CUY-90-14.90

PID 77332/85531

APPENDIX GE-03

Soil Profile
(Reference Document)

State of Ohio
Department of Transportation
Jolene M. Molitoris, Director

Innerbelt Bridge
Construction Contract Group 1 (CCG1)

Revision Date: June 4, 2010

5 - Addendum No. 5 - Changes noted on next page

General Changes: Each sheet had the total sheet number changed and the CRS changed from CUY-90-14.52 to CUY-90-14.90.

Sheet 1/116:	Some minor changes to the text, update index of sheets, update to the recon and drilling lines and the completion date on signature stamp area.
Sheet 2/116:	Some minor changes to the text, addition of information for 5 UC tests on soil into table in middle column.
Sheet 4/116:	Add in 6 supplemental borings and readjust sheet number references as necessary for other borings.
Sheet 5/116:	Readjust sheet number references as necessary for other borings.
Sheet 49/116:	Correct spelling of the word "separate".
Sheet 51/116:	Correct spelling of the word "separate", update sheet number references in table as necessary.
Sheet 56/116:	Add in Boring B-039-1-10, correct spelling of the words "separate" and "Cuyahoga", update sheet number references in table as necessary.
Sheet 57/116:	Add in profile for Boring B-039-1-10, delete profile for B-039-0-09 (it was too close to the location of B-039-1-10).
Sheet 58/116:	Add in profile for Boring B-039-1-10, delete profile for B-039-0-09 (it was too close to the location of B-039-1-10).
Sheet 59/116:	Add in Boring B-044-1-10, correct spelling of the word "separate", update sheet number references in table as necessary.
Sheet 60/116:	Add in profile for Boring B-044-1-10.
Sheet 61/116:	Add in profile for Boring B-044-1-10.
Sheet 64/116:	Add in Boring B-047-2-10, correct spelling of the word "separate", update sheet number references in table as necessary.
Sheet 65/116:	Add in profile for Boring B-047-2-10, delete profile for V-013-0-06 (it was too close to the location of B-047-2-10).
Sheet 66/116:	Add in profile for Boring B-047-2-10, delete profile for V-013-0-06 (it was too close to the location of B-047-2-10).
Sheet 69/116:	Correct spelling of the word "separate", update sheet number references in table as necessary.
Sheet 70/116:	Delete grade line for future WB I-90 centerline to be consistent with new sheet 73A.
Sheet 73/116:	Add in Borings B-069-1-10 and B-069-2-10, correct spelling of the word "separate", update sheet number references in table as necessary.
Sheet 73A/116:	New profile sheet to show Borings B-069-1-10 and B-069-2-10, grade line for future WB I-90 centerline not shown.
Sheet 75/116:	Add in Boring B-074-1-10, correct spelling of the word "separate", update sheet number references in table as necessary.
Sheet 76/116:	Add in profile for Boring B-074-1-10.
Sheet 78/116:	Correct spelling of the word "separate", update sheet number references in table as necessary.
Sheet 81/116:	Add in note for location of boring markers in plan view.
Sheet 82/116:	Add in note for location of boring markers in plan view.
Sheet 83/116:	Add in note for location of boring markers in plan view.
Sheet 84/116:	Add in note for location of boring markers in plan view.
Sheet 86/116:	Add in note for location of boring markers in plan view.
Sheet 88/116:	Add in note for location of boring markers in plan view.
Sheet 90/116:	Add in note for location of boring markers in plan view.
Sheet 92/116:	Add in note for location of boring markers in plan view.
Sheet 94/116:	Add in note for location of boring markers in plan view.
Sheet 96/116:	Add in note for location of boring markers in plan view.
Sheet 98/116:	Add in note for location of boring markers in plan view, replace the word "inches" with " in heading of Boring B-047-0-09.
Sheet 100/116:	New sheet for new cross section at Sta. 161+00 showing Borings B-047-2-10 and V-013-0-06.
Sheet 101/116:	New sheet for new cross section at Sta. 161+00 showing Borings B-047-2-10 and V-013-0-06.
Sheet 102/116:	Renumber sheet (from 100 to 102) after adding new cross section at 161+00, add in note for location of boring markers in plan view.
Sheet 103/116:	Renumber sheet (from 101 to 103) after adding new cross section at 161+00, add in note for location of boring markers in plan view.
Sheet 104/116:	Renumber sheet (from 102 to 104) after adding new cross section at 161+00.
Sheet 105/116:	Renumber sheet (from 103 to 105) after adding new cross section at 161+00.
Sheet 106/116:	Renumber sheet (from 104 to 106) after adding new cross section at 161+00.
Sheet 107/116:	Renumber sheet (from 105 to 107) after adding new cross section at 161+00.
Sheet 108/116:	Renumber sheet (from 106 to 108) after adding new cross section at 161+00.
Sheet 109/116:	Renumber sheet (from 107 to 109) after adding new cross section at 161+00.
Sheet 110/116:	Renumber sheet (from 108 to 110) after adding new cross section at 161+00.
Sheet 111/116:	Renumber sheet (from 109 to 111) after adding new cross section at 161+00.
Sheet 112/116:	Renumber sheet (from 110 to 112) after adding new cross section at 161+00.
Sheet 113/116:	Renumber sheet (from 111 to 113) after adding new cross section at 161+00.
Sheet 114/116:	Renumber sheet (from 112 to 114) after adding new cross section at 161+00, add in note for location of boring markers in plan view.
Sheet 115/116:	Renumber sheet (from 113 to 115) after adding new cross section at 161+00, add in note for location of boring markers in plan view.
Sheet 116/116:	Renumber sheet (from 114 to 116) after adding new cross section at 161+00, add in note for location of boring markers in plan view.

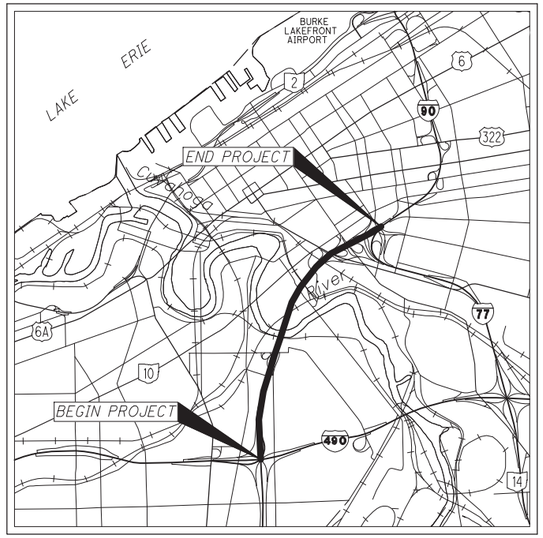
INDEX OF SHEETS

LOCATION FROM STA.	TO STA.	PLAN VIEW & PROFILE SHEET NUMBERS
W.B. I-90 MAINLINE		
97+02.06	198+50	47, 49, 51-53, 56-61, 64-66, 69-70, 73, 73A
TEMPORARY W.B. I-90 MAINLINE		
501+50.00	515+50.00	64, 69, 71
TEMPORARY RAMP A3		
2999+00	3009+20.95	69, 73, 74
RAMP A4		
600+26.44	609+41.34	64, 69, 72
RAMP A5		
697+89.30	720+42.80	59, 62-64, 67
RAMP A6		
800+00	814+00	51, 54, 56
RAMP A7		
1000+00	1013+96	47-50
W. 14TH ST. EXT.		
100+00	108+80.78	51, 55
ONTARIO ST.		
690+69.56	697+89.30	64, 68
COMMERCIAL RD.		
10+00	20+07.23	64, 75, 77
E. 9TH ST.		
11+54.79	26+00	59, 75-76, 78
BROADWAY AVE.		
10+00	24+73.88	78-79
E. 14TH ST.		
10+01.13	14+75.51	78, 80

STATION	CROSS SECTION SHEET NUMBERS
W.B. I-90 MAINLINE	
111+00	81
114+00	82
115+00	83
118+50	84-85
126+50	86-87
128+00	88-89
131+00	90-91
134+00	92-93
137+00	94-95
139+50	96-97
158+50	98-99
161+00	100-101
167+00	102
171+50	103
WEST ABUTMENT	
A-A′	104-105
B-B′	106-107
C-C′	108-109
D-D′	110-111
E-E′	112-113
TEMPORARY RAMP A3	
3000+10	114
3003+50	115
RAMP A6	
806+50	116

LEGEND

DESCRIPTION	ODOT CLASS
GRAVEL AND/OR STONE FRAGMENTS	*A-1-a*
GRAVEL AND/OR STONE FRAGMENTS W/ SAND	*A-1-b*
GRAVEL AND/OR STONE FRAGMENTS W/ SAND & SILT	*A-2-4*
GRAVEL AND/OR STONE FRAGMENTS W/ SAND, SILT, & CLAY	*A-2-6*
FINE SAND	*A-3*
COURSE & FINE SAND	*A-3a*
SANDY SILT	*A-4a*
SILT	*A-4b*
SILT AND CLAY	*A-6a*
SILTY CLAY	*A-6b*
ELASTIC CLAY	*A-7-5*
CLAY	*A-7-6*
ORGANIC SILT	*A-8a*
ORGANIC CLAY	*A-8b*
ORGANIC	*VISUAL*
WOODY PEAT	*VISUAL*
BOULDERY ZONE	*VISUAL*
SHALE	*VISUAL*
WEATHERED SHALE	*VISUAL*
UNCONTROLLED FILL	*VISUAL*
CONCRETE	*VISUAL*
PAVEMENT OR BASE = X = APPROXIMATE THICKNESS (ASPHALT, CONCRETE, BRICK, SANDSTONE OR GRANITE PAVERS, BERM)	*VISUAL*
SOD AND TOPSOIL = X = APPROXIMATE THICKNESS	*VISUAL*
BORING LOCATION - PLAN VIEW	
INSTRUMENTED BORING LOCATION - PLAN VIEW	
HISTORIC BORING LOCATION (PRE-2006) - PLAN VIEW	
DRIVE SAMPLE AND/OR ROCK CORE BORING PLOTTED TO VERTICAL SCALE ONLY. HORIZONTAL BAR INDICATES A CHANGE IN STRATIGRAPHY.	
N_{60} INDICATES STANDARD PENETRATION RESISTANCE NORMALIZED TO 60% DRILL ROD ENERGY RATIO.	
X/Y/Z INDICATES NUMBER OF BLOWS FOR "STANDARD PENETRATION TEST" X = NUMBER OF BLOWS FOR FIRST 6 INCHES Y = NUMBER OF BLOWS FOR SECOND 6 INCHES Z = NUMBER OF BLOWS FOR THIRD 6 INCHES	
N INDICATES NUMBER OF BLOWS FOR 12 INCHES.	
$N^{\diamond}$ INDICATES NUMBER OF BLOWS FOR 12 INCHES IN 6-INCH INCREMENTS.	
WC INDICATES WATER CONTENT IN PERCENT.	
INDICATES STATIC WATER ELEVATION.	
W INDICATES FREE WATER ELEVATION.	
INDICATES A PLASTIC MATERIAL WITH A MOISTURE CONTENT EQUAL TO OR GREATER THAN THE LIQUID LIMIT MINUS 3.	
INDICATES A NON-PLASTIC MATERIAL WITH A MOISTURE CONTENT GREATER THAN 25 % OR GREATER THAN 19 % WITH A WET APPEARANCE.	
R REFUSAL OF SPLIT-BARREL SAMPLER IN HARD OR VERY-DENSE SOIL.	
P INDICATES A SHELBY TUBE OR PRESS SAMPLE.	
TR INDICATES TOP OF BEDROCK.	



LOCATION MAP

SCALE IN MILES

0 0.5 1 1.5 2

N

NOTE: BORING LOGS AND/OR PROFILES (BASED ON INFORMATION AVAILABLE AT THE TIME OF SUBMITTAL) ARE SUBMITTED IN A BINDER UNDER SEPARATE COVER.

PROJECT DESCRIPTION

AS PART OF THE CUY-90-14.90 (FORMERLY CUY-90-14.52) PROJECT, IT IS PLANNED TO RECONFIGURE APPROXIMATELY 1.6 MILES OF WESTBOUND I-90 (STA. 97+02.06 TO APPROXIMATE STA. 177+65) IN CLEVELAND, CUYAHOGA COUNTY, OHIO. ASSOCIATED WORK INVOLVED IN THIS PROJECT IS THE CONSTRUCTION OF A NEW FIVE-LANE BRIDGE STRUCTURE OVER THE CUYAHOGA RIVER VALLEY. ENTRANCE AND EXIT RAMPS AT EAST 14TH STREET, EAST 9TH STREET, ONTARIO STREET AND ABBEY AVENUE WILL BE RECONFIGURED AND CONSTRUCTED. RECONFIGURATION OF THE WEST 14TH STREET EXTENSION, COMMERCIAL ROAD, BROADWAY AVENUE, AND EAST 9TH STREET IS ALSO INCLUDED IN THIS PROJECT.

- CONTINUED ON SHEET 2 -

PARTICLE SIZE DEFINITIONS

12″	3″	2.0 mm	0.42 mm	0.074 mm	0.005 mm
BOULDERS	COBBLES	GRAVEL	COARSE SAND	FINE SAND	SILT	CLAY
		No. 10 SIEVE	No. 40 SIEVE	No. 200 SIEVE	

RECON. - VARIOUS (BBCM, B&P) 2006, 2009, 2010

DRILLING - BBCM 2006, 2009; B&P 2009, 2010

DRAWN - TJM/MRM

REVIEWED - BKS/JLS

STATE OF OHIO
JEFFREY LYNN SNYDER
72271
REGISTERED
PROFESSIONAL ENGINEER
5/26/10

BBCM

PID NO. 77332

SOIL PROFILE

CUY-90-14.90

AVAILABLE INFORMATION

NUMEROUS HISTORICAL RECORDS WERE SEARCHED TO GATHER HISTORICAL BORING INFORMATION IN THE GENERAL VICINITY OF THIS PROJECT. SEVERAL SUBSURFACE INVESTIGATIONS HAVE BEEN PERFORMED IN THE GENERAL PROJECT VICINITY AS EARLY AS 1923. AVAILABLE INFORMATION WITHIN THE PROJECT LIMITS OBTAINED FROM THE HISTORICAL RECORDS SEARCH IS LISTED AS FOLLOWS:

- SOIL PROFILES WERE AVAILABLE FOR THE 1923 INVESTIGATION PERFORMED BY THE CLEVELAND UNION TERMINAL COMPANY FOR THE CUYAHOGA VIADUCT BRIDGE, WHICH IS NOW OWNED AND OPERATED BY THE GREATER CLEVELAND REGIONAL TRANSIT AUTHORITY.
- MULTIPLE SUBSURFACE INVESTIGATIONS WERE CONDUCTED BY ODOT IN 1958, 1963, 1964, 1990 AND 1992. THE PRE-1990 ODOT INVESTIGATIONS WERE GENERALLY PERFORMED FOR THE PLANNED INNERBELT FREEWAY AND BRIDGE. THE 1990 AND 1992 ODOT BORINGS WERE PERFORMED TO INVESTIGATE THE OBSERVED SLOPE MOVEMENTS IN THE VICINITY OF THE WEST END PIER AND PIER 1 OF THE EXISTING INNERBELT BRIDGE.
- HOWARD, NEEDLES, TAMMEN & BERGENDOFF CONSULTING ENGINEERS (HNTB) PERFORMED INVESTIGATIONS BETWEEN 1954 AND 1956 PRIMARILY AT THE PROPOSED ABUTMENT AND PIER LOCATIONS FOR THE EXISTING INNERBELT BRIDGE.
- SOIL PROFILES WERE AVAILABLE FOR THE 1955 INVESTIGATION BY NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY (NYC & ST. L.R.R.) FOR THE VERTICAL LIFT BRIDGE CARRYING A RAILROAD LINE (NOW OWNED BY NORFOLK SOUTHERN CORPORATION) OVER THE CUYAHOGA RIVER LOCATED IMMEDIATELY TO THE NORTH OF THE EXISTING INNERBELT BRIDGE.
- IN 1986, BORINGS WERE PERFORMED BY THE DAVID V. LEWIN CORPORATION (LEWIN) AT THE SITE OF A PROPOSED DOMED STADIUM. THE SITE IS NOW OCCUPIED BY PROGRESSIVE FIELD.
- IN 1986 AND 1987, R&R INTERNATIONAL, INC. (R&R) PERFORMED BORINGS FOR THE EXISTING ABBEY AVENUE VIADUCT OVER THE EXISTING NORFOLK SOUTHERN RAILROAD AND SCRANTON ROAD.
- IN 2000 AND 2001, DLZ CORPORATION (DLZ) PERFORMED THREE (3) BORINGS ADJACENT TO THE EXISTING INNERBELT BRIDGE AS A PART OF A STABILITY EVALUATION FOR THE CUY-90-15.24 PROJECT.
- BBC&M ENGINEERING, INC. (BBCM) PERFORMED SUBSURFACE INVESTIGATIONS BETWEEN 1994 AND 2006 GENERALLY TO INVESTIGATE VARIOUS ASPECTS OF THE CUY-90-15.24 AND CUY-90-14.52 PROJECTS. THE SUBSURFACE INVESTIGATIONS ALSO INCLUDED INSTALLATION OF INSTRUMENTATION SUCH AS INCLINOMETERS AND PIEZOMETERS. THE PURPOSE OF THE BBCM INVESTIGATIONS IN THE 1990'S WAS TO MONITOR THE SLOPE MOVEMENTS AT THE WEST END PIER AND PIER 1 OF THE EXISTING INNERBELT BRIDGE AND AID THE DESIGN OF A STABILIZATION STRUCTURE ADJACENT TO PIER 1. THE CONSTRUCTION OF THIS STABILIZATION STRUCTURE WAS COMPLETED IN 1999. AN ADDITIONAL SUBSURFACE INVESTIGATION AT THE WEST BANK OF THE CUYAHOGA RIVER WAS PERFORMED BY BBCM IN 2006 TO EVALUATE THE LIMITS OF INSTABILITY IN THE WEST BANK SLOPE AND EVALUATE VARIOUS ALTERNATIVES FOR STABILIZING THE SLOPE IN SUPPORT OF THE FOUNDATIONS IN THIS AREA FOR THE PROPOSED NEW BRIDGE (WESTBOUND I-90 BRIDGE) TO BE LOCATED JUST NORTH OF THE EXISTING INNERBELT BRIDGE. OHIO UNIVERSITY PERFORMED SEVERAL CPT TESTS IN CONJUCTION WITH BBCM'S 2006 INVESTIGATION.
- BBCM PERFORMED A PRELIMINARY SUBSURFACE INVESTIGATION IN 2006 FOR THE PROPOSED WESTBOUND I-90 BRIDGE ALIGNMENT. IN ADDITION TO THE BORINGS PERFORMED FOR THE PROPOSED WESTBOUND I-90 BRIDGE, BORINGS WERE PERFORMED FOR THE FOLLOWING: EXISTING ROADWAYS TO BE REHABILITATED OR RECONFIGURED; NEW ROADWAYS; NEW, REHABILITATED AND/OR RECONFIGURED INTERCHANGE RAMPS; THE I-90 MAINLINE; AND, ASSOCIATED NEW AND REHABILITATED STRUCTURES (I.E. BRIDGES AND RETAINING WALLS).

ALL AVAILABLE SOIL INFORMATION THAT CAN BE CONVENIENTLY SHOWN ON THE SOIL PROFILE SHEETS HAS BEEN SO REPORTED. THE LOGS OF BORINGS, SOIL PROFILES (WHERE BORINGS WERE NOT AVAILABLE), AND CPT LOGS HAVE BEEN SUBMITTED SEPERATELY FROM THESE SOIL PROFILE SHEETS IN A BINDER PER ODOT'S REQUEST. THIS BINDER ALSO CONTAINS MANY BORINGS THAT ARE SHOWN ON THE PLAN SHEETS BUT HAVE BEEN EXCLUDED FROM THE PROFILES AND CROSS-SECTIONS EITHER FOR CLARITY OF PRESENTATION OR DUE TO THEIR RELATIVELY LARGE DISTANCE FROM PROJECT CENTERLINES AND BASELINES. ADDITIONAL NOTES REGARDING THE LOCATION OF SUBSURFACE DATA ARE PROVIDED ON THE INDIVIDUAL PLAN AND PROFILE SHEETS.

ADDITIONAL SUBSURFACE EXPLORATIONS MAY HAVE BEEN MADE TO STUDY SOME SPECIAL ASPECT OF THE PROJECT. COPIES OF THIS DATA, IF ANY, MAY BE INSPECTED IN THE DISTRICT DEPUTY DIRECTOR'S OFFICE, THE OFFICE OF GEOTECHNICAL ENGINEERING AT 1600 WEST BROAD STREET OR THE OFFICE OF STRUCTURAL ENGINEERING AT 1980 WEST BROAD STREET.

SUBSURFACE EXPLORATION

TO SUPPLEMENT THE SUBSURFACE INVESTIGATIONS PERFORMED BY BBCM BETWEEN 1994 AND 2006 BASED ON THE MOST RECENT PLANS FOR THE CUY-90-14.90 PROJECT, BARR & PREVOST (B&P) PERFORMED 80 BORINGS BETWEEN MAY AND OCTOBER OF 2009 AND BBCM PERFORMED SEVEN (7) BORINGS BETWEEN JUNE AND SEPTEMBER OF 2009. ADDITIONALLY, ODOT PERFORMED TWO (2) CPT TESTS ON AUGUST 18, 2009. AN ADDITIONAL SIX (6) BORINGS WERE PERFORMED BY B&P BETWEEN APRIL AND MAY OF 2010, AT LOCATIONS REQUESTED BY THE DESIGN BUILD TEAM FINALISTS.

THE BORINGS WERE DRILLED WITH EITHER AN ATV-MOUNTED (ALL-TERRAIN VEHICLE) OR A TRUCK-MOUNTED DRILLING RIG. DISTURBED, BUT REPRESENTATIVE, SOIL SAMPLES WERE OBTAINED BY LOWERING A 2-INCH O.D. SPLIT-BARREL SAMPLER TO THE BOTTOM OF THE BORING AND DRIVING IT INTO THE SOIL BY BLOWS FROM A 140-POUND HAMMER FREELY FALLING 30 INCHES (ASTM D1586 - STANDARD PENETRATION TEST). SPLIT BARREL SAMPLES WERE EXAMINED IMMEDIATELY AFTER RECOVERY AND REPRESENTATIVE PORTIONS WERE PRESERVED IN AIRTIGHT GLASS JARS. WHERE POSSIBLE, 3-INCH O.D. SHELBY TUBE SAMPLERS WERE HYDRAULICALLY PUSHED IN SOIL EXHIBITING COHESION TO OBTAIN "UNDISTURBED" SAMPLES. WHERE ENCOUNTERED, BEDROCK WAS CORED USING AN NX OR SIMILAR SIZED DIAMOND BIT ROCK CORE BARREL WITH WATER AS A CIRCULATING/COOLING FLUID. RETRIEVED ROCK CORE SAMPLES WERE STORED IN COMPARTMENTAL CORE BOXES. UPON COMPLETION, THE DEPTH TO ANY ACCUMULATED GROUNDWATER WAS MEASURED, THE BORINGS WERE BACKFILLED OR SEALED IN ACCORDANCE WITH ODOT REQUIREMENTS, AND THE SURFACE OF THE EXISTING PAVEMENT AT THE BORING LOCATIONS WAS REPAIRED USING COLD-PATCH ASPHALT OR CONCRETE, WHERE APPROPRIATE.

THE LOGS OF BORINGS FOR THESE 2009 SUBSURFACE INVESTIGATIONS HAVE ALSO BEEN INCLUDED SEPARATELY IN THE AFOREMENTIONED BINDER OF LOGS AND SOIL PROFILES.

GEOLOGY AND EXPLORATION FINDINGS

THE MAJORITY OF THE PROJECT LIMITS LIE WITHIN THE PRESENT CUYAHOGA RIVER VALLEY. A LARGE PORTION OF THE CUYAHOGA RIVER VALLEY IS CLASSIFIED AS "MADE LAND" WITH URBAN COVER COMPOSED OF FILL MATERIALS OF VARIABLE COMPOSITION AND DEPTH. BENEATH THE FILL MATERIALS, SUBSURFACE INVESTIGATIONS PERFORMED BY BBCM, B&P, AND OTHERS HAVE ENCOUNTERED APPROXIMATELY 20 TO 50 FEET OF ALLUVIUM DEPOSITS OF HOLOCENE AGE CONSISTING PREDOMINANTLY OF VERY-LOOSE TO MEDIUM-DENSE SANDS AND SILTS AND VERY-SOFT TO MEDIUM STIFF SILTY CLAY AND CLAY OF VARIABLE ORGANIC CONTENT. THE ALLUVIUM MATERIALS WERE DEPOSITED BY THE PRECURSOR TO THE CUYAHOGA RIVER. BENEATH THE ALLUVIUM DEPOSITS, APPROXIMATELY 55 TO 100 FEET OF LACUSTRINE DEPOSITS CONSISTING PRIMARILY OF MEDIUM-STIFF TO VERY STIFF SILTY CLAYS WERE GENERALLY ENCOUNTERED. THESE LACUSTRINE SOILS WERE DEPOSITED BY A SERIES OF LARGE PROGLACIAL LAKES WHICH COVERED THE GREATER CLEVELAND AREA NEAR THE END OF THE WISCONSINAN GLACIAL PERIOD. SLOPE FAILURES OBSERVED IN THE RIVER VALLEY SIDE SLOPES HAVE OCCURRED PRIMARILY WITHIN THESE LACUSTRINE DEPOSITS. MANY SLOPE FAILURES HAVE BEEN OBSERVED OVER THE YEARS ON THE SIDE SLOPES ADJACENT TO THE CUYAHOGA RIVER. THE LACUSTRINE DEPOSITS OVERLIE APPROXIMATELY 25 TO 65 FEET OF TILL FROM THE WISCONSINAN OR ILLINOIAN GLACIAL PERIODS. THE TILL PRIMARILY CONSISTS OF DENSE TO VERY-DENSE SANDY SILT OR VERY-STIFF TO HARD CLAYEY SILT. BENEATH THE TILL, OHIO DEVONIAN SHALE WAS ENCOUNTERED, WHICH CONTAINS ORGANIC MATTER AND NATURAL GAS. THIS GAS IS KNOWN TO PERCOLATE UPWARDS THROUGH THE SHALE BECOMING TRAPPED IN POCKETS THROUGHOUT THE LOWER PORTION OF THE OVERLYING SEDIMENTS.

SPECIFICATIONS

ALL BORINGS PERFORMED BY BBCM IN 2006 WERE GENERALLY PERFORMED IN ACCORDANCE WITH THE 1995 ODOT "SPECIFICATIONS FOR SUBSURFACE INVESTIGATIONS." BORINGS PERFORMED IN 2006 TO INVESTIGATE THE PAVEMENT SUBGRADES WERE ALSO PERFORMED IN GENERAL ACCORDANCE WITH ODOT OFFICES OF CONSTRUCTION ADMINISTRATION AND GEOTECHNICAL ENGINEERING GEOTECHNICAL BULLETIN GB1, "PLAN SUBGRADES", REVISED JUNE 29, 2005. ALL BORINGS PERFORMED BY BBCM AND B&P IN 2009 AND 2010 WERE GENERALLY PERFORMED IN ACCORDANCE WITH THE ODOT "SPECIFICATIONS FOR GEOTECHNICAL EXPLORATIONS", REVISED JANUARY 16, 2009. THE BORINGS PERFORMED BY B&P IN 2009 TO INVESTIGATE THE PAVEMENT SUBGRADES WERE ALSO PERFORMED IN GENERAL ACCORDANCE WITH THE GB1 DOCUMENT, REVISED JANUARY 18, 2007. THE BORINGS PERFORMED BY ODOT AND BBCM IN THE 1990'S WERE PRESUMABLY PERFORMED IN GENERAL ACCORDANCE WITH THE 1984 ODOT "SPECIFICATIONS FOR SUBSURFACE INVESTIGATIONS" ALTHOUGH THIS COULD NOT BE VERIFIED. IT IS UNKNOWN IF THE OTHER INVESTIGATIONS LOCATED WITHIN THE PROJECT LIMITS WERE PERFORMED IN ACCORDANCE WITH ANY SPECIFICATIONS.

SUMMARY OF UNCONFINED COMPRESSION STRENGTH (UCS) TESTING DATA - SOIL

ORIGINAL BORING NO.	SGE BORING NO.	SAMPLE NO.	SAMPLE ELEVATION (MSL)	UNCONFINED COMREPESSIVE STRENGTH (PSF)
B-044-1-10	B-044-1-10	ST-5	572.9' - 570.9'	1077
B-044-1-10	B-044-1-10	ST-8	558.4' - 556.4'	6620
B-069-1-10	B-069-1-10	ST-14	614.0' - 612.0'	2044
B-069-1-10	B-069-1-10	ST-18	593.5' - 591.5'	4258
B-069-1-10	B-069-1-10	ST-23	568.5' - 566.5'	2876
B-022-1-09*	B-022-1-09*	ST-1	609.4' - 608.4'	3060
B-022-1-09*	B-022-1-09*	ST-3	605.4' - 604.4'	7128
B-023-0-09	B-023-0-09	ST-20	592.5' - 590.5'	2970
B-023-0-09	B-023-0-09	ST-23A	577.5' - 575.5'	1933
B-023-0-09	B-023-0-09	ST-28A	552.5' - 550.5'	3251
B-025-0-09	B-025-0-09	ST-19	613.0' - 612.0'	1370
B-025-0-09	B-025-0-09	ST-29A	563.0' - 561.0'	3617
B-028-0-09	B-028-0-09	ST-18A	618.9' - 617.4'	4233
B-028-0-09	B-028-0-09	ST-26A	578.9' - 576.9'	2301
B-032-0-09	B-032-0-09	ST-20	609.6' - 607.6'	2837
B-032-0-09	B-032-0-09	ST-25	584.6' - 583.6'	2136
B-032-0-09	B-032-0-09	ST-27	574.1' - 573.1'	2183
B-2	B-002-0-00	P-1	539.0' - 537.0'	1640
B-3	B-003-0-00	P-2	517.0' - 515.0'	2100
B-4	B-004-0-00	P-1	562.0' - 560.0'	340
B-4	B-004-0-00	P-2	552.0' - 550.0'	1680
B-4	B-004-0-00	P-5	487.0' - 485.0'	7120
B-4	B-004-0-86	S-12	624.8' - 622.8'	3175
B-4	B-004-0-86	S-13	619.8' - 617.8'	1280
B-4	B-004-0-86	S-15	609.8 - 607.8	1890
B-106A**	B-106-A-58**	93268	628.7' - 627.7'	2960
B-106A**	B-106-A-58**	93269	624.7' - 623.7'	1180
B-106A**	B-106-A-58**	93271	603.7' - 602.7'	3780
B-106A**	B-106-A-58**	93272	584.7' - 583.7'	3740

*BORING B-022-1-09 WAS PERFORMED TO RECOVER SHELBY TUBE SAMPLES AND NO LOG WAS CREATED. RESULTS FOR TESTS FROM BORING B-022-1-09 ARE SHOWN ON LOG FOR BORING B-022-0-09.
**SAMPLE ELEVATIONS ARE APPROXIMATE.

SUMMARY OF SLAKE DURABILITY (SD) TESTING DATA ON SHALE BEDROCK

SGE BORING NO.	SAMPLE NO.	SAMPLE ELEVATION (MSL)	TEST FLUID/ SLURRY TYPE	SLAKE DURABILITY INDEX, Id_2 (%)
B-022-0-09	NQ-1	479.4' - 477.4'	WATER	86.9
B-022-0-09	NQ-1	479.4' - 477.4'	MINERAL	89.7
B-022-0-09	NQ-1	479.4' - 477.4'	POLYMER	93.1
B-022-0-09	NQ-2	474.4' - 472.4'	WATER	80.6
B-022-0-09	NQ-2	474.4' - 472.4'	MINERAL	91.5
B-022-0-09	NQ-2	474.4' - 472.4'	POLYMER	92.3
B-022-0-09	NQ-3	462.4' - 460.4'	WATER	96.8
B-031-0-09	NQ-1	466.5' - 464.5'	WATER	79.4
B-031-0-09	NQ-2	461.5' - 459.5'	WATER	73.1
B-031-0-09	NQ-3	449.5' - 447.5'	WATER	82.7
B-035-0-09	55	447.6' - 443.6'	WATER	90.3
B-035-0-09	55	447.6' - 443.6'	MINERAL	90.1
B-035-0-09	55	447.6' - 443.6'	POLYMER	93.1
B-035-0-09	56	440.0' - 436.6'	WATER	85.2
B-035-0-09	56	440.0' - 436.6'	MINERAL	87.7
B-035-0-09	56	440.0' - 436.6'	POLYMER	92.0
B-035-0-09	57	429.0' - 425.0'	WATER	85.3
B-035-0-09	57	429.0' - 425.0'	MINERAL	80.9
B-035-0-09	57	429.0' - 425.0'	POLYMER	86.4
B-037-1-09	50	452.6' - 450.0'	WATER	81.0
B-037-1-09	50	452.6' - 450.0'	MINERAL	86.1
B-037-1-09	50	452.6' - 450.0'	POLYMER	87.6
B-037-1-09	51	444.7' - 441.0'	WATER	84.9
B-037-1-09	51	444.7' - 441.0'	MINERAL	85.7
B-037-1-09	51	444.7' - 441.0'	POLYMER	88.4
B-037-1-09	52	440.0' - 435.0'	WATER	85.2
B-037-1-09	52	440.0' - 435.0'	MINERAL	85.5
B-037-1-09	52	440.0' - 435.0'	POLYMER	88.0
B-039-0-09	NQ-1	428.1' - 426.1'	WATER	25.6
B-039-0-09	NQ-2	420.2' - 418.8'	WATER	73.0
B-039-0-09	NQ-3	409.6' - 407.6'	WATER	79.8
B-040-0-09	NQ-2	397.7' - 396.7'	WATER	95.2
B-040-0-09	NQ-3	385.8' - 384.8'	WATER	90.2
B-041-0-09	NQ-1	394.9' - 392.0'	WATER	88.5
B-041-0-09	NQ-2	388.8' - 385.9'	WATER	94.6
B-041-0-09	NQ-3	377.9' - 375.9'	WATER	96.4
B-042-0-09	NQ-1	399.5' - 396.7'	WATER	96.7
B-042-0-09	NQ-2	393.0' - 390.4'	WATER	98.5
B-042-0-09	NQ-3	382.9' - 380.7'	WATER	97.3
B-043-0-09	NQ-3	407.3' - 405.3'	WATER	86.4
B-043-0-09	NQ-4	400.3' - 398.3'	WATER	88.8
B-043-0-09	NQ-5	389.3' - 386.3'	WATER	97.3
B-044-0-09	NQ-1	421.1' - 418.6'	WATER	93.9
B-044-0-09	NQ-2	416.1' - 413.6'	WATER	97.1
B-044-0-09	NQ-2	409.9' - 405.8'	WATER	96.6
B-044-0-09	NQ-3	404.6' - 402.6'	WATER	96.4
B-045-0-09	NQ-1	417.7' - 415.7'	WATER	95.8
B-045-0-09	NQ-3	402.9' - 399.7'	WATER	89.9

BBCM

PID NO. 77332

SOIL PROFILE

CUY-90-14.90

SUMMARY OF UNCONFINED COMPRESSION STRENGTH (UCS) TESTING DATA - SHALE BEDROCK

ORIGINAL BORING NO.	SGE BORING NO.	SAMPLE NO.	SAMPLE ELEVATION (MSL)	UNCONFINED COMREPESSIVE STRENGTH (PSI)	POISSON'S RATIO
B-039-1-10	B-039-1-10	NQ-1	411.4' - 410.8'	6234	-------
B-039-1-10	B-039-1-10	NQ-2	406.3' - 405.9'	1830	-------
B-044-1-10	B-044-1-10	NQ-1	422.0' - 421.5'	4597	-------
B-044-1-10	B-044-1-10	NQ-1	419.6' - 419.0'	6278	-------
B-044-1-10	B-044-1-10	NQ-2	414.6' - 414.1'	7656	-------
B-047-2-10	B-047-2-10	NX-1	420.8' - 420.4'	2460	-------
B-022-0-09	B-022-0-09	NQ-1	478.8' - 478.5'	1480	-------
B-022-0-09	B-022-0-09	NQ-2	471.9' - 471.6'	1040	-------
B-022-0-09	B-022-0-09	NQ-3	456.2' - 455.9'	1930	-------
B-031-0-09	B-031-0-09	NQ-1	465.6' - 465.3'	1460	-------
B-031-0-09	B-031-0-09	NQ-2	460.7' - 460.4'	5200	-------
B-031-0-09	B-031-0-09	NQ-3	448.8' - 448.5'	2790	-------
B-035-0-09	B-035-0-09	55	444.7' - 444.5'	2120	-------
B-035-0-09	B-035-0-09	56	439.2' - 438.9'	1140	-------
B-035-0-09	B-035-0-09	57	428.2' - 427.9'	2260	-------
B-037-1-09	B-037-1-09	50	453.0' - 452.6'	1530	-------
B-037-1-09	B-037-1-09	51	442.4' - 442.1'	1570	-------
B-037-1-09	B-037-1-09	52	439.2' - 438.8'	1730	-------
B-039-0-09	B-039-0-09	NQ-1	428.6' - 428.3'	9	-------
B-039-0-09	B-039-0-09	NQ-2	421.7' - 421.4'	1260	-------
B-039-0-09	B-039-0-09	NQ-3	409.2' - 409.0'	1310	-------
B-040-0-09	B-040-0-09	NQ-2	397.6' - 397.4'	6440	-------
B-041-0-09	B-041-0-09	NQ-1	394.8' - 394.5'	2130	-------
B-041-0-09	B-041-0-09	NQ-2	387.1' - 386.8'	2190	-------
B-041-0-09	B-041-0-09	NQ-3	375.6' - 375.3'	3260	-------
B-041-0-09	B-041-0-09	NQ-3	374.3' - 373.9'	3790	-------
B-042-0-09	B-042-0-09	NQ-1	399.5' - 399.1'	1100	-------
B-042-0-09	B-042-0-09	NQ-2	393.0' - 392.7'	4020	-------
B-042-0-09	B-042-0-09	NQ-2	392.0' - 391.7'	1240	-------
B-042-0-09	B-042-0-09	NQ-3	384.3' - 384.1'	4100	-------
B-043-0-09	B-043-0-09	NQ-3	406.8' - 406.5'	2470	-------
B-043-0-09	B-043-0-09	NQ-4	403.7' - 403.4'	2590	-------
B-043-0-09	B-043-0-09	NQ-5	388.3' - 388.0'	3950	-------
B-044-0-09	B-044-0-09	NQ-1	421.0' - 420.7'	3380	-------
B-044-0-09	B-044-0-09	NQ-2	416.5' - 416.2'	6700	-------
B-044-0-09	B-044-0-09	NQ-2	409.8' - 409.5'	5830	-------
B-045-0-09	B-045-0-09	NQ-3	401.7' - 401.4'	3070	-------
B-045-0-09	B-045-0-09	NQ-3	399.6' - 399.3'	2410	-------
B-05-01	B-001-0-06	55	446.4'	1477	-------
B-05-03	B-003-0-06	39	439.6'	1311	-------
B-05-04	B-004-0-06	50	430.8'	1116	-------
B-05-07	B-007-0-06	48	454.9'	1113	-------
B-05-11	B-011-0-06	54	450.1'	209	-------
B-05-12	B-012-0-06	56	444.7'	1021	-------
B-05-13	B-013-0-06	35	427.5'	1553	-------
B-05-13	B-013-0-06	37	419.5'	2955	0.39
B-05-13	B-013-0-06	40	401.5'	348	-------
B-05-14	B-014-0-06	36	411.2'	1313	-------
B-05-14	B-014-0-06	37	399.7'	1198	-------
B-05-14	B-014-0-06	39	389.2'	3228	0.13
B-05-15	B-015-0-06	47	378.6'	2057	-------
B-05-15	B-015-0-06	48	372.6'	2916	-------
B-05-15	B-015-0-06	49	367.6'	2322	0.4
B-05-16	B-016-0-06	36	435.0'	2295	-------
B-105A	B-105-A-06	34	430.7'	828	-------
B-4	B-004-0-55	N/A	435.9'	430	-------
B-4	B-004-0-55	N/A	434.0'	676	-------
B-4	B-004-0-55	N/A	429.8'	685	-------

SUMMARY OF CONFINED COMPRESSION STRENGTH (CCS) TESTING DATA - SHALE BEDROCK

ORIGINAL BORING NO.	SGE BORING NO.	SAMPLE NO.	SAMPLE ELEVATION (MSL)	UNCONFINED COMREPESSIVE STRENGTH (PSI)
B-1	B-001-0-55	N/A	446.1'	5550
B-1	B-001-0-55	N/A	445.7'	3530
B-1	B-001-0-55	N/A	435.9'	10930
B-1	B-001-0-55	N/A	435.7'	11500
B-1	B-001-0-55	N/A	425.9'	9460
B-1	B-001-0-55	N/A	425.7'	4500
B-1	B-001-0-55	N/A	422.8'	9610
B-1	B-001-0-55	N/A	422.5'	7550
B-1	B-001-0-55	N/A	420.9'	8230
B-1	B-001-0-55	N/A	420.7'	4800
B-1	B-001-0-55	N/A	418.1'	8920
B-1	B-001-0-55	N/A	417.8'	5060
B-1	B-001-0-55	N/A	416.0'	8180
B-1	B-001-0-55	N/A	415.7'	8450
B-1	B-001-0-55	N/A	413.6'	8280
B-1	B-001-0-55	N/A	413.5'	1600
B-1	B-001-0-55	N/A	412.0'	11220
B-1	B-001-0-55	N/A	410.7'	6200
B-2	B-002-0-55	N/A	441.8'	5300
B-2	B-002-0-55	N/A	436.8'	4800
B-2	B-002-0-55	N/A	432.8'	5100
B-2	B-002-0-55	N/A	426.8'	5900
B-2	B-002-0-55	N/A	424.4'	4800
B-2	B-002-0-55	N/A	423.0'	5100
B-2	B-002-0-55	N/A	417.8'	7200
B-3	B-003-0-55	N/A	436.2'	5680
B-3	B-003-0-55	N/A	426.5'	4840
B-3	B-003-0-55	N/A	422.5'	4440
B-3	B-003-0-55	N/A	421.0'	4760

SUMMARY OF DIRECT SHEAR (DS) TESTING DATA REMOLDED SOIL SAMPLES

ORIGINAL BORING NO.	SGE BORING NO.	SAMPLE NO.	APPROX. SAMPLE ELEVATION (MSL)	COHESION (TSF)	SOIL FRICTION ANGLE (deg)	TEST TYPE*
B-106A	B-106-A-58	92940	660.7' - 659.7'	0.12	23.2	QUICK, UU
B-106A	B-106-A-58	92943	657.7' - 656.7'	0.0	48.1	QUICK, UU
B-106A	B-106-A-58	92941	652.7' - 651.7'	0.08	38.7	QUICK, UU
B-106A	B-106-A-58	92942	646.7' - 645.7'	0.08	31.4	QUICK, UU
B-106A	B-106-A-58	93270	604.7' - 603.7'	0.02	5.7	QUICK, UU
B-106A	B-106-A-58	93274	554.7' - 553.7'	0.02	11.3	QUICK, CU

*UU = UNCONSOLIDATED UNDRAINED, CU = CONSOLIDATED, UNDRAINED

SUMMARY OF LOSS-ON-IGNITION (LOI) TESTING DATA

ORIGINAL BORING NO.	SGE BORING NO.	SAMPLE NO.	SAMPLE ELEVATION (MSL)	LOI (%)
B-016-0-09	B-016-0-09	11	647.7' - 646.2'	3.1
B-030-0-09	B-030-0-09	1	677.8' - 676.3'	2.0
B-042-0-09	B-042-0-09	3	578.4' - 576.9'	2.1
B-042-0-09	B-042-0-09	4	575.9' - 574.4'	1.0
B-042-0-09	B-042-0-09	7	568.4' - 566.9'	4.6
B-042-0-09	B-042-0-09	9	563.4' - 561.9'	2.6
B-043-0-09	B-043-0-09	6	570.8' - 569.3'	2.8
B-043-0-09	B-043-0-09	7	568.3' - 566.8'	14
B-044-0-09	B-044-0-09	7	564.6' - 563.1'	18.9
B-044-0-09	B-044-0-09	10	557.1' - 555.6'	8.9
SB-14	S-014-0-06	12A	634.2' - 633.7'	2.19
SB-14	S-014-0-06	12B	633.7' - 632.7'	4.35
SB-17	S-017-0-06	12	630.9' - 629.4'	2.81
VB-2	V-002-0-06	2B	575.8' - 574.8'	5.41
VB-2	V-002-0-06	6A	566.3' - 565.9'	3.35
VB-2	V-002-0-06	12	541.3' - 539.8'	2.17
VB-5	V-005-0-06	6B	568.4' - 567.9'	25.14
VB-5	V-005-0-06	7	566.9' - 565.4'	11.33
VB-5	V-005-0-06	8	564.4' - 562.9'	3.63
VB-5	V-005-0-06	9	559.4' - 557.9'	2.58
VB-7	V-007-0-06	5A	574.0' - 573.7'	17.49
VB-7	V-007-0-06	6	571.5' - 570.0'	6.35
VB-7	V-007-0-06	7A	569.0' - 568.2'	3.3
VB-7	V-007-0-06	7B	568.2' - 567.5'	20.55
VB-7	V-007-0-06	8	566.5' - 565.0'	14.63
VB-8	V-008-0-06	4	574.8' - 573.3'	18.53
VB-8	V-008-0-06	5	572.3' - 570.8'	5.64
VB-8	V-008-0-06	6	569.8' - 568.3'	5.8
VB-8	V-008-0-06	7	567.3' - 565.8'	14.4
VB-8	V-008-0-06	8	564.8' - 563.3'	9.13
VB-8	V-008-0-06	9	559.8' - 558.3'	4.79
VB-8	V-008-0-06	10	556.8' - 554.8'	3.5
VB-8	V-008-0-06	11	554.8' - 553.3'	2.35
VB-8	V-008-0-06	12	549.8' - 548.3'	2.23
VB-9	V-009-0-06	3	574.1' - 572.6'	6.61
VB-9	V-009-0-06	4	571.6' - 570.1'	7.26
VB-9	V-009-0-06	5	569.1' - 567.6'	15
VB-9	V-009-0-06	6	566.6' - 565.1'	14.6
VB-9	V-009-0-06	7	564.1' - 562.6'	10.2
VB-9	V-009-0-06	8	561.6' - 560.1'	3.72
VB-9	V-009-0-06	28	552.6' - 550.6'	3.81
VB-10	V-010-0-06	5	573.3' - 571.8'	6.81
VB-10	V-010-0-06	25	572.8' - 570.8'	7.56
VB-10	V-010-0-06	6	570.8' - 569.3'	6.78
VB-10	V-010-0-06	27	568.8' - 566.8'	8.01
VB-10	V-010-0-06	7	568.3' - 566.8'	16.82
VB-10	V-010-0-06	8	565.8' - 564.3'	12.74
VB-10	V-010-0-06	9	561.3' - 559.8'	5.32
VB-10	V-010-0-06	10	556.3' - 554.8'	2.38
VB-15	V-015-0-06	17	557.8' - 555.8'	2.59

BBCM

PID NO. 77332

SOIL PROFILE

SOIL

CUY-90-14.90

SHEET INDEX OF SOIL BORING LOCATIONS

ORIGINAL BORING NO.	SGE BORING NO.	COMPANY (ABBREVIATED)	LOCATION OF BORING	
			BORING MARKER (PLAN)	BORING PROFILE
B-039-1-10	B-039-1-10	B&P	56	57
B-044-1-10	B-044-1-10	B&P	59	60
B-047-2-10	B-047-2-10	B&P	64	65, 100
B-069-1-10	B-069-1-10	B&P	73	73A
B-069-2-10	B-069-2-10	B&P	73	73A
B-074-1-10	B-074-1-10	B&P	75	76
B-001-0-09	B-001-0-09	B&P	47	48
B-002-0-09	B-002-0-09	B&P	47	47
B-003-0-09	B-003-0-09	B&P	47	48
B-004-0-09	B-004-0-09	B&P	47	47
B-005-0-09	B-005-0-09	B&P	47	47
B-006-0-09	B-006-0-09	B&P	47	48
B-007-0-09	B-007-0-09	B&P	47	47
B-008-0-09	B-008-0-09	B&P	47	48
B-009-0-09	B-009-0-09	B&P	47	47
B-010-0-09	B-010-0-09	B&P	47	47
B-011-0-09	B-011-0-09	B&P	47	48
B-012-0-09	B-012-0-09	B&P	47	47
B-012-1-09	B-012-1-09	B&P	47	48
B-012-2-09	B-012-2-09	B&P	49	50
B-013-0-09	B-013-0-09	B&P	49	49
B-014-0-09	B-014-0-09	B&P	49	50
B-015-0-09	B-015-0-09	B&P	49	49
B-016-0-09	B-016-0-09	B&P	49	81
B-017-0-09	B-017-0-09	B&P	49	49
B-018-0-09	B-018-0-09	B&P	49	82
B-019-0-09	B-019-0-09	B&P	51	83
B-019-1-09	B-019-1-09	B&P	51	83
B-020-0-09	B-020-0-09	B&P	51	52, 83
B-021-0-09	B-021-0-09	B&P	51	52
B-022-0-09	B-022-0-09	B&P	51	52, 84
B-022-1-09	B-022-1-09	B&P	51	N/A - NO LOG
B-023-0-09	B-023-0-09	B&P	51	52
B-023-1-09	B-023-1-09	B&P	51	116
B-023-2-09	B-023-2-09	B&P	51	54, 116
B-024-0-09	B-024-0-09	B&P	51	55
B-025-0-09	B-025-0-09	B&P	51	52
B-027-0-09	B-027-0-09	B&P	51	54
B-027-1-09	B-027-1-09	B&P	51	54
B-028-0-09	B-028-0-09	B&P	51	54
B-029-0-09	B-029-0-09	B&P	51	55
B-030-0-09	B-030-0-09	B&P	51	54
B-031-0-09	B-031-0-09	B&P	51	52
B-032-0-09	B-032-0-09	B&P	51	54, 55
B-033-0-09	B-033-0-09	B&P	51	54
B-034-0-09	B-034-0-09	B&P	51	55, 86
B-035-0-09	B-035-0-09	BBCM	56	57, 88
B-036-0-09	B-036-0-09	BBCM	56	112
B-037-0-09	B-037-0-09	BBCM	56	112
B-037-1-09	B-037-1-09	BBCM	56	57, 90
B-037-2-09	B-037-2-09	BBCM	56	113
B-038-0-09	B-038-0-09	BBCM	56	112
B-038-1-09	B-038-1-09	BBCM	56	113
B-039-0-09	B-039-0-09	B&P	56	94
B-040-0-09	B-040-0-09	B&P	56	57
B-041-0-09	B-041-0-09	B&P	59	60
B-042-0-09	B-042-0-09	B&P	59	60
B-043-0-09	B-043-0-09	B&P	59	60
B-044-0-09	B-044-0-09	B&P	59	60
B-045-0-09	B-045-0-09	B&P	64	65
B-047-0-09	B-047-0-09	B&P	64	67, 98
B-047-1-09	B-047-1-09	B&P	64	65, 98
B-048-0-09	B-048-0-09	B&P	64	65, 67
B-050-0-09	B-050-0-09	B&P	64	67
B-051-0-09	B-051-0-09	B&P	64	65
B-052-0-09	B-052-0-09	B&P	64	67
B-053-0-09	B-053-0-09	B&P	64	68
B-054-0-09	B-054-0-09	B&P	64	72, 102
B-055-0-09	B-055-0-09	B&P	64	65, 71, 102
B-056-0-09	B-056-0-09	B&P	64	72
B-058-0-09	B-058-0-09	B&P	64	71
B-059-0-09	B-059-0-09	B&P	64	65
B-060-0-09	B-060-0-09	B&P	69	70, 71, 103
B-061-0-09	B-061-0-09	B&P	69	72, 103
B-062-0-09	B-062-0-09	B&P	69	103
B-063-0-09	B-063-0-09	B&P	69	70
B-064-0-09	B-064-0-09	B&P	69	71

B&P = BARR & PREVOST
BBCM = BBC&M ENGINEERING, INC.
DLZ = DLZ CORPORATION
LEWIN = DAVID V. LEWIN CORPORATION
ODOT = OHIO DEPARTMENT OF TRANSPORTATION
R&R = R&R INTERNATIONAL, INC.

