

NOTE: SEE SHEET 2A 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.	B-4434	1	20
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
33700.1.1	BRNHS-17(35)	PE	
33700.2.1	BRNHS-17(35)	RW	
33700.3.1	BRNHS-17(35)	CONST.	

CONTENTS

LINE	STATION	PLAN	PROFILE
-L-	13+40 TO 26+20	4	5
-Y-	10+00 TO 11+60	4	6

CROSS SECTIONS	STATION	SHEET
-L-	14+00 TO 14+50	7
-L-	16+50 TO 26+00	8-20

ROADWAY
SUBSURFACE INVESTIGATION

PROJ. REFERENCE NO. 33700.1.1 (B-4434) F.A. PROJ. BRNHS-17(35)
COUNTY BERTIE
PROJECT DESCRIPTION BRIDGE NO. 14 ON US 17 / NC 308 OVER CASHIE RIVER

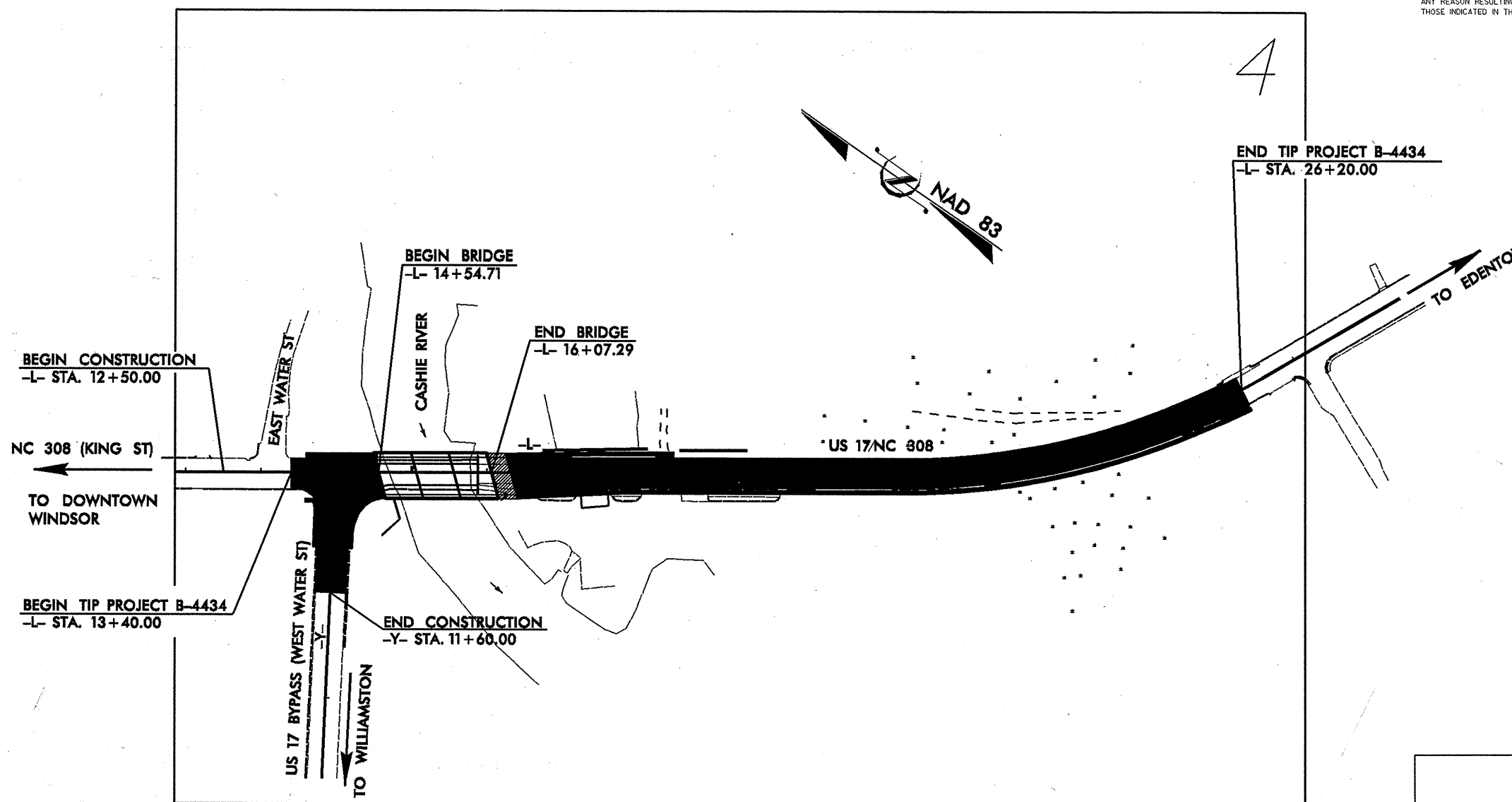
CAUTION NOTICE

THE SUBSURFACE INFORMATION AND THE SUBSURFACE INVESTIGATION ON WHICH IT IS BASED WERE MADE FOR THE PURPOSE OF STUDY, PLANNING, AND DESIGN, AND NOT FOR CONSTRUCTION OR PAY PURPOSES. THE VARIOUS FIELD BORING LOGS, ROCK CORES, AND SOIL TEST DATA AVAILABLE MAY BE REVIEWED OR INSPECTED IN RALEIGH BY CONTACTING THE N.C. DEPARTMENT OF TRANSPORTATION, GEOTECHNICAL ENGINEERING UNIT AT (919) 250-4088. NEITHER THE SUBSURFACE PLANS AND REPORTS, NOR THE FIELD BORING LOGS, ROCK CORES, OR SOIL TEST DATA ARE 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 THIS 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.

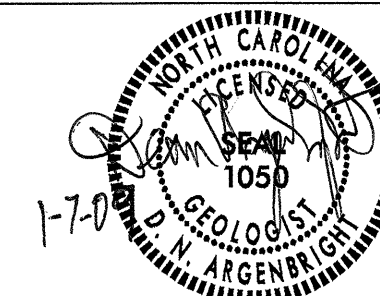
INVENTORY



CONTRACT: C202125 ID: B-4434

- PERSONNEL
- K.B. QUICK
 - R.E. SMITH
 - W.N. CHERRY
 - C.M. WRIKE
 - J.M. EDMONDSON

INVESTIGATED BY F.M. WESCOTT III
CHECKED BY D.N. ARGENBRIGHT
SUBMITTED BY D.N. ARGENBRIGHT
DATE JANUARY 2009



DRAWN BY: C.P. TURNER

NOTE - THE INFORMATION CONTAINED HEREIN IS NOT IMPLIED OR GUARANTEED BY THE N.C. DEPARTMENT OF TRANSPORTATION AS BEING ACCURATE NOR IS IT CONSIDERED TO BE PART OF THE PLANS, SPECIFICATIONS, OR CONTRACT FOR THE PROJECT.

NOTE - 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.

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
GEOTECHNICAL ENGINEERING UNIT

