

NOTE: SEE SHEET 2A FOR PLAN SHEET LAYOUT AT TIME OF INVESTIGATION

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**STATE OF NORTH CAROLINA**

**DEPARTMENT OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
GEOTECHNICAL UNIT**

**ROADWAY  
SUBSURFACE INVESTIGATION**

STATE PROJ. 33420.1.1 I.D. B-4055 F.A. PROJ. BRSTP-1124(4)  
 COUNTY CARTERET  
 PROJECT DESCRIPTION BRIDGE NO. 22 ON SR 1124  
OVER BRANCH OF NEWPORT RIVER

**INVENTORY**

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4055	1	13
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
33420.1.1	BRSTP-1124(4)	P.E.	
33420.2.1	BRSTP-1124(4)	RAW/UTL	
33420.3.1	BRSTP-1124(4)	CONST	

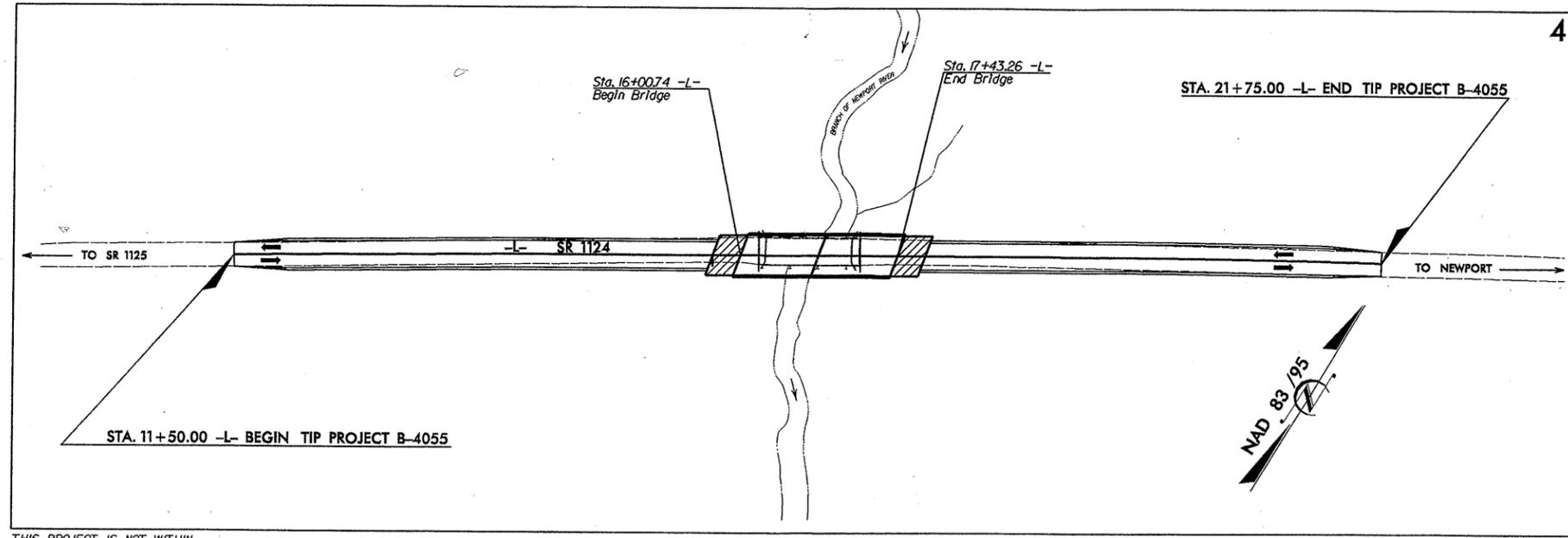
**CAUTION NOTICE**

THE SUBSURFACE INFORMATION AND THE SUBSURFACE INVESTIGATION ON WHICH IT IS BASED WAS 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 UNIT @ (919) 250-4086. NEITHER THE SUBSURFACE PLANS AND REPORTS, NOR THE FIELD BORING LOGS, ROCK CORES, OR SOIL TEST DATA IS 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 UN-PLACED 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.

**CONTRACT: C201851 ID: B-4055**



THIS PROJECT IS NOT WITHIN MUNICIPAL BOUNDARIES.

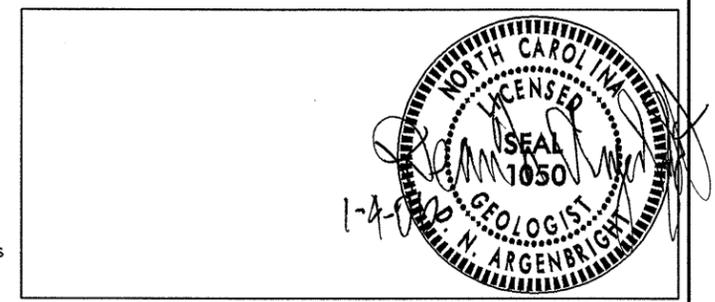
DRAWN BY: W. D. FIELDS

NOTE - THE INFORMATION CONTAINED HEREIN IS NOT IMPLIED OR GUARANTEED BY THE N.C. DEPARTMENT OF TRANSPORTATION AS BEING ACCURATE NOR IT IS 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.

PERSONNEL  
 INVESTIGATED BY F. M. WESCOTT  
 CHECKED BY D. N. ARGENBRIGHT  
 SUBMITTED BY D. N. ARGENBRIGHT  
 DATE JANUARY 2006

