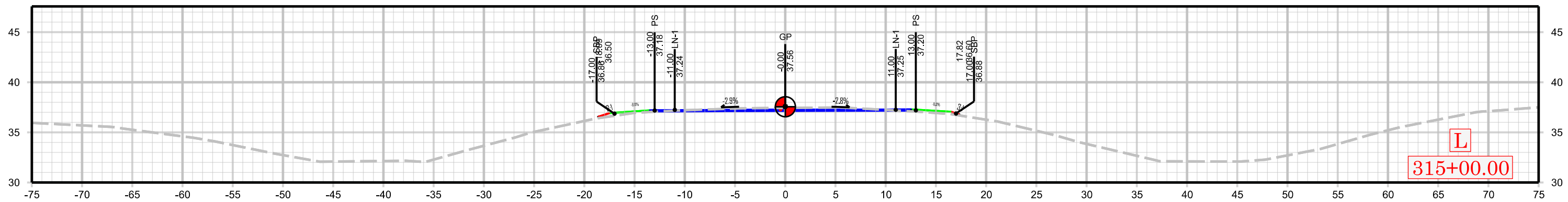
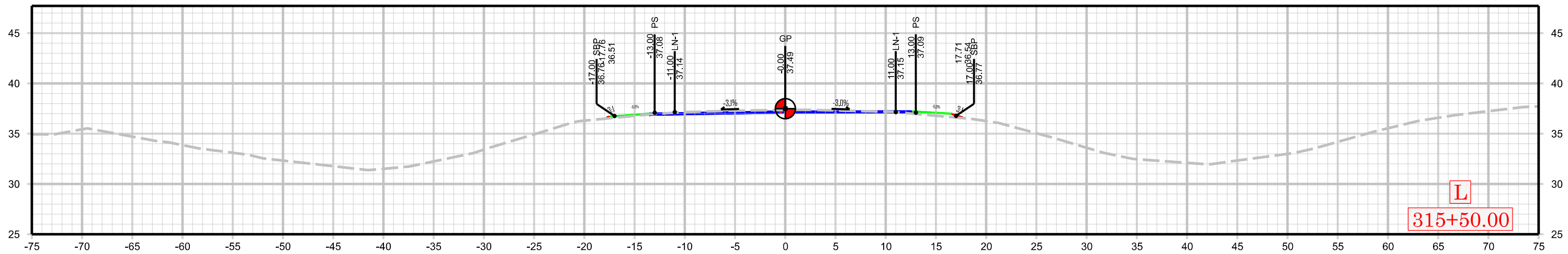
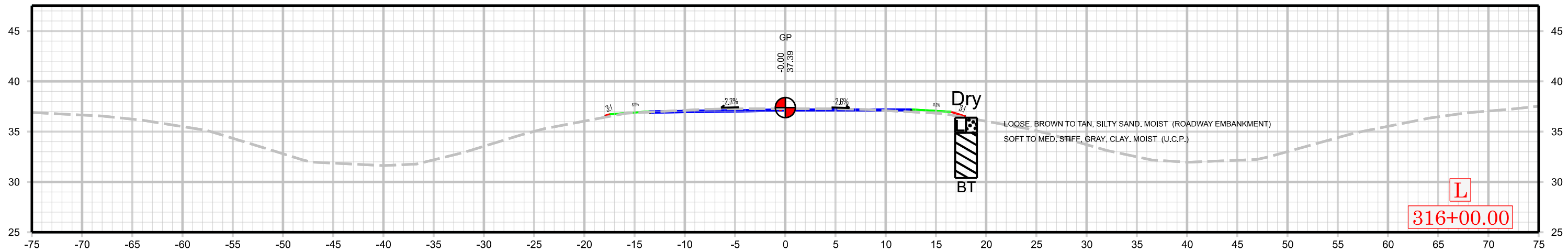
SOIL TEST RESULTS

SAMPLE NUMBER	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	PL. I.	% BY WEIGHT				% PASSING SIEVES			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
S-056	18 ft LT	310+00	0.0 - 3.0	A-2-4(0)	20	3	38.4	38.8	7.0	15.8	99.1	87	25		NA



R-5809A
X 176



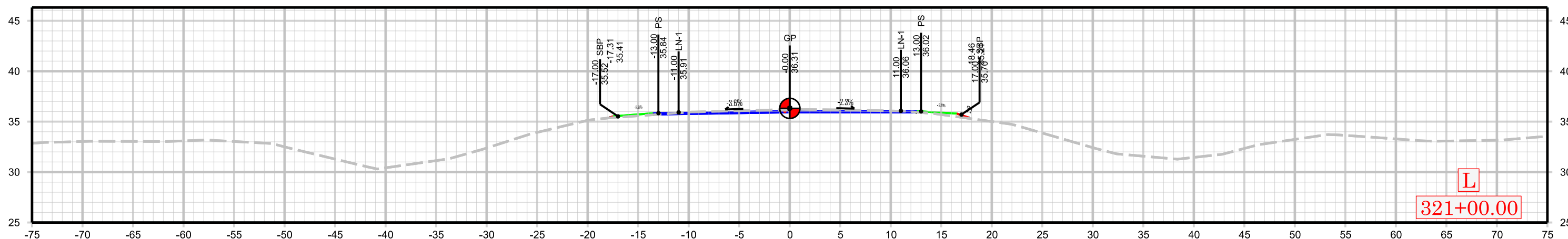
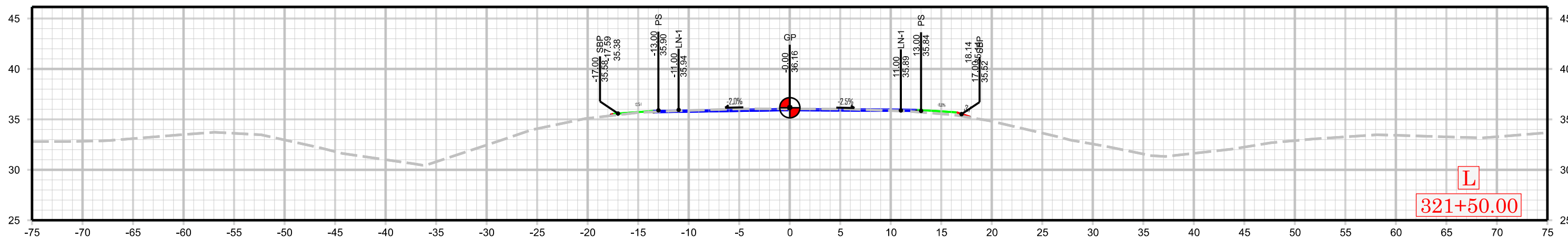
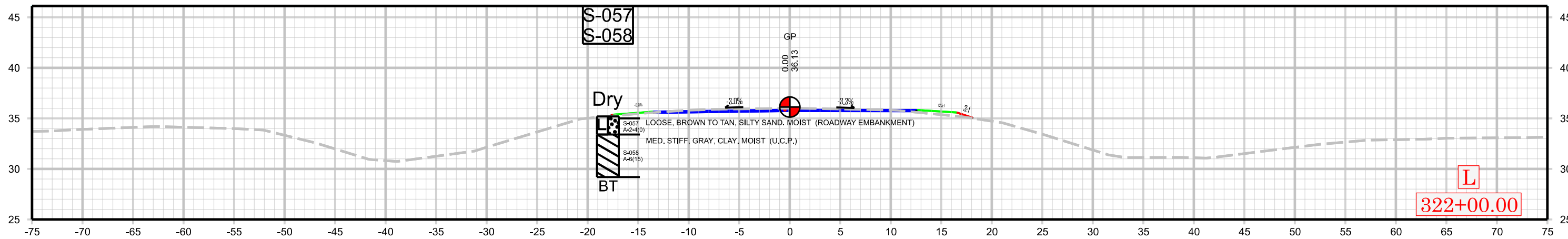
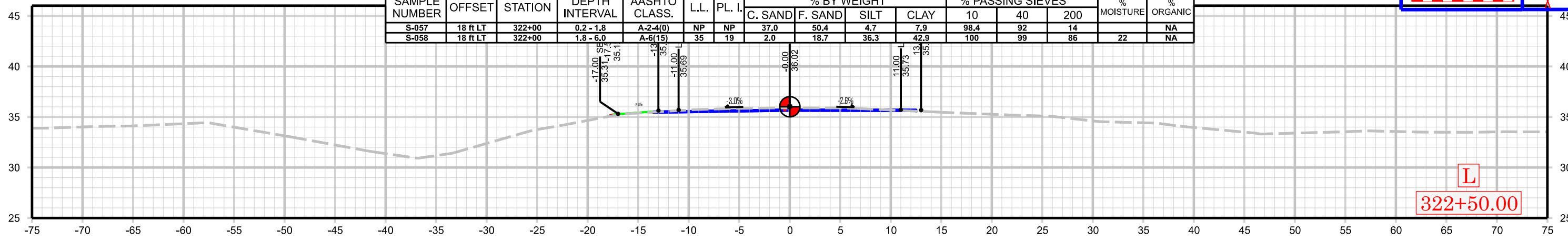


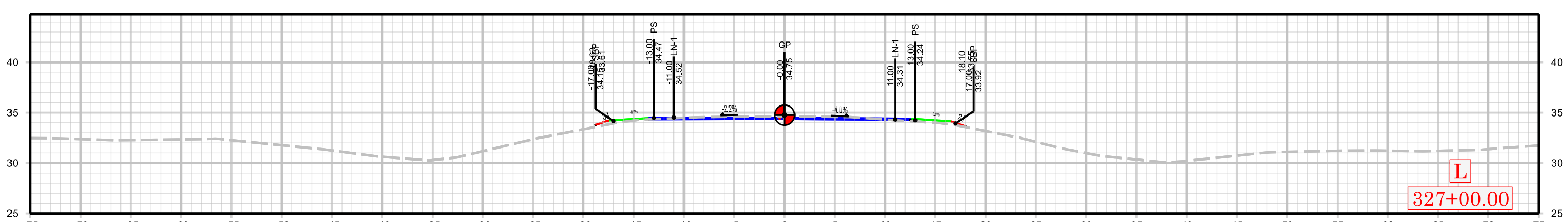
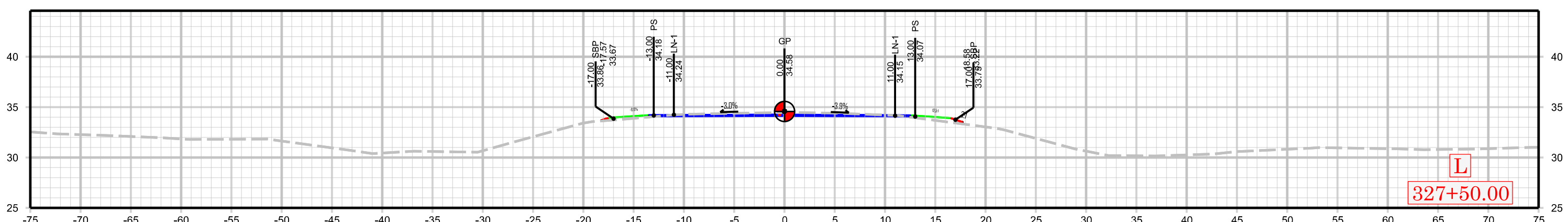
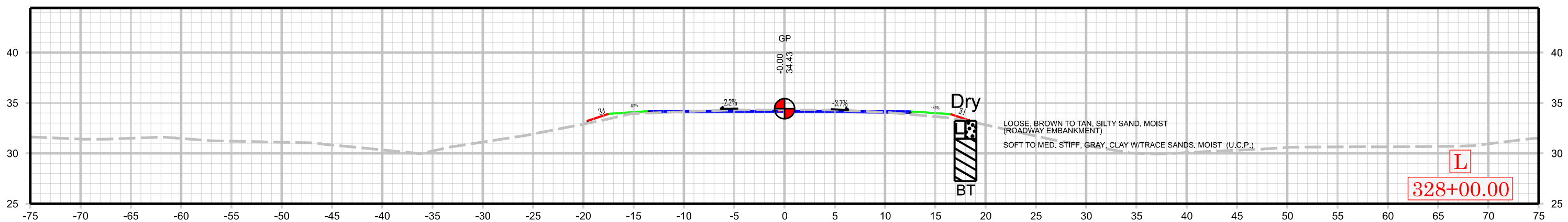
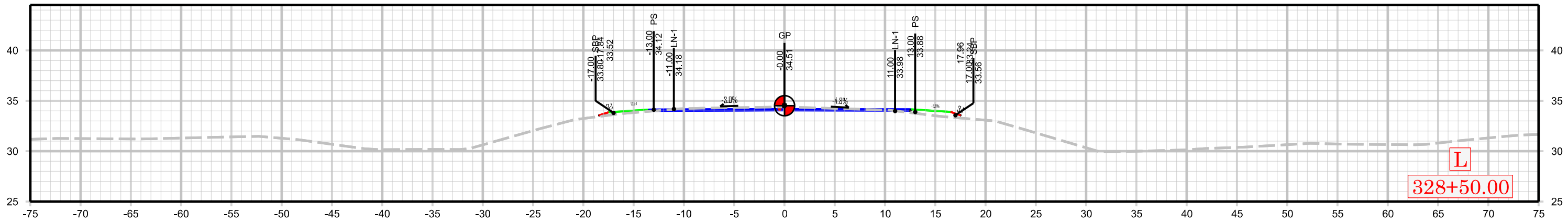
SOIL TEST RESULTS