SHEET INDEX OF SOIL BORING LOCATIONS

ORIGINAL BORING NO.	SGE BORING NO.	COMPANY (ABBREVIATED)	LOCATION OF BORING	
			BORING MARKER (PLAN)	BORING PROFILE
B-067-0-09	B-067-0-09	B&P	69	74
B-068-0-09	B-068-0-09	B&P	69	74
B-069-0-09	B-069-0-09	B&P	69	74, 115
B-070-0-09	B-070-0-09	B&P	59, 75	76
B-070-1-09	B-070-1-09	B&P	59, 75	76
B-070-2-09	B-070-2-09	B&P	75	N/A - SEE BINDER
B-070-3-09	B-070-3-09	B&P	75	N/A - SEE BINDER
B-071-0-09	B-071-0-09	B&P	75	76
B-072-0-09	B-072-0-09	B&P	75	76
B-073-0-09	B-073-0-09	B&P	75	76
B-073-1-09	B-073-1-09	B&P	75	76
B-074-0-09	B-074-0-09	B&P	75	76
B-075-0-09	B-075-0-09	B&P	78	79
B-076-0-09	B-076-0-09	B&P	78	79
B-076-1-09	B-076-1-09	B&P	78	79
B-076-2-09	B-076-2-09	B&P	78	79
B-076-3-09	B-076-3-09	B&P	78	79
B-077-0-09	B-077-0-09	B&P	78	80
B-05-01	B-001-0-06	BBCM	56	57
B-05-02	B-002-0-06	BBCM	56	110
B-05-03	B-003-0-06	BBCM	56	104
B-05-04	B-004-0-06	BBCM	56	108
B-05-07	B-007-0-06	BBCM	51	88
B-05-08	B-008-0-06	BBCM	51	52, 86
B-05-11	B-011-0-06	BBCM	56	88
B-05-12	B-012-0-06	BBCM	56	90
B-05-13	B-013-0-06	BBCM	56	94
B-05-14	B-014-0-06	BBCM	56	94
B-05-15	B-015-0-06	BBCM	56	57, 96
B-05-16	B-016-0-06	BBCM	56	57, 92
B-105A	B-105-A-06	BBCM	56	92, 106
B-108A	B-108-A-06	BBCM	56	110
B-2	B-002-0-00	DLZ	56	94
B-3	B-003-0-00	DLZ	56	96
B-4	B-004-0-00	DLZ	59	N/A - SEE BINDER
B-204	B-204-0-98	BBCM	56	N/A - NO LOG
B-303	B-303-0-98	BBCM	56	N/A - NO LOG
B-201	B-201-0-96	BBCM	56	N/A - SEE BINDER
B-202	B-202-0-96	BBCM	56	N/A - SEE BINDER
B-203	B-203-0-96	BBCM	56	N/A - SEE BINDER
B-1	B-001-0-96	BBCM	64	N/A - SEE BINDER
B-2	B-002-0-96	BBCM	64	N/A - SEE BINDER
B-101	B-101-0-94	BBCM	56	104
B-102	B-102-0-94	BBCM	56	104
B-103	B-103-0-94	BBCM	56	N/A - SEE BINDER
B-104	B-104-0-94	BBCM	56	N/A - SEE BINDER
B-105	B-105-0-94	BBCM	56	N/A - SEE BINDER
B-106	B-106-0-94	BBCM	56	N/A - SEE BINDER
B-107	B-107-0-94	BBCM	56	110
B-108	B-108-0-94	BBCM	56	N/A - SEE BINDER
B-109	B-109-0-94	BBCM	56	92, 110
B-110	B-110-0-94	BBCM	56	92
B-10	B-010-0-92	ODOT	56	N/A - SEE BINDER
B-1	B-001-0-90	ODOT	56	N/A - SEE BINDER
B-2	B-002-0-90	ODOT	56	108
B-3	B-003-0-90	ODOT	56	106
B-4	B-004-0-90	ODOT	56	N/A - SEE BINDER
B-5	B-005-0-90	ODOT	56	108
B-6	B-006-0-90	ODOT	56	N/A - SEE BINDER
B-7	B-007-0-90	ODOT	56	N/A - SEE BINDER
B-8	B-008-0-90	ODOT	56	92, 108
B-9	B-009-0-90	ODOT	56	N/A - SEE BINDER
B-4	B-004-0-86	LEWIN	69	N/A - SEE BINDER
B-5	B-005-0-86	LEWIN	64	N/A - SEE BINDER
B-8	B-008-0-86	R & R	51	N/A - SEE BINDER
B-10	B-010-0-64	ODOT	49	49, 82
B-84	B-084-0-64	ODOT	49	81
B-90	B-090-0-64	ODOT	49	N/A - SEE BINDER
B-6	B-006-0-63	ODOT	51	N/A - SEE BINDER
B-13	B-013-0-63	ODOT	51	N/A - SEE BINDER
B-23	B-023-0-63	ODOT	51	N/A - SEE BINDER
B-103	B-103-0-58	ODOT	69	71
B-106	B-106-0-58	ODOT	69	N/A - SEE BINDER
B-106A	B-106-A-58	ODOT	69	N/A - SEE BINDER
B-111	B-111-0-58	ODOT	73	N/A - SEE BINDER
B-114	B-114-0-58	ODOT	73	N/A - SEE BINDER
B-121	B-121-0-58	ODOT	78	N/A - SEE BINDER

BBCM

PID NO. 77332

SOIL PROFILE

CUY-90-14.90

SHEET INDEX OF SOIL BORING LOCATIONS

ORIGINAL BORING NO.	SGE BORING NO.	COMPANY (ABBREVIATED)	LOCATION OF BORING	
			BORING MARKER (PLAN)	BORING PROFILE
BE-1	B-001-E-56	HNTB	64	N/A - SEE BINDER
BE-2	B-002-E-56	HNTB	64	N/A - SEE BINDER
BE-3	B-003-E-56	HNTB	64	N/A - SEE BINDER
BE-4	B-004-E-56	HNTB	64	N/A - SEE BINDER
BE-5	B-005-E-56	HNTB	64	N/A - SEE BINDER
BE-6	B-006-E-56	HNTB	64	N/A - SEE BINDER
BE-7	B-007-E-56	HNTB	64	71
BE-8	B-008-E-56	HNTB	64	N/A - SEE BINDER
BE-9	B-009-E-56	HNTB	64	N/A - SEE BINDER
BE-10	B-010-E-56	HNTB	69	N/A - SEE BINDER
BE-11	B-011-E-56	HNTB	69	N/A - SEE BINDER
B-1	B-001-0-55	NYC & ST LRR	56	112
B-2	B-002-0-55	NYC & ST LRR	56	92, 112
B-3	B-003-0-55	NYC & ST LRR	56	94
B-4	B-004-0-55	NYC & ST LRR	56	N/A - SEE BINDER
Boring-1	B-001-1-55	HNTB	56	N/A - SEE BINDER
Boring-2	B-002-1-55	HNTB	56	N/A - SEE BINDER
BW-1	B-001-W-55	HNTB	56	N/A - SEE BINDER
BW-2	B-002-W-55	HNTB	56	106
BW-3	B-003-W-55	HNTB	56	N/A - SEE BINDER
BW-4	B-004-W-55	HNTB	51	N/A - SEE BINDER
BW-5	B-005-W-55	HNTB	51	N/A - SEE BINDER
BW-6	B-006-W-55	HNTB	51	86
A	B-00A-0-54	HNTB	59	N/A - SEE BINDER
B	B-00B-0-54	HNTB	59	N/A - SEE BINDER
C	B-00C-0-54	HNTB	64	N/A - SEE BINDER
1	B-001-0-54	HNTB	56	N/A - SEE BINDER
2	B-002-0-54	HNTB	56	N/A - SEE BINDER
3	B-003-0-54	HNTB	56	N/A - SEE BINDER
4	B-004-0-54	HNTB	56	N/A - SEE BINDER
5	B-005-0-54	HNTB	56	N/A - SEE BINDER
6	B-006-0-54	HNTB	56	N/A - SEE BINDER
7	B-007-0-54	HNTB	56	N/A - SEE BINDER
8	B-008-0-54	HNTB	56	N/A - SEE BINDER
9	B-009-0-54	HNTB	59	N/A - SEE BINDER
10	B-010-0-54	HNTB	59	N/A - SEE BINDER
11	B-011-0-54	HNTB	59	N/A - SEE BINDER
12	B-012-0-54	HNTB	59	N/A - SEE BINDER
13	B-013-0-54	HNTB	59	N/A - SEE BINDER
14	B-014-0-54	HNTB	59	N/A - SEE BINDER
15	B-015-0-54	HNTB	59	N/A - SEE BINDER
16	B-016-0-54	HNTB	59	N/A - SEE BINDER
17	B-017-0-54	HNTB	64	N/A - SEE BINDER
18	B-018-0-54	HNTB	64	N/A - SEE BINDER
19	B-019-0-54	HNTB	64	N/A - SEE BINDER
20	B-020-0-54	HNTB	64	N/A - SEE BINDER
C-049-0-09	C-049-0-09	ODOT	64	N/A - SEE BINDER
C-057-0-09	C-057-0-09	ODOT	64	N/A - SEE BINDER
C-05-01	C-001-0-06	OU	56	N/A - SEE BINDER
C-05-02	C-002-0-06	OU	56	N/A - SEE BINDER
C-05-03	C-003-0-06	OU	56	N/A - SEE BINDER
C-05-04	C-004-0-06	OU	56	N/A - SEE BINDER
C-05-05	C-005-0-06	OU	51	N/A - SEE BINDER
C-05-06	C-006-0-06	OU	51	N/A - SEE BINDER
C-05-07	C-007-0-06	OU	51	N/A - SEE BINDER
C-05-08	C-008-0-06	OU	51	N/A - SEE BINDER
C-05-09	C-009-0-06	OU	51	N/A - SEE BINDER
C-05-10	C-010-0-06	OU	51	N/A - SEE BINDER
C-05-11	C-011-0-06	OU	56	N/A - SEE BINDER
C-05-12	C-012-0-06	OU	56	N/A - SEE BINDER
C-05-13	C-013-0-06	OU	56	N/A - SEE BINDER
C-05-14	C-014-0-06	OU	56	N/A - SEE BINDER
C-05-15	C-015-0-06	OU	56	N/A - SEE BINDER
P-1	P-001-0-94	BBCM	56	N/A - SEE BINDER
P-2	P-002-0-94	BBCM	56	106
P-3	P-003-0-94	BBCM	56	N/A - SEE BINDER
P-4	P-004-0-94	BBCM	56	N/A - SEE BINDER
P-5	P-005-0-94	BBCM	56	N/A - SEE BINDER
RB-1	R-001-0-06	BBCM	47	48
RB-2	R-002-0-06	BBCM	49	50
RB-3	R-003-0-06	BBCM	49	50
RB-4	R-004-0-06	BBCM	49	49
RB-5	R-005-0-06	BBCM	73	N/A - SEE BINDER
RB-6	R-006-0-06	BBCM	73	N/A - SEE BINDER
RB-7	R-007-0-06	BBCM	59, 75	76
RB-8	R-008-0-06	BBCM	75	76
RB-9	R-009-0-06	BBCM	75	76

BBCM = BBC&M ENGINEERING, INC.
CUT = CLEVELAND UNION TERMINAL COMPANY
HNTB = HOWARD, NEEDLES, TAMMEN & BERGENDOFF CONSULTING ENGINEERS
NYC&ST LRR = NEW YORK, CHICAGO & ST. LOUIS RAILROAD COMPANY
ODOT = OHIO DEPARTMENT OF TRANSPORTATION
OU = OHIO UNIVERSITY

SHEET INDEX OF SOIL BORING LOCATIONS

ORIGINAL BORING NO.	SGE BORING NO.	COMPANY (ABBREVIATED)	LOCATION OF BORING	
			BORING MARKER (PLAN)	BORING PROFILE
RB-10	R-010-0-06	BBCM	78	N/A - SEE BINDER
RB-11	R-011-0-06	BBCM	78	79
RB-12	R-012-0-06	BBCM	78	79, 80
RB-13	R-013-0-06	BBCM	78	79
RB-14	R-014-0-06	BBCM	75	77
RB-15	R-015-0-06	BBCM	64	77
RB-16	R-016-0-06	BBCM	78	80
RB-17	R-017-0-06	BBCM	73	N/A - SEE BINDER
RB-18	R-018-0-06	BBCM	73	N/A - SEE BINDER
RB-22	R-022-0-06	BBCM	73	N/A - SEE BINDER
RB-23	R-023-0-06	BBCM	73	N/A - SEE BINDER
R-201	R-201-0-58	ODOT	69	N/A - SEE BINDER
R-202	R-202-0-58	ODOT	69	N/A - SEE BINDER
R-204	R-204-0-58	ODOT	73	N/A - SEE BINDER
SB-1	S-001-0-06	BBCM	49	49
SB-2	S-002-0-06	BBCM	49	50
SB-3	S-003-0-06	BBCM	49	49
SB-4	S-004-0-06	BBCM	49	50
SB-5	S-005-0-06	BBCM	49	50
SB-6	S-006-0-06	BBCM	49	49
SB-7	S-007-0-06	BBCM	49	50
SB-8	S-008-0-06	BBCM	49	49
SB-9	S-009-0-06	BBCM	51	52
SB-10	S-010-0-06	BBCM	51	84
SB-11	S-011-0-06	BBCM	51	52
SB-12	S-012-0-06	BBCM	51	52
SB-13	S-013-0-06	BBCM	69	70, 72
SB-14	S-014-0-06	BBCM	69	70
SB-15	S-015-0-06	BBCM	69	70
SB-16	S-016-0-06	BBCM	69	74
SB-17	S-017-0-06	BBCM	69	74
SB-18	S-018-0-06	BBCM	69	74
SB-19	S-019-0-06	BBCM	73	114
SB-20	S-020-0-06	BBCM	73	74, 114
SB-21	S-021-0-06	BBCM	73	N/A - SEE BINDER
SB-22	S-022-0-06	BBCM	73	N/A - SEE BINDER
SB-23	S-023-0-06	BBCM	73	N/A - SEE BINDER
SB-27	S-027-0-06	BBCM	75	76
SB-28	S-028-0-06	BBCM	75	76
SB-29	S-029-0-06	BBCM	78	76, 79
T-9	T-009-0-23	CUT	78	N/A - SEE BINDER
T-9-1/2	T-009-1-23	CUT	78	N/A - SEE BINDER
T-11	T-011-0-23	CUT	78	N/A - SEE BINDER
T-12	T-012-0-23	CUT	78	N/A - SEE BINDER
T-13-1/2	T-013-1-23	CUT	75	N/A - SEE BINDER
T-14	T-014-0-23	CUT	75	N/A - SEE BINDER
T-16-1/2	T-016-1-23	CUT	75	N/A - SEE BINDER
T-17	T-017-0-23	CUT	75	N/A - SEE BINDER
T-18	T-018-0-23	CUT	64	N/A - SEE BINDER
T-18-1/2	T-018-1-23	CUT	64	N/A - SEE BINDER
T-19	T-019-0-23	CUT	64	N/A - SEE BINDER
VB-2	V-002-0-06	BBCM	56	96
VB-3	V-003-0-06	BBCM	56	N/A - SEE BINDER
VB-4	V-004-0-06	BBCM	59	60
VB-5	V-005-0-06	BBCM	59	60
VB-7	V-007-0-06	BBCM	59	62
VB-8	V-008-0-06	BBCM	59	62
VB-9	V-009-0-06	BBCM	59	62
VB-10	V-010-0-06	BBCM	59	62
VB-11	V-011-0-06	BBCM	64	65
VB-11A	V-011-A-06	BBCM	64	67
VB-12	V-012-0-06	BBCM	64	98
VB-13	V-013-0-06	BBCM	64	77, 100
VB-14	V-014-0-06	BBCM	64	65
VB-15	V-015-0-06	BBCM	64	65
VB-16	V-016-0-06	BBCM	64	102
VB-17	V-017-0-06	BBCM	64	65, 71
VB-18	V-018-0-06	BBCM	64	72
WB-1	W-001-0-06	BBCM	51	53
WB-2	W-002-0-06	BBCM	51	53
WB-3	W-003-0-06	BBCM	51	54
WB-4	W-004-0-06	BBCM	51	54
WB-5	W-005-0-06	BBCM	69	74
WB-6	W-006-0-06	BBCM	69	115
WB-7	W-007-0-06	BBCM	73	74
WB-8	W-008-0-06	BBCM	69	72

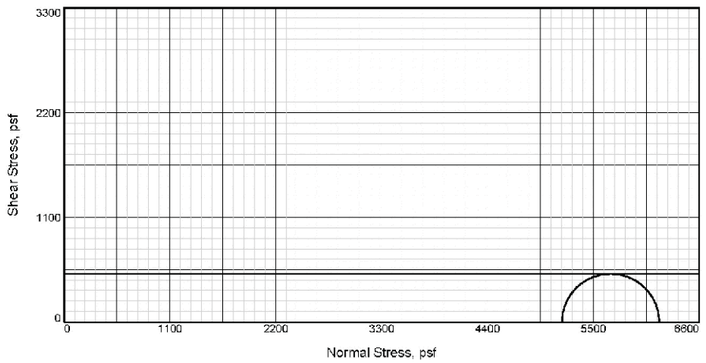
BBCM

PID NO. 77332

SOIL PROFILE

CUY-90-14.90

TRIAXIAL SHEAR TEST REPORT



Type of Test: Unconsolidated Undrained **Sample Type:** Section II

No.	Fluid Press. psi		Fail. Stress, psf		Ult. Stress, psf		Principal Stresses at Failure psf	
	Cell	Back	Deviator	Strain, %	Deviator	Strain, %	σ_1	σ_3
1	35.94	0.00	1010	19.9			6185	5175

No.	Sample Parameters						
	% Water Content	Dry Dens. pcf	Satur-ation	Void Ratio	Diameter in.	Height in.	Strain Rate in/min.
1	23.7	113.1	125.6%	0.5179	2.77	5.86	20.00

Mohr-Coulomb Strength Parameters	Material Description
Total Strength intercept, c= 505 psf Friction angle, ϕ = 0 deg Tangent, ϕ = 0	SILT: Very-soft to soft gray silt, "and" clay, trace fine sand. **LL=** 28 **PL=** 20 **PI=** 8

Client: Michael Baker Jr, Inc.

Project: CENTRAL VIADUCT - CUY-90-14.52

Location: S-006-0-06
Sample Number: S-16 **Depth:** 56.5'-58.5' Sect II

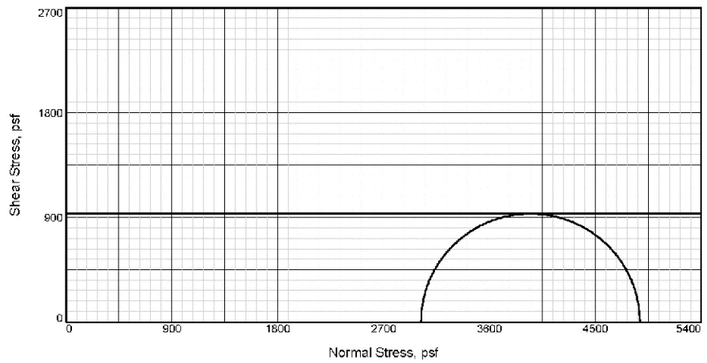
Date: 10/24/06
File: 015DCF1
Remarks:

TRIAXIAL SHEAR TEST REPORT

BBC&M Engineering, Inc.

Proj. No.: 03702945.903

TRIAXIAL SHEAR TEST REPORT



Type of Test: Unconsolidated Undrained **Sample Type:** Section II

No.	Fluid Press. psi		Fail. Stress, psf		Ult. Stress, psf		Principal Stresses at Failure psf	
	Cell	Back	Deviator	Strain, %	Deviator	Strain, %	σ_1	σ_3
1	20.96	0.00	1862	14.1			4880	3018

No.	Sample Parameters						
	% Water Content	Dry Dens. pcf	Satur-ation	Void Ratio	Diameter in.	Height in.	Strain Rate in/min.
1	29.2	96.1	100.5%	0.8117	2.86	5.78	20.00

Mohr-Coulomb Strength Parameters	Material Description
Total Strength intercept, c= 931 psf Friction angle, ϕ = 0 deg Tangent, ϕ = 0	SILT: Very-soft becoming medium-stiff brown and gray silt, "and" clay, trace fine sand. **LL=** 28 **PL=** 19 **PI=** 9

Client: Michael Baker Jr, Inc.

Project: CENTRAL VIADUCT - CUY-90-14.52

Location: S-009-0-06
Sample Number: S-13 **Depth:** 40.0'-42.0' Sect II

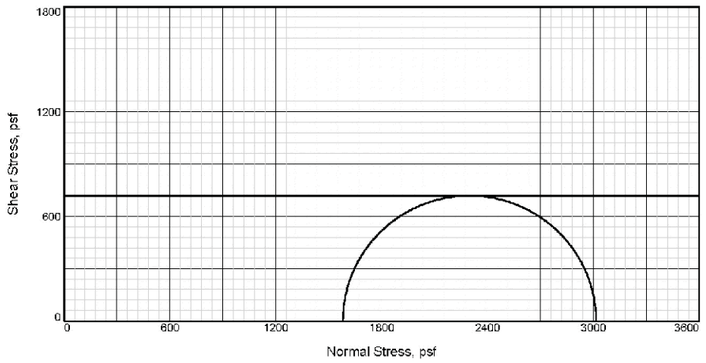
Date: 10/25/06
File: 015DCF1
Remarks:

TRIAXIAL SHEAR TEST REPORT

BBC&M Engineering, Inc.

Proj. No.: 03702945.903

TRIAXIAL SHEAR TEST REPORT



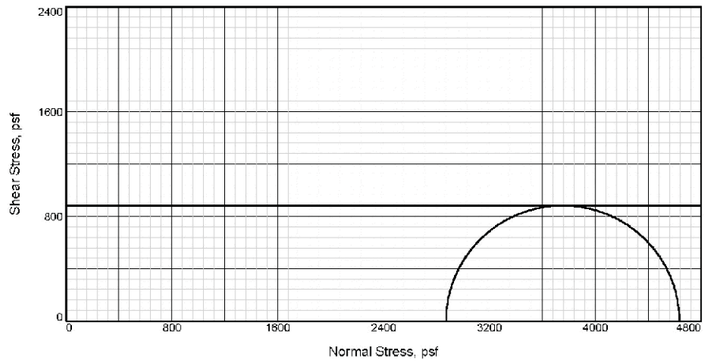
Type of Test: Unconsolidated Undrained **Sample Type:** Section III

No.	Fluid Press. psi		Fail. Stress, psf		Ult. Stress, psf		Principal Stresses at Failure, psf	
	Cell	Back	Deviator	Strain, %	Deviator	Strain, %	σ_1	σ_3
1	10.97	0.00	1436	17.6			3016	1580

No.	Sample Parameters						
	% Water Content	Dry Dens. pcf	Satur-ation	Void Ratio	Diameter in.	Height in.	Strain Rate in/min.
1	33.0	92.5	103.9%	0.8906	2.82	5.98	20.02

Mohr-Coulomb Strength Parameters	Material Description
Total Strength intercept, c= 718 psf Friction angle, ϕ = 0 deg Tangent, ϕ = 0	SILT: Soft to medium-stiff gray silt, "and" clay, contains few wood fragments, slightly organic. **LL=** 34 **PL=** 24 **PI=** 10
Client: Michael Baker Jr, Inc. **Project:** CENTRAL VIADUCT - CUY-90-14.52 **Location:** V-008-0-06 **Sample Number:** S-10 **Depth:** 26.5'-28.5' Sect III	**Date:** 10/30/06 **File:** 015DCF1 **Remarks:**
TRIAXIAL SHEAR TEST REPORT BBC&M Engineering, Inc.	Proj. No.: 01002045.003

TRIAXIAL SHEAR TEST REPORT



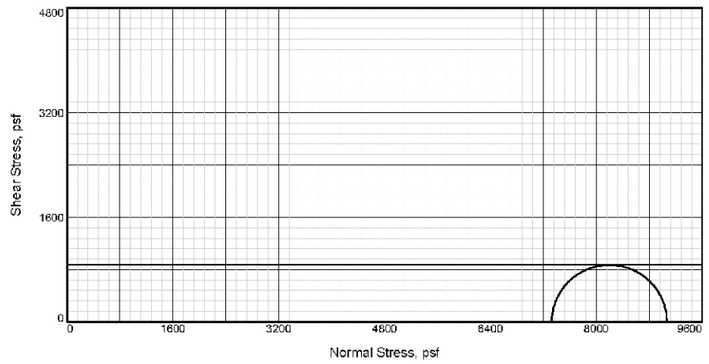
Type of Test: Unconsolidated Undrained **Sample Type:** Section I

No.	Fluid Press. psi		Fail. Stress, psf		Ult. Stress, psf		Principal Stresses at Failure, psf	
	Cell	Back	Deviator	Strain, %	Deviator	Strain, %	σ_1	σ_3
1	19.95	0.00	1764	15.9			4636	2872

No.	Sample Parameters						
	% Water Content	Dry Dens. pcf	Satur-ation	Void Ratio	Diameter in.	Height in.	Strain Rate in/min.
1	33.2	95.1	111.3%	0.8313	2.80	5.91	20.00

Mohr-Coulomb Strength Parameters	Material Description
Total Strength intercept, c= 882 psf Friction angle, ϕ = 0 deg Tangent, ϕ = 0	SILT: Medium-stiff to stiff gray and dark gray silt, some clay, slightly organic. **LL=** 29 **PL=** 26 **PI=** 3
Client: Michael Baker Jr, Inc. **Project:** CENTRAL VIADUCT - CUY-90-14.52 **Location:** V-009-0-06 **Sample Number:** S-28 **Depth:** 28.0'-30.0' Sect II	**Date:** 10/31/06 **File:** 015DCF1 **Remarks:**
TRIAXIAL SHEAR TEST REPORT BBC&M Engineering, Inc.	Proj. No.: 01002045.003

TRIAXIAL SHEAR TEST REPORT



Type of Test: Unconsolidated Undrained **Sample Type:** Section I

No.	Fluid Press. psi		Fail. Stress, psf		Ult. Stress, psf		Principal Stresses at Failure, psf	
	Cell	Back	Deviator	Strain, %	Deviator	Strain, %	σ_1	σ_3
1	50.89	0.00	1741	11.3			9069	7328

No.	Sample Parameters						
	% Water Content	Dry Dens. pcf	Satur-ation	Void Ratio	Diameter in.	Height in.	Strain Rate in/min.
1	28.9	97.8	103.6%	0.7743	2.84	5.96	20.02

Mohr-Coulomb Strength Parameters	Material Description
Total Strength intercept, c= 871 psf Friction angle, ϕ = 0 deg Tangent, ϕ = 0	SILT AND CLAY: Stiff to very-stiff gray clay, some silt, trace fine to coarse sand. **LL=** 36 **PL=** 23 **PI=** 13

Client: Michael Baker Jr, Inc.

Project: CENTRAL VIADUCT - CUY-90-14.52

Location: V-012-0-06
Sample Number: S-18 **Depth:** 65.5'-67.5' Sect I

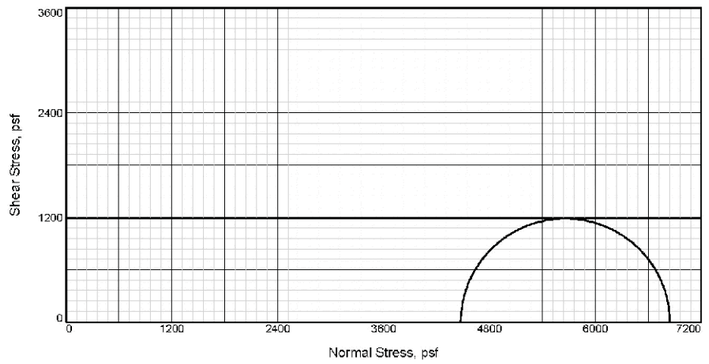
Date: 10/26/06
File: 015DCF1
Remarks:

TRIAXIAL SHEAR TEST REPORT

BBC&M Engineering, Inc.

Proj. No.: 010020945.003

TRIAXIAL SHEAR TEST REPORT



Type of Test: Unconsolidated Undrained **Sample Type:** Section III

No.	Fluid Press. psi		Fail. Stress, psf		Ult. Stress, psf		Principal Stresses at Failure, psf	
	Cell	Back	Deviator	Strain, %	Deviator	Strain, %	σ_1	σ_3
1	31.08	0.00	2371	10.6			6846	4475

No.	Sample Parameters						
	% Water Content	Dry Dens. pcf	Satur-ation	Void Ratio	Diameter in.	Height in.	Strain Rate in/min.
1	36.3	89.3	106.4%	0.9500	2.82	5.92	20.02

Mohr-Coulomb Strength Parameters	Material Description
Total Strength intercept, c= 1185 psf Friction angle, ϕ = 0 deg Tangent, ϕ = 0	SILTY CLAY: Medium-stiff to stiff gray silty clay, trace fine sand. **LL=** 40 **PL=** 23 **PI=** 17

Client: Michael Baker Jr, Inc.

Project: CENTRAL VIADUCT - CUY-90-14.52

Location: V-015-0-06
Sample Number: S-17 **Depth:** 67.5'-69.5' Sect III

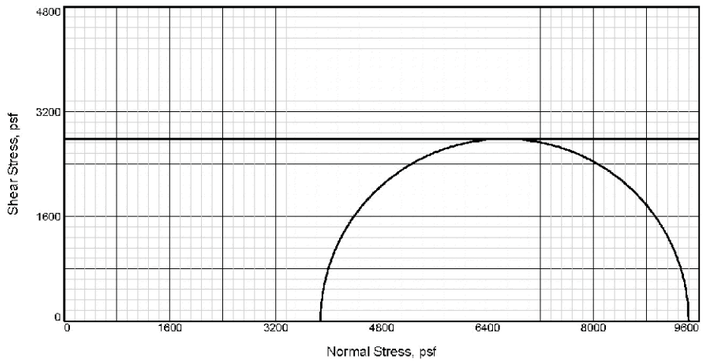
Date: 10/26/06
File: 015DCF1
Remarks:

TRIAXIAL SHEAR TEST REPORT

BBC&M Engineering, Inc.

Proj. No.: 010020945.003

TRIAXIAL SHEAR TEST REPORT



Type of Test: Unconsolidated Undrained **Sample Type:** Section III

No.	Fluid Press. psi		Fail. Stress, psf		Ult. Stress, psf		Principal Stresses at Failure psf	
	Cell	Back	Deviator	Strain, %	Deviator	Strain, %	σ_1	σ_3
1	26.92	0.00	5567	14.1			9443	3876

No.	Sample Parameters						
	% Water Content	Dry Dens. pcf	Satur-ation	Void Ratio	Diameter in.	Height in.	Strain Rate in/min.
1	23.1	109.3	107.7%	0.5995	2.82	5.99	20.00

Mohr-Coulomb Strength Parameters

Total
Strength intercept, c= 2784 psf
Friction angle, ϕ = 0 deg
Tangent, ϕ = 0

Material Description

SILT: Very-stiff to hard gray silt, some clay, trace fine sand.
LL= 25 **PL=** 20 **PI=** 5

Client: Michael Baker Jr, Inc.

Project: CENTRAL VIADUCT - CUY-90-14.52

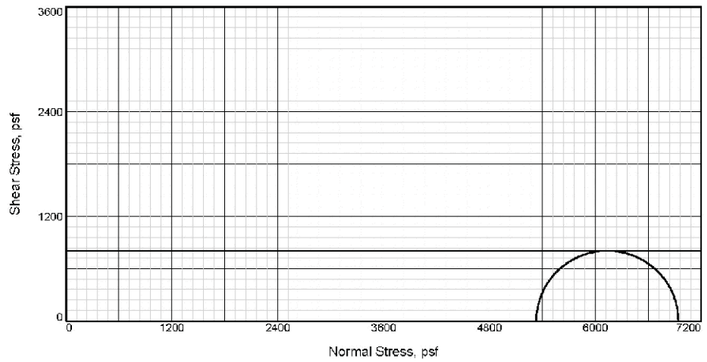
Location: S-016-0-06
Sample Number: S-15 **Depth:** 50.5'-52.5' Sect III

Date: 10/27/06
File: 015DCF1
Remarks:

TRIAXIAL SHEAR TEST REPORT
BBC&M Engineering, Inc.

Proj. No.: 03702945.903

TRIAXIAL SHEAR TEST REPORT



Type of Test: Unconsolidated Undrained **Sample Type:** Section II

No.	Fluid Press. psi		Fail. Stress, psf		Ult. Stress, psf		Principal Stresses at Failure psf	
	Cell	Back	Deviator	Strain, %	Deviator	Strain, %	σ_1	σ_3
1	37.03	0.00	1610	8.8			6943	5332

No.	Sample Parameters						
	% Water Content	Dry Dens. pcf	Satur-ation	Void Ratio	Diameter in.	Height in.	Strain Rate in/min.
1	31.8	93.6	102.9%	0.8615	2.85	5.97	20.02

Mohr-Coulomb Strength Parameters

Total
Strength intercept, c= 805 psf
Friction angle, ϕ = 0 deg
Tangent, ϕ = 0

Material Description

SILT AND CLAY: Soft to medium-stiff gray clay, "and" silt, trace fine sand.
LL= 32 **PL=** 19 **PI=** 13

Client: Michael Baker Jr, Inc.

Project: CENTRAL VIADUCT - CUY-90-14.52

Location: S-018-0-06
Sample Number: S-19 **Depth:** 70.5'-72.5' Sect II

Date: 10/30/06
File: 015DCF1
Remarks:

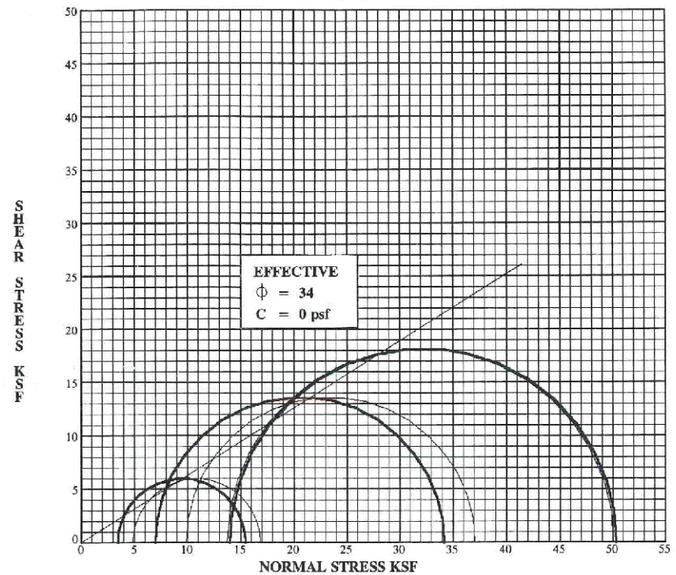
TRIAXIAL SHEAR TEST REPORT
BBC&M Engineering, Inc.

Proj. No.: 03702945.903

SUMMARY OF TRIAXIAL COMPRESSION TESTS

SATURATED, CONSOLIDATED, UNDRAINED
(RESIDUAL PLOTTED)

SHEAR STRESS VS NORMAL STRESS



TOTAL STRESS ——— EFFECTIVE STRESS ———

Specimen Identification	Classification	DD	MC%
B-101 S-11 I 55.0'-56.8'	Gray silt, trace fine to medium sand, trace clay, few lenses of fine sand. A-4b (8)	110	19
B-101 S-11 II 55.0'-56.8'	Gray silt, trace fine to medium sand, trace clay, few lenses of fine sand. A-4b (8)	113	18
B-101 S-11 III 55.0'-56.8'	Gray silt, trace fine to medium sand, trace clay, few lenses of fine sand. A-4b (8)	114	18

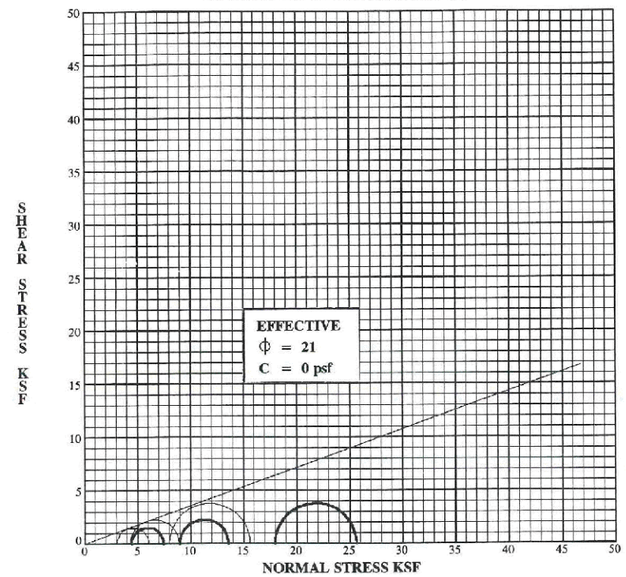
BBC&M ENGINEERING, INC.

PROJECT CUY-90-15.24
LOCATION Cleveland, Ohio
JOB NO. 4500 DATE 10/31/94

SUMMARY OF TRIAXIAL COMPRESSION TESTS

SATURATED, CONSOLIDATED, UNDRAINED
(RESIDUAL PLOTTED)

SHEAR STRESS VS NORMAL STRESS



TOTAL STRESS ——— EFFECTIVE STRESS ———

Specimen Identification	Classification	DD	MC%
B-101 S-22 I 105.0'-107.0'	Stiff gray silty clay, trace fine to coarse sand, trace fine gravel, few silt nodules. A-7-6 (12)	90	32
B-101 S-22 II 105.0'-107.0'	Stiff gray silty clay, trace fine to coarse sand, trace fine gravel, few silt nodules. A-7-6 (12)	91	32
B-101 S-22 III 105.0'-107.0'	Stiff gray silty clay, trace fine to coarse sand, trace fine gravel, few silt nodules. A-7-6 (12)	92	31

BBC&M ENGINEERING, INC.

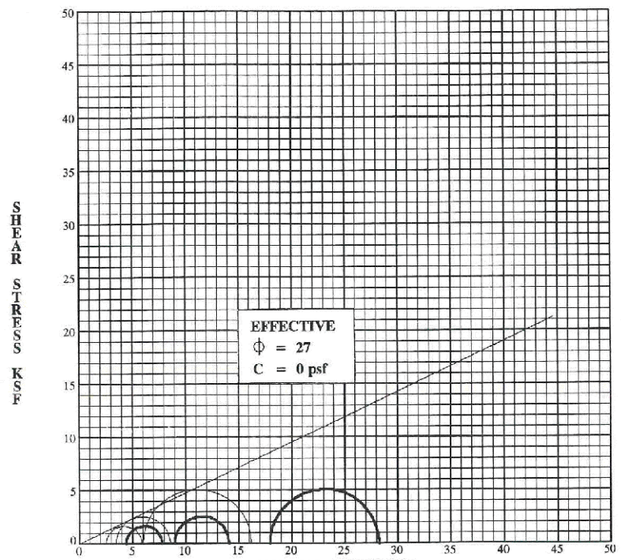
PROJECT CUY-90-15.24
LOCATION Cleveland, Ohio
JOB NO. 4500 DATE 10/31/94

SUMMARY OF TRIAXIAL COMPRESSION TESTS

SATURATED, CONSOLIDATED, UNDRAINED

(RESIDUAL PLOTTED)

SHEAR STRESS VS NORMAL STRESS



TOTAL STRESS ——— EFFECTIVE STRESS ———

Specimen Identification	Classification	DD	MC%
B-102 S-23 I 115.5'-117.1'	Medium-stiff to stiff gray silty clay, trace fine to coarse sand, trace fine gravel. A-6b(11)	94	30
B-102 S-23 II 115.5'-117.1'	Medium-stiff to stiff gray silty clay, trace fine to coarse sand, trace fine gravel. A-6b(11)	94	30
B-102 S-23 III 115.5'-117.1'	Medium-stiff to stiff gray silty clay, trace fine to coarse sand, trace fine gravel. A-6b(11)	95	29

BBC&M ENGINEERING, INC

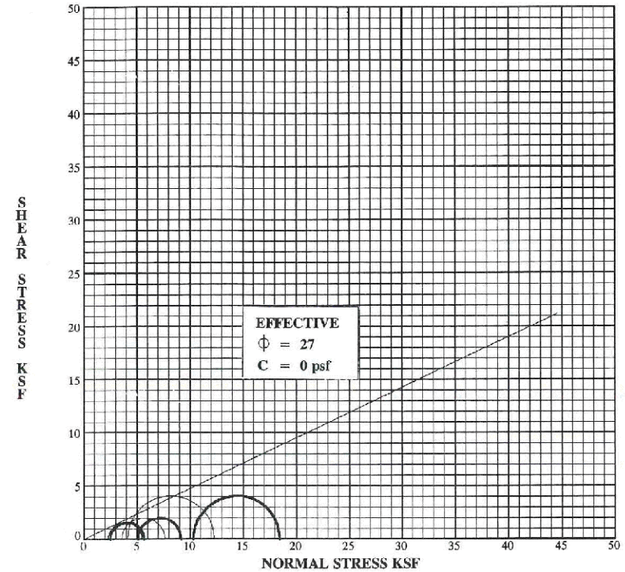
PROJECT CUY-90-15.24
LOCATION Cleveland, Ohio
JOB NO. 4500 DATE 10/31/94

SUMMARY OF TRIAXIAL COMPRESSION TESTS

SATURATED, CONSOLIDATED, UNDRAINED

(RESIDUAL PLOTTED)

SHEAR STRESS VS NORMAL STRESS



TOTAL STRESS ——— EFFECTIVE STRESS ———

Specimen Identification	Classification	DD	MC%
P-2 S-9 I 42.5'-44.5'	Stiff to very-stiff gray silty clay, trace fine to coarse sand, trace fine gravel, many lenses and seams of silt. A-6a (10)	93	31
P-2 S-9 II 42.5'-44.5'	Stiff to very-stiff gray silty clay, trace fine to coarse sand, trace fine gravel, many lenses and seams of silt. A-6a (10)	98	27
P-2 S-9 III 42.5'-44.5'	Stiff to very-stiff gray silty clay, trace fine to coarse sand, trace fine gravel, many lenses and seams of silt. A-6a (10)	98	25

BBC&M ENGINEERING, INC

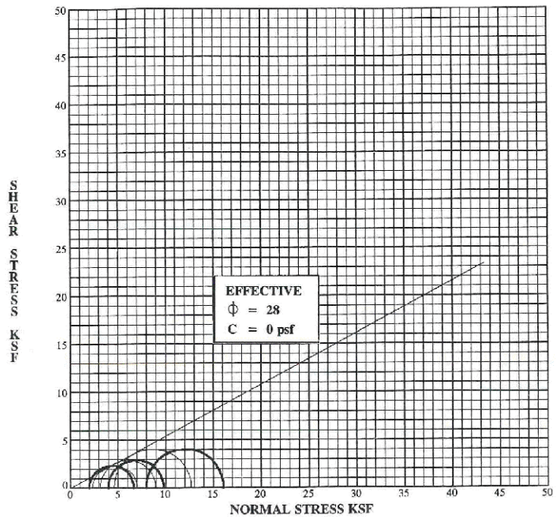
PROJECT CUY-90-15.24
LOCATION Cleveland, Ohio
JOB NO. 4500 DATE 10/31/94

SUMMARY OF TRIAXIAL COMPRESSION TESTS

SATURATED, CONSOLIDATED, UNDRAINED

(RESIDUAL PLOTTED)

SHEAR STRESS VS NORMAL STRESS



TOTAL STRESS ——— EFFECTIVE STRESS ———

Specimen Identification	Classification	DD	MC%
B-109 S-8 I 36.0'-37.8'	Stiff gray silty clay inter-bedded with silt, trace fine to medium sand. A-6a (10)	102	25
B-109 S-8 II 36.0'-37.8'	Stiff gray silty clay inter-bedded with silt, trace fine to medium sand. A-6a (10)	101	25
B-109 S-8 III 36.0'-37.8'	Stiff gray silty clay inter-bedded with silt, trace fine to medium sand. A-6a (10)	102	25

BBC&M ENGINEERING, INC

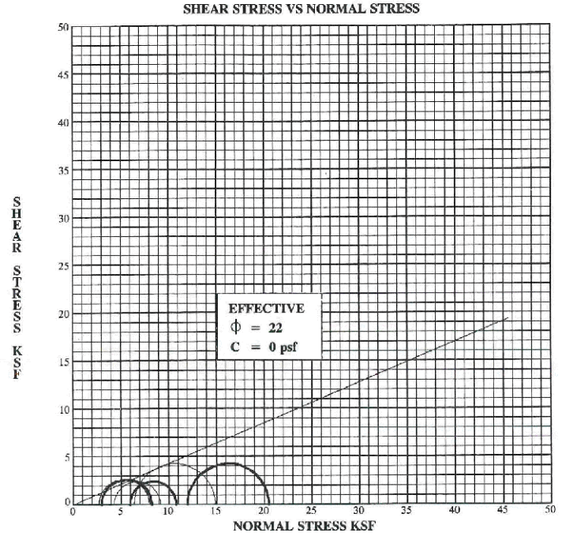
PROJECT CUY-90-15.24
LOCATION Cleveland, Ohio
JOB NO. 4500 DATE 11/4/94

SUMMARY OF TRIAXIAL COMPRESSION TESTS

SATURATED, CONSOLIDATED, UNDRAINED

(RESIDUAL PLOTTED)

SHEAR STRESS VS NORMAL STRESS



TOTAL STRESS ——— EFFECTIVE STRESS ———

Specimen Identification	Classification	DD	MC%
B-109 S-13 I 69.5'-71.3'	Stiff gray silty clay, trace fine to coarse sand, trace fine gravel. A-6b (10)	105	23
B-109 S-13 II 69.5'-71.3'	Stiff gray silty clay, trace fine to coarse sand, trace fine gravel. A-6b (10)	106	22
B-109 S-13 III 69.5'-71.3'	Stiff gray silty clay, trace fine to coarse sand, trace fine gravel. A-6b (10)	107	22

BBC&M ENGINEERING, INC

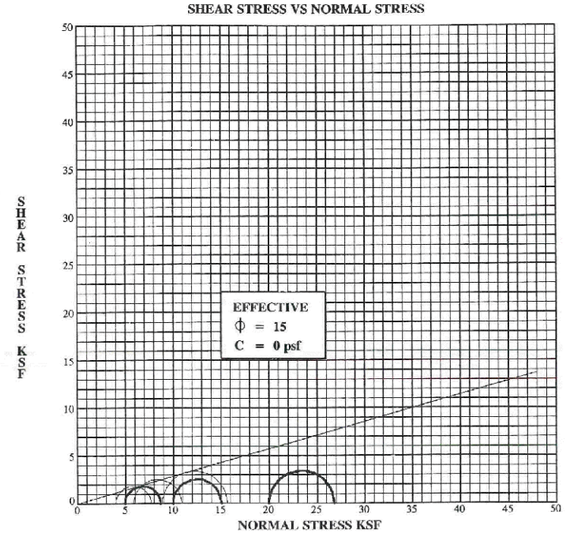
PROJECT CUY-90-15.24
LOCATION CLEVELAND, OHIO
JOB NO. 4500 DATE 11/15/94

SUMMARY OF TRIAXIAL COMPRESSION TESTS

SATURATED, CONSOLIDATED, UNDRAINED

(RESIDUAL PLOTTED)

SHEAR STRESS VS NORMAL STRESS



TOTAL STRESS ——— EFFECTIVE STRESS ———

Specimen Identification	Classification	DD	MC%
B-109 S-24 I 124.5'-126.2'	Very-stiff gray silty clay, trace fine to coarse sand, trace fine gravel, contains few lenses of silt. A-6b (10)	103	23
B-109 S-24 II 124.5'-126.2'	Very-stiff gray silty clay, trace fine to coarse sand, trace fine gravel, contains few lenses of silt. A-6b (10)	98	27
B-109 S-24 III 124.5'-126.2'	Very-stiff gray silty clay, trace fine to coarse sand, trace fine gravel, contains few lenses of silt. A-6b (10)	107	20

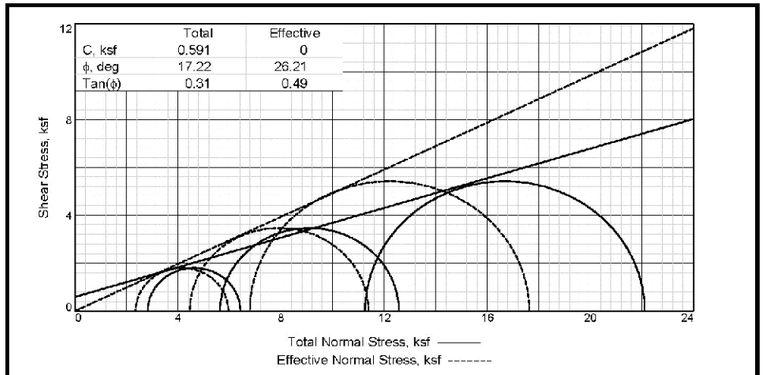
BBC&M ENGINEERING, INC

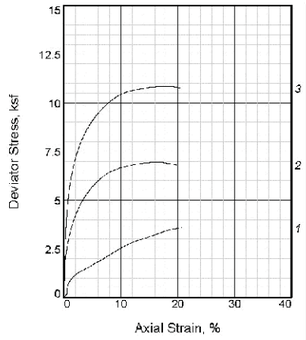
PROJECT CUY-90-15.24
LOCATION CLEVELAND, OHIO
JOB NO. 4500 DATE 12/10/94

BBC&M

SOIL PROFILE
LABORATORY TEST DATA

CUY-90-14.90





Sample No.		1	2	3
Initial	Water Content,	23.5	21.8	21.2
	Dry Density, pcf	98.2	105.5	107.1
	Saturation,	86.3	95.7	96.8
	Void Ratio	0.7488	0.6278	0.6029
	Diameter, in.	2.878	2.868	2.866
	Height, in.	5.590	5.600	5.590
At Test	Water Content,	21.4	19.9	18.7
	Dry Density, pcf	108.0	111.0	115.9
	Saturation,	99.9	99.8	106.7
	Void Ratio	0.5894	0.5472	0.4808
	Diameter, in.	2.823	2.827	2.792
	Height, in.	5.279	5.477	5.442
Strain rate, in./min.		0.002	0.002	0.002
Eff. Cell Pressure, ksf		2.82	5.63	11.26
Fail. Stress, ksf		3.60	6.94	10.85
Excess Pore Pr., ksf		0.47	1.18	4.48
Strain, %		20.7	15.9	17.8
Ult. Stress, ksf		3.33		
Excess Pore Pr., ksf		0.77		
Strain, %		17.0		
$\bar{\sigma}_1$ Failure, ksf		5.95	11.39	17.63
$\bar{\sigma}_3$ Failure, ksf		2.35	4.45	6.79

Type of Test: CU with Pore Pressures
Sample Type: Shelby Tube
Description: Stiff to very-stiff gray silty clay, little fine to coarse sand, trace fine gravel. A-6a
LL= 30 **PL=** 17 **PI=** 13
Assumed Specific Gravity= 2.75
Remarks: top 3' of Section I disturbed

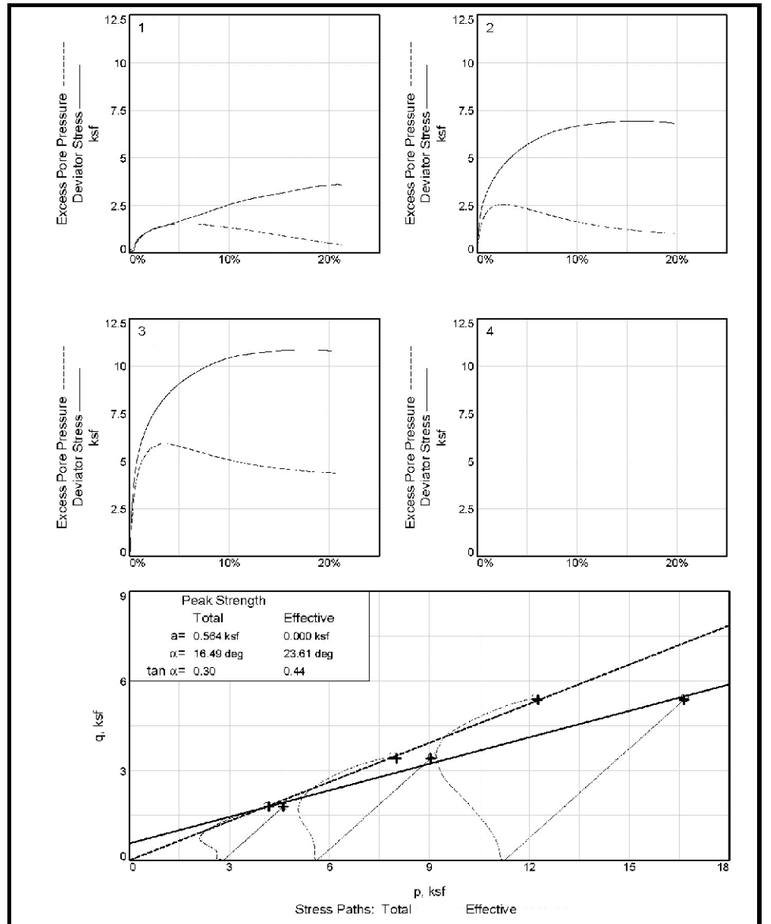
Report Date 05/16-19/06

Client:
Project: CUY-90-15.24 West Abutment
Cleveland, Ohio
Location: B-05-13
Sample Number: 18 Section I,II,III
Proj. No.: 012-00946-300 **Date:** 05/19/06

TRIAXIAL SHEAR TEST REPORT

BBC&M Engineering, Inc.

Tested By: JJ **Checked By:** JJ

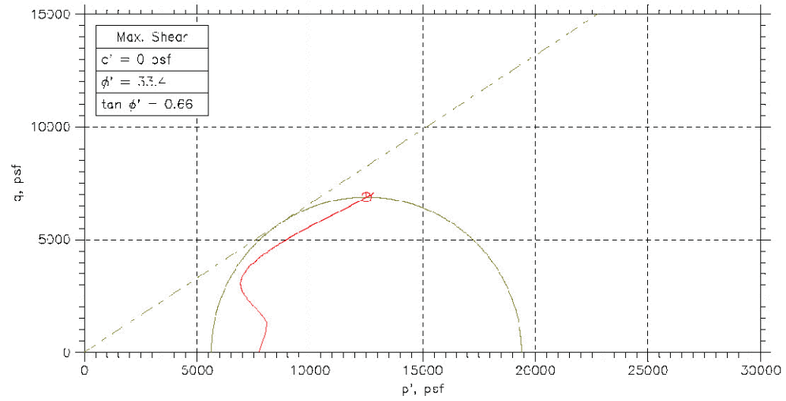


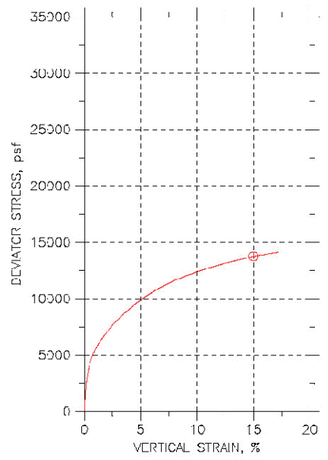
Client:
Project: CUY-90-15.24 West Abutment
Location: B-05-13 **Depth:** 70.0' to71.6' **Sample Number:** 18 Section I,II,III
Project No.: 012-00946-300 **Report Date** _____

BBC&M Engineering, Inc.

Tested By: JJ **Checked By:** JJ

CONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D4767





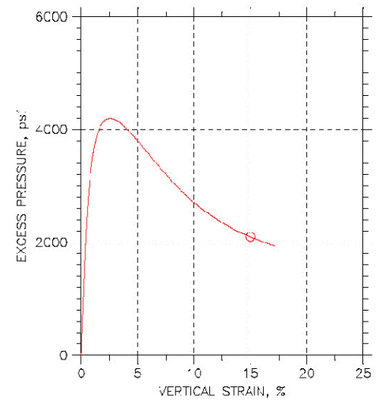
Symbol		ⓘ			
Sample No.		S-27			
Test No.		CU2			
Depth		116-118 ft			
Initial	Diameter, in	2.87			
	Height, in	6.1			
	Water Content, %	22.2			
	Dry Density, pcf	105.1			
	Saturation, %	97.1			
	Void Ratio	0.627			
Before Shear	Water Content, %	19.5			
	Dry Density, pcf	111.4			
	Saturation*, %	100.0			
	Void Ratio	0.536			
	Back Press., psf	11370			
Ver. Eff. Cons. Stress, psf		8267			
Shear Strength, psf		6882			
Strain at Failure, %		15			
Strain Rate, %/min		0.05			
B-Value		0.92			
Estimated Specific Gravity		2.74			
Liquid Limit		27			
Plastic Limit		16			

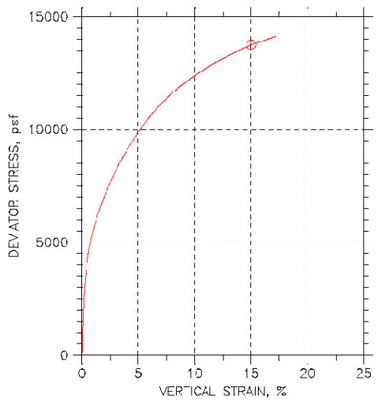
GeoTesting express

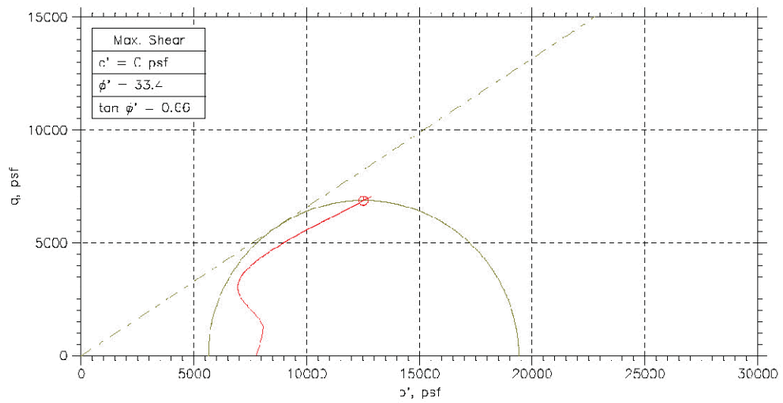
Project: I-90 Central Viaduct
Location: Cleveland, OH
Project No.: GTX-6678
Boring No.: B-05-08
Sample Type: tube
Description: Moist, dark olive gray clay
Remarks: ---

Phase calculations based on start and end of test.

CONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D4767







	Sample No.	Test No.	Depth	Tested By	Test Date	Checked By	Check Date	Test File
ⓘ	S-27	CU2	116-118 ft	mh	06/01/06	jdt		6878-cu2b.dat

GeoTesting express

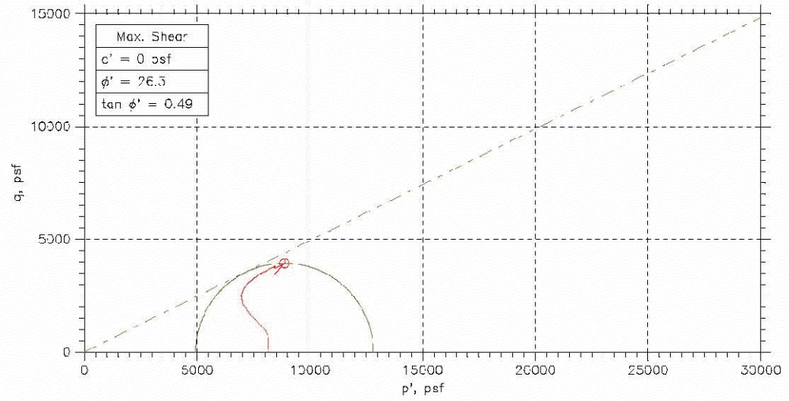
Project: I-90 Central Viaduct	Location: Cleveland, OH	Project No.: GTX-6678
Boring No.: B-05-08	Sample Type: tube	
Description: Moist, dark olive gray clay		
Remarks: ---		

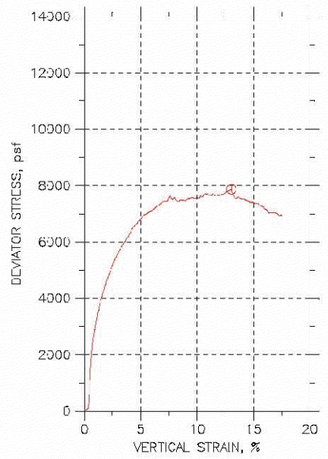
BBCM

SOIL PROFILE
LABORATORY TEST DATA

CUY-90-14.90

CONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D4767





Symbol		⊙			
Sample No.		S-30			
Test No.		CU1			
Depth		118.5 120.3			
Initial	Diameter, in	2.87			
	Height, in	5.96			
	Water Content, %	26.7			
	Dry Density, pcf	95.1			
	Saturation, %	91.9			
	Void Ratio	0.792			
Before Shear	Water Content, %	25.2			
	Dry Density, pcf	100.9			
	Saturation*, %	100.0			
	Void Ratio	0.688			
	Back Press., psf	14410			
Ver. Eff. Cons. Stress, psf		9493			
Shear Strength, psf		3931			
Strain at Failure, %		13			
Strain Rate, %/min		0.05			
B-Value		0.95			
Measured Specific Gravity		2.73			
Liquid Limit		33			
Plastic Limit		18			

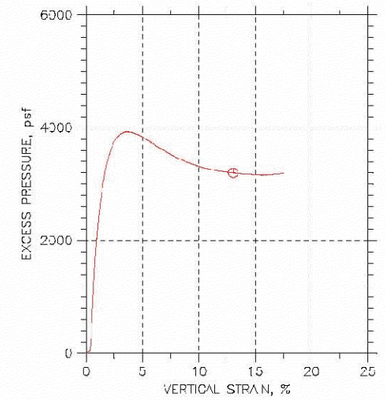
GeoTesting express

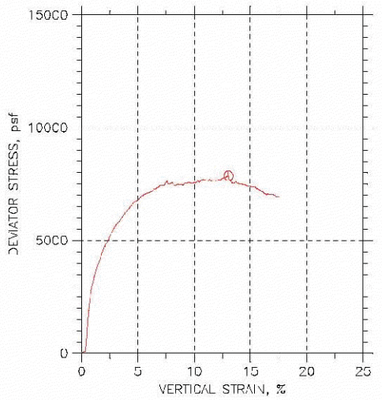
Project: I-90 Central Viaduct
Location: Cleveland, OH
Project No.: GTX-6678
Boring No.: B-05-03
Sample Type: tube
Description: Moist, dark gray clay
Remarks: ---

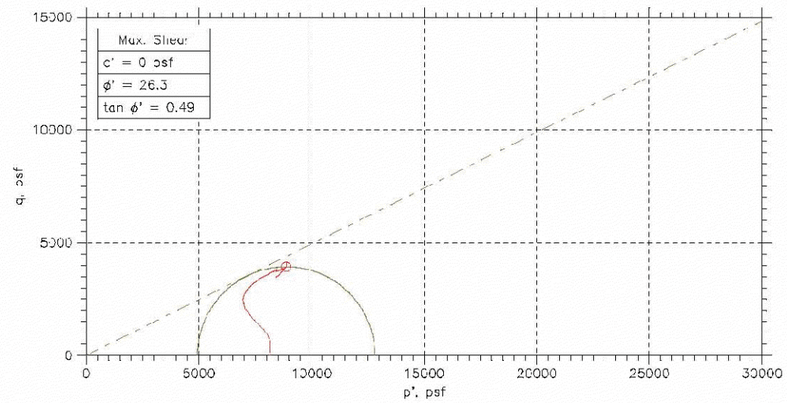
Phase calculations based on start and end of test.

* Saturation is set at 100% for phase calculations.

CONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D4767







	Sample No.	Test No.	Depth	Tested By	Test Date	Checked By	Check Date	Test File
⊙	S-30	CU1	118.5-120.3	njh	05/31/06	jdt		6678-cu1c.dat

GeoTesting express

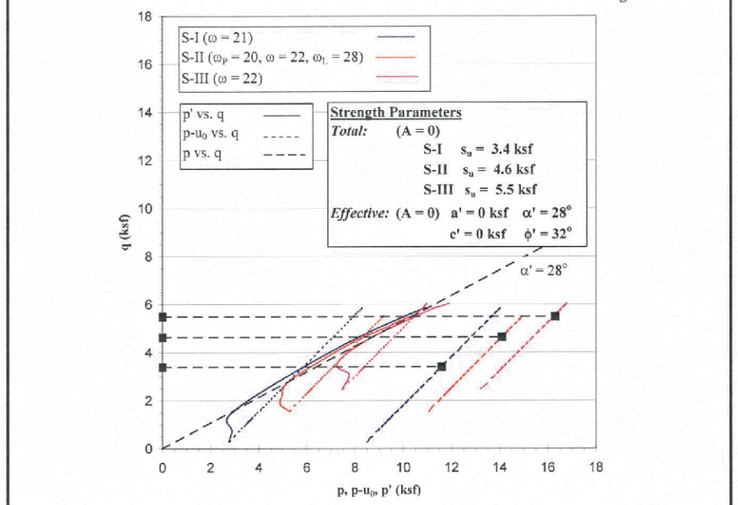
Project: I-90 Central Viaduct	Location: Cleveland, OH	Project No.: GTX-6678
Boring No.: B-05-03	Sample Type: tube	
Description: Moist, dark gray clay		
Remarks: ---		

BBCM

SOIL PROFILE
LABORATORY TEST DATA

CUY-90-14.90

Figure:



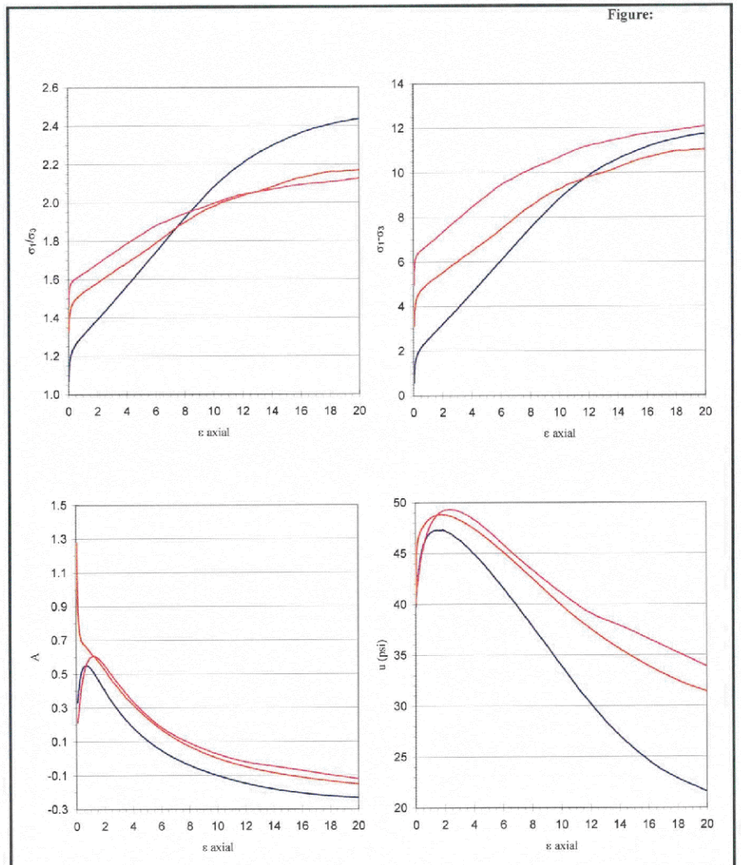
Type of Test: CK_0UTXC with pore pressure measurements
Description: SILT - Medium-stiff to very-stiff gray silt, some to "and" clay, trace fine sand.
Assumed Specific Gravity: 2.75

Sample No.		I	II	III
Initial	Water Content	21.3	22.4	21.5
	Dry Density, pcf	111.0	107.8	107.2
	Saturation	107.2	103.9	98.3
	Void Ratio	0.546	0.592	0.602
	Diameter, in	2.87	2.86	2.88
	Height, in	5.60	5.61	5.59
At Test	Water Content	18.3	20.1	19.0
	Dry Density, pcf	115.7	113.3	112.6
	Saturation	103.8	107.3	99.5
	Void Ratio	0.484	0.516	0.525
	Diameter, in	2.82	2.82	2.85
	Height, in	5.55	5.48	5.41

BBC&M ENGINEERING, INC. - Triaxial Compression Test Report

Project: CUY-90.15.24 West Abutment
Boring: B-05-01 **Project No:** 012 00946.300
Sample: S13, Sec I to III **Depth:** 55' to 57' **Client:** Micheal Baker Jr. Inc.

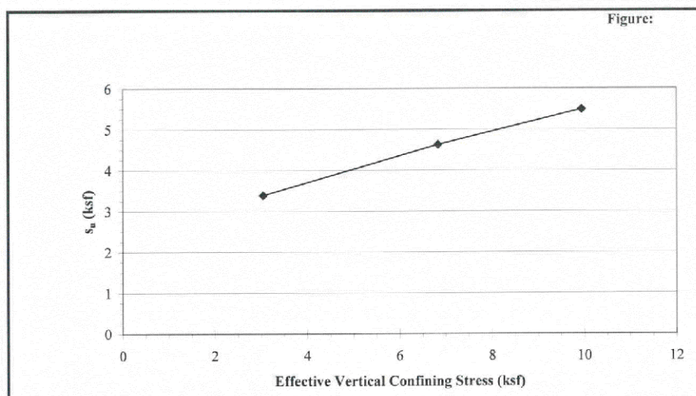
Figure:



BBC&M ENGINEERING, INC. - Triaxial Compression Test Report

Project: CUY-90.15.24 West Abutment
Boring: B-05-01 **Project No:** 012 00946.300
Sample: S13, Sec I to III **Depth:** 55' to 57' **Client:** Micheal Baker Jr. Inc.

Figure:



BBC&M ENGINEERING, INC. - Triaxial Compression Test Report

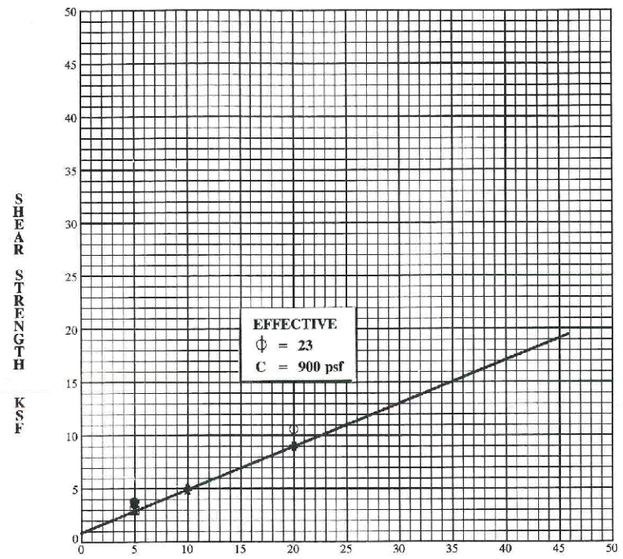
Project: CUY-90.15.24 West Abutment
Project No: 012 00946.300
Client: Micheal Baker Jr. Inc.

Boring: B-05-01
Sample: S13, Sec I to III **Depth:** 55' to 57'

SUMMARY OF DIRECT SHEAR TESTS

SATURATED, CONSOLIDATED, DRAINED

SHEAR STRESS VS NORMAL LOAD



NORMAL PRESSURE - KSF

Specimen Identification	Normal Load	Type Plot	Classification	DD	MC%
● B-101 S-32 IV 140.0'-142.0'	5.00 KSF	Peak	Stiff gray silty clay, trace fine	105	22
⊠	5.00 KSF	RESIDUAL	to coarse sand, trace fine		
▲	10.0 KSF	Peak	gravel, many lenses and seams	105	23
★	10.0 KSF	RESIDUAL	of silt. A-6b (12)		
○	20.0 KSF	Peak		104	23
⊡	20.0 KSF	RESIDUAL			

BBC&M ENGINEERING INC

PROJECT CUY-90-15.24
LOCATION Cleveland, Ohio
JOB NO. 4500 DATE 10/29/94

BBCM

SOIL PROFILE
LABORATORY TEST DATA

CUY-90-14.90

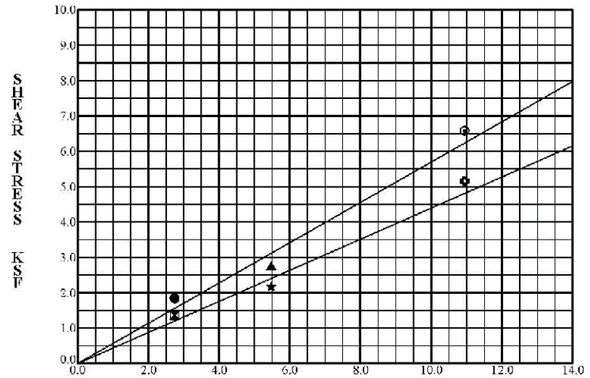
SUMMARY OF DIRECT SHEAR TESTS

SATURATED, CONSOLIDATED, DRAINED

ASTM D3080; AASHTO T-236

BBCM

SHEAR STRESS VS NORMAL STRESS



DATA INTERPRETATION RESULTS		
Test Method	*Drained Friction Angle*	*Drained Cohesion (ksf)*
Peak	*30°*	*0*
Residual	*24°*	*0*

	Specimen Identification	Normal Load	Type Plot	Classification	DD	MC%
●	*B-037-1 S-22 ii 66.0' to 68.0'*	*2.74 ksf*	*PEAK*	*Soft to stiff gray SILT AND CLAY, trace fine to coarse sand, trace fine gravel, contains few lenses and seams of silt, moist.*	*96*	*28*
⊠	*B-037-1 S-22 ii 66.0' to 68.0'*	*2.74 ksf*	*RESIDUAL*		*96*	*28*
▲	*B-037-1 S-22 ii 66.0' to 68.0'*	*5.47 ksf*	*PEAK*		*94*	*30*
★	*B-037-1 S-22 ii 66.0' to 68.0'*	*5.47 ksf*	*RESIDUAL*		*94*	*30*
⊙	*B-037-1 S-22 ii 66.0' to 68.0'*	*10.94 ksf*	*PEAK*		*100*	*24*
✪	*B-037-1 S-22 ii 66.0' to 68.0'*	*10.94 ksf*	*RESIDUAL*		*100*	*24*

PROJECT CUY-90-14.52, West Abutment
LOCATION Cleveland, Ohio
JOB NO. 012.00946.307 DATE 9/16/09

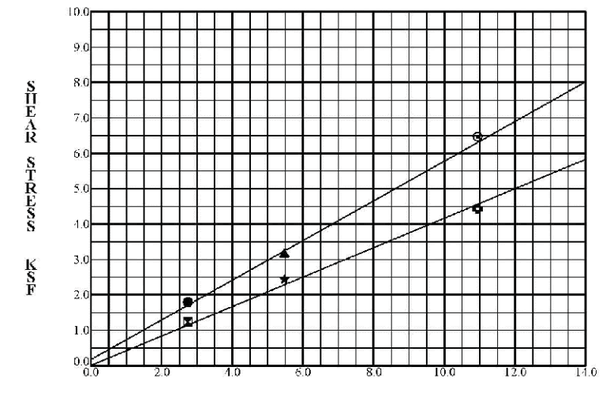
SUMMARY OF DIRECT SHEAR TESTS

SATURATED, CONSOLIDATED, DRAINED

ASTM D3080; AASHTO T-236

BBCM

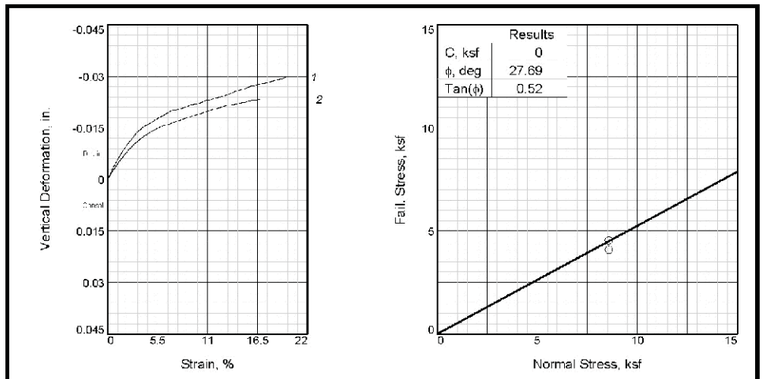
SHEAR STRESS VS NORMAL STRESS



DATA INTERPRETATION RESULTS		
Test Method	*Drained Friction Angle*	*Drained Cohesion (ksf)*
Peak	*29°*	*0.2*
Residual	*23°*	*0*

	Specimen Identification	Normal Load	Type Plot	Classification	DD	MC%
●	*B-037-1 S-24 ii 70.0' to 72.0'*	*2.74 ksf*	*PEAK*	*Medium-stiff gray SILTY CLAY, trace fine to coarse sand, trace fine gravel, contains few lenses and seams of silt, moist.*	*91*	*32*
⊠	*B-037-1 S-24 ii 70.0' to 72.0'*	*2.74 ksf*	*RESIDUAL*		*91*	*32*
▲	*B-037-1 S-24 ii 70.0' to 72.0'*	*5.47 ksf*	*PEAK*		*94*	*29*
★	*B-037-1 S-24 ii 70.0' to 72.0'*	*5.47 ksf*	*RESIDUAL*		*94*	*29*
⊙	*B-037-1 S-24 ii 70.0' to 72.0'*	*10.94 ksf*	*PEAK*		*98*	*28*
✪	*B-037-1 S-24 ii 70.0' to 72.0'*	*10.94 ksf*	*RESIDUAL*		*98*	*28*

PROJECT CUY-90-14.52, West Abutment
LOCATION Cleveland, Ohio
JOB NO. 012.00946.307 DATE 9/16/09



Sample No.		1	2
Initial	Water Content, %	28.1	28.1
	Dry Density, pcf	91.9	91.9
	Saturation, %	91.0	91.0
	Void Ratio	0.8333	0.8333
	Diameter, in.	2.500	2.500
	Height, in.	1.000	1.000
At Test	Water Content, %	20.9	20.9
	Dry Density, pcf	107.6	107.6
	Saturation, %	99.8	99.8
	Void Ratio	0.5662	0.5662
	Diameter, in.	2.500	2.500
	Height, in.	0.854	0.854
Normal Stress, ksf		8.600	8.600
Fail. Stress, ksf		4.514	4.059
Strain, %		7.6	6.8
Ult. Stress, ksf			
Strain, %			
Strain rate, in./min.		0.001	0.001

Sample Type: Shelby Tube
Description: Soft to medium gray silty clay, trace fine sand, many lenses of silt.
LL= 35 **PL=** 20 **PI=** 15
Assumed Specific Gravity= 2.7
Remarks:

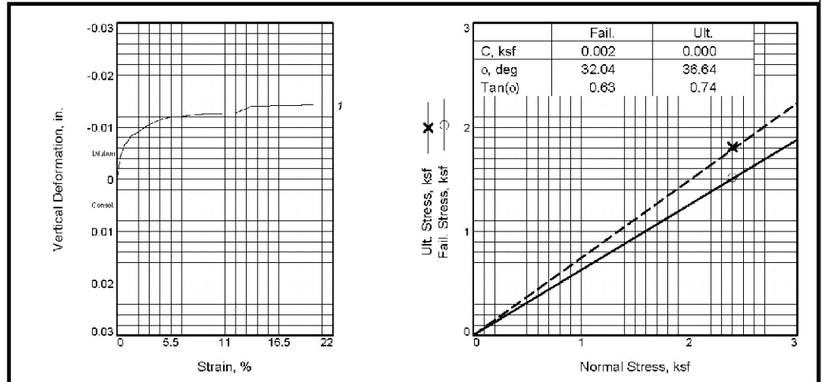
Report Date 05/16/06

Client:

Project: CUY-90-15.24 West Abutment
Cleveland, Ohio
Location: B-108A
Sample Number: 26 Section I **Depth:** 117.0' to 117.5'
Proj. No.: 013-00946-300 **Date:** 05/14-16/06

DIRECT SHEAR TEST REPORT
BBC&M Engineering, Inc.

Tested By: BR **Checked By:** JJ



Sample No.		1
Initial	Water Content, %	23.6
	Dry Density, pcf	104.1
	Saturation, %	99.9
	Void Ratio	0.6494
	Diameter, in.	2.500
	Height, in.	1.000
At Test	Water Content, %	20.9
	Dry Density, pcf	109.1
	Saturation, %	100.4
	Void Ratio	0.5737
	Diameter, in.	2.500
	Height, in.	0.954
Normal Stress, ksf		2.400
Fail. Stress, ksf		1.516
Strain, %		5.6
Ult. Stress, ksf		1.806
Strain, %		20.0
Strain rate, in./min.		0.002

Sample Type: Shelby Tube
Description: Very-stiff gray silty clay, trace fine to coarse sand, trace fine gravel, many lenses of silt.
LL= 36 **PL=** 20 **PI=** 16
Assumed Specific Gravity= 2.75
Remarks: Residual Shear
A-6b(10)

06/20/06

Client:

Project: CUY-90-15.24 West Abutment
Cleveland, Ohio
Location: B-05-16
Sample Number: 7 **Depth:** 24.0' to 26.0'
Proj. No.: 013-00946-300 **Date:** 06/16-19/06

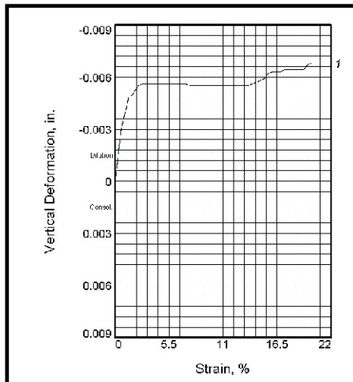
DIRECT SHEAR TEST REPORT
BBC&M Engineering, Inc.

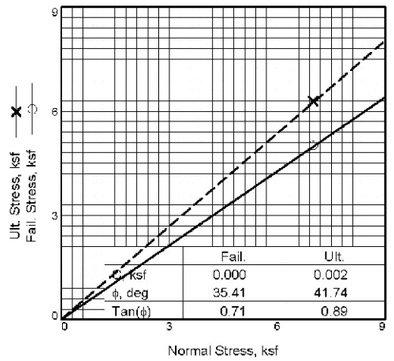
Tested By: SW **Checked By:** JJ

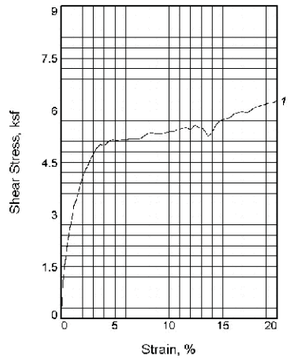
BBCM

SOIL PROFILE
LABORATORY TEST DATA

CUY-90-14.90







Sample No.		1
Initial	Water Content, %	30.5
	Dry Density, pcf	98.6
	Saturation, %	113.1
	Void Ratio	0.7412
	Diameter, in.	2.500
	Height, in.	1.000
At Test	Water Content, %	22.8
	Dry Density, pcf	103.2
	Saturation, %	94.6
	Void Ratio	0.6640
	Diameter, in.	2.500
	Height, in.	0.956
Normal Stress, ksf		7.000
Fail. Stress, ksf		5.011
Strain, %		3.6
Ult. Stress, ksf		6.283
Strain, %		20.0
Strain rate, in./min.		0.002

Sample Type: Shelby Tube
Description: Stiff to very-stiff gray silty clay interbedded with silt, trace fine sand.
LL= 27 **PL=** 20 **PI=** 7
Assumed Specific Gravity= 2.75
Remarks: Residual Shear
A-4b(8)

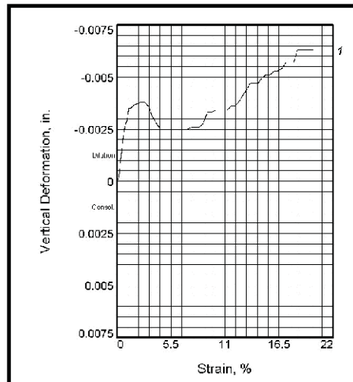
06/23/06

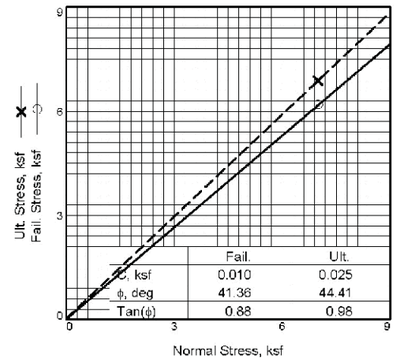
Client:

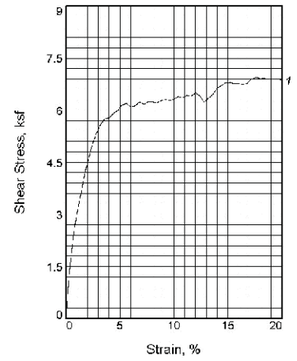
Project: CUY-90-15.24 West Abutment
Cleveland, Ohio
Location: B-05-16
Sample Number: 25 Section I **Depth:** 111.0' to 113.0'
Proj. No.: 013-00945-300 **Date:** 06/19-20/06

DIRECT SHEAR TEST REPORT
BBC&M Engineering, Inc.

Tested By: SW **Checked By:** JJ







Sample No.		1
Initial	Water Content, %	25.2
	Dry Density, pcf	100.7
	Saturation, %	98.4
	Void Ratio	0.7043
	Diameter, in.	2.500
	Height, in.	1.000
At Test	Water Content, %	22.1
	Dry Density, pcf	104.9
	Saturation, %	95.2
	Void Ratio	0.6370
	Diameter, in.	2.500
	Height, in.	0.961
Normal Stress, ksf		7.000
Fail. Stress, ksf		6.191
Strain, %		5.6
Ult. Stress, ksf		6.872
Strain, %		20.0
Strain rate, in./min.		0.002

Sample Type: Shelby Tube
Description: Gray silt, trace clay, trace fine to coarse sand, trace fine gravel, few lenses of fine sand.
LL= NP **PI=** NP
Assumed Specific Gravity= 2.75
Remarks: Residual Shear
A-4b(0)

06/22/06

Client:

Project: CUY-90-15.24 West Abutment
Cleveland, Ohio
Location: B-05-16
Sample Number: 26 Sec. III **Depth:** 113.0' to 115.0'
Proj. No.: 013-00945-300 **Date:** 06-20-21/06

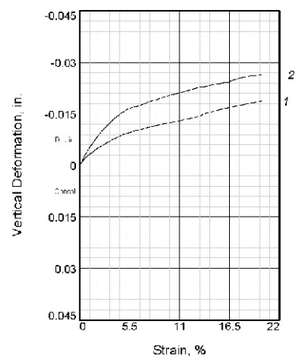
DIRECT SHEAR TEST REPORT
BBC&M Engineering, Inc.

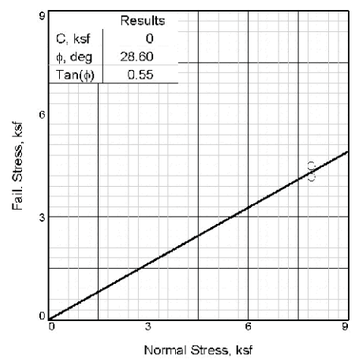
Tested By: SW **Checked By:** JJ

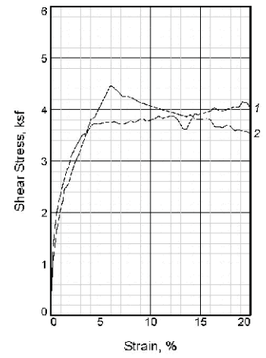
BBCM

SOIL PROFILE
LABORATORY TEST DATA

CUY-90-14.90







Sample No.		1	2
Initial	Water Content, %	27.9	27.9
	Dry Density, pcf	94.1	94.1
	Saturation, %	93.1	93.1
	Void Ratio	0.8238	0.8238
	Diameter, in.	2.500	2.500
	Height, in.	1.000	1.000
At Test	Water Content, %	24.0	24.0
	Dry Density, pcf	103.5	103.5
	Saturation, %	99.9	99.9
	Void Ratio	0.6593	0.6593
	Diameter, in.	2.500	2.500
	Height, in.	0.910	0.910
Normal Stress, ksf		7.900	7.900
Fail. Stress, ksf		4.146	4.467
Strain, %		19.2	6.0
Ult. Stress, ksf			
Strain, %			
Strain rate, in./min.		0.012	0.002

Sample Type: Shelby Tube
Description: Medium-stiff gray silty clay, trace fine sand.
LL= 34 **PL=** 18 **PI=** 16
Assumed Specific Gravity= 2.75
Remarks: 1= initial Shear
2= Residual Shear

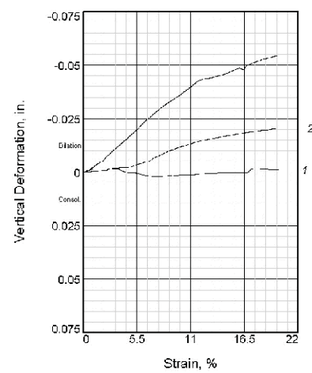
Report Date 05/25/06

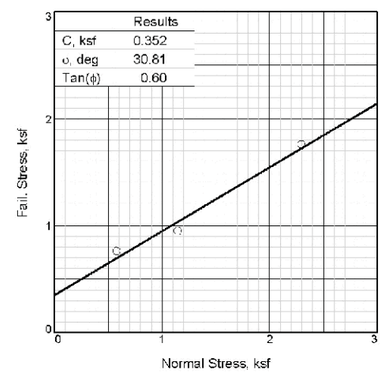
Client:

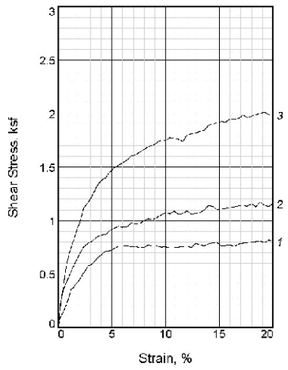
Project: CUY-90-15.24 West Abutment
Cleveland, Ohio
Location: B-105A
Sample Number: 23 I **Depth:** 103.0' to 105.0'
Proj. No.: 0.3-00946-300 **Date:** 02/24/06

DIRECT SHEAR TEST REPORT
BBC&M Engineering, Inc.

Tested By: MA **Checked By:** JJ







Sample No.		1	2	3
Initial	Water Content, %	80.1	80.1	206.5
	Dry Density, pcf	44.1	39.9	21.4
	Saturation, %	77.6	67.9	81.6
	Void Ratio	2.6817	3.0665	6.5795
	Diameter, in.	2.500	2.500	2.500
	Height, in.	1.000	1.000	1.000
At Test	Water Content, %	137.0	89.0	97.9
	Dry Density, pcf	45.7	43.1	24.3
	Saturation, %	139.5	83.7	44.8
	Void Ratio	2.5547	2.7656	5.6760
	Diameter, in.	2.500	2.500	2.500
	Height, in.	0.966	0.926	0.881
Normal Stress, ksf		0.580	1.150	2.300
Fail. Stress, ksf		0.759	0.948	1.754
Strain, %		7.2	5.6	9.6
Ult. Stress, ksf				
Strain, %				
Strain rate, in./min.		0.002	0.002	0.002

Sample Type: Shelby Tube
Description: PEAT: Very-soft gray organic clay, "and" silt, trace to little fine to coarse sand,woody.

Assumed Specific Gravity= 2.6
Remarks: Initial Shear

Client: Michael Baker Jr, Inc.

Project: CENTRAL VIADUCT - CUY-90-14.52
Cuyahoga County, Ohio
Location: V-010-0-06
Sample Number: 27 **Depth:** 16.0'to18.0' SBCT IV
Proj. No.: 312 20540.30. **Date:** 02/14/07

DIRECT SHEAR TEST REPORT
BBC&M Engineering, Inc.

BBCM

SOIL PROFILE
LABORATORY TEST DATA

CUY-90-14.90

GeoTesting express
a subsidiary of Geocomp Corporation

Client:	Geocomp Consulting		
Project Name:	I-90 Central Viaduct		
Project Location:	Cleveland, OH		
GTX #:	6678	Tested By:	njh/md
Test Date:	05/30/06	Checked By:	jdt
Boring ID:	B-05-08		
Sample ID:	S-27		
Depth, ft.	116-118 ft		
Description:	Moist, olive gray clay		
Preparation:	Extruded from tube, cut and trimmed and tested at the as received moisture and density.		

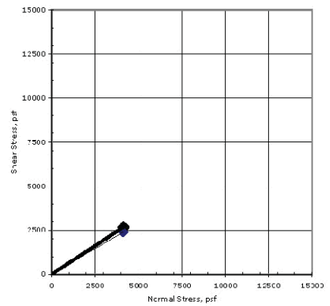
Direct Shear and Residual Shear by ASTM D 3080

Parameter	Point 1	Point 2	Point 3
Test No.	RS10		
Initial Moisture Content, %	21		
Initial Dry Density, pcf	108		
Nominal Rate of Shear Strain, inches/min	0.0002		
Vertical Consolidation Stress, psf	4130		
Peak Shear Stress, psf	2677		
Post-Peak Shear Stress, psf	2385		
Final Moisture Content , %	19		

Notes: Residual values taken near the end of the final shear step.

Peak Friction Angle:	33.0	degrees
Peak Cohesion:	0	psf
Post Peak Friction Angle:	30.0	degrees
Post Peak Cohesion:	0	psf

Normal Stress vs. Shear Stress



Comments: See attached plots for additional information

GeoTesting express
a subsidiary of Geocomp Corporation

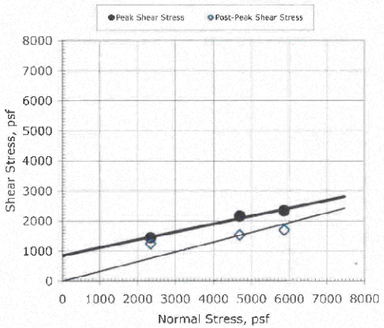
Client:	Geocomp Consulting		
Project Name:	I-90 Bridge		
Project Location:	OH		
GTX #:	9236	Tested By:	md
Test Date:	08/19/09	Checked By:	jdt
Boring ID:	B-037-1		
Sample ID:	S-21		
Depth, ft.	64-66		
Description:	Moist, brown clay with sand lenses		
Preparation:	Extruded from tube, cut and trimmed and tested at the as-received moisture and density.		

Residual Shear by USACOE EM1110

Parameter	Point 1	Point 2	Point 3
Test No.	RS-1	RS-2	RS-3A
Initial Moisture Content, %	21.3	28.9	27.1
Initial Dry Density, pcf	104	94.5	95.8
Nominal Rate of Shear Strain, inches/min	0.0005	0.0005	0.0005
Vertical Consolidation Stress, psf	2346	4691	5864
Peak Shear Stress, psf	1441	2159	2335
Post-Peak Shear Stress, psf	1241	1528	1696
Final Moisture Content , %	22.9	28.0	27.1

Peak Friction Angle:	14.7	degrees
Peak Cohesion:	854.2	psf
Post Peak Friction Angle:	17.9	degrees
Post Peak Cohesion:	0.0	psi

Normal Stress vs. Shear Stress



Comments: See attached plots for additional information

BBCM

SOIL PROFILE
LABORATORY TEST DATA

CUY-90-14.90

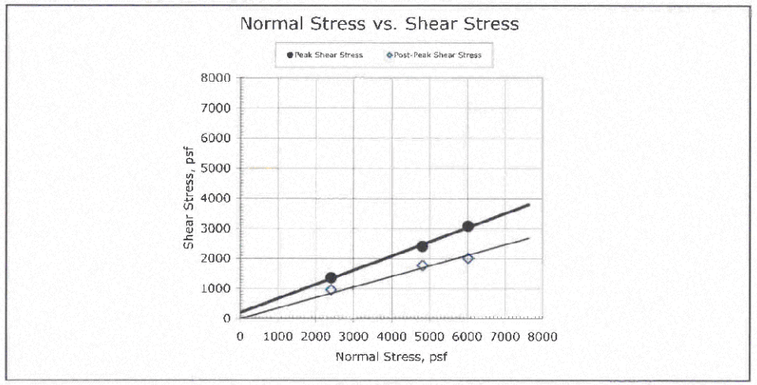
GeoTesting express
a subsidiary of Geocomp Corporation

Client:	Geocomp Consulting		
Project Name:	I-90 Bridge		
Project Location:	OH		
GTX #:	9236	Tested By:	md
Test Date:	08/19/09	Checked By:	jdt
Boring ID:	B-037-1		
Sample ID:	S-22		
Depth, ft.	66-68		
Description:	Moist, brown clay with sand lenses		
Preparation:	Extruded from tube, cut and trimmed and tested at the as-received moisture and density.		

Residual Shear by USACOE EM1110

Parameter	Point 1	Point 2	Point 3
Test No.	RS-4	RS-5	RS-6
Initial Moisture Content, %	27.9	24.8	22.1
Initial Dry Density, pcf	95.8	100.0	101.0
Nominal Rate of Shear Strain, inches/min	0.0008	0.0008	0.0008
Vertical Consolidation Stress, psf	2408	4816	6020
Peak Shear Stress, psf	1356	2399	3079
Post-Peak Shear Stress, psf	960	1770	2007
Final Moisture Content , %	30.8	25.5	25.5

Peak Friction Angle:	25.2	degrees
Peak Cohesion:	199.8	psf
Post Peak Friction Angle:	19.4	degrees
Post Peak Cohesion:	0.0	psi



Comments: See attached plots for additional information

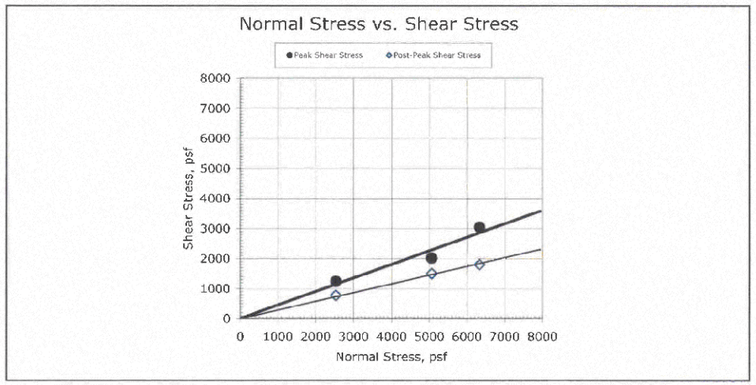
GeoTesting express
a subsidiary of Geocomp Corporation

Client:	Geocomp Consulting		
Project Name:	I-90 Bridge		
Project Location:	OH		
GTX #:	9236	Tested By:	md
Test Date:	08/20/09	Checked By:	jdt
Boring ID:	B-037-1		
Sample ID:	S-24		
Depth, ft.	70-72		
Description:	Moist, brown clay		
Preparation:	Extruded from tube, cut and trimmed and tested at the as-received moisture and density.		

Residual Shear by USACOE EM1110

Parameter	Point 1	Point 2	Point 3
Test No.	RS-7	RS-8	RS-9
Initial Moisture Content, %	35.0	33.6	30.7
Initial Dry Density, pcf	86.7	87.4	92.0
Nominal Rate of Shear Strain, inches/min	0.0003	0.0003	0.0003
Vertical Consolidation Stress, psf	2533	5067	6333
Peak Shear Stress, psf	1243	2018	3045
Post-Peak Shear Stress, psf	775	1500	1800
Final Moisture Content , %	33.5	34.7	28.5

Peak Friction Angle:	24.2	degrees
Peak Cohesion:	11.5	psf
Post Peak Friction Angle:	16.2	degrees
Post Peak Cohesion:	0.0	psi



Comments: See attached plots for additional information

BBCM

SOIL PROFILE
LABORATORY TEST DATA

CUY-90-14.90

GeoTesting express
a subsidiary of Geocomp Corporation

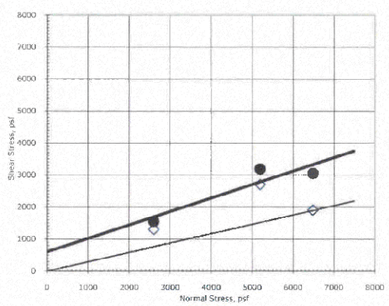
Client:	Geocomp Consulting		
Project Name:	I-90 Bridge		
Project Location:	OH		
GTX #:	9236	Tested By:	md
Test Date:	08/20/09	Checked By:	jdt
Boring ID:	B-037-1		
Sample ID:	S-25		
Depth, ft.	72-74		
Description:	Moist, brown clay		
Preparation:	Extruded from tube, cut and trimmed and tested at the as-received moisture and density.		

Residual Shear by USACOE EM1110

Parameter	Point 1	Point 2	Point 3
Test No.	RS-10	RS-11	RS-12
Initial Moisture Content, %	25.5	24.4	25.8
Initial Dry Density, pcf	99.4	100.0	98.0
Nominal Rate of Shear Strain, inches/min	0.0002	0.0002	0.0002
Vertical Consolidation Stress, psf	2596	5192	6490
Peak Shear Stress, psf	1555	3188	3056
Post-Peak Shear Stress, psf	1300	2700	1900
Final Moisture Content , %	24.4	25.4	24.3

Peak Friction Angle:	22.8	degrees
Peak Cohesion:	600.0	psf
Post Peak Friction Angle:	16.3	degrees
Post Peak Cohesion:	0.0	psi

Normal Stress vs. Shear Stress



Comments: See attached plots for additional information

GeoTesting express
a subsidiary of Geocomp Corporation

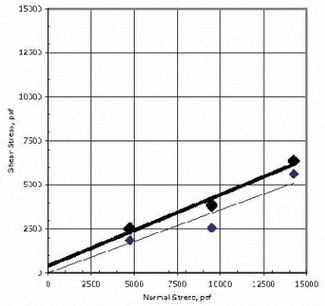
Client:	Geocomp Consulting		
Project Name:	I-90 Central Viaduc:		
Project Location:	Cleveland, OH		
GTX #:	6678	Tested By:	njh/md
Test Date:	05/06-05/19/06	Checked By:	jdt
Boring ID:	B-05-03		
Sample ID:	S-29		
Depth, ft.	116.5-118.5 ft		
Description:	Moist, dark gray clay		
Preparation:	Extruded from tube, cut and trimmed and tested at the as-received moisture and density.		

Direct Shear and Residual Shear by ASTM D 3080

Parameter	Point 1	Point 2	Point 3
Test No.	RS5	RS4	RS6
Initial Moisture Content, %	26	26	24
Initial Dry Density, pcf	98.2	97.4	99.1
Nominal Rate of Shear Strain, inches/min	0.003	0.003	0.001
Vertical Consolidation Stress, psf	4748	9500	14249
Peak Shear Stress, psf	2519	3849	6367
Post-Peak Shear Stress, psf	1851	2559	5611
Final Moisture Content , %	31	25	22

Notes: Residual values taken near the end of the final shear step.	Peak Friction Angle:	22.0	degrees
	Peak Cohesion:	398	psf
	Post Peak Friction Angle:	19.7	degrees
	Post Peak Cohesion:	0	psf

Normal Stress vs. Shear Stress



Comments: See attached plots for additional information

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SOIL PROFILE
LABORATORY TEST DATA

CUY-90-14.90

GeoTesting express
a subsidiary of Geocomp Corporation

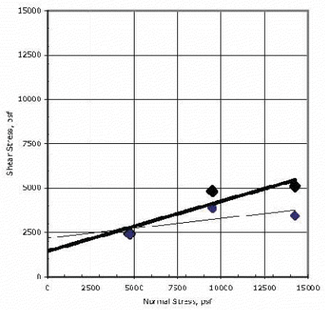
Client:	Geocomp Consulting		
Project Name:	I-90 Central Viaduct		
Project Location:	Cleveland, OH		
GTX #:	6678	Tested By:	njh/md
Test Date:	05/06-05/19/06	Checked By:	jdt
Boring ID:	B-C5-03		
Sample ID:	S-30		
Depth, ft.	118.5-120.3 ft		
Description:	Moist, dark gray clay		
Preparation:	Extruded from tube, cut and trimmed and tested at the as-received moisture and density.		

Direct Shear and Residual Shear by ASTM D 3080

Parameter	Point 1	Point 2	Point 3
Test No.	RS1	RS2	RS3
Initial Moisture Content, %	20	28	21
Initial Dry Density, pcf	103	99.0	94.7
Nominal Rate of Shear Strain, inches/min	0.003	0.003	0.001
Vertical Consolidation Stress, psf	4749	9500	14249
Peak Shear Stress, psf	2433	4818	5111
Post-Peak Shear Stress, psf	2400	3858	3444
Final Moisture Content , %	23	24	22

Notes: Residual values taken near the end of the final shear step.	Peak Friction Angle:	15.7	degrees
	Peak Cohesion:	1444	psf
	Post Peak Friction Angle:	6.3	degrees
	Post Peak Cohesion:	2190	psf

Normal Stress vs. Shear Stress



Comments: See attached plots for additional information

GeoTesting express
a subsidiary of Geocomp Corporation

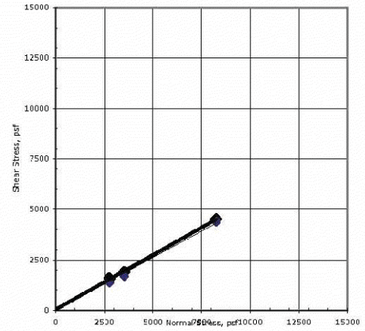
Client:	Geocomp Consulting		
Project Name:	I-90 Central Viaduct		
Project Location:	Cleveland, OH		
GTX #:	6678	Tested By:	njh/md
Test Date:	05/06-05/19/06	Checked By:	jdt
Boring ID:	B-C5-04		
Sample ID:	S-27		
Depth, ft.	72-74 ft.		
Description:	Moist, very dark grayish brown clay		
Preparation:	Extruded from tube, cut and trimmed and tested at the as-received moisture and density.		

Direct Shear and Residual Shear by ASTM D 3080

Parameter		Point 1	Point 2	Point 3
Test No.		RS7	RS8	RS9
Initial Moisture Content, %		22	21	22
Initial Dry Density, pcf		107	107	107
Nominal Rate of Shear Strain, inches/min		0.0004	0.0004	0.0004
Vertical Consolidation Stress, psf		2752	3519	8258
Peak Shear Stress, psf		1580	1891	4519
Post-Peak Shear Stress, psf		1374	1681	4393
Final Moisture Content , %		23	23	20

Notes: Residual values taken near the end of the final shear step.	Peak Friction Angle:	28.4	degrees
	Peak Cohesion:	43	psf
	Post Peak Friction Angle:	27.5	degrees
	Post Peak Cohesion:	0	psf

Normal Stress vs. Shear Stress



Comments: See attached plots for additional information

BBCM

SOIL PROFILE
LABORATORY TEST DATA

CUY-90-14.90

Consolidated Undrained Direct Simple Shear Test of Cohesive Soil by ASTM D 6528

Client:	Geocomp Consulting	GTX#:	6678
Project Name:	I-90 Central Viaduct	Test Date:	05/07/06
Project Location:	Cleveland, OH		

Boring ID: B-05-03
Sample ID: S-29
Depth, ft: 116.5-118.5 ft

Visual Description: Moist, dark gray clay

Test Equipment: Top and bottom box (circular) = 2.62 in diameter. Load cells and LVDT's connected to data acquisition system for shear force, normal load, horizontal and vertical displacement; surface area = 5.39 in^2, soil height = 1 inch

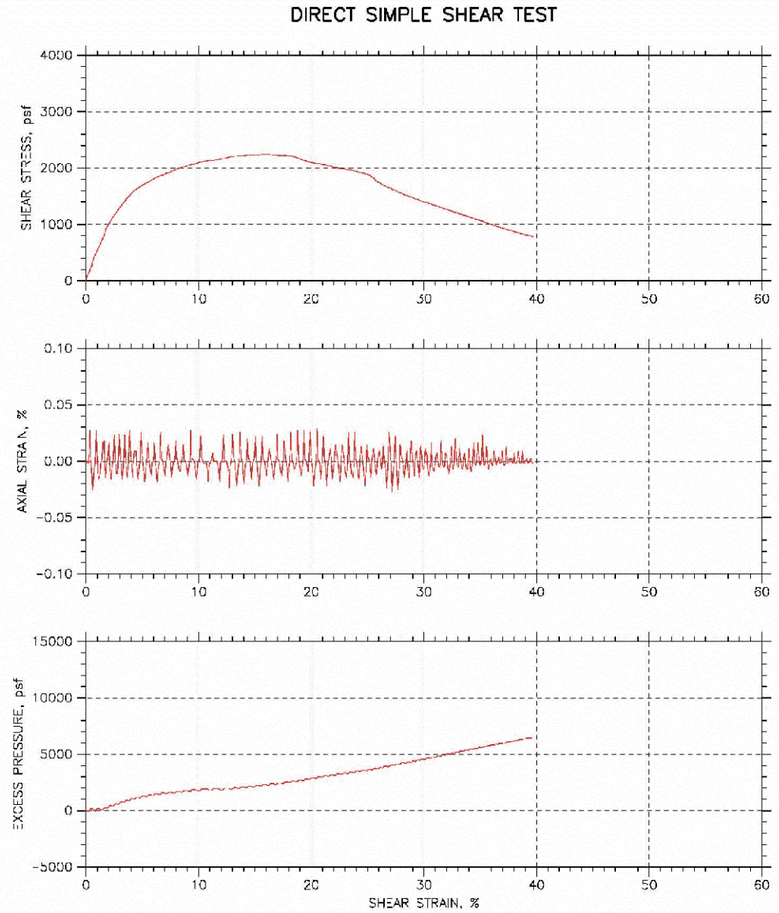
Test Condition: inundated

Sample Type and Preparation:
Extruded from tube, cut, trimmed and placed into apparatus at as-received density and moisture content.

Parameter	Point 1	Point 2	Point 3	Point 4	Point 5
Test No.	DSS-1				
Initial Moisture Content, %	29				
Initial Dry Density, pcf	96.3				
Nominal Rate of Shear Strain, %/min	0.0008				
Vertical Consolidation Stress, psf	9500				
Final Moisture Content, %	28				
Measured Peak Shear Stress, psf	2240				
Shear Strain at Peak Shear Stress, %	15.6				
Membrane Correction, psf	73				
S / σ'_{vm}	0.23				

Comments: Tested By: njh Checked By: jdt

Notes: These results apply only to the sample tested for the specific test conditions. The test procedures employed follow accepted industry practice and the indicated test method. GeoTesting Express has no specific knowledge as to conditioning, origin, sampling procedure or intended use of the material.

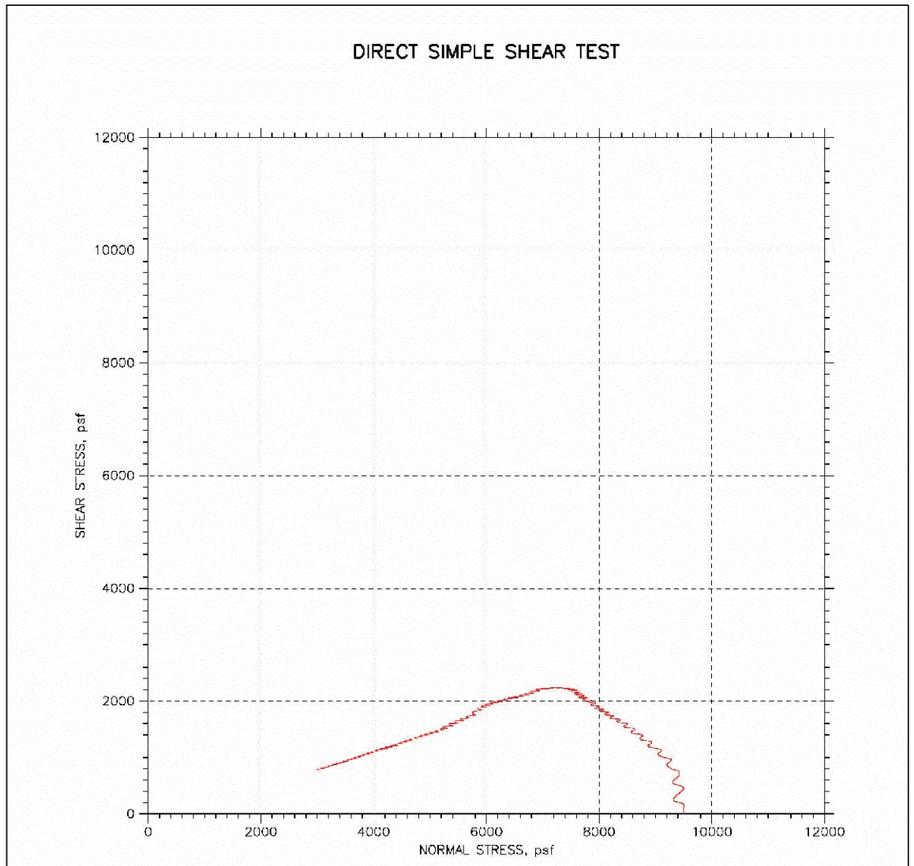


Project: I-90 Central Viaduct	Location: Cleveland, OH	Project No.: GTX-6678
Boring No.: B-05-03	Tested By: njh	Checked By: jdt
Sample No.: S-29	Test Date: 05/05/06	Depth: 116.5-118.5
Test No.: DSS-1	Sample Type: tube	Elevation: ---
Description: Moist, dark gray clay		
Remarks: 500 lb vertical load cell - 500 lb low profile horizontal load cell 1.5 membrane		
File: \\Geocompdb1\projects\GTX6678\6678 DSS 1.dat		

BBCM

SOIL PROFILE
LABORATORY TEST DATA

CUY-90-14.90



Project: I-90 Central Viaduct	Location: Cleveland, OH	Project No.: GTX-6678
Boring No.: B-05-03	Tested By: njh	Checked By: jdt
Sample No.: S-29	Test Date: 05/05/06	Depth: 115.5-118.5
Test No.: DSS-1	Sample Type: tube	Elevation: ---
Description: Moist, dark gray clay		
Remarks: 500 lb vertical load cell - 500 lb low profile horizontal load cell 1.5 membrane		
File: \\Geocompdb1\projects\GTX6678\6678 DSS 1.dat		

Consolidated Undrained Direct Simple Shear Test of Cohesive Soil by ASTM D 6528

Client: Geocomp Consulting
Project Name: I-90 Central Viaduct
Project Location: Cleveland, OH

GTX#: 6678
Test Date: 05/06/06

Boring ID: B-05-03
Sample ID: S-30
Depth, ft: 118.5-120.3 ft

Visual Description: Moist, dark gray clay

Test Equipment: Top and bottom box (circular) = 2.62 in diameter. Load cells and LVDT's connected to data acquisition system for shear force, normal load, horizontal and vertical displacement; surface area = 5.39 in^2, soil height = 1 inch

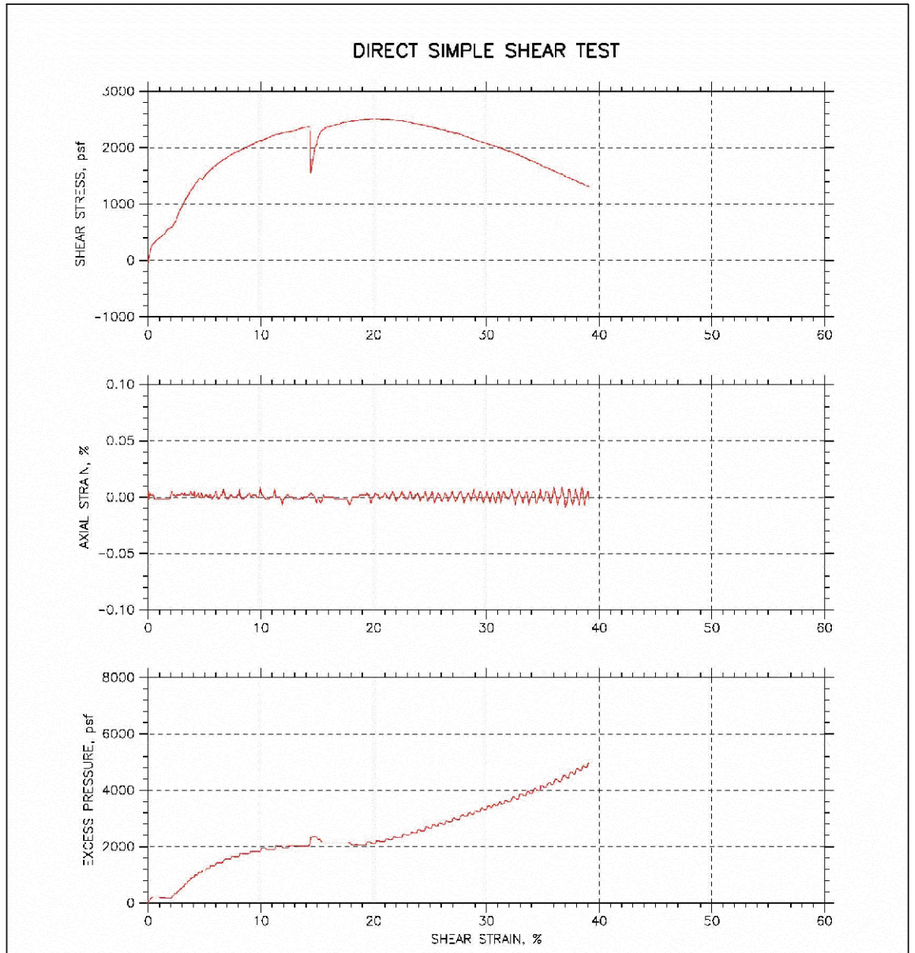
Test Condition: inundated

Sample Type and Preparation: Extruded from tube, cut, trimmed and placed into apparatus at as-received density and moisture content.

