

REFERENCE: R-5725

PROJECT: 50474

SEE SHEET 3 FOR PLAN SHEET LAYOUT
AT TIME OF INVESTIGATION

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

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-5725	1	29

CONTENTS

<u>LINE</u>	<u>STATION</u>	<u>PLAN</u>
-LI-	11+50 - 21+17.15	4-5
-Y1-	10+00 - 13+62.65	5
-RABT1-	10+00 - 12+51.33	5
-DR3-	10+00 - 11+39.151	5
-L2-	10+00 - 39+50	5-7
-Y2A-	10+00 - 19+01.64	8
-Y2B-	10+00 - 18+00	6,8
-DRI-	10+00 - 11+71.94	8
-DR2-	10+00 - 11+70.0	8
-RABT2-	10+00 - 12+51.33	8

CROSS SECTIONS

<u>LINE</u>	<u>STATION</u>	<u>SHEET</u>
-LI-	13+00	9
-LI-	15+50	9
-LI-	18+00	9
-LI-	20+50	10
-L2-	11+00	11
-L2-	13+50	11
-L2-	17+00	11
-L2-	18+00	12
-L2-	18+50	13
-L2-	19+00	14
-L2-	21+00	14
-L2-	23+50	15
-L2-	26+00	15
-L2-	32+00	15
-L2-	34+50	16
-L2-	36+50	16
-L2-	39+00	16
-Y1-	12+00-12+50	17
-Y1-	13+00	18
-Y2A-	16+00-16+50	19
-Y2B-	11+50	20
-Y2B-	12+00-13+00	21
-Y2B-	13+50	22
-Y2B-	15+00	23
-Y2B-	16+00	23
-Y2B-	17+50	24
-DRI-	11+00	25
-DR2-	10+50	26
-DR3-	10+50-11+39	27

ROADWAY SUBSURFACE INVESTIGATION

COUNTY GUILFORD

PROJECT DESCRIPTION NC 68 AT SR 2129 (FOGLEMAN ROAD)
TO NC 150 INTERSECTION IN OAK RIDGE INTERSECTION,
INTERSECTION IMPROVEMENTS

INVENTORY

CAUTION NOTICE

THE SUBSURFACE INFORMATION AND THE SUBSURFACE INVESTIGATION ON WHICH IT IS BASED WERE MADE FOR THE PURPOSE OF STUDY, PLANNING AND DESIGN, AND NOT FOR CONSTRUCTION OR PAY PURPOSES. 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 707-6850. THE SUBSURFACE PLANS AND REPORTS, FIELD BORING LOGS, ROCK CORES AND SOIL TEST DATA ARE NOT PART OF THE CONTRACT.

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

THE BIDDER OR CONTRACTOR IS CAUTIONED THAT DETAILS SHOWN ON THE SUBSURFACE PLANS ARE PRELIMINARY ONLY AND IN MANY CASES THE FINAL DESIGN DETAILS ARE DIFFERENT. FOR BIDDING AND CONSTRUCTION PURPOSES, REFER TO THE CONSTRUCTION PLANS AND DOCUMENTS FOR FINAL DESIGN INFORMATION ON THIS PROJECT. THE DEPARTMENT DOES NOT WARRANT OR GUARANTEE THE SUFFICIENCY OR ACCURACY OF THE INVESTIGATION MADE, NOR THE INTERPRETATIONS MADE, OR OPINION OF THE DEPARTMENT AS TO THE TYPE OF MATERIALS AND CONDITIONS TO BE ENCOUNTERED. THE BIDDER OR CONTRACTOR IS CAUTIONED TO MAKE SUCH INDEPENDENT SUBSURFACE INVESTIGATIONS AS HE DEEMS NECESSARY TO SATISFY HIMSELF AS TO CONDITIONS TO BE ENCOUNTERED ON THE PROJECT. THE CONTRACTOR SHALL HAVE NO CLAIM FOR ADDITIONAL COMPENSATION OR FOR AN EXTENSION OF TIME FOR ANY REASON RESULTING FROM THE ACTUAL CONDITIONS ENCOUNTERED AT THE SITE DIFFERING FROM THOSE INDICATED IN THE SUBSURFACE INFORMATION.

- NOTES:
1. THE INFORMATION CONTAINED HEREIN IS NOT IMPLIED OR GUARANTEED BY THE N. C. DEPARTMENT OF TRANSPORTATION AS ACCURATE NOR IS IT CONSIDERED PART OF THE PLANS, SPECIFICATIONS OR CONTRACT FOR THE PROJECT.
 2. BY HAVING REQUESTED THIS INFORMATION, THE CONTRACTOR SPECIFICALLY WAIVES ANY CLAIMS FOR INCREASED COMPENSATION OR EXTENSION OF TIME BASED ON DIFFERENCES BETWEEN THE CONDITIONS INDICATED HEREIN AND THE ACTUAL CONDITIONS AT THE PROJECT SITE.

PERSONNEL

E. FERREIRA, EI

CATLIN

EJ. EDMONDSON

A. CLISTER

INVESTIGATED BY E. FERREIRA, EI

DRAWN BY E. FERREIRA, EI

CHECKED BY D. BROWN, PE

SUBMITTED BY D. BROWN, PE

DATE MARCH 2021



DocuSigned by:

Donald W. Brown Jr. 4/13/2021

C06817F5F39A 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...

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.

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.

TERMS AND DEFINITIONS
ALLUVIUM (ALLUV.) - SOILS THAT HAVE BEEN TRANSPORTED BY WATER.
AQUIFER - A WATER BEARING FORMATION OR STRATA.

SOIL LEGEND AND AASHTO CLASSIFICATION
GENERAL CLASS., GRANULAR MATERIALS (<= 35% PASSING #200), SILT-CLAY MATERIALS (> 35% PASSING #200), ORGANIC MATERIALS.

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

WEATHERING
FRESH ROCK FRESH, CRYSTALS BRIGHT, FEW JOINTS MAY SHOW SLIGHT STAINING, ROCK RINGS UNDER HAMMER IF CRYSTALLINE.

FAULT
A FRACTURE OR FRACTURE ZONE ALONG WHICH THERE HAS BEEN DISPLACEMENT OF THE SIDES RELATIVE TO ONE ANOTHER PARALLEL TO THE FRACTURE.

CONSISTENCY OR DENSENESS
PRIMARY SOIL TYPE, COMPACTNESS OR CONSISTENCY, RANGE OF STANDARD PENETRATION RESISTANCE (N-VALUE), RANGE OF UNCONFINED COMPRESSIVE STRENGTH (TONS/FT^2).

MISCELLANEOUS SYMBOLS
ROADWAY EMBANKMENT (RE) WITH SOIL DESCRIPTION, SOIL SYMBOL, ARTIFICIAL FILL (AF) OTHER THAN ROADWAY EMBANKMENT.

ROCK HARDNESS
VERY HARD CANNOT BE SCRATCHED BY KNIFE OR SHARP PICK. BREAKING OF HAND SPECIMENS REQUIRES SEVERAL HARD BLOWS OF THE GEOLOGIST'S PICK.

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.

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.).

RECOMMENDATION SYMBOLS
UNDERCUT, UNCLASSIFIED EXCAVATION - UNSUITABLE WASTE, UNCLASSIFIED EXCAVATION - ACCEPTABLE DEGRADABLE ROCK.

ROCK HARDNESS (CONT.)
HARD CAN BE SCRATCHED BY KNIFE OR PICK ONLY WITH DIFFICULTY. HARD HAMMER BLOWS REQUIRED TO DETACH HAND SPECIMEN.

SOIL MOISTURE - CORRELATION OF TERMS
SOIL MOISTURE SCALE (ATTERBERG LIMITS), FIELD MOISTURE DESCRIPTION, GUIDE FOR FIELD MOISTURE DESCRIPTION.

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

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.

ROCK HARDNESS (CONT.)
MEDIUM HARD CAN BE GROOVED OR GOUGED 0.05 INCHES DEEP BY FIRM PRESSURE OF KNIFE OR PICK POINT. CAN BE EXCAVATED IN SMALL CHIPS TO PEICES 1 INCH MAXIMUM SIZE BY HARD BLOWS OF THE POINT OF A GEOLOGIST'S PICK.

NOTES
BORING ELEVATIONS GENERATED FROM FILE r5725.IS_TIN_TIN, DATED 11/9/2018.
HA = HAND AUGER BORING
FIAD = FILLED IMMEDIATELY AFTER DRILLING



March 31, 2021

STATE PROJECT: 50474.1.1 (R-5725)
 COUNTY: Guilford
 DESCRIPTION: Intersection improvements at NC 68 at SR 2129 (Fogleman Road) to NC 150/Oak Ridge Road (S.R. 2137) in Oak Ridge.

SUBJECT: Roadway Subsurface Inventory

Project Description

The project consists of improvements to NC 68, located within the municipal boundaries of Oak Ridge in North Carolina. The total length of the project is approximately 0.53 miles, with 10 alignments as shown in the table below. The project corridor contains mainly commercial properties with some undeveloped land.

Alignment	Description	Beg/End Stations
-L1-	NC 68	11+50.00 to 21+17.15
-L2-	NC 68	10+00.00 to 39+50.00
-Y1-	Linville Road	10+50.00 to 13+62.65
-Y2A-	Oak Ridge Road	15+50.00 to 19+01.64
-Y2B-	Oak Ridge Road	10+00.00 to 18+00.00
-DR1-	Driveway	10+00.00 to 11+71.94
-DR2-	Driveway	10+00.00 to 11+70.00
-DR3-	Driveway	10+00.00 to 11+39.15
-RABT1-	Roundabout	10+00.00 to 12+51.33
-RABT2-	Roundabout	10+00.00 to 12+51.33

Plans call for the improvement of NC 68 (-L1- and -L2-), from approximately 68± feet south of its intersection with Fogleman Road to 1,070± feet north of its intersection with NC 150/Oak Ridge Road (Y2B). The improvements include widening the existing roadways, new concrete medians, two new roundabouts on the Y-lines, curb and gutter, and installation of sidewalks. The driveway leading to Oak Ridge Dentistry (DR3) will be realigned with a roundabout (-RABT1-) to connect to the new alignment. Linville Road (-Y1-) will be widened with an alignment shift and will also be connected to the roundabout (-RABT1-). Oak Ridge Road will be widened and will connect to a second roundabout (-RABT2-). The ramps on NC 68 heading south, west, and east will be removed, with new thru lanes and turn lane configurations.

A geotechnical field investigation was conducted for this project in February of 2021. Drilling was performed by Catlin of Williamsburg, NC using a track-mounted CME-55 drill rig. The drill rig was equipped with an automatic hammer with an efficiency of 94.7%. All drilling activities were supervised by Stewart personnel.

A total of 19 Standard Penetration Test (SPT) borings and 7 Hand Auger borings were performed for the project. Representative soil samples from select borings were collected in the field for laboratory analysis.

Physiography & Geology

The project site is located in Guilford County, North Carolina, which lies within the Piedmont Geologic Province of North Carolina. The site is part of the Charlotte Belt, adjacent to the Carolina Slate Belt region, which is generally characterized by low grade metamorphosed volcanic rock. Review of the

Geologic Map of Region G, North Carolina (P. Albert Carpenter, 1982) shows that the site is underlain by Porphyritic granite (Pzpggr) north of the intersection of SR 150 and US 68, and the site is underlain by Mica gneiss and schist (mgs) south of the intersection.

Soil Properties

Soils encountered at the site include artificial fill, roadway embankment, alluvial, and residual soils.

Artificial fill was encountered on -L2- and -DR3- consisting of medium stiff (A-7-5) to and stiff silt (A-4), with a Plasticity Index (PI) of 26 to 32 and was moist.

Roadway embankment was encountered in borings along -L1-, -L2-, -Y2A-, -Y2B-, -Y1-, -DR1-, -DR2-, and -DR3-. The material was very loose to dense Silty SAND (A-2-4) and Clayey SAND (A-2-6 and A-2-7) and medium stiff to very stiff Sandy Lean CLAY (A-6) and Silty Plastic CLAY (A-7-5 and A-7-6). The samples were moist to wet. Laboratory test samples had PIs of 12 and 50.

Alluvial soil associated with a nearby creek was encountered along -L2- with material classified as very loose to medium stiff Silty SAND (A-2-4) and Clayey SAND (A-2-6) and soft Silty CLAY (A-7-5) and Sandy Lean CLAY (A-6). The samples were wet to saturated.