F. M. WESCOTT  
J. L. STONE  
J. N. JORDAN  
R. E. SMITH  
W. N. CHERRY



**NORTH CAROLINA DEPARTMENT OF TRANSPORTATION**  
**DIVISION OF HIGHWAYS**  
**GEOTECHNICAL UNIT**

ID	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
B-4055	33420.1.1	2	13

**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 WHICH CAN BE PENETRATED WITH A CONTINUOUS FLIGHT POWER AUGER, AND WHICH YIELDS LESS THAN 100 BLOWS PER FOOT ACCORDING TO THE STANDARD PENETRATION TEST (ASTM D-1586). SOIL CLASSIFICATION IS BASED ON THE AASHTO SYSTEM AND 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 align="center"><i>VERY STIFF, DARK 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 align="center"><b>ANGULARITY OF GRAINS</b></p> <p>THE ANGULARITY OR ROUNDNESS OF SOIL GRAINS ARE DESIGNATED BY THE TERMS: ANGULAR, SUBANGULAR, SUBROUNDED, OR ROUNDED.</p>		<p>HARD ROCK IS NON-COASTAL PLAIN MATERIAL THAT WHEN 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><b>ALLUVIUM (ALLUV.)</b> - SOILS WHICH HAVE BEEN TRANSPORTED BY WATER.</p> <p><b>AQUIFER</b> - A WATER BEARING FORMATION OR STRATA.</p> <p><b>ARENACEOUS</b> - APPLIED TO ROCKS THAT HAVE BEEN DERIVED FROM SAND OR THAT CONTAIN SAND.</p> <p><b>ARGILLACEOUS</b> - 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><b>ARTESIAN</b> - GROUND WATER THAT IS UNDER SUFFICIENT PRESSURE TO RISE ABOVE THE LEVEL AT WHICH IS ENCOUNTERED, BUT WHICH DOES NOT NECESSARILY RISE TO OR ABOVE THE GROUND SURFACE.</p> <p><b>CALCAREOUS (CALC.)</b> - SOILS WHICH CONTAIN APPRECIABLE AMOUNTS OF CALCIUM CARBONATE.</p> <p><b>COLLUVIUM</b> - ROCK FRAGMENTS MIXED WITH SOIL DEPOSITED BY GRAVITY ON SLOPE OR AT BOTTOM OF SLOPE.</p> <p><b>CORE RECOVERY (REC.)</b> - TOTAL LENGTH OF ALL MATERIAL RECOVERED IN THE CORE BARREL DIVIDED BY TOTAL LENGTH OF CORE RUN AND EXPRESSED AS A PERCENTAGE.</p> <p><b>DIKE</b> - A TABULAR BODY OF IGNEOUS ROCK THAT CUTS ACROSS THE STRUCTURE OF ADJACENT ROCKS OR CUTS MASSIVE ROCK.</p> <p><b>DIP</b> - THE ANGLE AT WHICH A STRATUM OR ANY PLANAR FEATURE IS INCLINED FROM THE HORIZONTAL.</p> <p><b>DIP DIRECTION (DIP AZIMUTH)</b> - THE DIRECTION OR BEARING OF THE HORIZONTAL TRACE OF THE LINE OF DIP, MEASURED CLOCKWISE FROM NORTH.</p> <p><b>FAULT</b> - A FRACTURE OR FRACTURE ZONE ALONG WHICH THERE HAS BEEN DISPLACEMENT OF THE SIDES RELATIVE TO ONE ANOTHER PARALLEL TO THE FRACTURE.</p> <p><b>FISSILE</b> - A PROPERTY OF SPLITTING ALONG CLOSELY SPACED PARALLEL PLANES.</p> <p><b>FLOAT</b> - ROCK FRAGMENTS ON SURFACE NEAR THEIR ORIGINAL POSITION AND DISLOGGED FROM PARENT MATERIAL.</p> <p><b>FLOOD PLAIN (F.P.)</b> - LAND BORDERING A STREAM, BUILT OF SEDIMENTS DEPOSITED BY THE STREAM.</p> <p><b>FORMATION (FM.)</b> - A MAPPABLE GEOLOGIC UNIT THAT CAN BE RECOGNIZED AND TRACED IN THE FIELD.</p> <p><b>JOINT</b> - FRACTURE IN ROCK ALONG WHICH NO APPRECIABLE MOVEMENT HAS OCCURRED.</p> <p><b>LEDGE</b> - A SHELF-LIKE RIDGE OR PROJECTION OF ROCK WHOSE THICKNESS IS SMALL COMPARED TO ITS LATERAL EXTENT.</p> <p><b>LENS</b> - A BODY OF SOIL OR ROCK THAT THINS OUT IN ONE OR MORE DIRECTIONS.</p> <p><b>MOTTLED (MOT.)</b> - IRREGULARLY MARKED WITH SPOTS OF DIFFERENT COLORS, MOTTLING IN SOILS USUALLY INDICATES POOR AERATION AND LACK OF GOOD DRAINAGE.</p> <p><b>PERCHED WATER</b> - WATER MAINTAINED ABOVE THE NORMAL GROUND WATER LEVEL BY THE PRESENCE OF AN INTERVENING IMPERVIOUS STRATUM.</p> <p><b>RESIDUAL SOIL</b> - SOIL FORMED IN PLACE BY THE WEATHERING OF ROCK.</p> <p><b>ROCK QUALITY DESIGNATION (R.Q.D.)</b> - 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><b>SAPROLITE (SAP.)</b> - RESIDUAL SOIL WHICH RETAINS THE RELIC STRUCTURE OR FABRIC OF THE PARENT ROCK.</p> <p><b>SILL</b> - AN INTRUSIVE BODY OF IGNEOUS ROCK OF APPROXIMATELY UNIFORM THICKNESS AND RELATIVELY THIN COMPARED WITH ITS LATERAL EXTENT, WHICH HAS BEEN EMPLACED PARALLEL TO THE BEDDING OR SCHISTOSITY OF THE INTRUDED ROCKS.</p> <p><b>SLICKENSIDE</b> - POLISHED AND STRIATED SURFACE THAT RESULTS FROM FRICTION ALONG A FAULT OR SLIP PLANE.</p> <p><b>STANDARD PENETRATION TEST (PENETRATION RESISTANCE) (SPT)</b> - NUMBER OF BLOWS (N OR B.P.F.) 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 LESS THAN 0.1 FOOT PENETRATION WITH 60 BLOWS.</p> <p><b>STRATA CORE RECOVERY (SREC.)</b> - TOTAL LENGTH OF STRATA MATERIAL RECOVERED DIVIDED BY TOTAL LENGTH OF STRATA AND EXPRESSED AS A PERCENTAGE.</p> <p><b>STRATA ROCK QUALITY DESIGNATION (S.R.Q.D.)</b> - A MEASURE OF ROCK QUALITY DESCRIBED BY TOTAL LENGTH OF ROCK SEGMENTS WITHIN A STRATUM EQUAL TO OR GREATER THAN 10 CENTIMETERS DIVIDED BY THE TOTAL LENGTH OF STRATA AND EXPRESSED AS A PERCENTAGE.</p> <p><b>TOPSOIL (T.S.)</b> - SURFACE SOILS USUALLY CONTAINING ORGANIC MATTER.</p>																																																																																																																																																																																																		
<p align="center"><b>SOIL LEGEND AND AASHTO CLASSIFICATION</b></p> <table border="1"> <tr> <th rowspan="2">GENERAL CLASS.</th> <th colspan="4">GRANULAR MATERIALS (&gt;35% PASSING #200)</th> <th colspan="4">SILT-CLAY MATERIALS (&gt;35% PASSING #200)</th> <th colspan="4">ORGANIC MATERIALS</th> </tr> <tr> <th>A-1</th> <th>A-3</th> <th>A-2</th> <th>A-2</th> <th>A-4</th> <th>A-5</th> <th>A-6</th> <th>A-7</th> <th>A-1, A-2</th> <th>A-4, A-5</th> <th>A-6, A-7</th> <th>A-7-5</th> <th>A-7-6</th> </tr> <tr> <th>GROUP CLASS.</th> <td>A-1-a</td> <td>A-1-b</td> <td>A-2-4</td> <td>A-2-5</td> <td>A-2-6</td> <td>A-2-7</td> <td>A-4</td> <td>A-5</td> <td>A-6</td> <td>A-7</td> <td>A-7-5</td> <td>A-7-6</td> <td></td> </tr> <tr> <th>SYMBOL</th> <td></td> </tr> <tr> <th>% PASSING</th> <td colspan="12"> <table border="1"> <tr> <td>10</td> <td>50</td> <td>60</td> <td>70</td> <td>75</td> <td>80</td> <td>85</td> <td>90</td> <td>95</td> <td>100</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>40</td> <td>30</td> <td>40</td> <td>50</td> <td>60</td> <td>70</td> <td>80</td> <td>90</td> <td>100</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>200</td> <td>15</td> <td>25</td> <td>35</td> <td>45</td> <td>55</td> <td>65</td> <td>75</td> <td>85</td> <td>95</td> <td>100</td> <td></td> <td></td> <td></td> </tr> </table> </td> </tr> <tr> <th>LIQUID LIMIT PLASTIC INDEX</th> <td>6</td> <td>10</td> </tr> <tr> <th>GROUP INDEX</th> <td>0</td> </tr> <tr> <th>USUAL TYPES OF MAJOR MATERIALS</th> <td>STONE FRAGS, GRAVEL AND SAND</td> <td>FINE SAND</td> <td>SILTY OR CLAYEY GRAVEL AND SAND</td> <td>SILTY SOILS</td> <td>CLAYEY SOILS</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <th>GEN. RATINGS AS A SUBGRADE</th> <td colspan="4">EXCELLENT TO GOOD</td> <td colspan="4">FAIR TO POOR</td> <td>FAIR TO POOR</td> <td>POOR</td> <td>UNSATURATED</td> <td></td> <td></td> </tr> </table> <p align="center">P.I. OF A-7-5 ≤ L.L. - 30 ; P.I. OF A-7-6 &gt; L.L. - 30</p>		GENERAL CLASS.	GRANULAR MATERIALS (>35% PASSING #200)				SILT-CLAY MATERIALS (>35% PASSING #200)				ORGANIC MATERIALS				A-1	A-3	A-2	A-2	A-4	A-5	A-6	A-7	A-1, A-2	A-4, A-5	A-6, A-7	A-7-5	A-7-6	GROUP CLASS.	A-1-a	A-1-b	A-2-4	A-2-5	A-2-6	A-2-7	A-4	A-5	A-6	A-7	A-7-5	A-7-6		SYMBOL														% PASSING	<table border="1"> <tr> <td>10</td> <td>50</td> <td>60</td> <td>70</td> <td>75</td> <td>80</td> <td>85</td> <td>90</td> <td>95</td> <td>100</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>40</td> <td>30</td> <td>40</td> <td>50</td> <td>60</td> <td>70</td> <td>80</td> <td>90</td> <td>100</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>200</td> <td>15</td> <td>25</td> <td>35</td> <td>45</td> <td>55</td> <td>65</td> <td>75</td> <td>85</td> <td>95</td> <td>100</td> <td></td> <td></td> <td></td> </tr> </table>												10	50	60	70	75	80	85	90	95	100					40	30	40	50	60	70	80	90	100						200	15	25	35	45	55	65	75	85	95	100				LIQUID LIMIT PLASTIC INDEX	6	10	10	10	10	10	10	10	10	10	10	10	10	GROUP INDEX	0	0	0	0	0	0	0	0	0	0	0	0	0	USUAL TYPES OF MAJOR MATERIALS	STONE FRAGS, GRAVEL AND SAND	FINE SAND	SILTY OR CLAYEY GRAVEL AND SAND	SILTY SOILS	CLAYEY SOILS									GEN. RATINGS AS A SUBGRADE	EXCELLENT TO GOOD				FAIR TO POOR				FAIR TO POOR	POOR	UNSATURATED			<p align="center"><b>MINERALOGICAL COMPOSITION</b></p> <p>MINERAL NAMES SUCH AS QUARTZ, FELDSPAR, MICA, TALC, KAOLIN, ETC. ARE USED IN DESCRIPTIONS WHENEVER THEY ARE CONSIDERED OF SIGNIFICANCE.</p>		<p align="center"><b>COMPRESSIBILITY</b></p> <table border="1"> <tr> <td>SLIGHTLY COMPRESSIBLE</td> <td>LIQUID LIMIT LESS THAN 30</td> </tr> <tr> <td>MODERATELY COMPRESSIBLE</td> <td>LIQUID LIMIT 31-50</td> </tr> <tr> <td>HIGHLY COMPRESSIBLE</td> <td>LIQUID LIMIT GREATER THAN 50</td> </tr> </table>		SLIGHTLY COMPRESSIBLE	LIQUID LIMIT LESS THAN 30	MODERATELY COMPRESSIBLE	LIQUID LIMIT 31-50	HIGHLY COMPRESSIBLE	LIQUID LIMIT GREATER THAN 50	<p align="center"><b>PERCENTAGE OF MATERIAL</b></p> <table border="1"> <tr> <th>ORGANIC MATERIAL</th> <th>GRANULAR SOILS</th> <th>SILT-CLAY SOILS</th> <th>OTHER MATERIAL</th> </tr> <tr> <td>TRACE OF ORGANIC MATTER</td> <td>2 - 3%</td> <td>3 - 5%</td> <td>TRACE</td> </tr> <tr> <td>LITTLE ORGANIC MATTER</td> <td>3 - 5%</td> <td>5 - 12%</td> <td>LITTLE</td> </tr> <tr> <td>MODERATELY ORGANIC</td> <td>5 - 10%</td> <td>12 - 20%</td> <td>SOME</td> </tr> <tr> <td>HIGHLY ORGANIC</td> <td>&gt;10%</td> <td>&gt;20%</td> <td>HIGHLY</td> </tr> </table>		ORGANIC MATERIAL	GRANULAR SOILS	SILT-CLAY SOILS	OTHER MATERIAL	TRACE OF ORGANIC MATTER	2 - 3%	3 - 5%	TRACE	LITTLE ORGANIC MATTER	3 - 5%	5 - 12%	LITTLE	MODERATELY ORGANIC	5 - 10%	12 - 20%	SOME	HIGHLY ORGANIC	>10%	>20%	HIGHLY	<p align="center"><b>GROUND WATER</b></p> <p> WATER LEVEL IN BORE HOLE IMMEDIATELY AFTER DRILLING.</p> <p> STATIC WATER LEVEL AFTER 24 HOURS.</p> <p> PERCHED WATER, SATURATED ZONE OR WATER BEARING STRATA</p> <p> SPRING OR SEEPAGE</p>	
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STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4055	2A	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
33420.1.1	BRSTP-1124(4)	P.E.	