SUBSURFACE INVESTIGATION

SOIL AND ROCK LEGEND, TERMS, SYMBOLS, AND ABBREVIATIONS

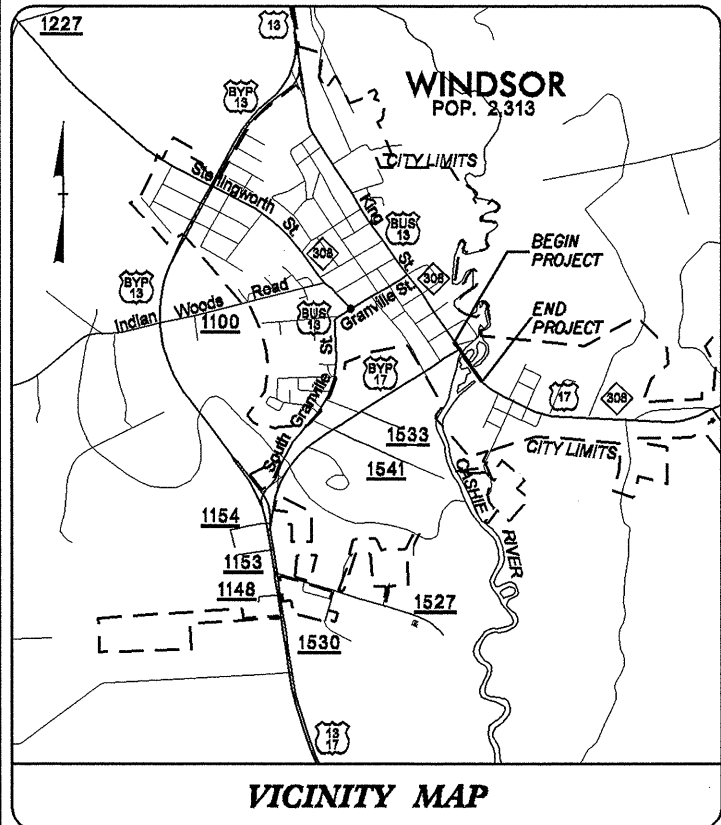
SOIL DESCRIPTION		GRADATION		ROCK DESCRIPTION		TERMS AND DEFINITIONS																																																																																																					
<p>SOIL IS CONSIDERED TO BE THE UNCONSOLIDATED, SEMI-CONSOLIDATED, OR WEATHERED EARTH MATERIALS THAT CAN BE PENETRATED WITH A CONTINUOUS FLIGHT POWER AUGER, AND YIELD LESS THAN 100 BLOWS PER FOOT ACCORDING TO STANDARD PENETRATION TEST (AASHTO 1206, ASTM D-1586). SOIL CLASSIFICATION IS BASED ON THE AASHTO SYSTEM. BASIC DESCRIPTIONS GENERALLY SHALL INCLUDE: CONSISTENCY, COLOR, TEXTURE, MOISTURE, AASHTO CLASSIFICATION, AND OTHER PERTINENT FACTORS SUCH AS MINERALOGICAL COMPOSITION, ANGULARITY, STRUCTURE, PLASTICITY, ETC. EXAMPLE:</p> <p style="text-align: center;"><i>VERY STIFF, GRAY, SILTY CLAY, MOST WITH INTERBEDDED FINE SAND LAYERS, HEAVY PLASTIC, A-7-6</i></p>		<p>WELL GRADED - INDICATES A GOOD REPRESENTATION OF PARTICLE SIZES FROM FINE TO COARSE. UNIFORM - INDICATES THAT SOIL PARTICLES ARE ALL APPROXIMATELY THE SAME SIZE. (ALSO POORLY GRADED)</p> <p>GAP-GRADED - INDICATES A MIXTURE OF UNIFORM PARTICLES OF TWO OR MORE SIZES.</p> <p style="text-align: center;">ANGULARITY OF GRAINS</p> <p>THE ANGULARITY OR ROUNDNESS OF SOIL GRAINS IS DESIGNATED BY THE TERMS: <u>ANGULAR</u>, <u>SUBANGULAR</u>, <u>SUBROUNDED</u>, OR <u>ROUNDED</u>.</p>		<p>HARD ROCK IS NON-COASTAL PLAIN MATERIAL THAT IF TESTED, WOULD YIELD SPT REFUSAL. AN INFERRED ROCK LINE INDICATES THE LEVEL AT WHICH NON-COASTAL PLAIN MATERIAL WOULD YIELD SPT REFUSAL. SPT REFUSAL IS PENETRATION BY A SPLIT SPOON SAMPLER EQUAL TO OR LESS THAN 0.1 FOOT PER 60 BLOWS. IN NON-COASTAL PLAIN MATERIAL, THE TRANSITION BETWEEN SOIL AND ROCK IS OFTEN REPRESENTED BY A ZONE OF WEATHERED ROCK.</p> <p>ROCK MATERIALS ARE TYPICALLY DIVIDED AS FOLLOWS:</p>		<p>ALLUVIUM (ALLUV.) - SOILS THAT HAVE BEEN TRANSPORTED BY WATER.</p> <p>AQUIFER - A WATER BEARING FORMATION OR STRATA.</p> <p>ARENACEOUS - APPLIED TO ROCKS THAT HAVE BEEN DERIVED FROM SAND OR THAT CONTAIN SAND.</p> <p>ARGILLACEOUS - APPLIED TO ALL ROCKS OR SUBSTANCES COMPOSED OF CLAY MINERALS, OR HAVING A NOTABLE PROPORTION OF CLAY IN THEIR COMPOSITION, AS SHALE, SLATE, ETC.</p> <p>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.</p> <p>CALCAREOUS (CALC.) - SOILS THAT CONTAIN APPRECIABLE AMOUNTS OF CALCIUM CARBONATE.</p> <p>COLLUVIUM - ROCK FRAGMENTS MIXED WITH SOIL DEPOSITED BY GRAVITY ON SLOPE OR AT BOTTOM OF SLOPE.</p> <p>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.</p> <p>DIKE - A TABULAR BODY OF IGNEOUS ROCK THAT CUTS ACROSS THE STRUCTURE OF ADJACENT ROCKS OR CUTS MASSIVE ROCK.</p> <p>DIP - THE ANGLE AT WHICH A STRATUM OR ANY PLANAR FEATURE IS INCLINED FROM THE HORIZONTAL.</p> <p>DIP DIRECTION (DIP AZIMUTH) - THE DIRECTION OR BEARING OF THE HORIZONTAL TRACE OF THE LINE OF DIP, MEASURED CLOCKWISE FROM NORTH.</p> <p>FAULT - A FRACTURE OR FRACTURE ZONE ALONG WHICH THERE HAS BEEN DISPLACEMENT OF THE SIDES RELATIVE TO ONE ANOTHER PARALLEL TO THE FRACTURE.</p> <p>FISSILE - A PROPERTY OF SPLITTING ALONG CLOSELY SPACED PARALLEL PLANES.</p> <p>FLOAT - ROCK FRAGMENTS ON SURFACE NEAR THEIR ORIGINAL POSITION AND DISLODGED FROM PARENT MATERIAL.</p> <p>FLOOD PLAIN (FP) - LAND BORDERING A STREAM, BUILT OF SEDIMENTS DEPOSITED BY THE STREAM.</p> <p>FORMATION (FM) - A MAPPABLE GEOLOGIC UNIT THAT CAN BE RECOGNIZED AND TRACED IN THE FIELD.</p> <p>JOINT - FRACTURE IN ROCK ALONG WHICH NO APPRECIABLE MOVEMENT HAS OCCURRED.</p> <p>LEDGE - A SHELF-LIKE RIDGE OR PROJECTION OF ROCK WHOSE THICKNESS IS SMALL COMPARED TO ITS LATERAL EXTENT.</p> <p>LENS - A BODY OF SOIL OR ROCK THAT THINS OUT IN ONE OR MORE DIRECTIONS.</p> <p>MOTTLED (MOT.) - IRREGULARLY MARKED WITH SPOTS OF DIFFERENT COLORS. MOTTLING IN SOILS USUALLY INDICATES POOR AERATION AND LACK OF GOOD DRAINAGE.</p> <p>PERCHED WATER - WATER MAINTAINED ABOVE THE NORMAL GROUND WATER LEVEL BY THE PRESENCE OF AN INTERVENING IMPERVIOUS STRATUM.</p> <p>RESIDUAL (RES.) SOIL - SOIL FORMED IN PLACE BY THE WEATHERING OF ROCK.</p> <p>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.</p> <p>SAPROLITE (SAP.) - RESIDUAL SOIL THAT RETAINS THE RELIC STRUCTURE OR FABRIC OF THE PARENT ROCK.</p> <p>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.</p> <p>SLICKENSIDE - POLISHED AND STRIATED SURFACE THAT RESULTS FROM FRICTION ALONG A FAULT OR SLIP PLANE.</p> <p>STANDARD PENETRATION TEST (PENETRATION RESISTANCE) (SPT) - NUMBER OF BLOWS (N OR BPF) OF A 140 LB. HAMMER FALLING 30 INCHES REQUIRED TO PRODUCE A PENETRATION OF 1 FOOT INTO SOIL WITH A 2 INCH OUTSIDE DIAMETER SPLIT SPOON SAMPLER. SPT REFUSAL IS PENETRATION EQUAL TO OR LESS THAN 0.1 FOOT PER 60 BLOWS.</p> <p>STRATA CORE RECOVERY (SREC.) - TOTAL LENGTH OF STRATA MATERIAL RECOVERED DIVIDED BY TOTAL LENGTH OF STRATUM AND EXPRESSED AS A PERCENTAGE.</p> <p>STRATA ROCK QUALITY DESIGNATION (SRQD) - 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.</p> <p>TOPSOIL (TS.) - SURFACE SOILS USUALLY CONTAINING ORGANIC MATTER.</p>																																																																																																					
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PRIMARY SOIL TYPE	COMPACTNESS OR CONSISTENCY	RANGE OF STANDARD PENETRATION RESISTANCE (N-VALUE)	RANGE OF UNCONFINED COMPRESSIVE STRENGTH (TONS/FT ²)																																																																																																								
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GENERALLY SILT-CLAY MATERIAL (COHESIVE)	VERY SOFT SOFT MEDIUM STIFF STIFF VERY STIFF HARD	<2 2 TO 4 4 TO 8 8 TO 15 15 TO 30 >30	<0.25 0.25 TO 0.50 0.5 TO 1.0 1 TO 2 2 TO 4 >4																																																																																																								
TEXTURE OR GRAIN SIZE		ABBREVIATIONS		FRACTURE SPACING		BEDDING																																																																																																					
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th>U.S. STD. SIEVE SIZE OPENING (MM)</th> <th>4</th> <th>10</th> <th>40</th> <th>60</th> <th>200</th> <th>270</th> </tr> <tr> <td></td> <td>4.75</td> <td>2.00</td> <td>0.42</td> <td>0.25</td> <td>0.075</td> <td>0.053</td> </tr> </table>		U.S. STD. SIEVE SIZE OPENING (MM)	4	10	40	60	200	270		4.75	2.00	0.42	0.25	0.075	0.053	<p>AR - AUGER REFUSAL BT - BORING TERMINATED CL - CLAY CPT - CONE PENETRATION TEST CSE - COARSE DMT - DILATOMETER TEST DPT - DYNAMIC PENETRATION TEST F - VOID RATIO FOSS. - FOSSILIFEROUS FRAC. - FRACTURED, FRACTURES FRAGS. - FRAGMENTS</p> <p>HI. - HIGHLY MED. - MEDIUM MICA. - MICACEOUS MOD. - MODERATELY NP - NON PLASTIC ORG. - ORGANIC PMT - PRESSUREMETER TEST SAP. - SAPROLITIC SD. - SAND, SANDY SL. - SILT, SILTY SLL. - SLIGHTLY TCR - TRICONE REFUSAL</p>		<p>VERY WIDE MORE THAN 10 FEET WIDE 3 TO 10 FEET MODERATELY CLOSE 1 TO 3 FEET CLOSE 0.16 TO 1 FEET VERY CLOSE LESS THAN 0.16 FEET</p>		<p>VERY THICKLY BEDDED > 4 FEET THICKLY BEDDED 1.5 - 4 FEET THINLY BEDDED 0.16 - 1.5 FEET VERY THINLY BEDDED 0.03 - 0.16 FEET THICKLY LAMINATED 0.008 - 0.03 FEET THINLY LAMINATED < 0.008 FEET</p>																																																																																							
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PLASTICITY		DESCRIPTIONS MAY INCLUDE COLOR OR COLOR COMBINATIONS (TAN, RED, YELLOW-BROWN, BLUE-GRAY). MODIFIERS SUCH AS LIGHT, DARK, STREAKED, ETC. ARE USED TO DESCRIBE APPEARANCE.		FRAC. - FRACTURED, FRACTURES		TOPSOIL (TS.)																																																																																																					
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th>NONPLASTIC</th> <th>PLASTICITY INDEX (PI)</th> <th>DRY STRENGTH</th> </tr> <tr> <td>LOW PLASTICITY</td> <td>0-5</td> <td>VERY LOW</td> </tr> <tr> <td>MED. PLASTICITY</td> <td>6-15</td> <td>SLIGHT</td> </tr> <tr> <td>HIGH PLASTICITY</td> <td>16-25</td> <td>MEDIUM</td> </tr> <tr> <td></td> <td>26 OR MORE</td> <td>HIGH</td> </tr> </table>		NONPLASTIC	PLASTICITY INDEX (PI)	DRY STRENGTH	LOW PLASTICITY	0-5	VERY LOW	MED. PLASTICITY	6-15	SLIGHT	HIGH PLASTICITY	16-25	MEDIUM		26 OR MORE	HIGH																																																																																											
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05/08/99

CONTRACT: TIP PROJECT: B-4434

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See Sheet 1-A For Index of Sheets



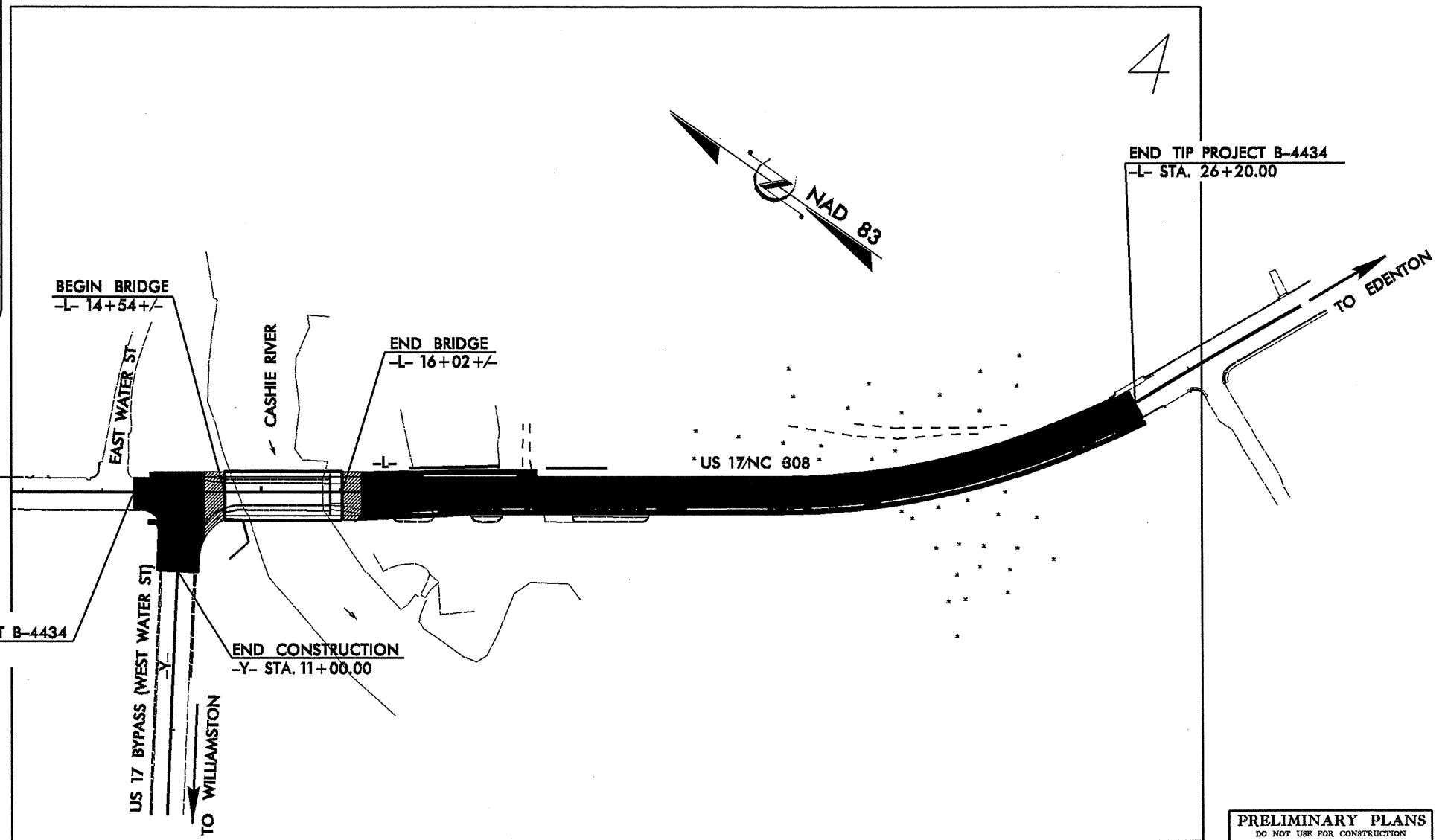
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

BERTIE COUNTY

LOCATION: BRIDGE NO. 14 OVER CASHIE RIVER ON US 17/NC 308

TYPE OF WORK: GRADING, DRAINAGE, PAVING, AND STRUCTURE

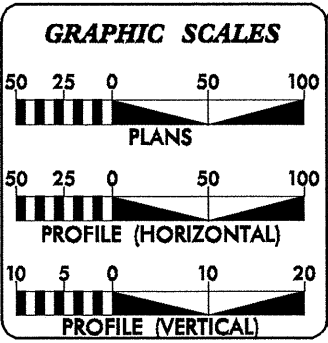
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4434	2A	20
STATE PROJ. NO.	P.A. PROJ. NO.	DESCRIPTION	
33700.1.1	BRNHS-17(35)	PE	
33700.2.1	BRNHS-17(35)	R/W	
33700.3.1	BRNHS-17(35)	CONST.	