Native residual soils were encountered in all borings except for borings DR1_1130 HA, L2_1690 HA, L2_1800 HA, L2_1900 HA, and Y2B_1612 HA. The soils types primarily consist of loose to very dense, Clayey SAND (A-2-6) and Silty SAND (A-2-4), and medium stiff to very stiff Sandy SILT (A-4), Silty CLAY (A-7-5 and A-7-6), and Clayey SILT (A-5). The samples were moist to wet. Laboratory testing on clay samples had PIs ranging from 25 to 26.

Rock Properties

Weathered rock nor bedrock was encountered in any of the 19 borings.

Groundwater

Of the 19 borings, groundwater was not encountered during the drilling process. Thirteen borings were left open for a 24+ hour stabilization period, and six borings were left open until the end of day, after which groundwater was measured in one boring at a depth of 5.6 feet below the current ground surface (el. 903.5± feet). Two hand auger borings had groundwater measured at depths of 2 and 4 feet below the current ground surface (el. 881.9± feet and 936.5± feet).

Areas of Special Geotechnical Interest

Alluvial Soils

Alluvial soil was encountered along the two alignments as shown below.

Alignment	Station	Offset (ft)
-L2-	17+00± to 19+00±	80-90± RT

Groundwater

Groundwater was encountered within 6 feet of finished grade in the following locations:

Alignment	Station
-L2-	39+00±
-Y2B-	14+80±

Artificial Fill

Artificial fill was encountered at the following locations:

Alignment	Station	Offset (ft)
-L2-	10+00± to 13+00±	20-30± RT
-DR2-	10+60±	CL

Items of Interest

USTs, ASTs and gas pumps, or indicators thereof, were noted on the plans near the right-of-way at the following location(s):

Type	Alignment	Station	Offset (ft)
Gas Valve	-L1-	39+10± to 39+42±	230± RT to 235± RT
Gas Valve	-L2-	20+80±	40± LT
UST	-L2-	24+88	80± RT
Gas Valve	-Y2A-	16+42±	27± LT

Ponds and Wetland Locations

Type	Alignment	Station	Offset (ft)
Stream	-L2-	17+00±	80± RT

Soil with High Plasticity Indices

Based on laboratory testing, soil at the following locations was determined to be highly plastic (PI=26 to 35).

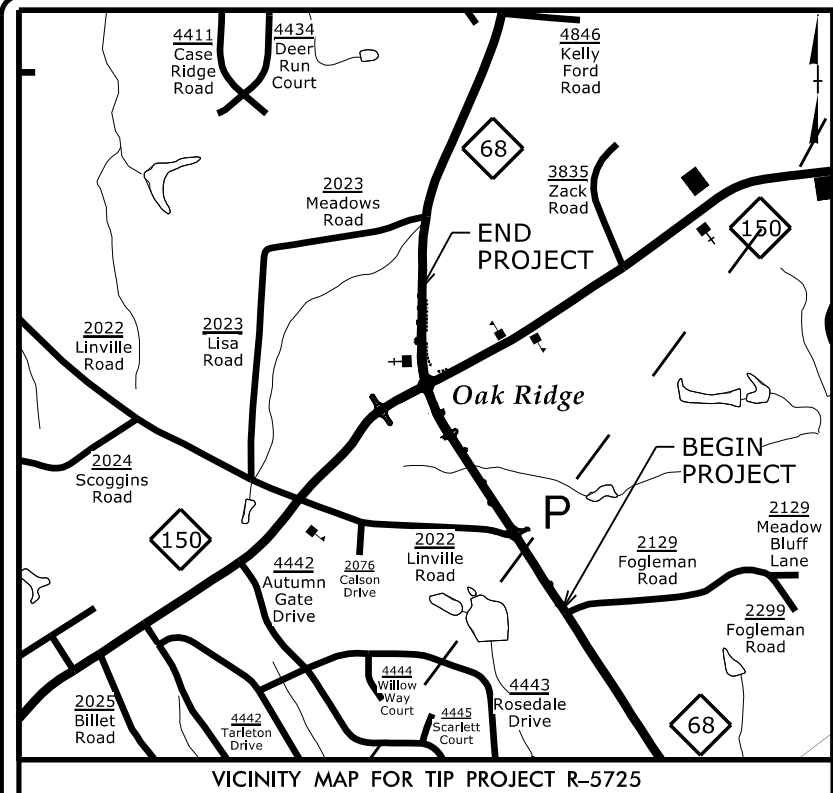
Alignment	Station	Offset (ft)
-L2-	11+00± to 15+00±	35± RT
-L2-	33+50± to 35+50±	29± LT
-L2-	38+00± to 39+50±	18± RT
-Y1-	12+00± to 13+00±	19± RT
-Y2B-	16+50± to 18+00±	46± LT
-DR3-	10+50± to 11+39±	CL

Based on laboratory testing, soil at the following locations was determined to be highly plastic (PI=35 or greater).

Alignment	Station	Offset (ft)
-Y2B-	11+50± to 13+50±	46± RT

09/08/19

TIP PROJECT: R-5725



VICINITY MAP FOR TIP PROJECT R-5725
See Sheet 1A For Index of Sheets
See Sheet 1B For Conventional Symbols

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

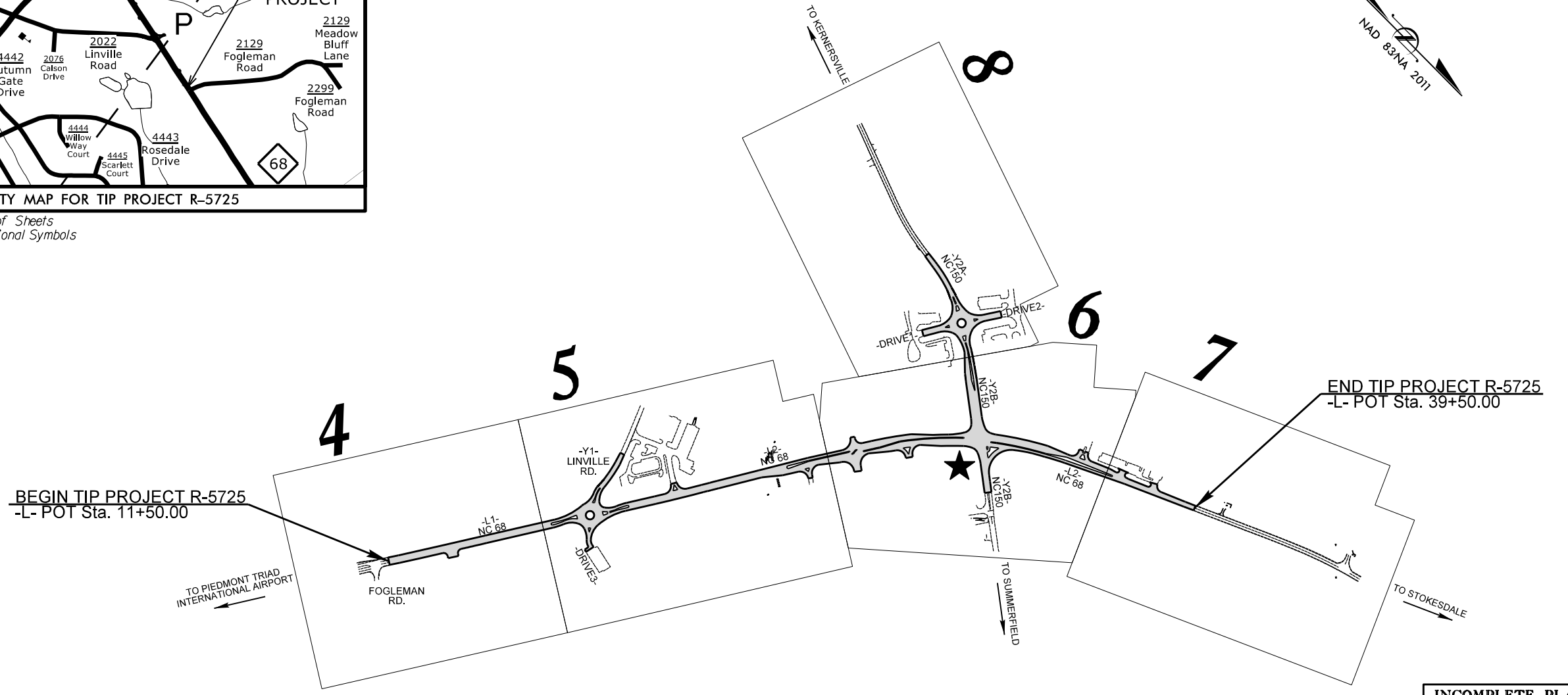
GUILFORD COUNTY

**LOCATION: INTERSECTION IMPROVEMENTS ALONG NC 68
AND NC 150 IN OAK RIDGE.**

TYPE OF WORK: GRADING, PAVING, DRAINAGE AND SIGNALS

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-5725	3	29
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
50474.1.1	N/A	P.E.	
		ROW	
		UTILITIES	
		CONSTRUCTION	

**25% REVIEW PLANS
FOR REVIEW ONLY**

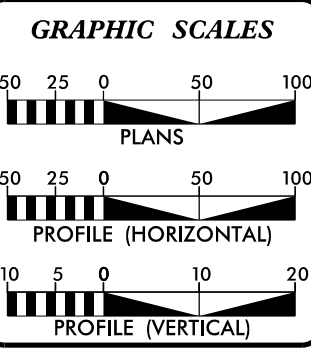


CLEARING ON THIS PROJECT SHALL BE TO LIMITS ESTABLISHED USING METHOD ____.
THIS PROJECT IS WITHIN MUNICIPAL BOUNDARIES OF THE TOWN OF OAK RIDGE.

★ SIGNAL MODIFICATION

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

CONTRACT:



DESIGN DATA

ADT 2023 =	21,287
ADT 2043 =	30,832
K =	9 %
D =	65%
T =	4 % *
V =	40 MPH
* TTST = 2% DUAL 2%	
FUNC CLASS =	
PRINCIPAL ARTERIAL	
REGIONAL TIER	

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT R-5725	=	0.530 mi.
LENGTH STRUCTURES TIP PROJECT R-5725	=	0.000 mi.
TOTAL LENGTH TIP PROJECT R-5725	=	0.530 mi.

Prepared in the Offices of:

STEWART
2018 STANDARD SPECIFICATIONS

ANDY YOUNG, PE
PROJECT ENGINEER

MICHAEL BURNS, PE
PROJECT DESIGN ENGINEER

BRIAN KETNER, PE
NCDOT CONTACT

RIGHT OF WAY DATE:
SEPTEMBER 18, 2020

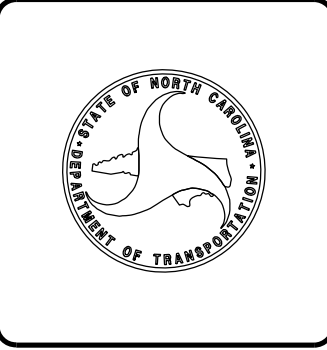
LETTING DATE:
SEPTEMBER 21, 2021

HYDRAULICS ENGINEER

SIGNATURE: _____ P.E.