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

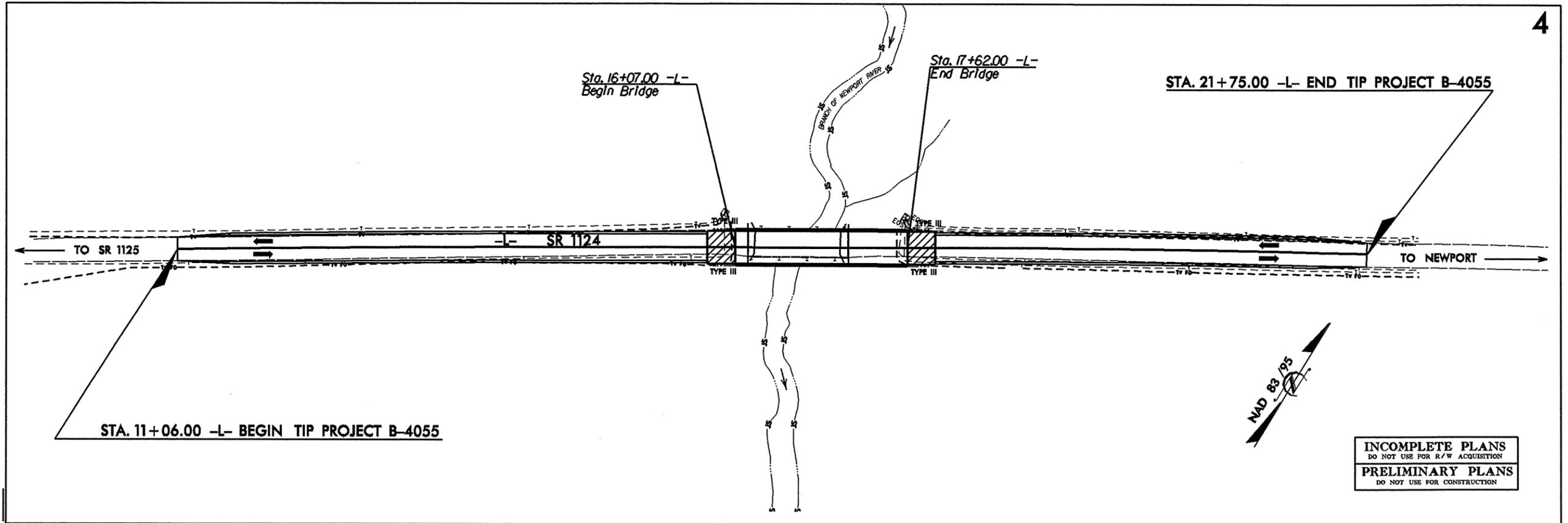
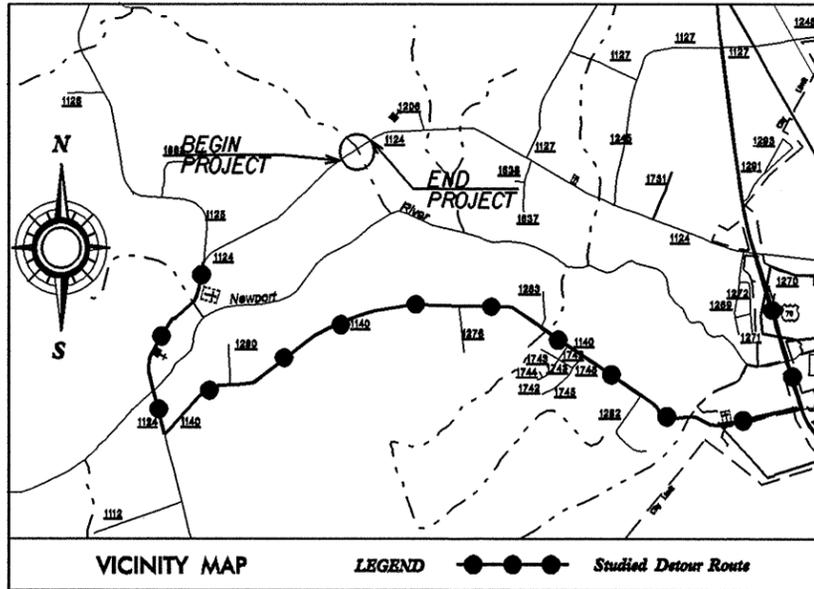
**CARTERET COUNTY**