SAMPLE NUMBER	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.L. I.	% BY WEIGHT				% PASSING SIEVES			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
S-057	18 ft LT	322+00	0.2 - 1.8	A-2-4(0)	NP	NP	37.0	50.4	4.7	7.9	98.4	92	14		NA
S-058	18 ft LT	322+00	1.8 - 6.0	A-6(15)	35	19	2.0	18.7	36.3	42.9	100	99	86	22	NA



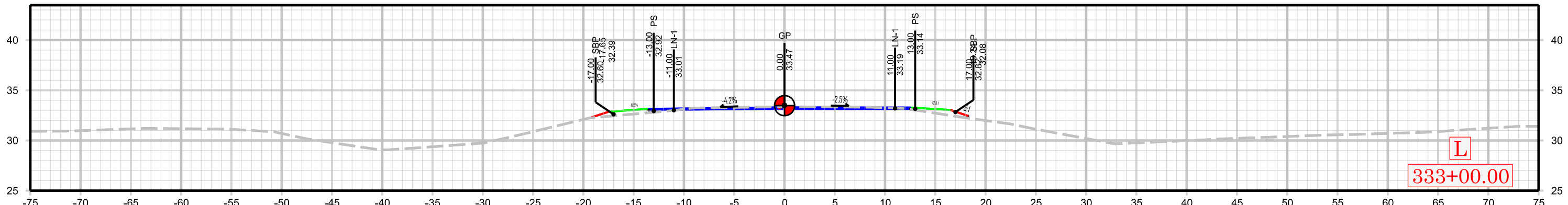
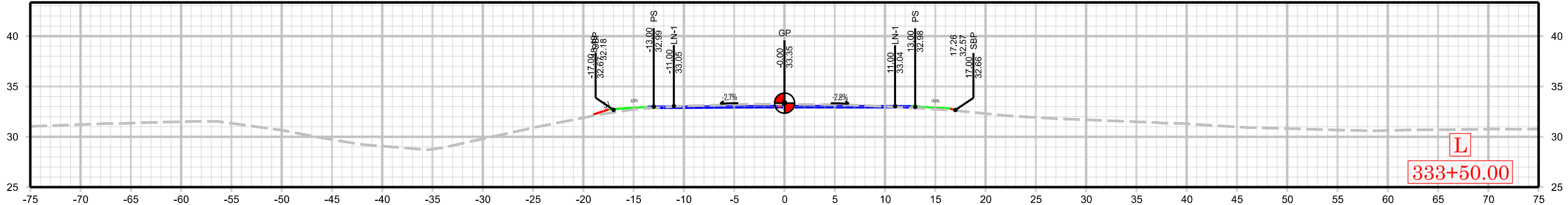
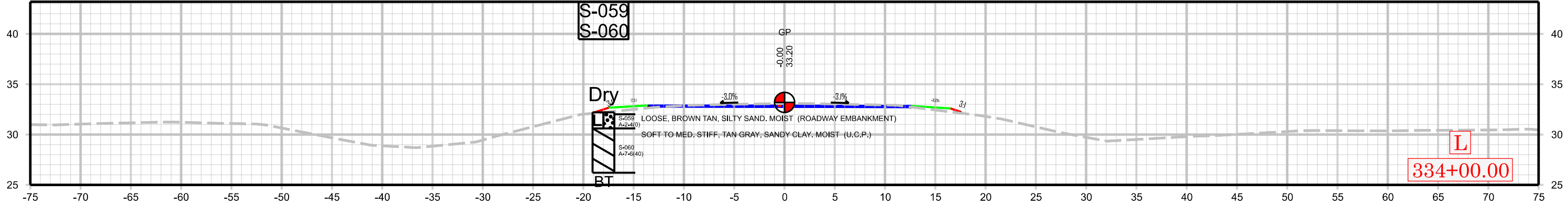
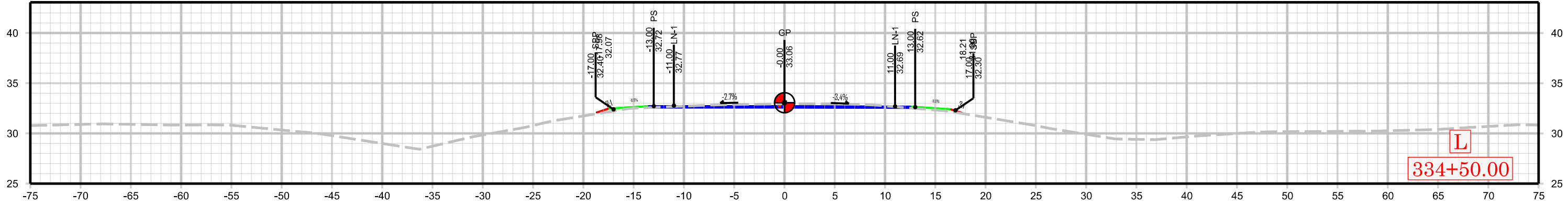
R-5809A
X
184

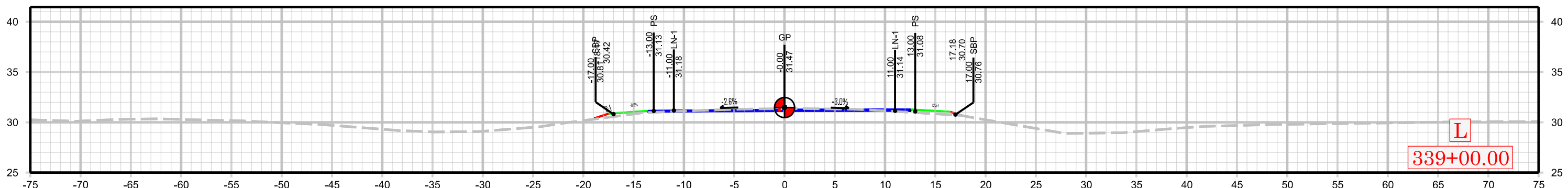
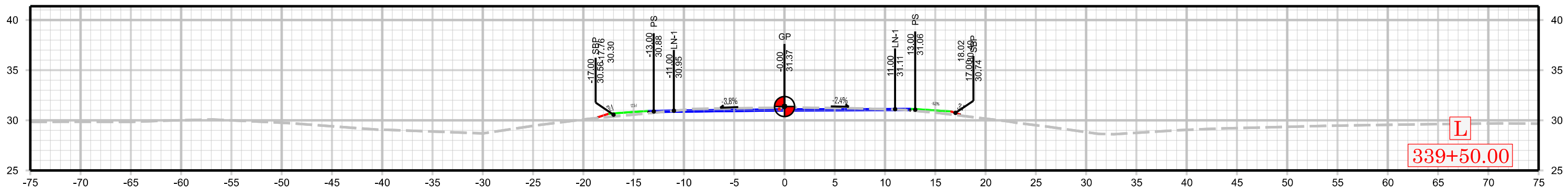
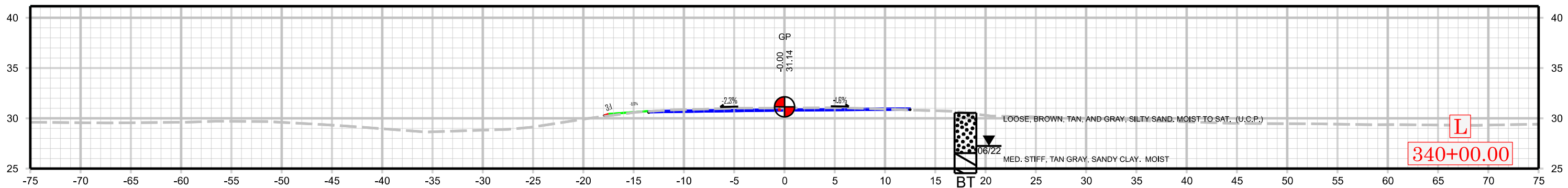
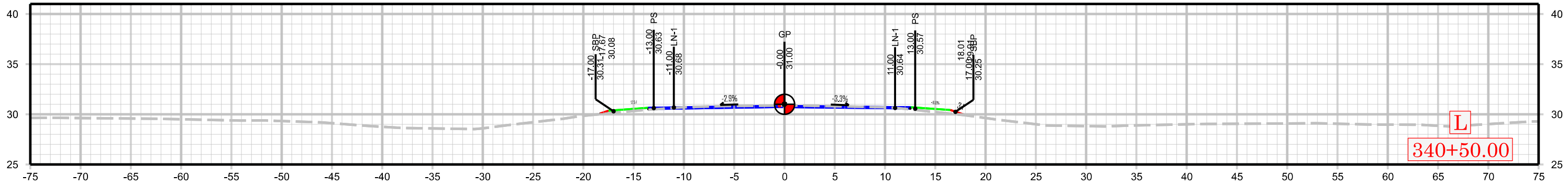




SOIL TEST RESULTS															
SAMPLE NUMBER	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	PL. I.	% BY WEIGHT				% PASSING SIEVES			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
S-059	18 ft LT	334+00	0.2 - 1.6	A-2-4(0)	17	1	30.2	49.2	6.7	13.9	98.5	90	23		NA
S-060	18 ft LT	334+00	1.6 - 6.0	A-7-6(40)	60	37	0.6	5.7	36.8	56.9	100	100	96	26	NA