ROADWAY DESIGN ENGINEER

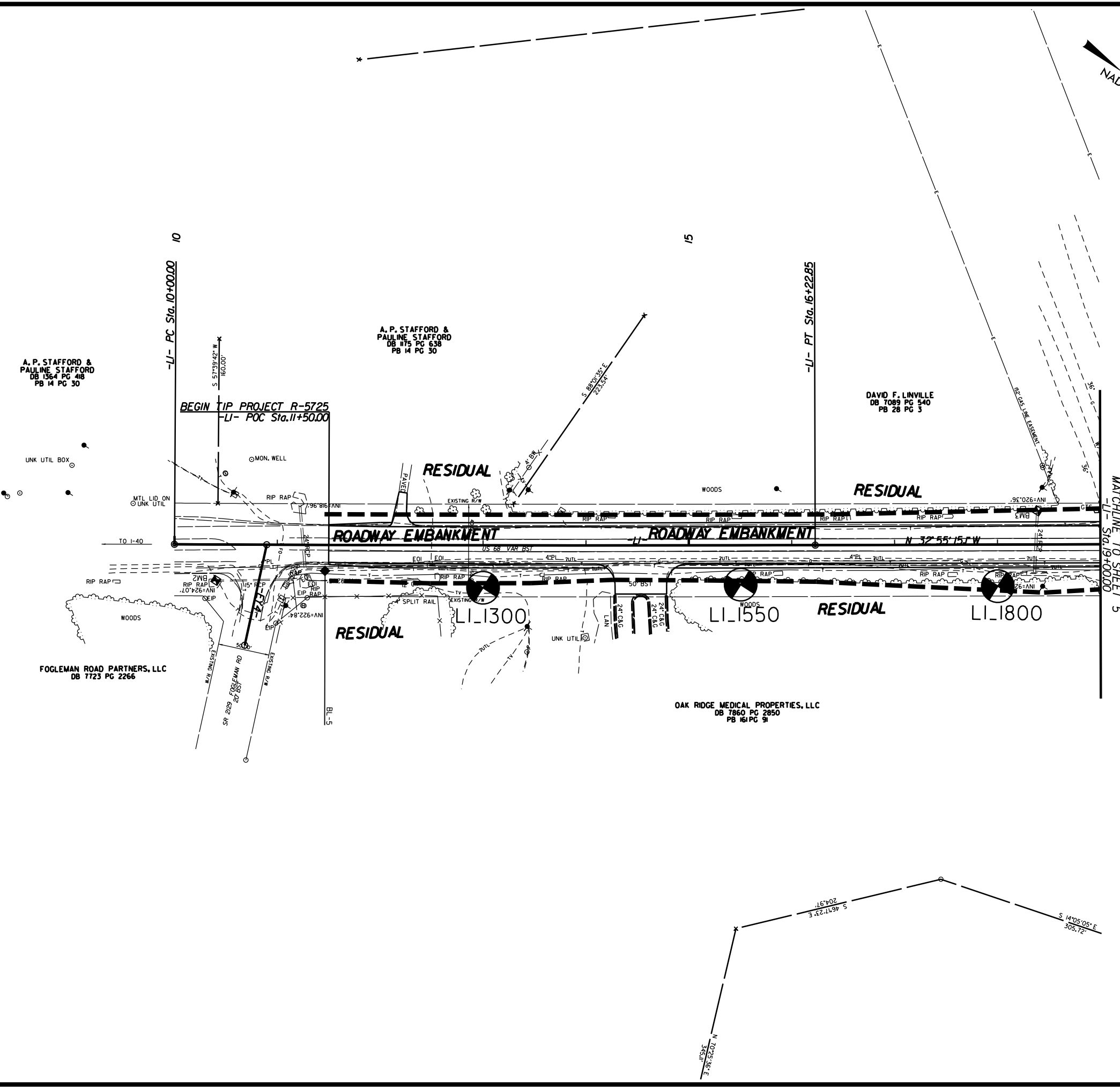
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\$\$\$ SYSTEM \$\$\$
\$\$\$ DONOR \$\$\$
\$\$\$ USERNAME \$\$\$

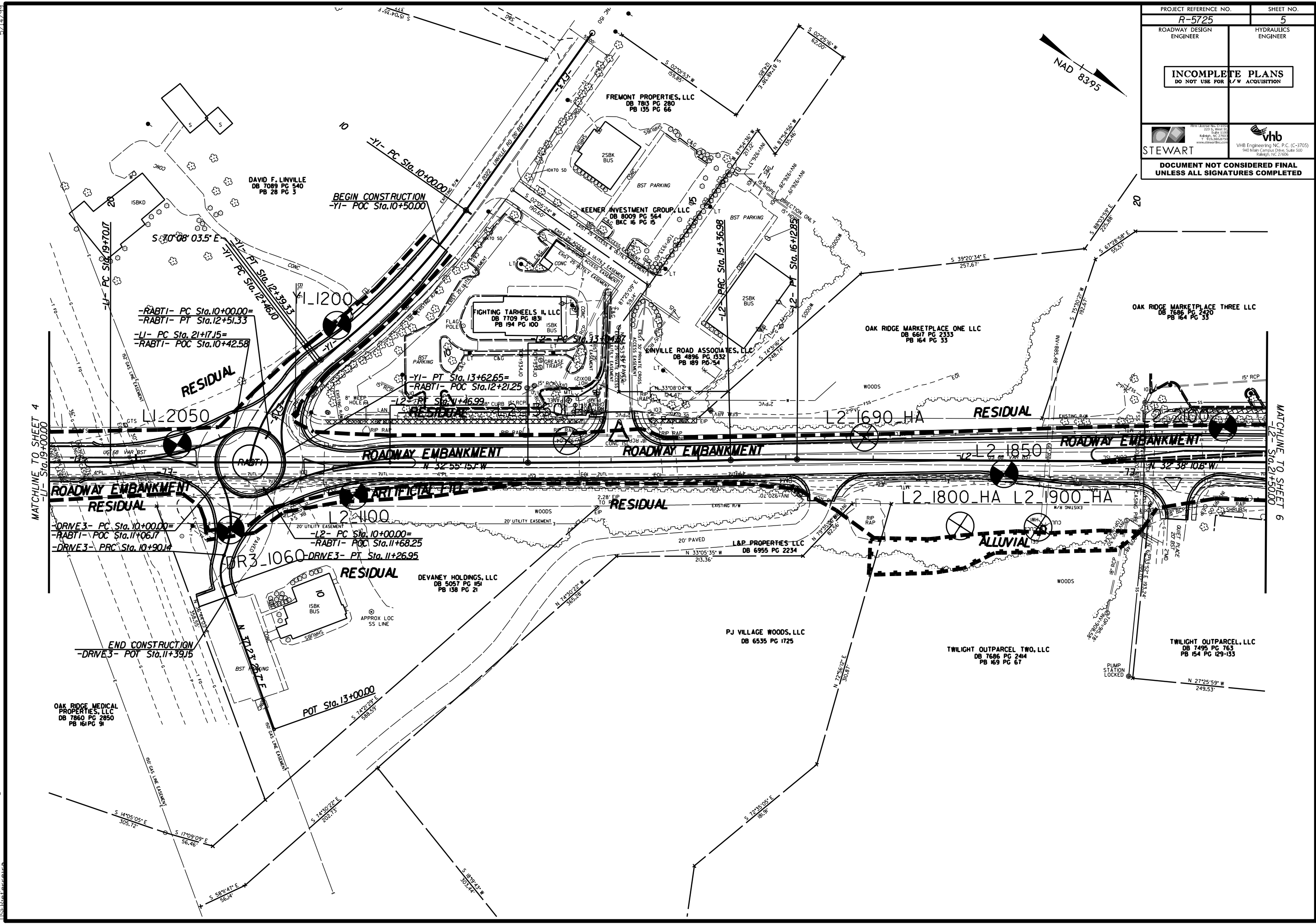
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PROJECT REFERENCE NO. R-5725	SHEET NO. 4
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION	
 STEWART <small>1700 Atlantic Ave., Suite 1100 Raleigh, NC 27601 P: 919.978.4700 www.stewartinc.com</small>	 vhb <small>VHB Engineering NC, P.C. (C-3705) 940 Main Campus Drive, Suite 500 Raleigh, NC 27606</small>
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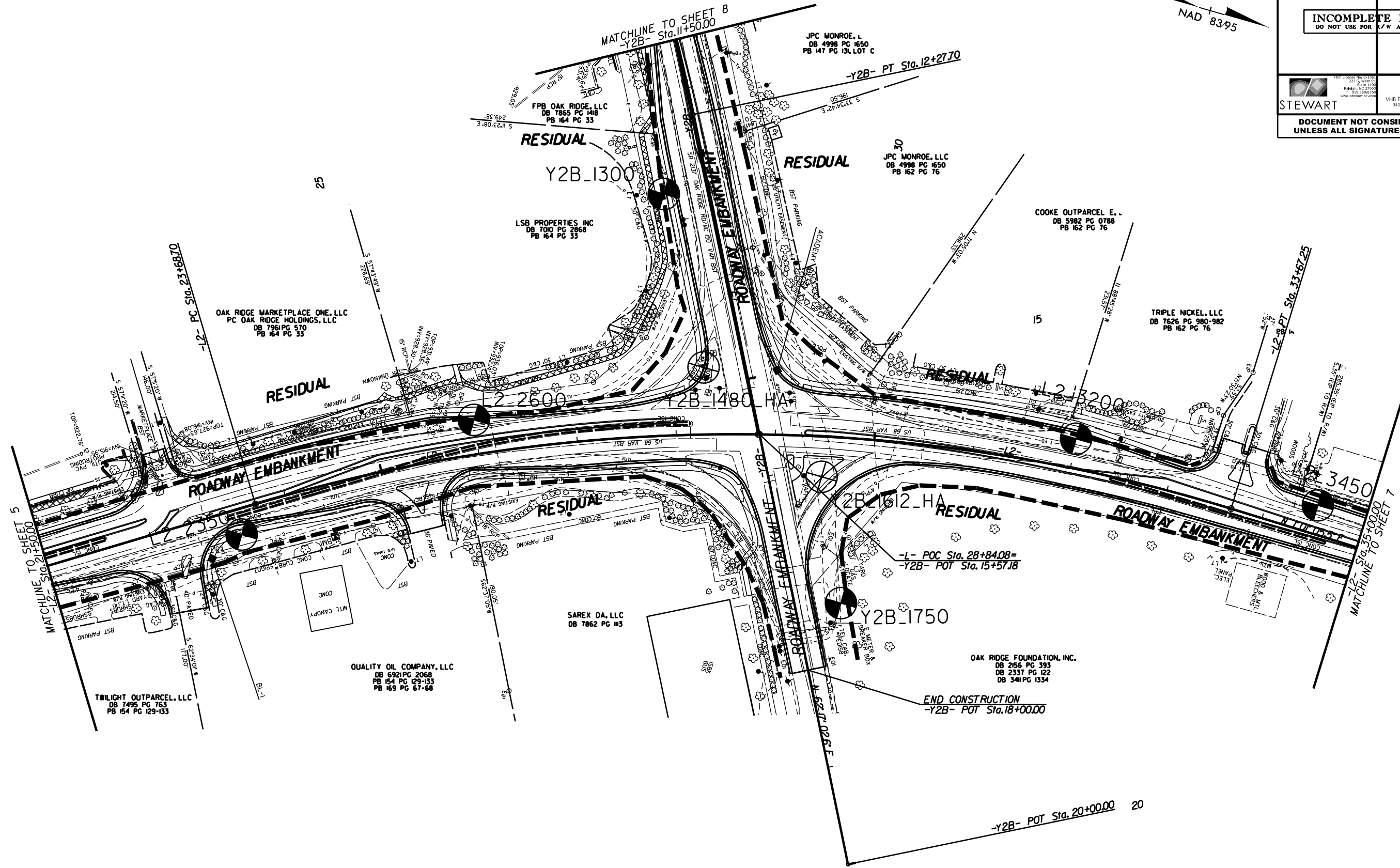
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ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR A/W ACQUISITION	
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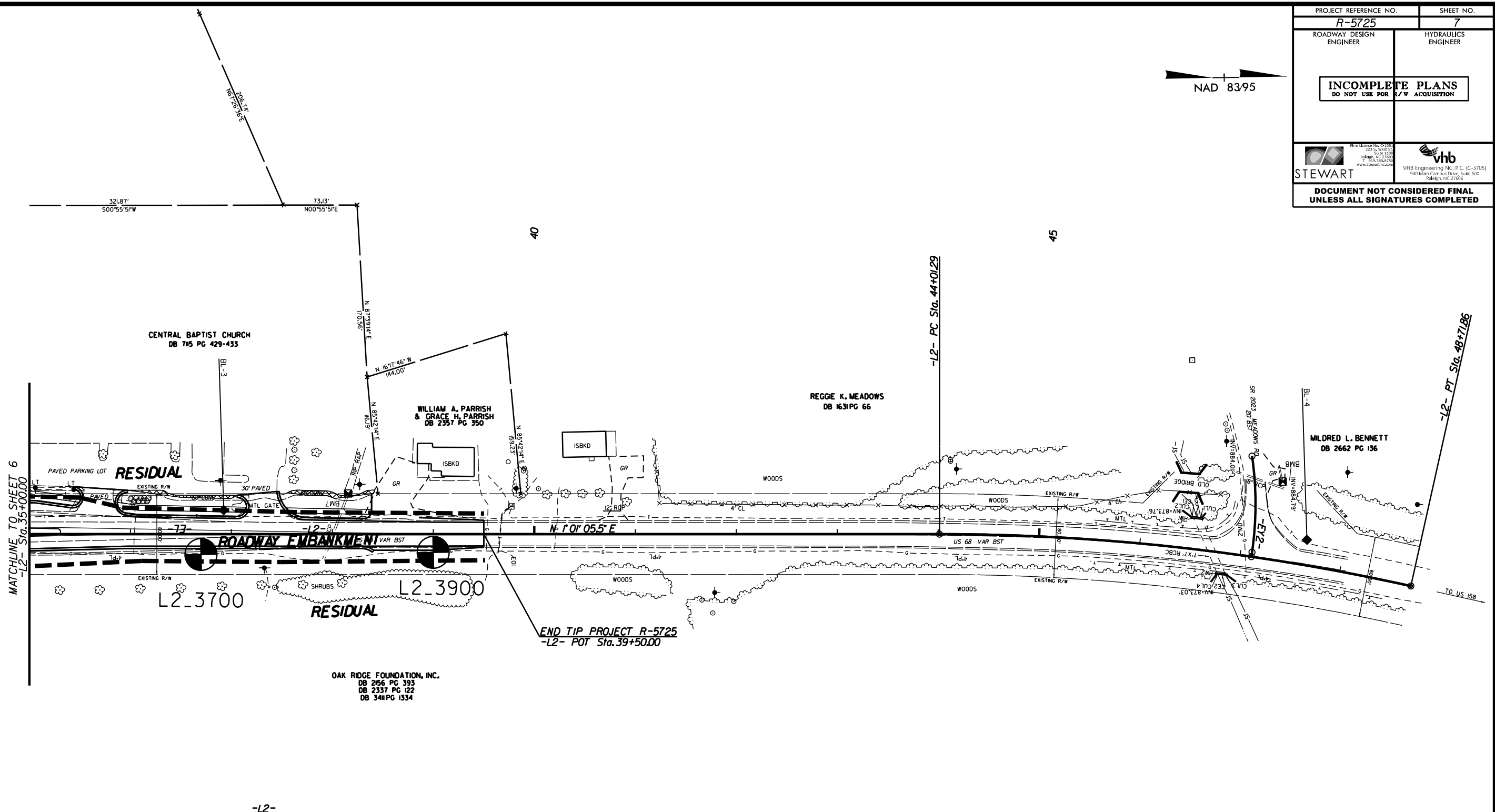
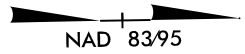
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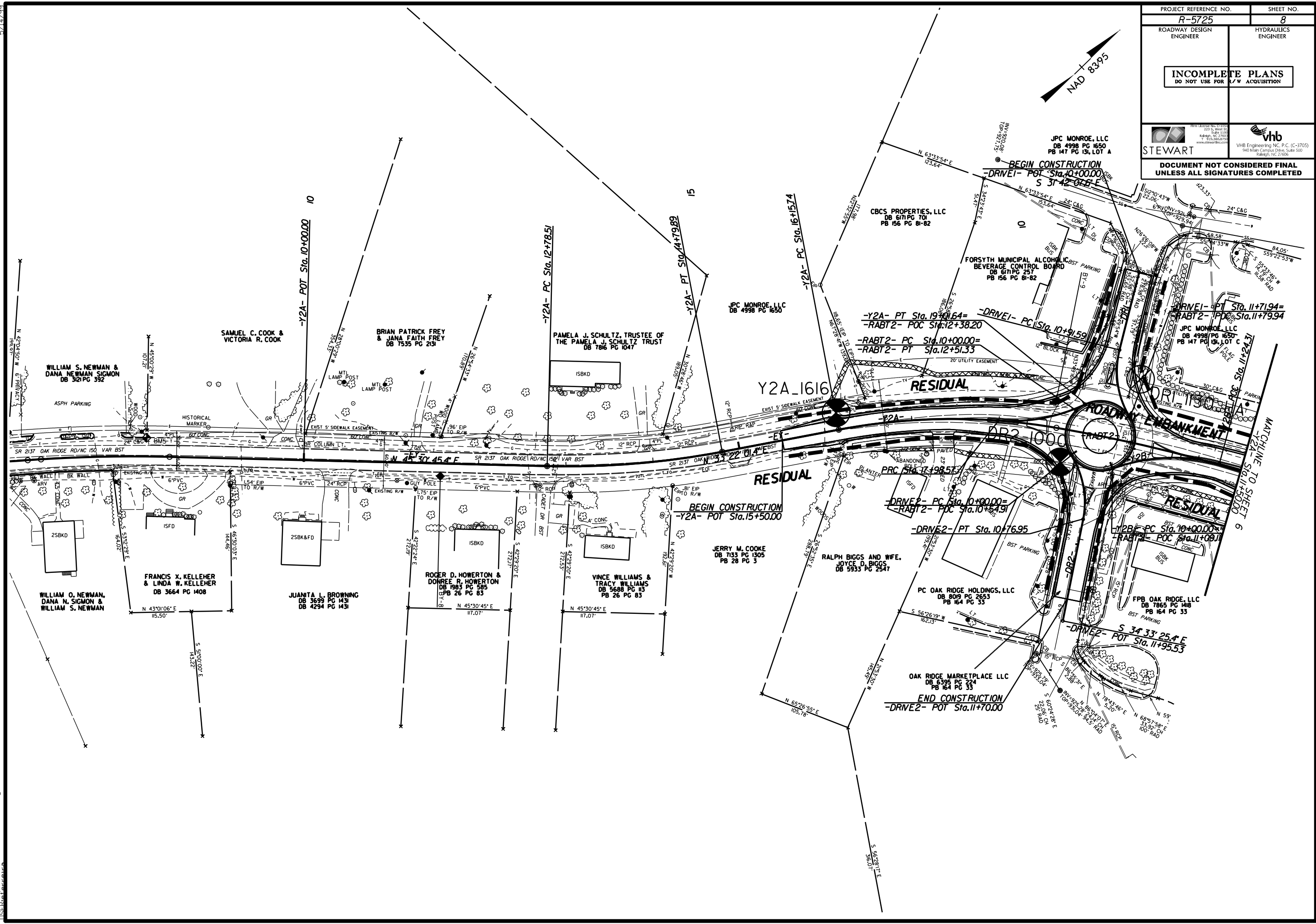
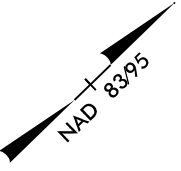
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-L2-