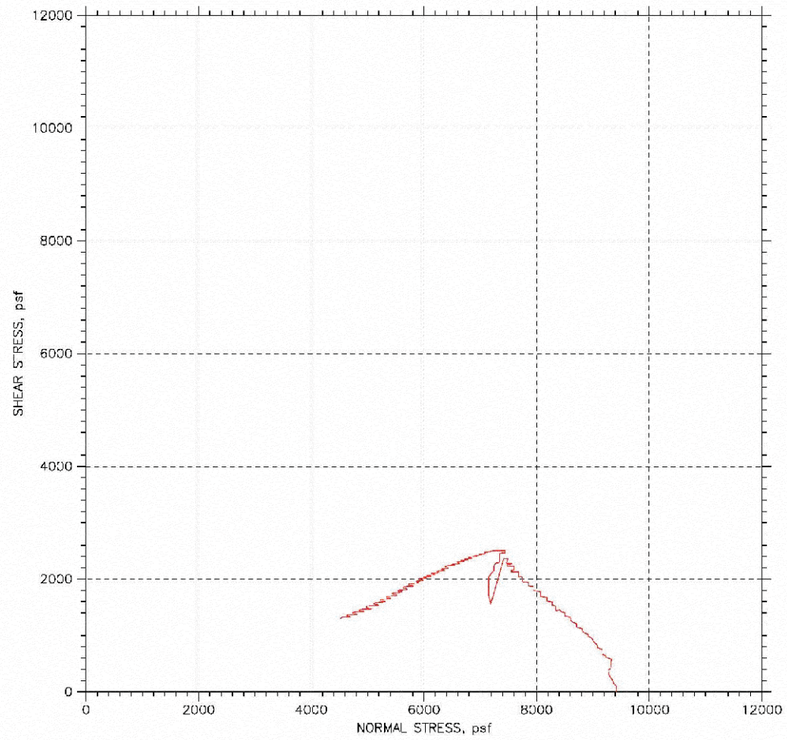
Parameter	Point 1	Point 2	Point 3	Point 4	Point 5
Test No.	DSS-2				
Initial Moisture Content, %	26				
Initial Dry Density, pcf	99.3				
Nominal Rate of Shear Strain, %/min	0.0008				
Vertical Consolidation Stress, psf	9500				
Final Moisture Content, %	29				
Measured Peak Shear Stress, psf	2514				
Shear Strain at Peak Shear Stress, %	20.0				
Membrane Correction, psf	78				
S / σ'_{vc}	0.26				

Comments: Tested By: njh Checked By: jdt

Notes: These results apply only to the sample tested for the specific test conditions. The test procedures employed follow accepted industry practice and the indicated test method. GeoTesting Express has no specific knowledge as to conditioning, origin, sampling procedure or intended use of the material.



Project: I-90 Central Viaduct	Location: Cleveland, OH	Project No.: GTX-6678
Boring No.: B-05-03	Tested By: njh	Checked By: jdt
Sample No.: S-30	Test Date: 05/06/06	Depth: 118.5-120.3
Test No.: DSS-2	Sample Type: tube	Elevation: ---
Description: Moist, dark gray clay		
Remarks: 500 lb vertical load cell - 500 lb low profile horizontal load cell		1.5 membrane
File: \\Geocompdb1\projects\GTX6678\6678 DSS 2.dat		



Project: I-90 Central Viaduct	Location: Cleveland, OH	Project No.: GTX-6678
Boring No.: B-05-03	Tested By: njh	Checked By: jdt
Sample No.: S-30	Test Date: 05/06/06	Depth: 118.5-120.3
Test No.: DSS-2	Sample Type: tube	Elevation: ---
Description: Moist, dark gray clay		
Remarks: 500 lb vertical load cell - 500 lb low profile horizontal load cell		1.5 membrane
File: \\Geocompdb1\projects\GTX6678\6678 DSS 2.dat		

BBCM

SOIL PROFILE
LABORATORY TEST DATA

CUY-90-14.90

Consolidated Undrained Direct Simple Shear Test of Cohesive Soil by ASTM D 6528

Client:	Geocomp Consulting	GTX#:	6678
Project Name:	I-90 Central Viaduct	Test Date:	05/30/06
Project Location:	Cleveland, OH		

Boring ID: B-05-04
Sample ID: S-27
Depth, ft: 72-74 ft

Visual Description: Moist, very dark grayish brown clay

Test Equipment: Top and bottom box (circular) = 2.62 in diameter. Load cells and LVDT's connected to data acquisition system for shear force, normal load, horizontal and vertical displacement; surface area = 5.39 in^2, soil height = 1 inch

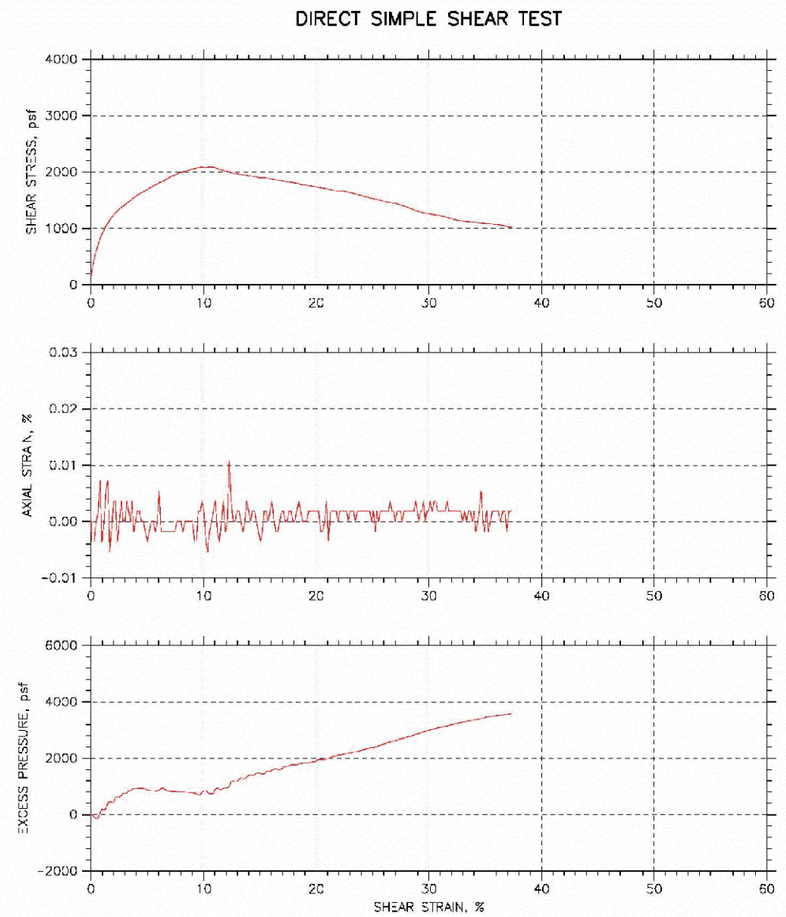
Test Condition: inundated

Sample Type and Preparation: Extruded from tube, cut, trimmed and placed into apparatus at as-received density and moisture content.

Parameter	Point 1	Point 2	Point 3	Point 4	Point 5
Test No.	DSS-3				
Initial Moisture Content, %	22				
Initial Dry Density, pcf	107				
Nominal Rate of Shear Strain, %/min	0.0008				
Vertical Consolidation Stress, psf	5506				
Final Moisture Content, %	21				
Measured Peak Shear Stress, psf	2092				
Shear Strain at Peak Shear Stress, %	10.7				
Membrane Correction, psf	64				
S / σ'_{vm}	0.37				

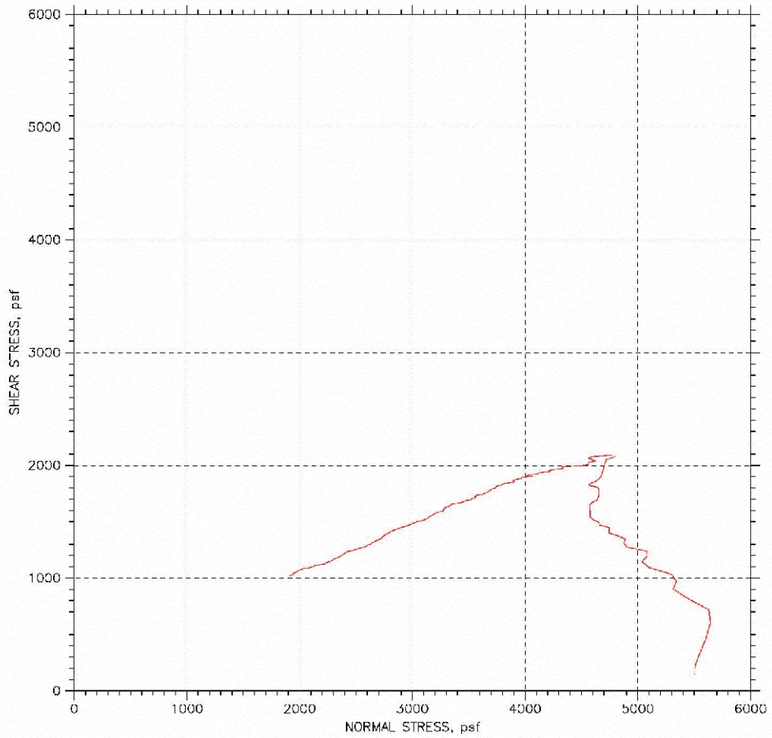
Comments: Tested By: njh Checked By: jdt

Notes: These results apply only to the sample tested for the specific test conditions. The test procedures employed follow accepted industry practice and the indicated test method. GeoTesting Express has no specific knowledge as to conditioning, origin, sampling procedure or intended use of the material.



Project: I-90 Central Viaduct	Location: Cleveland, OH	Project No.: GTX-6678
Boring No.: B-05-04	Tested By: njh	Checked By: jdt
Sample No.: S-27	Test Date: 05/30/06	Depth: 72-74 ft
Test No.: DSS-3	Sample Type: ---	Elevation: ---
Description: Moist, very dark grayish brown clay		
Remarks: 1.5 membrane		
File: \\Geocompdb1\projects\GTX6675\6678 DSS3.dat		

DIRECT SIMPLE SHEAR TEST



Project: I-90 Central Viaduct	Location: Cleveland, OH	Project No.: GTX-6678
Boring No.: B-05-04	Tested By: njh	Checked By: jdt
Sample No.: S-27	Test Date: 05/30/06	Depth: 72-74 ft
Test No.: DSS-3	Sample Type: ---	Elevation: ---
Description: Moist, very dark grayish brown clay		
Remarks: 1.5 membrane		
File: \\Geocompdb1\projects\GTX6678\6678 DSS3.dat		

Sample Info For DSS Specimens

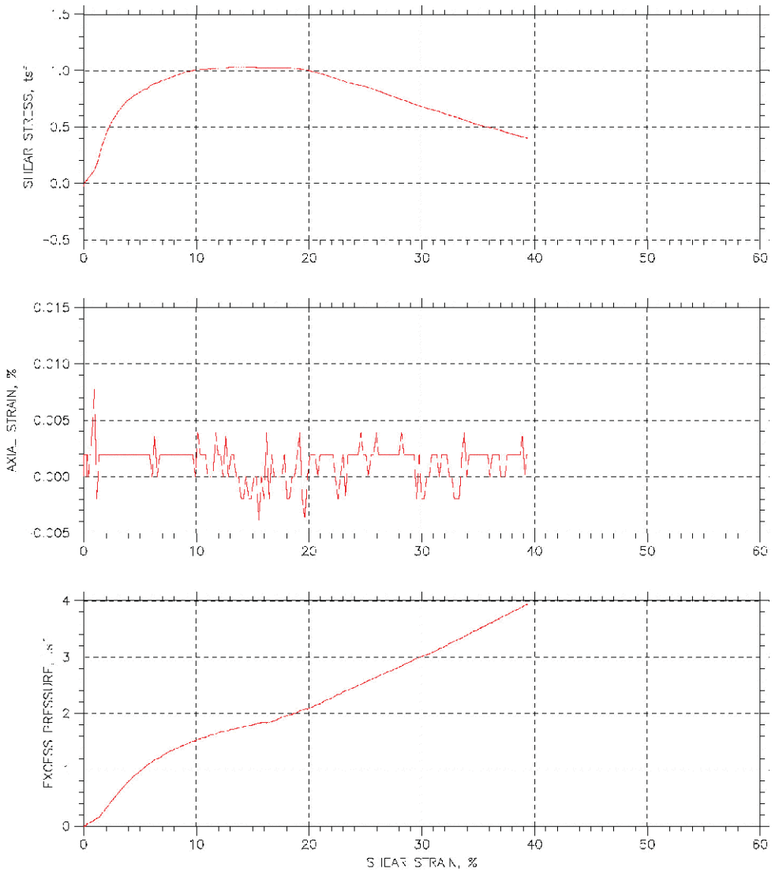
Project: **CUY-90 West Abutment** Job: **5653**

Client: **BBC&M Engineering, Inc.** Date: **5/9/2006**

Test #	Boring	Sample #	Depth (ft)	WC %	Initial Density (PCF)	Before Shear Density (PCF)	Normal Load (TSF)	Additional Testing Gs	LL	PL	PI
1	B-05-07	S-22	104-106	34.4	88.5	99.0	5.3 tsf	------	40.1	22.5	17.6
2	B-05-02	S-14	44-46	28.8	94.3	99.9	2.8 tsf	------	37.7	21.4	16.3
3	B-05-03	S-8	32-33.5	25.9	100.8	107.0	1.95 tsf	------	34.8	18.8	16.0
4	B-05-02	S-32	122-124	21.2	103.2	110.1	5.3 tsf	------	30.3	18.8	11.5

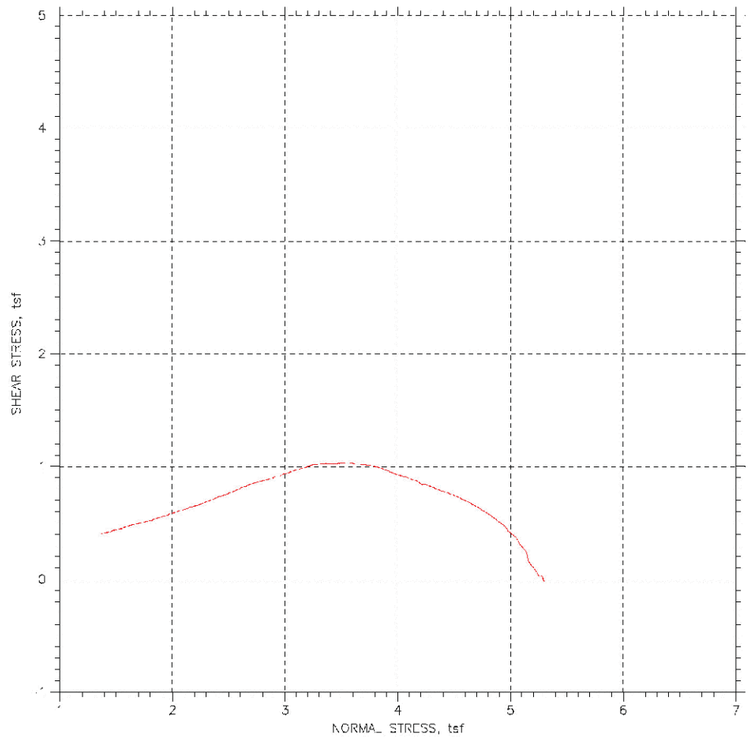
SOIL ENGINEERING TESTING, INC.

DIRECT SIMPLE SHEAR TEST



Project: CUY-90 West Abutment	Location: 14' from Bottom	Project No.: 5653
Boring No.: B-05-07	Tested By: SC	Checked By: JW
Sample No.: S-22	Test Date: 5-2-06	Depth: 104-105
Test No.: 1	Sample Type: Undisturbed	Elevation:
Description: Lean Clay w/pockets of silt (CL)		
Remarks: ASTM D 6528		
File: \\cell\GeoComp\Software\DSS\5653-s22.cal		

DIRECT SIMPLE SHEAR TEST



Project: CUY-90 West Abutment	Location: 14' from Bottom	Project No.: 5653
Boring No.: B-05-07	Tested By: SC	Checked By: JW
Sample No.: S-22	Test Date: 5-2-06	Depth: 104-105
Test No.: 1	Sample Type: Undisturbed	Elevation:
Description: Lean Clay w/pockets of silt (CL)		
Remarks: ASTM D 6528		
File: \\cell\GeoComp\Software\DSS\5653-s22.cal		

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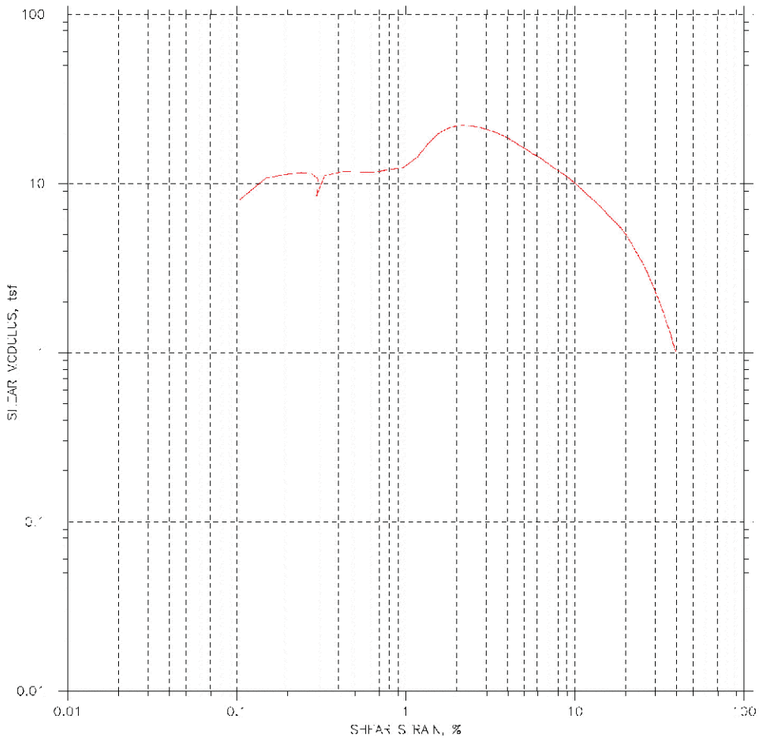
SOIL PROFILE
LABORATORY TEST DATA

CUY-90-14.90

DIRECT SIMPLE SHEAR TEST



Project: CUY-90 West Abutment	Location: 14' from Bottom	Project No.: 5653
Boring No.: B-05-07	Tested By: SC	Checked By: JW
Sample No.: S-22	Test Date: 5-2-06	Depth: 104-106
Test No.: 1	Sample Type: Undisturbed	Elevation:
Description: Lean Clay w/pockets of silt (CL)		
Remarks: ASTM D 6528		
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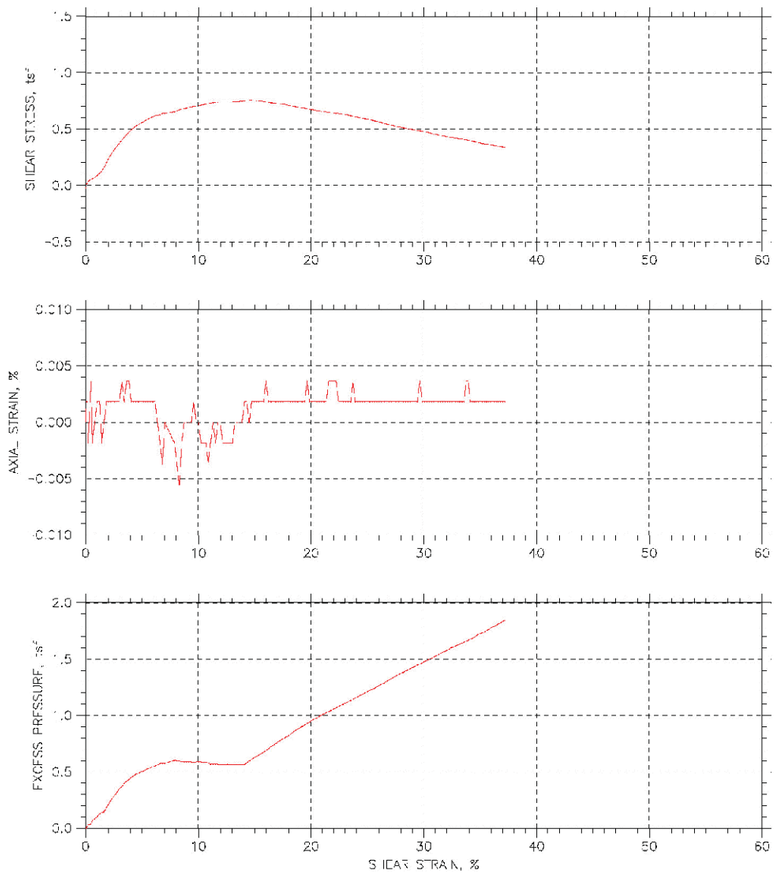
DIRECT SIMPLE SHEAR TEST



Project: CUY-90 West Abutment	Location: 14' from Bottom	Project No.: 5653
Boring No.: B-05-02	Tested By: SC	Checked By: JW
Sample No.: S-14	Test Date: 11-6-05	Depth: 44-46
Test No.: 2	Sample Type: Undisturbed	Elevation:
Description: Lean Clay w/an occasional piece of coarse sand (CL)		
Remarks: ASTM D 6528		
File: \\ce1\GeoComp\Software\DSS\5653-s14-mod2.dat		

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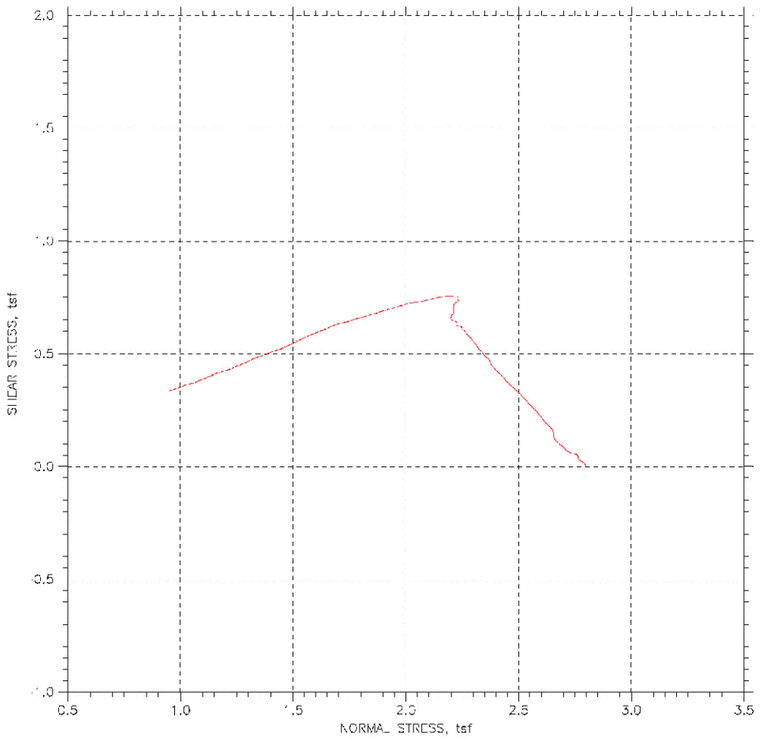
SOIL PROFILE
LABORATORY TEST DATA

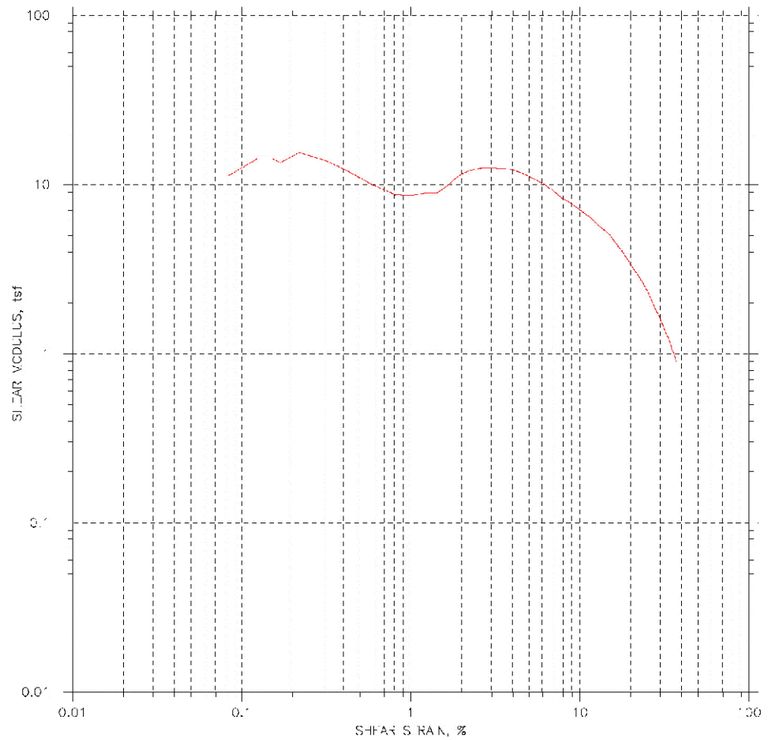
CUY-90-14.90

DIRECT SIMPLE SHEAR TEST



Project: CUY-90 West Abutment	Location: 14' from Bottom	Project No.: 5653
Boring No.: B-05-02	Tested By: SC	Checked By: JW
Sample No.: S-14	Test Date: 11-6-05	Depth: 44-46
Test No.: 7	Sample Type: Undisturbed	Elevation:
Description: Lean Clay w/ch occasional piece of coarse sand (CL)		
Remarks: ASTM D 6528		
File: \\ce1\GeoComp\Software\DSS\5653-s14-mod2.dat		

DIRECT SIMPLE SHEAR TEST



Project: CUY-90 West Abutment	Location: 14' from Bottom	Project No.: 5653
Boring No.: B-05-02	Tested By: SC	Checked By: JW
Sample No.: S-14	Test Date: 11-6-05	Depth: 44-46
Test No.: 7	Sample Type: Undisturbed	Elevation:
Description: Lean Clay w/ch occasional piece of coarse sand (CL)		
Remarks: ASTM D 6528		
File: \\ce1\GeoComp\Software\DSS\5653-s14-mod2.dat		

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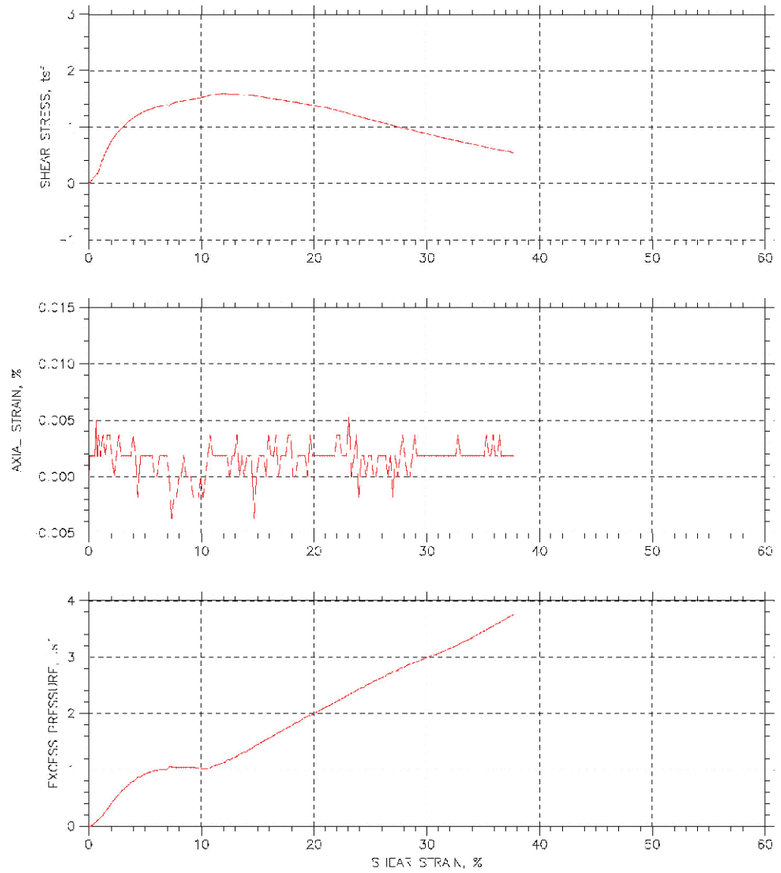
SOIL PROFILE
LABORATORY TEST DATA

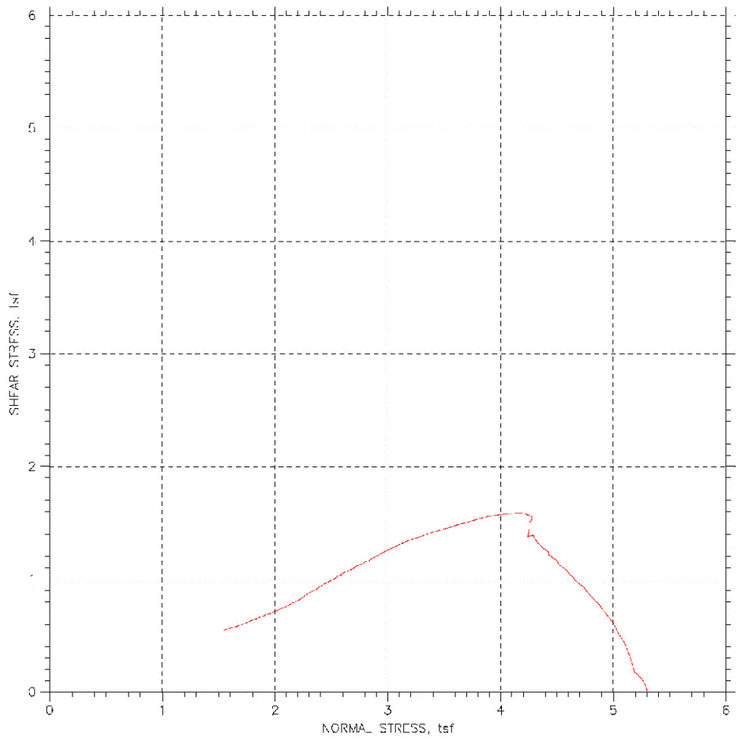
CUY-90-14.90

DIRECT SIMPLE SHEAR TEST



Project: CUY-90 West Abutment	Location: 8' from bottom	Project No.: 5653
Boring No.: B-05-02	Tested By: SC	Checked By: JW
Sample No.: S-32	Test Date: 5-5-06	Depth: 122-124
Test No.: 4	Sample Type: Undisturbed	Elevation:
Description: Lean Clay mixture with silt (CL) & (ML)		
Remarks: ASTM D 6528		
File: \\ce1\GeoComp\Software\DSS\5653-s32.cal		

DIRECT SIMPLE SHEAR TEST



Project: CUY-90 West Abutment	Location: 8' from bottom	Project No.: 5653
Boring No.: B-05-02	Tested By: SC	Checked By: JW
Sample No.: S-32	Test Date: 5-5-06	Depth: 122-124
Test No.: 4	Sample Type: Undisturbed	Elevation:
Description: Lean Clay mixture with silt (CL) & (ML)		
Remarks: ASTM D 6528		
File: \\ce1\GeoComp\Software\DSS\5653-s32.cal		

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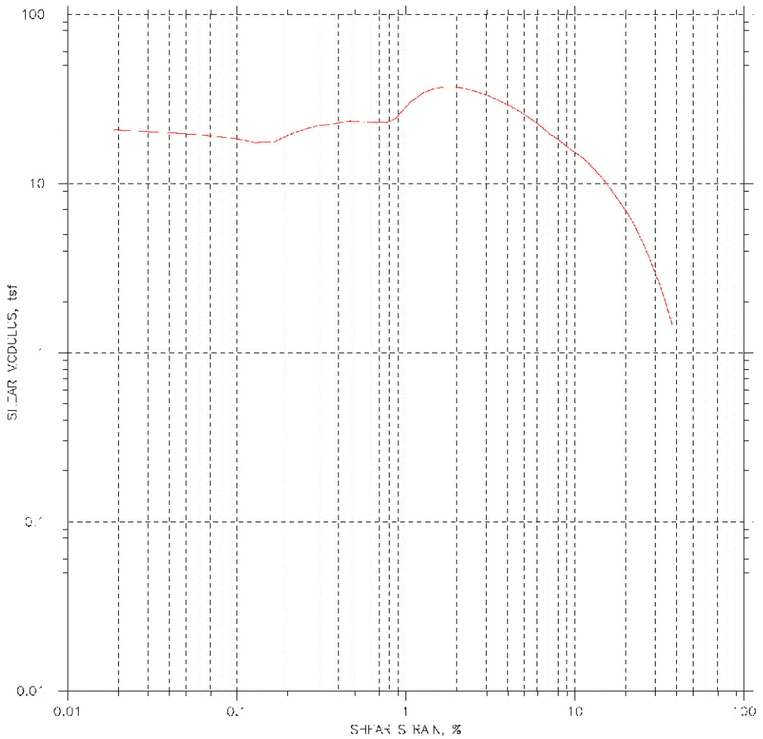
SOIL PROFILE
LABORATORY TEST DATA

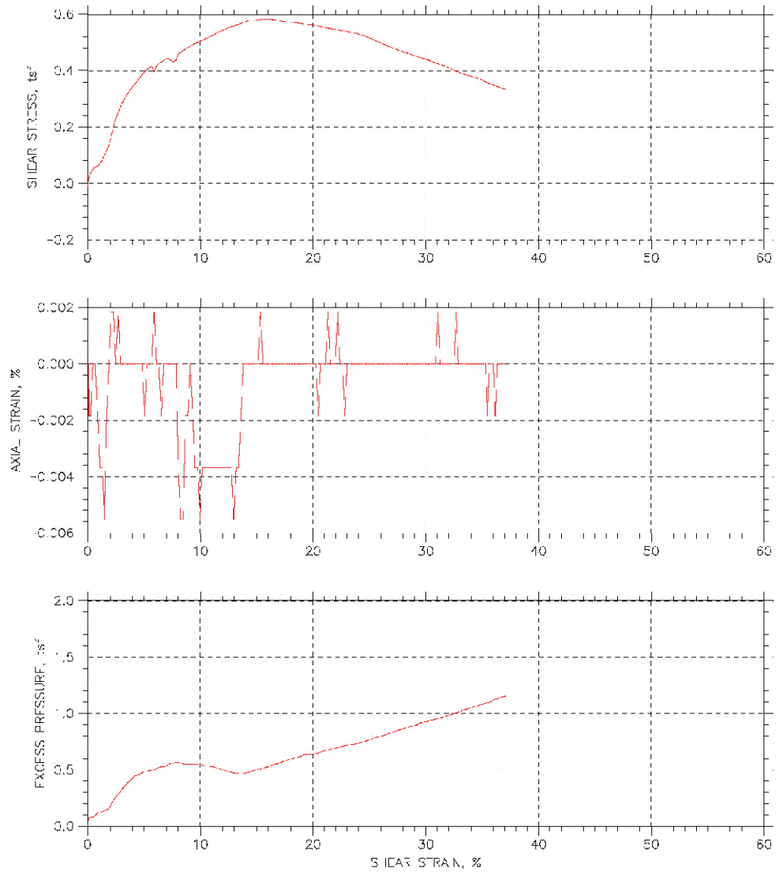
CUY-90-14.90

DIRECT SIMPLE SHEAR TEST



Project: CUY-90 West Abutment	Location: 8' from bottom	Project No.: 5653
Boring No.: B-05-02	Tested By: SC	Checked By: JW
Sample No.: S-32	Test Date: 5-5-06	Depth: 122-124
Test No.: 4	Sample Type: Undisturbed	Elevation:
Description: Lean Clay mixture with silt (CL) & (ML)		
Remarks: ASTM D 6528		
File: \\ce1\GeoComp\Software\DSS\5653-s32.dat		

DIRECT SIMPLE SHEAR TEST



Project: CUY-90 West Abutment	Location:	Project No.: 5653
Boring No.: B-05-03	Tested By: SC	Checked By: JW
Sample No.: S-8	Test Date: 5-4-06	Depth: 32-33.5
Test No.: 5	Sample Type: Undisturbed	Elevation:
Description: Lean Clay w/an occasional piece of sand (CL)		
Remarks: ASTM D 6528		
File: \\ce1\GeoComp\Software\DSS\5653-s8.dat		

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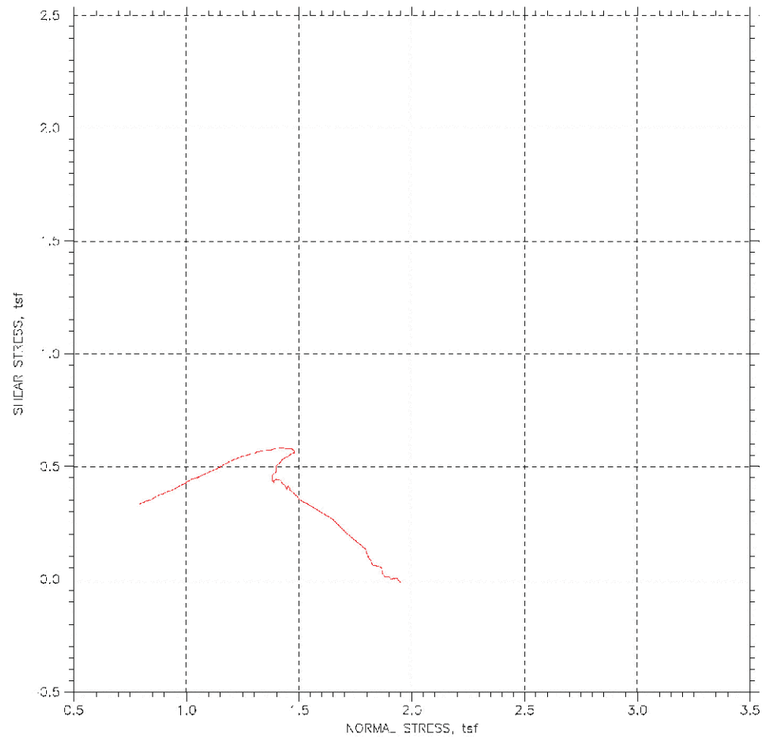
SOIL PROFILE
LABORATORY TEST DATA

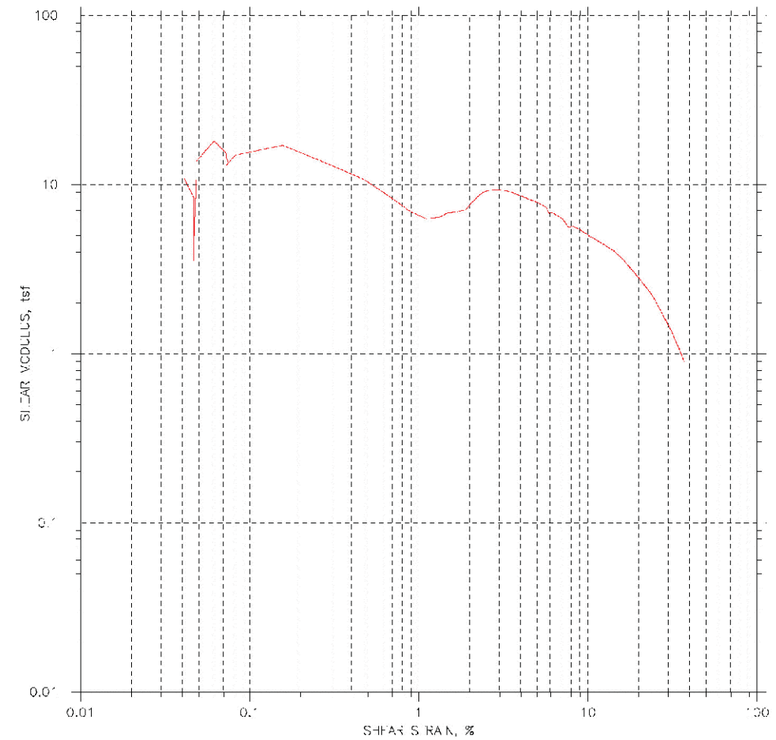
CUY-90-14.90

DIRECT SIMPLE SHEAR TEST



Project: CUY-90 West Abutment	Location:	Project No.: 5653
Boring No.: B-05-03	Tested By: SC	Checked By: JW
Sample No.: S-8	Test Date: 5-4-06	Depth: 32-33.5
Test No.: 5	Sample Type: Undisturbed	Elevation:
Description: Lean Clay w/ch occasional piece of sand (CL)		
Remarks: ASTM D 6528		
File: \\ce1\GeoComp\Software\DSS\5653-s8.dss		

DIRECT SIMPLE SHEAR TEST



Project: CUY-90 West Abutment	Location:	Project No.: 5653
Boring No.: B-05-03	Tested By: SC	Checked By: JW
Sample No.: S-8	Test Date: 5-4-06	Depth: 32-33.5
Test No.: 5	Sample Type: Undisturbed	Elevation:
Description: Lean Clay w/ch occasional piece of sand (CL)		
Remarks: ASTM D 6528		
File: \\ce1\GeoComp\Software\DSS\5653-s8.dss		

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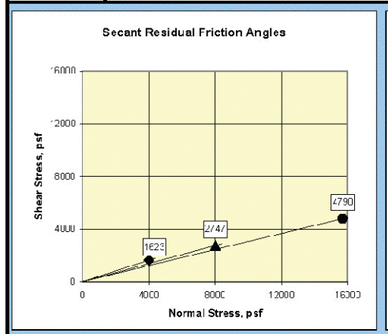
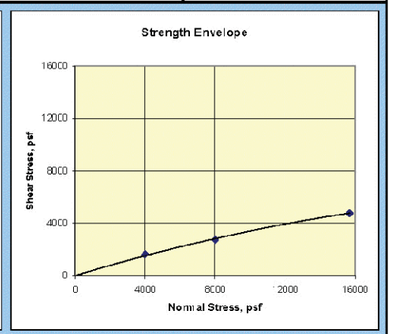
SOIL PROFILE
LABORATORY TEST DATA

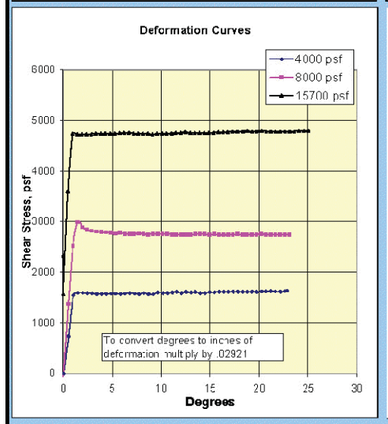
CUY-90-14.90

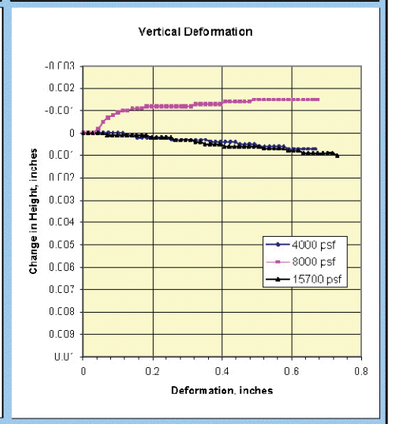
Drained, Residual Torsional Ring Shear Test ASTM D 6467

Job No.:	607-002B	**Boring:**	B-05-11	**Date:**	5/5/2006	**Undisturbed:**	
Client:	BBCM	**Sample:**	S-24	**By:**	PJ	**Peak:**	
Project:	I-90 West Abutment	**Depth:**	92-93.5'	**Checked:**	DC	**Residual:**	
Soil Type:	Gray Lean CLAY			**Clay, %:**		**Fully Softened:**	X
Remarks:	A small friction correction was applied to each point. This material exhibited a tendency to break down during shearing. Lower strengths may be possible with further deformation.			**LL:**	35	**Peak:**	
				PL:	22	**Residual:**	X
Normal Stress, psf	4000	8000	15700				
Secant Phi, deg.	22	19	17				



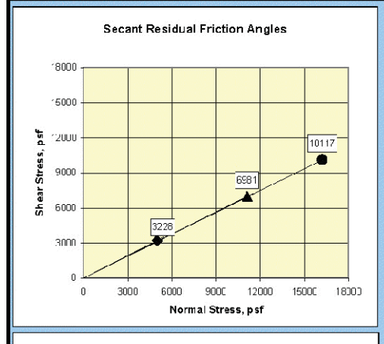


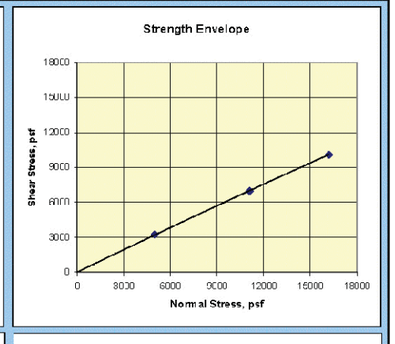


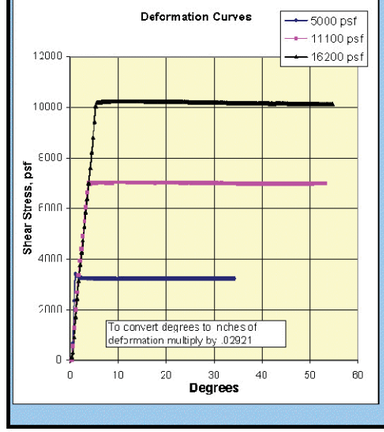


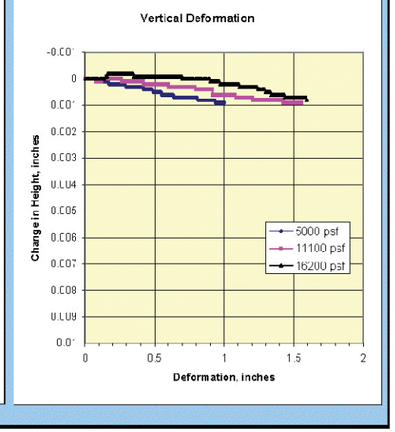
Drained, Residual Torsional Ring Shear Test ASTM D 6467

Job No.:	607-002	**Boring:**	B-05-02	**Date:**	5/5/2006	**Undisturbed:**	
Client:	BBCM	**Sample:**	S-35	**By:**	PJ	**Peak:**	
Project:	I90 West Abutment	**Depth:**	128.5-130'	**Checked:**	DC	**Residual:**	
Soil Type:	Gray SILT			**Clay, %:**		**Fully Softened:**	X
Remarks:	Dropped high load to 16.2ksf to avoid exceeding equip. capacity			**LL:**	19	**Peak:**	
				PL:	21	**Residual:**	X
Normal Stress, psf	5000	11100	16200				
Secant Phi, deg.	33	32	32				



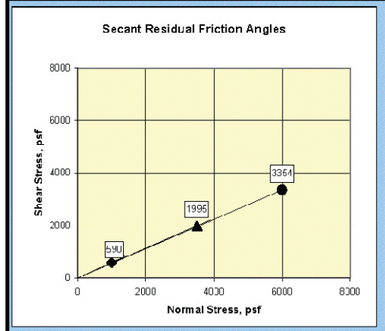


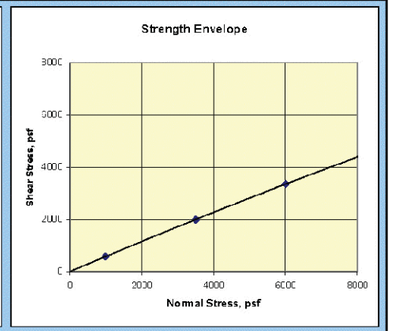


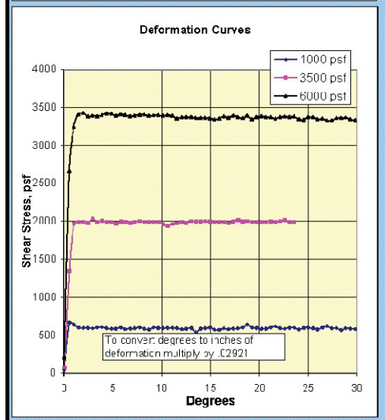


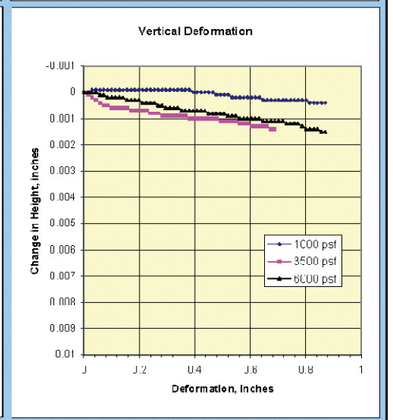
Drained, Residual Torsional Ring Shear Test ASTM D 6467

Job No.:	607-001A	**Boring:**	B-05-03	**Date:**	5/1/2006	**Undisturbed:**	
Client:	BBCM	**Sample:**	S-7	**By:**	PJ	**Peak:**	
Project:	012 00946.300	**Depth:**	30-30.5'	**Checked:**	DC	**Residual:**	
Soil Type:	Bluish Gray CLAY (silty)			**Clay, %:**		**Fully Softened:**	X
Remarks:	A small friction correction applied to each point.			**LL:**	24	**Peak:**	
Normal Stress, psf	1000	3500	6000	**PL:**	17	**Residual:**	X
Secant Phi, deg.	31	30	29				



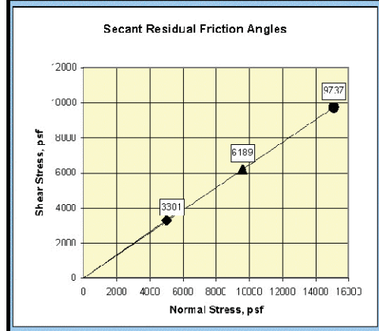


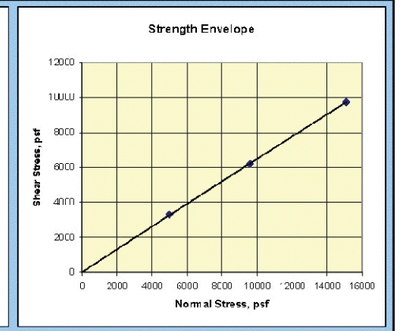


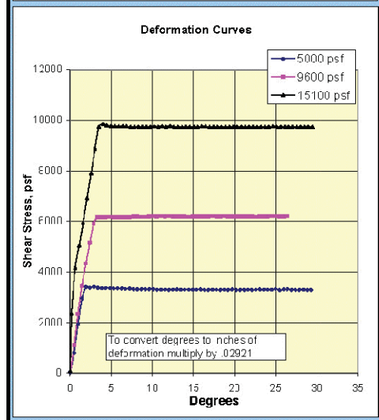


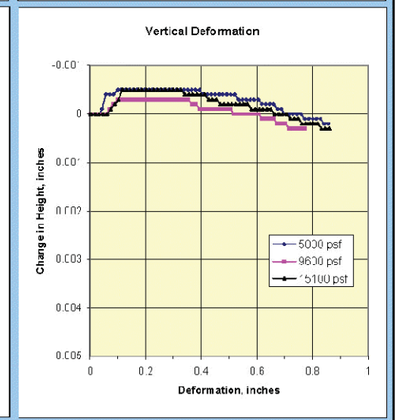
Drained, Residual Torsional Ring Shear Test ASTM D 6467

Job No.:	607-001B	**Boring:**	B-05-03	**Date:**	5/1/2006	**Undisturbed:**	
Client:	BBCM	**Sample:**	S-31B	**By:**	PJ	**Peak:**	
Project:	012 00946.300	**Depth:**	123.8-124.5	**Checked:**	DC	**Residual:**	X
Soil Type:	Gray Silt w/ Sand / Sandy SILT			**Clay, %:**		**Fully Softened:**	X
Remarks:	A small friction correction was applied to each point			**LL:**	17	**Peak:**	
Normal Stress, psf	5000	9600	15100	**PL:**	18	**Residual:**	X
Secant Phi, deg.	33	33	33				



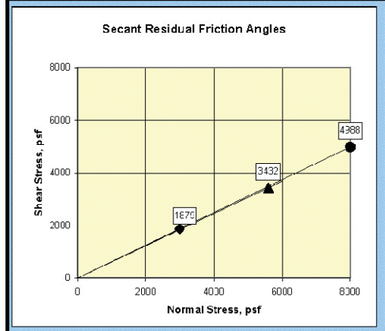


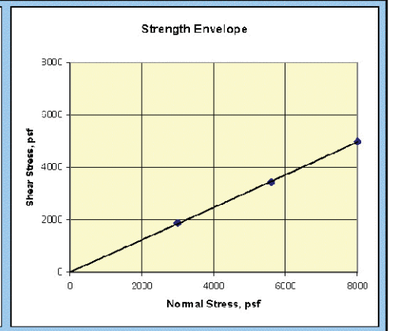


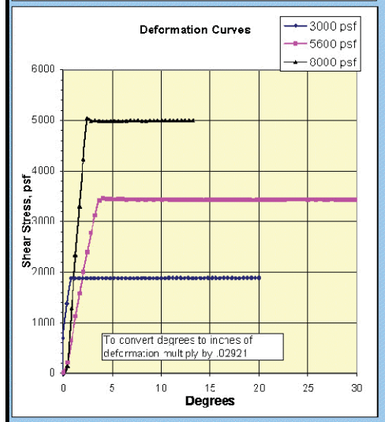


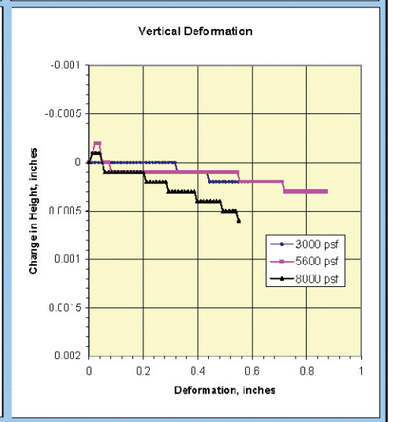
Drained, Residual Torsional Ring Shear Test ASTM D 6467