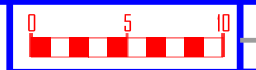
0 5 10
R-5809A
 X 190



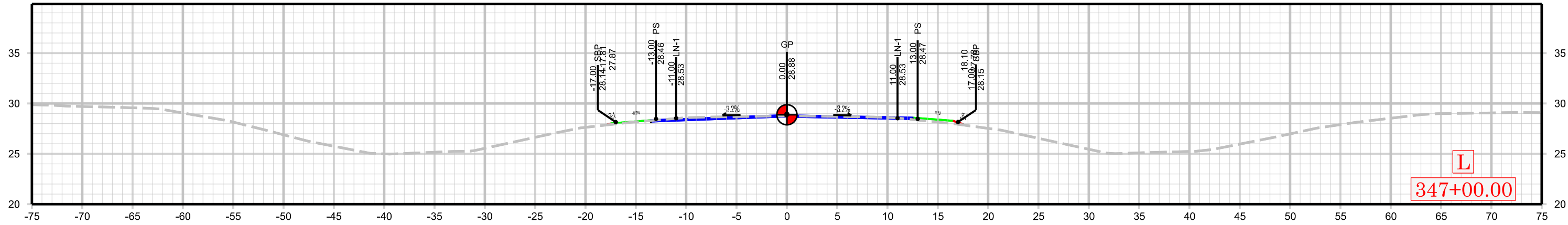


SOIL TEST RESULTS

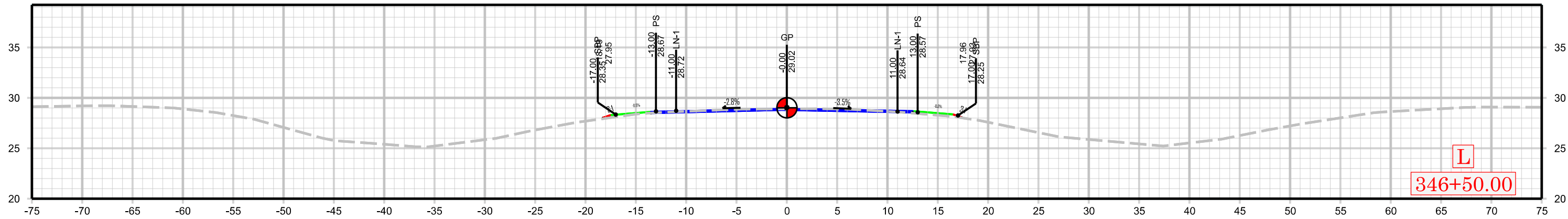
SAMPLE NUMBER	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.L.	% BY WEIGHT				% PASSING SIEVES			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
S-061	18 ft LT	346+00	0.2 - 2.3	A-2-4(0)	20	4	33.7	41.6	9.8	14.9	99.7	88	27		NA
S-062	18 ft LT	346+00	2.3 - 6.0	A-7-6(20)	44	22	2.6	18.7	31.1	47.5	100	99	86	31	NA



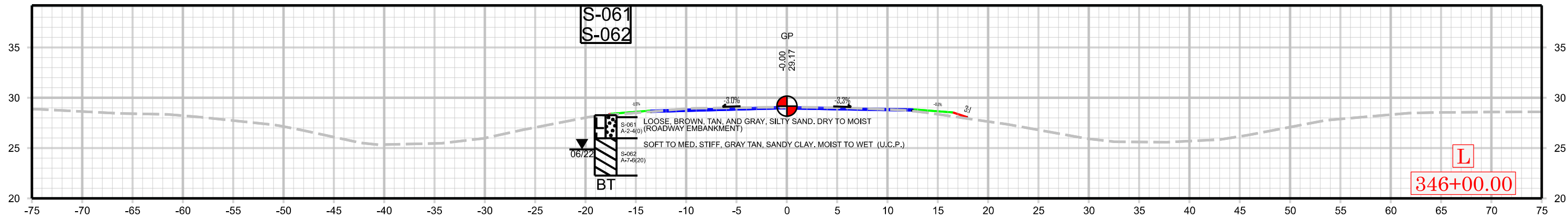
R-5809A
X 196



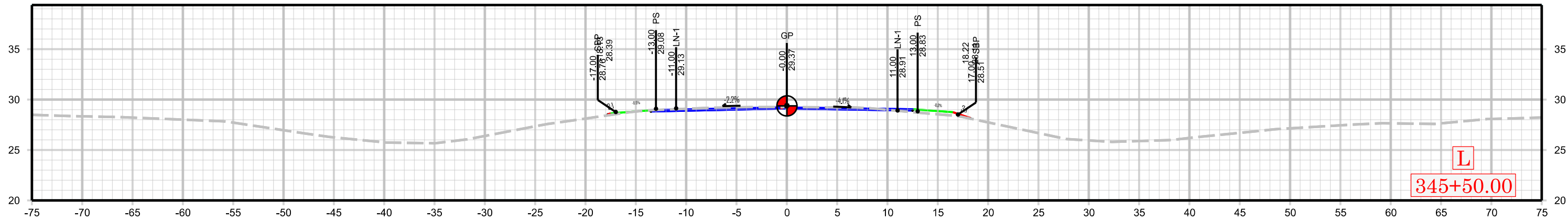
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347+00.00



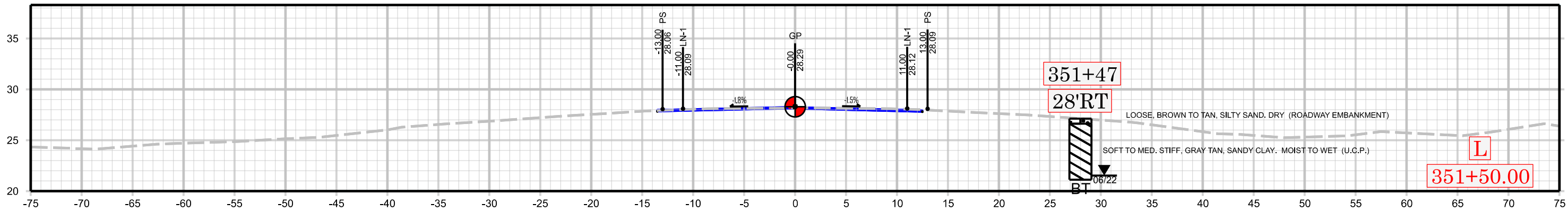
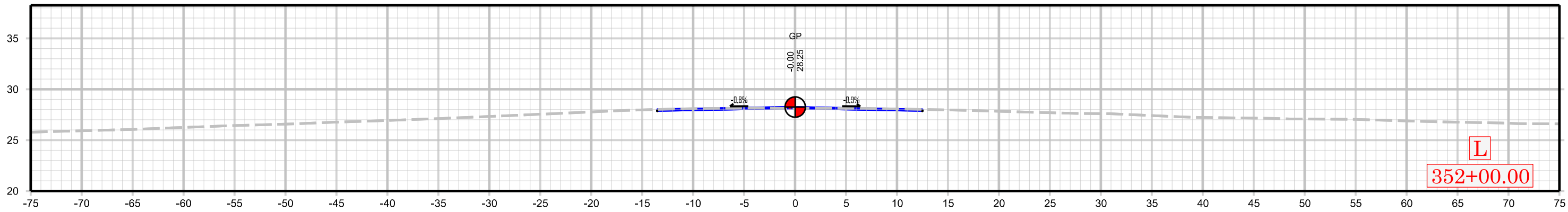
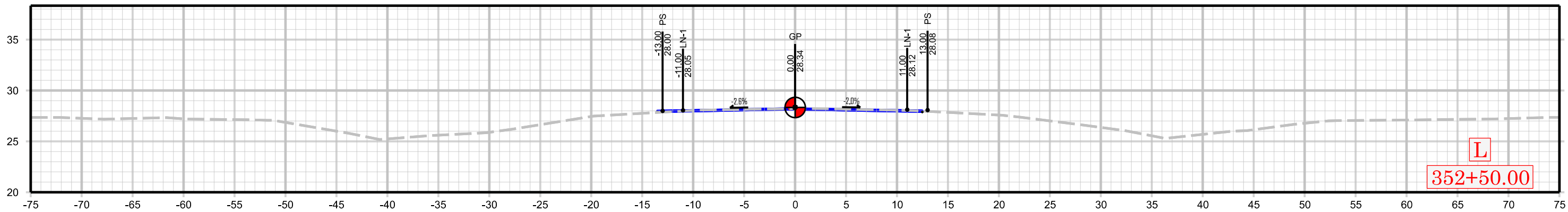
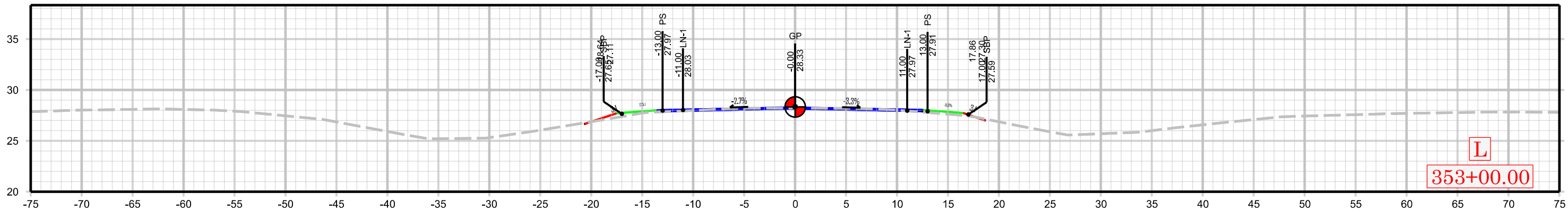
L
346+50.00



L
346+00.00

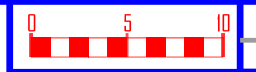


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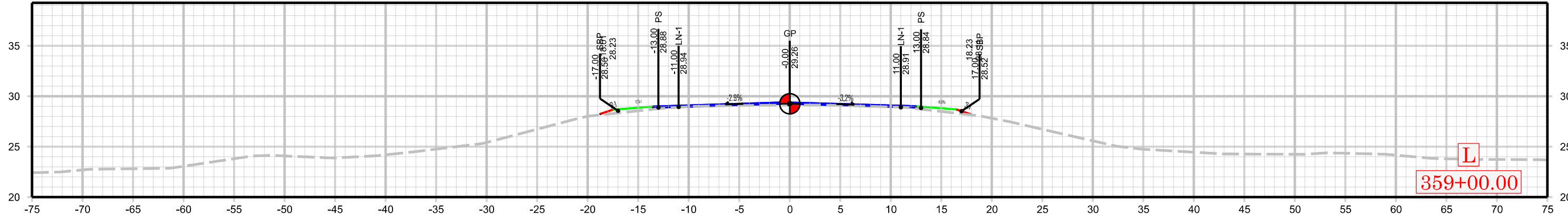