LOCATION: BRIDGE NO. 22 OVER BRANCH OF NEWPORT RIVER  
AND APPROACHES ON SR 1124

TYPE OF WORK: GRADING, DRAINAGE, PAVING AND STRUCTURE

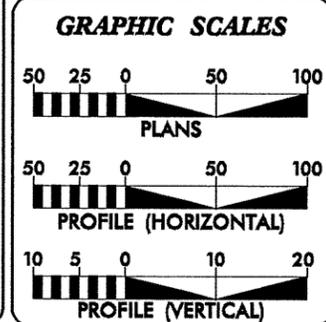
**Structure  
Recommendations**

See Sheet 1-A For Index of Sheets



NCDOT CONTACT: CATHY HOUSER, P.E., PROJECT ENGINEER - ROADWAY DESIGN

"CLEARING ON THIS PROJECT SHALL BE ESTABLISHED BY METHOD "



**DESIGN DATA**

ADT 2007 = 3750  
ADT 2030 = 7000  
DHV = 10 %  
D = 60 %  
T = 3 % \*  
V = 60 MPH  
FUNC. CLASS = RURAL MAJOR COLLECTOR  
\* TTST 1 % DUAL 2 %

**PROJECT LENGTH**

LENGTH ROADWAY TIP PROJECT B-4055	= 0.173 mi.
LENGTH STRUCTURE TIP PROJECT B-4055	= 0.029 mi.
TOTAL LENGTH TIP PROJECT B-4055	= 0.202 mi.

Prepared in the Office of:  
**WANG ENGINEERING COMPANY, INC.**  
CARY, N.C.  
FOR NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

2002 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: July 21, 2006  
LETTING DATE: July 17, 2007

GREG S. PURVIS, P. E.  
PROJECT ENGINEER

SCOTT L. KENNEDY  
PROJECT DESIGN ENGINEER

**HYDRAULICS ENGINEER**

\_\_\_\_\_  
SIGNATURE: P.E.

ROADWAY DESIGN ENGINEER

\_\_\_\_\_  
SIGNATURE: P.E.

**DIVISION OF HIGHWAYS  
STATE OF NORTH CAROLINA**

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STATE DESIGN ENGINEER P.E.

DEPARTMENT OF TRANSPORTATION  
FEDERAL HIGHWAY ADMINISTRATION

APPROVED  
DIVISION ADMINISTRATOR      DATE

CONTRACT: TIP PROJECT: B-4055  
 09/08/09  
 I:\DEC-2005\_09\59  
 L:\ERO\Rel\gh...at\_06\221400



STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY  
GOVERNOR

LYNDO TIPPETT  
SECRETARY

January 4, 2006

STATE PROJECT: 33420.1.1 B-4055  
F. A. PROJECT: BRSTP-1124(4)  
COUNTY: Carteret  
DESCRIPTION: Bridge No. 22 on SR 1124 over Branch of Newport River  
SUBJECT: Geotechnical Report – Inventory

**Project Description**

The proposed project is located on SR 1124 at the existing bridge over Branch of Newport River approximately 1± miles west of Newport. Based on the current plans, the roadway portion of the project will primarily consist of constructing the approaches for the replacement structure which includes some minor widening of the SR 1124 embankment along the existing alignment. The investigation of subsurface conditions was confined to the corridor of proposed new construction.

The following base lines were investigated for this project:

<u>Line</u>	<u>Station</u>
-L-	11+06 to 21+07

**Areas of Special Geotechnical Interest**

- 1) The following sections contain relatively soft organic alluvial soils which have the potential to cause embankment stability and/or long term settlement problems:

<u>Line</u>	<u>Station (±)</u>
-L-	15+25 to 21+07

**Physiography and Geology**

The project corridor is located in the Coastal Plain Physiographic Province and is underlain by Recent to Pleistocene age soils as well as Pliocene age sediments of the Yorktown Formation. The scope of this investigation will involve Recent to Pleistocene deposits, flood plain deposits and the existing embankment. Topography along the project is flat to gently sloping. Ground elevations along the project range from -1± feet along the bed of Branch of Newport River to 17± feet along the existing roadway embankment. The floodplain lies at an elevation of 6± feet.

**Ground Water**

Ground water data was collected primarily from June 2005 to August 2005 during above average rainfall conditions. Typically, ground water levels were measured at depths of 5± feet below the natural ground surface along the upland section of the project and at or near the natural ground surface in the flood plain. Ground water levels should fall 3± feet or more during dry summer conditions.

**Soils**

Soils along the majority of the upland areas (11+06± to 15+25±) of the project primarily consist of 2 to 6 feet of loose to medium dense fine to coarse sand (A-2-4, A-3) underlain by clay (A-7-6). The granular soils generally exhibit fair to excellent engineering properties.

Surficial alluvial soils noted within the floodplain along the western approach in the vicinity of -L- Station 15+25± to 16+ 07 primarily consists of up to 3± feet of very loose moderately organic sand (A-2-4) underlain by medium dense sand (A-2-4, A-3). Organic content of a tested sample was 7 percent. Moisture content of a tested organic sample was 21 percent. Alluvial soils along the eastern approach from -L- Station 17+62± to 21+07± consist of up to 5± feet of very soft slightly organic silt (A-4) underlain by medium dense sand (A-2-4, A-3). Organic content of a tested sample was 7 percent. Moisture content of a tested organic sample was 47 percent. Vane Shear tests taken at -L- Stations 16+00 and 20+00 show shear strengths of 84 to 1837. Vane Shear test values may be abnormally high when roots and/or sand lenses are encountered. Due to the relatively poor engineering characteristics of the soils within the floodplains, undercut and/or fabric for soil stabilization may be required to assist in stabilizing portions of -L- where the organic deposits occur.

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CENTURY CENTER COMPLEX  
ENTRANCE B-2  
1020 BIRCH RIDGE DRIVE  
RALEIGH NC

Embankments are man-made fills built during construction of the existing SR 1124 roadway. The existing approach embankment soils are typically 2± to 6 feet thick and consist of loose to medium dense sand (A-2-4). The embankment material exhibits excellent engineering properties.