Job No.:	607-001C	**Boring:**	B-05-04	**Date:**	5/1/2006	**Undisturbed:**	
Client:	BBCM	**Sample:**	S-23	**By:**	PJ	**Peak:**	
Project:	012 00946.300	**Depth:**	58.8-59.2'	**Checked:**	DC	**Residual:**	
Soil Type:	Greenish Gray SILTY CLAY w/ Sand			**Clay, %:**		**Fully Softened:**	X
Remarks:	A small friction correction was applied to the 8 KSF POIN			**LL:**	26	**Peak:**	
Normal Stress, psf	3000	5600	8000	**PL:**	19	**Residual:**	X
Secant Phi, deg.	32	32	32				



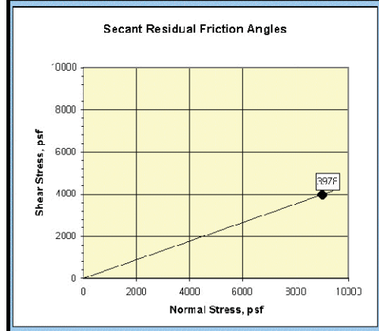


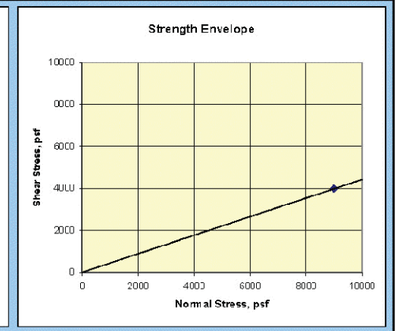


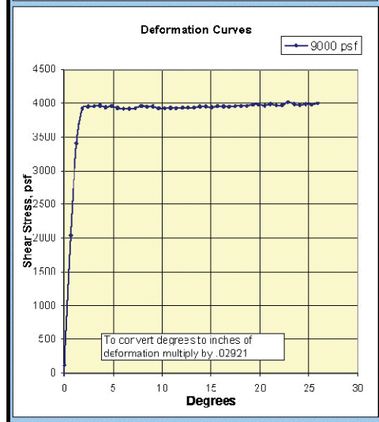


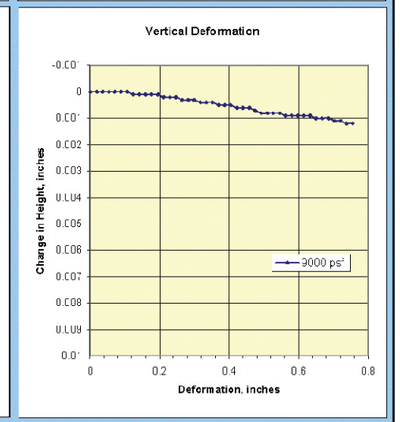
Drained, Residual Torsional Ring Shear Test ASTM D 6467

Job No.:	607-003	**Boring:**	B-05-04	**Date:**	5/19/2006	**Undisturbed:**	
Client:	BBCM	**Sample:**	S-36	**By:**	PJ	**Peak:**	
Project:	I-90 West Abutment	**Depth:**	113.5-114.5	**Checked:**	DC	**Residual:**	
Soil Type:	Gray Lean CLAY, trace Sand			**Clay, %:**		**Fully Softened:**	X
Remarks:	A small friction correction was applied to this point.			**LL:**	37	**Peak:**	
Normal Stress, psf	9000			**PL:**	22	**Residual:**	X
Secant Phi, deg.	24						









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2800 Corporate Exchage Dr.
Suite 240, Columbus, OH 43231

Contact Information
Voice: 614-714-0270
Fax: 614-714-0323

Consolidation Test

Project Name: CUY-90-15.24
Source: B-022-1-09 (45.5' to 46.0')
Sample Number: ST-1

Prepared by: JLee
Checked by:
Date: 8/6/2009

Test Specification: ASTM D 2435-04
Initial Void Ratio: 0.869
In-situ Vertical Effective Stress: 3273.6 psf

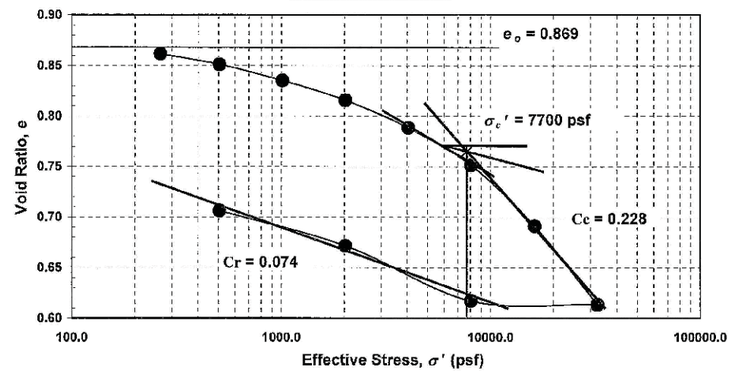
Initial Bulk Unit Weight (lb/ft³): 118.0
Dry Unit Weight (lb/ft³): 90.2

Compression and Swelling Index

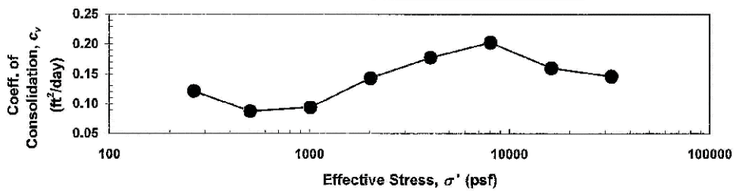
Compression Index (*Cc*): 0.228
Swelling Index (*Cr*): 0.074

Preconsolidation Pressure (σ_c'): **7700 psf**
Over-Consolidation Ratio (*OCR*): **2.35**

Consolidation Curve



Consolidation Coefficient vs. Vertical Effective Stress



Barr Prevost
2800 Corporate Exchage Dr.
Suite 240, Columbus, OH 43231

Contact Information
Voice: 614-714-0270
Fax: 614-714-0323

Consolidation Test

Project Name: CUY-90-15.24
Source: B-022-1-09 (50.0' to 50.5')
Sample Number: ST-3

Prepared by: JLee
Checked by:
Date: 7/21/2009

Test Specification: ASTM D 2435-04
Initial Void Ratio: 0.599
In-situ Vertical Effective Stress: 3504 psf

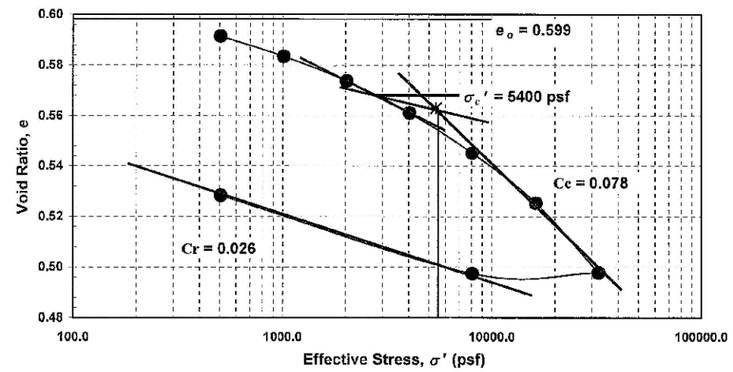
Initial Bulk Unit Weight (lb/ft³): 127.2
Dry Unit Weight (lb/ft³): 105.4

Compression and Swelling Index

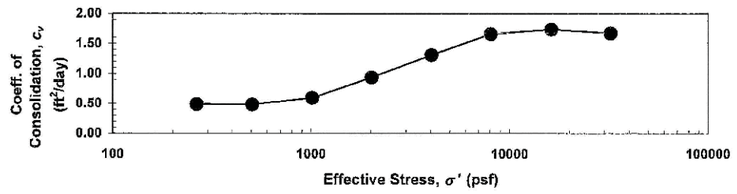
Compression Index (*Cc*): 0.078
Swelling Index (*Cr*): 0.026

Preconsolidation Pressure (σ_c'): **5400 psf**
Over-Consolidation Ratio (*OCR*): **1.54**

Consolidation Curve



Consolidation Coefficient vs. Vertical Effective Stress



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SOIL PROFILE
LABORATORY TEST DATA

CUY-90-14.90

Barr Prevost
2800 Corporate Exchage Dr.
Suite 240, Columbus, OH 43231

Contact Information
Voice: 614-714-0270
Fax: 614-714-0323

Consolidation Test

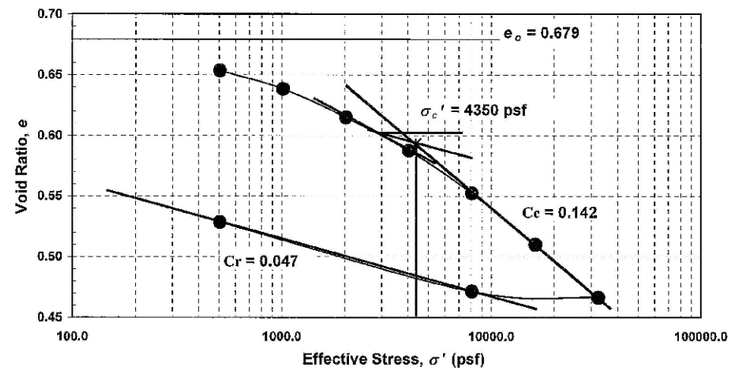
Project Name: CUY-90-15.24 — Prepared by: JLee
Source: B-022-1-09 (66.0' to 66.5') — Checked by:
Sample Number: ST-4 — Date: 7/21/2009

Test Specification: ASTM D 2435-04
Initial Void Ratio: 0.679 — Initial Bulk Unit Weight (lb/ft^3): 125.7
In-situ Vertical Effective Stress: 4394.4 psf — Dry Unit Weight (lb/ft^3): 100.4

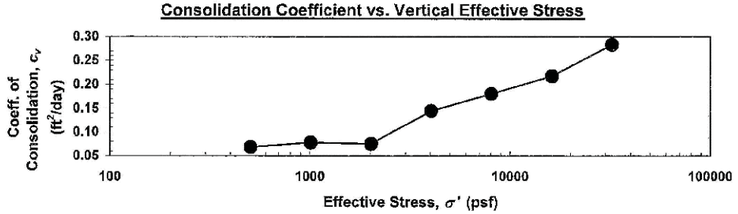
Compression and Swelling Index

Compression Index (*Cc*): 0.142 — Preconsolidation Pressure (σ_c'): **4350 psf**
Swelling Index (*Cr*): 0.047 — Over-Consolidation Ratio (*OCR*): **1.00**

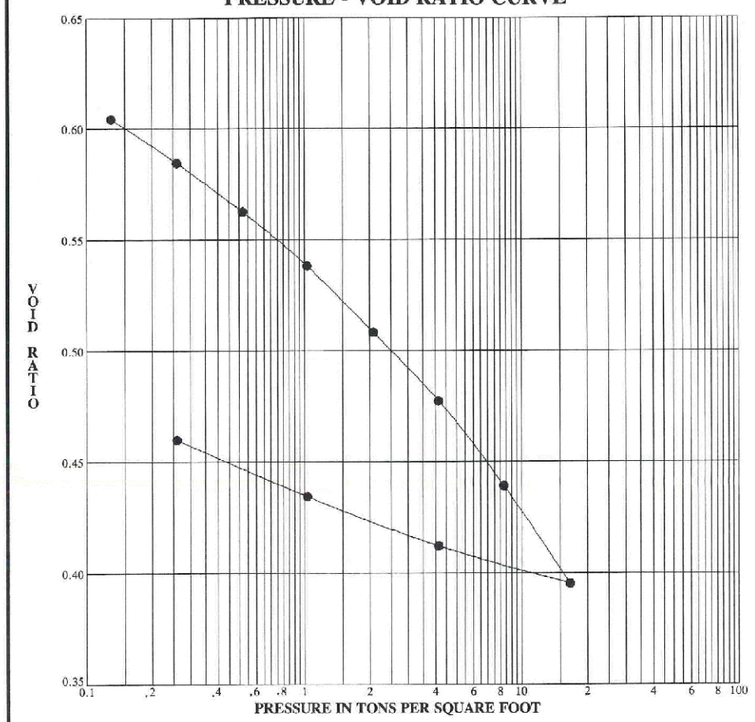
Consolidation Curve



Consolidation Coefficient vs. Vertical Effective Stress



PRESSURE - VOID RATIO CURVE



Specimen Identification	Classification
● B-102 S-25 IV 125.5'-127.5'	Soft gray silty clay, trace fine to coarse sand, contains many lenses of silt. A-6a (9)

MC	LL	PL	PI	DD	SG	Eo	Ef
24	29	17	12	102	2.68	0.6420	0.4596

BBC&M ENGINEERING, INC.

PROJECT CUY-90-15.24
LOCATION Cleveland, Ohio
JOB NO. 4500 DATE 10/15/94

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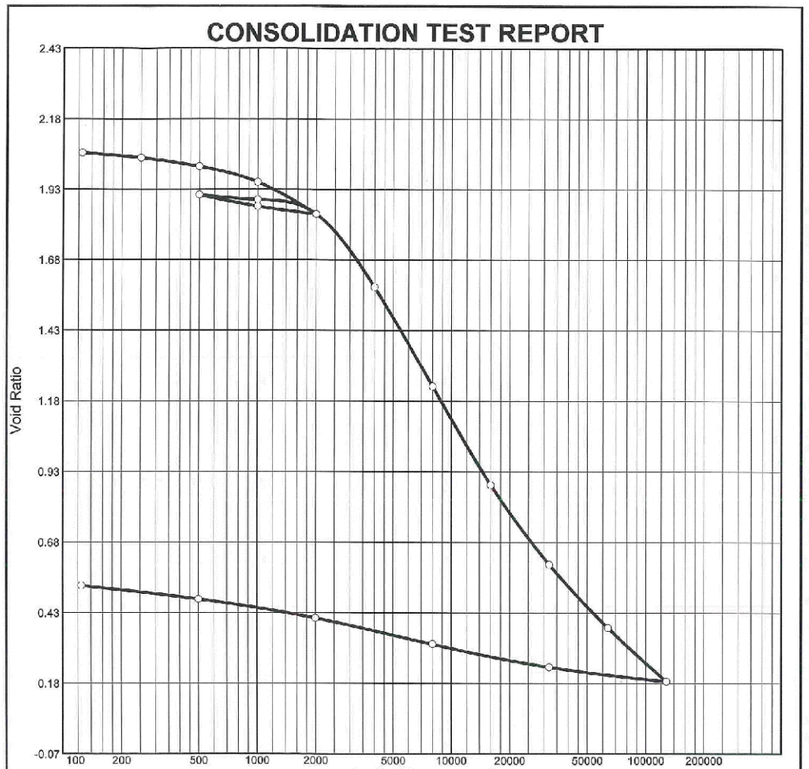
SOIL PROFILE
LABORATORY TEST DATA

CUY-90-14.90



Natural		Dry Dens. (pcf)	LL	PI	Sp. Gr.	USCS	AASHTO	Initial Void Ratio
Saturation	Moisture							
81.5 %	75.1 %	45.7	48	29	2.2460		A-8	2.069

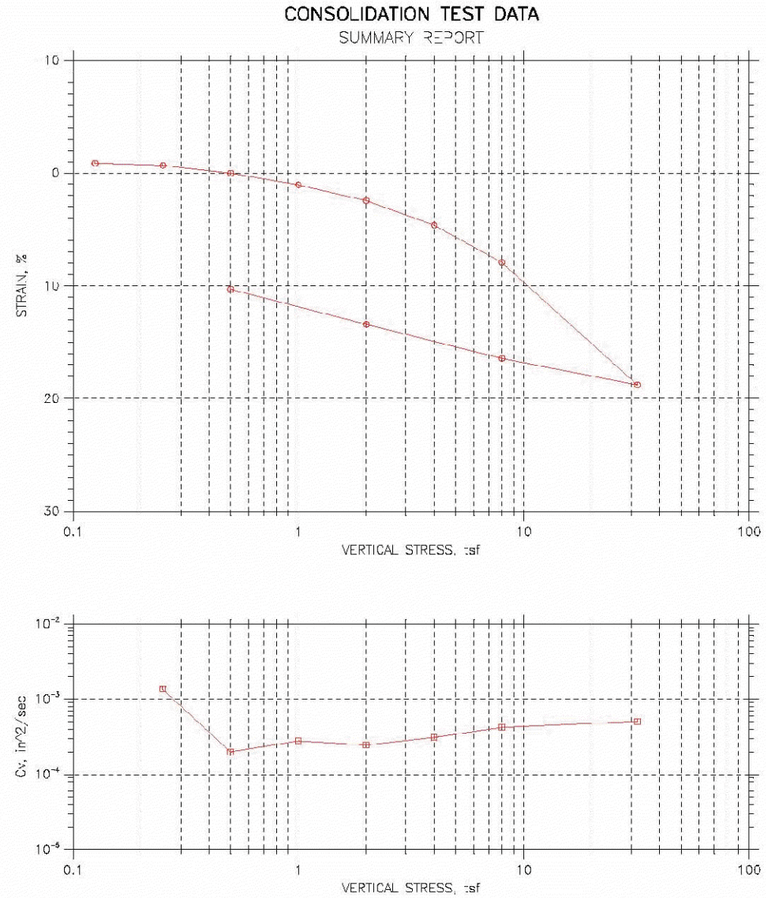
MATERIAL DESCRIPTION

PEAT: Very-soft gray and dark gray organic clay, "and" silt, trace to little fine sand, woody.

Project No. 01200946.301 **Client:** Michael Baker Jr, Inc.
Project: CENTRAL VIADUCT - CUY-90-14.52
Location: V-010-0-06

BBC&M Engineering, Inc.
Valley View, Ohio

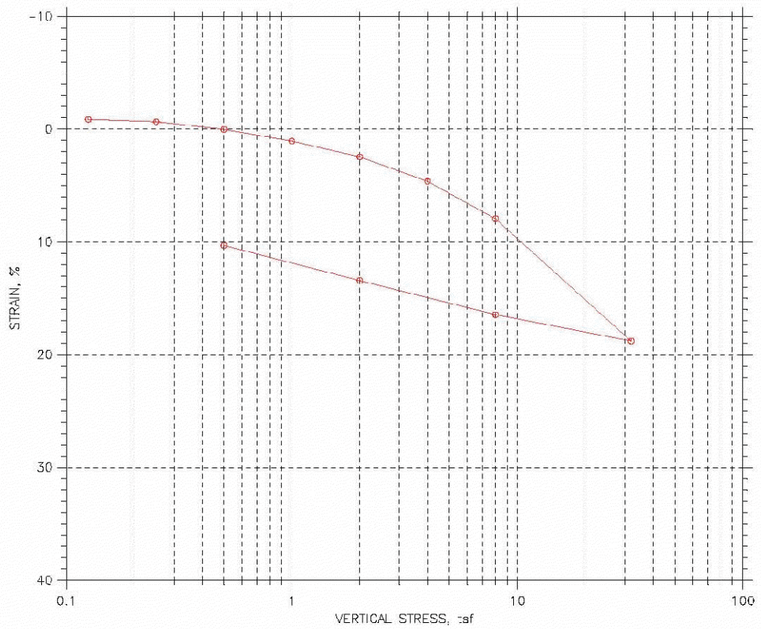
Remarks:
Sample 27 (16.0' - 18.0' Sect III)



GeoTesting express

Project: I90 Central Viaduct	Location: Cleveland, OH	Project No.: GTX-66678
Boring No.: B-05-03	Tested By: jdt	Checked By: njh
Sample No.: S-29	Test Date: 05/05/06	Depth: 116.5-118.5
Test No.: C-1	Sample Type: Tube	Elevation: ---
Description: Moist, dark gray clay		
Remarks: ---		

CONSOLIDATION TEST DATA
SUMMARY REPORT



				Before Test	After Test
Overburden Pressure: ---				Water Content, %	28.73	22.08
Preconsolidation Pressure: ---				Dry Unit Weight, pcf	95.81	106.8
Compression Index: 2.54639e-313				Saturation, %	99.78	99.99
Diameter: 2.5 in		Height: 1 in		Void Ratio	0.79	0.61
LL: 35	PL: 18	PI: 17	GS: 2.75			

GeoTesting express	Project: I90 Central Viaduct	Location: Cleveland, OH	Project No.: GTX-6678
	Boring No.: B-05-03	Tested By: jdt	Checked By: njh
	Sample No.: S-29	Test Date: 05/05/06	Depth: 116.5-118.5
	Test No.: C-1	Sample Type: Tube	Elevation: ---
	Description: Moist, dark gray clay		
	Remarks: ---		

CONSOLIDATION TEST DATA

Project: I90 Central Viaduct
Boring No.: B-05-03
Sample No.: S-29
Test No.: C-1

Location: Cleveland, OH
Tested By: jdt
Test Date: 05/05/06
Sample Type: Tube

Project No.: GTX-6678
Checked By: njh
Depth: 116.5-118.5
Elevation: ---

Soil Description: Moist, dark gray clay
Remarks: ---

Measured Specific Gravity: 2.75
Initial Void Ratio: 0.79
Final Void Ratio: 0.61

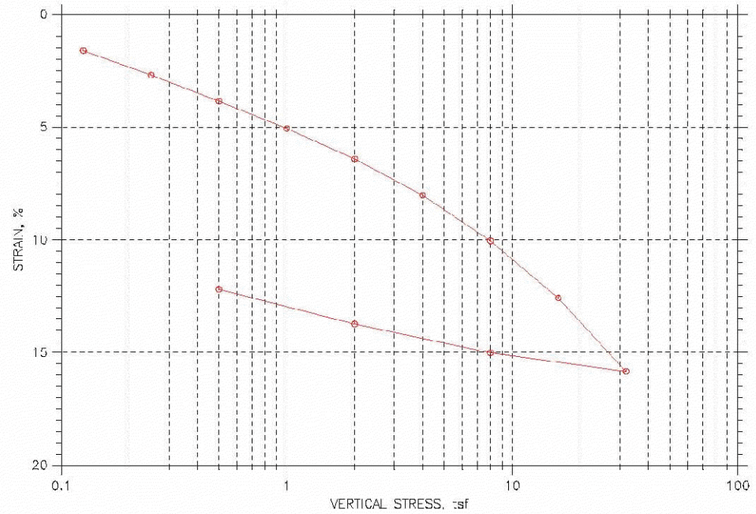
Liquid Limit: 35
Plastic Limit: 18
Plasticity Index: 17

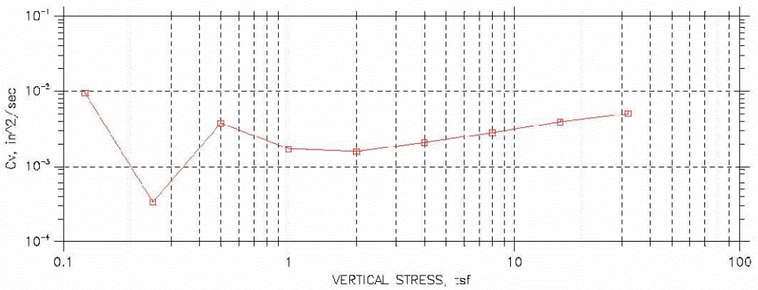
Initial Height: 1.00 in
Specimen Diameter: 2.50 in

	Before Consolidation		After Consolidation	
	Trimmings	Specimen+Ring	Specimen+Ring	Trimmings
Container ID	dodge9	RING		30912
Wt. Container + Wet Soil, gm	93.18	[illegible]	[illegible]	147.18
Wt. Container + Dry Soil, gm	77.74	331.93	331.93	130.18
Wt. Container, gm	9.27	[illegible]	[illegible]	8.1
Wt. Dry Soil, gm	68.47	123.45	123.45	122.08
Water Content, %	22.23	28.73	22.08	22.08
Void Ratio		0.79	0.6[illegible]	
Degree of Saturation, %	---	98.78	98.99	---
Dry Unit Weight, pcf	---	95.806	106.82	---

CONSOLIDATION TEST DATA

SUMMARY REPORT

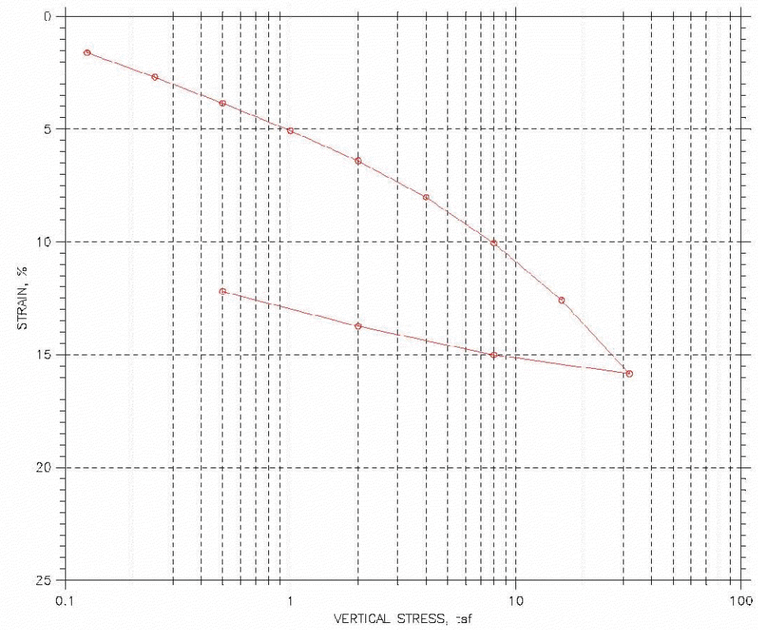




GeoTesting express	Project: I90 Central Viaduct	Location: Cleveland, OH	Project No.: GTX-6678
	Boring No.: B-05-03	Tested By: fy	Checked By: jdt
	Sample No.: S-30	Test Date: 05/05/06	Depth: 118.5-120.5
	Test No.: C-2	Sample Type: Tube	Elevation: ---
	Description: Moist, dark gray clay		
	Remarks: ---		

CONSOLIDATION TEST DATA

SUMMARY REPORT



	Before Test	After Test
Overburden Pressure: 0 tsf	Water Content, %	31.49	22.77
Preconsolidation Pressure: 0 tsf	Dry Unit Weight, pcf	91.64	104.4
Compression Index: 2.75859e-313	Saturation, %	100.00	98.23
Diameter: 2.5 in / Height: 1 in	Void Ratio	0.86	0.65
LL: 33 / PL: 18 / PI: 15 / GS: 2.73			

GeoTesting express	Project: I90 Central Viaduct	Location: Cleveland, OH	Project No.: GTX-6678
	Boring No.: B-05-03	Tested By: fy	Checked By: jdt
	Sample No.: S-30	Test Date: 05/05/06	Depth: 118.5-120.5
	Test No.: C-2	Sample Type: Tube	Elevation: ---
	Description: Moist, dark gray clay		
	Remarks: ---		

BBCM

SOIL PROFILE
LABORATORY TEST DATA

CUY-90-14.90

CONSOLIDATION TEST DATA

Project: I90 Central Viaduct
Boring No.: B-05-03
Sample No.: S-39
Test No.: C-2

Location: Cleveland, OH
Tested By: fy
Test Date: 05/05/06
Sample Type: Tube

Project No.: GDX-6678
Checked By: gch
Depth: 118.5-120.5
Elevation: ---

Soil Description: Moist, dark gray c ay
Remarks: ---

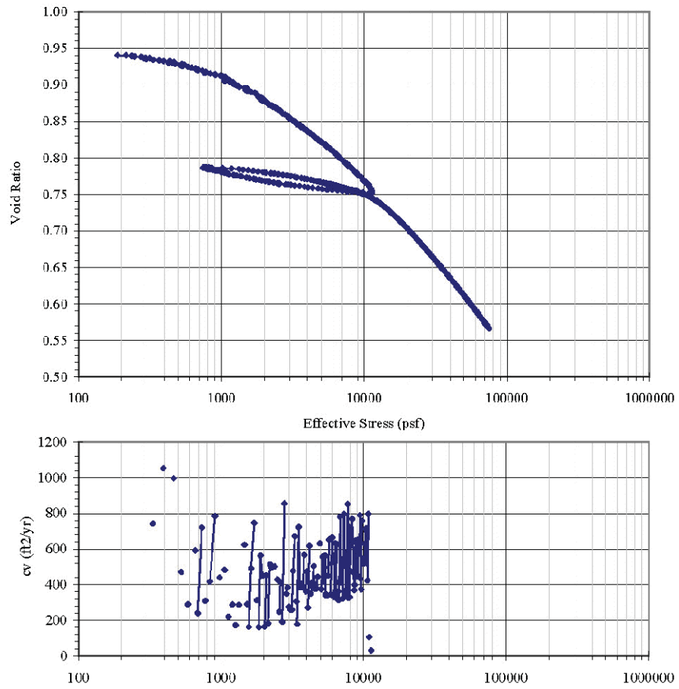
Measured Specific Gravity: 2.73
Initial Void Ratio: 0.88
Final Void Ratio: 0.63

Liquid Limit: 33
Plastic Limit: 18
Plasticity Index: 15

Initial Soil Properties

	Before Consolidation Trimmings	Before Consolidation Specimen-Ring	After Consolidation Specimen-Ring	After Consolidation Trimmings
Container ID	x-x	RING		Codge 5
Wt. Container + Wet Soil, gm	147.17	371.9	361.6	147.16
Wt. Container + Dry Soil, gm	117.33	334.62	334.62	125.53
Wt. Container, gm	9.26	216.53	216.53	3.17
Wt. Dry Soil, gm	108.07	118.09	118.09	121.36
Water Content, %	27.32	31.48	22.77	22.77
Void Ratio		0.88	0.63	
Degree of Saturation, %	---	100.00	99.29	---
Dry Unit Weight, pcf	---	81.644	104.38	---

CONSTANT RATE OF STRAIN CONSOLIDATION



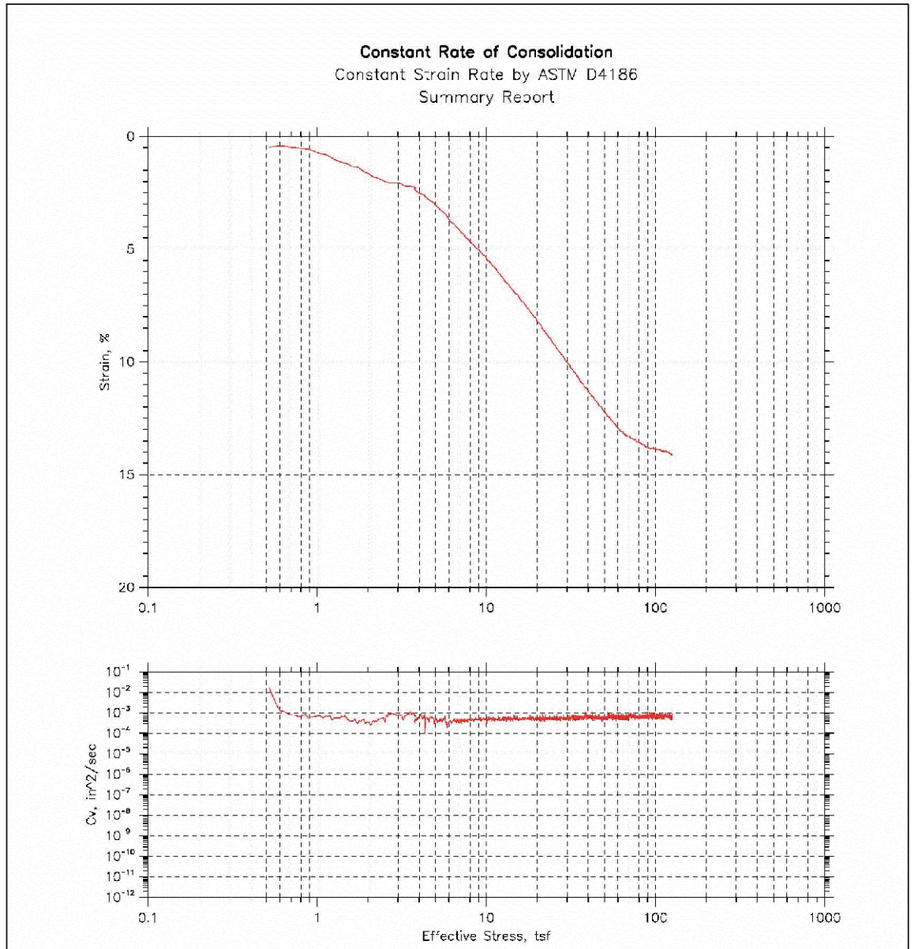
Initial Soil Properties							AASHTO
Saturation	Moisture	γ_D (pcf)	e_0	LL	PL	PI	Classification
95.1%	32.7%	88.7	0.959	36	26	10	A-4b
Soil Description:	SILT: Medium-stiff to stiff gray and dark gray silt, some clay, slightly organic.						
Project No.	012 00946.301		Boring	V-009-0-06			
Project	CUY-90-14.52		Sample	28			
Client	Michael Baker Jr, Inc.		Depth	28.0' - 30.0'			

BBCM SOLUTIONS TO BUILD ON

BBCM

SOIL PROFILE
LABORATORY TEST DATA

CUY-90-14.90



Project: I-90 Central Viaduct	Location: Cleveland, OH	Project No.: GTX-6678
Boring No.: B-05-03	Tested By: njh	Checked By: jdt
Sample No.: S-29	Test Date: 05/15/06	Depth: 116.5-118.5
Test No.: crc-1	Sample Type: tube	Elevation: ---
Description: Moist, dark gray clay		
Remarks:		

CRC TEST DATA

Project: I-90 Central Viaduct
Boring No.: B-05-03
Sample No.: S-29
Test No.: crc-1

Location: Cleveland, OH
Tested By: njh
Test Date: 05/15/06
Sample Type: tube

Project No.: GTX-6678
Checked By: jdt
Depth: 116.5-118.5
Elevation: ---

Soil Description: Moist, dark gray clay
Remarks:

Measured Specific Gravity: 2.75
Initial Void Ratio: 0.53
Final Void Ratio: 0.34

Liquid Limit: 35
Plastic Limit: 18
Plasticity Index: 17

Initial Height: 1.00 in
Specimen Diameter: 2.50 in

	Before Consolidation Trimmings	Before Consolidation Specimen+Ring	After Consolidation Specimen+Ring	After Consolidation Trimmings
Container ID	sweet	BING		1355
Wt. Container + Wet Soil, gm	135.17	883.26	878.56	188.61
Wt. Container + Dry Soil, gm	111.95	860.47	860.47	165.73
Wt. Container, gm	7.98	276.07	276.07	8.32
Wt. Dry Soil, gm	103.97	584.4	584.4	142.75
Water Content, %	23.16	13.89	12.52	12.52
Void Ratio	---	0.53	0.34	---
Degree of Saturation, %	---	82.84	100.00	---
Dry Unit Weight, pcf	---	129.06	137.7	---

BORING PROFILE LOCATION REFERENCE
BEGIN TO STA. 100+50

BORING ID	PROFILE (SEE SHEET)
B-001-0-09	48
B-003-0-09	48
B-006-0-09	48
B-008-0-09	48
B-011-0-09	48
B-012-1-09	48
R-001-0-06	48

NOTE: BORINGS B-002-0-09, B-004-0-09, B-005-0-09 AND B-007-0-09 WERE PLACED USING AN ASSUMED EXTENSION OF THE EXISTING W.B. I-90 CENTERLINE DUE TO PROPOSED CENTERLINE BEGINNING AT STA. 97+02.06.

BBCM

0 50 100
HORIZONTAL SCALE IN FEET

SOIL PROFILE - W.B. I-90
BEGIN TO STA. 100+50

CUY-90-14.90

760 750 740 730 720 710 700 690 680 670 660 650 640 630 620 610 600 590 580

1024+00 1023+00 1022+00 1021+00 1020+00 1019+00 1018+00 1017+00 1016+00 1015+00 1014+00 1013+00 1012+00 1011+00

B&P B-001-0-09
STA 91+36
570' Lt. of W.B. I-90 ℄
ASPHALT = 4"
CONCRETE = 8"

9	39	
12	29	
15	25	
W ⊖ 29	13	
WC	N_{60}	

B&P B-003-0-09
STA 93+17
312' Lt. of W.B. I-90 ℄
ASPHALT = 6"
CONCRETE = 12"

6	37	
8	50-R	
9	37	
9	25	
WC	N_{60}	

B&P B-006-0-09
STA 1017+00
6' Rt.
ASPHALT = 6"
CONCRETE = 12"

6	45	
9	12	
7	13	
4	16	
5	21	
4	21	
14	18	
W ⊖ 27	7	
⊖ 23	42	
⊖ 22	34	
WC	N_{60}	

B&P B-008-0-09
STA 1015+05
6' Rt.
ASPHALT = 6"
CONCRETE = 12"

11	24	
8	36/50-5"R	
9	21	
8	40	
7	18	
6	12	
6	21	
10	21	
10	21	
⊖ 21	39	
WC	N_{60}	

EXISTING GROUND
PROFILE GRADE LINE
PROPOSED RAMP A7 ℄

BBCM R-001-0-06
STA 1011+76
2' Rt.
ASPHALT = 3"
CONCRETE = 8"
GRANULAR BASE = 13"

6/7/8	6	
9/16/8	10	
11/12/15	12	W
15/18/15		
8/12/13		
11/12/12		
6/7/7	8	
6/7/9		
WC		

B&P B-011-0-09
STA 1012+92
6' Rt.
ASPHALT = 6"
CONCRETE = 12"

9	45	
7	43	
11	34	
11	36	
10	27	
12	21	
10	13	
8	9	
7	9	
7	6	
WC	N_{60}	

B&P B-012-1-09
STA 1011+12
5' Rt.
ASPHALT = 4"
CONCRETE = 12"

7	33	
9	43	
10	51	
8	80	
9	57	
10	33	
10	30	
10	34	
7	15	
8	12	
WC	N_{60}	

NOTE: RAMP A7 BASELINE STATIONING DID NOT EXTEND TO THE LOCATION OF BORINGS B-001-0-09 AND B-003-0-09. STATION AND OFFSET INFORMATION FOR RAMP A7 NOT KNOWN.

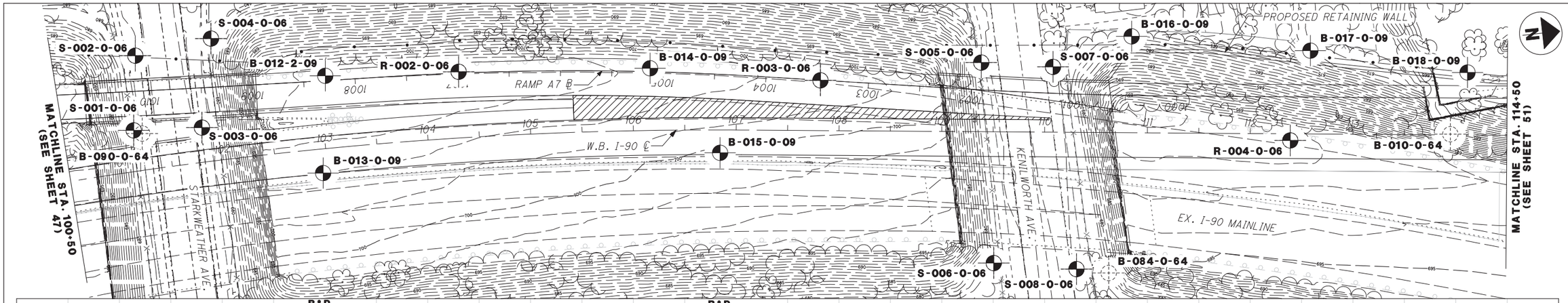
NOTE: ALL BORINGS ON THIS SHEET ARE SHOWN IN PLAN VIEW ON SHEET 47.

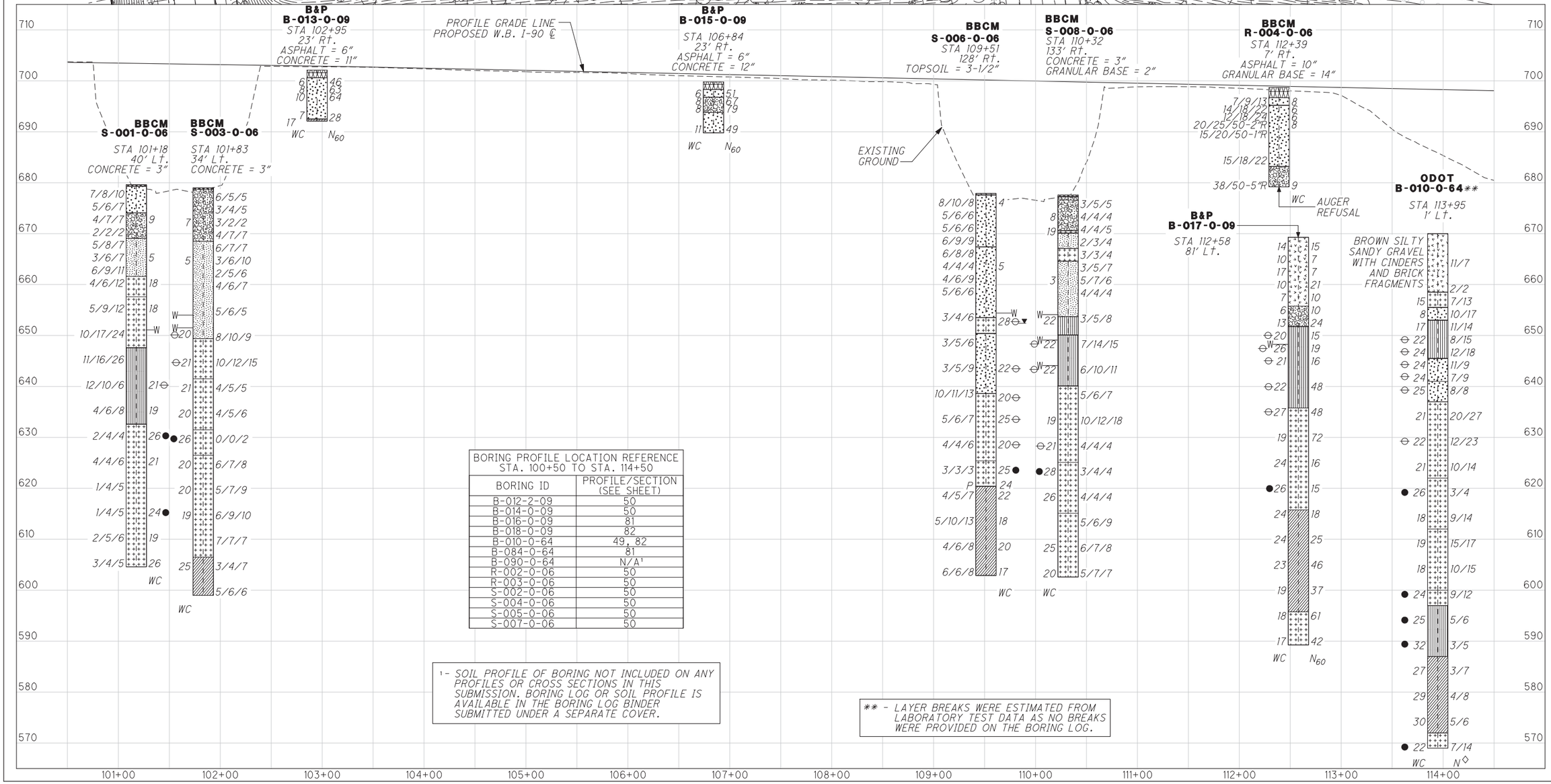
BBCM

HORIZONTAL SCALE IN FEET
0 50 100

SOIL PROFILE - RAMP A7
STA. 1010+90 TO STA. 1013+96

CUY-90-14.90





BORING PROFILE LOCATION REFERENCE STA. 100+50 TO STA. 114+50	
BORING ID	PROFILE/SECTION (SEE SHEET)
B-012-2-09	50
B-014-0-09	50
B-016-0-09	81
B-018-0-09	82
B-010-0-64	49, 82
B-084-0-64	81
B-090-0-64	N/A[1]
R-002-0-06	50
R-003-0-06	50
S-002-0-06	50
S-004-0-06	50
S-005-0-06	50
S-007-0-06	50

[1] - SOIL PROFILE OF BORING NOT INCLUDED ON ANY PROFILES OR CROSS SECTIONS IN THIS SUBMISSION. BORING LOG OR SOIL PROFILE IS AVAILABLE IN THE BORING LOG BINDER SUBMITTED UNDER A SEPARATE COVER.

** - LAYER BREAKS WERE ESTIMATED FROM LABORATORY TEST DATA AS NO BREAKS WERE PROVIDED ON THE BORING LOG.

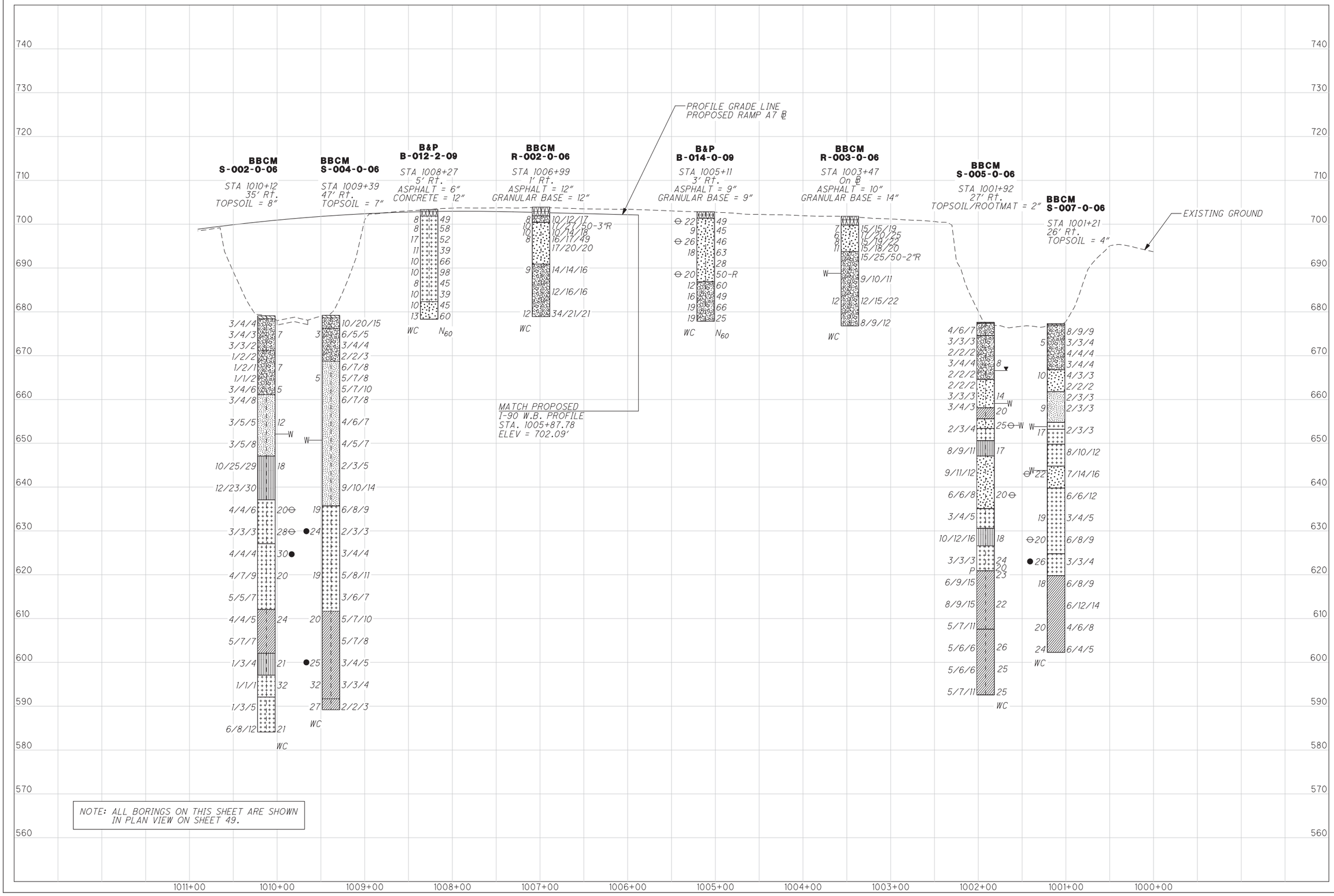
BBCM

HORIZONTAL SCALE IN FEET
0 50 100

SOIL PROFILE - W.B. I-90
STA. 100+50 TO STA. 114+50

CUY-90-14.90

49 / 116



BBCM

HORIZONTAL SCALE IN FEET
0 50 100

SOIL PROFILE - RAMP A7
STA. 1000+00 TO STA. 1010+90

CUY-90-14.90

BORING PROFILE LOCATION REFERENCE STA. 114+50 TO STA. 128+50			
BORING ID	PROFILE/SECTION (SEE SHEET)	BORING ID	PROFILE/SECTION (SEE SHEET)
B-019-0-09	83	B-008-0-86	N/A[1]
B-019-1-09	83	B-006-0-63	N/A[1]
B-020-0-09	52, 83	B-013-0-63	N/A[1]
B-021-0-09	52	B-023-0-63	N/A[1]
B-022-0-09	52, 84	B-004-W-55	N/A[1]
B-022-1-09	N/A[2]	B-005-W-55	N/A[1]
B-023-0-09	52	B-006-W-55	86
B-023-1-09	116	C-005-0-06	N/A[1]
B-023-2-09	54, 116	C-006-0-06	N/A[1]
B-024-0-09	55	C-007-0-06	N/A[1]
B-025-0-09	52	C-008-0-06	N/A[1]
B-027-0-09	54	C-009-0-06	N/A[1]
B-027-1-09	54	C-010-0-06	N/A[1]
B-028-0-09	54	S-009-0-06	52
B-029-0-09	55	S-010-0-06	84
B-030-0-09	54	S-011-0-06	52
B-031-0-09	52	S-012-0-06	52
B-032-0-09	54, 55	W-001-0-06	53
B-033-0-09	54	W-002-0-06	53
B-034-0-09	55, 86	W-003-0-06	54
B-007-0-06	88	W-004-0-06	54
B-008-0-06	52, 86		

1- *SOIL PROFILE OF BORING NOT INCLUDED ON ANY PROFILES OR CROSS SECTIONS IN THIS SUBMISSION. BORING LOG OR SOIL PROFILE IS AVAILABLE IN THE BORING LOG BINDER SUBMITTED UNDER A SEPARATE COVER.*

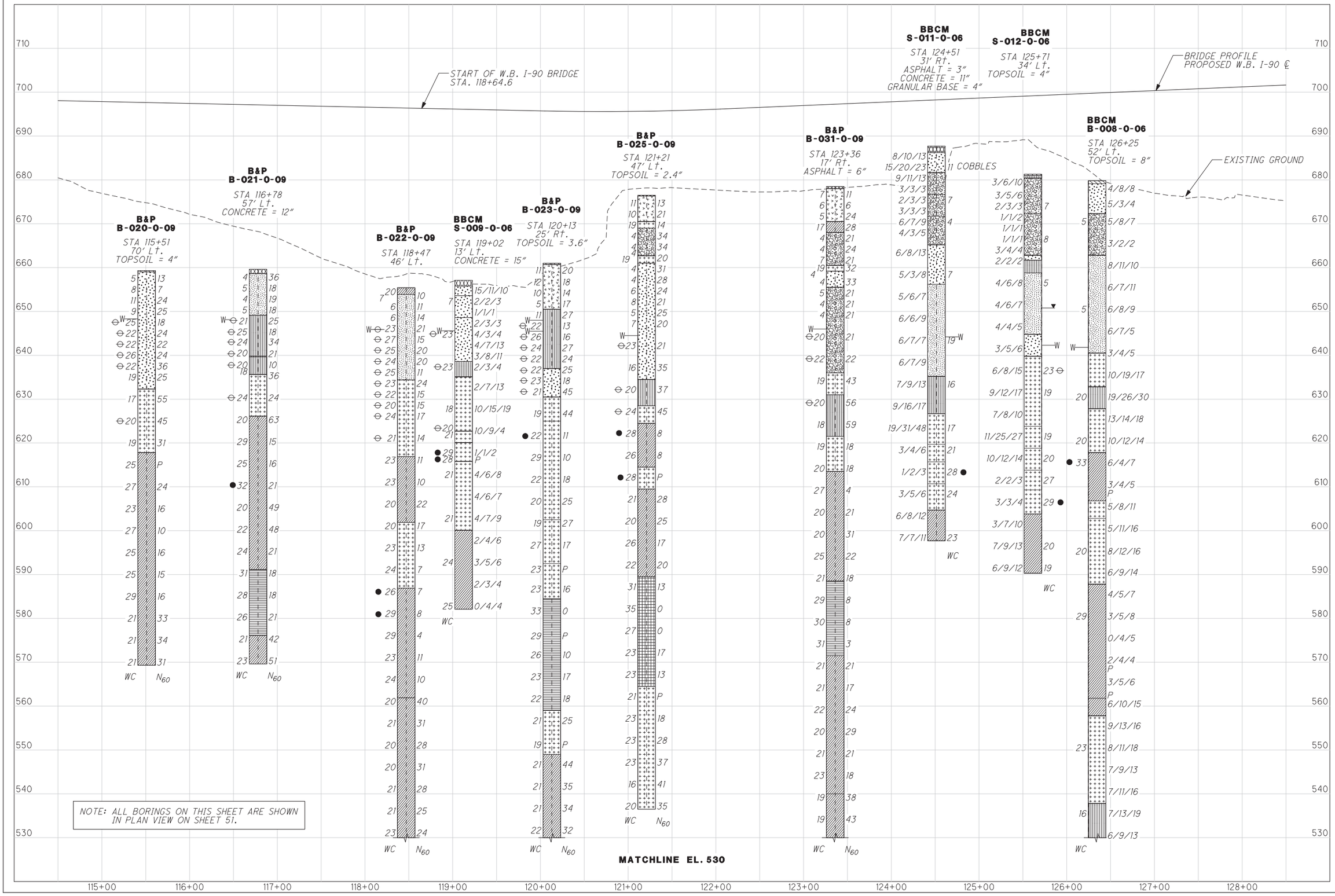
2- *OFFSET BORING FOR SHELBY TUBE SAMPLING ONLY. NO BORING LOG CREATED. REFER TO B-002-0-09 FOR SOIL PROFILE DATA.*

BBCM

0 50 100 HORIZONTAL SCALE IN FEET

SOIL PROFILE -W.B. I-90
STA. 114+50 TO STA. 128+50

CUY-90-14.90



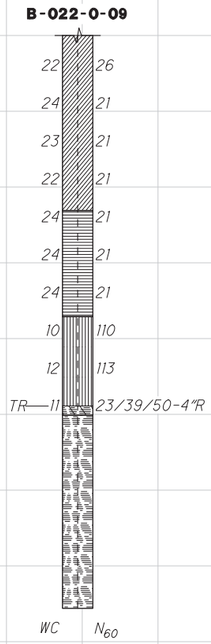
BBCM

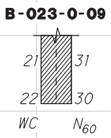
0 50 100 HORIZONTAL SCALE IN FEET

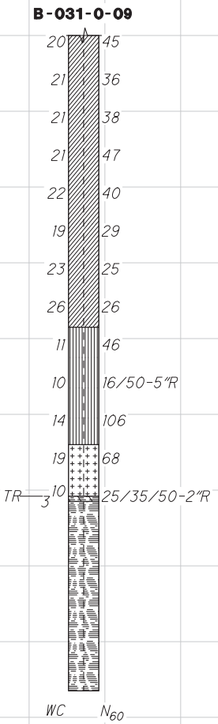
SOIL PROFILE - W.B.I-90
STA. 114+50 TO STA. 128+50

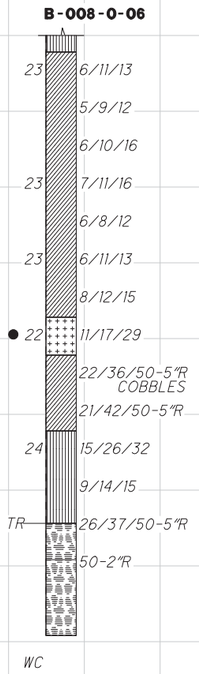
CUY-90-14.90

MATCHLINE EL. 530

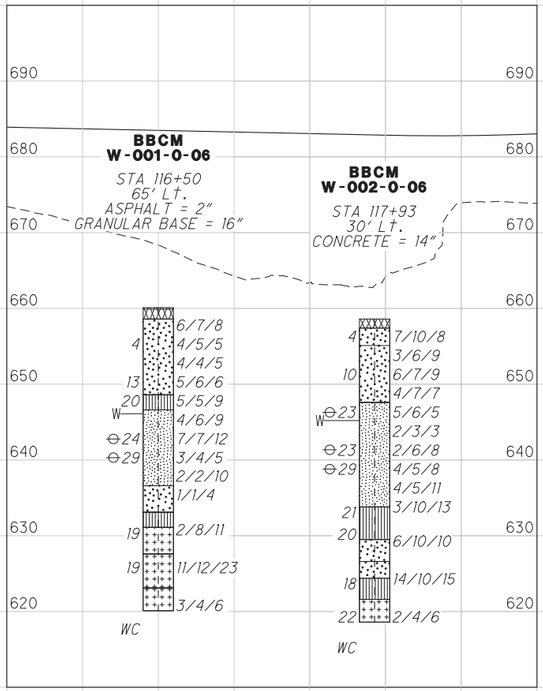








NOTE: INCLINOMETER INSTALLED TO A DEPTH OF 228'. VIBRATING WIRE PIEZOMETERS INSTALLED IN OFFSET HOLE AT DEPTHS OF 65.5' AND 110.5'.