SOIL TEST RESULTS

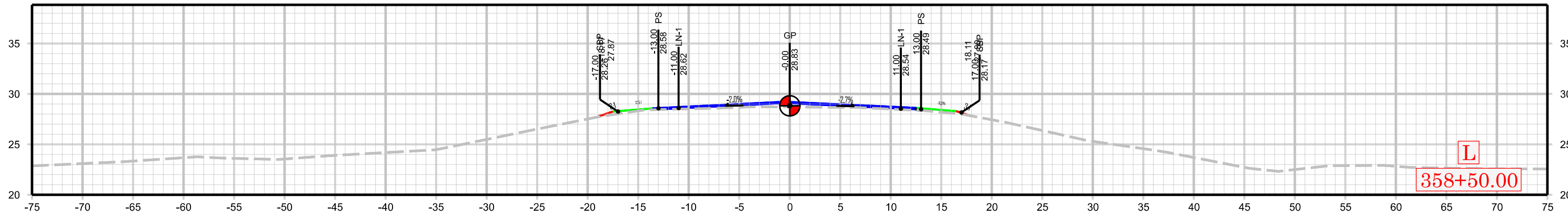
SAMPLE NUMBER	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	PL. I.	% BY WEIGHT				% PASSING SIEVES			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
S-063	20 ft LT	358+00	0.3 - 1.4	A-2-4(0)	17	1	30.7	43.6	10.8	14.8	99.5	89	29		NA
S-064	20 ft LT	358+00	1.4 - 6.0	A-7-6(27)	49	28	1.0	13.5	32.2	53.3	100	100	91	27	NA



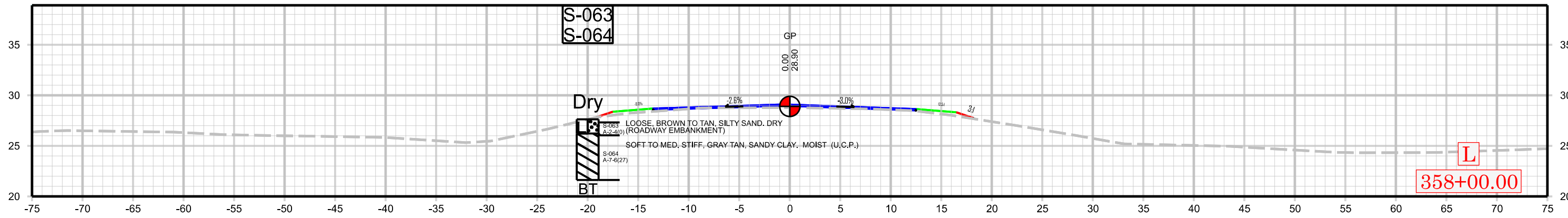
R-5809A
X 202



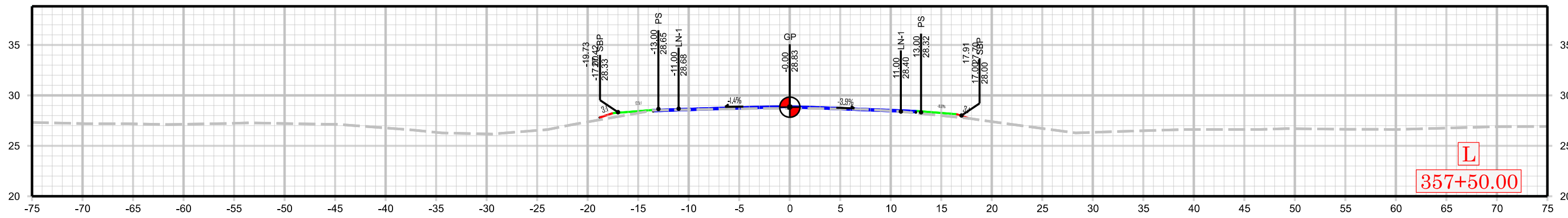
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359+00.00



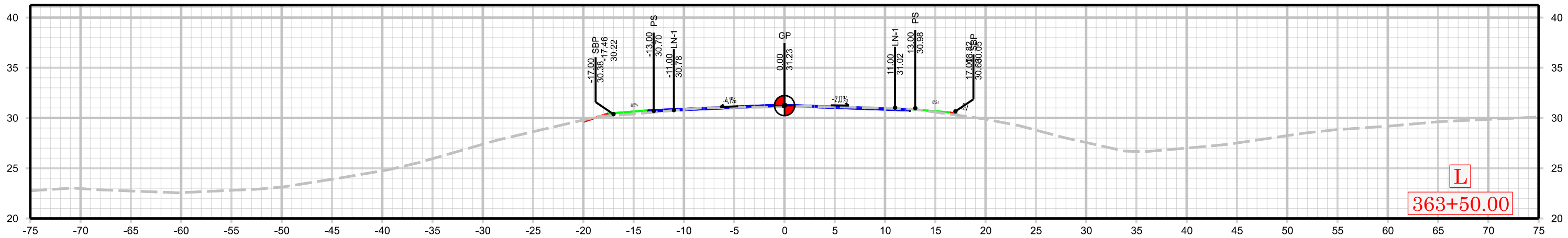
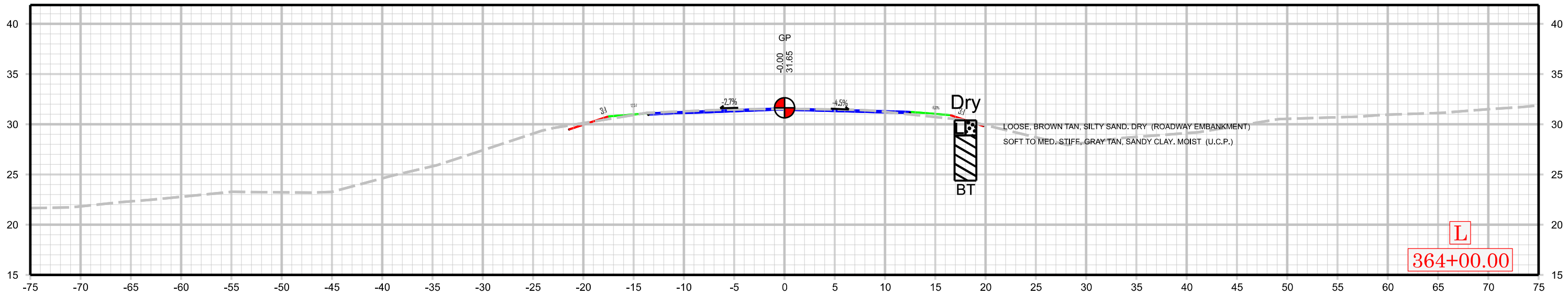
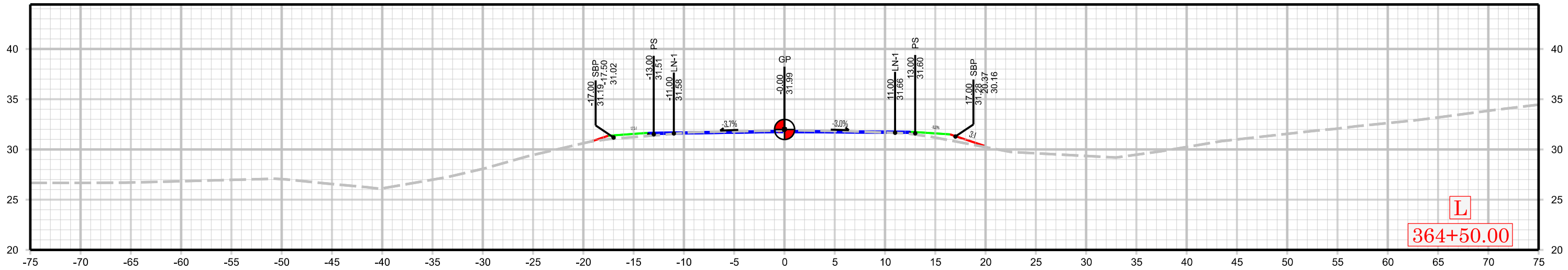
L
358+50.00



L
358+00.00

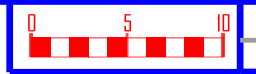


L
357+50.00

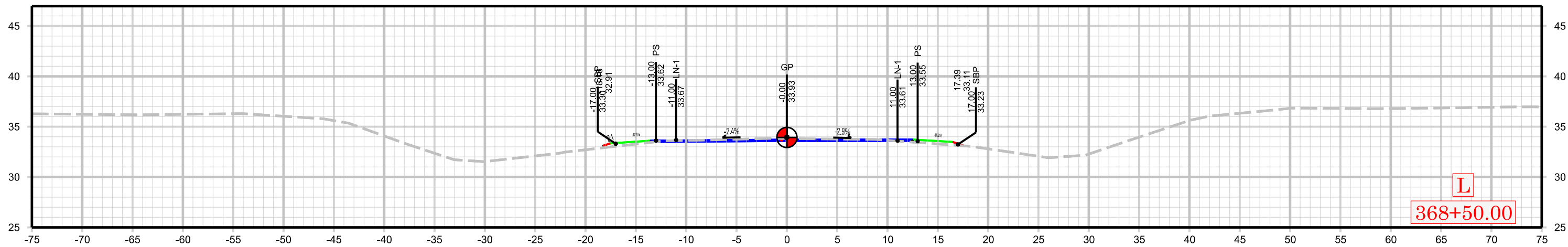
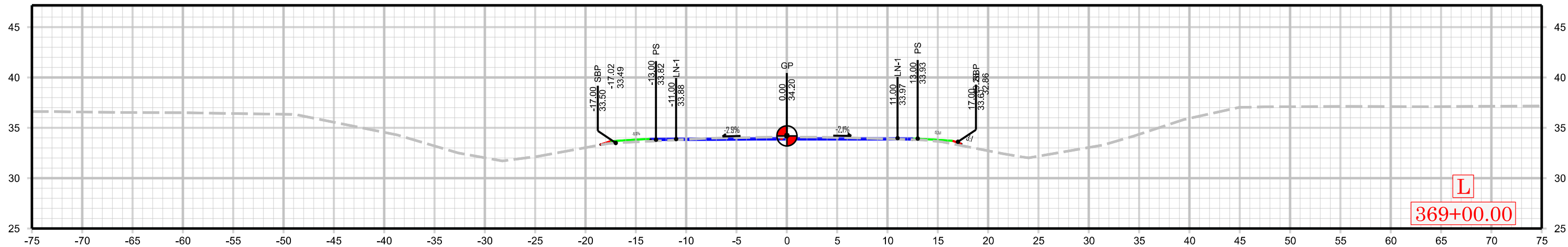
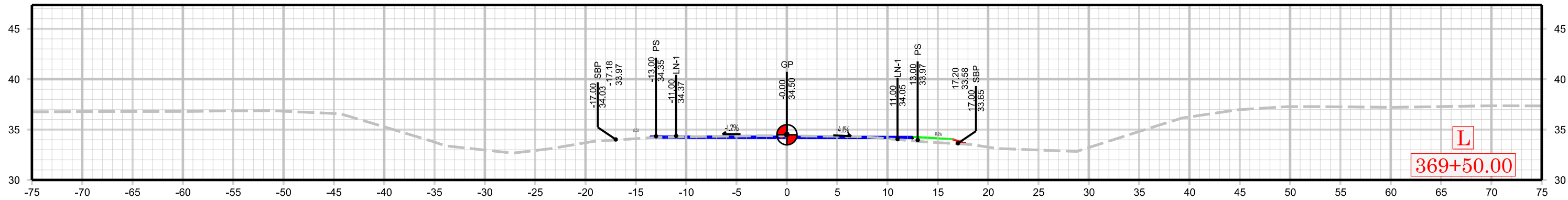
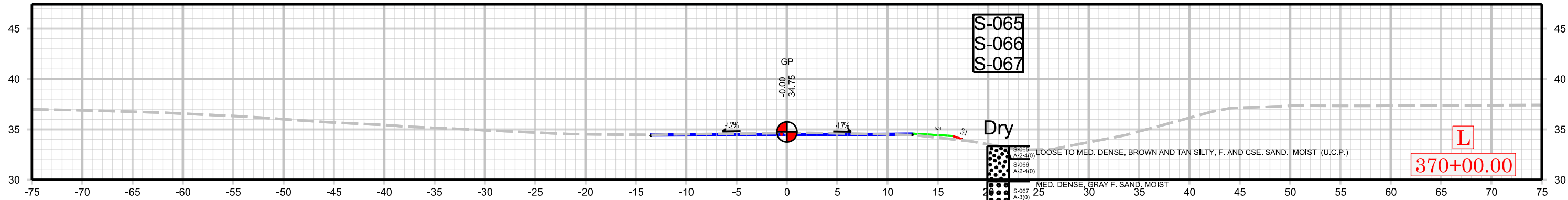