Prepared by,

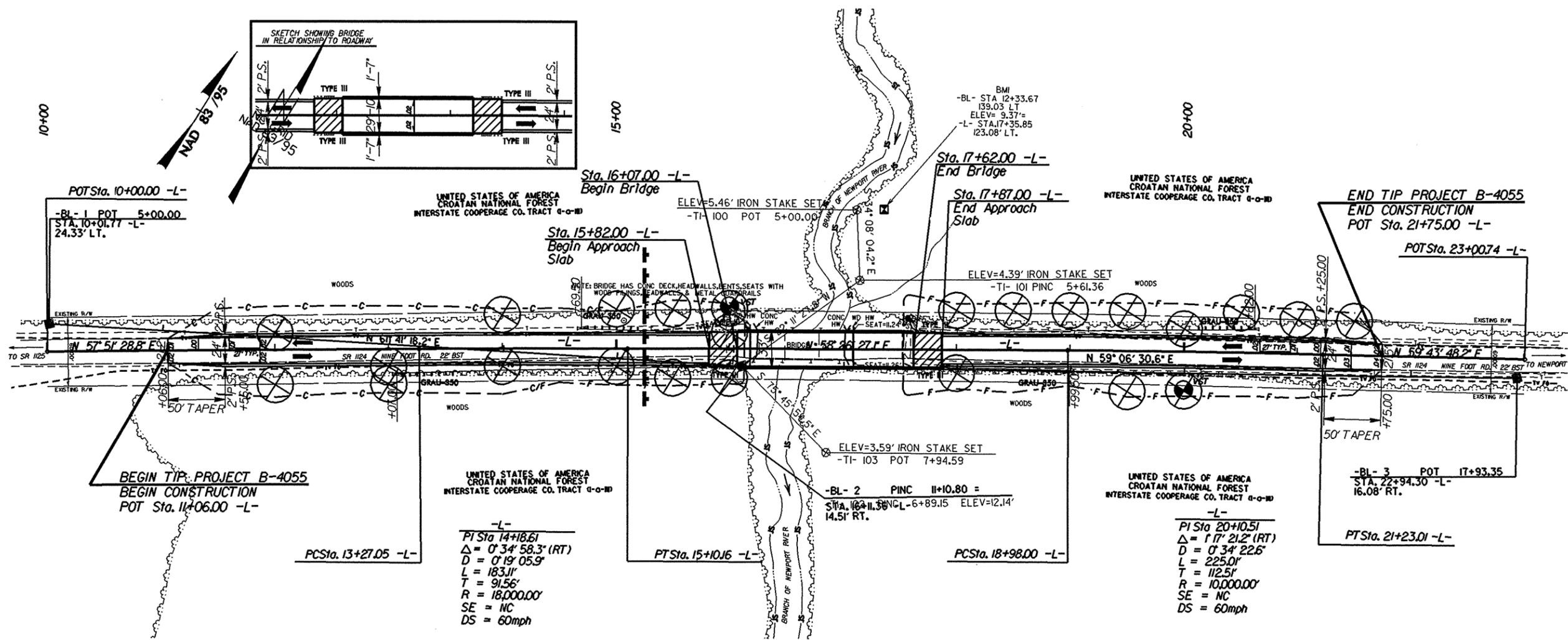


Fred M Wescott III  
Project Engineering Geologist



PROJECT REFERENCE NO.		SHEET NO.	
B-4055		4	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	

8/17/99



UNITED STATES OF AMERICA  
CROATAN NATIONAL FOREST  
INTERSTATE COOPERAGE CO. TRACT 0-0-10

-L-  
PI Sta 14+18.61  
Δ = 0° 34' 58.3" (RT)  
D = 0° 19' 05.9"  
L = 183.11'  
T = 91.56'  
R = 18,000.00'  
SE = NC  
DS = 60mph

UNITED STATES OF AMERICA  
CROATAN NATIONAL FOREST  
INTERSTATE COOPERAGE CO. TRACT 0-0-10

-L-  
PI Sta 20+10.51  
Δ = 1° 17' 21.2" (RT)  
D = 0° 34' 22.6"  
L = 225.01'  
T = 112.51'  
R = 10,000.00'  
SE = NC  
DS = 60mph

-L-

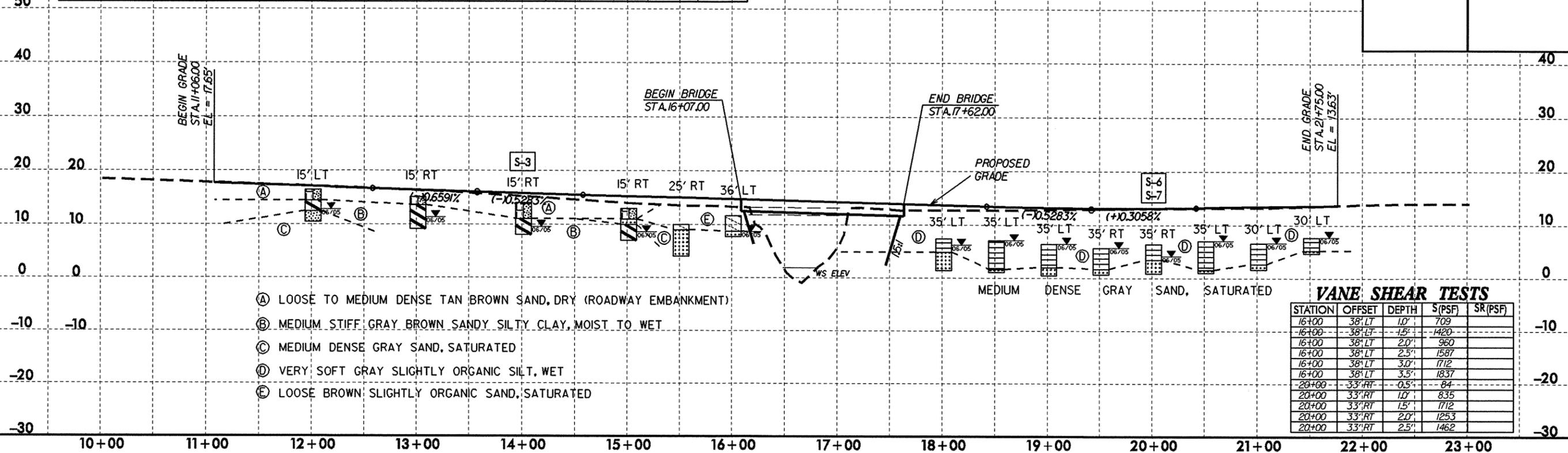
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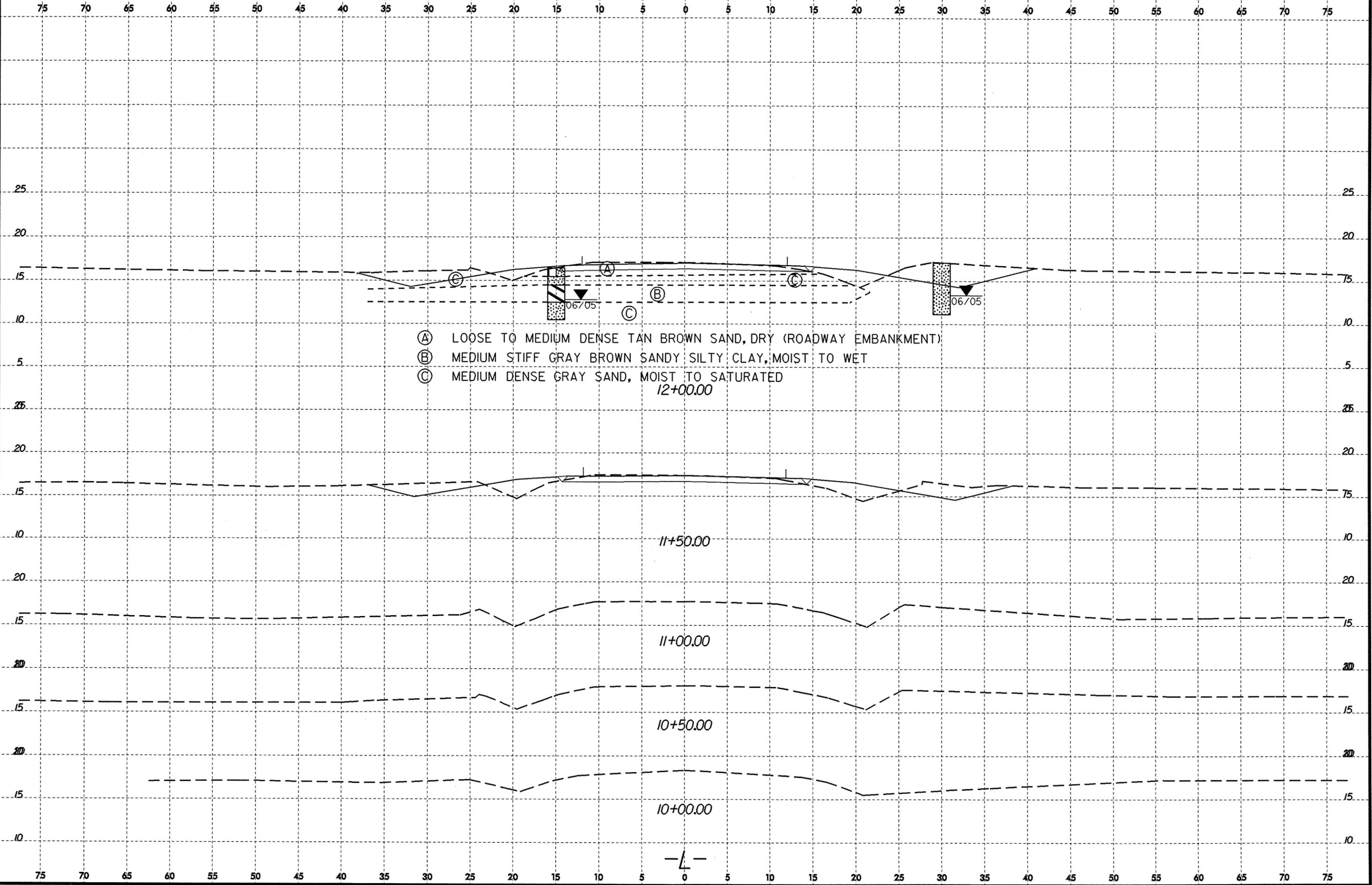
SOIL TEST RESULTS															
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS	LL	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
S-3	15 RT	14+00	3.0-6.0	A-7-6(13)	41	22	0.4	35.6	23.2	40.7	100	100	68	-	-
S-6	35 RT	20+00	0.0-3.0	A-4(1)	35	NP	4.5	24.1	58.1	13.2	100	99	72	46.8	7.1
S-7	35 RT	20+00	3.0-5.5	A-3(0)	23	NP	17.2	80.2	0.5	2.0	100	99	5	-	-