PROJECT REFERENCE NO. R-5725	SHEET NO. 8
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR P/L/W ACQUISITION	
 STEWART <small>1100 S. West St. Raleigh, NC 27601 P: 919.884.8888 www.stewartinc.com</small>	 vhb <small>VHB Engineering NC, P.C. (C-3705) 940 Main Campus Drive, Suite 500 Raleigh, NC 27606</small>
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

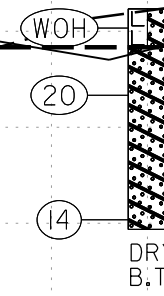


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SOIL TEST RESULTS															
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
SS-23	40 FT RT	18+00	0-1.5	A-2-7(0)	40	22	10.2	30.4	14.1	59.4	39.8	74	43.4	21.6	---

LI_1800
18+00
40 RT

SS-23



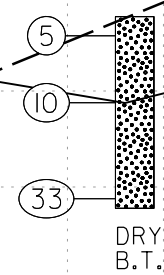
GROUND SURFACE

ROADWAY EMBANKMENT
VERY LOOSE, RED, MOIST, CLAYEY SAND (A-2-7)

RESIDUAL
MEDIUM DENSE, RED AND TAN, MOIST, CLAYEY SAND (A-2-6)

18 + 00.00

LI_1550
15+50
38.5 RT



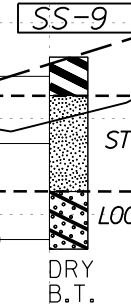
GROUND SURFACE

RESIDUAL
LOOSE TO DENSE, WHITE AND RED, MOIST, SILTY SAND (A-2-4)

15 + 50.00

SOIL TEST RESULTS															
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
SS-9	41 FT RT	13+00	0-1.5	A-7-6(12)	53	25	25.8	29.8	8.8	46.9	98	81	57	28.7	---

LI_1300
13+00
41 RT



GROUND SURFACE

RESIDUAL
SOFT, RED, MOIST, MICACEOUS, MODERATELY PLASTIC, SILTY CLAY (A-7)

STIFF, RED, MOIST, MICACEOUS, SANDY SILT (A-4)

LOOSE, RED, MOIST, MICACEOUS, CLAYEY SAND (A-2-6)

NOTE: EXISTING GROUND SURFACE SHOWN WAS TAKEN FROM ELECTRONIC TIN FILE (DATED NOVEMBER 2018). INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION.

13 + 00.00

-L1-

70 60 50 40 30 20 10 0 10 20 30 40 50 60 70

SOIL TEST RESULTS															
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
SS-1	10 FT LT	20+50	0.2-1.5	A-7-5(3)	43	12	27.67	30.39	18.31	23.6	97.85	79.16	46.38	30.3	---

LI_2050
20+50
10 LT
SS-1

(A) ROADWAY EMBANKMENT MEDIUM STIFF, RED, MOIST, SLIGHTLY PLASTIC, SILTY CLAY (A-7-5)

(8) LOOSE, RED, MOIST, CLAYEY SAND (A-2-6)

RESIDUAL
(6) VERY LOOSE TO LOOSE, GRAY AND WHITE, MOIST, MICACEOUS SILTY SAND (A-2-4)

(3) DRY B.T.

GROUND SURFACE

20 + 50.00

-L1-

NOTE: EXISTING GROUND SURFACE SHOWN WAS TAKEN FROM ELECTRONIC TIN FILE (DATED NOVEMBER 2018). INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION.

935 935

930 930

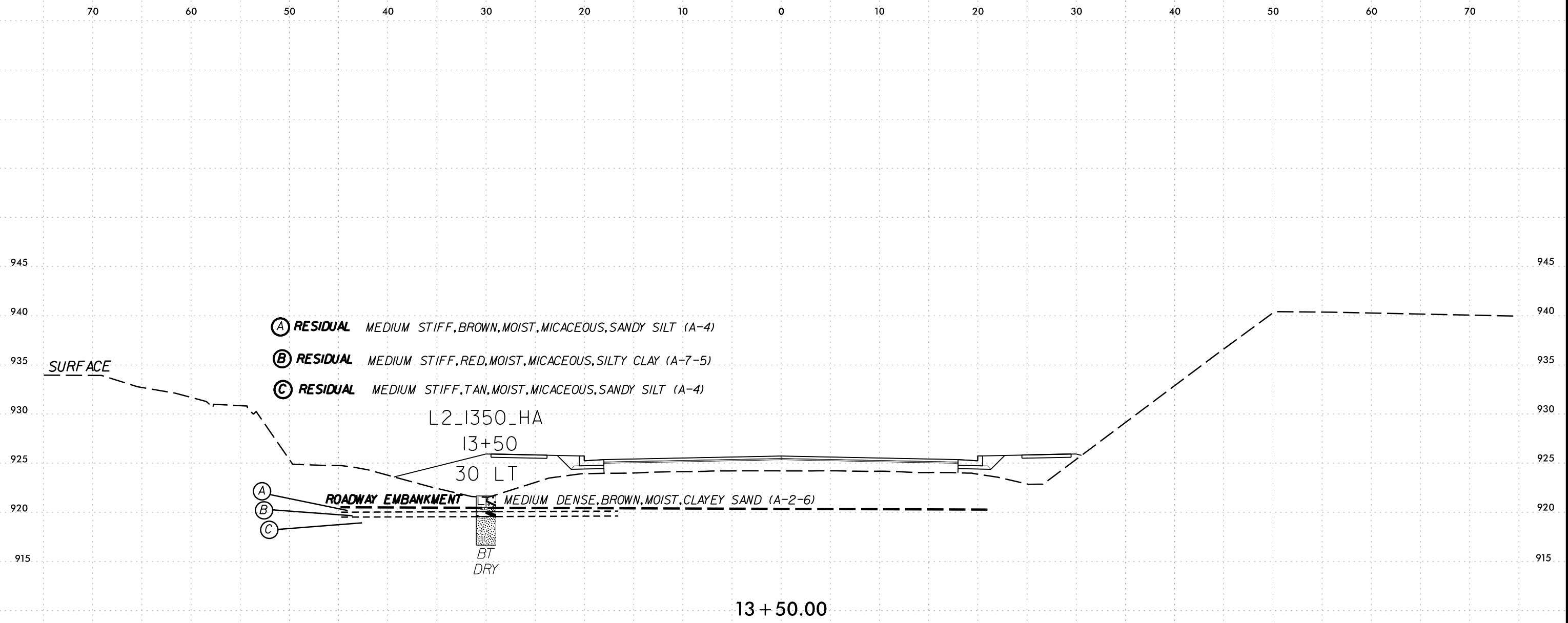
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920 920