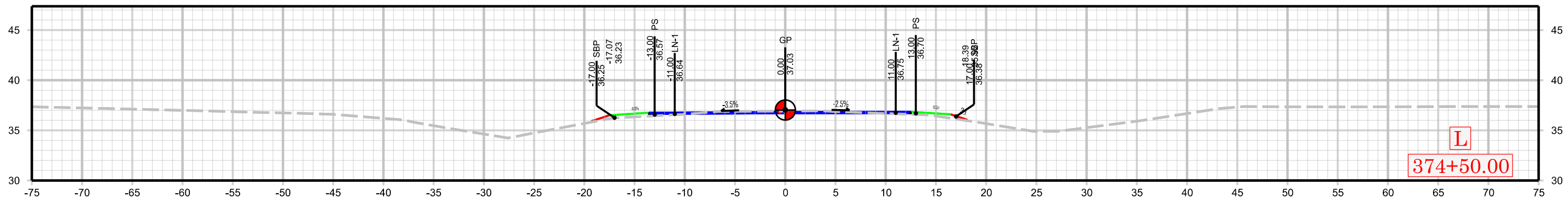
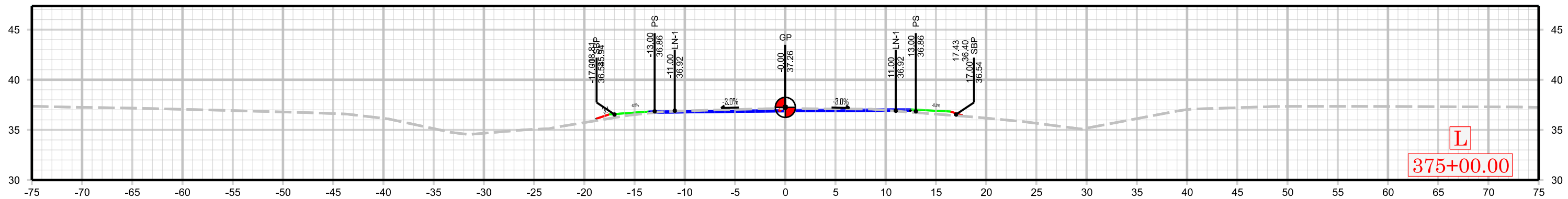
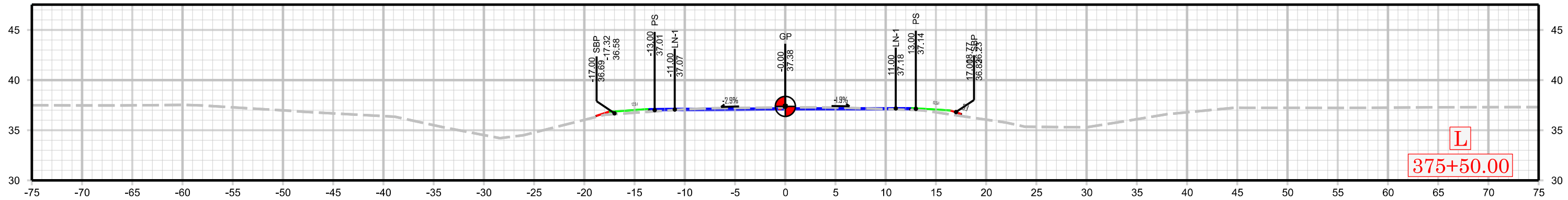
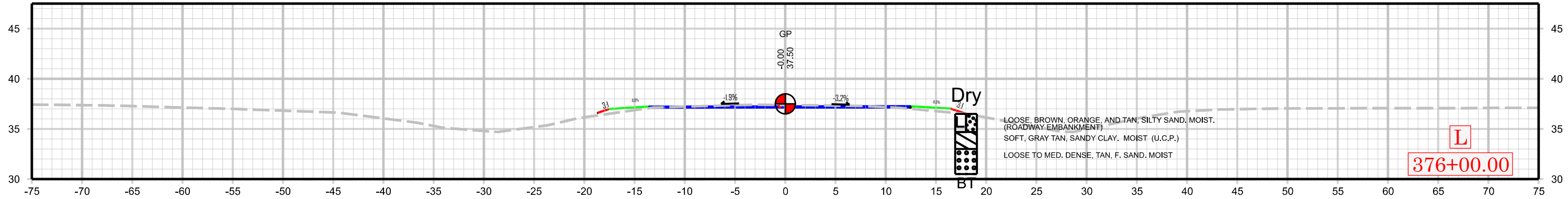
SOIL TEST RESULTS

SAMPLE NUMBER	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	PL. I.	% BY WEIGHT				% PASSING SIEVES			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
S-065	21 ft RT	370+00	0.0 - 0.8	A-2-4(0)	21	2	32.5	46.3	17.7	3.5	97.2	85	25		NA
S-066	21 ft RT	370+00	0.8 - 3.5	A-2-4(0)	16	2	31.3	52.9	2.9	12.9	100	94	17		NA
S-067	21 ft RT	370+00	3.5 - 6.0	A-3(0)	NP	NP	47.8	44.0	3.2	5.0	99.8	85	9		NA



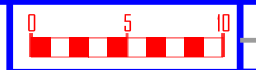
R-5809A
X 208



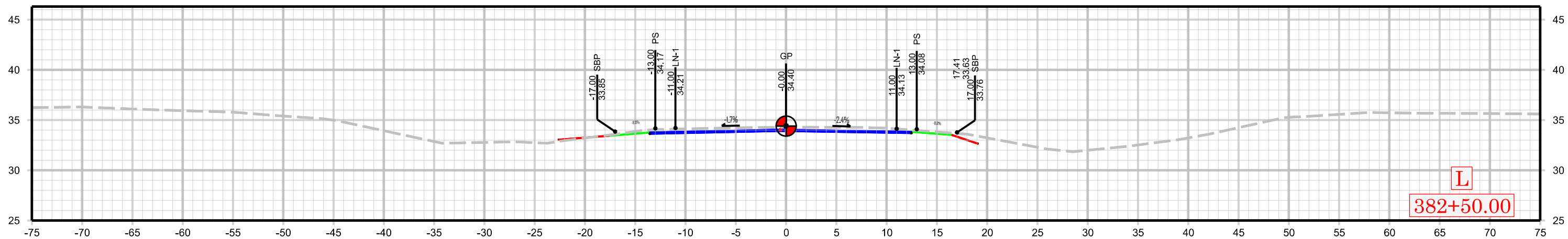
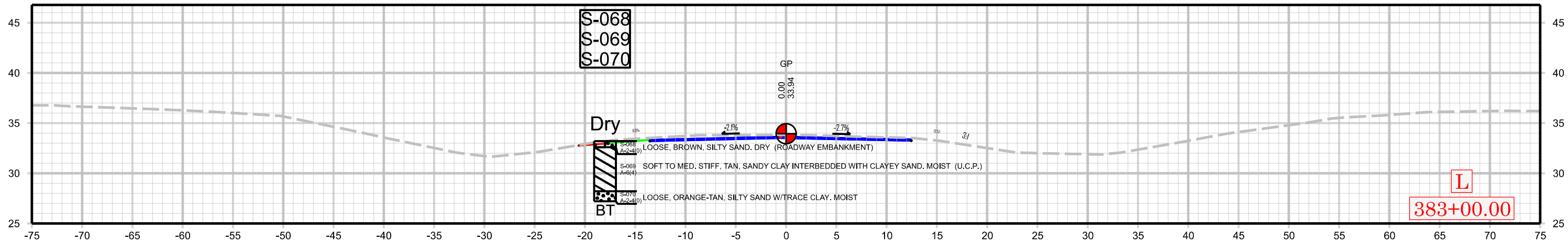
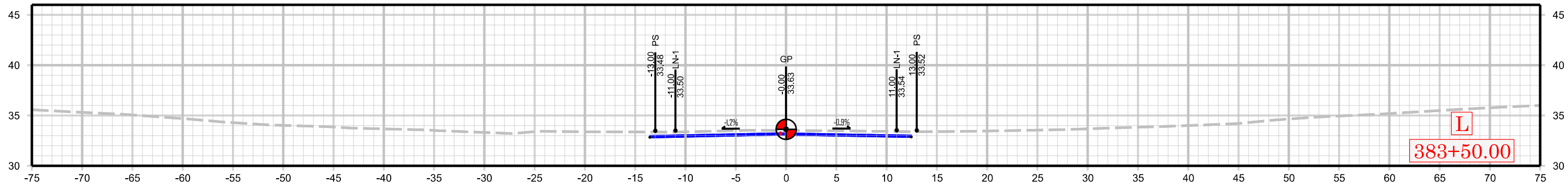
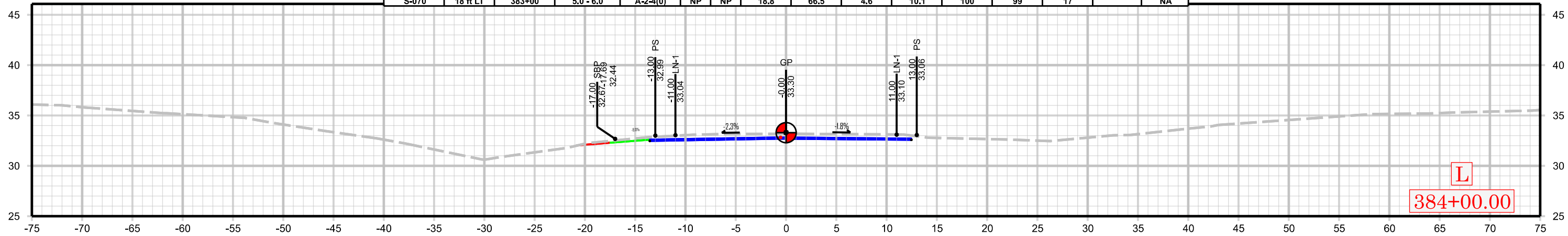