NOTE: ALL BORINGS ON THIS SHEET ARE SHOWN IN PLAN VIEW ON SHEET 51.

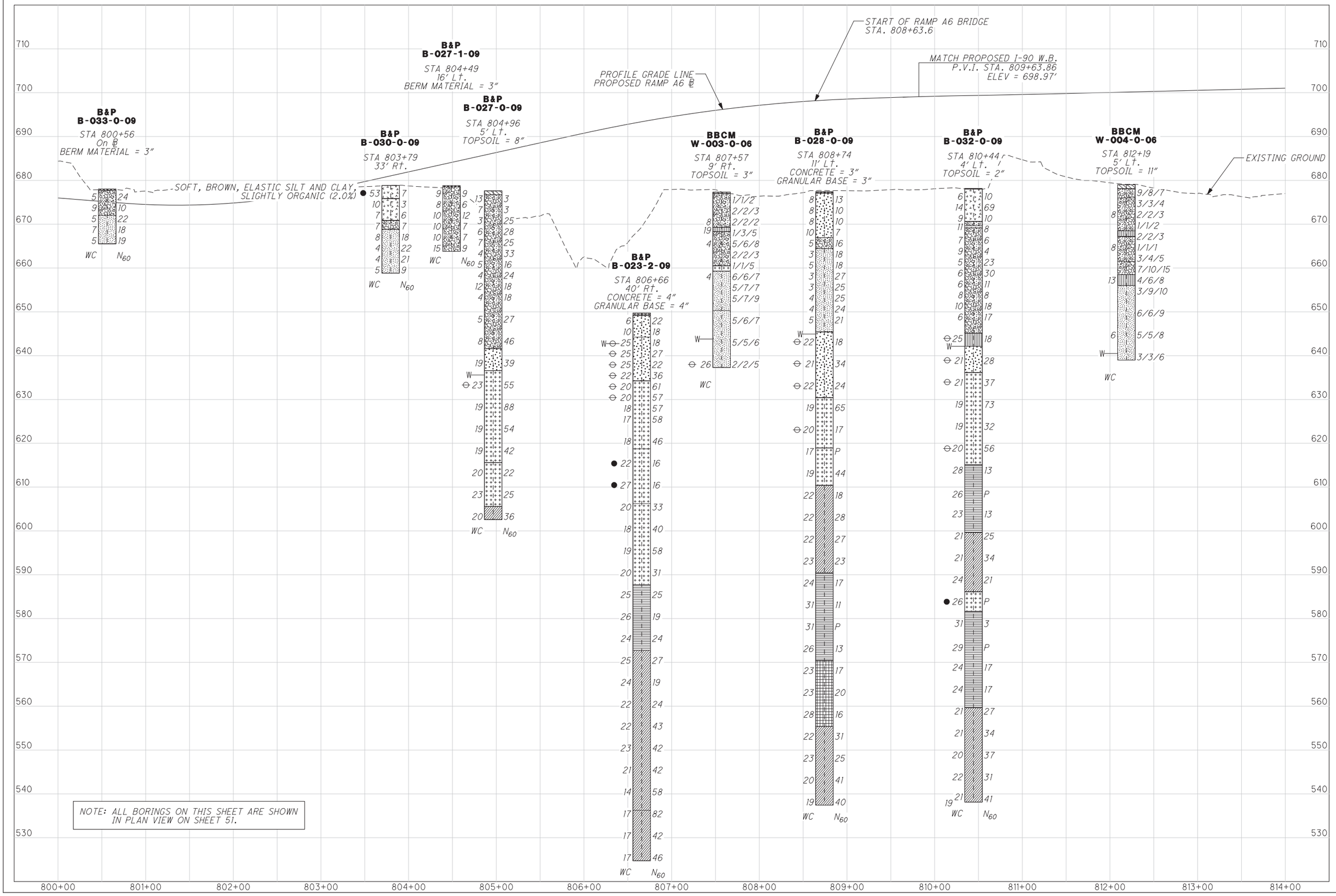
115+00 116+00 117+00 118+00 119+00 120+00 121+00 122+00 123+00 124+00 125+00 126+00 127+00 128+00

BBCM

HORIZONTAL SCALE IN FEET
0 50 100

SOIL PROFILE
STA. 114+50 TO STA. 128+50

CUY-90-14.90

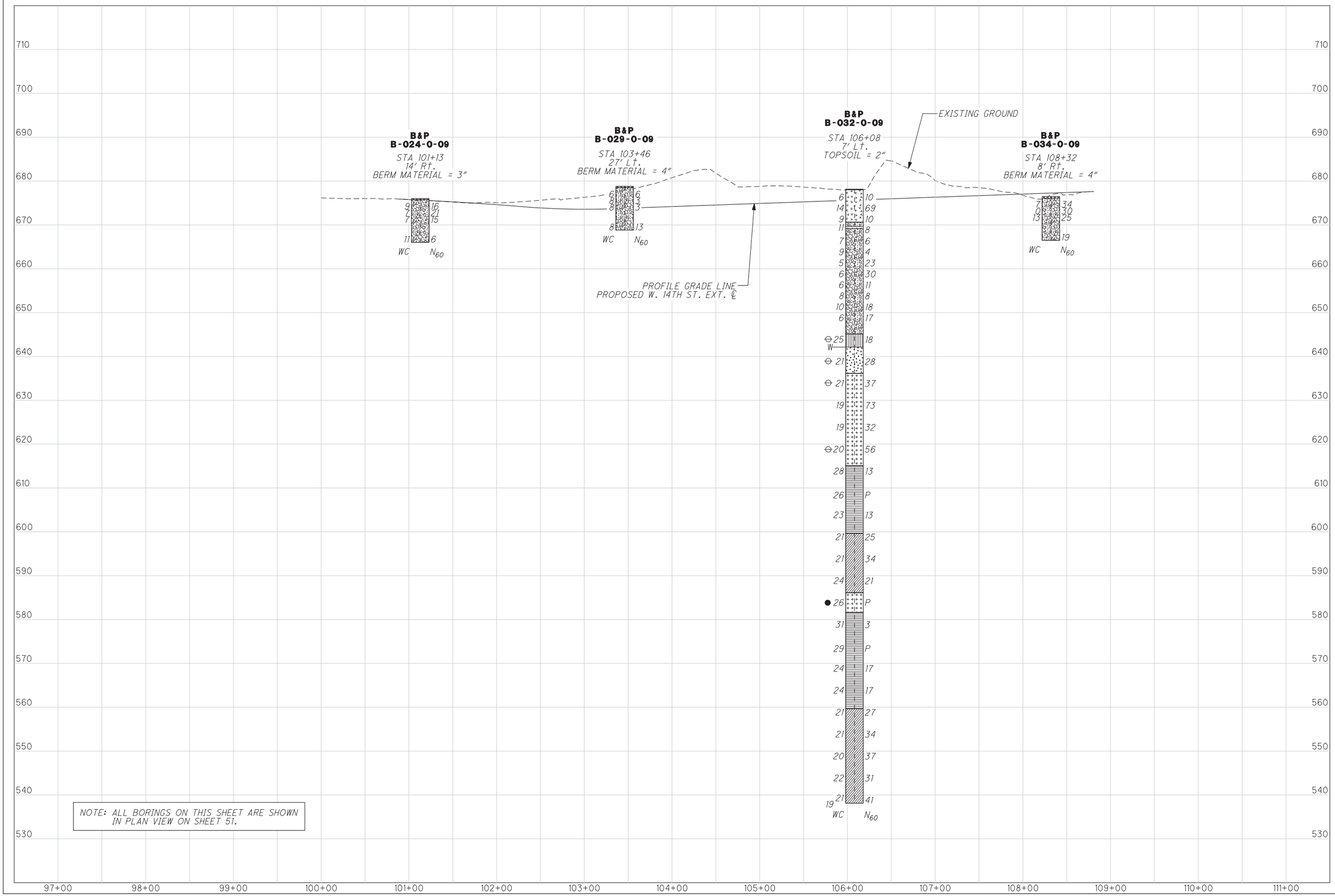


BBCM

HORIZONTAL SCALE IN FEET
0 50 100

SOIL PROFILE - RAMP A6
STA. 800+00 TO STA. 814+00

CUY-90-14.90



NOTE: ALL BORINGS ON THIS SHEET ARE SHOWN IN PLAN VIEW ON SHEET 51.

BBCM

HORIZONTAL SCALE IN FEET
0 50 100

SOIL PROFILE - W. 14TH ST. EXT.
STA. 100+00 TO STA. 108+80.78

CUY-90-14.90

1- SOIL PROFILE OF BORING NOT INCLUDED ON ANY PROFILES OR CROSS SECTIONS IN THIS SUBMISSION. BORING LOG OR SOIL PROFILE IS AVAILABLE IN THE BORING LOG BINDER SUBMITTED UNDER A SEPARATE COVER.

2- BORING PERFORMED SOLELY FOR THE PURPOSE OF INCLINOMETER INSTALLATION. NO SAMPLING WAS PERFORMED AND NO BORING LOG WAS CREATED.

BORING PROFILE LOCATION REFERENCE
STA. 128+50 TO STA. 142+50

BORING ID	PROFILE/SECTION (SEE SHEET)	BORING ID	PROFILE/SECTION (SEE SHEET)	BORING ID	PROFILE/SECTION (SEE SHEET)
B-039-1-10	57	B-203-0-96	N/A[1]	B-002-W-55	106
B-035-0-09	57, 88	B-101-0-94	104	B-003-W-55	N/A[1]
B-036-0-09	112	B-102-0-94	104	B-001-0-54	N/A[1]
B-037-0-09	112	B-103-0-94	N/A[1]	B-002-0-54	N/A[1]
B-037-1-09	57, 90	B-104-0-94	N/A[1]	B-003-0-54	N/A[1]
B-037-2-09	113	B-105-0-94	N/A[1]	B-004-0-54	N/A[1]
B-038-0-09	112	B-106-0-94	N/A[1]	B-005-0-54	N/A[1]
B-038-1-09	113	B-107-0-94	110	B-006-0-54	N/A[1]
B-039-0-09	94	B-108-0-94	N/A[1]	B-007-0-54	N/A[1]
B-040-0-09	57	B-109-0-94	92, 110	B-008-0-54	N/A[1]
B-001-0-06	57	B-110-0-94	92	C-001-0-06	N/A[1]
B-002-0-06	110	B-010-0-92	N/A[1]	C-002-0-06	N/A[1]
B-003-0-06	104	B-001-0-90	N/A[1]	C-003-0-06	N/A[1]
B-004-0-06	108	B-002-0-90	108	C-004-0-06	N/A[1]
B-011-0-06	88	B-003-0-90	106	C-011-0-06	N/A[1]
B-012-0-06	90	B-004-0-90	N/A[1]	C-012-0-06	N/A[1]
B-013-0-06	94	B-005-0-90	108	C-013-0-06	N/A[1]
B-014-0-06	94	B-006-0-90	N/A[1]	C-014-0-06	N/A[1]
B-015-0-06	57, 96	B-007-0-90	N/A[1]	C-015-0-06	N/A[1]
B-016-0-06	57, 92	B-008-0-90	92, 108	P-001-0-94	N/A[1]
B-105-A-06	92, 106	B-009-0-90	N/A[1]	P-002-0-94	106
B-108-A-06	110	B-001-0-55	112	P-003-0-94	N/A[1]
B-002-0-00	94	B-002-0-55	92, 112	P-004-0-94	N/A[1]
B-003-0-00	96	B-003-0-55	94	P-005-0-94	N/A[1]
B-204-0-98	N/A[2]	B-004-0-55	N/A[1]	V-002-0-06	96
B-303-0-98	N/A[2]	B-001-1-55	N/A[1]	V-003-0-06	N/A[1]
B-201-0-96	N/A[1]	B-002-1-55	N/A[1]		
B-202-0-96	N/A[1]	B-001-W-55	N/A[1]		

MATCHLINE STA. 128+50 (SEE SHEET 51)

MATCHLINE STA. 142+50 (SEE SHEET 59)

RAMP A6 ℄

W.B. I-90 ℄

EXISTING NORFOLK SOUTHERN RAILROAD

UNIVERSITY RD.

CUYAHOGA RIVER

CROWN AVE.

W. 14TH ST.

W. 13TH ST.

ABBEY AVE.

B-035-0-09, B-036-0-09, B-037-0-09, B-037-1-09, B-037-2-09, B-038-0-09, B-038-1-09, B-039-0-09, B-039-1-10, B-040-0-09, B-001-0-55, B-002-0-55, B-003-0-55, B-004-0-55, B-013-0-06, C-013-0-06, V-002-0-06, V-003-0-06, B-110-0-94, B-016-0-06, C-012-0-06, B-012-0-06, B-001-0-06, C-001-0-06, B-201-0-96, B-002-0-06, C-002-0-06, B-108-A-06, C-011-0-06, P-005-0-94, B-011-0-06, B-107-0-94, B-001-0-54, P-004-0-94, B-108-0-94, B-109-0-94, B-003-W-55, B-001-W-55, B-203-0-96, B-003-0-54, B-001-1-55, B-007-0-90, B-001-0-90, B-004-0-90, C-004-0-06, B-204-0-98, B-005-0-90, B-010-0-92, B-004-0-06, B-008-0-90, B-002-0-90, B-103-0-94, B-002-W-55, B-003-0-90, P-002-0-94, B-303-0-98, B-009-0-90, B-006-0-90, B-105-A-06, P-003-0-94, B-002-1-55, B-004-0-54, B-105-0-94, P-001-0-94, B-002-0-54, B-202-0-96, B-003-0-06, B-104-0-94, B-101-0-94, B-102-0-94, C-003-0-06, B-106-0-94, C-014-0-06, B-014-0-06, B-005-0-54, B-003-0-00, B-007-0-54, B-008-0-54, B-006-0-54, B-002-0-00, C-015-0-06, B-015-0-06

A, A', B, B', C, C', D, D', E, E'

N

BBCM

HORIZONTAL SCALE IN FEET
0 50 100

SOIL PROFILE - W.B. I-90
STA. 128+50 TO STA. 142+50

CUY-90-14.90

56 / 116

BRIDGE PROFILE
PROPSED W.B. I-90 ℄

NOTE: ALL BORINGS ON THIS SHEET ARE SHOWN IN PLAN VIEW ON SHEET 56.

BBCM
B-035-0-09
STA 128+85
62' Lt.
ASPHALT = 1-3/4"
GRANITE PAVEMENT = 4"
CONCRETE = 10"

BBCM
B-001-0-06
STA 130+45
51' Rt.
ASPHALT = 4"
CONCRETE = 9"

BBCM
B-037-1-09
STA 131+34
56' Lt.
ASPHALT = 5"
CONCRETE = 7"

BBCM
B-016-0-06
STA 133+64
17' Rt.
TOPSOIL/ROOTMAT = 2-1/2"

EXISTING GROUND

B&P
B-039-1-10
STA 137+86
43' Lt.
CONCRETE = 8"

BBCM
B-015-0-06
STA 139+26
14' Rt.
GRANULAR BASE = 16"

CINDERS AND SLAG

B&P
B-040-0-09
STA 141+63
51' Lt.
ASPHALT = 4"

WC N_{60}

MATCHLINE EL. 530

710 700 690 680 670 660 650 640 630 620 610 600 590 580 570 560 550 540 530

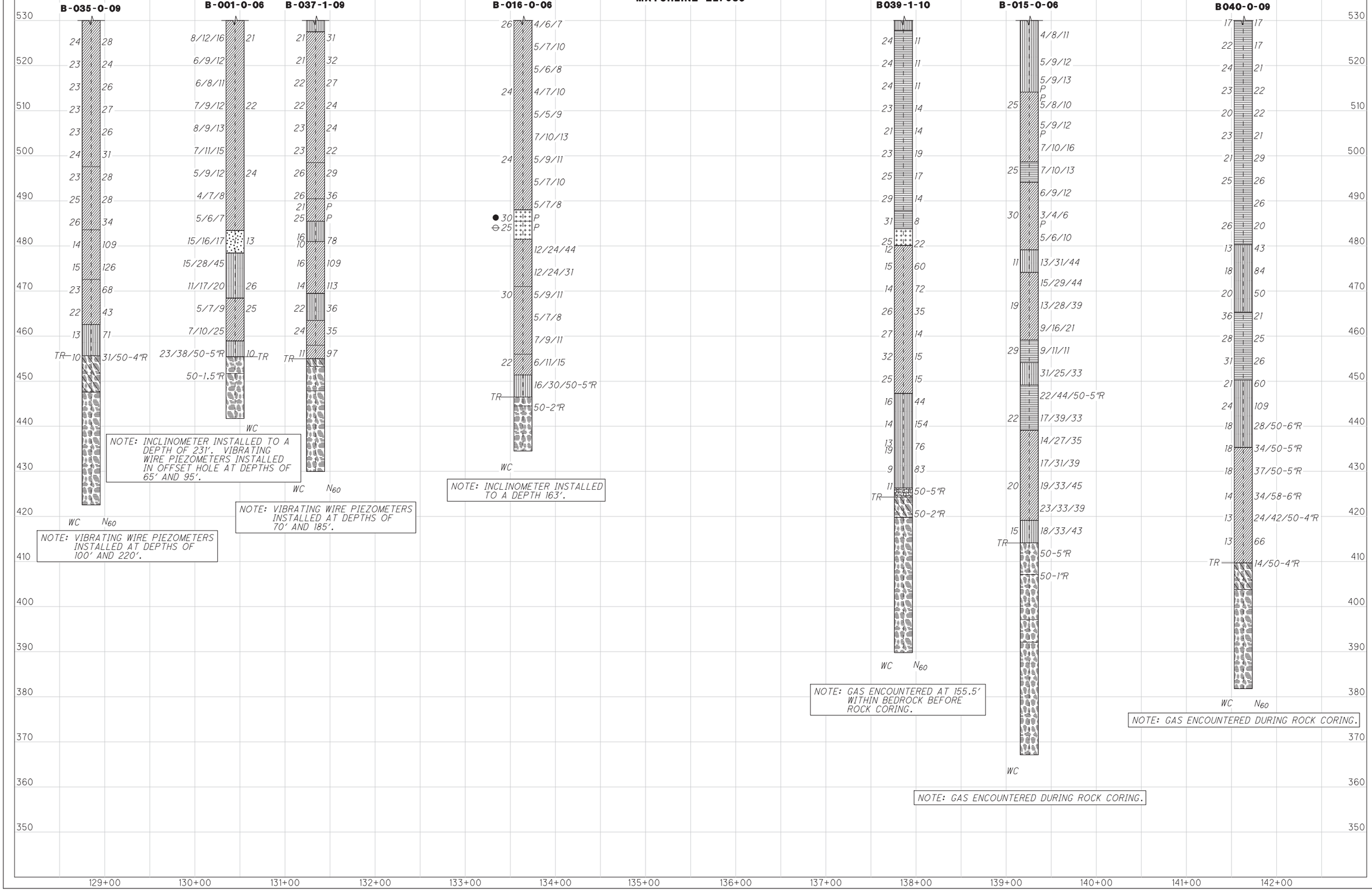
129+00 130+00 131+00 132+00 133+00 134+00 135+00 136+00 137+00 138+00 139+00 140+00 141+00 142+00

HORIZONTAL SCALE IN FEET
0 50 100

SOIL PROFILE - W.B. I-90
STA. 128+50 TO STA. 142+50

CUY-90-14.90

MATCHLINE EL. 530



BBCM

HORIZONTAL SCALE IN FEET
0
50
100

SOIL PROFILE - W.B.I-90
STA.128+50 TO STA.142+50

CUY-90-14.90

BORING PROFILE LOCATION REFERENCE STA. 142+50 TO STA. 156+50	
BORING ID	PROFILE/SECTION (SEE SHEET)
B-044-1-10	60
B-041-0-09	60
B-042-0-09	60
B-043-0-09	60
B-044-0-09	60
B-070-0-09	76
B-070-1-09	76
B-004-0-00	N/A[1]
B-00A-0-54	N/A[1]
B-00B-0-54	N/A[1]
B-009-0-54	N/A[1]
B-010-0-54	N/A[1]
B-011-0-54	N/A[1]
B-012-0-54	N/A[1]
B-013-0-54	N/A[1]
B-014-0-54	N/A[1]
B-015-0-54	N/A[1]
B-016-0-54	N/A[1]
R-007-0-06	76
V-004-0-06	60
V-005-0-06	60
V-007-0-06	62
V-008-0-06	62
V-009-0-06	62
V-010-0-06	62

1- SOIL PROFILE OF BORING NOT INCLUDED ON ANY PROFILES OR CROSS SECTIONS IN THIS SUBMISSION. BORING LOG OR SOIL PROFILE IS AVAILABLE IN THE BORING LOG BINDER SUBMITTED UNDER A SEPARATE COVER.

BBCM

SOIL PROFILE - W.B.I-90 STA.142+50 TO STA.156+50

CUY-90-14.90

NOTE: ALL BORINGS ON THIS SHEET ARE SHOWN IN PLAN VIEW ON SHEET 59.

BRIDGE PROFILE
PROPSED W.B. I-90 ℄

EXISTING GROUND

BBCM V-004-0-06
STA 143+30
50' Lt.
GRAVEL = 12"

B&P B-041-0-09
STA 144+49
15' Lt.

BBCM V-005-0-06
STA 145+82
64' Lt.

B&P B-042-0-09
STA 147+64
76' Lt.
32/52-6"R
CINDERS AND SLAG 39
SLI. ORG. (2.1%)
MOD. ORG. (4.6%)
SLI. ORG. (2.6%)

B&P B-043-0-09
STA 149+91
24' Lt.
ASPHALT = 6"
SLI. ORG. (2.8%)
HLY. ORG. (14.0%)

B&P B-044-0-09
STA 153+64
18' Lt.
TOPSOIL = 2"
CONCRETE FRAGMENTS
HLY. ORG. (18.9%)
MOD. ORG. (8.9%)

B&P B-044-1-10
STA 155+14
10' Rt.
ASPHALT = 6"
GRANULAR BASE = 5"
42/50-2"R

HLY. ORG. (25.1%)
HLY. ORG. (11.3%)
SLI. ORG. (3.6%)
SLI. ORG. (2.6%)

MATCHLINE EL. 530

710 700 690 680 670 660 650 640 630 620 610 600 590 580 570 560 550 540 530

143+00 144+00 145+00 146+00 147+00 148+00 149+00 150+00 151+00 152+00 153+00 154+00 155+00 156+00

BBCM

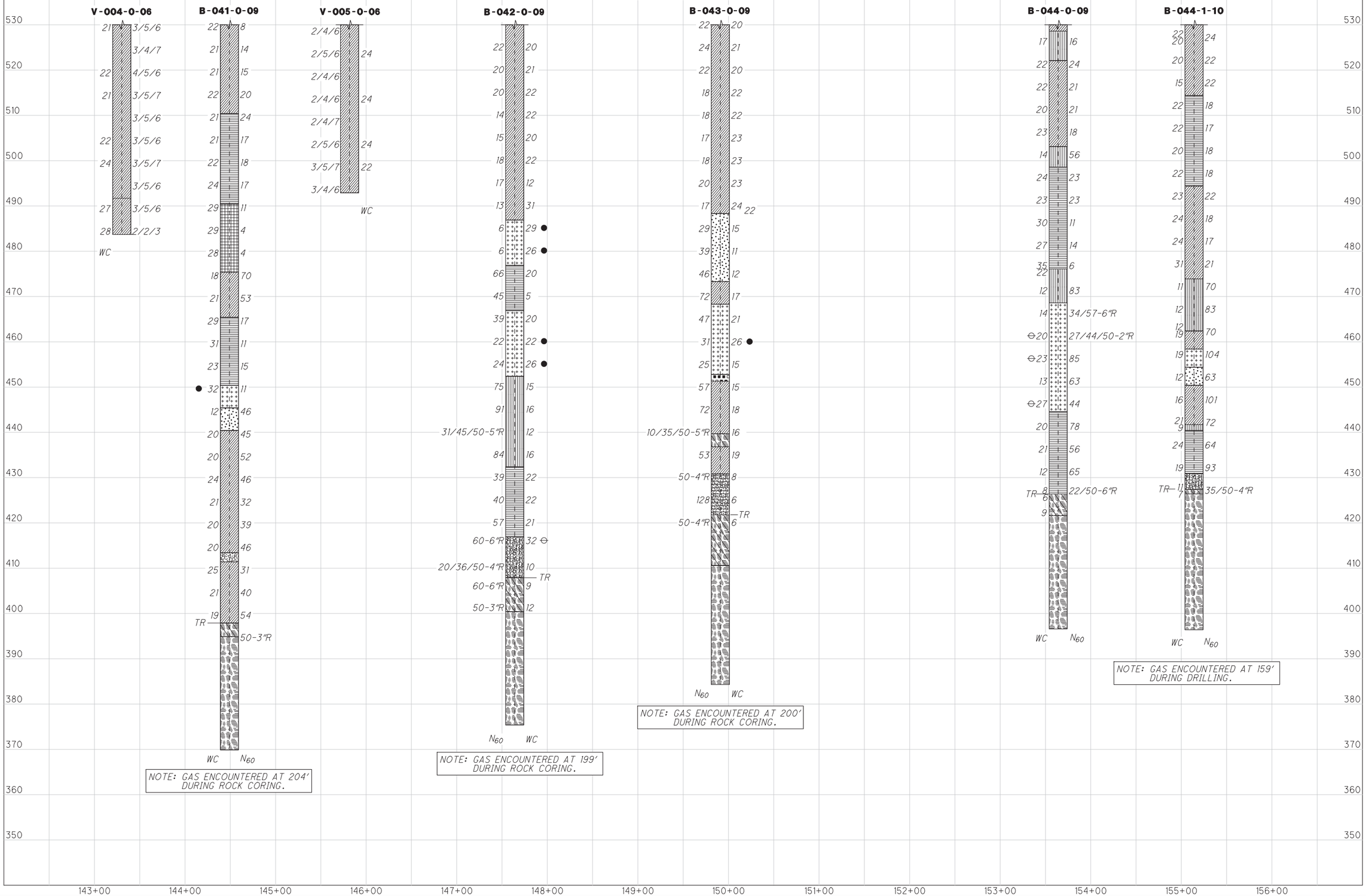
HORIZONTAL SCALE IN FEET
0 50 100

SOIL PROFILE - W.B.I-90
STA.142+50 TO STA.156+50

CUY-90-14.90

60 / 116

MATCHLINE EL. 530



BBCM

0 50 100
HORIZONTAL SCALE IN FEET

SOIL PROFILE - W.B.I-90
STA.142+50 TO STA.156+50

CUY-90-14.90

MATCH PROPOSED I.R. 90 WB
P.V.I. STA. 715+95.76
ELEV = 717.62'

PROFILE GRADE LINE
PROPOSED RAMP A6 Ⓑ

EXISTING GROUND

BBCM V-007-0-06
STA 717+22
42' Rt.
ASPHALT = 4"
GRANULAR BASE = 8"

HLY. ORG. (17.5%) W ● 96 — 30/35/34
48 — 5/5/4
MOD. ORG. (6.4%) — 3/6/8
SLI. ORG. (3.3%) 29 — 9/5/7
HLY. ORG. (20.6%) ● 102 — 0/2/3
HLY. ORG. (14.6%) ● 98 — 0/1/2
2/2/2
1/1/1
● 34 — 0/0/0
31 — 0/0/0
⊖ 29 — 0/0/0
⊖ 21 — 1/2/2
2/2/4
4/6/6
27 — 3/3/4
WC

BBCM V-008-0-06
STA 715+01
37' Rt.

3/4/3
5/8/31
W — 3/3/3
HLY. ORG. (18.5%) 63 — 2/1/1
MOD. ORG. (5.6%) 38 — 2/2/2
MOD. ORG. (5.8%) 38 — 1/2/2
HLY. ORG. (14.4%) ● 110 — 0/0/0
MOD. ORG. (9.1%) ● 69 — 0/0/0
MOD. ORG. (4.8%) ● 37 — 0/0/0
SLI. ORG. (3.5%) ● 33 — P
SLI. ORG. (2.4%) ● 34 — 0/0/0
SLI. ORG. (2.2%) ⊖ 25 — 0/0/2
⊖ 25 — 0/3/4
18 — 2/3/3
4/6/10
WC

BBCM V-009-0-06
STA 712+96
21' Lt.
ASPHALT = 2"
CONCRETE = 10"

5/5/4
W — 1/1/1
MOD. ORG. (6.6%) 43 — 1/2/3
MOD. ORG. (7.3%) 60 — 0/0/0
HLY. ORG. (15.0%) ● 87 — 0/0/0
HLY. ORG. (14.6%) ● 93 — 0/0/0 P
HLY. ORG. (10.2%) ● 74 — 0/0/0
SLI. ORG. (3.7%) ● 36 — 0/0/0
26 — 0/1/1
SLI. ORG. (3.8%) ● 32 ● 34 — 0/0/0 P
W — 0/0/0
19 — 0/1/3
7/5/6
25 — 2/5/7
WC

BBCM V-010-0-06
STA 710+99
46' Lt.
ASPHALT = 5"

8/8/12
3/3/4
2/2/4
2/3/4
0/2/2 — 43 54 MOD. ORG. (6.8%)
P 0/0/1 — 45 ● 43 MOD .ORG. (6.8%)
P 0/0/1 — 104 ● 75 ● HLY. ORG. (16.8%)
P 0/0/0 — 77 ● 104 ● 166 ● HLY. ORG. (12.7%)
0/0/0 — 53 MOD. ORG. (5.3%)
0/0/0 — 23 ● SLI. ORG. (2.4%)
1/1/4
4/5/7
3/4/5
4/7/11
5/8/9
9 W
W
25
23
21
24
WC

MATCHLINE EL. 530

NOTE: ALL BORINGS ON THIS SHEET ARE SHOWN IN PLAN VIEW ON SHEET 59.

710 700 690 680 670 660 650 640 630 620 610 600 590 580 570 560 550 540 530

721+00 720+00 719+00 718+00 717+00 716+00 715+00 714+00 713+00 712+00 711+00 710+00 709+00

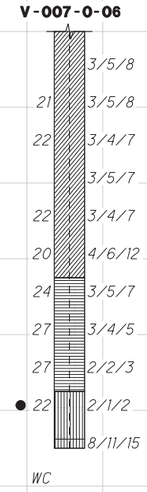
BBCM

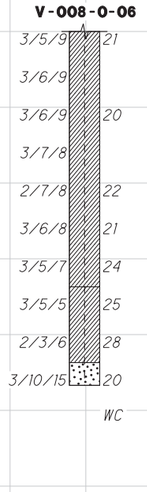
HORIZONTAL SCALE IN FEET
0 50 100

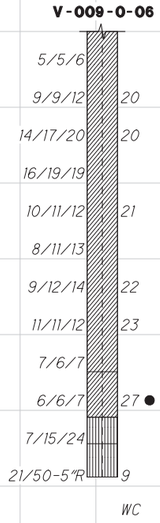
SOIL PROFILE - RAMP A5
STA. 709+21 TO STA. 720+42.8

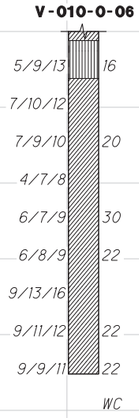
CUY-90-14.90

MATCHLINE EL. 530









530 520 510 500 490 480 470 460 450 440 430 420 410 400 390 380 370 360 350

721+00 720+00 719+00 718+00 717+00 716+00 715+00 714+00 713+00 712+00 711+00 710+00 709+00

BBCM

HORIZONTAL SCALE IN FEET
0 50 100

SOIL PROFILE - RAMP A5
STA. 709+21 TO STA. 720+42.8

CUY-90-14.90

63 / 116

BORING PROFILE LOCATION REFERENCE STA. 156+50 TO STA. 170+50			
BORING ID	PROFILE/SECTION (SEE SHEET)	BORING ID	PROFILE/SECTION (SEE SHEET)
B-047-2-10	65, 100	B-007-E-56	71
B-045-0-09	65	B-008-E-56	N/A[1]
B-047-0-09	67, 98	B-009-E-56	N/A[1]
B-047-1-09	65, 98	B-00C-0-54	N/A[1]
B-048-0-09	65, 67	B-017-0-54	N/A[1]
B-050-0-09	67	B-018-0-54	N/A[1]
B-051-0-09	65	B-019-0-54	N/A[1]
B-052-0-09	67	B-020-0-54	N/A[1]
B-053-0-09	68	C-049-0-09	N/A[1]
B-054-0-09	72, 102	C-057-0-09	N/A[1]
B-055-0-09	65, 71, 102	R-015-0-06	77
B-056-0-09	72	T-018-0-23	N/A[1]
B-058-0-09	71	T-018-1-23	N/A[1]
B-059-0-09	65	T-019-0-23	N/A[1]
B-001-0-96	N/A[1]	V-011-0-06	65
B-002-0-96	N/A[1]	V-011-A-06	67
B-005-0-86	N/A[1]	V-012-0-06	98
B-001-E-56	N/A[1]	V-013-0-06	77, 100
B-002-E-56	N/A[1]	V-014-0-06	65
B-003-E-56	N/A[1]	V-015-0-06	65
B-004-E-56	N/A[1]	V-016-0-06	102
B-005-E-56	N/A[1]	V-017-0-06	65, 71
B-006-E-56	N/A[1]	V-018-0-06	72

1- SOIL PROFILE OF BORING NOT INCLUDED ON ANY PROFILES OR CROSS SECTIONS IN THIS SUBMISSION. BORING LOG OR SOIL PROFILE IS AVAILABLE IN THE BORING LOG BINDER SUBMITTED UNDER A SEPARATE COVER.

B-053-0-09
B-005-0-86
ONTARIO ST. ℄
CARNEGIE AVE. ℄
T-018-0-23
T-018-1-23
CENTRAL VIADUCT WAY ℄
B-052-0-09
S. BROADWAY AVE.
RAMP A5 ℄
T-019-0-23
RAMP A4 ℄
B-054-0-09
B-056-0-09
B-050-0-09
B-048-0-09
B-047-2-10
B-047-0-09
V-016-0-06
V-018-0-06
C-049-0-09
W.B. I-90 ℄
V-014-0-06
V-015-0-06
B-007-E-56
B-059-0-09
V-011-A-06
V-012-0-06
V-013-0-06
V-017-0-06
B-051-0-09
B-004-E-56
B-055-0-09
C-057-0-09
TEMPORARY W.B. I-90 ℄
B-058-0-09
V-011-0-06
B-008-E-56
DRIVE E ℄
B-001-E-56
B-047-1-09
B-001-0-96
B-005-E-56
B-045-0-09
B-019-0-54
EX. I-90 MAINLINE
B-009-E-56
B-017-0-54
B-002-E-56
B-003-E-56
B-020-0-54
B-002-0-96
B-006-E-56
B-00C-0-54
B-018-0-54
R-015-0-06
COMMERCIAL RD. ℄
CANAL RD.
CCRTA RAILROAD LINE
DRIVE D ℄
MATCHLINE STA. 156+50 (SEE SHEET 59)
MATCHLINE STA. 13+50 (SEE SHEET 75)
MATCHLINE STA. 170+50 (SEE SHEET 69)

HORIZONTAL SCALE IN FEET
0 50 100

SOIL PROFILE - W.B.I-90
STA. 156+50 TO STA 170+50

CUY-90-14.90

64 / 116

NOTE: ALL BORINGS ON THIS SHEET ARE SHOWN IN PLAN VIEW ON SHEET 64.

NOTE: V-011-0-06 ABANDONED DUE TO STRONG PETROLEUM ODOR FROM 8.5' TO 13.0'. SEE OFFSET BOREHOLE V-011-A-06 ON SHEET 67 FOR CONTINUATION OF PROFILE DATA.

BRIDGE PROFILE PROPOSED W.B. I-90 ℄

EXISTING GROUND

BBCM V-011-0-06
STA 157+50
3' Rt.
ASPHALT = 1"
GRANITE PAVER = 6"
SAND = 1"
CONCRETE = 6"

B&P B-045-0-09
STA 156+87
99' Rt.
50-4"Ø

STRONG PETROLEUM ODOR NOTED FROM 9.5' TO 13.0'.

B&P B-047-1-09
STA 158+42
58' Rt.

B&P B-047-2-10
STA 160+75
56' Lt.
CONCRETE = 8"

BBCM V-014-0-06
STA 162+84
6' Lt.
ASPHALT = 2"
CONCRETE = 10"
GRANULAR BASE = 6"

B&P B-048-0-09
STA 161+97
45' Lt.
GRAVEL = 16.8"

B&P B-051-0-09
STA 163+56
48' Rt.

BBCM V-015-0-06
STA 164+68
4' Rt.
TOPSOIL = 42"
36 SLI. ORG. (2.6%)

B&P B-055-0-09
STA 167+23
47' Rt.
TOPSOIL = 2.4"

BBCM V-017-0-06
STA 168+27
6' Rt.

B&P B-059-0-09
STA 170+04
39' Lt.
TOPSOIL = 6"

MATCHLINE EL. 520

700 690 680 670 660 650 640 630 620 610 600 590 580 570 560 550 540 530 520

157+00 158+00 159+00 160+00 161+00 162+00 163+00 164+00 165+00 166+00 167+00 168+00 169+00 170+00

HORIZONTAL SCALE IN FEET
0 50 100

SOIL PROFILE - W.B. I-90
STA. 156+50 TO STA. 170+50

CUY-90-14.90

65 / 116

BBCM

0 50 100
HORIZONTAL SCALE IN FEET

SOIL PROFILE - W.B.I-90
STA. 156+50 TO STA. 170+50

CUY-90-14.90

NOTE: ALL BORINGS ON THIS SHEET ARE SHOWN IN PLAN VIEW ON SHEET 64.

BRIDGE PROFILE
PROPOSED RAMP A5 ℄

EXISTING GROUND

B&P B-047-0-09
STA 707+24
21' Lt.
BROKEN CONCRETE AND GRAVEL = 12"

BBCM V-011-A-06
STA 707+96
30' Lt.
ASPHALT = 14"

B&P B-048-0-09
STA 703+62
45' Lt.
GRAVEL = 16.8"

B&P B-050-0-09
STA 702+27
25' Lt.
ASPHALT = 2.4"

B&P B-052-0-09
STA 699+39
8' Lt.
TOPSOIL = 2.5"

MATCHLINE EL. 520
B-047-0-09
708+00 707+00

MATCHLINE EL. 520

WC N_{60}

700 690 680 670 660 650 640 630 620 610 600 590 580 570 560 550 540 530 520

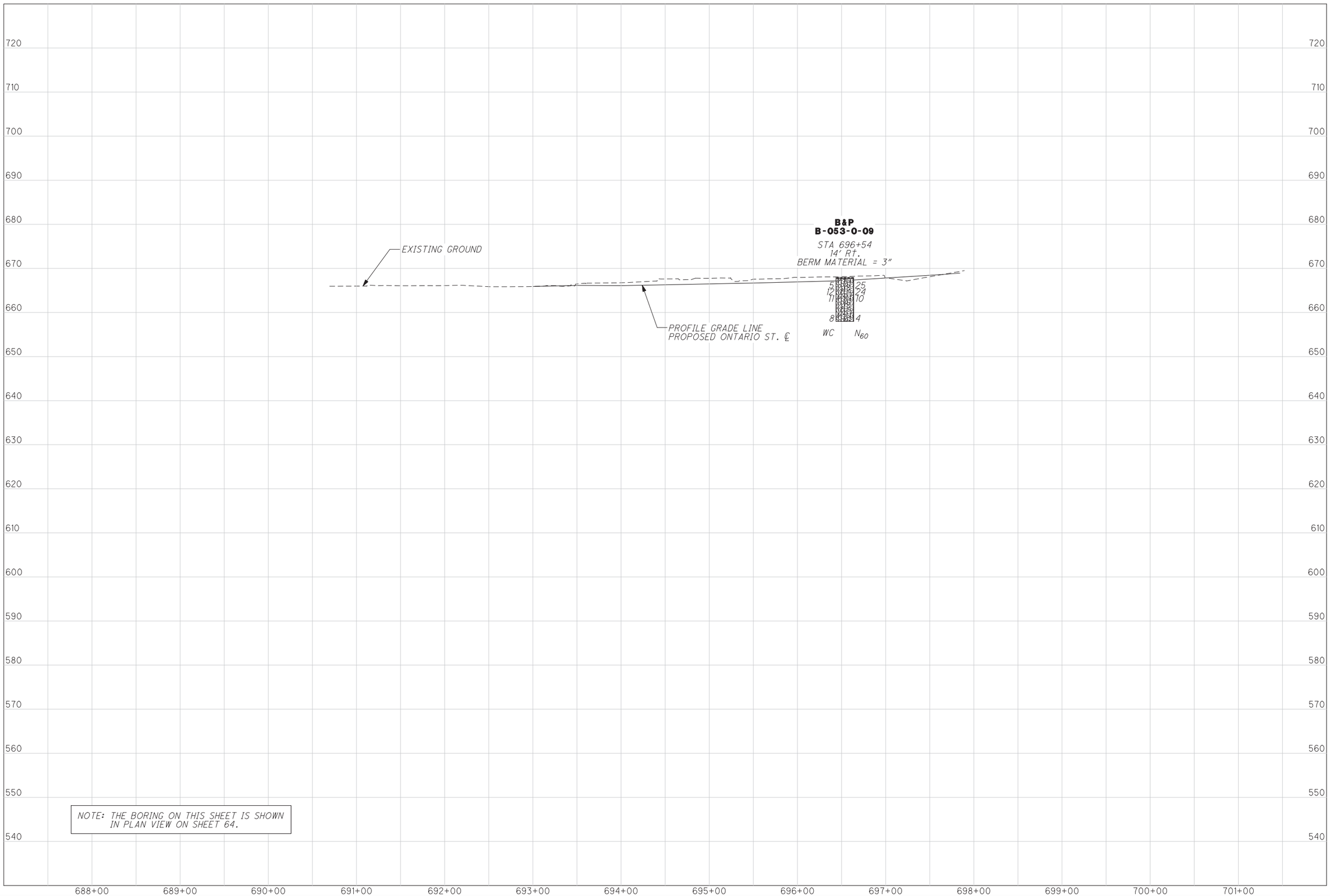
710+00 709+00 708+00 707+00 706+00 705+00 704+00 703+00 702+00 701+00 700+00 699+00 698+00

BBCM

HORIZONTAL SCALE IN FEET
0 50 100

SOIL PROFILE - RAMP A5
STA. 697+89.30 TO STA. 709+21

CUY-90-14.90



BBCM

0 50 100
HORIZONTAL SCALE IN FEET

SOIL PROFILE - ONTARIO ST.
STA. 690+69.56 TO STA. 698+89.30

CUY-90-14.90

B-004-0-86
CARNEGIE AVE. ℄
FUTURE E. 9TH ST. ℄
RAMP A4 ℄
B-062-0-09
PROPOSED RETAINING WALL
W-008-0-06
S-013-0-06
S-016-0-06
W-005-0-06
W-006-0-06
S-018-0-06
B-061-0-09
B-063-0-09
S-015-0-06
B-067-0-09
B-068-0-09
S-017-0-06
S-014-0-06
B-069-0-09
R-201-0-58
FUTURE W.B. I-90 ℄
W.B. I-90 ℄
B-064-0-09
B-106-0-58
B-010-E-56
B-060-0-09
TEMPORARY W.B. I-90 ℄
B-106-A-58
B-103-0-58
EX. I-90 MAINLINE
B-011-E-56
R-202-0-58
MATCHLINE STA. 170+50 (SEE SHEET 64)
MATCHLINE STA. 184+50 (SEE SHEET 73)

BORING PROFILE LOCATION REFERENCE STA. 170+50 TO STA. 184+50	
BORING ID	PROFILE/SECTION (SEE SHEET)
B-060-0-09	70, 71, 103
B-061-0-09	72, 103
B-062-0-09	103
B-063-0-09	70
B-064-0-09	71
B-067-0-09	74
B-068-0-09	74
B-069-0-09	74, 115
B-004-0-86	N/A[1]
B-103-0-58	71
B-106-0-58	N/A[1]
B-106-A-58	N/A[1]
B-010-E-56	N/A[1]
B-011-E-56	N/A[1]
R-201-0-58	N/A[1]
R-202-0-58	N/A[1]
S-013-0-06	70, 72
S-014-0-06	70
S-015-0-06	70
S-016-0-06	74
S-017-0-06	74
S-018-0-06	74
W-005-0-06	74
W-006-0-06	115
W-008-0-06	72

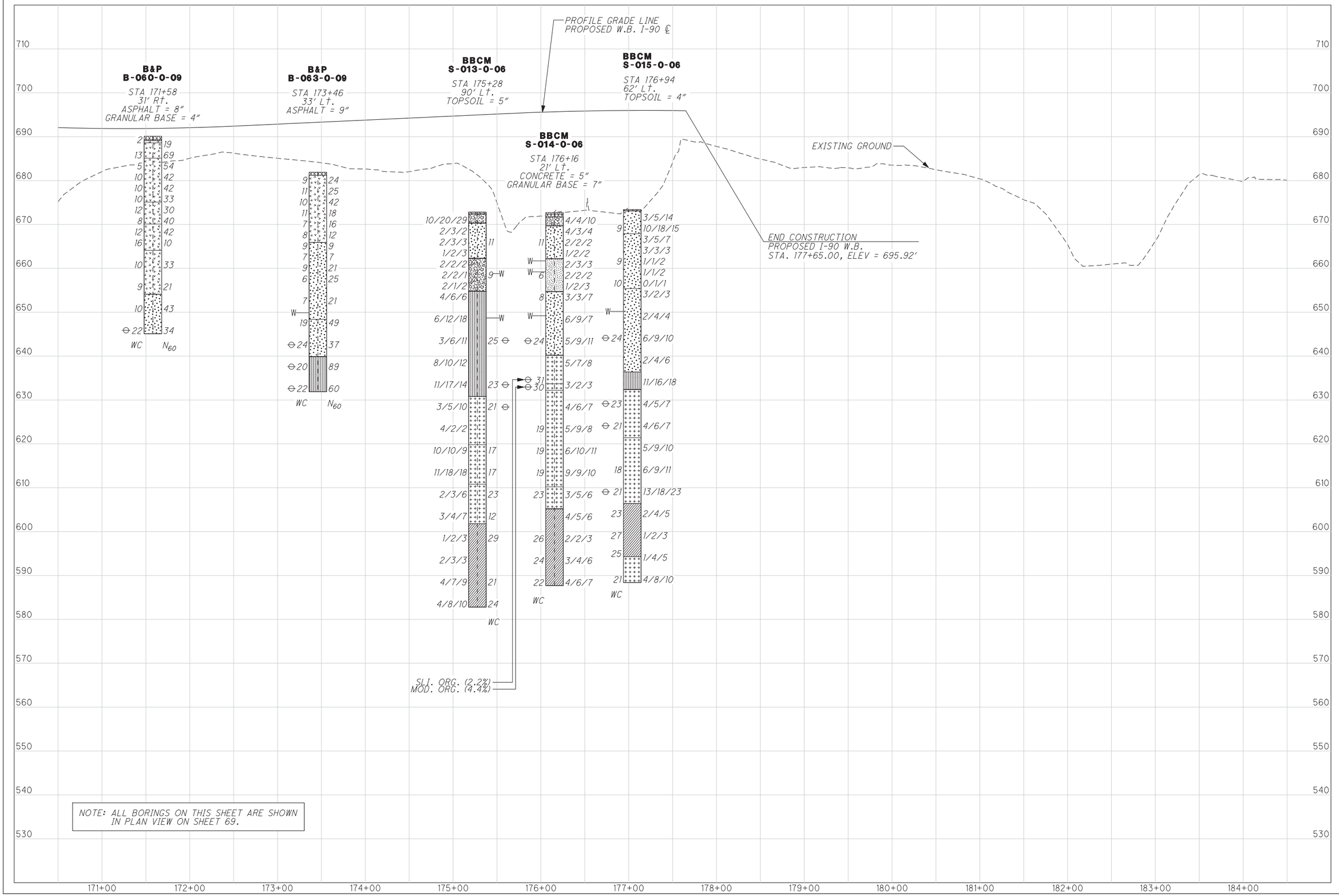
1- SOIL PROFILE OF BORING NOT INCLUDED ON ANY PROFILES OR CROSS SECTIONS IN THIS SUBMISSION. BORING LOG OR SOIL PROFILE IS AVAILABLE IN THE BORING LOG BINDER SUBMITTED UNDER A SEPARATE COVER.

BBCM

0 50 100
HORIZONTAL SCALE IN FEET

SOIL PROFILE - W.B.I-90
STA. 170+50 TO STA. 184+50

CUY-90-14.90

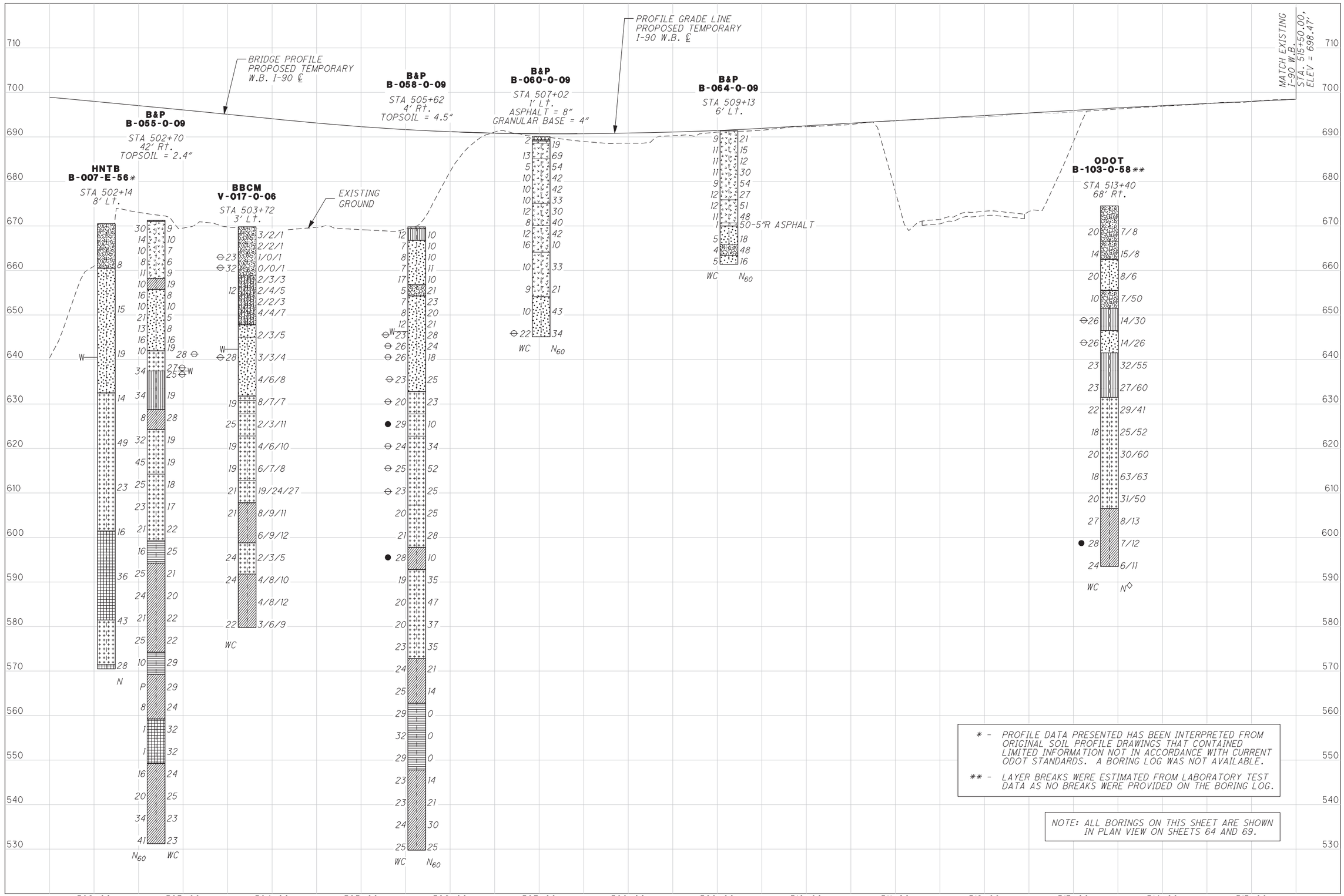


BBCM

HORIZONTAL SCALE IN FEET
0 50 100

SOIL PROFILE - W.B.I-90
STA.170+50 TO STA.184+50

CUY-90-14.90



* - PROFILE DATA PRESENTED HAS BEEN INTERPRETED FROM ORIGINAL SOIL PROFILE DRAWINGS THAT CONTAINED LIMITED INFORMATION NOT IN ACCORDANCE WITH CURRENT ODOT STANDARDS. A BORING LOG WAS NOT AVAILABLE.