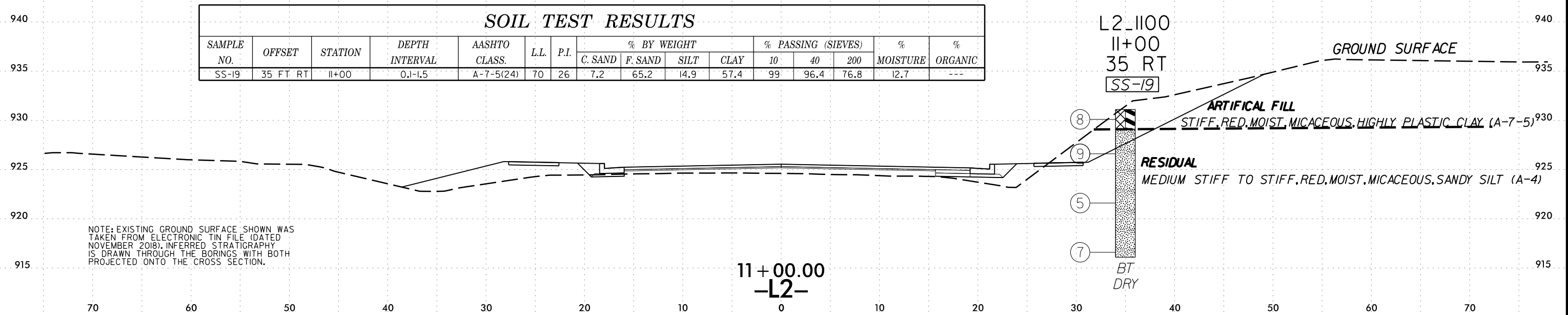
915 915

910 910

70 60 50 40 30 20 10 0 10 20 30 40 50 60 70



SOIL TEST RESULTS															
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	LL.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
SS-19	35 FT RT	11+00	0.1-1.5	A-7-5(24)	70	26	7.2	65.2	14.9	57.4	99	96.4	76.8	12.7	---



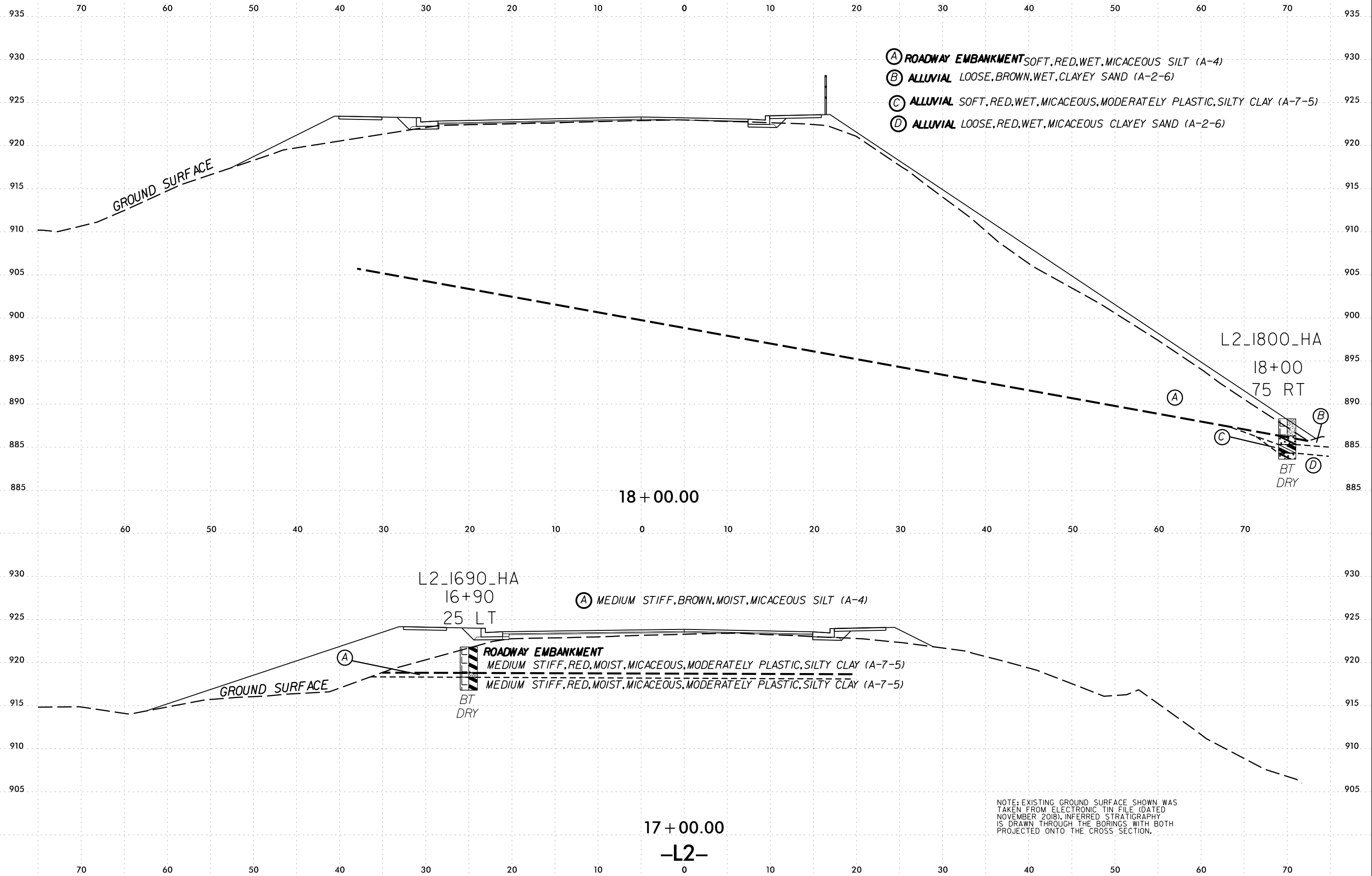
NOTE: EXISTING GROUND SURFACE SHOWN WAS TAKEN FROM ELECTRONIC TIN FILE (DATED NOVEMBER 2018). INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION.

8/23/99



PROJ. REFERENCE NO.
R-5725

SHEET NO.
12



GROUND SURFACE

L2_1800_HA
18+00
75 RT

18+00.00

L2_1690_HA
16+90
25 LT

GROUND SURFACE

(A) MEDIUM STIFF, BROWN, MOIST, MICACEOUS SILT (A-4)

ROADWAY EMBANKMENT
MEDIUM STIFF, RED, MOIST, MICACEOUS, MODERATELY PLASTIC, SILTY CLAY (A-7-5)
BT
DRY

17+00.00

-L2-

NOTE: EXISTING GROUND SURFACE SHOWN WAS TAKEN FROM ELECTRONIC TIN FILE (DATED NOVEMBER 2018). INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION.

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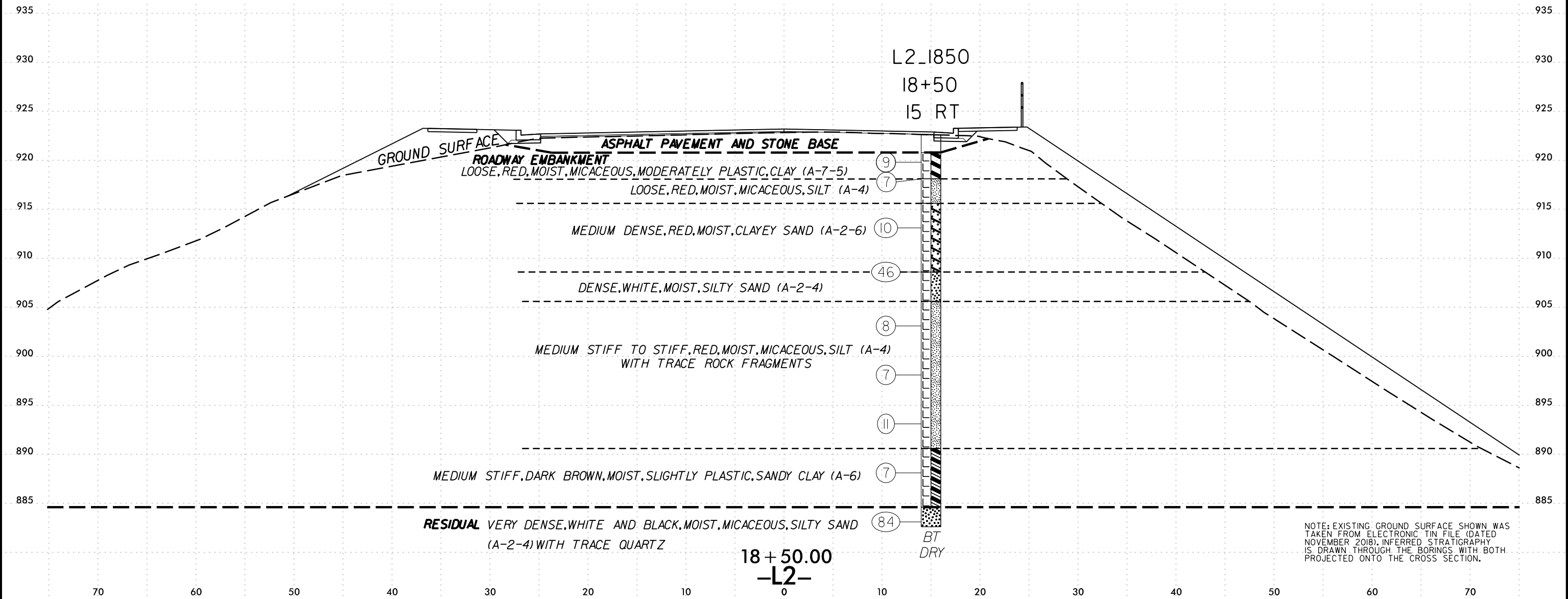
8/23/99



PROJ. REFERENCE NO.
R-5725

SHEET NO.
13

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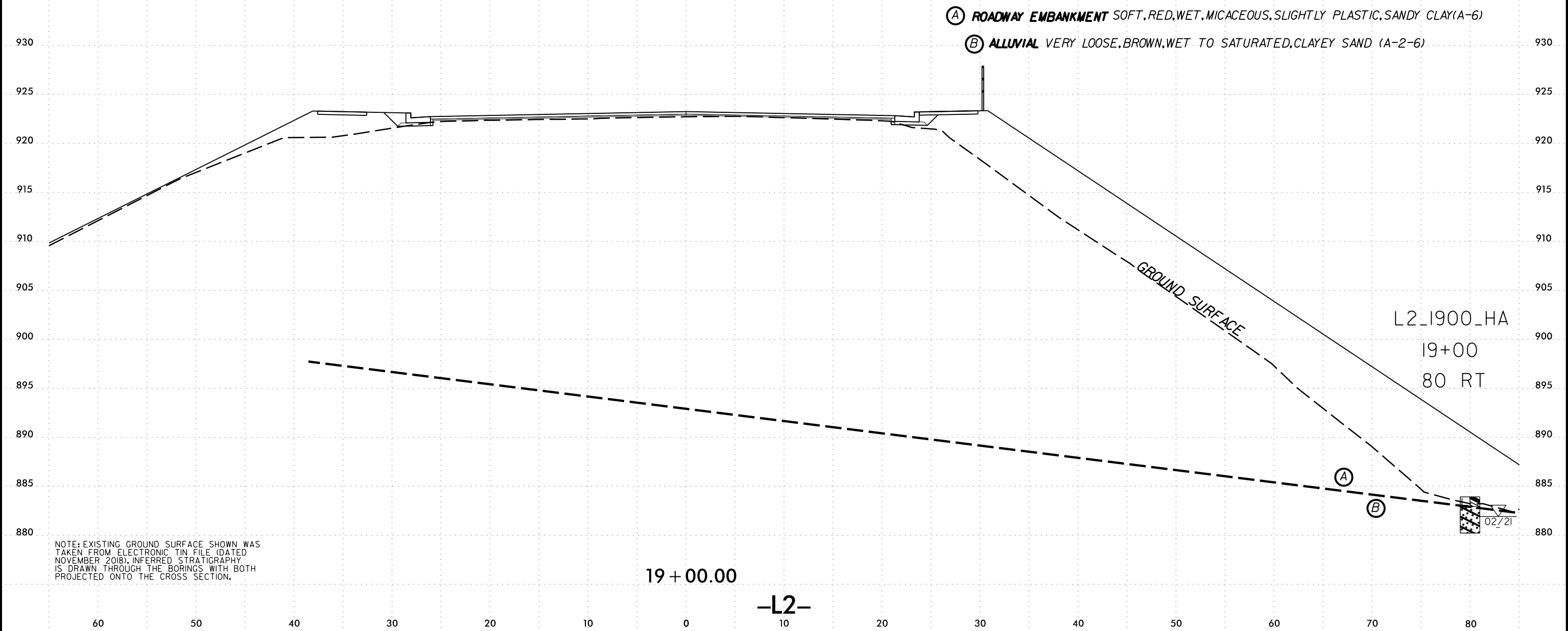
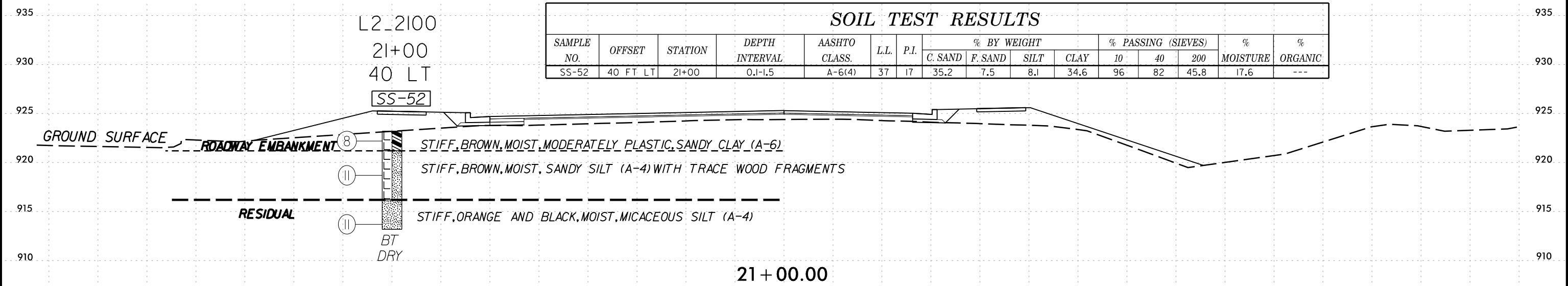


NOTE: EXISTING GROUND SURFACE SHOWN WAS TAKEN FROM ELECTRONIC TIN FILE (DATED NOVEMBER 2018). INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION.