THIS PROJECT IS WITHIN THE MUNICIPAL BOUNDARIES OF WINDSOR.

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

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



DESIGN DATA

ADT 2006 = 11,921
ADT 2026 = 10,004
DHV = 12 %
D = 60 %
T = 9 % *
V = 40 MPH
* (TTST 5% + DUAL 4%)

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-4434 = 0.214 MILES
LENGTH STRUCTURE TIP PROJECT B-4434 = 0.028 MILES
TOTAL LENGTH TIP PROJECT B-4434 = 0.242 MILES

PLANS PREPARED BY:
TGS ENGINEERS
SUITE 141
975 WALNUT STREET
CARY, NC 27511
PH (919) 319-8850

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
JUNE 19, 2007

LETTING DATE:

NC DOT CONTACT:

PLANS PREPARED FOR:
DIVISION OF HIGHWAYS
1000 Birch Ridge Dr.
Raleigh, NC 27610

CHARLES L. FLOWE, PE
PROJECT ENGINEER

W. CRAIG PARKER, PE
PROJECT DESIGN ENGINEER

B. DOUG TAYLOR, PE
PROJECT ENGINEER - ROADWAY DESIGN

HYDRAULICS ENGINEER

SIGNATURE: _____ P.E.

ROADWAY DESIGN ENGINEER

SIGNATURE: _____ P.E.

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

STATE DESIGN ENGINEER: _____ P.E.

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED: _____ DATE: _____
DIVISION ADMINISTRATOR



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY
GOVERNOR

LYNDO TIPPETT
SECRETARY

October 8, 2008

STATE PROJECT: 33700.1.1 B-4434
F. A. PROJECT: BRNHS-17 (35)
COUNTY: Bertie
DESCRIPTION: Bridge No. 14 on US 17/NC 308 over Cashie River
SUBJECT: Geotechnical Report – Inventory

Project Description

This project consists of the improvement of US 17/NC 308 to accommodate the proposed bridge replacement. The total length of the roadway project is 0.242 miles.

The following base lines were investigated for this project:

<u>Line</u>	<u>Station(±)</u>
-L-	13+40 to 26+20
-Y-	10+00 to 11+60

Areas of Special Geotechnical Interest

1) The following sections contain cohesive soils which have the potential to cause embankment stability and/or long term settlement problems:

<u>Line</u>	<u>Station (±)</u>
-L-	16+00 to 26+20

2) The following section contains relatively soft organic soils which have the potential for subgrade problems during construction:

<u>Line</u>	<u>Station(±)</u>
-L-	16+35 to 25+22

Physiography, Geology and Ground Water

The project is located in the Coastal Plain Physiographic Province. Topography at the site is nearly flat to moderately sloping. Elevations along the proposed roadway range from 6.3± to 7.7± feet.

The geology of the project consists of Recent age coastal plain sediments overlying marine deposits of Tertiary age. The Pliocene age Yorktown Formation underlies the alluvial soils. A deeper boring indicates Miocene age Pungo River and Eocene Castle Hayne Formations underlie the Yorktown sediments. These soils will not be further described in this report. The project lies within the Roanoke River Drainage system. Drainage along the project is provided by the Cashie River. Surface drainage is generally good in areas with moderate relief and fair to poor in low lying portions of the project.

Ground water data was collected primarily in December 2005 and July 2008 during above average rainfall conditions. Typically, ground water levels were measured at depths of 2± to 6± feet below the surface of the roadway embankment. Ground water in the flood plain was at or near the ground surface.

Soils

Soils encountered during this investigation are separated into four major categories based on origin and occurrence. These categories are roadway embankment, alluvial soils, organic deposits and Pliocene age soils of the Yorktown Formation.

Roadway Embankment soil is present in the embankment of the existing roadway. These soils consist of up to 6± feet of loose sand (A-2-4).

Alluvial soils were encountered beneath the roadway embankment. These deposits typically consist of loose to medium dense sand (A-2-4), very soft to medium stiff sandy and silty clay (A-6, A-7-6) and sandy silt (A-4). Moisture content of tested cohesive samples ranged from 12 to 20 percent. The granular soils typically exhibit good to excellent engineering properties. However, the cohesive soils generally have poor engineering properties due to a very soft consistency, relatively high moisture contents, medium to high

plasticity indices and 50 percent or more passing the 75 µm sieve. These soils have the potential to cause subgrade stability problems or embankment stability/settlement problems.

Organic deposits were found along the project from station 16+35± to 25+22±. Soils within the areas consisted of very soft to soft muck, very loose sand with little organic matter and very soft to soft sandy silt with little organic matter. Organic contents of tested samples ranged from 3 to 28 percent. Moisture contents of tested organic samples ranged from 12 to 23 percent. Vane Shear tests taken left of -L- stations 16+50, 20+00, and 24+00 indicate shear strengths typically ranging from 209 to 2506 psf in the organic soils. These soils have poor engineering properties and have the potential to cause subgrade stability problems or embankment stability/settlement problems.

The Pliocene age Yorktown Formation underlies the alluvial soils at elevations ranging from -12± to -27± feet. Cohesive soils within this formation typically consist of beds of medium stiff sandy clay (A-6). These soils exhibit fair to poor engineering properties. Granular soils within this formation typically consist of beds of loose to dense sands (A-2-4, A-3). These soils exhibit good to excellent engineering properties. Due to its depth of occurrence, the Yorktown Formation should not affect the roadway portion of this project.

Undisturbed Samples

<u>Sample No.</u>	<u>Station</u>	<u>Depth(m)</u>	<u>Test</u>
ST-1	19+00, 22' LT	10.6-12.6	Consolidation
ST-2	16+86, 22' LT	8.9-10.9	Triaxial CU, Consolidation
ST-3	21+50, 19' LT	8.8-10.8	Consolidation
ST-4	22+00, 38' LT	0.5-2.5	Consolidation

Prepared by:



Dean Argenbright, L.G.
Regional Geological Engineer

EARTHWORK BALANCE SHEET

Volumes in Cubic Yards

PROJECT B-4434

COUNTY Bertie

DATE 11-Feb-09

COMPILED BY: WC Parker

SHEET 38 OF 20 SHEETS

LINE	STATION	STATION	EXCAVATION				EMBANKMENT				BORROW	WASTE			
			TOTAL (UNCL.)	ROCK	UNDERCUT	UNSUIT. UNCLASS.	SUITABLE UNCLASS.	TOTAL	ROCK	EARTH		EMB. +%	ROCK	SUITABLE	UNSUIT
-L-	13+40.00	14+54.71	28				28	27		27	34	6			
-Y-	10+20.02	11+00.00	33				33	20		20	25			8	
SUB-TOTAL 1			61				61	47		47	59	6		8	
BRIDGE															
-L-	16+07.29	26+20.00	250				250	2,732		2,732	3,415	3,165			
SUB-TOTAL 2			250				250	2,732		2,732	3,415	3,165			
PROJECT TOTALS			311				311	2,779		2,779	3,474	3,171		8	
Earth Waste to replace Borrow												-8		-8	
PROJECT TOTALS			311				311	2,779		2,779	3,474	3,163		0	
Est. 5% to replace Topsoil on Borrow Pits												158			
GRAND TOTALS			311				311	2,779		2,779	3,474	3,321		0	
Contingency Undercut						300									300
SAY			330			300						3,500			

Pavement Structure Volume: 300 Cu. Yd.

DDE: 130 Cu. Yd.

Earthwork quantities are calculated by the Roadway Design Unit. These earthwork quantities are based in part on subsurface data provided by the Geotechnical Engineering Unit.

5/14/99

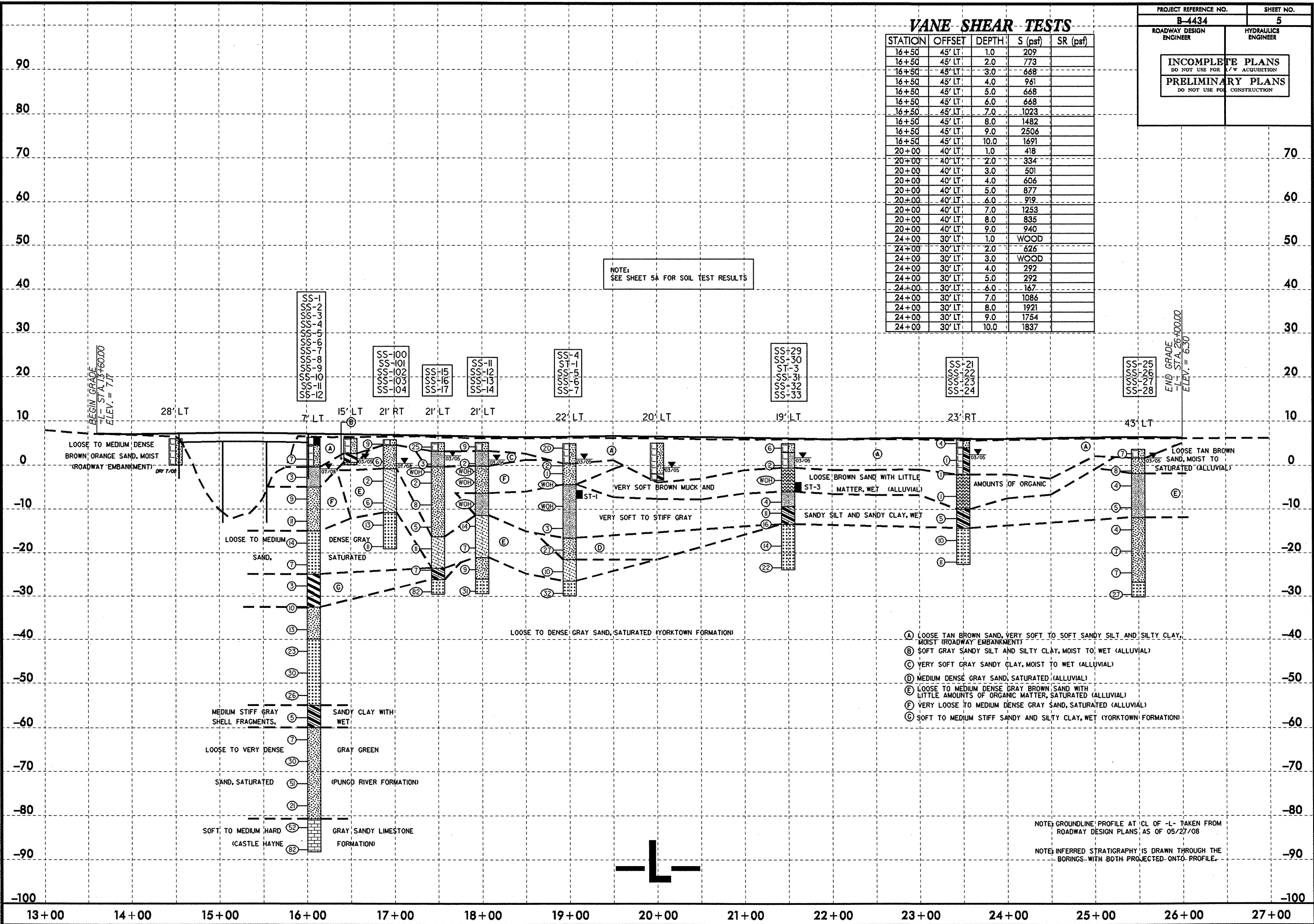
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PROJECT REFERENCE NO. B-4434	SHEET NO. 5
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR ACQUISITION	
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