PROJECT REFERENCE NO.	B-4055	SHEET NO.	5
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	



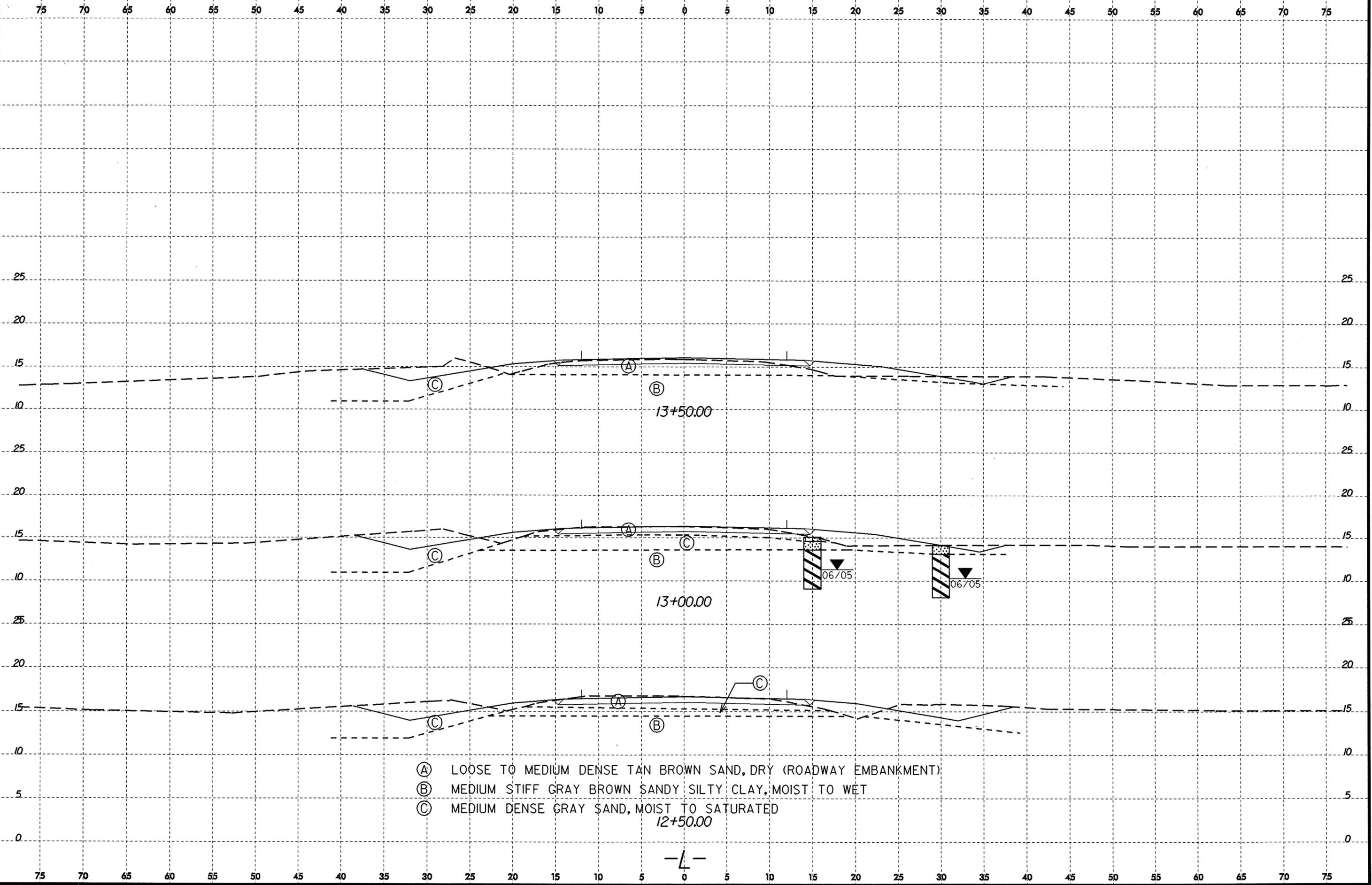
- Ⓐ LOOSE TO MEDIUM DENSE TAN BROWN SAND, DRY (ROADWAY EMBANKMENT)
- Ⓑ MEDIUM STIFF GRAY BROWN SANDY SILTY CLAY, MOIST TO WET
- Ⓒ MEDIUM DENSE GRAY SAND, SATURATED
- Ⓓ VERY SOFT GRAY SLIGHTLY ORGANIC SILT, WET
- Ⓔ LOOSE BROWN SLIGHTLY ORGANIC SAND, SATURATED