** - LAYER BREAKS WERE ESTIMATED FROM LABORATORY TEST DATA AS NO BREAKS WERE PROVIDED ON THE BORING LOG.

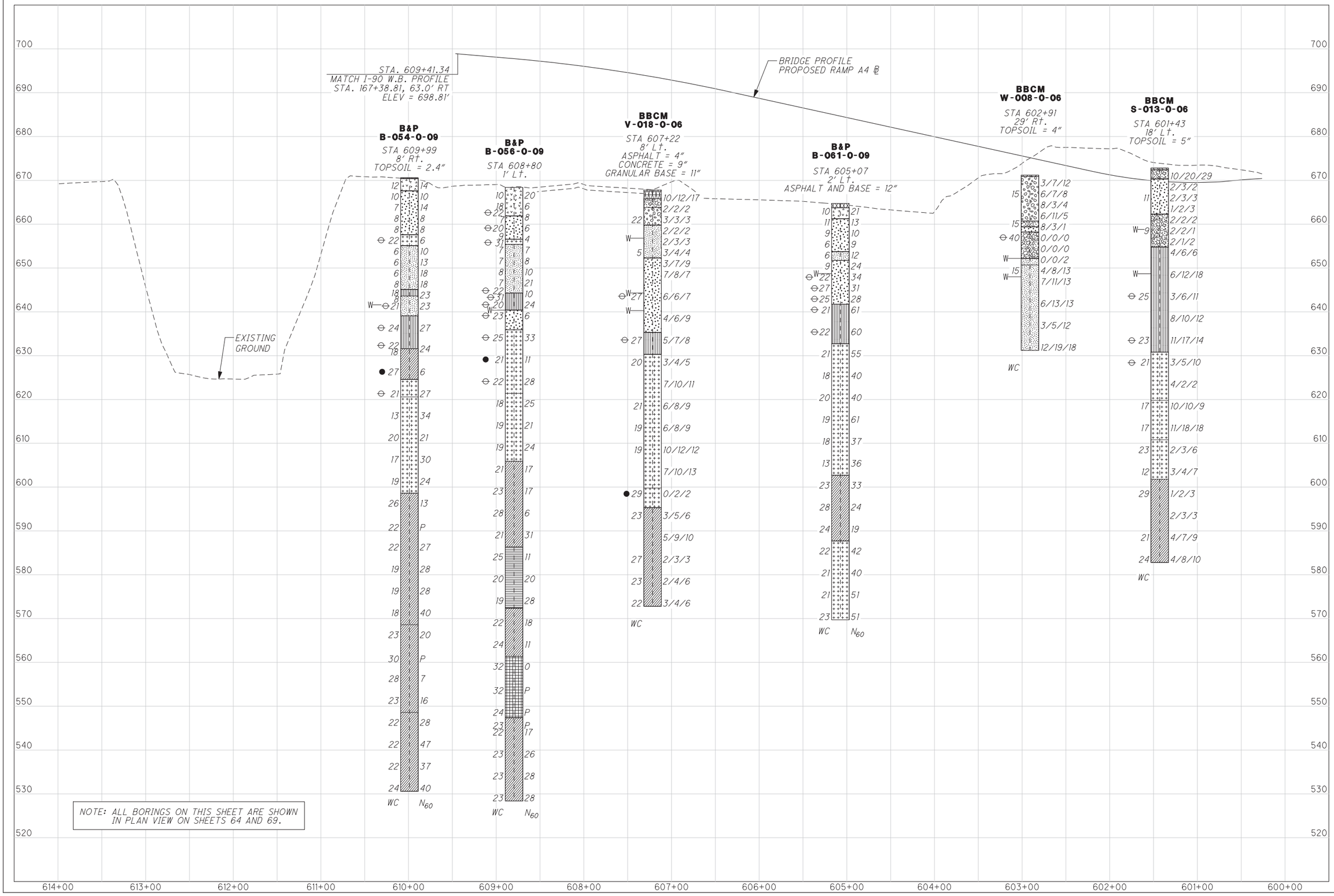
NOTE: ALL BORINGS ON THIS SHEET ARE SHOWN IN PLAN VIEW ON SHEETS 64 AND 69.

BBCM

0 50 100 HORIZONTAL SCALE IN FEET

SOIL PROFILE - TEMPORARY W.B. I-90
STA. 501+50 TO STA. 515+50

CUY-90-14.90



NOTE: ALL BORINGS ON THIS SHEET ARE SHOWN IN PLAN VIEW ON SHEETS 64 AND 69.

BBCM

HORIZONTAL SCALE IN FEET
0 50 100

SOIL PROFILE - RAMP A4
STA. 600+26.44 TO STA. 609+41.34

CUY-90-14.90

R-022-0-06
R-023-0-06
R-018-0-06
E. 14TH ST.
E. 18TH ST.
CARNEGIE AVE.
CENTRAL AVE.
W-007-0-06
TEMPORARY RAMP A3 ℄
S-023-0-06
S-022-0-06
S-020-0-06
S-019-0-06
S-021-0-06
R-005-0-06
FUTURE W.B. I-90 ℄
R-006-0-06
R-017-0-06
MATCHLINE STA. 184+50
(SEE SHEET 69)
R-204-0-58
TEMPORARY W.B. I-90 ℄
EX. I-90 MAINLINE
B-111-0-58
B-069-2-10
B-069-1-10
B-114-0-58

BBCM

0 50 100
HORIZONTAL SCALE IN FEET

SOIL PROFILE - W.B.I-90
STA. 184+50 TO END

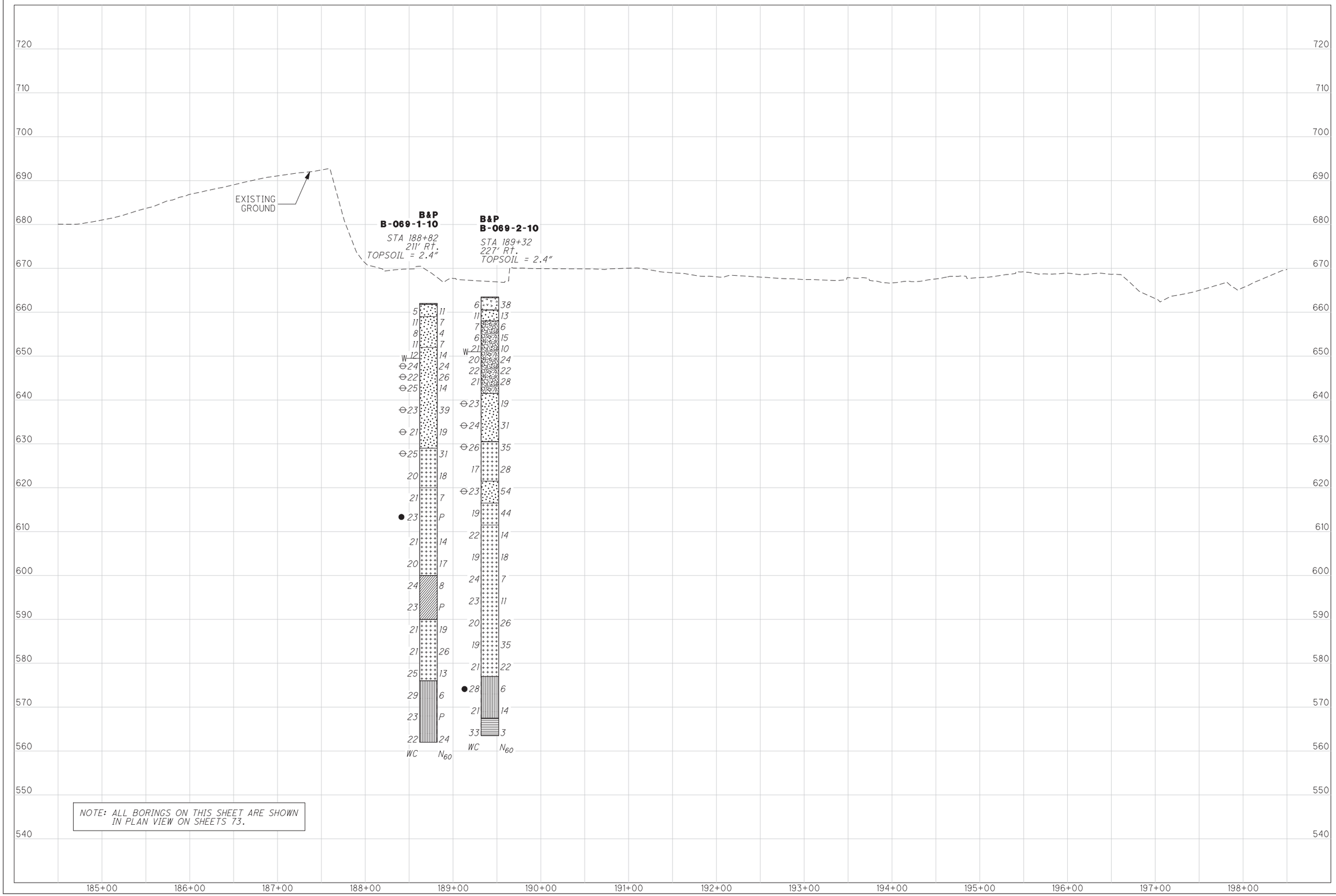
CUY-90-14.90

73 / 116

BORING PROFILE LOCATION REFERENCE
STA. 184+50 TO END

BORING ID	PROFILE/SECTION (SEE SHEET)
B-069-1-10	73A
B-069-2-10	73A
B-111-0-58	N/A[1]
B-114-0-58	N/A[1]
R-005-0-06	N/A[1]
R-006-0-06	N/A[1]
R-017-0-06	N/A[1]
R-018-0-06	N/A[1]
R-022-0-06	N/A[1]
R-023-0-06	N/A[1]
R-204-0-58	N/A[1]
S-019-0-06	114
S-020-0-06	74, 114
S-021-0-06	N/A[1]
S-022-0-06	N/A[1]
S-023-0-06	N/A[1]
W-007-0-06	74

1- SOIL PROFILE OF BORING NOT INCLUDED ON ANY PROFILES OR CROSS SECTIONS IN THIS SUBMISSION. BORING LOG OR SOIL PROFILE IS AVAILABLE IN THE BORING LOG BINDER SUBMITTED UNDER A SEPARATE COVER.



NOTE: ALL BORINGS ON THIS SHEET ARE SHOWN IN PLAN VIEW ON SHEETS 73.

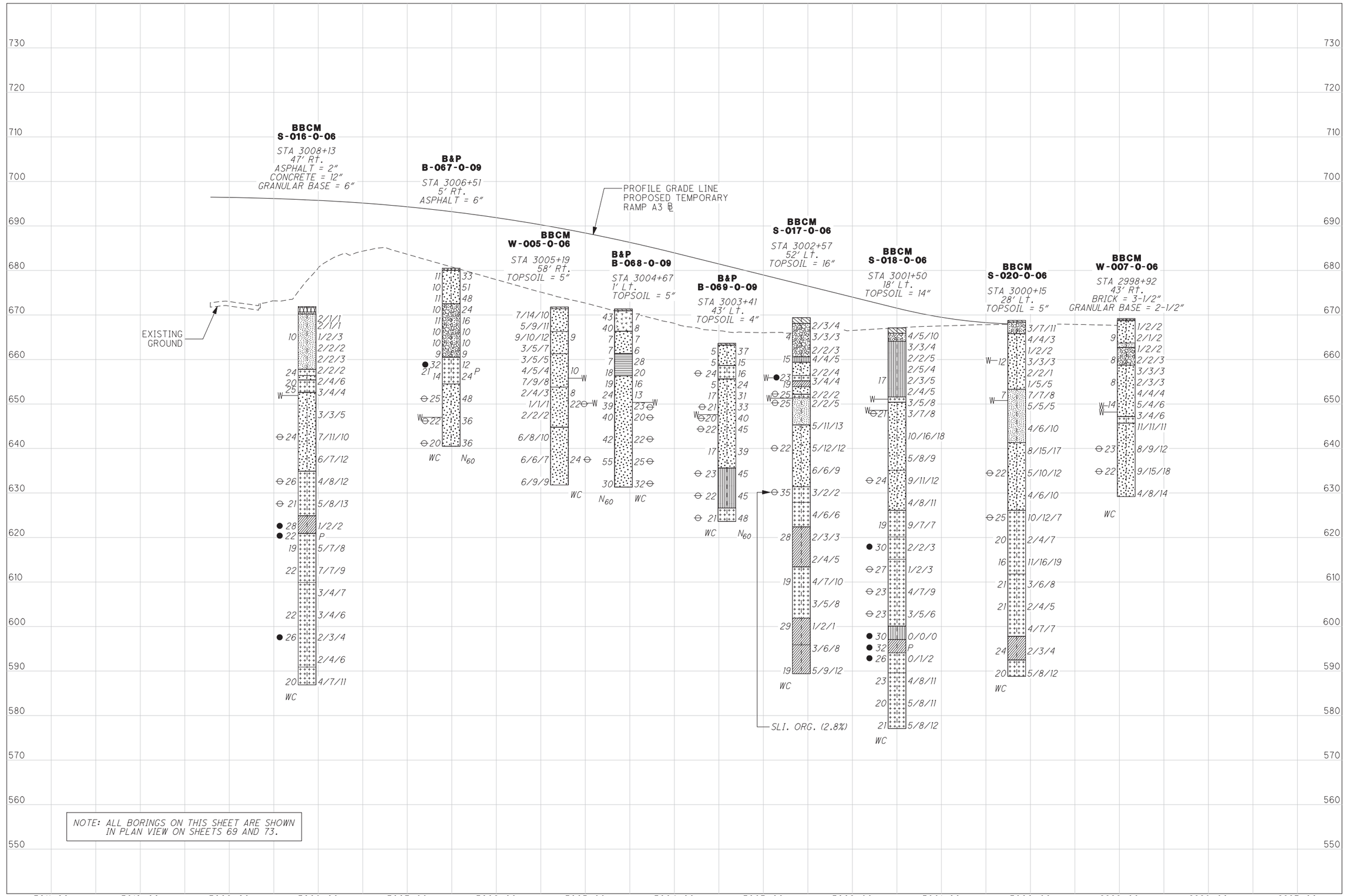
BBCM

HORIZONTAL SCALE IN FEET
0 50 100

SOIL PROFILE - W.B.I-90
STA. 184+50 TO STA. 198+50

CUY-90-14.90

73A / 116



NOTE: ALL BORINGS ON THIS SHEET ARE SHOWN IN PLAN VIEW ON SHEETS 69 AND 73.

BBCM

HORIZONTAL SCALE IN FEET
0 50 100

SOIL PROFILE - TEMPORARY RAMP A3
STA. 2999+00 TO STA. 3009+20.95

CUY-90-14.90

MATCHLINE STA. 13+50
(SEE SHEET 64)

DRIVE D ℄

GCRTA RAILROAD LINE

R-014-0-06

T-016-1-23

CANAL RD.

COMMERCIAL RD. ℄

MULTI-USE PATH

B-070-0-09

B-070-1-09

B-072-0-09

B-073-1-09

B-073-0-09

R-009-0-06

T-017-0-23

MATCHLINE STA. 25+50
(SEE SHEET 76)

B-071-0-09

R-007-0-06

R-008-0-06

E. 9TH ST. ℄

B-074-0-09

S-027-0-06

B-074-1-10

S-028-0-06

B-070-2-09

NORFOLK SOUTHERN RAILROAD LINE

T-013-1-23

T-014-0-23

B-070-3-09

BORING PROFILE LOCATION REFERENCE STA. 156+50 TO STA. 170+50	
BORING ID	PROFILE/SECTION (SEE SHEET)
B-074-1-10	76
B-070-0-09	76
B-070-1-09	76
B-070-2-09	N/A[1]
B-070-3-09	N/A[1]
B-071-0-09	76
B-072-0-09	76
B-073-0-09	76
B-073-1-09	76
B-074-0-09	76
R-007-0-06	76
R-008-0-06	76
R-009-0-06	76
R-014-0-06	77
S-027-0-06	76
S-028-0-06	76
T-013-1-23	N/A[1]
T-014-0-23	N/A[1]
T-016-1-23	N/A[1]
T-017-0-23	N/A[1]

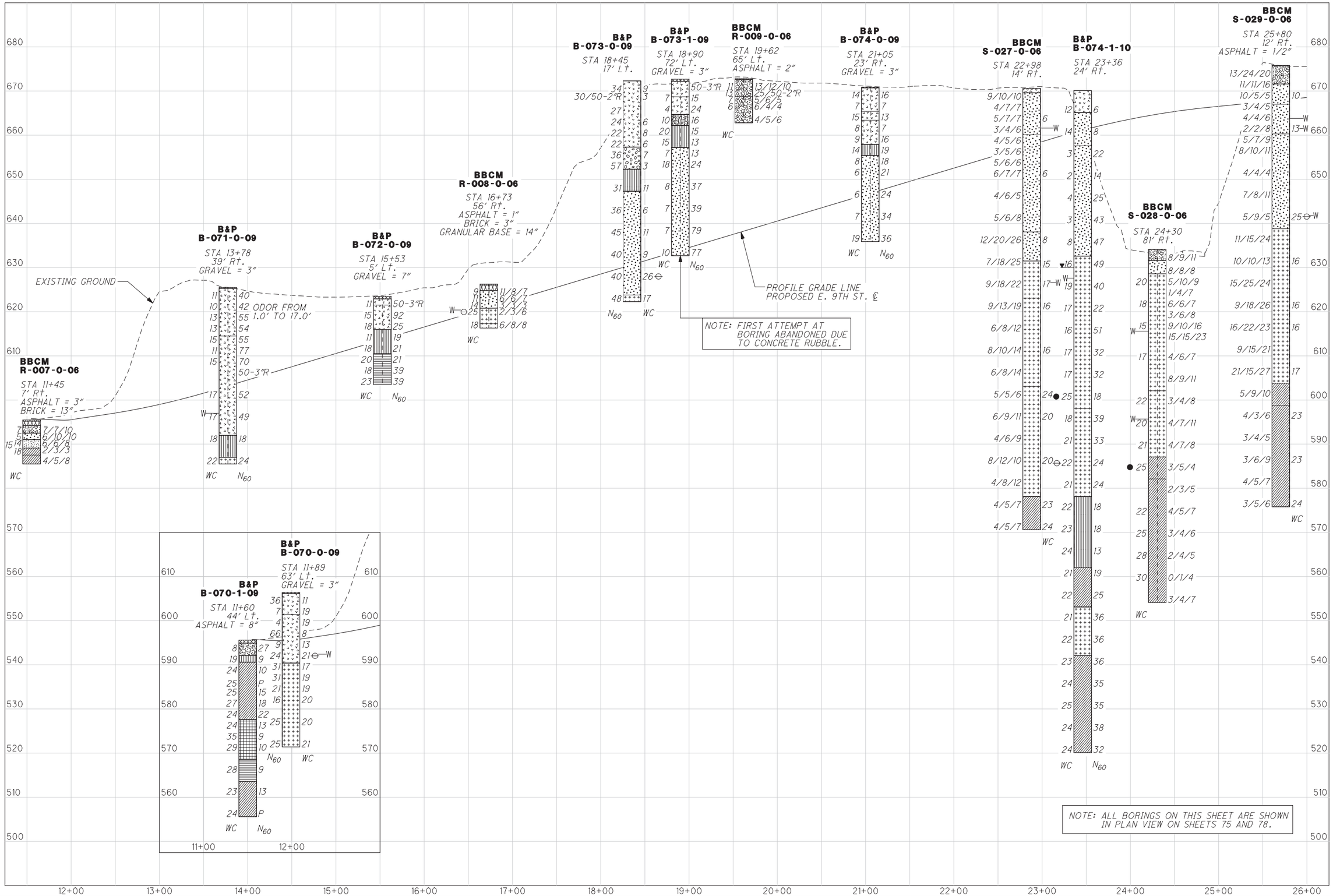
1- SOIL PROFILE OF BORING NOT INCLUDED ON ANY PROFILES OR CROSS SECTIONS IN THIS SUBMISSION. BORING LOG OR SOIL PROFILE IS AVAILABLE IN THE BORING LOG BINDER SUBMITTED UNDER A SEPARATE COVER.

BBCM

0 50 100
HORIZONTAL SCALE IN FEET

SOIL PROFILE - E.9TH ST.
STA. 11+54.79 TO STA 25+50

CUY-90-14.90



BBCM

HORIZONTAL SCALE IN FEET
0 50 100

SOIL PROFILE - E. 9TH ST.
STA. 11+54.79 TO STA. 26+00

CUY-90-14.90

PROFILE GRADE LINE
PROPOSED COMMERCIAL RD.

EXISTING
GROUND

BBCM
R-014-0-06
STA 12+49
51' Lt.
ASPHALT = 4"
BRICK = 12"

7 10/11/9
16 13 6/6/8
18 5/7/9
6/6/8
22 4/6/6
WC

BBCM
R-015-0-06
STA 15+25
13' Rt.
ASPHALT = 7"
SANDSTONE PAVER = 5"
SAND = 4"
CONCRETE = 6"
GRANULAR BASE = 2"

12 2/2/2
14 1/2/2
8 2/3/3
7 2/3/4
3/3/4
WC

BBCM
V-013-0-06
STA 18+61
27' Rt.
TOPSOIL = 12"

3/3/3
1/0/1
16 0/0/0
50-1"R
0/22/11
⊖27 1/0/1
20 2/3/6
5/3/4
16 2/2/5
⊖24 5/6/9
● 19 1/2/4
W
⊖23 7/9/10
18 10/13/12
21 2/3/6
20 2/5/5
2/5/7
● 30 1/2/2
24 2/3/5
4/8/11
20 8/11/16
22 8/9/10
23 2/4/6
WC

NOTE: ALL BORINGS ON THIS SHEET ARE SHOWN IN PLAN VIEW ON SHEETS 64 AND 75.

710 700 690 680 670 660 650 640 630 620 610 600 590 580 570 560 550 540 530

10+00 11+00 12+00 13+00 14+00 15+00 16+00 17+00 18+00 19+00 20+00

BBCM

0 50 100 HORIZONTAL SCALE IN FEET

SOIL PROFILE - COMMERCIAL RD.
STA. 10+00 TO STA. 20+07.23

CUY-90-14.90

BORING PROFILE LOCATION REFERENCE STA. 156+50 TO STA. 170+50	
BORING ID	PROFILE/SECTION (SEE SHEET)
B-075-0-09	79
B-076-0-09	79
B-076-1-09	79
B-076-2-09	79
B-076-3-09	79
B-077-0-09	80
B-121-0-58	N/A[1]
R-010-0-06	N/A[1]
R-011-0-06	79
R-012-0-06	79, 80
R-013-0-06	79
R-016-0-06	80
S-029-0-06	76, 79
T-009-0-23	N/A[1]
T-009-1-23	N/A[1]
T-011-0-23	N/A[1]
T-012-0-23	N/A[1]

1- *SOIL PROFILE OF BORING NOT INCLUDED ON ANY PROFILES OR CROSS SECTIONS IN THIS SUBMISSION. BORING LOG OR SOIL PROFILE IS AVAILABLE IN THE BORING LOG BINDER SUBMITTED UNDER A SEPARATE COVER.*

B-121-0-58

ORANGE AVE.

EXISTING E. 9TH ST.

E. 14TH ST. ℄

R-016-0-06

B-077-0-09

T-011-0-23

EXISTING S. BROADWAY AVE.

BROADWAY AVE. ℄

R-012-0-06

T-012-0-23

R-010-0-06

E. 9TH ST. ℄

R-011-0-06

B-075-0-09

S-029-0-06

B-076-0-09

B-076-1-09

T-009-0-23

B-076-2-09

B-076-3-09

R-013-0-06

T-009-1-23

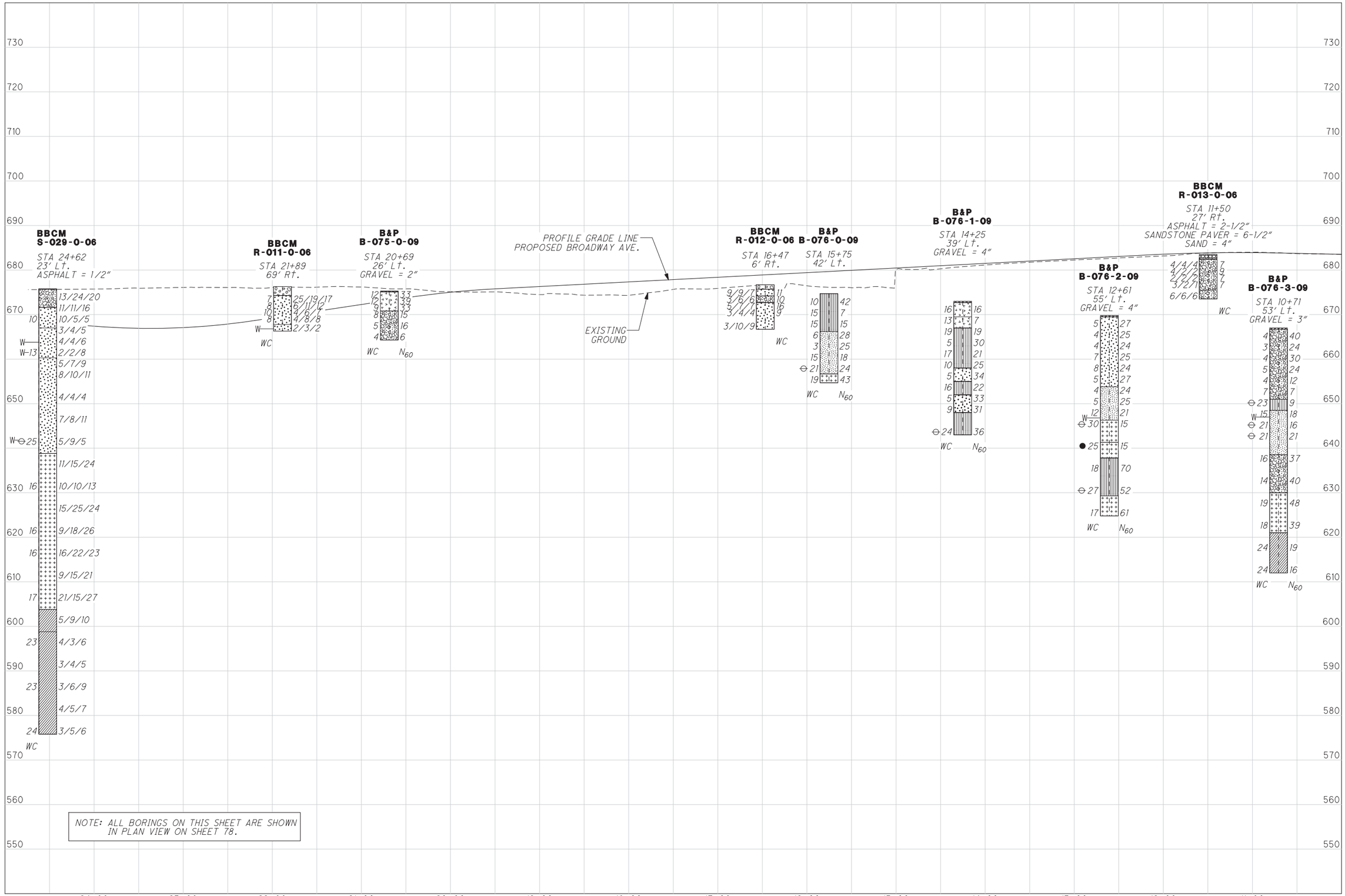
MATCHLINE STA. 25+50
(SEE SHEET 75)

BBCM

HORIZONTAL SCALE IN FEET
0 50 100

SOIL PROFILE - BROADWAY AVE.
STA. 10+00 TO STA 24+73.88

CUY-90-14.90



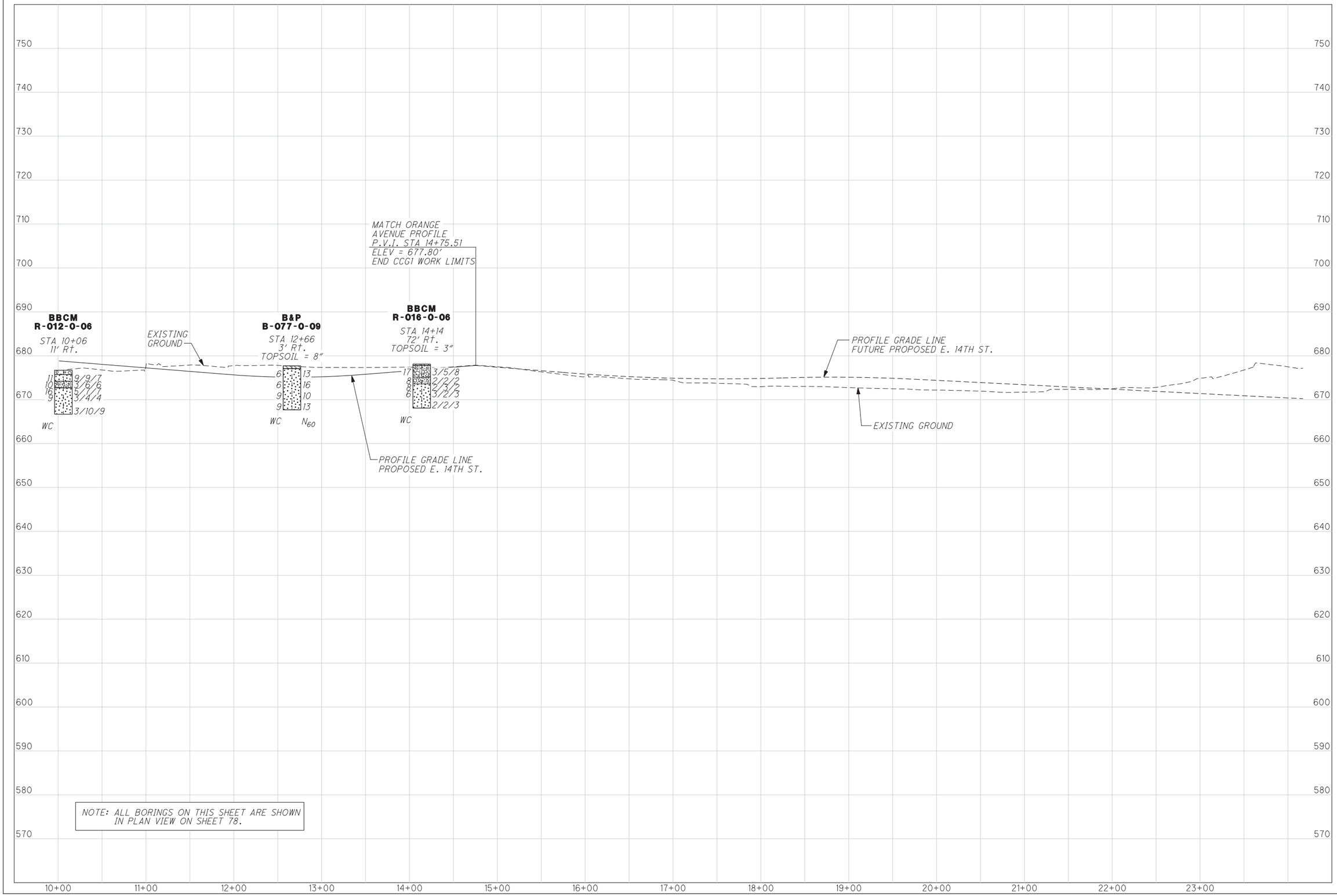
NOTE: ALL BORINGS ON THIS SHEET ARE SHOWN IN PLAN VIEW ON SHEET 78.

BBCM

HORIZONTAL SCALE IN FEET
0 50 100

SOIL PROFILE - BROADWAY AVE.
STA. 10+00 TO STA. 24+73.88

CUY-90-14.90



BBCM

HORIZONTAL SCALE IN FEET
0
50
100

SOIL PROFILE - E.14TH ST.
STA.10+01.13 TO STA.14+75.51

CUY-90-14.90

** - LAYER BREAKS WERE ESTIMATED FROM LABORATORY TEST DATA AS NO BREAKS WERE PROVIDED ON THE BORING LOG.

B&P
B-016-0-09
STA 110+84
94' Lt.

ODOT
B-084-0-64 **
STA 110+63
137' Rt.

EXISTING GROUND

B&P B-016-0-09		ODOT B-084-0-64 **	
		18	7/5
		11	11/11
		14	11/7
		15	11/19
		11	15/15
		18	13/21
		14	9/14
		⊖ 20	9/11
		⊖ 27	10/13
		⊖ 24	16/20
		⊖ 21	8/13
		⊖ 20	16/17
		19	19/27
		⊖ 24	7/11
		● 27	4/7
		21	8/11
		22	11/20
		21	12/21
		23	5/9
		● 26	5/8
		● 24	4/7
		● 34	5/? (UNREADABLE)
		● 28	5/6
		29	6/8
8	33		
9	7		
8	7		
11	6		
11	7		
12	12		
11	13		
12	22		
13	12		
12	34		
SLI. ORG. (3.1%) W ⊖42	3		
⊖23	25		
17	60		
16	22/40/50-5"		
16	100		
16	36		
WC	N_{60}	WC	$N^{\diamond}$

730 720 710 700 690 680 670 660 650 640 630 620 610 600 590 580 570 560 550

400' 300' 200' 100' ℄ 100' 200' 300' 400'

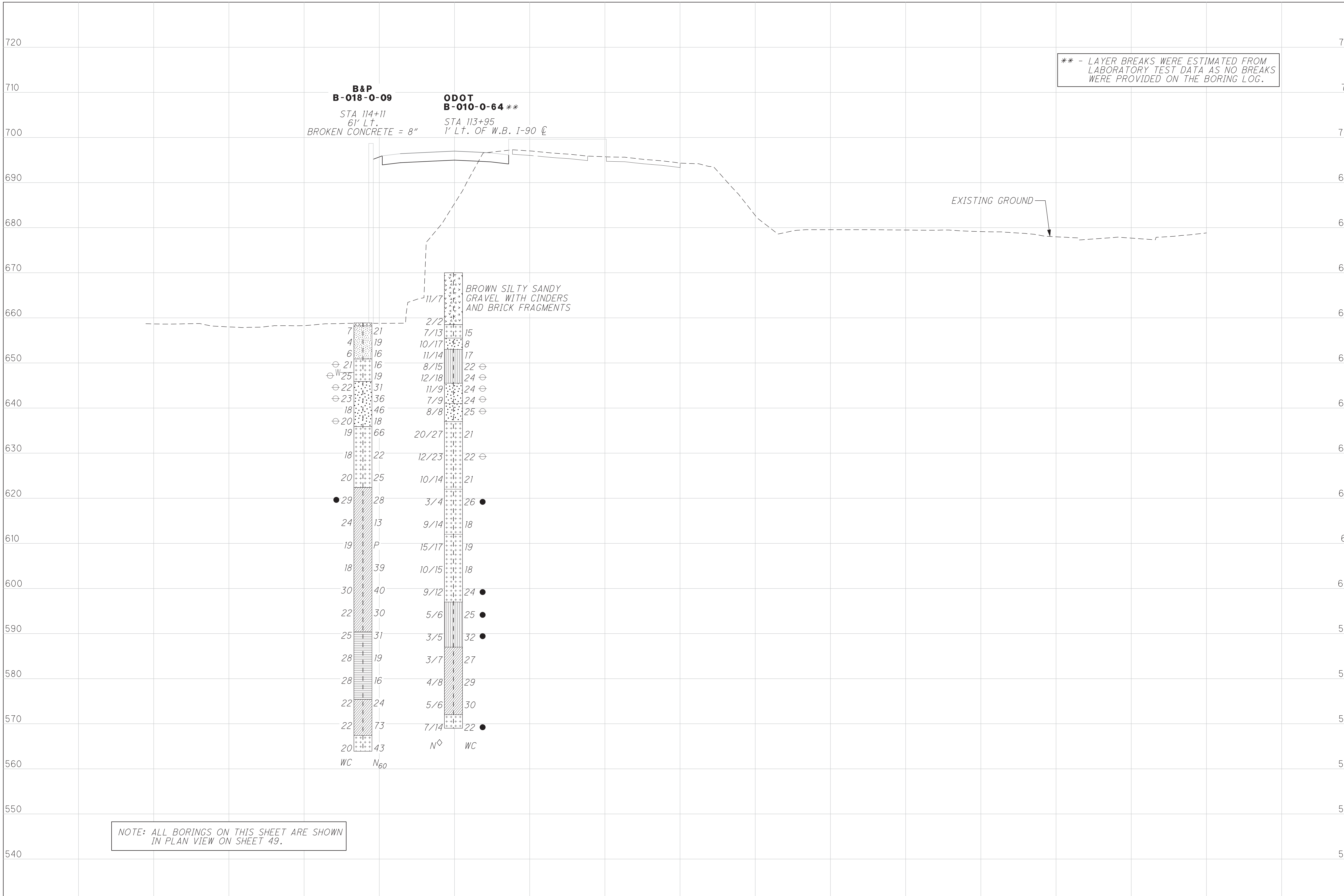
NOTE: ALL BORINGS ON THIS SHEET ARE SHOWN IN PLAN VIEW ON SHEET 49.

BBCM

HORIZONTAL SCALE IN FEET
0 30 60

SOIL PROFILE - W.B. I-90
CROSS SECTION STA. 111+00

CUY-90-14.90

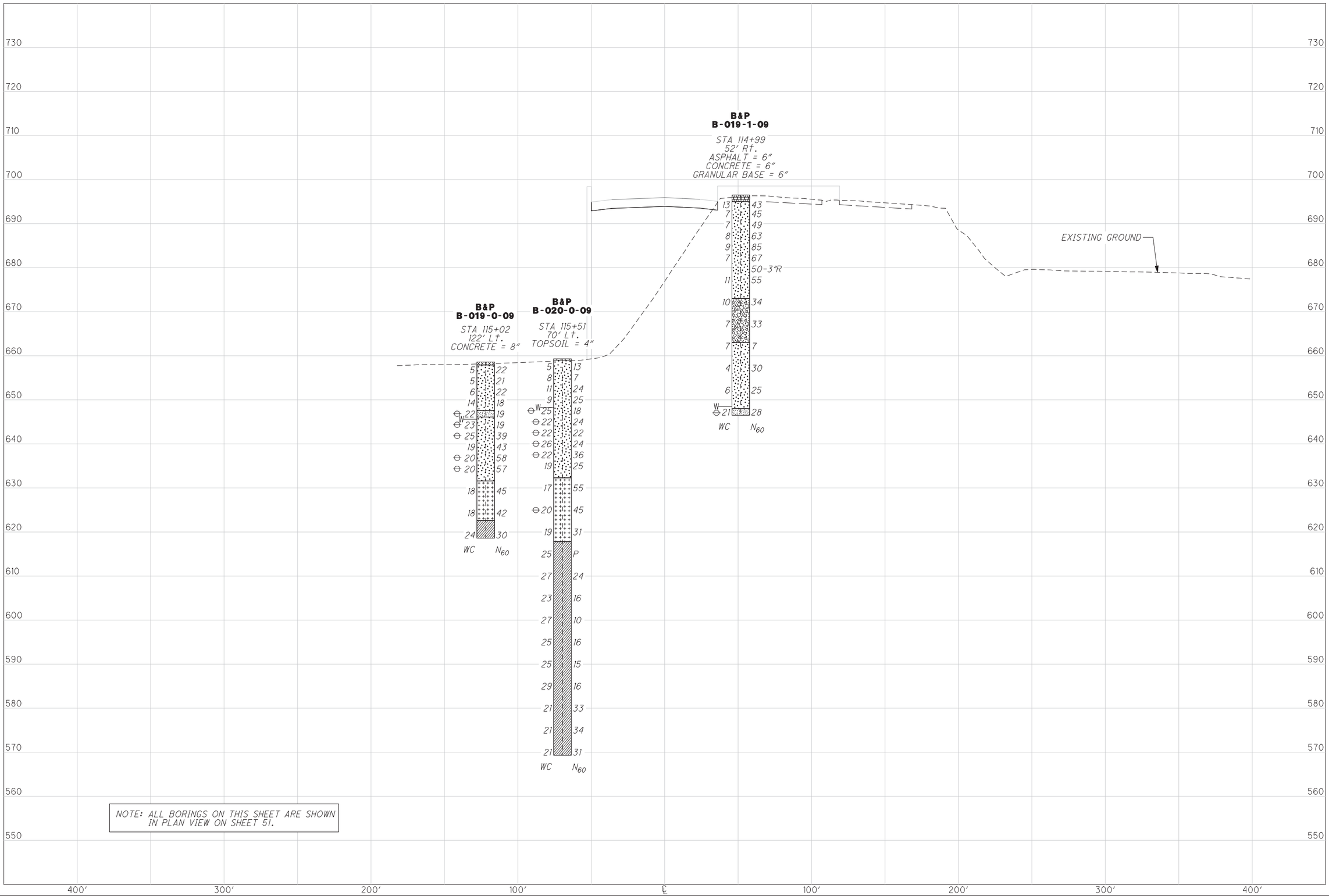


HORIZONTAL SCALE IN FEET

0 30 60

SOIL PROFILE - W.B. I-90 CROSS SECTION STA. 114+00

CUY-90-14.90



BBCM

60 30 0 HORIZONTAL SCALE IN FEET

SOIL PROFILE - W.B.I-90
CROSS SECTION STA. 115+00

CUY-90-14.90

730 720 710 700 690 680 670 660 650 640 630 620 610 600 590 580 570 560 550

BBCM
S-010-0-06
STA 119+24
59' Rt.
TOPSOIL = 8"

EXISTING GROUND

B&P
B-022-0-09
STA 118+47
46' Lt.

20	10
7	11
6	14
6	23
W 23	21
27	15
25	20
24	20
25	11
23	24
22	15
20	15
24	17
21	14
23	11
23	10
20	22
20	17
23	13
24	7
26	7
29	8
29	4
23	11
24	10
20	40
21	31
20	28
WC	N_{60}

2/3/5	W
1/2/1	W
0/0/0	
0/0/0	16
0/0/1	
1/0/1	27 W
3/5/8	
1/2/5	26
1/2/3	
5/9/13	20
5/6/11	22
1/3/4	
2/3/5	23
2/3/5	21
2/3/7	
3/6/10	19
2/6/8	20
4/4/6	21
4/4/7	
0/0/2	31
0/2/5	27
1/4/7	21
WC	

NOTE: ALL BORINGS ON THIS SHEET ARE SHOWN IN PLAN VIEW ON SHEET 51.

MATCHLINE EL. 550

400' 300' 200' 100' ℄ 100' 200' 300' 400'

BBCM

HORIZONTAL SCALE IN FEET
0 30 60

SOIL PROFLIE - W.B.I-90
CROSS SECTION STA. 118+50

CUY-90-14.90

MATCHLINE EL. 550

B-022-0-09

WC	N_{60}
20	31
21	28
21	25
23	24
22	26
24	21
23	21
22	21
24	21
24	21
24	21
10	110
12	113
TR—11	23/39/50-4"R

550 540 530 520 510 500 490 480 470 460 450 440 430 420 410 400 390 380 370

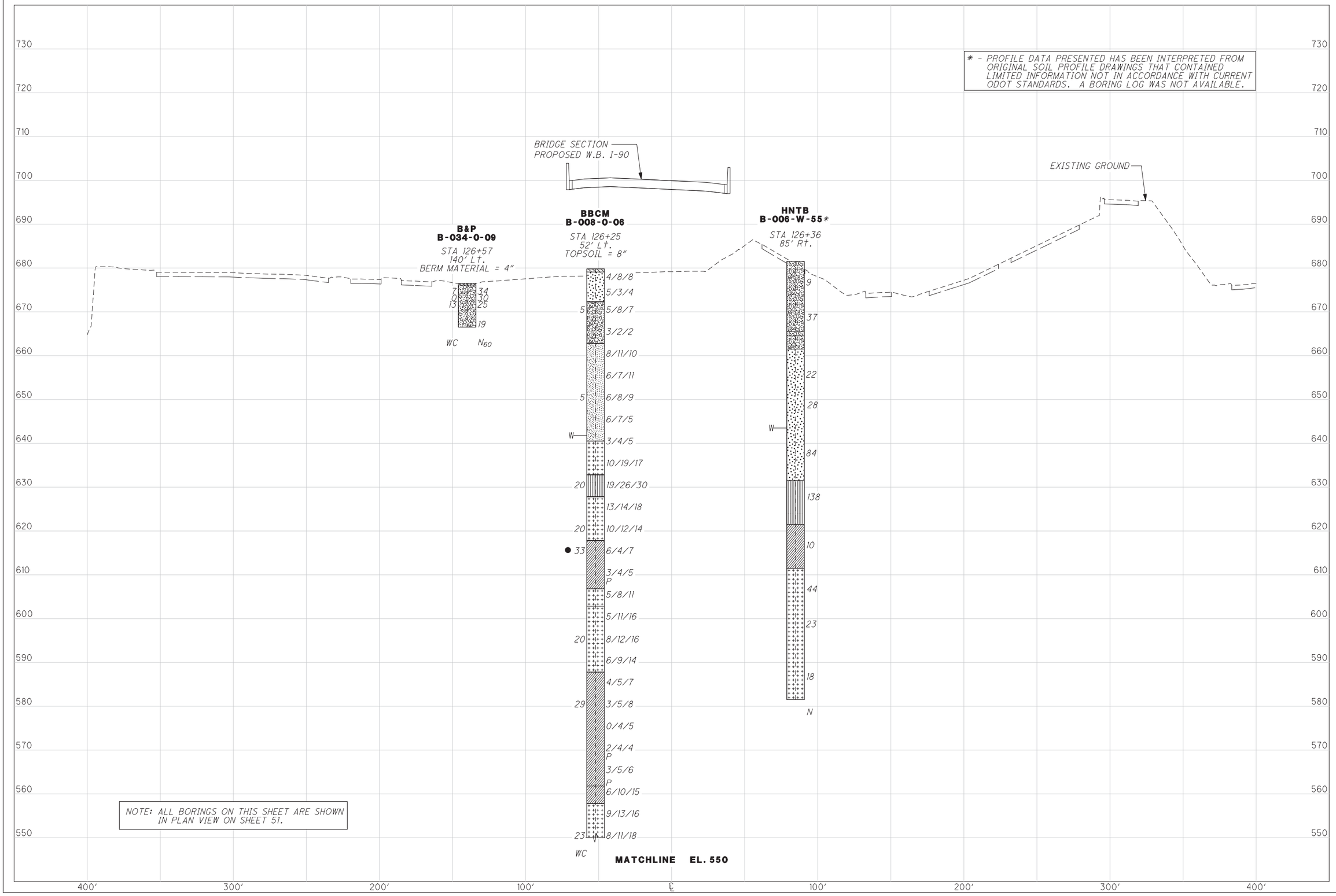
400′ 300′ 200′ 100′ ℄ 100′ 200′ 300′ 400′

BBCM

HORIZONTAL SCALE IN FEET
0 30 60

SOIL PROFILE - W.B.I-90
CROSS SECTION STA. 118+50

CUY-90-14.90



BBCM

HORIZONTAL SCALE IN FEET
0 30 60

SOIL PROFILE - W.B.I-90
CROSS SECTION STA. 126+50

CUY-90-14.90

86 / 116

MATCHLINE EL. 550

B-008-0-06

7/9/13
7/11/16
16 7/13/19
6/9/13
23 6/11/13
5/9/12
6/10/16
23 7/11/16
6/8/12
23 6/11/13
8/12/15
● 22 11/17/29
22/36/50-5"R
COBBLES
21/42/50-5"R
24 15/26/32
9/14/15
TR 26/37/50-5"R
50-2"R

WC

NOTE: INCLINOMETER INSTALLED TO A DEPTH OF 228'. VIBRATING WIRE PIEZOMETERS INSTALLED IN OFFSET HOLE AT DEPTHS OF 65.5' AND 110.5'.

550 540 530 520 510 500 490 480 470 460 450 440 430 420 410 400 390 380 370

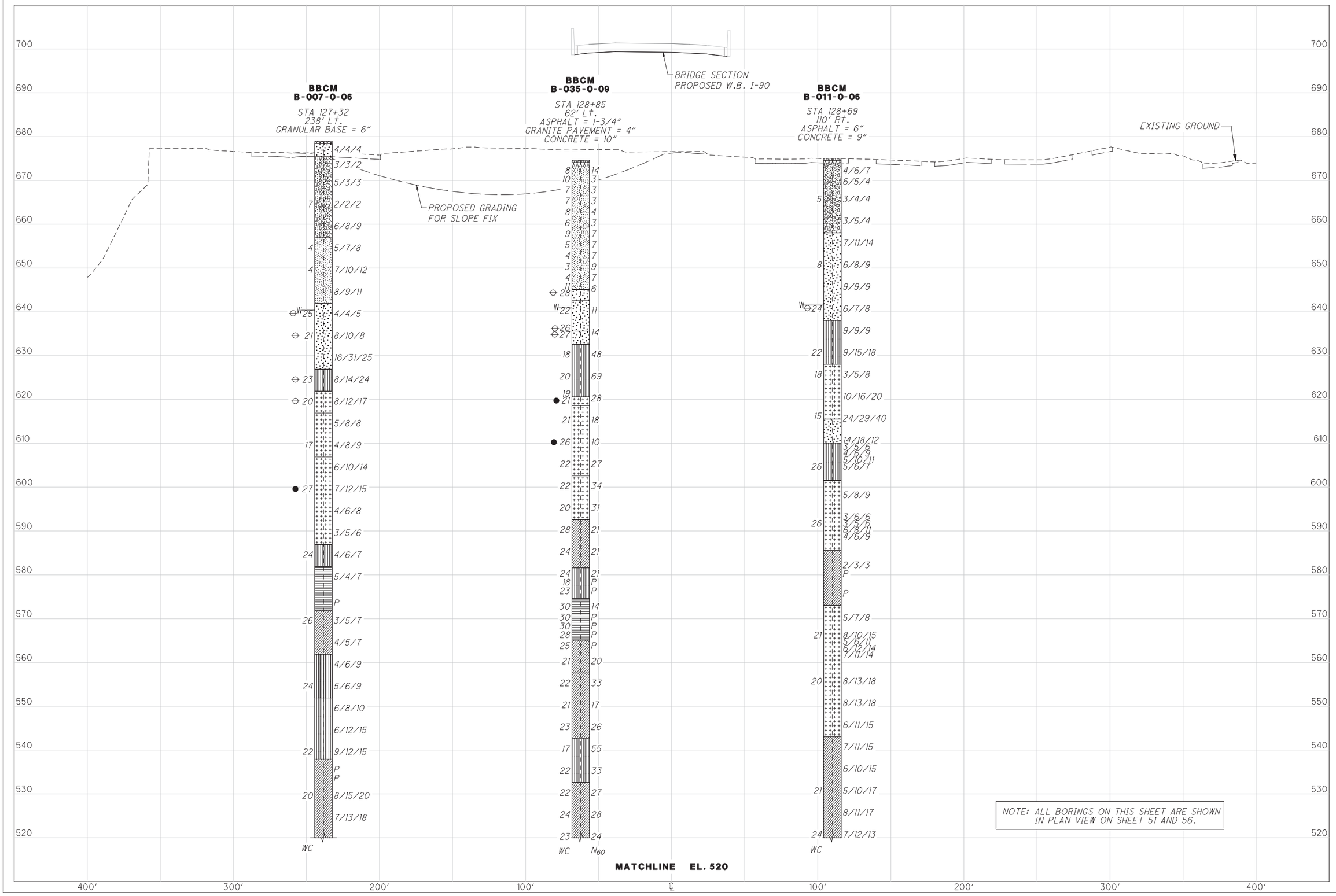
400' 300' 200' 100' ℄ 100' 200' 300' 400'

BBCM

0 30 60 HORIZONTAL SCALE IN FEET

SOIL PROFILE - W.B.I-90
CROSS SECTION STA. 126+50

CUY-90-14.90



NOTE: ALL BORINGS ON THIS SHEET ARE SHOWN IN PLAN VIEW ON SHEET 51 AND 56.

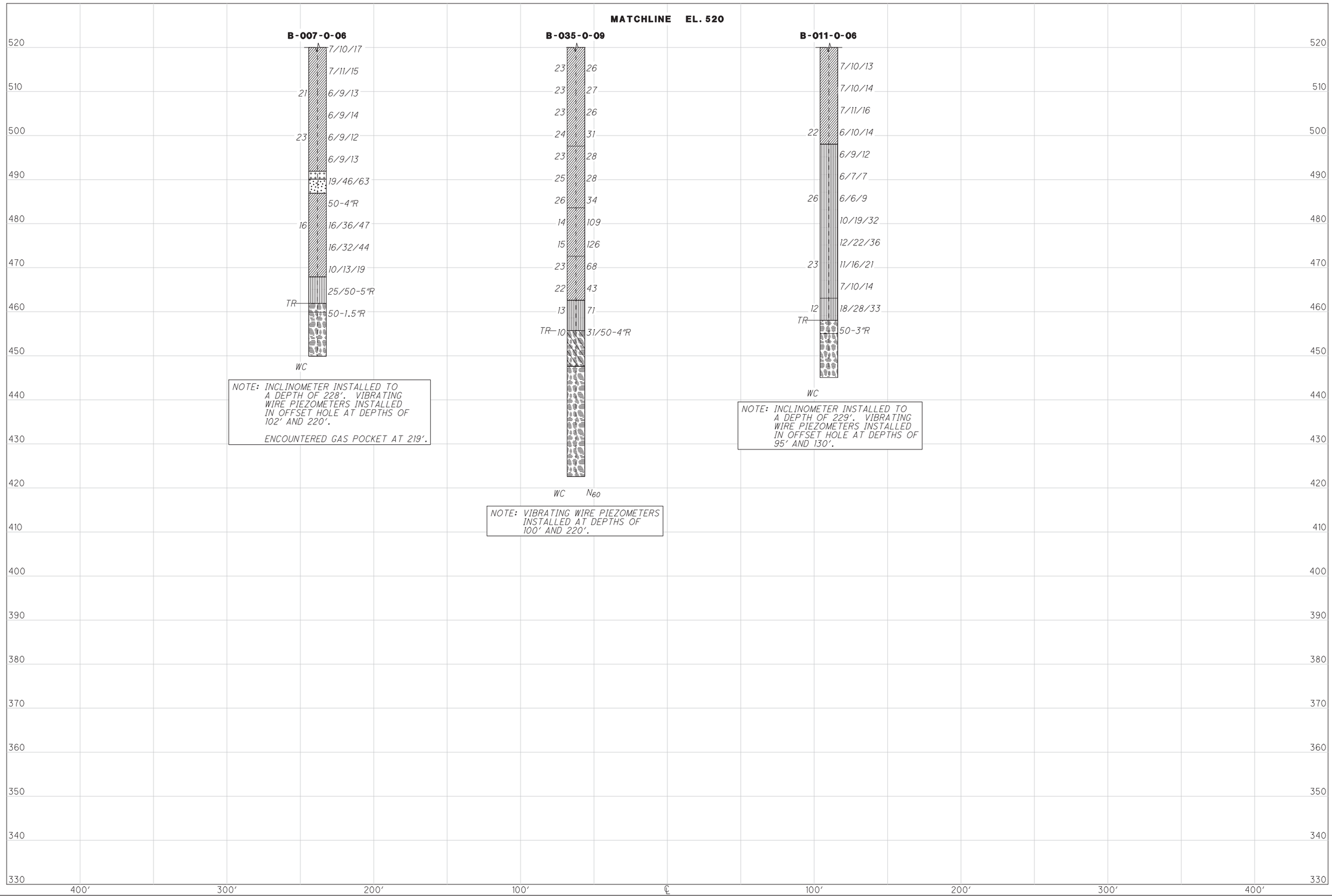
BBCM

HORIZONTAL SCALE IN FEET
0 30 60

SOIL PROFILE - W.B.I-90
CROSS SECTION STA. 128+00

CUY-90-14.90

MATCHLINE EL. 520



BBCM

HORIZONTAL SCALE IN FEET
0 30 60

SOIL PROFILE - W.B.I-90
CROSS SECTION STA. 128+00

CUY-90-14.90

89 / 116

BRIDGE SECTION
PROPOSED W.B. I-90

EXISTING GROUND

PROPOSED GRADING
FOR SLOPE FIX

BBCM
B-037-1-09
STA 131+34
56' Lt.
ASPHALT = 5"
CONCRETE = 7"

BBCM
B-012-0-06
STA 131+17
33' Rt.
CONCRETE = 10-1/2"
GRANULAR BASE = 1-1/2"

NOTE: ALL BORINGS ON THIS SHEET ARE SHOWN IN PLAN VIEW ON SHEET 56.