VANE SHEAR TESTS

STATION	OFFSET	DEPTH	S (psf)	SR (psf)
16+50	45' LT	1.0	209	
16+50	45' LT	2.0	773	
16+50	45' LT	3.0	668	
16+50	45' LT	4.0	961	
16+50	45' LT	5.0	668	
16+50	45' LT	6.0	668	
16+50	45' LT	7.0	1023	
16+50	45' LT	8.0	1482	
16+50	45' LT	9.0	2506	
16+50	45' LT	10.0	1691	
20+00	40' LT	1.0	418	
20+00	40' LT	2.0	334	
20+00	40' LT	3.0	501	
20+00	40' LT	4.0	606	
20+00	40' LT	5.0	877	
20+00	40' LT	6.0	919	
20+00	40' LT	7.0	1253	
20+00	40' LT	8.0	835	
20+00	40' LT	9.0	940	
24+00	30' LT	1.0	WOOD	
24+00	30' LT	2.0	626	
24+00	30' LT	3.0	WOOD	
24+00	30' LT	4.0	292	
24+00	30' LT	5.0	292	
24+00	30' LT	6.0	167	
24+00	30' LT	7.0	1086	
24+00	30' LT	8.0	1921	
24+00	30' LT	9.0	1754	
24+00	30' LT	10.0	1837	

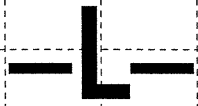
NOTE: SEE SHEET 5A FOR SOIL TEST RESULTS



- (A) LOOSE TAN BROWN SAND, VERY SOFT TO SOFT SANDY SILT AND SILTY CLAY, MOIST (ROADWAY EMBANKMENT)
- (B) SOFT GRAY SANDY SILT AND SILTY CLAY, MOIST TO WET (ALLUVIAL)
- (C) VERY SOFT GRAY SANDY CLAY, MOIST TO WET (ALLUVIAL)
- (D) MEDIUM DENSE GRAY SAND, SATURATED (ALLUVIAL)
- (E) LOOSE TO MEDIUM DENSE GRAY BROWN SAND WITH LITTLE AMOUNTS OF ORGANIC MATTER, SATURATED (ALLUVIAL)
- (F) VERY LOOSE TO MEDIUM DENSE GRAY SAND, SATURATED (ALLUVIAL)
- (G) SOFT TO MEDIUM STIFF SANDY AND SILTY CLAY, WET (YORKTOWN FORMATION)

NOTE: GROUNDLINE PROFILE AT C/L OF -L- TAKEN FROM ROADWAY DESIGN PLANS, AS OF 05/27/08

NOTE: INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO PROFILE.



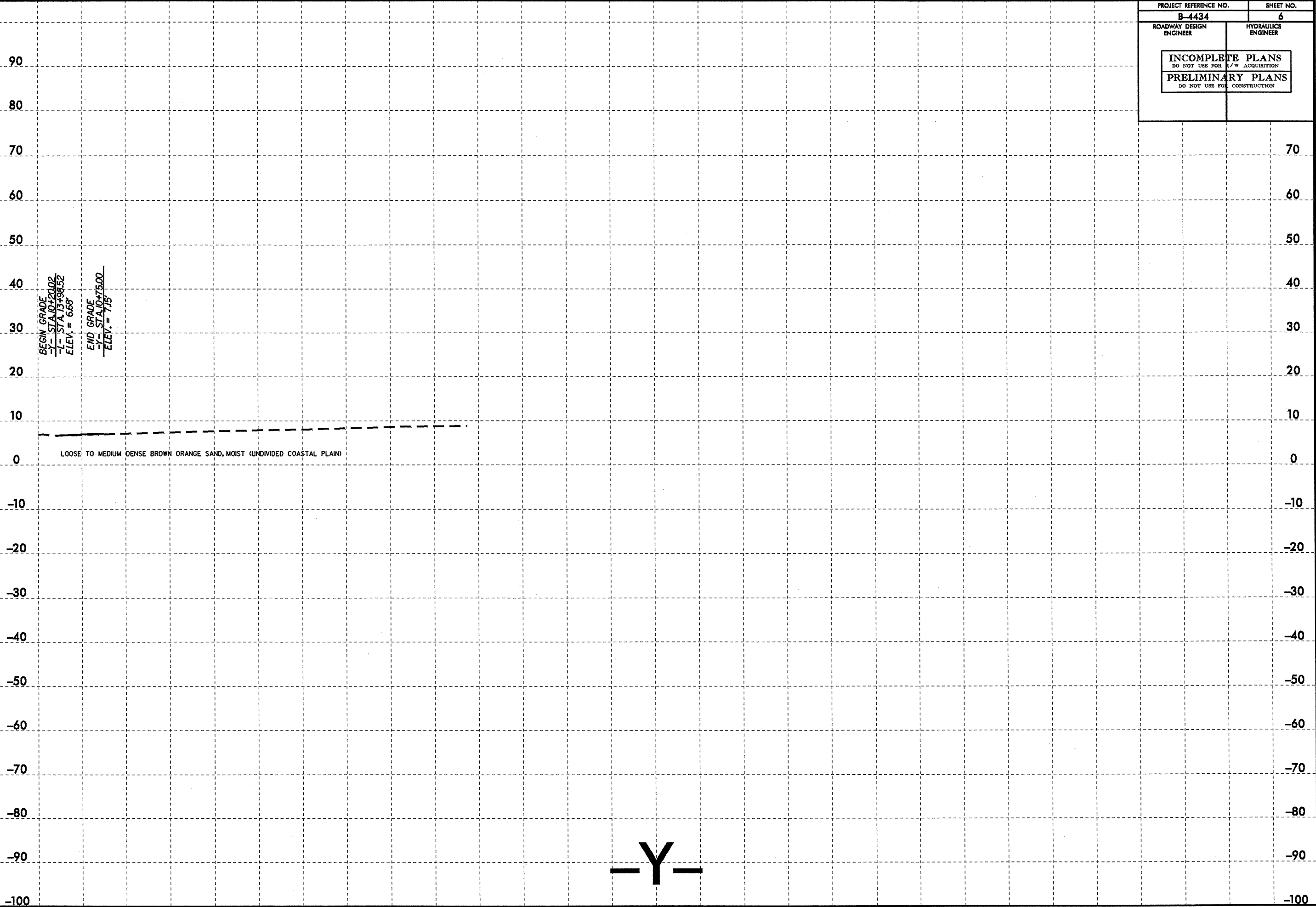
PROJECT REFERENCE NO. B-4434	SHEET NO. 5A
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR ACQUISITION	
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

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	7' LT	16+04	4.0-5.5	A-2-4(0)	25	9	38.9	35.1	6.7	18.4	97	79	28		
SS-2	7' LT	16+04	8.1-9.6	A-4(0)	22	NP	6.9	66.3	12.4	14.3	100	99	36	25.0	
SS-3	7' LT	16+04	13.1-14.6	A-2-4(0)	24	NP	1.6	82.2	8.0	8.2	100	100	30		
SS-4	7' LT	16+04	23.1-24.6	A-3(0)	22	NP	66.6	29.7	0.6	3.1	100	70	5		
SS-5	7' LT	16+04	33.1-34.6	A-7-5(12)	43	13	5.3	29.2	47.1	18.4	100	98	80		
SS-6	7' LT	16+04	38.9-39.6	A-2-4(0)	27	NP	1.8	81.8	8.2	8.2	100	100	21		
SS-7	7' LT	16+04	48.1-49.6	A-3(0)	27	NP	2.8	93.9	0.9	3.1	100	99	7		
SS-8	7' LT	16+04	58.1-59.6	A-3(0)	21	NP	67.7	28.0	2.3	2.0	97	71	6		
SS-9	7' LT	16+04	63.1-64.6	A-6(4)	35	16	28.6	24.9	18.0	28.6	97	82	48		
SS-10	7' LT	16+04	68.1-69.6	A-2-4(0)	20	NP	53.6	28.8	4.4	13.9	90	71	17		
SS-11	7' LT	16+04	73.1-74.6	A-2-4(0)	22	NP	55.4	36.9	3.6	4.1	99	83	11		
SS-12	7' LT	16+04	83.1-84.6	A-2-4(0)	25	NP	32.0	56.9	5.9	5.1	100	89	15		
SS-100	21' RT	16+95	1.0-1.5	A-2-4(0)	16	NP	60.1	30.9	6.8	12.4	97	82	22		
SS-101	21' RT	16+95	4.0-5.5	A-2-4(0)	18	NP	53.9	34.1	5.6	6.4	97	75	15		
SS-102	21' RT	16+95	13.4-14.9	A-2-4(0)	25	NP	1.4	79.8	12.4	6.4	100	100	33	11.8	3.1
SS-103	21' RT	16+95	18.4-19.9	A-3(0)	21	NP	15.6	80.4	4.0	0.0	99	98	6		
SS-104	21' RT	16+95	23.4-24.9	A-3(0)	17	NP	52.1	40.7	4.8	2.4	74	58	7		
SS-15	21' LT	17+50	5.7-7.2	A-2-4(0)	22	7	42.1	27.1	14.1	16.0	86	66	30		
SS-16	21' LT	17+50	13.2-14.7	A-2-4(0)	18	NP	12.4	67.0	10.5	10.0	100	98	26		
SS-17	21' LT	17+50	28.7-29.7	A-6(3)	33	15	28.9	28.7	32.4	10.0	86	71	43		
SS-11	21' LT	18+00	3.8-5.3	A-4(0)	22	NP	16.2	46.1	23.6	14.1	100	93	44		
SS-12	21' LT	18+00	13.1-14.6	A-4(0)	21	3	9.6	52.8	21.4	16.2	100	99	45		
SS-13	21' LT	18+00	28.1-29.6	A-2-4(0)	17	NP	52.3	35.9	7.8	4.0	92	63	12		1.2
SS-14	21' LT	18+00	33.1-34.6	A-3(0)	24	NP	60.1	44.7	3.2	2.0	100	85	7		
SS-4	22' LT	19+00	5.8-7.3	A-2-4(0)	22	NP	4.8	74.2	12.8	8.1	100	99	27		
ST-1	22' LT	19+00	10.6-12.6	A-4(0)	17	NP	20.9	46.6	20.4	12.1	100	96	39	20.3	
SS-5	22' LT	19+00	13.3-14.8	A-4(0)	18	NP	18.0	48.5	21.4	12.1	100	97	40		
SS-6	22' LT	19+00	23.3-24.8	A-2-4(0)	20	NP	16.2	70.3	9.5	4.0	100	99	19		
SS-7	22' LT	19+00	33.3-34.8	A-3(0)	28	NP	25.5	68.7	5.9	0.0	100	94	8		
SS-29	19' LT	21+50	3.9-5.4	A-4(0)	22	5	15.8	48.5	19.6	16.0	100	94	43		
SS-30	19' LT	21+50	7.3-8.8	NOT ENOUGH MATERIAL			18.9	15.2	59.9	6.0	100	86	69		
ST-3	19' LT	21+50	8.8-10.8	A-2-5(0)	64	NP	24.9	31.4	27.2	16.4	60	52	28		22.0
SS-31	19' LT	21+50	12.3-13.8	A-4(5)	28	9	2.8	31.1	42.0	24.1	100	98	78		
SS-32	19' LT	21+50	14.8-16.3	A-6(8)	31	11	0.6	32.7	44.6	22.1	100	100	80		
SS-33	19' LT	21+50	22.3-23.8	A-3(0)	22	NP	53.0	43.2	2.8	1.0	99	88	4		
SS-21	23' RT	23+50	4.3-5.3	A-6(3)	26	12	8.6	42.5	24.8	24.1	100	97	55		
SS-22	23' RT	23+50	12.1-13.6	A-7-5(14)	56	15	12.8	17.3	43.8	26.1	100	91	74		
SS-23	23' RT	23+50	17.1-18.6	A-6(11)	31	15	5.2	23.7	43.0	28.1	100	97	82		
SS-24	23' RT	23+50	22.1-23.6	A-3(0)	22	NP	70.4	28.0	1.6	2.0	100	91	4		
SS-25	43' LT	25+50	1.0-1.5	A-2-4(0)	17	NP	22.7	51.4	20.0	6.0	100	94	35		
SS-26	43' LT	25+50	7.3-8.8	A-4(0)	31	NP	5.6	51.6	34.8	8.0	100	97	51		
SS-27	43' LT	25+50	17.3-18.8	A-2-4(0)	31	NP	2.2	76.7	16.0	5.0	100	99	29		
SS-28	43' LT	25+50	32.3-33.8	A-3(0)	22	NP	69.0	24.9	4.1	2.0	100	69	8		

5/14/99
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PROJECT REFERENCE NO.	SHEET NO.
B-4434	6
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR ACQUISITION	
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	