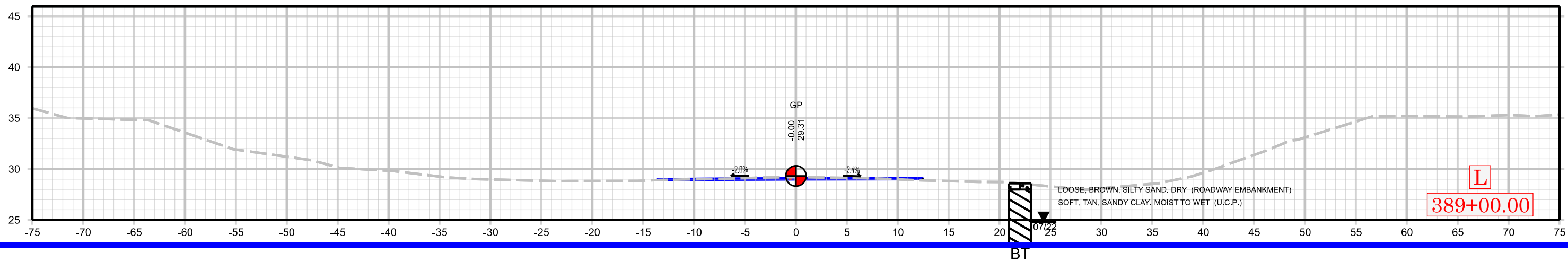
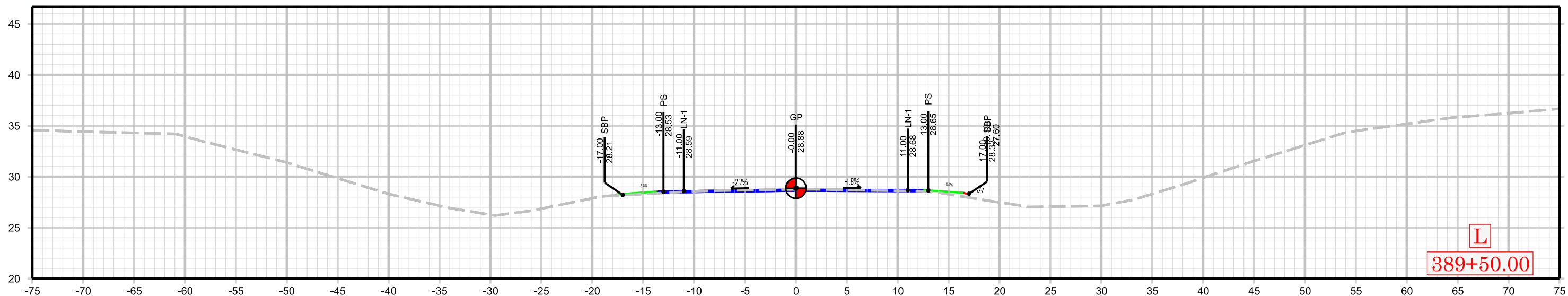
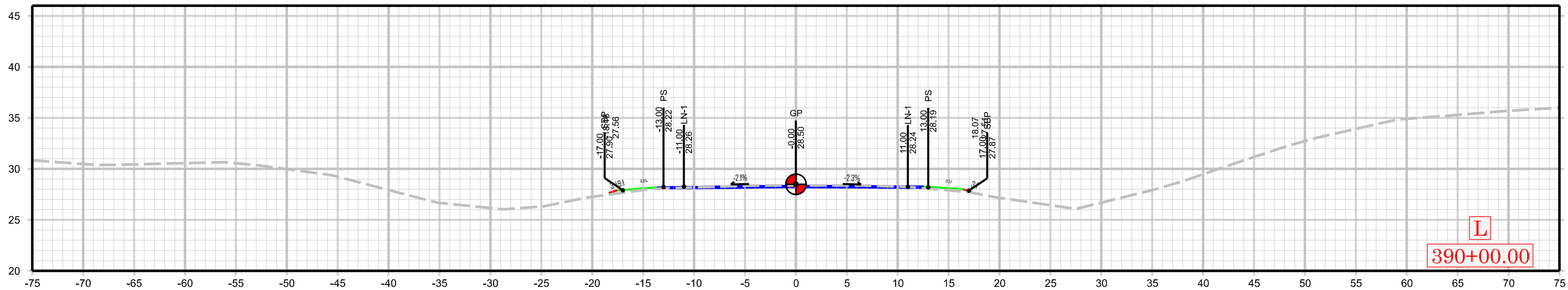
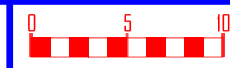
SOIL TEST RESULTS

SAMPLE NUMBER	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.L. I.	% BY WEIGHT				% PASSING SIEVES			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
S-068	18 ft LT	383+00	0.0 - 0.6	A-2-4(0)	24	7	22.6	47.4	9.8	20.2	99.6	91	33		NA
S-069	18 ft LT	383+00	0.6 - 5.0	A-6(4)	32	15	3.6	49.5	10.1	36.8	100	99	51	21	NA
S-070	18 ft LT	383+00	5.0 - 6.0	A-2-4(0)	NP	NP	18.8	66.5	4.6	10.1	100	99	17		NA



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X 215

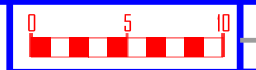




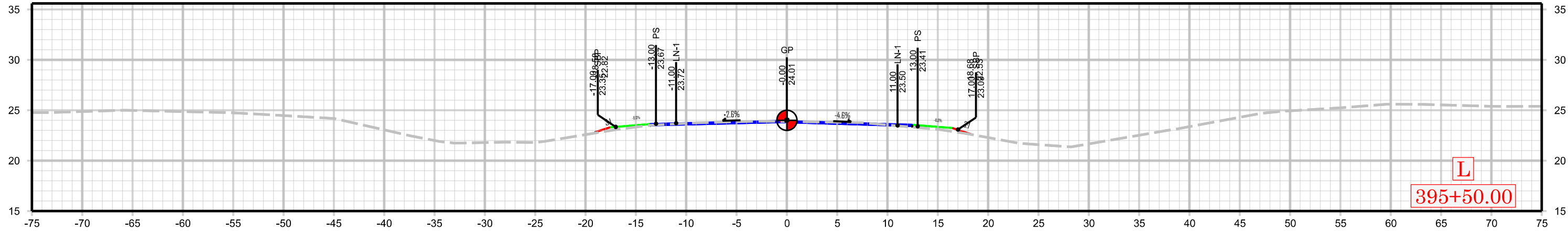
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SOIL TEST RESULTS

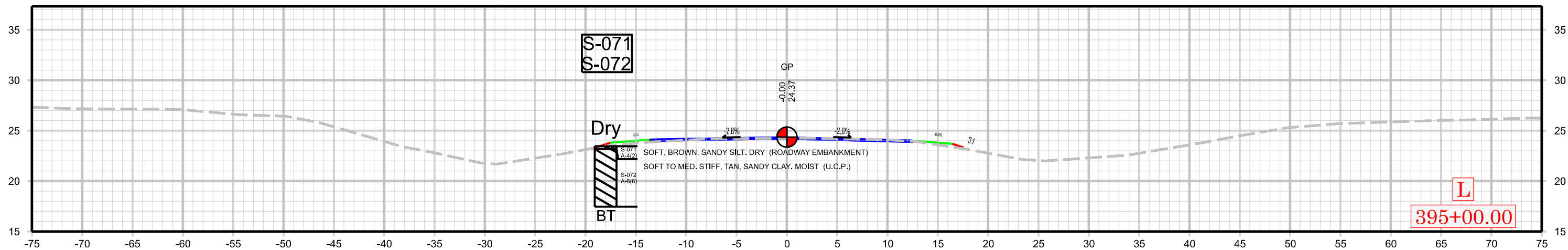
SAMPLE NUMBER	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	PL. I.	% BY WEIGHT				% PASSING SIEVES			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
S-071	18 ft LT	395+00	0.0 - 0.3	A-4(2)	28	10	12.2	46.6	13.7	27.4	99.6	95	48		NA
S-072	18 ft LT	395+00	0.3 - 6.0	A-6(6)	34	16	4.9	47.3	17.3	30.6	99.9	98	54	14	NA



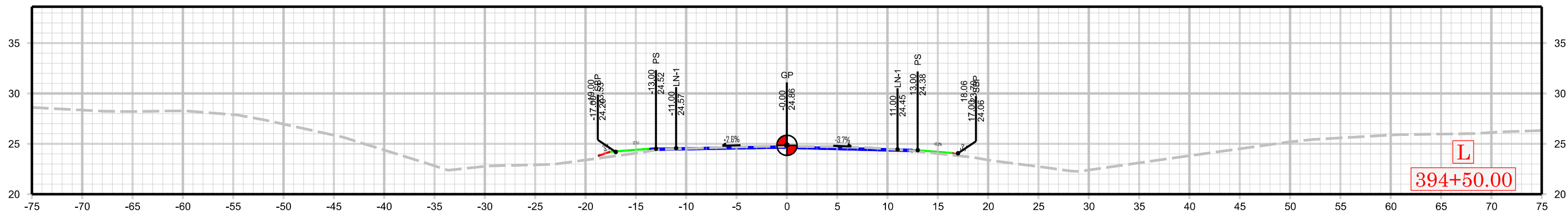
R-5809A
X 222



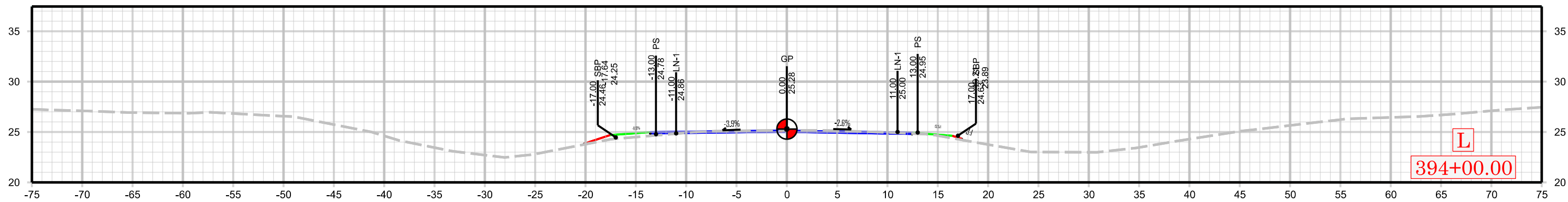
L
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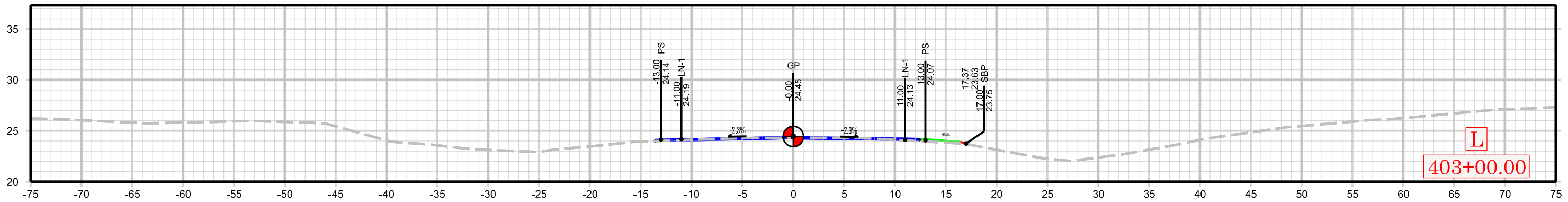
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395+00.00