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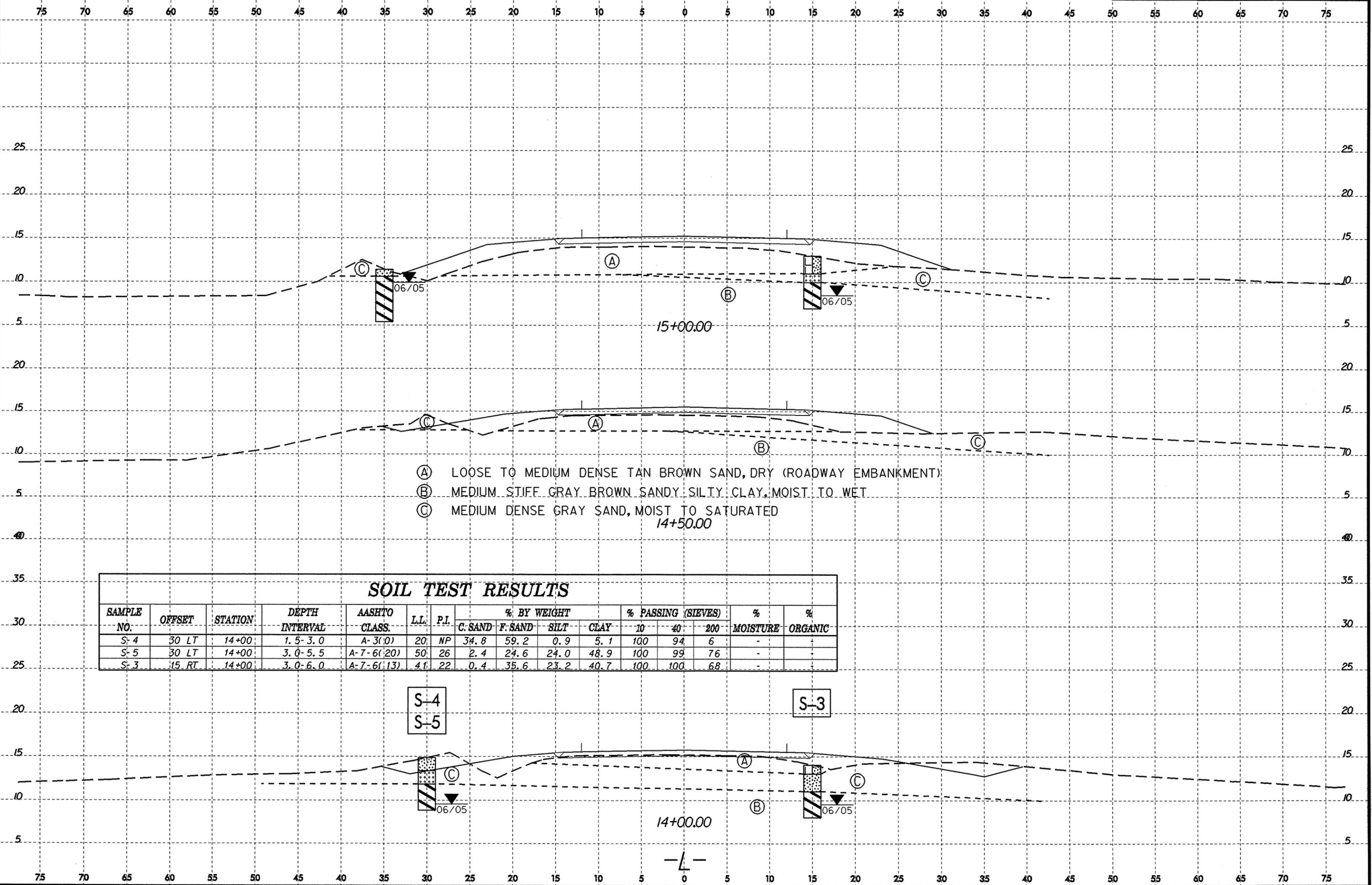


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- (A) LOOSE TO MEDIUM DENSE TAN BROWN SAND, DRY (ROADWAY EMBANKMENT)
- (B) MEDIUM STIFF GRAY BROWN SANDY SILTY CLAY, MOIST TO WET
- (C) MEDIUM DENSE GRAY SAND, MOIST TO SATURATED

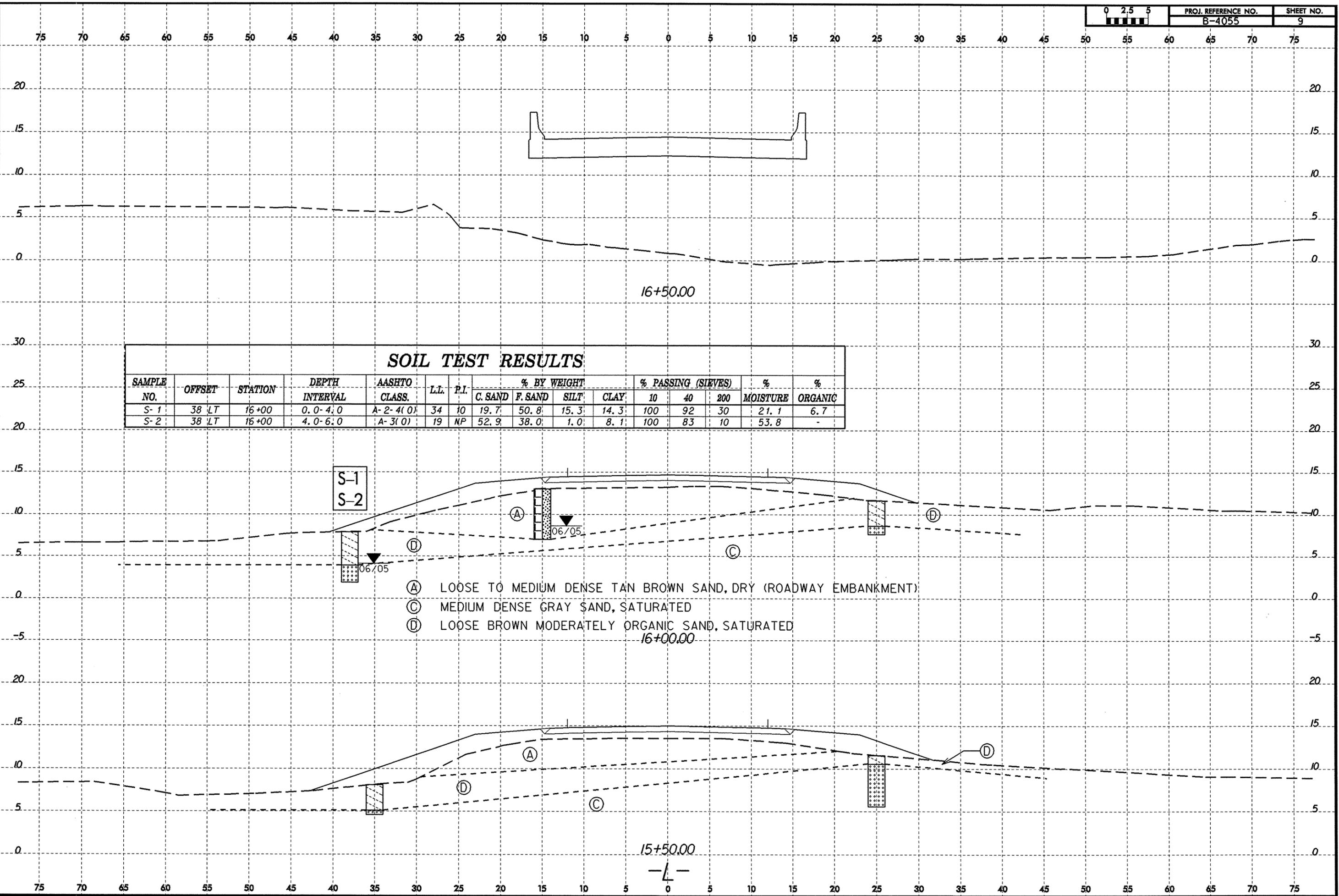
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							C. SAND	F. SAND	SILT	CLAY	-10	-40	-200		
S-4	30 LT	14+00	1.5-3.0	A-3(0)	20	NP	34.8	59.2	0.9	5.1	100	94	6	-	-
S-5	30 LT	14+00	3.0-5.5	A-7-6(20)	50	26	2.4	24.6	24.0	48.9	100	99	76	-	-
S-3	15 RT	14+00	3.0-6.0	A-7-6(13)	41	22	0.4	35.6	23.2	40.7	100	100	68	-	-