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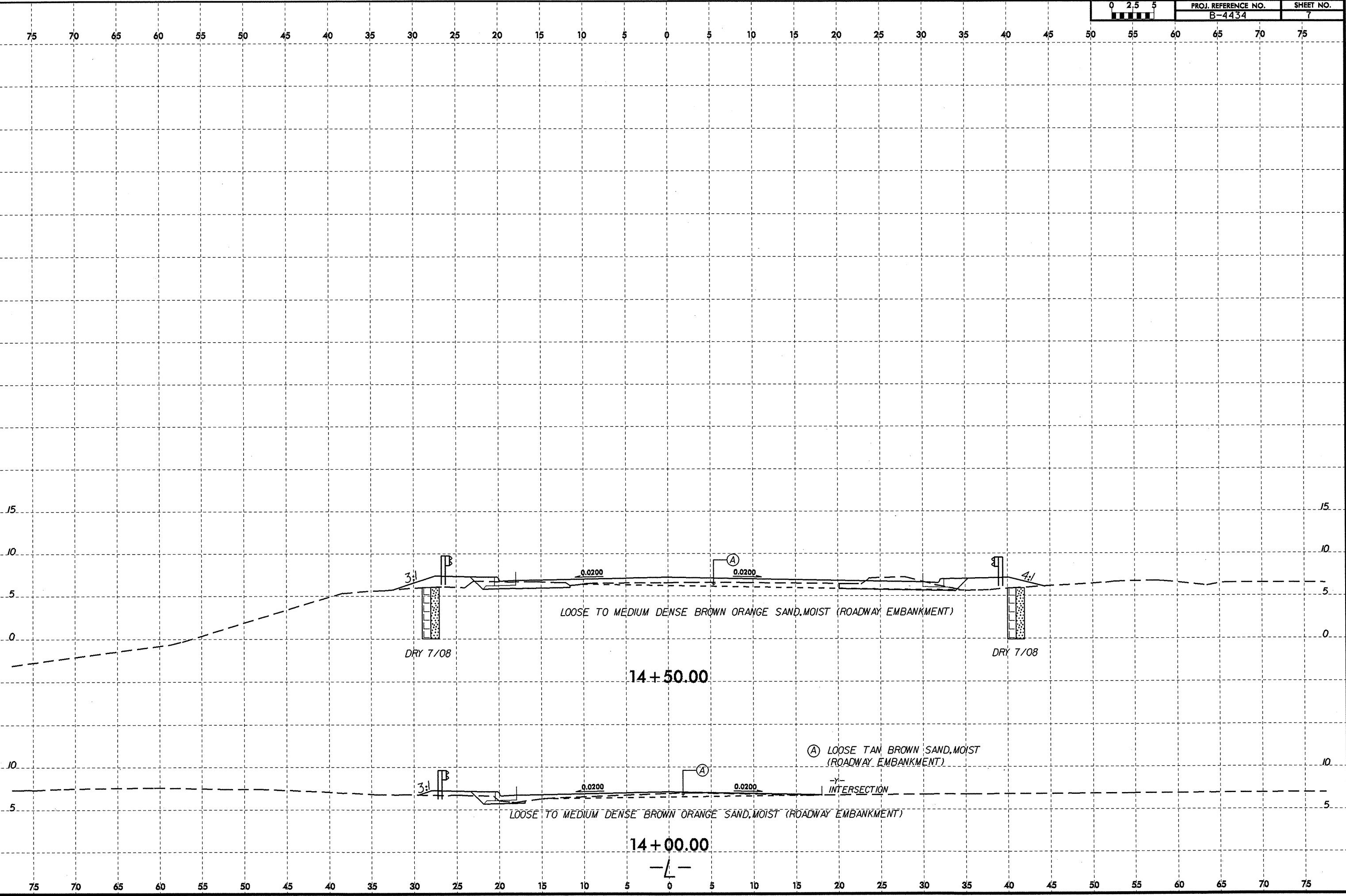
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8/23/99

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LOOSE TO MEDIUM DENSE BROWN ORANGE SAND, MOIST (ROADWAY EMBANKMENT)

LOOSE TO MEDIUM DENSE BROWN ORANGE SAND, MOIST (ROADWAY EMBANKMENT)

(A) LOOSE TAN BROWN SAND, MOIST (ROADWAY EMBANKMENT)

-Y- INTERSECTION

DRY 7/08

DRY 7/08

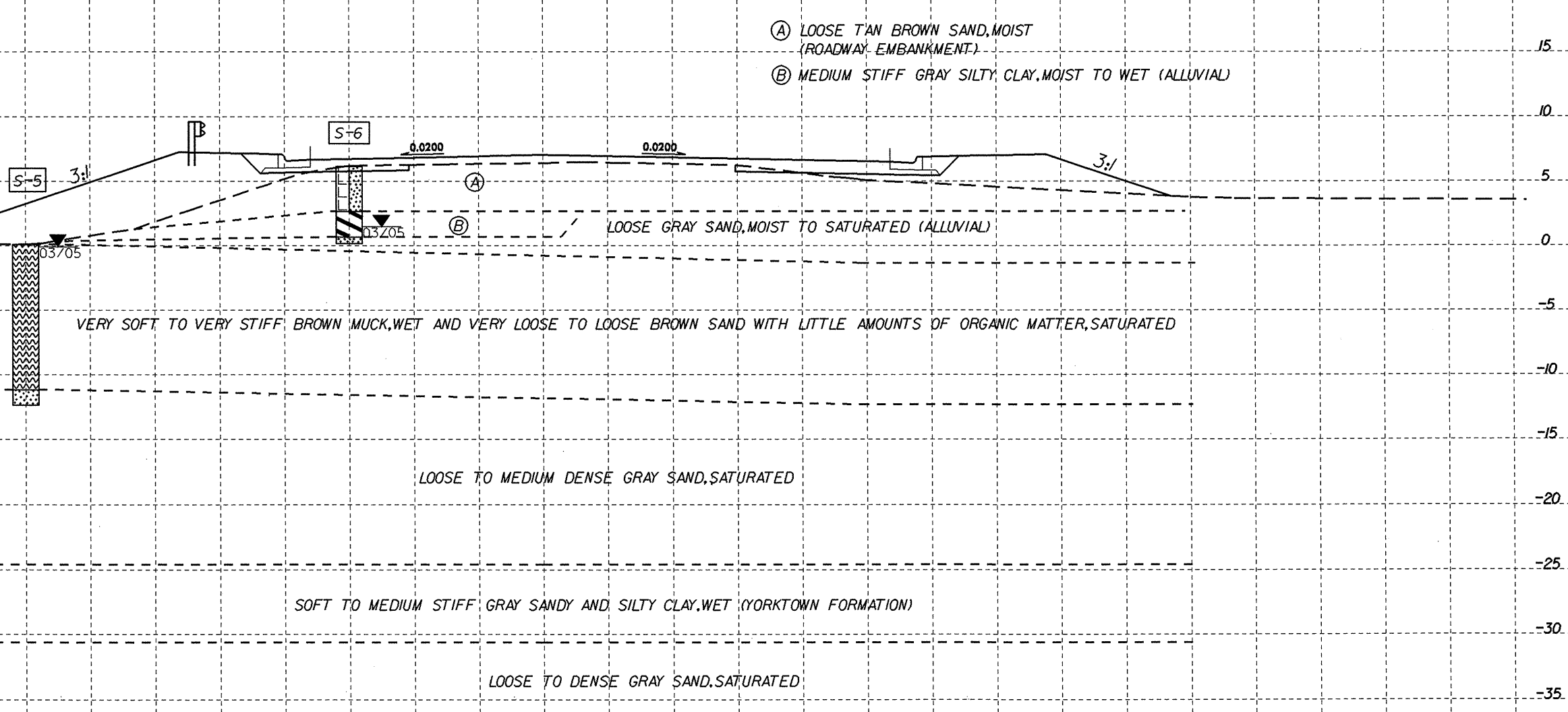
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SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
S-5	40' LT	16+50	1.0-11.3	A-5(2)	55	NP	11.4	31.6	32.6	24.4	94	89	60		14.3
S-6	15' LT	16+50	1.0-3.5	A-2-4(0)	19	NP	29.5	57.3	9.1	4.1	96	87	19		

VANE SHEAR TESTS

STATION	OFFSET	DEPTH	S (psf)	SR (psf)
16+50	45' LT	1.0	209	
16+50	45' LT	2.0	773	
16+50	45' LT	3.0	668	
16+50	45' LT	4.0	961	
16+50	45' LT	5.0	668	
16+50	45' LT	6.0	668	
16+50	45' LT	7.0	1023	
16+50	45' LT	8.0	1482	
16+50	45' LT	9.0	2506	
16+50	45' LT	10.0	1691	



16 + 50.00

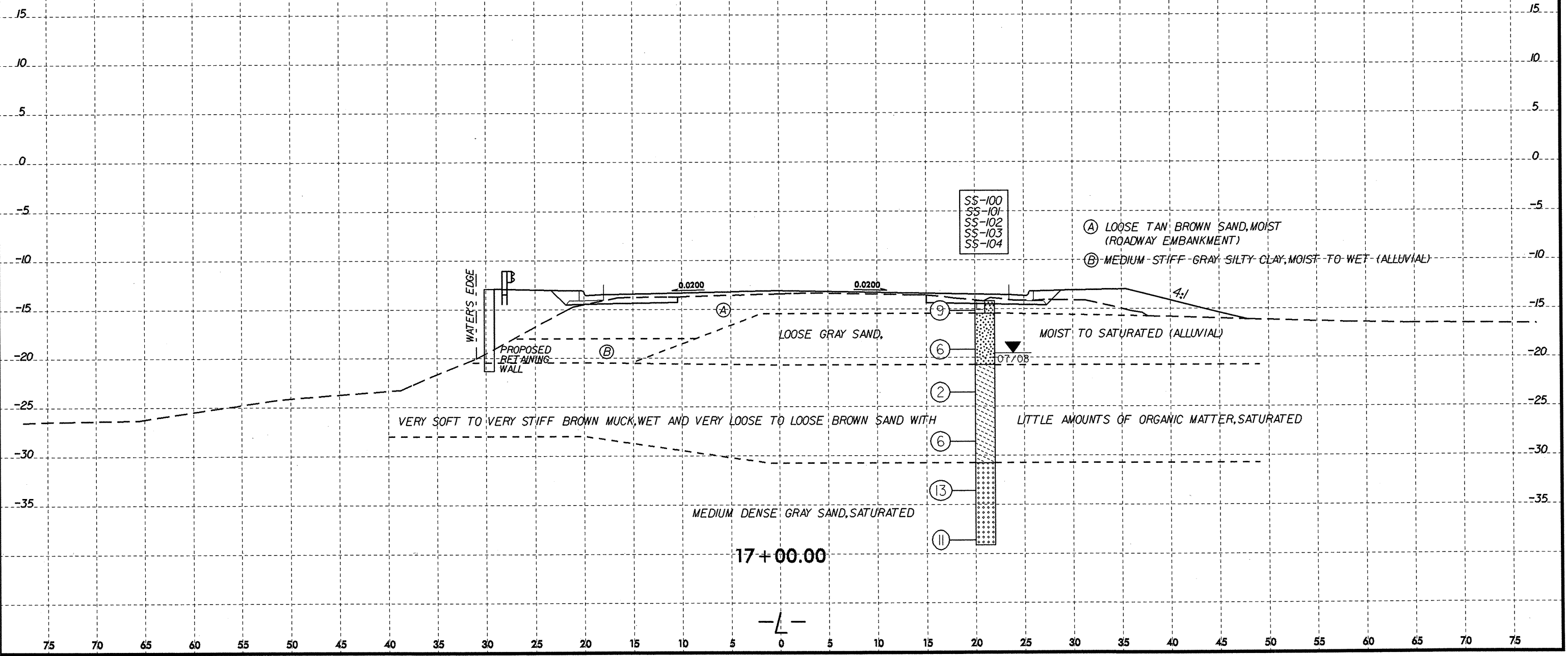
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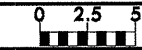
SOIL TEST RESULTS

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-100	21' RT	16+95	1.0-1.5	A-2-4(0)	16	NP	50.1	30.9	6.6	12.4	97	82	22		
SS-101	21' RT	16+95	4.0-5.5	A-2-4(0)	16	NP	53.9	34.1	5.6	6.4	97	75	15		
SS-102	21' RT	16+95	13.4-14.9	A-2-4(0)	25	NP	1.4	79.8	12.4	6.4	100	100	33	11.8	3.1
SS-103	21' RT	16+95	18.4-19.9	A-3(0)	21	NP	15.6	80.4	4.0	0.0	99	98	6		
SS-104	21' RT	16+95	23.4-24.9	A-3(0)	17	NP	52.1	40.7	4.8	2.4	74	58	7		



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8/23/99



PROJ. REFERENCE NO.