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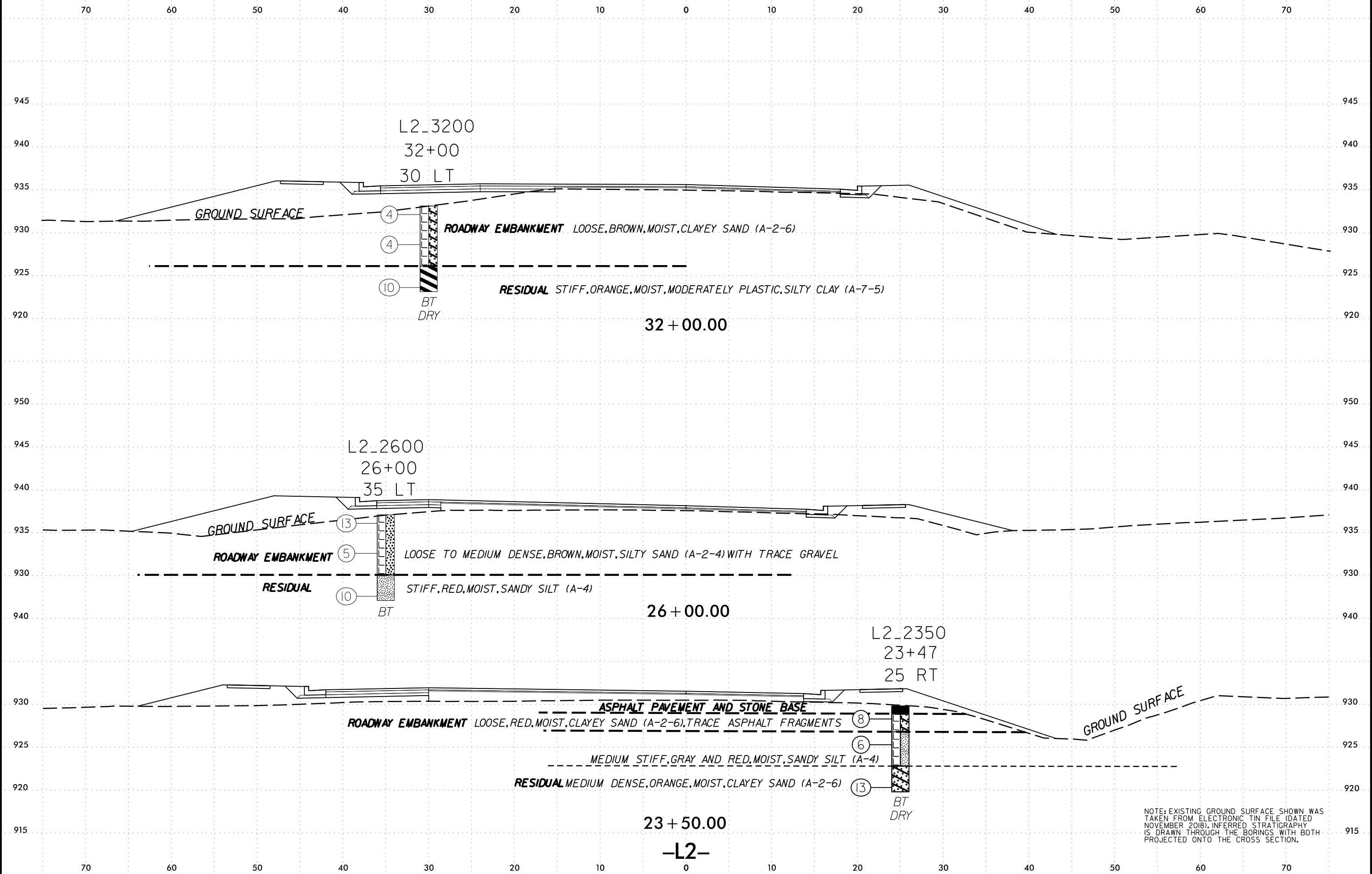
SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
SS-52	40 FT. LT	21+00	0.1-1.5	A-6(4)	37	17	35.2	7.5	8.1	34.6	96	82	45.8	17.6	---



NOTE: EXISTING GROUND SURFACE SHOWN WAS TAKEN FROM ELECTRONIC TIN FILE (DATED NOVEMBER 2018). INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION.

8/23/99

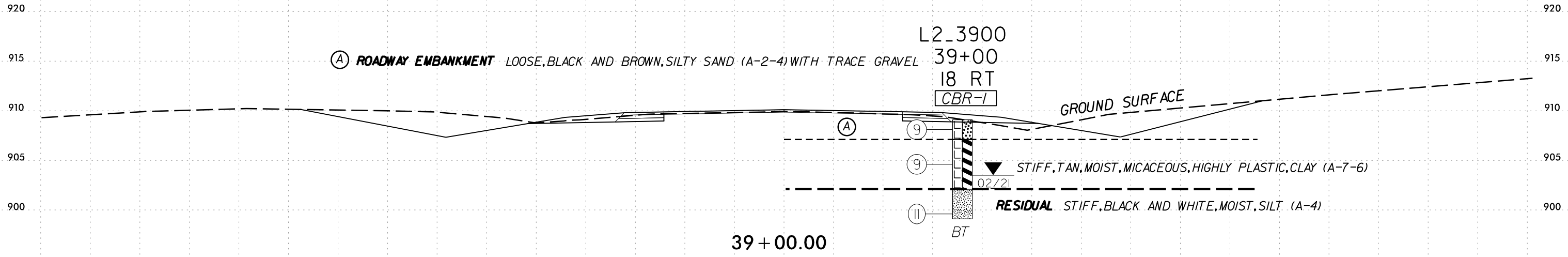


NOTE: EXISTING GROUND SURFACE SHOWN WAS TAKEN FROM ELECTRONIC TIN FILE (DATED NOVEMBER 2018). INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION.

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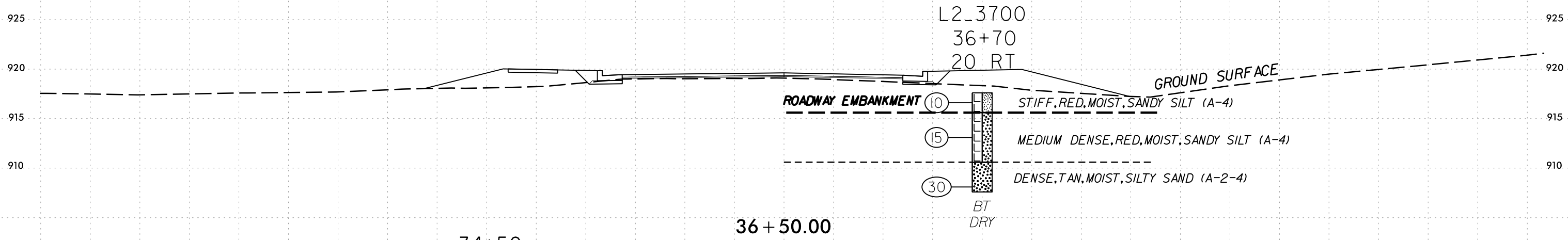
70 60 50 40 30 20 10 0 10 20 30 40 50 60 70

SOIL TEST RESULTS															
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	LL.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% CBR
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
CBR-1	18 FT RT	39+00	2-5	A-7-6(10)	51	26	30.7	20.8	21.07	27.41	100	81.15	51.53	25.9	2.8

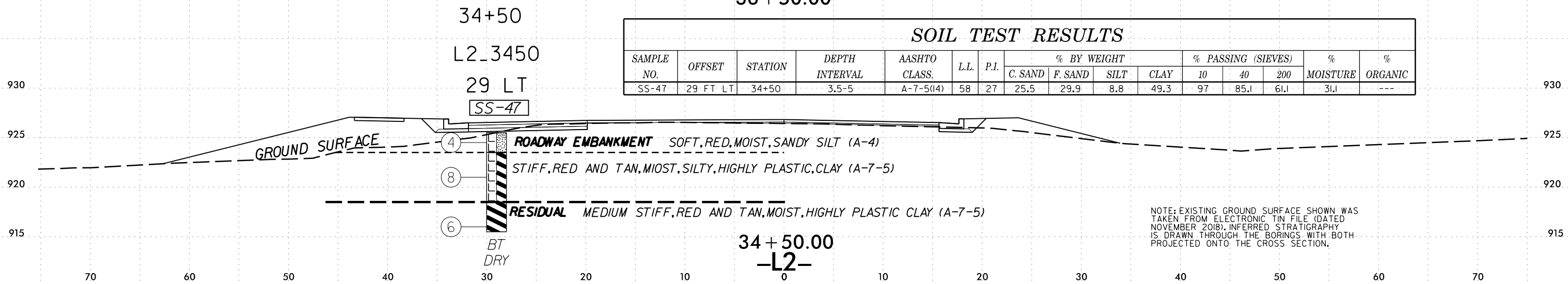


39 + 00.00

SOIL TEST RESULTS															
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	LL.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
SS-47	29 FT LT	34+50	3.5-5	A-7-5(14)	58	27	25.5	29.9	8.8	49.3	97	85.1	61.1	31.1	---



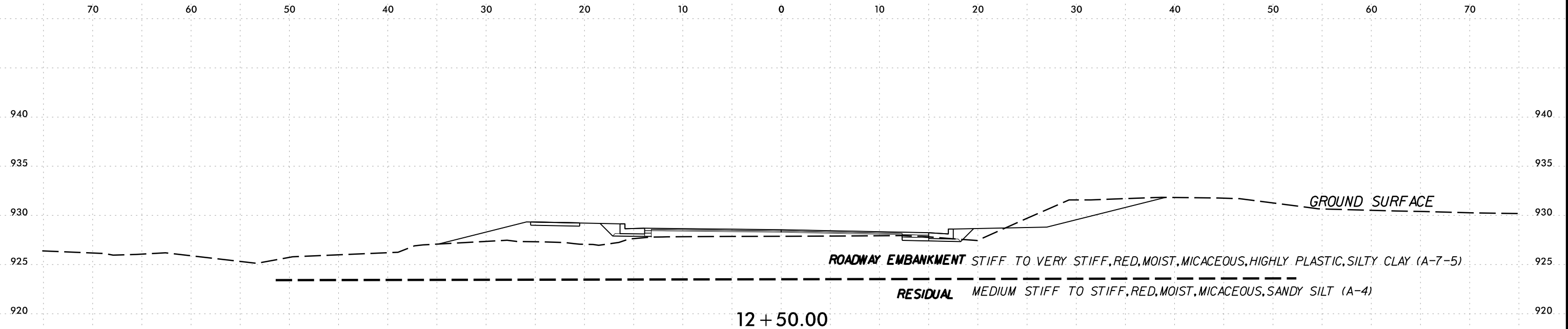
36 + 50.00



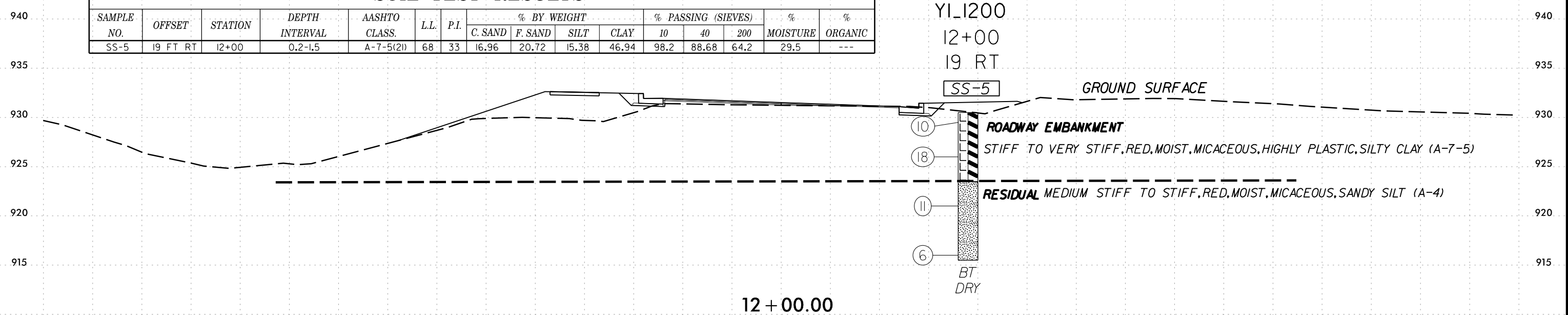
34 + 50.00
-L2-

NOTE: EXISTING GROUND SURFACE SHOWN WAS TAKEN FROM ELECTRONIC TIN FILE (DATED NOVEMBER 2018). INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION.