S-4  
S-5

S-3

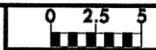
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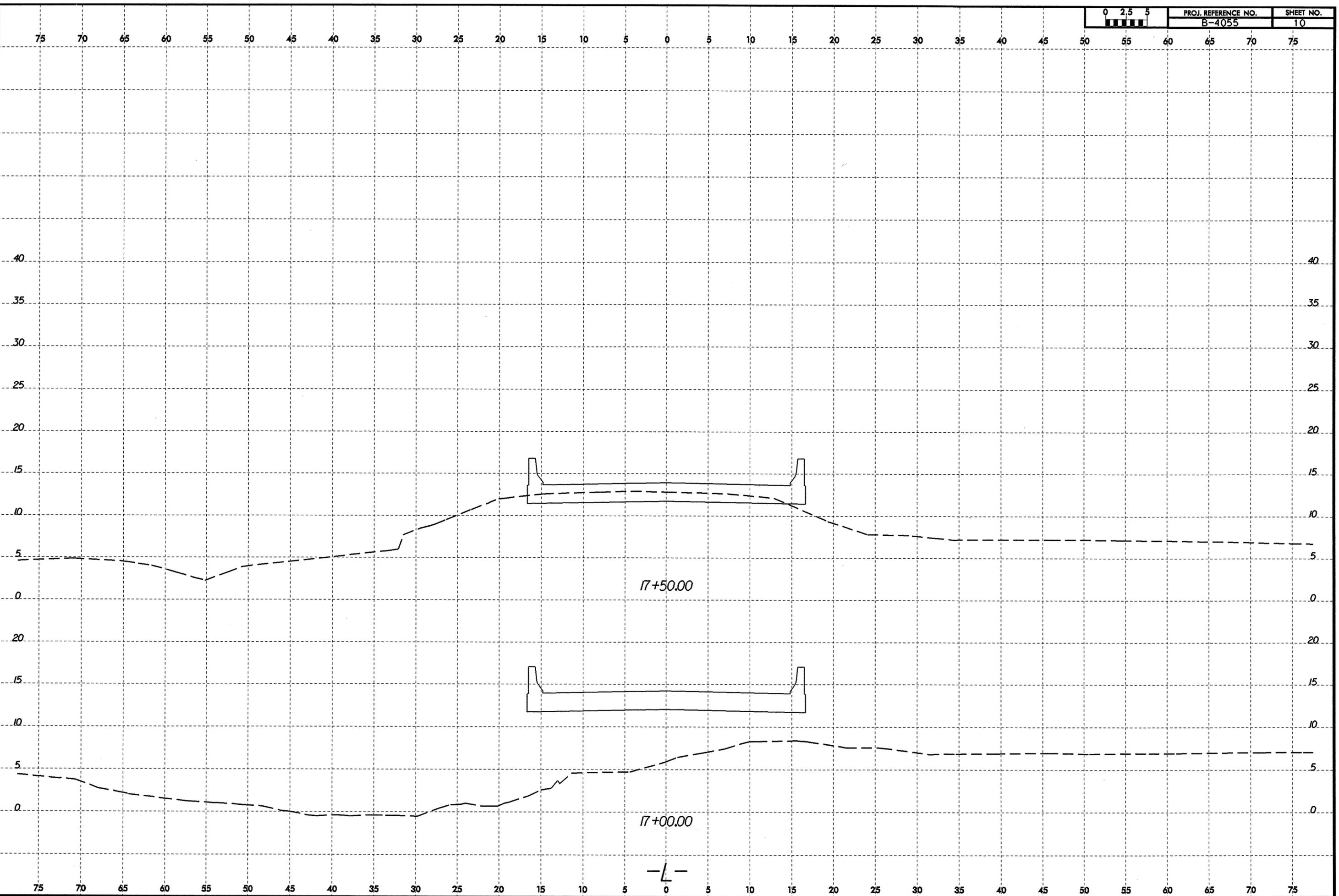


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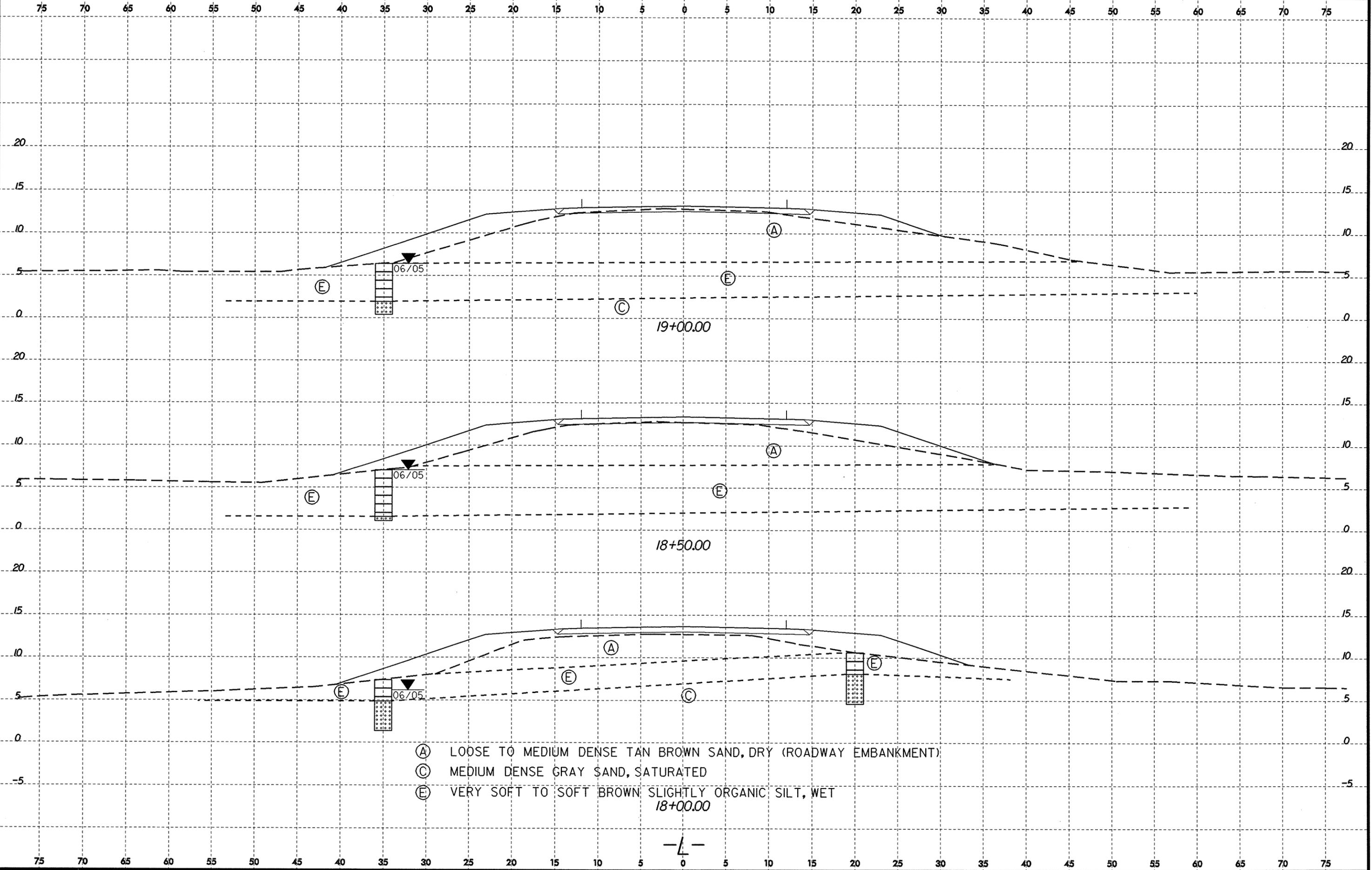


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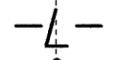
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- (A) LOOSE TO MEDIUM DENSE TAN BROWN SAND, DRY (ROADWAY EMBANKMENT)
- (C) MEDIUM DENSE GRAY SAND, SATURATED
- (E) VERY SOFT TO SOFT BROWN, SLIGHTLY ORGANIC SILT, WET



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