B-4434

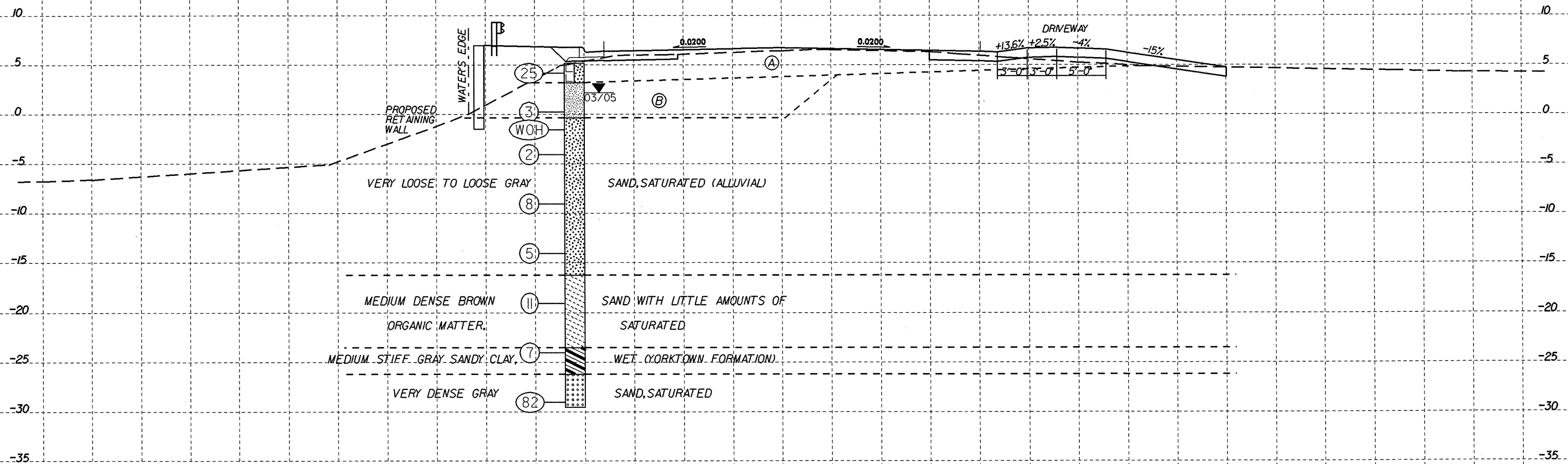
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SOIL TEST RESULTS

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	21' LT	17+50	5.7-7.2	A-2-4(0)	22	7	42.1	27.1	14.7	16.0	86	66	30		
SS-16	21' LT	17+50	13.2-14.7	A-2-4(0)	18	NP	12.4	67.0	10.5	10.0	100	98	26		
SS-17	21' LT	17+50	28.7-29.7	A-6(3)	33	15	28.9	28.7	32.4	10.0	86	71	43		



SS-15
SS-16
SS-17

- Ⓐ LOOSE TAN BROWN SAND, MOIST (ROADWAY EMBANKMENT)
- Ⓑ SOFT GRAY SANDY SILT, MOIST TO WET (ALLUVIAL)

PROPOSED RETAINING WALL

WATER'S EDGE

0.0200

0.0200

+13.6% +2.5%

-4%

-15%

DRIVEWAY

3'-0" 3'-0" 5'-0"

25

3

WOH

2

8

5

11

7

82

VERY LOOSE TO LOOSE GRAY SAND, SATURATED (ALLUVIAL)

MEDIUM DENSE BROWN ORGANIC MATTER. SAND WITH LITTLE AMOUNTS OF SATURATED

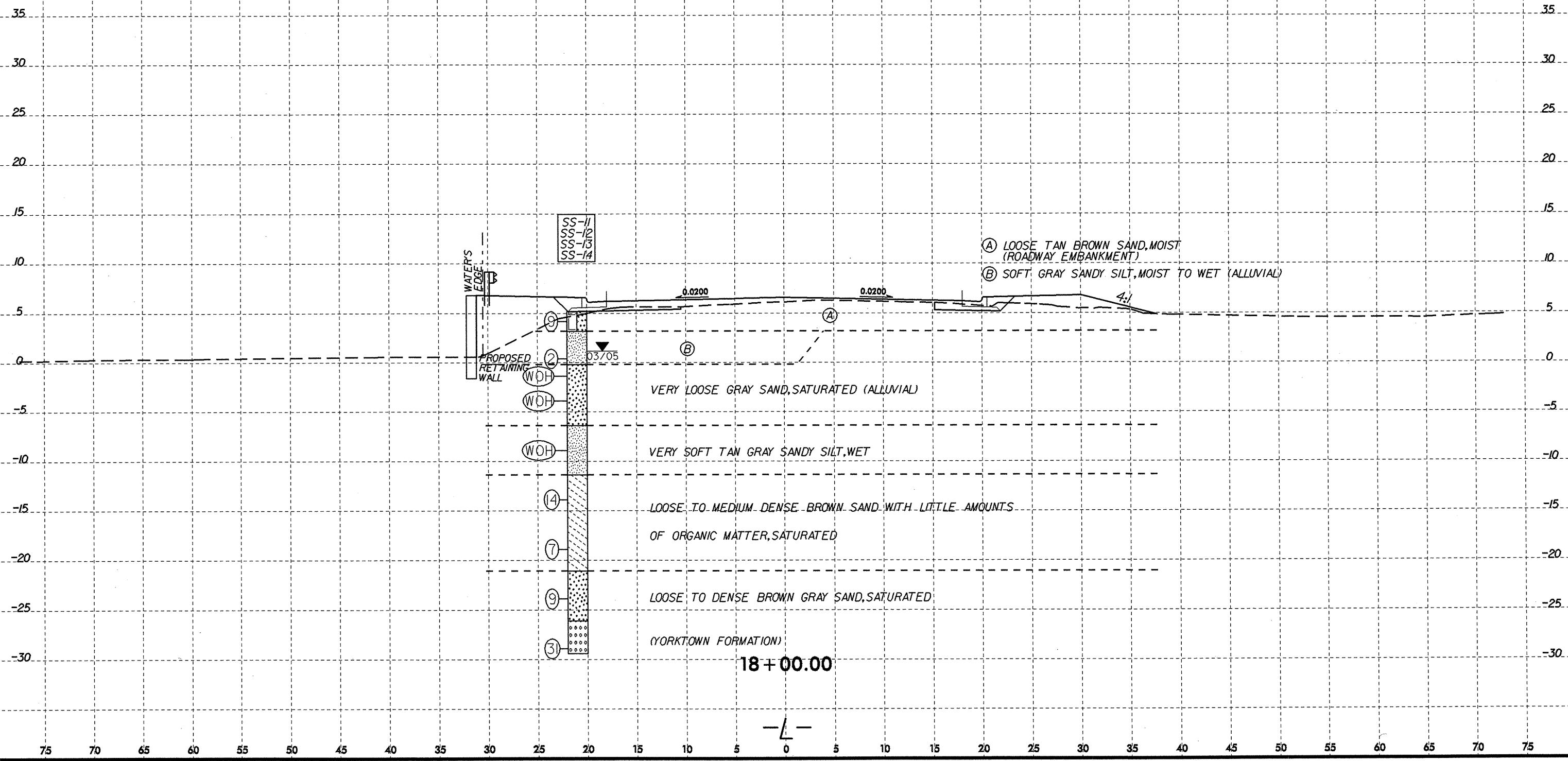
MEDIUM STIFF GRAY SANDY CLAY. WET (YORKTOWN FORMATION)

VERY DENSE GRAY SAND, SATURATED

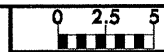
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SOIL TEST RESULTS

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-11	21' LT	18+00	3.9-5.3	A-4(0)	22	NP	16.2	46.1	23.6	14.1	100	93	44		
SS-12	21' LT	18+00	13.1-14.6	A-4(0)	21	3	9.6	52.8	21.4	16.2	100	99	45		
SS-13	21' LT	18+00	28.1-29.6	A-2-4(0)	17	NP	52.3	35.9	7.8	4.0	92	63	12		1.2
SS-14	21' LT	18+00	33.1-34.6	A-3(0)	24	NP	50.1	44.7	3.2	2.0	100	85	7		



8/23/99



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

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
SS-4	22' LT	19+00	5.8-7.3	A-2-4(0)	22	NP	4.8	74.2	12.8	8.1	100	99	27		
ST-1	22' LT	19+00	10.6-12.6	A-4(0)	17	NP	20.9	46.6	20.4	12.1	100	96	39	20.3	
SS-5	22' LT	19+00	13.3-14.8	A-4(0)	18	NP	18.0	48.5	21.4	12.1	100	97	40		
SS-6	22' LT	19+00	23.3-24.8	A-2-4(0)	20	NP	16.2	70.3	9.5	4.0	100	99	19		
SS-7	22' LT	19+00	33.3-34.8	A-3(0)	28	NP	25.5	68.7	5.9	0.0	100	94	8		

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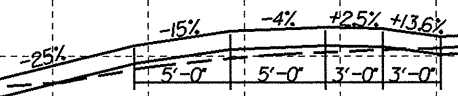
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DRIVEWAY



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(A) LOOSE TAN BROWN SAND, MOIST (ROADWAY EMBANKMENT)

SOFT GRAY SANDY SILT, MOIST TO WET (ALLUVIAL)

VERY LOOSE TO LOOSE GRAY SAND, SATURATED (ALLUVIAL)

VERY SOFT TAN GRAY SANDY SILT, WET

LOOSE TO MEDIUM DENSE BROWN SAND WITH LITTLE AMOUNTS OF ORGANIC MATTER, SATURATED

LOOSE TO DENSE BROWN GRAY SAND, SATURATED (YORKTOWN FORMATION)