8/23/99



SOIL TEST RESULTS															
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	LL.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
SS-5	19 FT RT	12+00	0.2-1.5	A-7-5(2)	68	33	16.96	20.72	15.38	46.94	98.2	88.68	64.2	29.5	---



NOTE: EXISTING GROUND SURFACE SHOWN WAS TAKEN FROM ELECTRONIC TIN FILE (DATED NOVEMBER 2018). INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION.

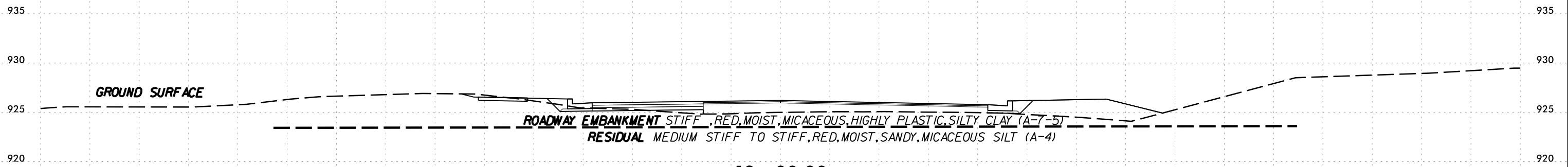
8/23/99



PROJ. REFERENCE NO.
R-5725

SHEET NO.
18

70 60 50 40 30 20 10 0 10 20 30 40 50 60 70



GROUND SURFACE

ROADWAY EMBANKMENT STIFF, RED, MOIST, MICACEOUS, HIGHLY PLASTIC, SILTY CLAY (A-7-5)
RESIDUAL MEDIUM STIFF TO STIFF, RED, MOIST, SANDY, MICACEOUS SILT (A-4)

13 + 00.00

-Y1-

NOTE: EXISTING GROUND SURFACE SHOWN WAS TAKEN FROM ELECTRONIC TIN FILE (DATED NOVEMBER 2018). INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION.

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70 60 50 40 30 20 10 0 10 20 30 40 50 60 70

70 60 50 40 30 20 10 0 10 20 30 40 50 60 70

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% CBR
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
CBR-2	20 FT LT	16+16	0-5	A-7-6(10)	52	25	30.04	18.39	14.42	37.15	95.95	76.3	51.83	24.7	7.4

16 + 50.00

Y2A_1616

16+16

20 LT

CBR-2

(A)

ROADWAY EMBANKMENT MEDIUM STIFF, BROWN, MOIST, SANDY MODERATELY PLASTIC CLAY (A-7-6)

GROUND SURFACE

(6)

(A)

RESIDUAL MEDIUM STIFF, BROWN, MOIST, SANDY SLIGHTLY PLASTIC CLAY (A-7-6)

(8)

MEDIUM STIFF, ORANGE AND WHITE, MOIST, SLIGHTLY PLASTIC CLAY (A-7-5)

(7)

BT
DRY

16 + 00.00

-Y2A-

NOTE: EXISTING GROUND SURFACE SHOWN WAS TAKEN FROM ELECTRONIC TIN FILE (DATED NOVEMBER 2018). INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION.

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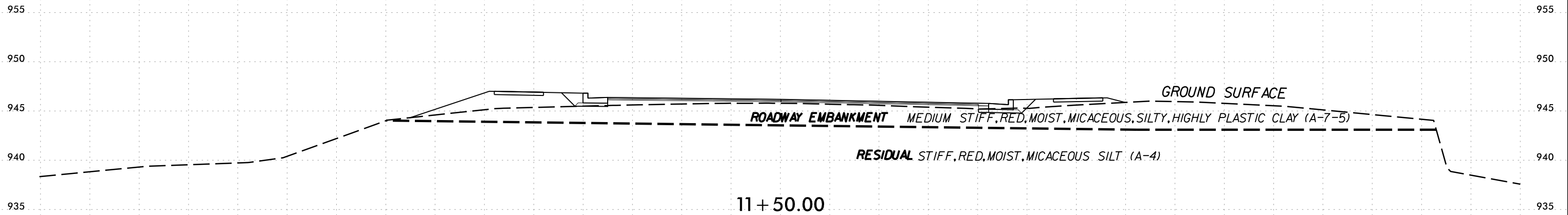
8/23/99



PROJ. REFERENCE NO.
R-5725

SHEET NO.
20

70 60 50 40 30 20 10 0 10 20 30 40 50 60 70



11 + 50.00

GROUND SURFACE

ROADWAY EMBANKMENT MEDIUM STIFF, RED, MOIST, MICACEOUS, SILTY, HIGHLY PLASTIC CLAY (A-7-5)

RESIDUAL STIFF, RED, MOIST, MICACEOUS SILT (A-4)

NOTE: EXISTING GROUND SURFACE SHOWN WAS TAKEN FROM ELECTRONIC TIN FILE (DATED NOVEMBER 2018). INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION.

-Y2B-

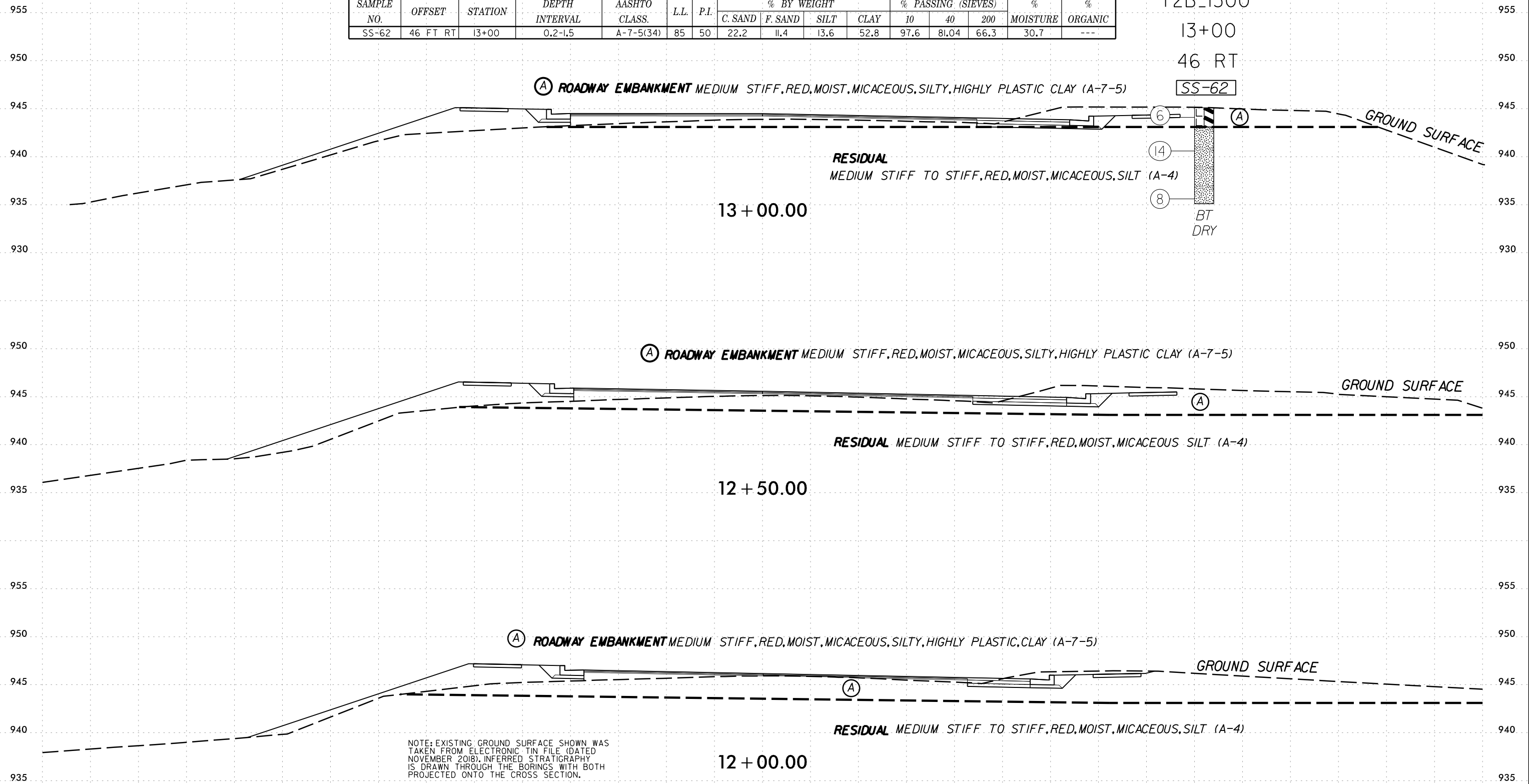
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SOIL TEST RESULTS															
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
SS-62	46 FT RT	13+00	0.2-1.5	A-7-5(34)	85	50	22.2	11.4	13.6	52.8	97.6	81.04	66.3	30.7	---

Y2B_1300
13+00
46 RT
SS-62



NOTE: EXISTING GROUND SURFACE SHOWN WAS TAKEN FROM ELECTRONIC TIN FILE (DATED NOVEMBER 2018). INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION.

-Y2B-

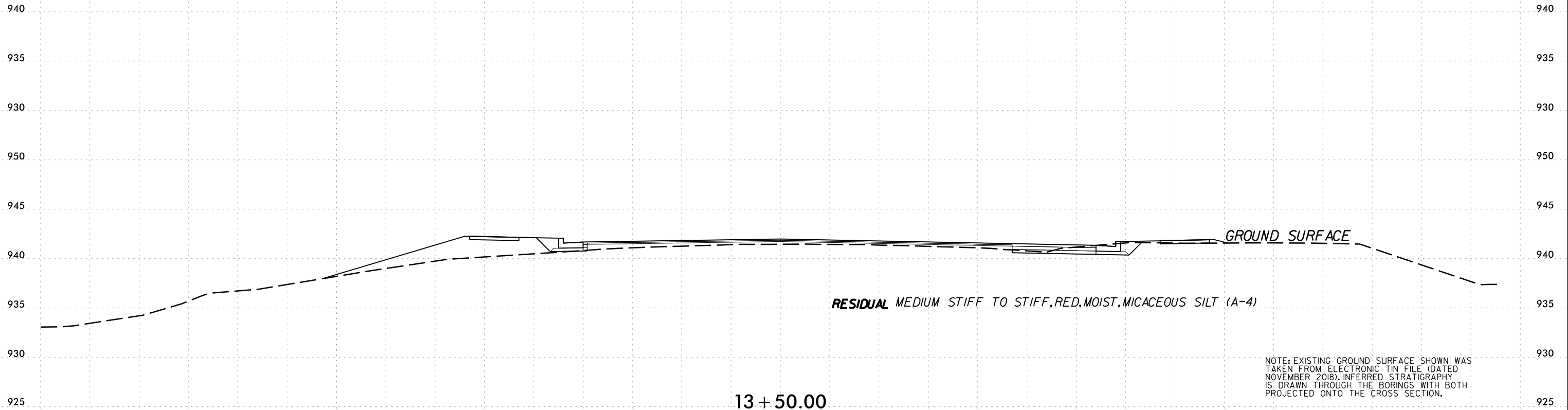
8/23/99



PROJ. REFERENCE NO.
R-5725

SHEET NO.
22

70 60 50 40 30 20 10 0 10 20 30 40 50 60 70



13 + 50.00
-Y2B-

NOTE: EXISTING GROUND SURFACE SHOWN WAS TAKEN FROM ELECTRONIC TIN FILE, DATED NOVEMBER 2018. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION.