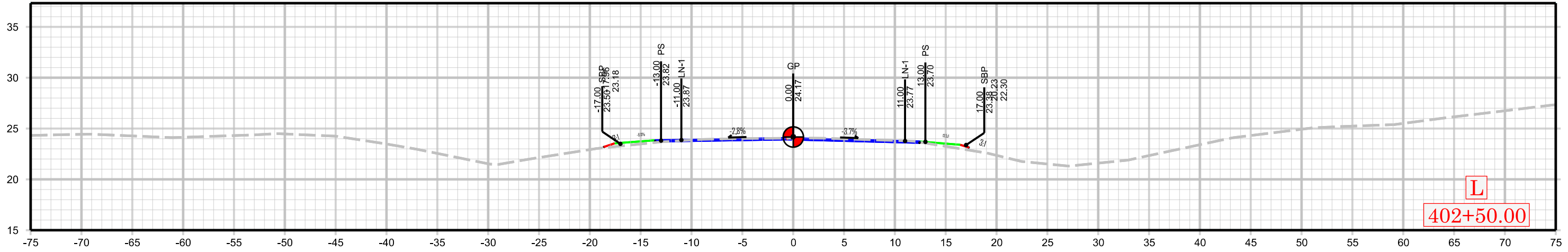
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394+50.00



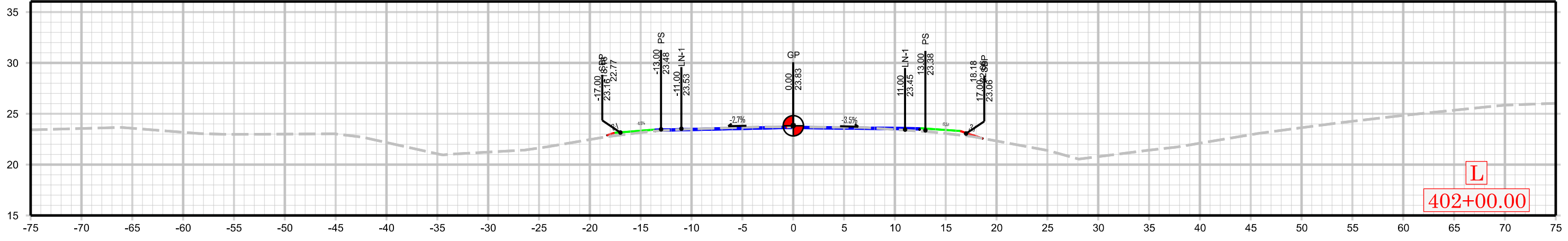
L
394+00.00



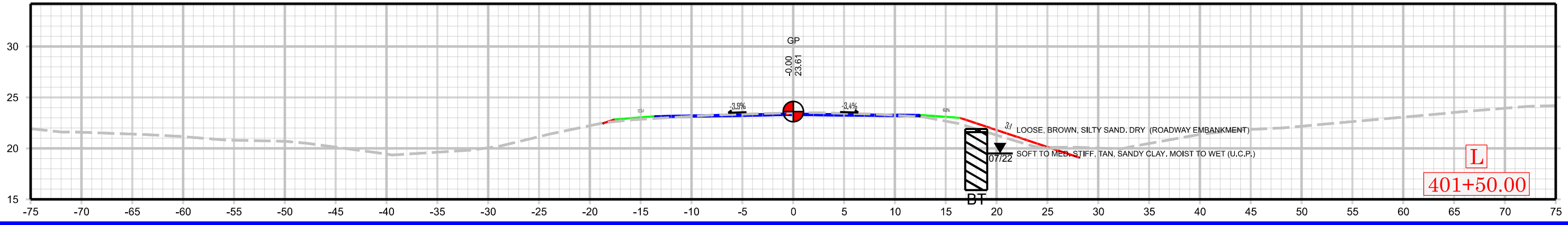
L
 403+00.00



L
 402+50.00

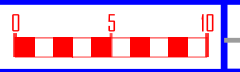


L
 402+00.00

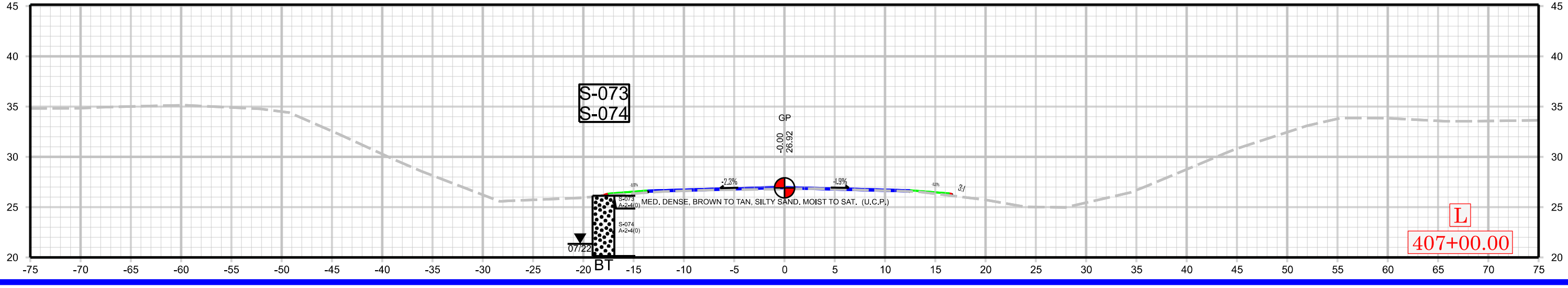
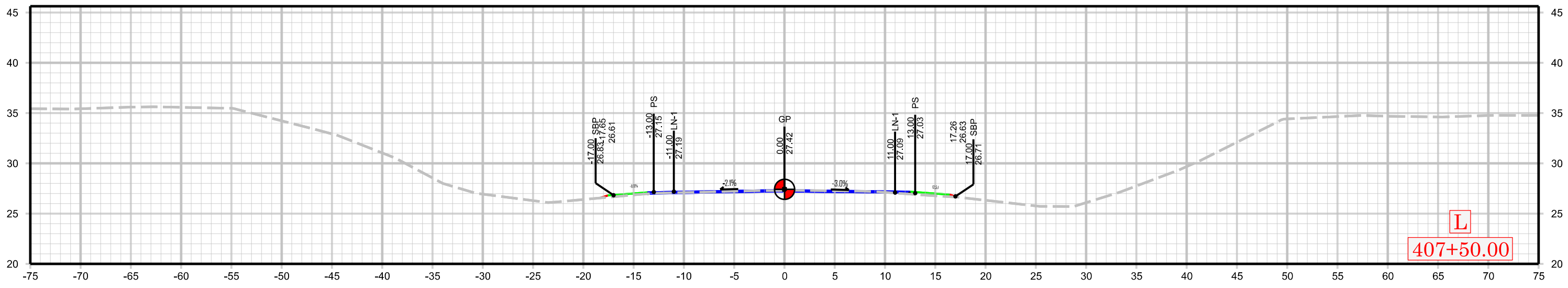
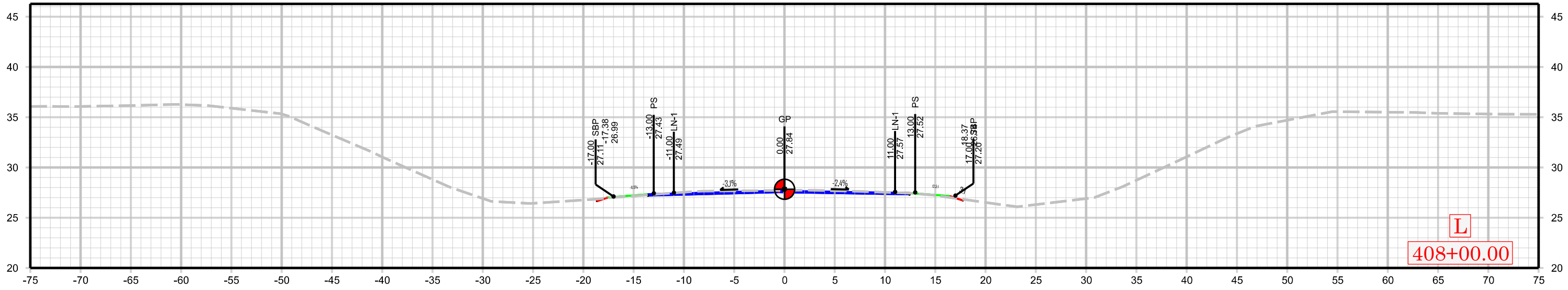


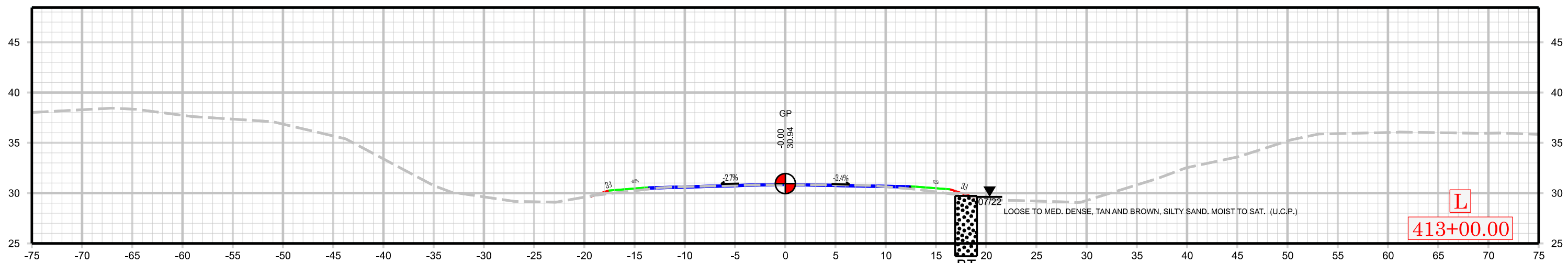
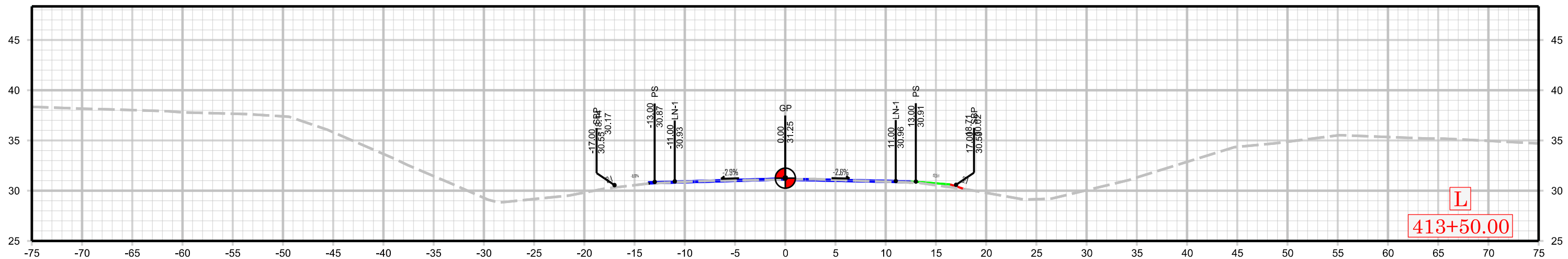
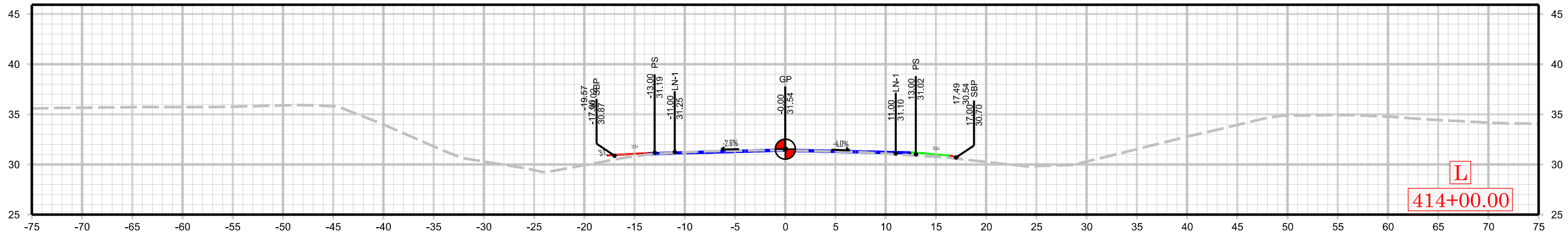
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 401+50.00