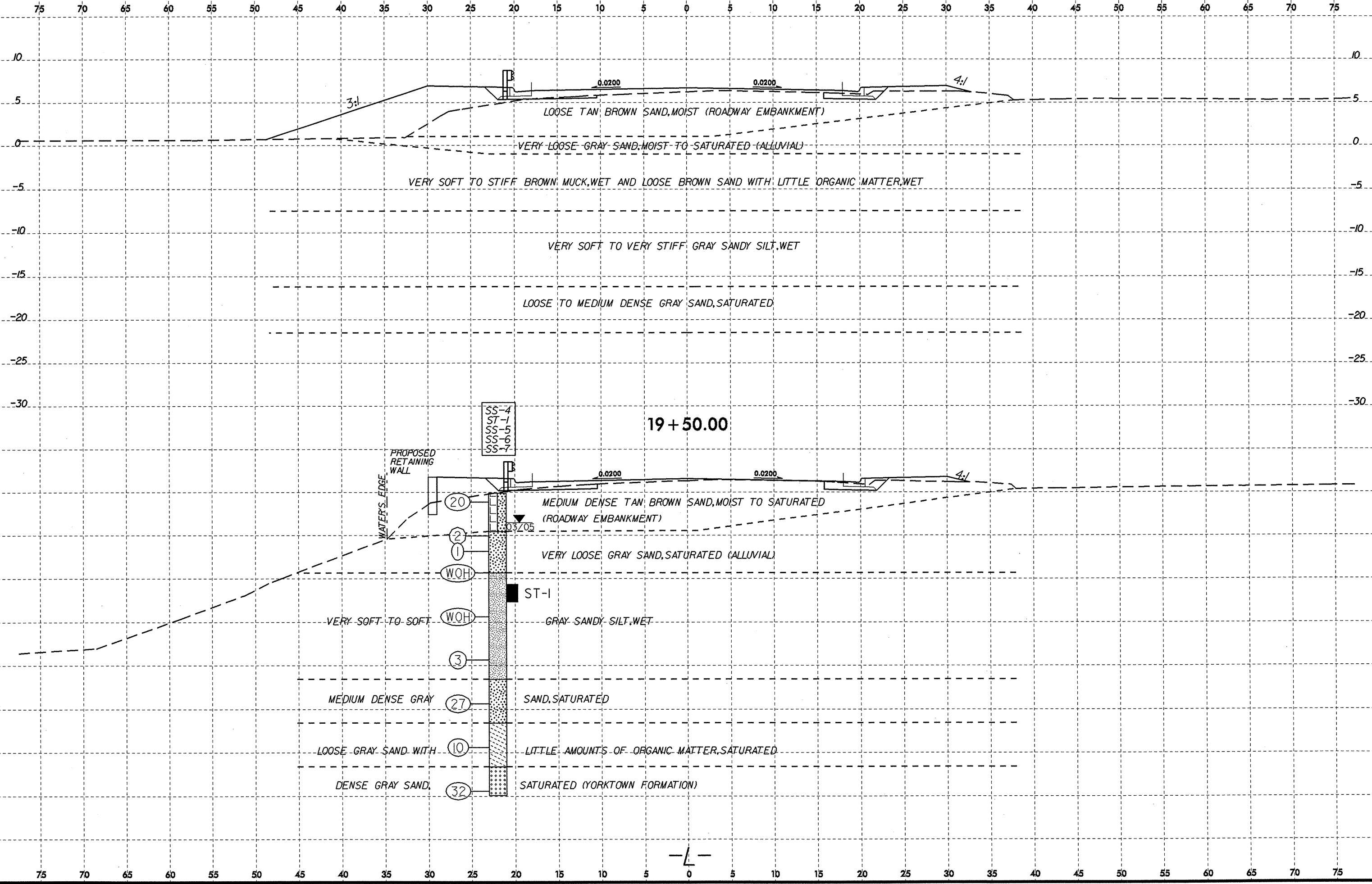
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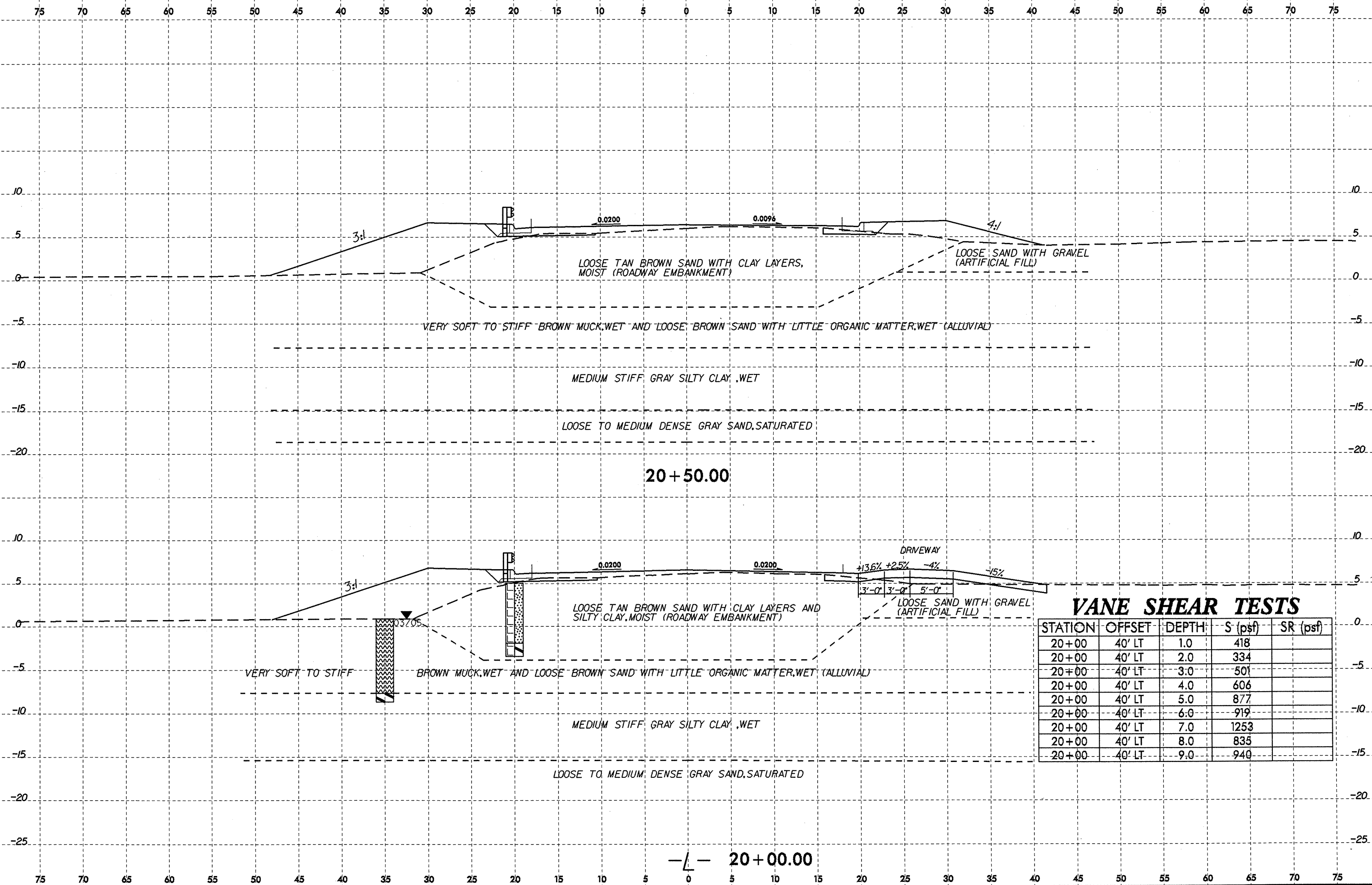
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8/23/99



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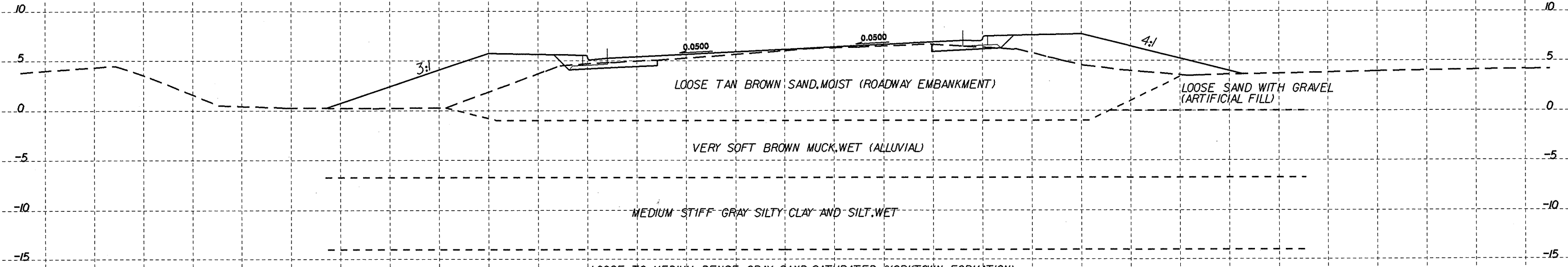
VANE SHEAR TESTS

STATION	OFFSET	DEPTH	S (psf)	SR (psf)
20+00	40' LT	1.0	418	
20+00	40' LT	2.0	334	
20+00	40' LT	3.0	501	
20+00	40' LT	4.0	606	
20+00	40' LT	5.0	877	
20+00	40' LT	6.0	919	
20+00	40' LT	7.0	1253	
20+00	40' LT	8.0	835	
20+00	40' LT	9.0	940	

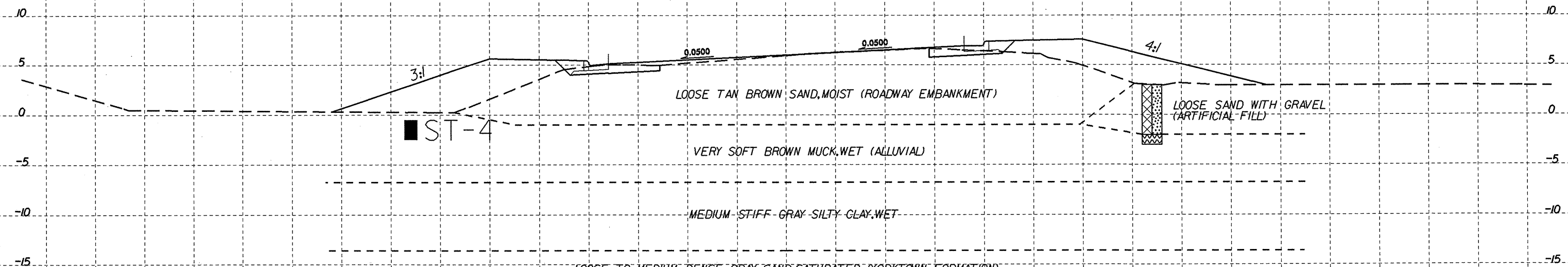
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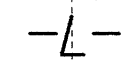
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22 + 50.00



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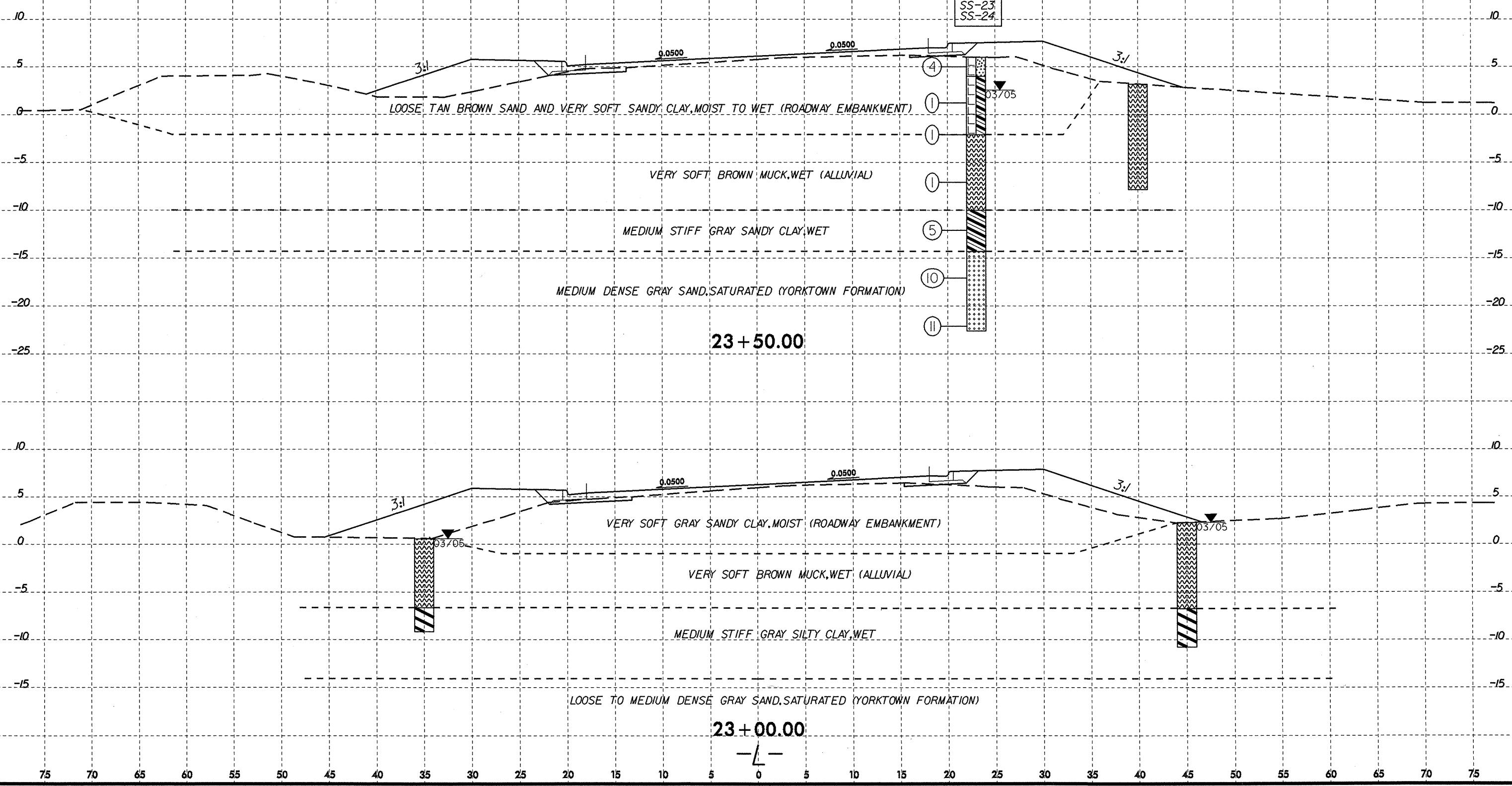