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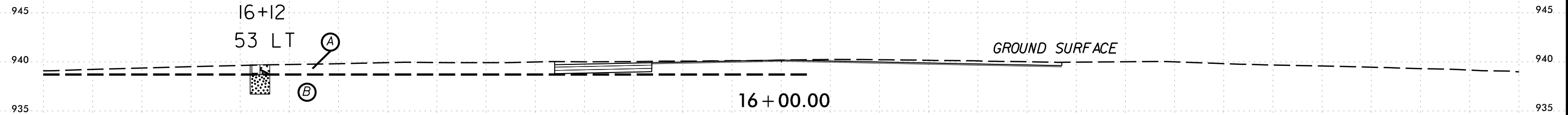
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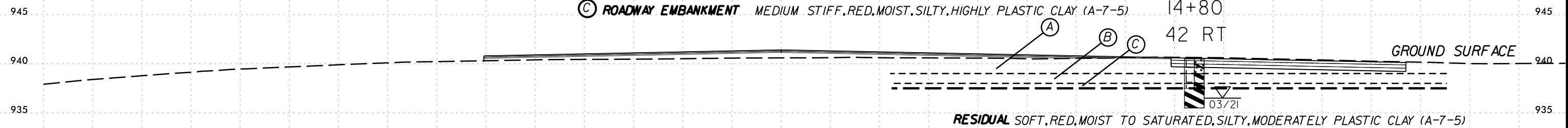
Y2B_1612_HA
16+12
53 LT

- (A) ROADWAY EMBANKMENT STIFF, RED CLAYEY SAND (A-2-6)
- (B) RESIDUAL DENSE, TAN, SILTY SAND (A-2-4)



- (A) ROADWAY EMBANKMENT MEDIUM DENSE, BROWN, MOIST, CLAYEY SAND (A-2-6), WITH TRACE ASPHALT
- (B) ROADWAY EMBANKMENT MEDIUM STIFF, BROWN, MOIST, SANDY CLAY (A-6)
- (C) ROADWAY EMBANKMENT MEDIUM STIFF, RED, MOIST, SILTY, HIGHLY PLASTIC CLAY (A-7-5)

Y2B_1480_HA
14+80
42 RT



15 + 00.00
-Y2B-

NOTE: EXISTING GROUND SURFACE SHOWN WAS TAKEN FROM ELECTRONIC TIN FILE (DATED NOVEMBER 2018). INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION.

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70 60 50 40 30 20 10 0 10 20 30 40 50 60 70

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70 60 50 40 30 20 10 0 10 20 30 40 50 60 70

SOIL TEST RESULTS															
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	LL	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
SS-65	46 FT LT	17+40	0.2-1.5	A-7-6(7)	59	33	37.9	15.6	7.4	39.1	81.4	57.8	36.7	22.9	---

Y2B_1750
17+40
46 LT

SS-65

6 ROADWAY EMBANKMENT MEDIUM STIFF, RED AND BROWN, HIGHLY PLASTIC, SILTY CLAY (A-7-6)

22 MEDIUM DENSE TO DENSE, TAN, PINK, AND WHITE, MOIST, SILTY COARSE SAND (A-2-4)

34 BT DRY

GROUND SURFACE

17 + 50.00

NOTE: EXISTING GROUND SURFACE SHOWN WAS TAKEN FROM ELECTRONIC TIN FILE (DATED NOVEMBER 2018). INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION.

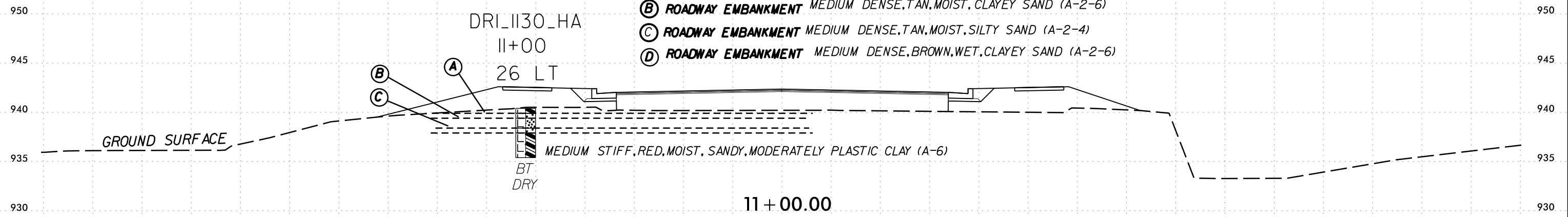
-Y2B-

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70 60 50 40 30 20 10 0 10 20 30 40 50 60 70

- (A) ROADWAY EMBANKMENT MEDIUM STIFF, TAN, MOIST, MODERATELY PLASTIC, SANDY CLAY (A-6)
- (B) ROADWAY EMBANKMENT MEDIUM DENSE, TAN, MOIST, CLAYEY SAND (A-2-6)
- (C) ROADWAY EMBANKMENT MEDIUM DENSE, TAN, MOIST, SILTY SAND (A-2-4)
- (D) ROADWAY EMBANKMENT MEDIUM DENSE, BROWN, WET, CLAYEY SAND (A-2-6)



NOTE: EXISTING GROUND SURFACE SHOWN WAS TAKEN FROM ELECTRONIC TIN FILE (DATED NOVEMBER 2018). INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION.

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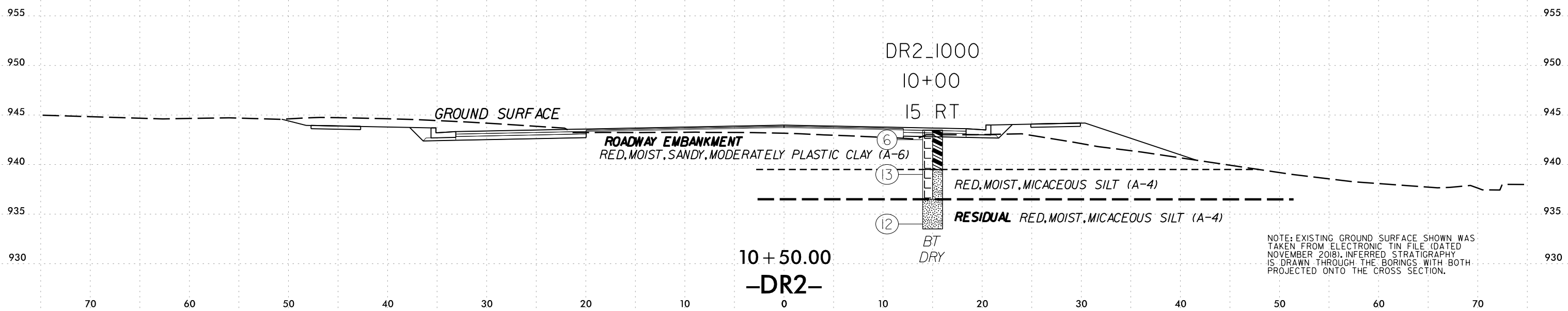
8/23/99



PROJ. REFERENCE NO.
R-5725

SHEET NO.
26

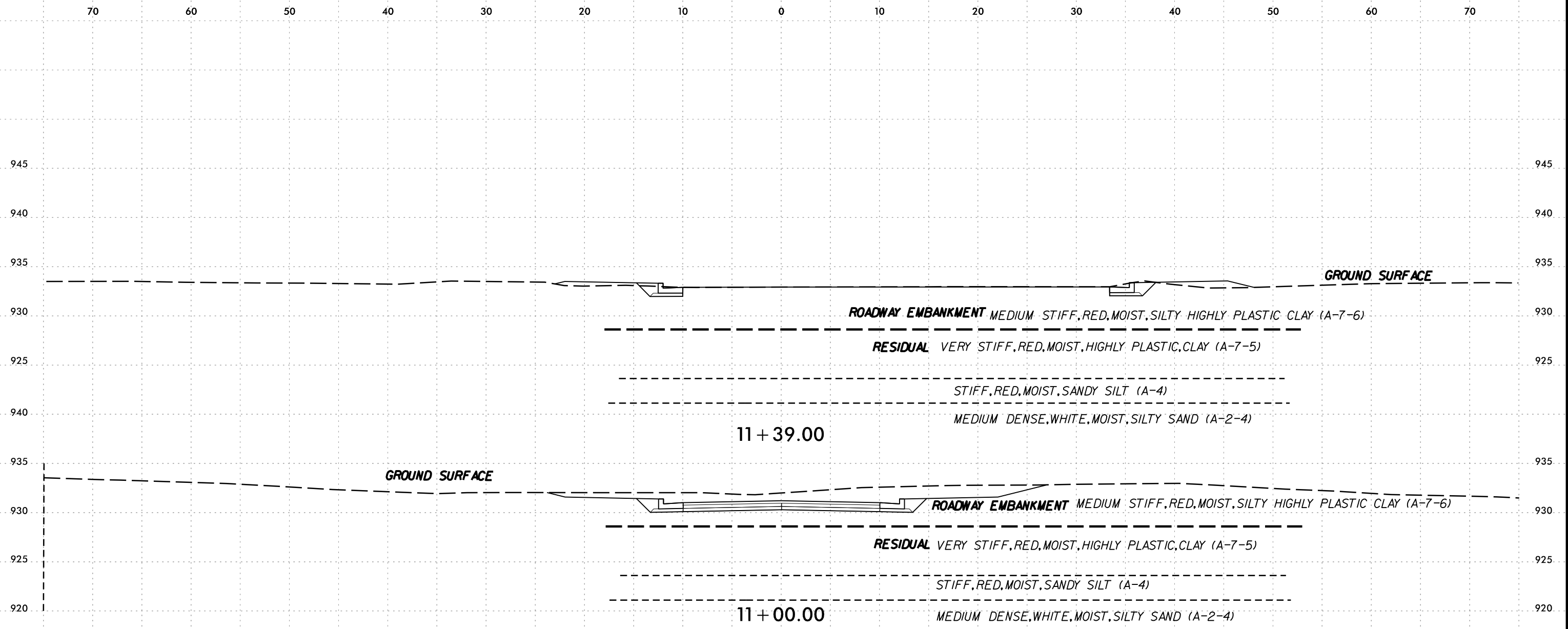
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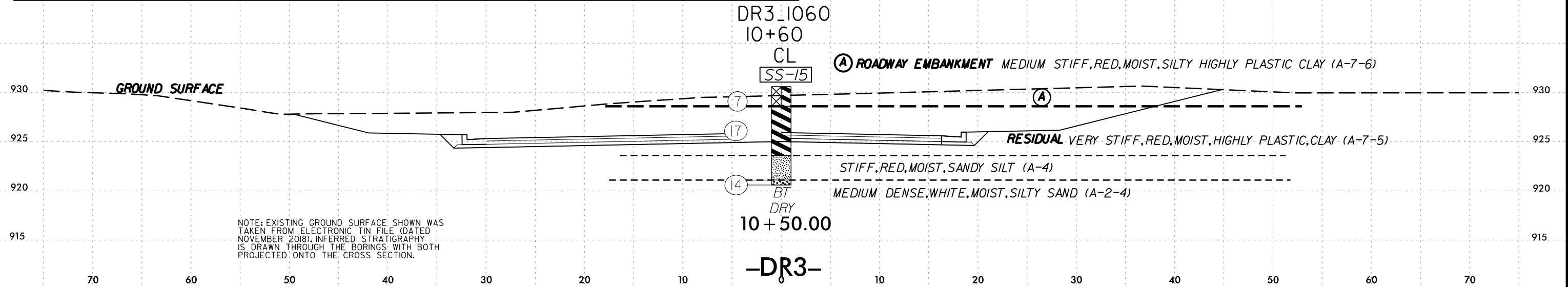
NOTE: EXISTING GROUND SURFACE SHOWN WAS TAKEN FROM ELECTRONIC TIN FILE (DATED NOVEMBER 2018). INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION.

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SOIL TEST RESULTS															
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
SS-15	CL	10+60	0-1.5	A-7-6(18)	50	32	20.5	40.6	5.4	55.7	100	89	63	20.9	



NOTE: EXISTING GROUND SURFACE SHOWN WAS TAKEN FROM ELECTRONIC TIN FILE (DATED NOVEMBER 2018). INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION.

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