SAMPLE NUMBER	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	PL. I.	% BY WEIGHT				% PASSING SIEVES			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
							S-073	18 ft LT	407+00	0.0 - 0.3	A-2-4(0)	NP	NP		
S-074	18 ft LT	407+00	0.3 - 6.0	A-2-4(0)	NP	NP	14.1	58.3	7.3	20.3	100	100	30	NA	



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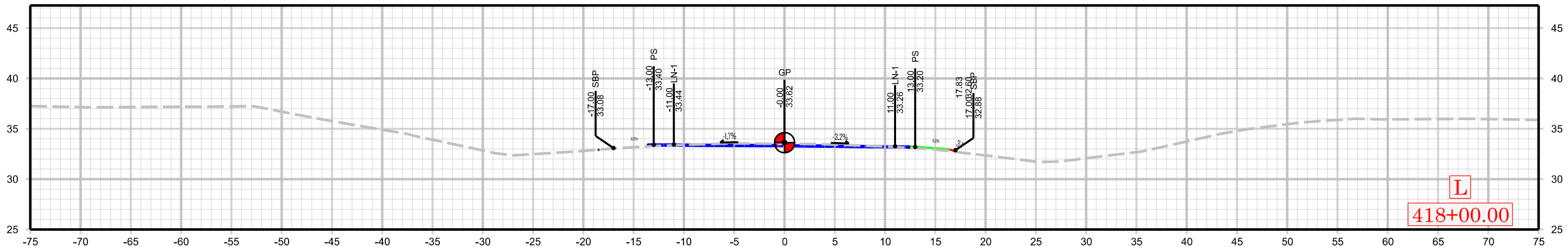
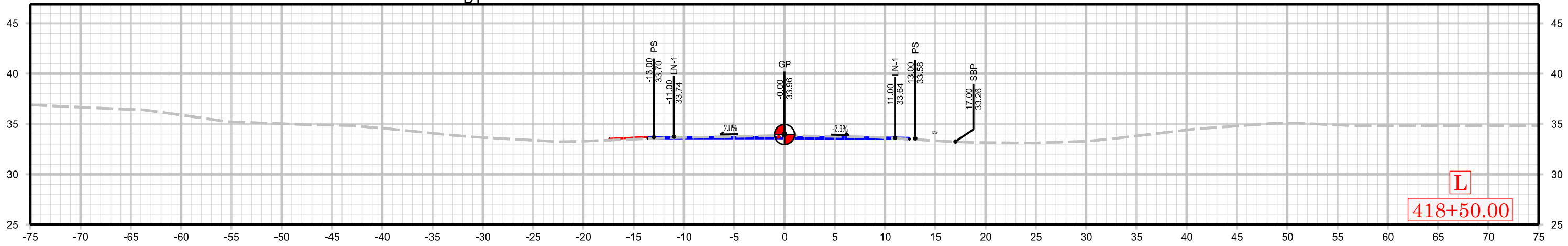
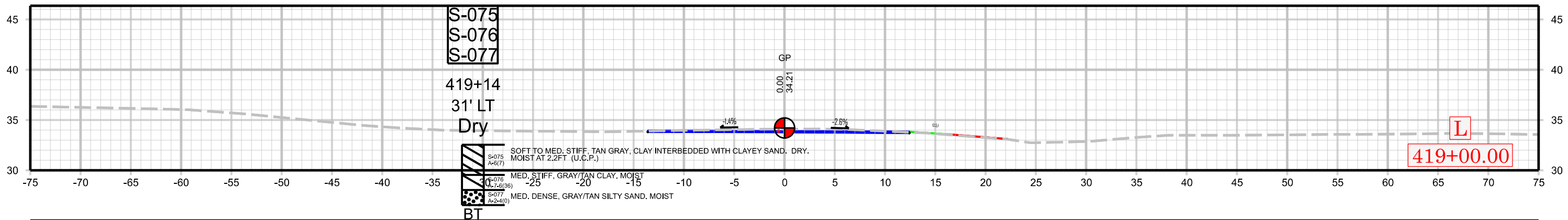
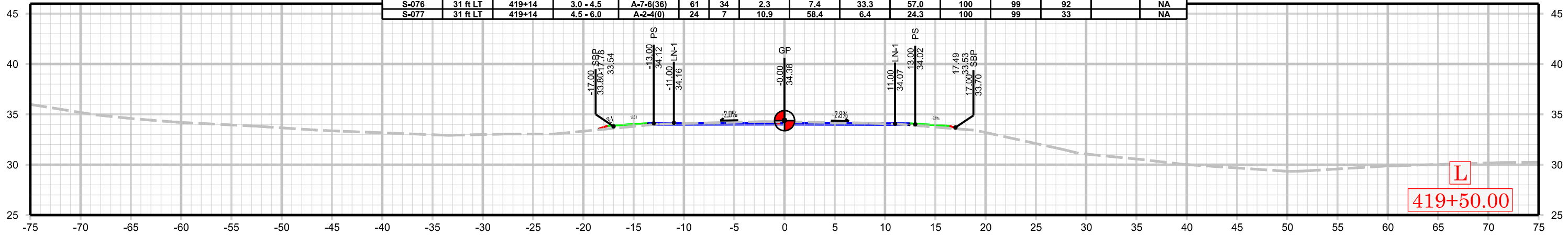


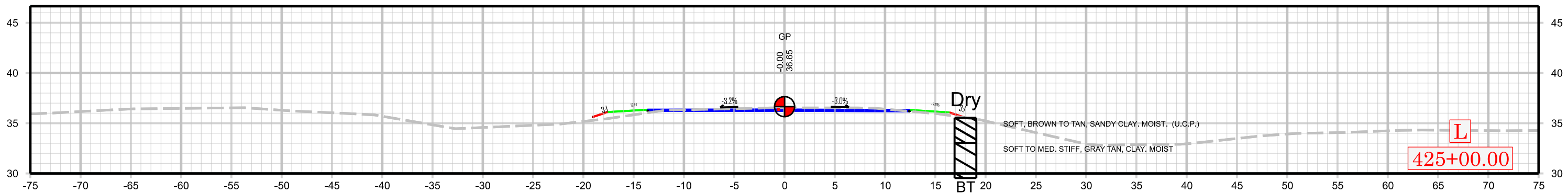
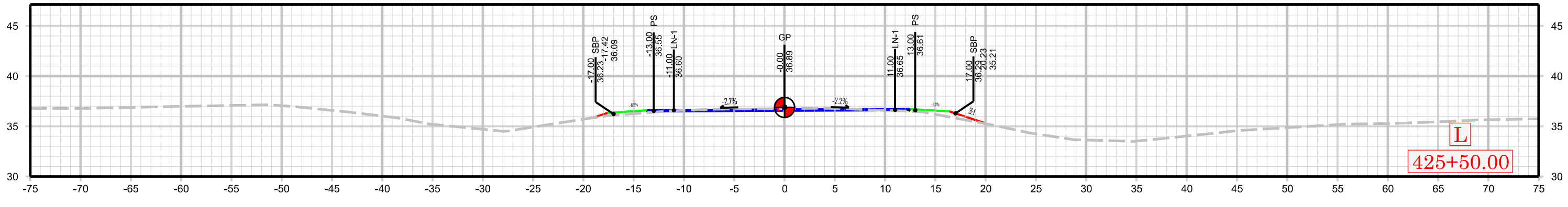
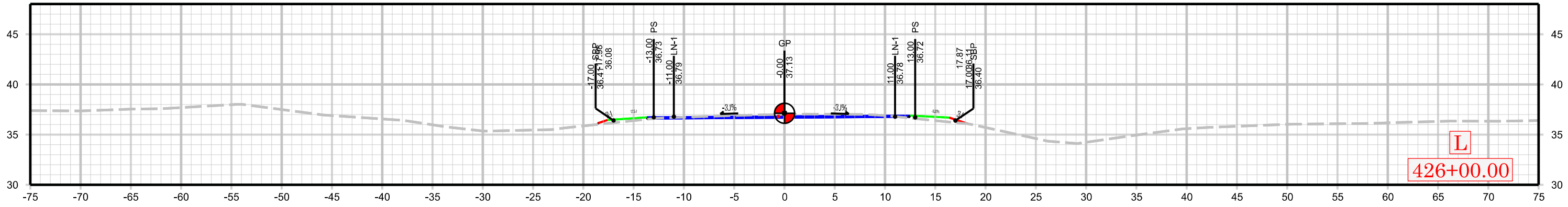
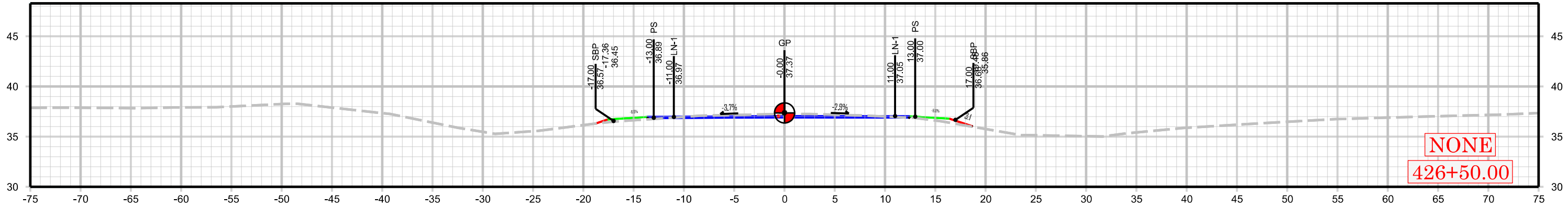
SOIL TEST RESULTS

SAMPLE NUMBER	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.L. I.	% BY WEIGHT				% PASSING SIEVES			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
S-075	31 ft LT	419+14	0.0 - 3.0	A-6(7)	34	19	14.5	32.4	14.3	38.8	99.9	96	56		NA
S-076	31 ft LT	419+14	3.0 - 4.5	A-7-6(36)	61	34	2.3	7.4	33.3	57.0	100	99	92		NA
S-077	31 ft LT	419+14	4.5 - 6.0	A-2-4(0)	24	7	10.9	58.4	6.4	24.3	100	99	33		NA



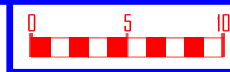
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SOIL TEST RESULTS

SAMPLE NUMBER	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	PL. I.	% BY WEIGHT				% PASSING SIEVES			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
S-078	18 ft LT	431+00	0.0 - 1.5	A-6(11)	35	15	7.8	23.7	38.3	30.2	98.8	96	78		NA
S-079	18 ft LT	431+00	1.5 - 3.0	A-7-6(24)	44	24	1.5	15.2	38.3	45.0	100	99	93		NA
S-080	18 ft LT	431+00	3.0 - 6.0	A-2-4(0)	24	8	27.9	41.4	8.4	22.3	100	99	33		NA



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