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SOIL TEST RESULTS

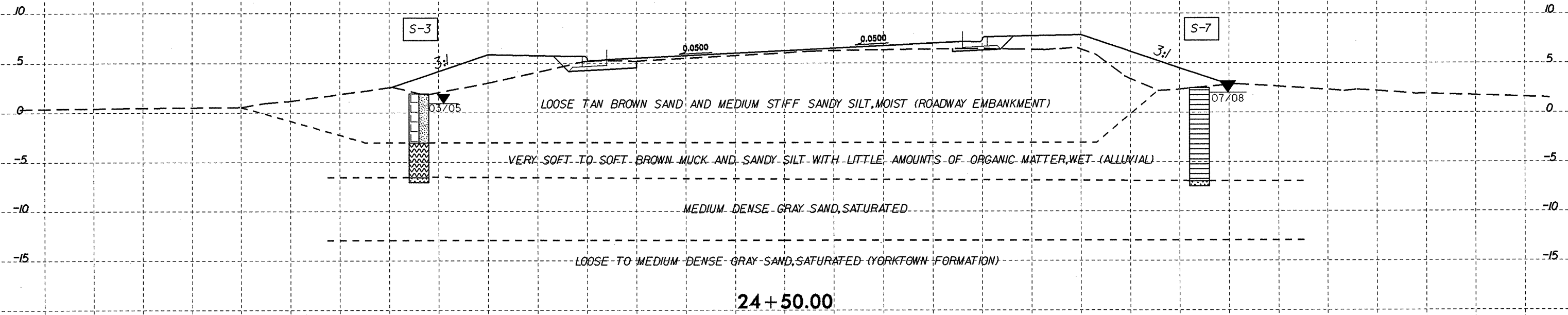
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
SS-21	23' RT	23+50	4.3-5.3	A-6(3)	26	12	8.6	42.5	24.8	24.1	100	97	55		
SS-22	23' RT	23+50	12.1-13.6	A-7-5(14)	56	15	12.8	17.3	43.8	26.1	100	91	74		
SS-23	23' RT	23+50	17.1-18.6	A-6(11)	31	15	5.2	23.7	43.0	28.1	100	97	82		
SS-24	23' RT	23+50	22.1-23.6	A-3(0)	22	NP	70.4	26.0	1.6	2.0	100	91	4		



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

SOIL TEST RESULTS

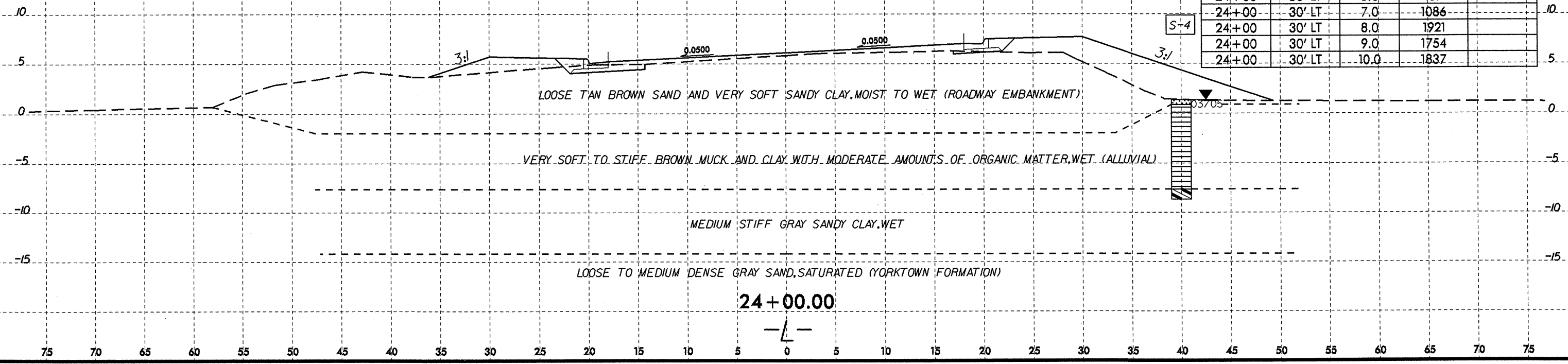
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							C. SAND	F. SAND	SILT	CLAY	10	40	200		
S-4	40' RT	24+00	1.0-9.0	A-7-5(21)	63	19	7.5	8.8	45.0	38.7	95	91	82		19.4
S-3	27' LT	24+50	5.0-8.5	A-2-5(0)	75	NP	24.2	32.6	28.9	14.3	74	65	35		28.4
S-7	42' RT	24+50	1.0-9.5	A-4(0)	25	NP	28.3	41.7	25.7	4.4	100	89	36	23.4	8.1



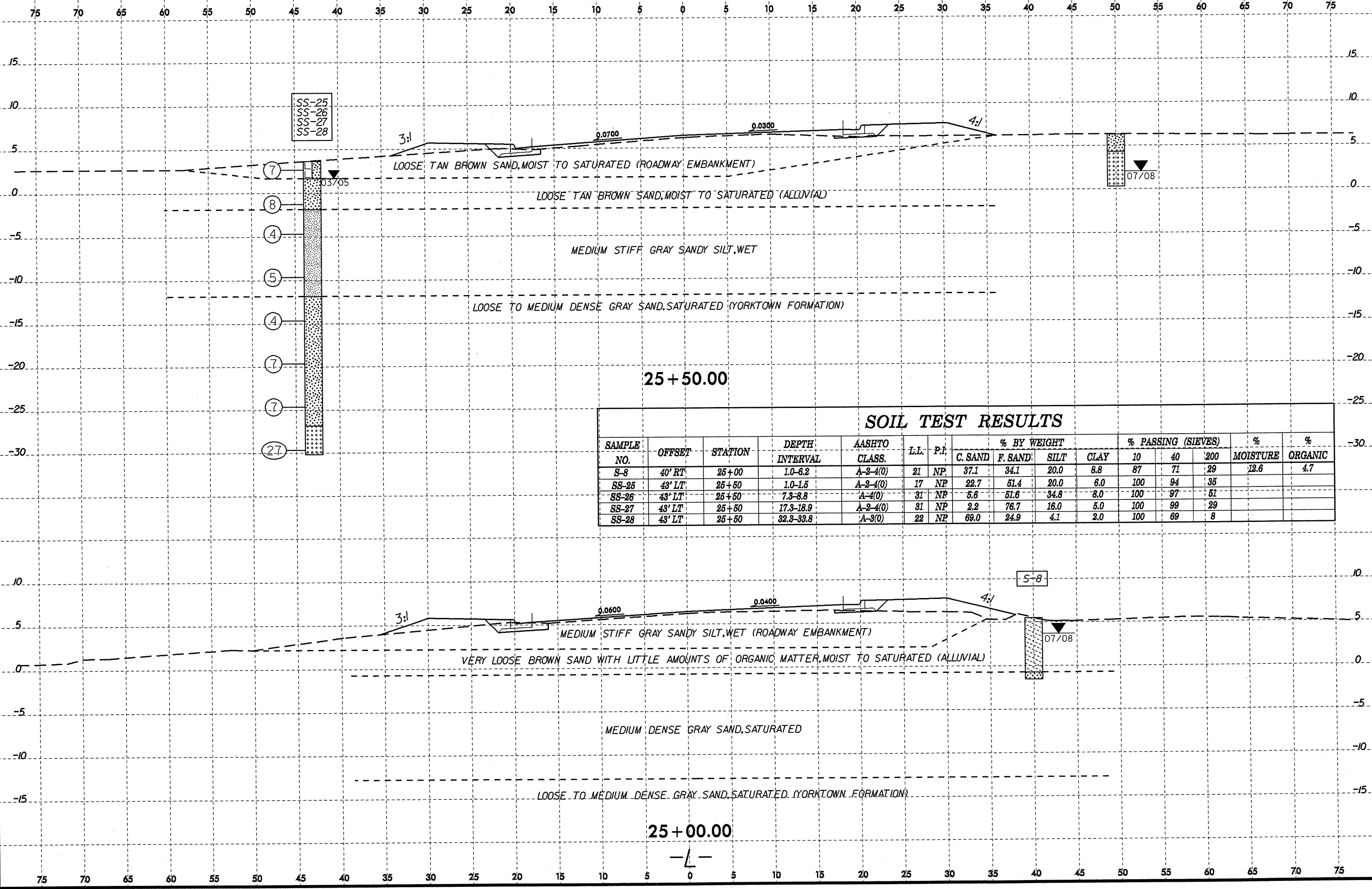
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VANE SHEAR TESTS

STATION	OFFSET	DEPTH	S (psf)	SR (psf)
24+00	30' LT	1.0	WOOD	
24+00	30' LT	2.0	626	
24+00	30' LT	3.0	WOOD	
24+00	30' LT	4.0	292	
24+00	30' LT	5.0	292	
24+00	30' LT	6.0	167	
24+00	30' LT	7.0	1086	
24+00	30' LT	8.0	1921	
24+00	30' LT	9.0	1754	
24+00	30' LT	10.0	1837	



24 + 00.00



SOIL TEST RESULTS

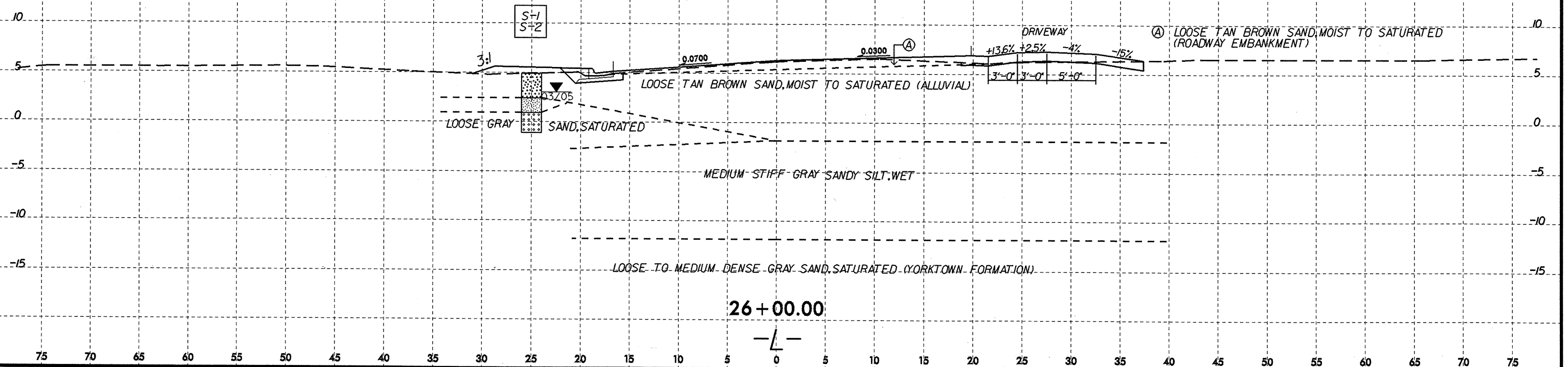
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							C. SAND	F. SAND	SILT	CLAY	10	40	200		
S-8	40' RT	25+00	1.0-6.2	A-2-4(0)	21	NP	37.1	34.1	20.0	8.8	87	71	29	12.6	4.7
SS-25	43' LT	25+50	1.0-1.6	A-2-4(0)	17	NP	22.7	51.4	20.0	6.0	100	94	35		
SS-26	43' LT	25+50	7.3-8.8	A-4(0)	31	NP	5.6	51.6	34.8	8.0	100	97	51		
SS-27	43' LT	25+50	17.3-18.9	A-2-4(0)	31	NP	2.2	76.7	16.0	5.0	100	99	29		
SS-28	43' LT	25+50	32.3-33.8	A-3(0)	22	NP	69.0	24.9	4.1	2.0	100	69	8		

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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		
S-1	25' LT	26+00	2.5-4.0	A-4(0)	22	NP	6.1	64.8	12.8	16.3	100	99	42		
S-2	25' LT	26+00	4.0-6.0	A-3(0)	21	NP	37.1	55.6	5.3	2.0	98	95	9		



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