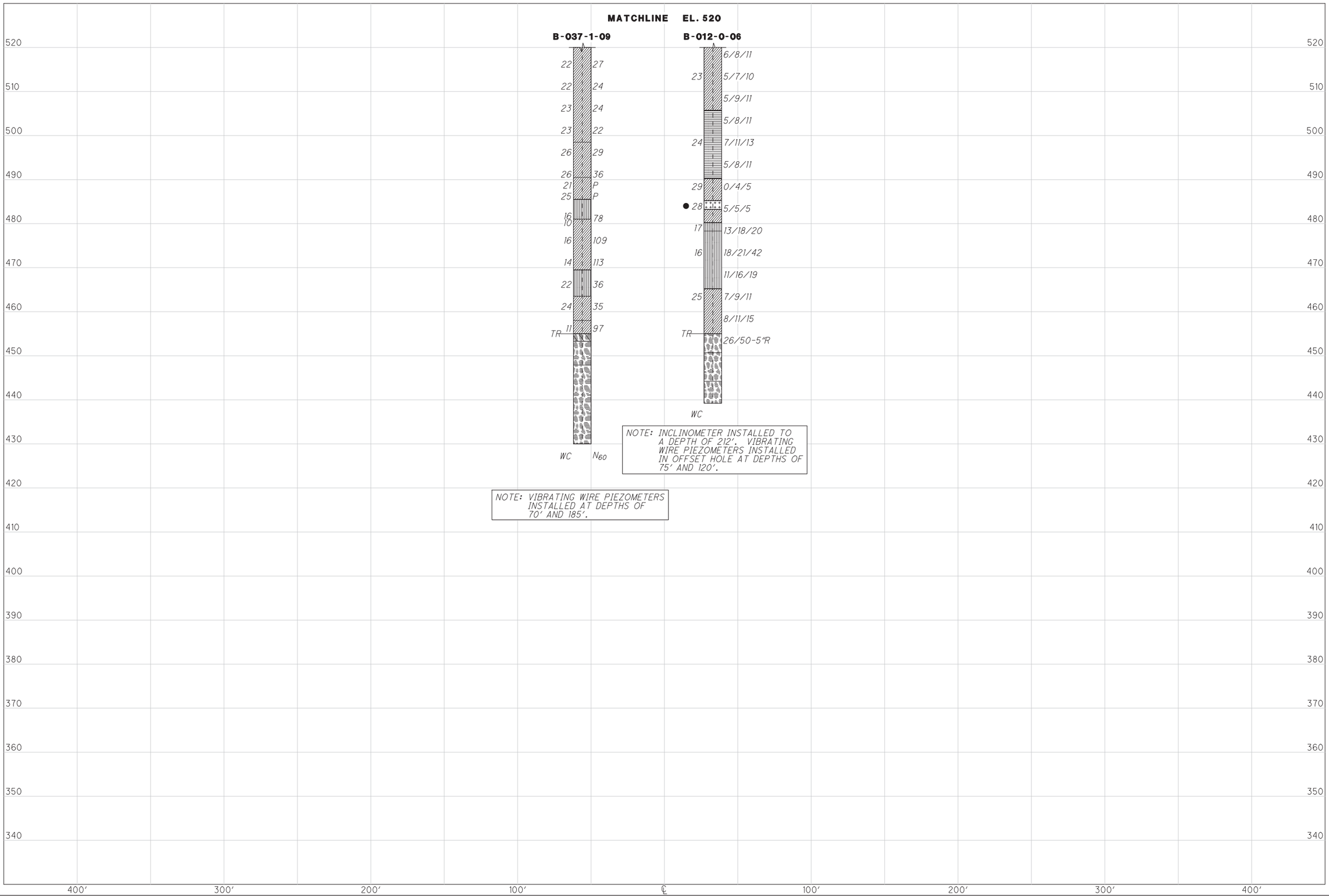
MATCHLINE EL. 520

BBCM

HORIZONTAL SCALE IN FEET
0 30 60

W.B. I-90 - SOIL PROFILE
CROSS SECTION STA. 131+00

CUY-90-14.90

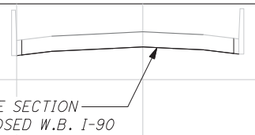


BBCM

0 30 60 HORIZONTAL SCALE IN FEET

SOIL PROFILE - W.B.I-90
CROSS SECTION STA. 131+00

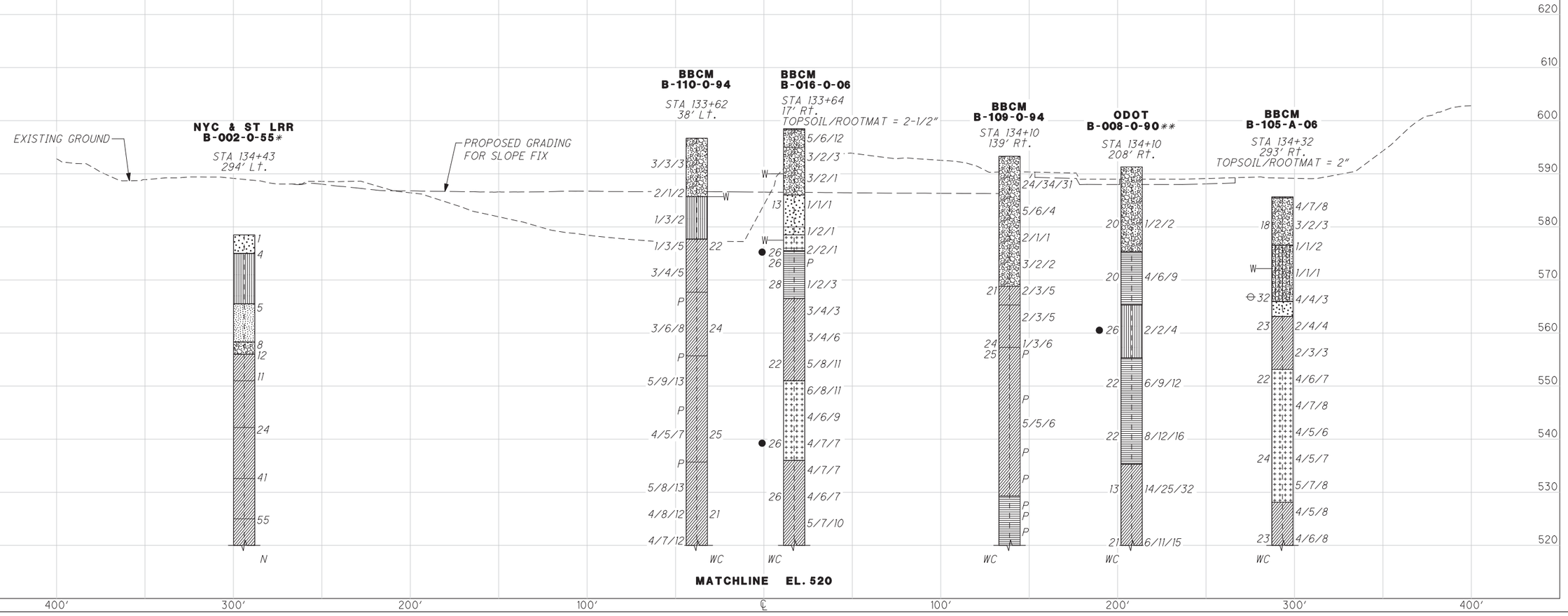
CUY-90-14.90



* - PROFILE DATA PRESENTED HAS BEEN INTERPRETED FROM ORIGINAL SOIL PROFILE DRAWINGS THAT CONTAINED LIMITED INFORMATION NOT IN ACCORDANCE WITH CURRENT ODOT STANDARDS. A BORING LOG WAS NOT AVAILABLE.

** - LAYER BREAKS WERE ESTIMATED FROM LABORATORY TEST DATA AS NO BREAKS WERE PROVIDED ON THE BORING LOG.

NOTE: ALL BORINGS ON THIS SHEET ARE SHOWN IN PLAN VIEW ON SHEET 56.



BBCM

HORIZONTAL SCALE IN FEET
0 30 60

SOIL PROFILE - W.B.I-90
CROSS SECTION STA. 134+00

CUY-90-14.90

MATCHLINE EL. 510

B-002-0-55*

18
22
50
9
54
28
17
28
126 TR

N

B-110-0-94

4/10/11 24
4/8/12
5/8/13
5/9/13 23
5/8/11 25
5/9/11
P
11/14/19
15/37/58
14/36/52 18
7/12/14
P-R
80-4"R
20/41/67 TR

WC

NOTE: INCLINOMETER INSTALLED TO A DEPTH OF 154'. INCLINOMETER WAS DESTROYED IN MARCH 2006.

B-016-0-06

5/6/8
24 4/7/10
5/5/9
7/10/13
24 5/9/11
5/7/10
5/7/8
● 30 P
⊖ 25 P
12/24/44
12/24/31
30 5/9/11
5/7/8
7/9/11
22 6/11/15
16/30/50-5"R
TR 50-2"R

WC

NOTE: INCLINOMETER INSTALLED TO A DEPTH OF 163'.

B-109-0-94

4/6/9
23 4/7/8
5/7/11
6/8/11
5/8/11
P
P
P
10/14/19
15/21/27
P
P
2 19/19/27
15/19/20
23/34/38
TR 52
36/50-1"R
100-2"R

WC

NOTE: INCLINOMETER INSTALLED TO A DEPTH OF 162'. INCLINOMETER WAS DESTROYED IN 1997.

B-008-0-90**

22 7/12/17
▼ ⊖ 21 14/19/25
⊖ 28 3/9/15
12 21/27/33
12 36/52/58
16 25/26/33

WC

NOTE: INCLINOMETER INSTALLED TO A DEPTH OF 130'. INCLINOMETER WAS DESTROYED IN 1997.

B-105-A-06

4/7/8
4/7/9
27 4/7/10
3/5/6
5/8/8
P
3/4/5
3/4/4
28 P
34 P
● 28 P
16 14/28/36
9/13/14
6/10/10
28 7/8/10
5/8/11
TR 11/11/22
50/50-1"R

WC

NOTE: INCLINOMETER INSTALLED TO A DEPTH OF 155'. PNEUMATIC PIEZOMETERS LOCATED IN ADJACENT HOLE (P-003-0-94) AT DEPTHS OF 38' (ABANDONED), 88' AND 106'.

520 510 500 490 480 470 460 450 440 430 420 410 400 390 380 370 360 350 340

400' 300' 200' 100' ℄ 100' 200' 300' 400'

BBCM

HORIZONTAL SCALE IN FEET
0 30 60

SOIL PROFILE - W.B.I-90
CROSS SECTION STA. 134+00

CUY-90-14.90

BRIDGE SECTION
PROPOSED W.B. I-90

EXISTING NORFOLK SOUTHERN
RAILROAD BRIDGE

* - PROFILE DATA PRESENTED HAS BEEN INTERPRETED FROM ORIGINAL SOIL PROFILE DRAWINGS THAT CONTAINED LIMITED INFORMATION NOT IN ACCORDANCE WITH CURRENT ODOT STANDARDS. A BORING LOG WAS NOT AVAILABLE.

EXISTING GROUND

SAND, CINDERS AND SLAG

OILEY RIVER MUCK WITH
SMALL BOULDERS AND
WOOD PIECES

NYC & ST LRR
B-003-0-55*
STA 136+60
149' LT.

BBCM
B-013-0-06
STA 137+12
103' LT.
GRANULAR BASE = 12"

B&P
B-039-0-09
STA 137+51
71' LT.

BBCM
B-014-0-06
STA 137+12
124' RT.
GRANULAR BASE = 6"

DLZ
B-002-0-00
STA 137+87
337' RT.
AGGREGATE BASE = 36 INCHES

NOTE: ALL BORINGS ON THIS SHEET ARE SHOWN IN PLAN VIEW ON SHEET 56.

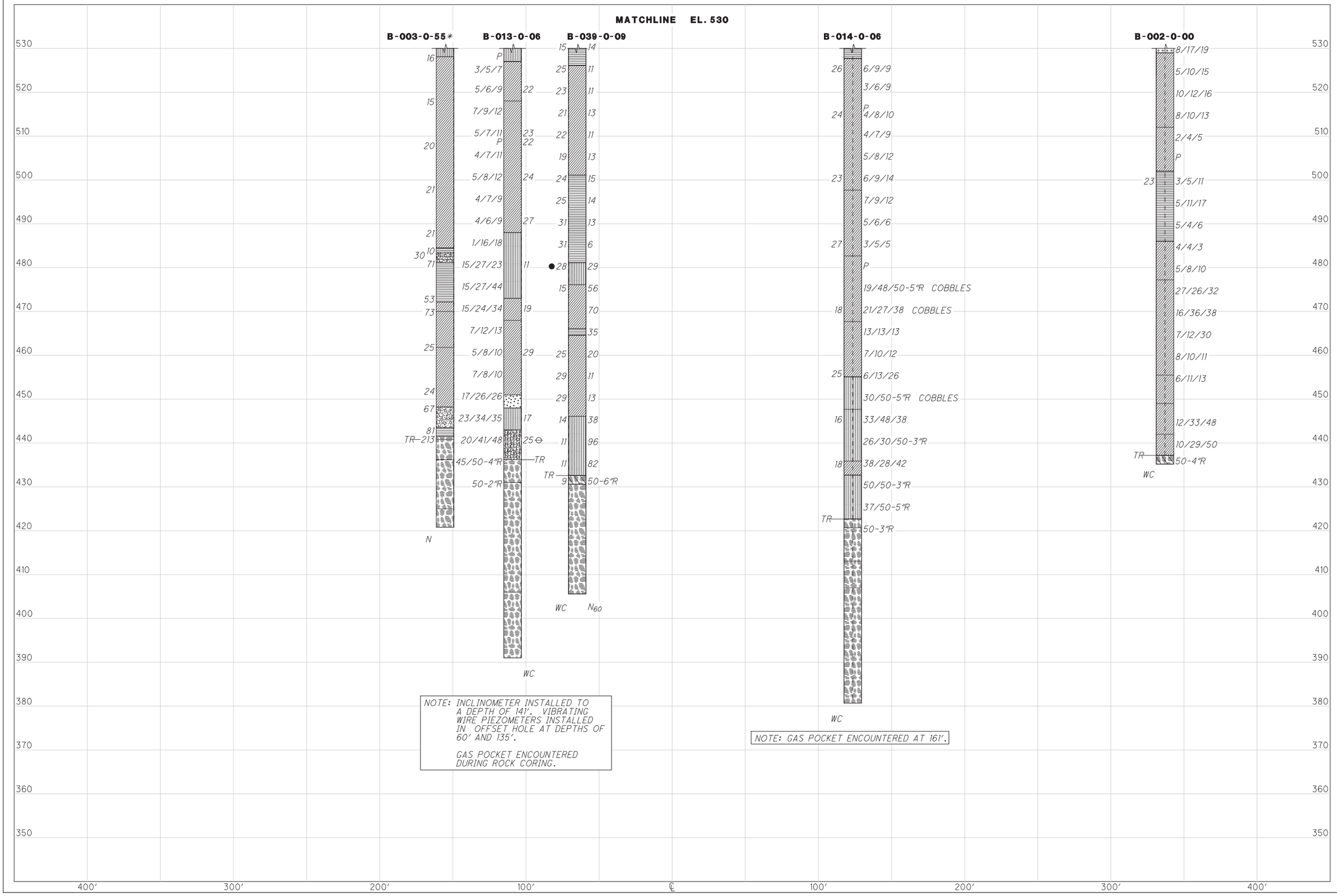
MATCHLINE EL. 530

SOIL PROFILE - W.B.I-90
CROSS SECTION STA. 137+00

CUY-90-14.90

94 / 116

MATCHLINE EL. 530



BBCM

HORIZONTAL SCALE IN FEET
0
30
60

SOIL PROFILE - W.B.I-90
CROSS SECTION STA. 137+00

CUY-90-14.90

95 / 116

BBCM

HORIZONTAL SCALE IN FEET
0 30 60

SOIL PROFILE - W.B.I-90
CROSS SECTION STA. 139+50

CUY-90-14.90

710 700 690 680 670 660 650 640 630 620 610 600 590 580 570 560 550 540 530

BRIDGE SECTION
PROPOSED W.B. I-90

EXISTING NORFOLK SOUTHERN
RAILROAD BRIDGE

EXISTING GROUND

BBCM
V-002-0-06
STA 139+26
91' LT.
GRAVEL = 12"

MOD. ORG. (5.4%)
SLI. ORG. (3.4%)
SLI. ORG. (2.2%)

23	2/2/2
33	0/0/1
36	1/2/1
25	0/0/0
	0/0/1
W 34	0/2/2
● 36	0/2/4
	1/2/1
⊖ 20	4/5/4
	3/5/6
26	4/4/5
● 31	3/3/3
● 26	3/4/4
16	4/6/7

WC

BBCM
B-015-0-06
STA 139+26
14' RT.
GRANULAR BASE = 16"

	20/14/7
	3/3/5
W ⊖ 25	1/1/1
⊖ 30	2/2/2
⊖ 23	2/3/3
	2/3/3
	5/5/5
	P
	5/8/12
27	4/6/9
	2/3/5
	P
18	4/7/11

WC

DLZ
B-003-0-00
STA 139+94
100' RT.
AGGREGATE BASE = 12"

	38/27/26
W	6/7/8
	3/6/8
⊖ 27	0/1/2
	1/1/1
	1/2/2
	3/4/4
	6/6/6
	3/4/4
	0/2/7
	0/0/1
	0/7/8
24	4/9/13
	P
	5/7/9
	6/6/8

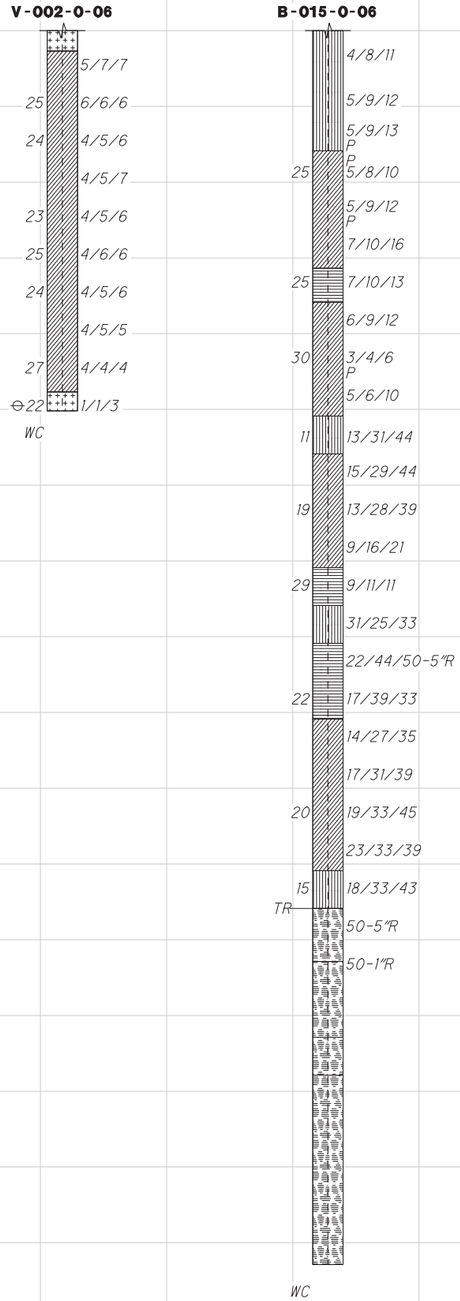
WC

NOTE: ALL BORINGS ON THIS SHEET ARE SHOWN IN PLAN VIEW ON SHEET 56.

MATCHLINE EL. 530

400' 300' 200' 100' ℄ 100' 200' 300' 400'

MATCHLINE EL. 530



NOTE: GAS POCKET ENCOUNTERED DURING ROCK CORING.

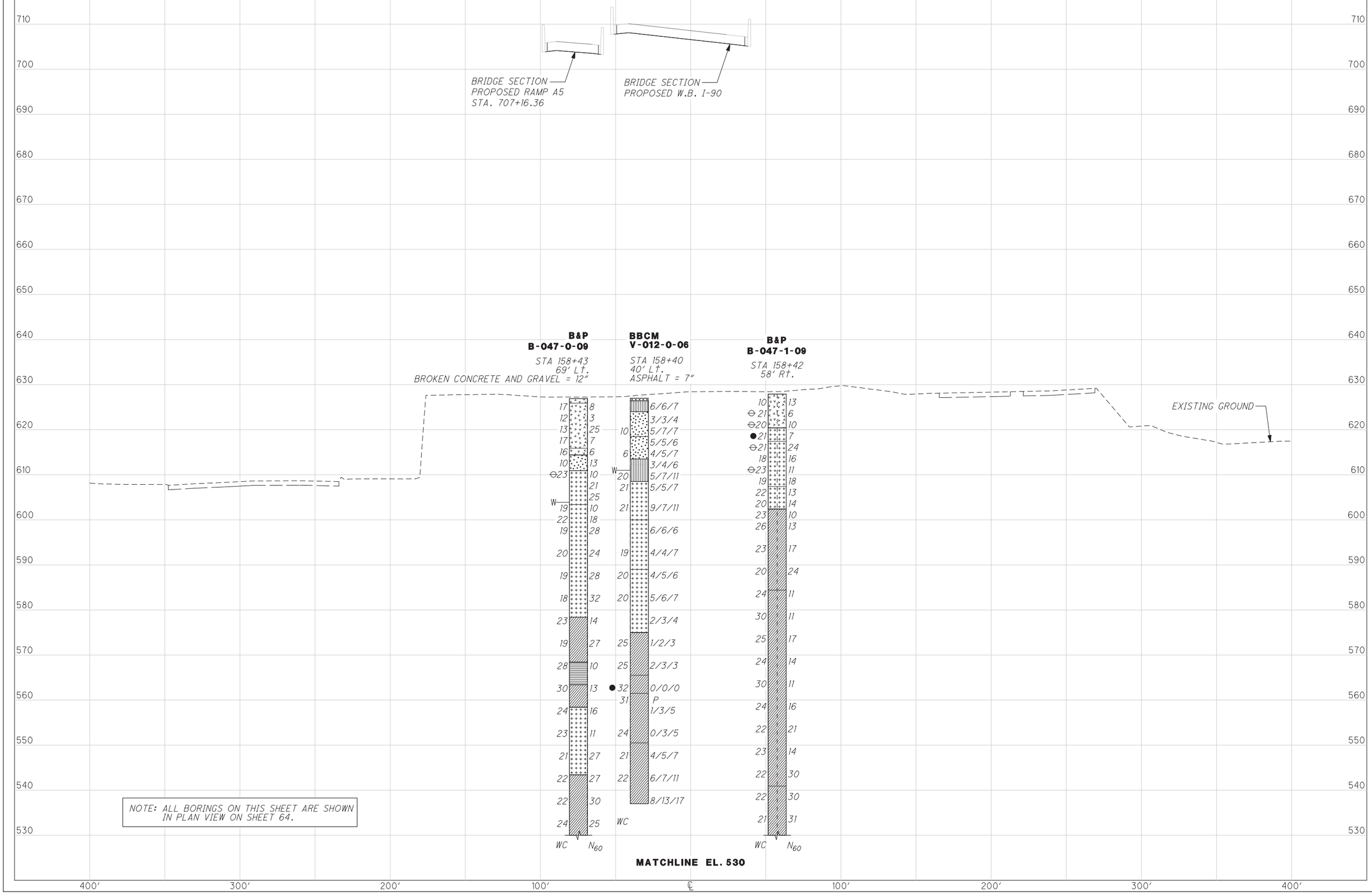
BBCM

HORIZONTAL SCALE IN FEET
0 30 60

SOIL PROFILE - W.B.I-90
CROSS SECTION STA. 139+50

CUY-90-14.90

97 / 116



BBCM

HORIZONTAL SCALE IN FEET
0 30 60

SOIL PROFILE - W.B.I-90
CROSS SECTION STA. 158+50

CUY-90-14.90

98 / 116

MATCHLINE EL. 530

B-047-0-09

WC	N_{60}
24	32
23	23
20	34
19	38
20	34
20	34
22	28
17	45
27	28

B-047-1-09

WC	N_{60}
26	31
19	25
27	17
21	35
21	37
21	32
18	35
22	32
24	31
29	21
23	23
●26	24
11	
12	107
13	
20	117
13	
21	99
●21	65
TR 13	109
9	
9	40/50-4"R
	50-2"R

530 520 510 500 490 480 470 460 450 440 430 420 410 400 390 380 370 360 350

400′ 300′ 200′ 100′ ℄ 100′ 200′ 300′ 400′

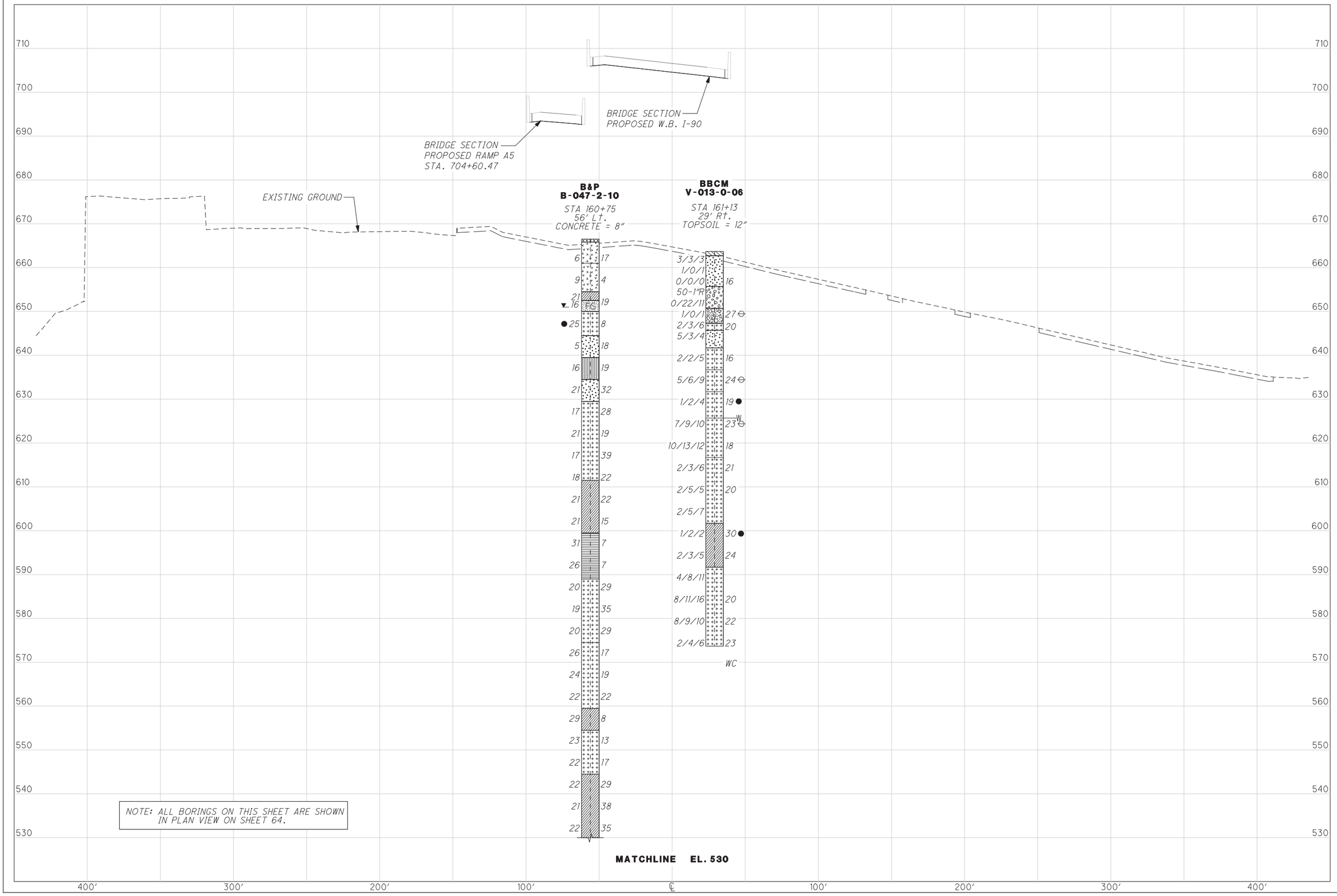
BBCM

HORIZONTAL SCALE IN FEET
0 30 60

SOIL PROFILE - W.B.I-90
CROSS SECTION STA. 158+50

CUY-90-14.90

99 / 116



BBCM

HORIZONTAL SCALE IN FEET
0 30 60

SOIL PROFILE - W.B.I-90
CROSS SECTION STA. 161+00

CUY-90-14.90

100 / 116

MATCHLINE EL. 530

B-047-0-09

WC	N_{60}
22	38
25	29
26	32
17	
18	47
18	49
21	33
20	29
22	46
23	31
28	14
28	14
● 28	10
12	81
12	89
20	83
12	107
19	74
14	90
8	103
17	120
TR	

530 520 510 500 490 480 470 460 450 440 430 420 410 400 390 380 370 360 350

400′ 300′ 200′ 100′ ℄ 100′ 200′ 300′ 400′

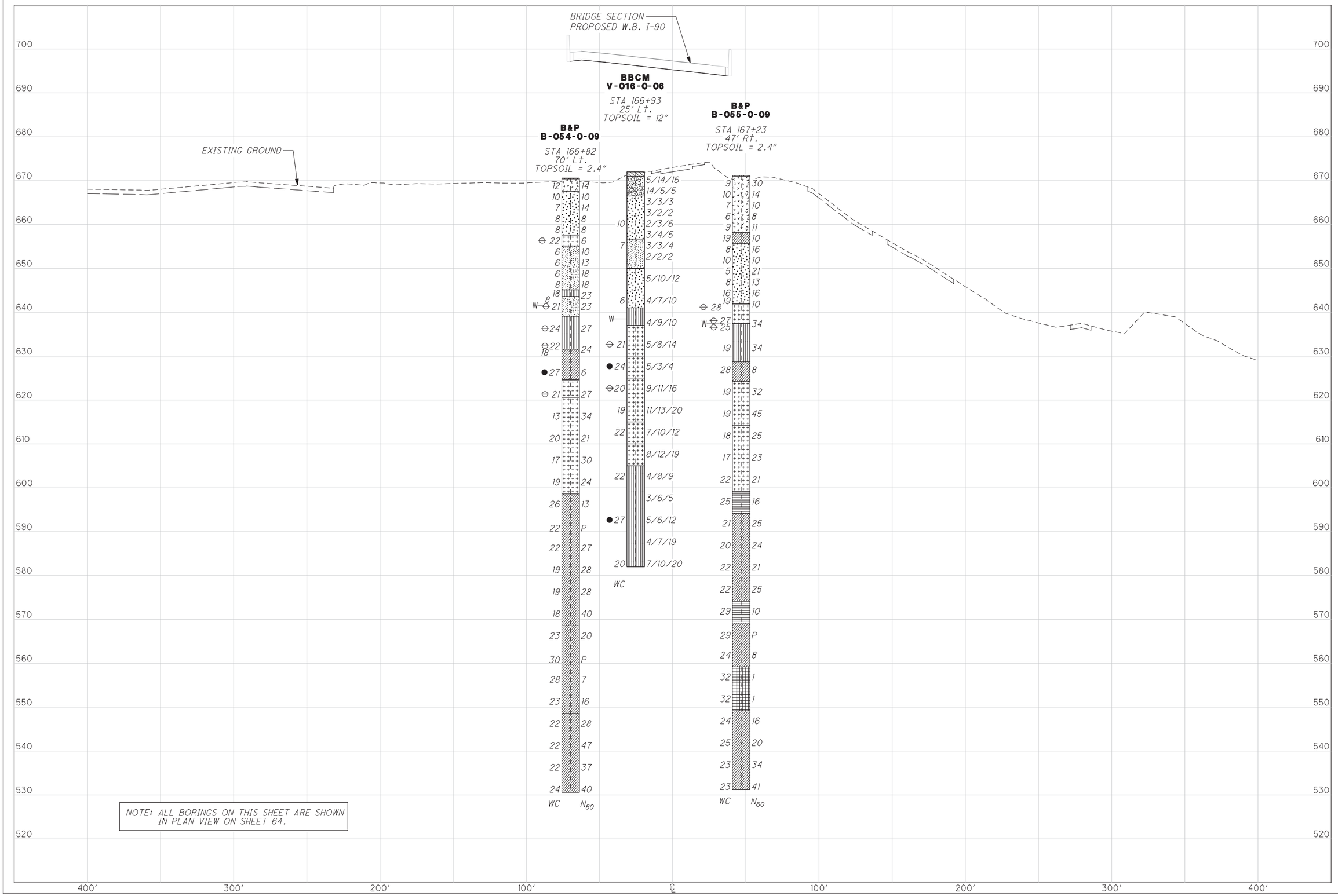
BBCM

HORIZONTAL SCALE IN FEET
0 30 60

SOIL PROFILE - W.B.I-90
CROSS SECTION STA. 161+00

CUY-90-14.90

101 / 116



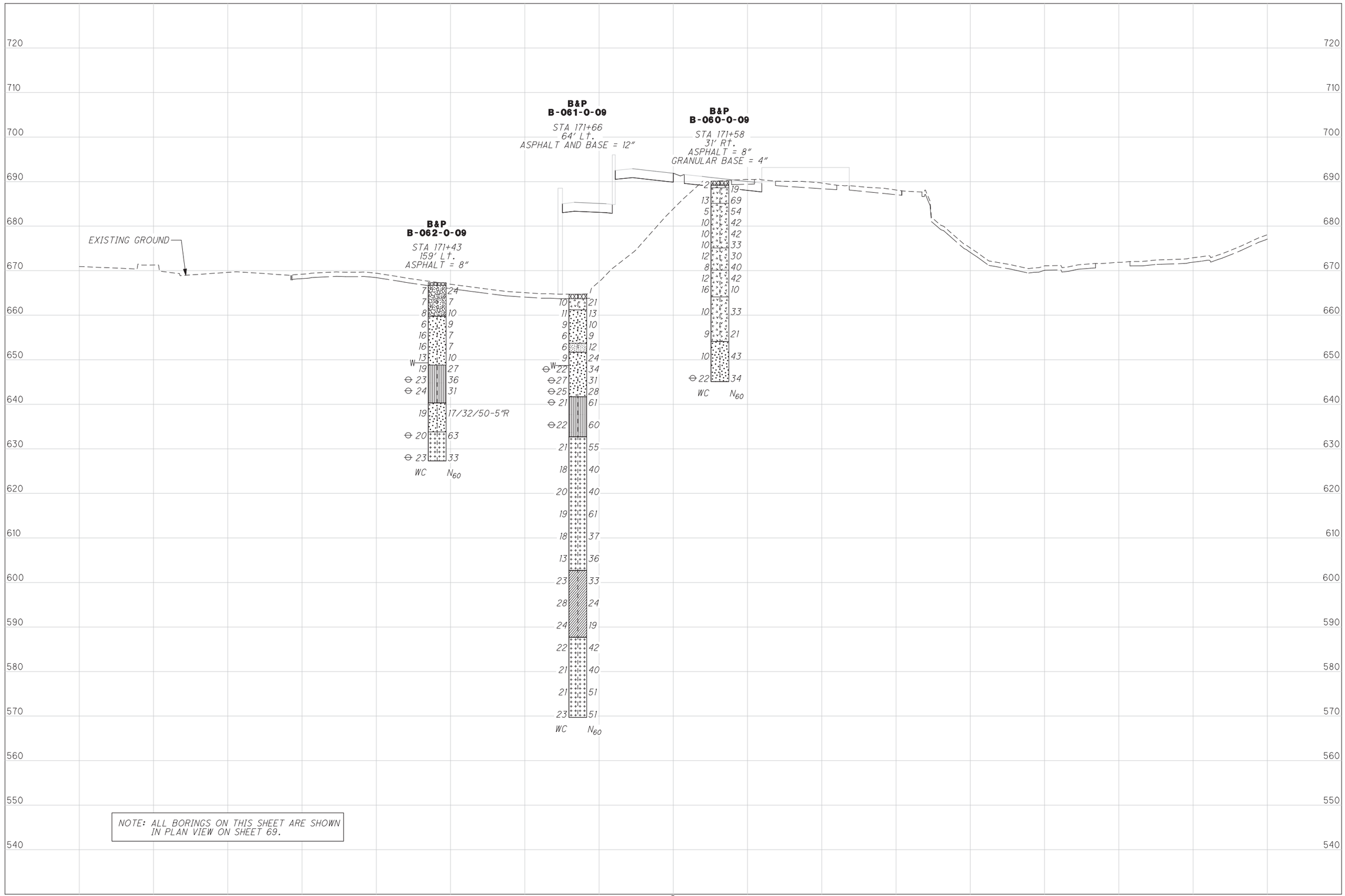
NOTE: ALL BORINGS ON THIS SHEET ARE SHOWN IN PLAN VIEW ON SHEET 64.

BBCM

HORIZONTAL SCALE IN FEET
0 30 60

SOIL PROFILE - W.B.I-90
CROSS SECTION STA. 167+00

CUY-90-14.90

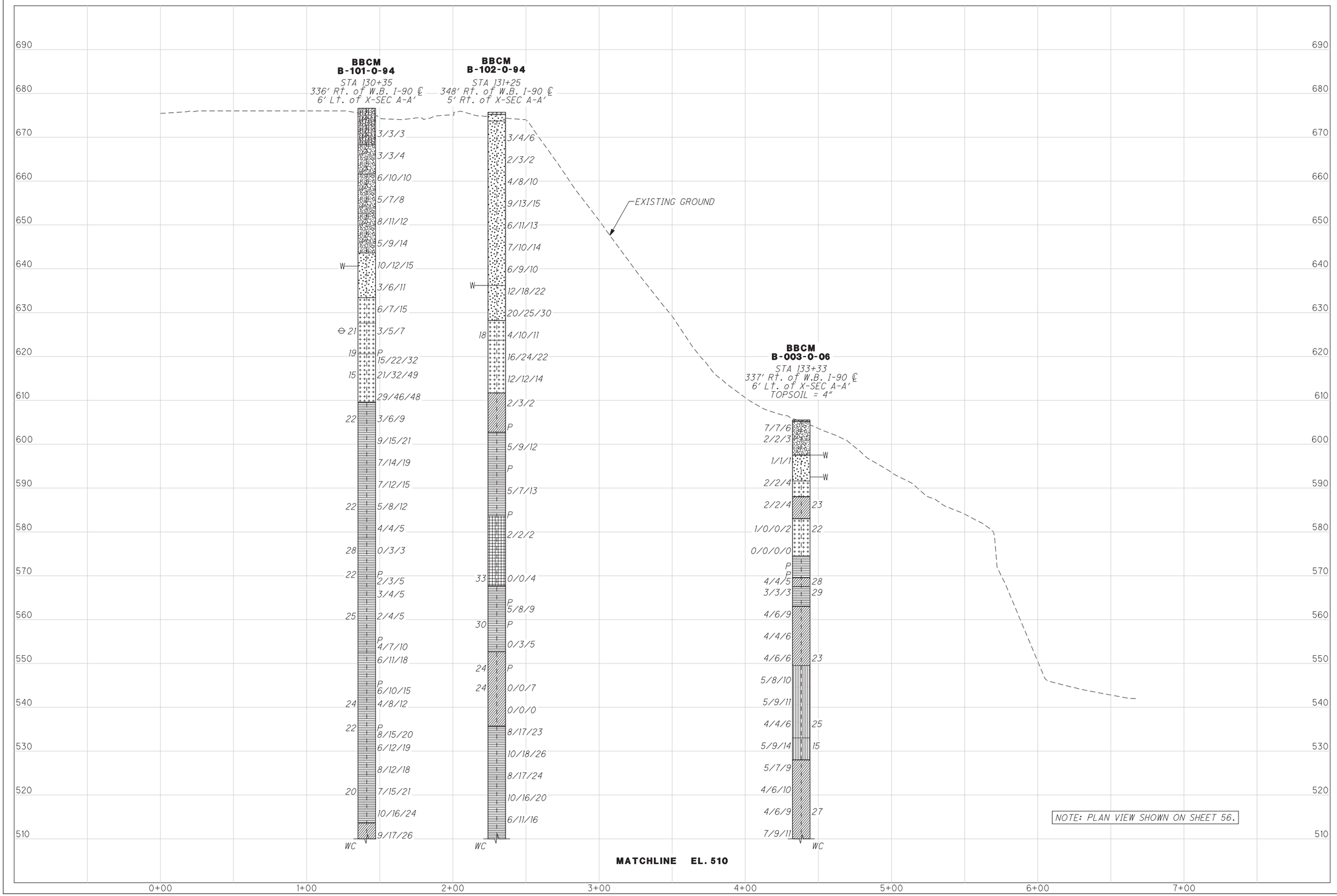


BBCM

0 30 60 HORIZONTAL SCALE IN FEET

SOIL PROFILE - W.B. I-90
CROSS SECTION STA. 171+50

CUY-90-14.90

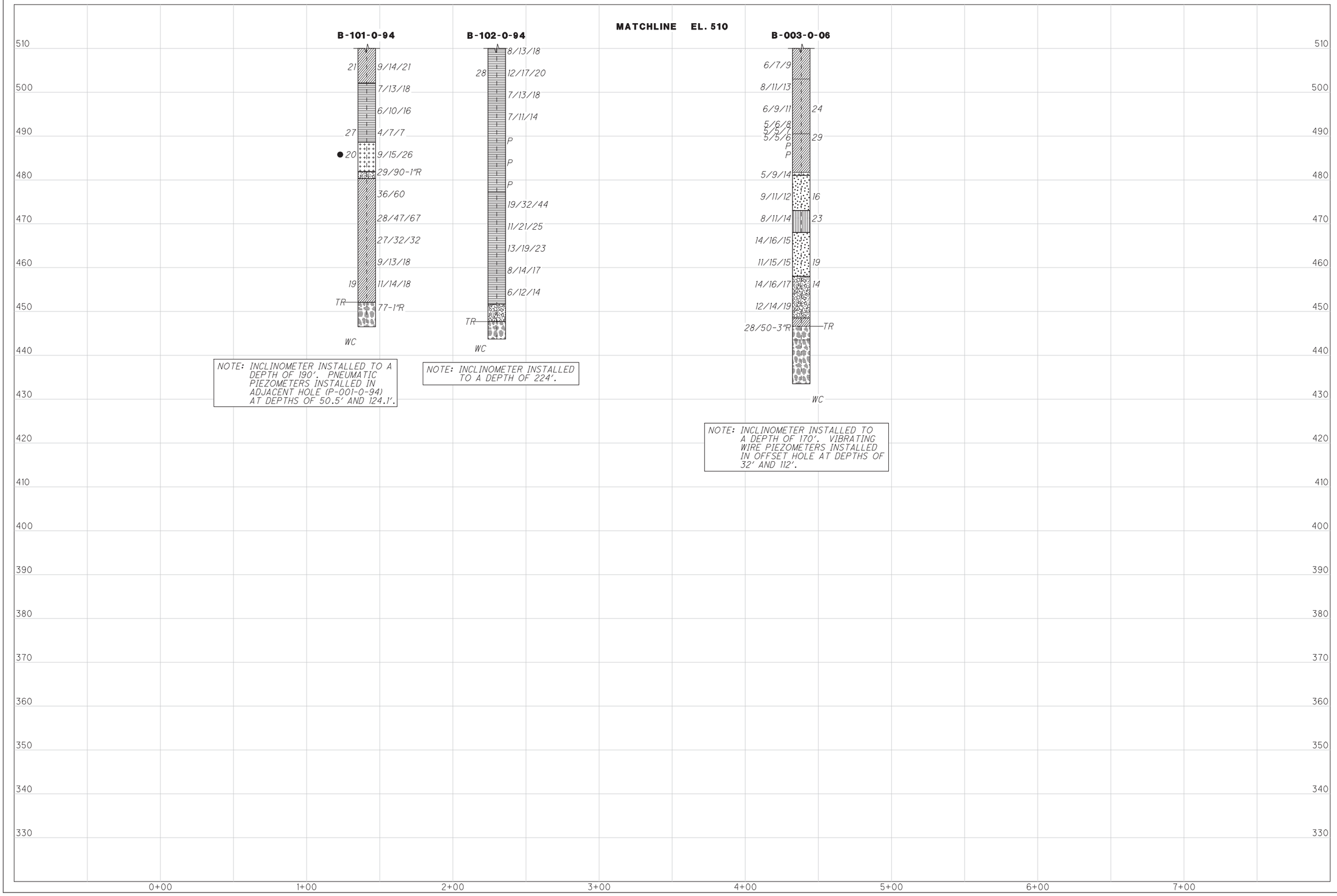


BBCM

60
30
0
HORIZONTAL SCALE IN FEET

W.B. I-90 - WEST ABUTMENT
CROSS SECTION A-A' - PROFILE

CUY-90-14.90



BBCM

0 30 60
HORIZONTAL SCALE IN FEET

W.B.I-90 - WEST ABUTMENT CROSS SECTION A-A' - PROFILE

CUY-90-14.90

HNTB
B-002-W-55*
STA 129+17
257' Rt. of W.B. I-90 ℄
16' Lt. of X-SEC B-B'

4
9
W
56
41
90
52
297
22
52
31
21
N

ODOT
B-003-0-90**
STA 130+38
256' Rt. of W.B. I-90 ℄
17' Lt. of X-SEC B-B'

22 2/4/5
3 5/13/19
7 5/10/20
⊖24 7/13/19
16 10/10/14
17 12/32/80
⊖25 2/4/8
⊖22 4/9/14
22 6/10/14
26 2/5/8
29 3/5/6
⊖23 6/12/20
22 6/12/20
20 13/18/25
WC

NOTE: INCLINOMETER INSTALLED TO A DEPTH OF 142'. INCLINOMETER IS CURRENTLY INACTIVE.

PROPOSED GRADING FOR SLOPE FIX

BBCM
P-002-0-94
STA 132+25
246' Rt. of W.B. I-90 ℄
27' Lt. of X-SEC B-B'

EXISTING GROUND

5/7/11
6/6/7
5/8/11
W
8/11/12
5/9/14
20 6/11/16
8/14/20
6/11/16
31 P
32 3/4/5
P
30 3/4/6
2/5/6
5/8/12
23 5/10/13
6/10/15
7/9/13
4/8/13
6/10/17
6/10/14
5/10/15
21 5/9/13
4/9/13
WC

MATCHLINE EL. 510

BBCM
B-105-A-06
STA 134+32
293' Rt. of W.B. I-90 ℄
21' Lt. of X-SEC B-B'
TOPSOIL/ROOTMAT = 2"

4/7/8
18 3/2/3
1/1/2
W
1/1/1
⊖32 4/4/3
23 2/4/4
2/3/3
22 4/6/7
4/7/8
4/5/6
24 4/5/7
5/7/8
4/5/8
23 4/6/8
4/7/8
4/7/9
WC

* - PROFILE DATA PRESENTED HAS BEEN INTERPRETED FROM ORIGINAL SOIL PROFILE DRAWINGS THAT CONTAINED LIMITED INFORMATION NOT IN ACCORDANCE WITH CURRENT ODOT STANDARDS. A BORING LOG WAS NOT AVAILABLE.

** - LAYER BREAKS WERE ESTIMATED FROM LABORATORY TEST DATA AS NO BREAKS WERE PROVIDED ON THE BORING LOG.

NOTE: PLAN VIEW SHOWN ON SHEET 56.

690 680 670 660 650 640 630 620 610 600 590 580 570 560 550 540 530 520 510

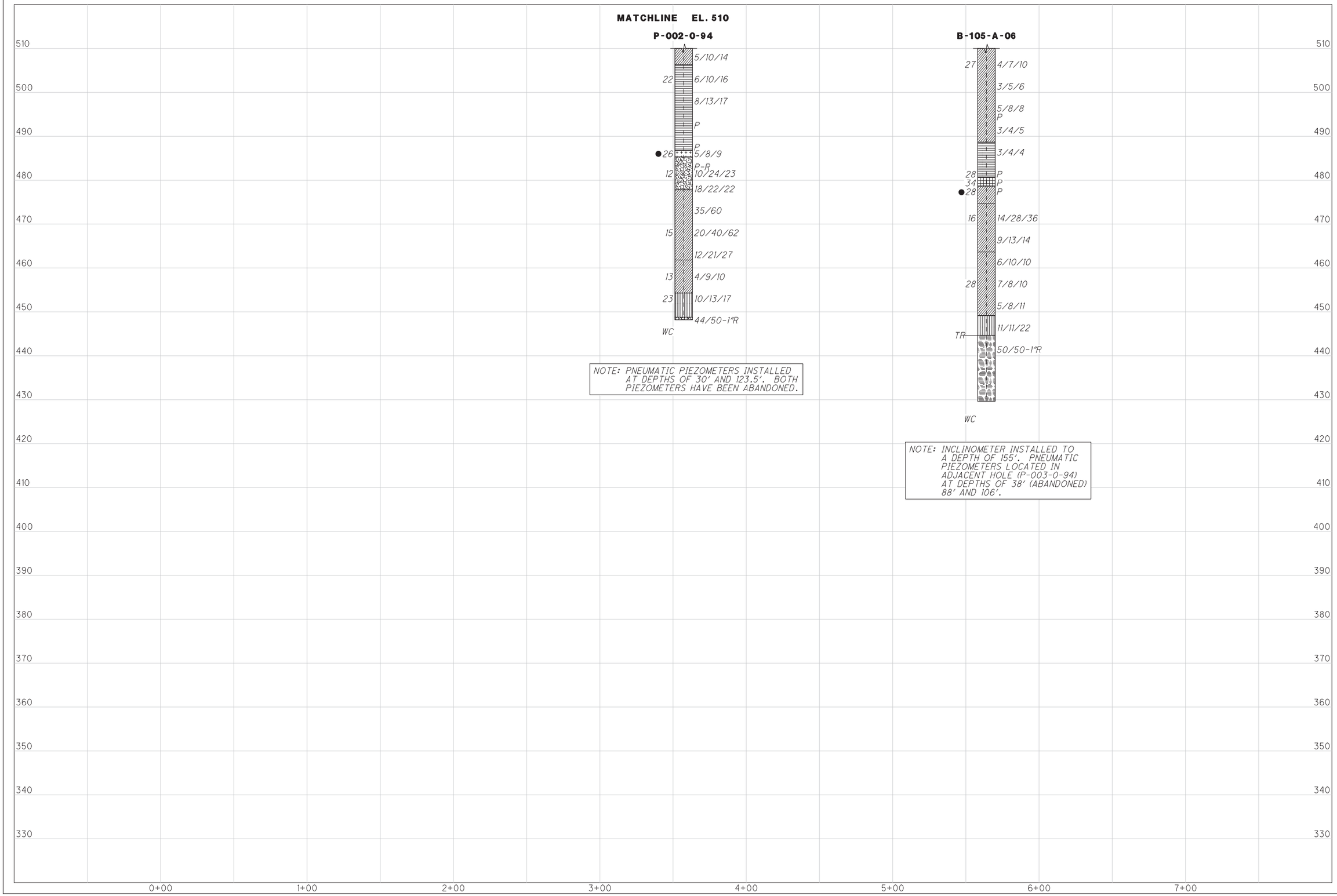
0+00 1+00 2+00 3+00 4+00 5+00 6+00 7+00

BBCM

0 30 60 HORIZONTAL SCALE IN FEET

W.B. I-90 - WEST ABUTMENT
CROSS SECTION B-B' - PROFILE

CUY-90-14.90



BBCM

60
30
0
HORIZONTAL SCALE IN FEET

W.B.I-90 - WEST ABUTMENT
CROSS SECTION B-B' - PROFILE

CUY-90-14.90

** - LAYER BREAKS WERE ESTIMATED FROM LABORATORY TEST DATA AS NO BREAKS WERE PROVIDED ON THE BORING LOG.

ODOT
B-002-0-90**
STA 130+27
215' Rt. of W.B. I-90 ℄
18' Rt. of X-SEC C-C'

PROPOSED GRADING FOR SLOPE FIX

10	3/3/3
28	3/6/11
2	8/16/22
22	5/10/10
19	17/45/54
17	7/16/26
23	3/6/11
19	4/8/12
19	8/13/20
22	5/8/9
28	5/7/9
30	5/9/10
22	4/6/12
22	10/18/35

WC

NOTE: INCLINOMETER INSTALLED TO A DEPTH OF 138'. INCLINOMETER IS CURRENTLY INACTIVE.

NOTE: PLAN VIEW SHOWN ON SHEET 56.

ODOT
B-005-0-90**
STA 132+20
210' Rt. of W.B. I-90 ℄
13' Rt. of X-SEC C-C'

EXISTING GROUND

6	7/10/12
25	13/20/30
17	8/19/23
21	4/8/13
30	2/4/9
29	7/11/10
22	15/19/21
22	12/22/20
23	15/19/20
24	7/14/18
21	11/19/22

WC

BBCM
B-004-0-06
STA 133+57
207' Rt. of W.B. I-90 ℄
9' Rt. of X-SEC C-C'

12	4/5/4
	4/6/5
	6/9/8
	6/9/11
W	6/8/10
	3/3/4
W	5/5/4
W	2/3/2
23	3/3/3
	2/2/3
25	3/4/5
	2/3/3
	1/2/3
30	1/2/2
24	2/3/4
	2/3/4
	5/5/6
	3/3/5
23	3/4/6
	P
	P
	3/4/5
25	4/4/4
	4/5/6
20	P
	P
	P
	P
	4/6/8
22	4/6/7
	5/6/8

WC

ODOT
B-008-0-90**
STA 134+10
208' Rt. of W.B. I-90 ℄
11' Rt. of X-SEC C-C'

20	1/2/2
20	4/6/9
26	2/2/4
22	6/9/12
22	8/12/16
13	14/25/32
21	6/11/15
22	7/12/17

WC

MATCHLINE EL. 510

690 680 670 660 650 640 630 620 610 600 590 580 570 560 550 540 530 520 510

0+00 1+00 2+00 3+00 4+00 5+00 6+00

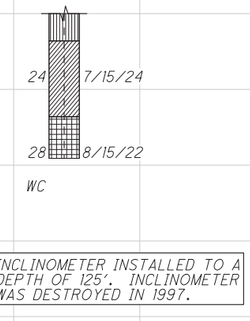
BBCM

HORIZONTAL SCALE IN FEET
0 30 60

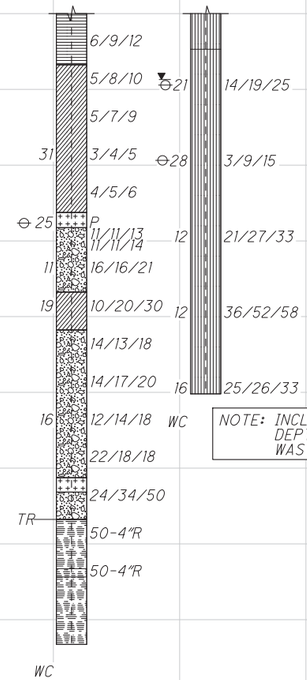
W.B. I-90 - WEST ABUTMENT
CROSS SECTION C-C' - PROFILE

CUY-90-14.90

MATCHLINE EL. 510



NOTE: INCLINOMETER INSTALLED TO A DEPTH OF 125'. INCLINOMETER WAS DESTROYED IN 1997.



NOTE: INCLINOMETER INSTALLED TO A DEPTH OF 130'. INCLINOMETER WAS DESTROYED IN 1997.

NOTE: INCLINOMETER INSTALLED TO A DEPTH OF 172'. VIBRATING WIRE PIEZOMETERS INSTALLED IN OFFSET HOLE AT DEPTHS OF 59' AND 119'.

510 500 490 480 470 460 450 440 430 420 410 400 390 380 370 360 350 340 330

0+00 1+00 2+00 3+00 4+00 5+00 6+00

BBCM

60 30 0 HORIZONTAL SCALE IN FEET

W.B.I-90 - WEST ABUTMENT
CROSS SECTION C-C' - PROFILE

CUY-90-14.90

109 / 116

690
680
670
660
650
640
630
620
610
600
590
580
570
560
550
540
530
520
510

BBCM
B-107-0-94
STA 130+71
125' Rt. of W.B. I-90 ℄
12' Rt. of X-SEC D-D'
ASPHALT = 13"

PROPOSED GRADING FOR SLOPE FIX

EXISTING GROUND

W 3/4/4
4/7/7
P
6/7/8
25 2/3/3
7/10/14
19 5/6/9
16/28/40
12/10/19
7/6/8
3/5/5
P
4/11/15
P
5/9/14
P
31 3/3/4
5/7/8
4/6/8
5/6/8
6/10/15
8/12/16
7/12/19
P
23 3/6/12
P
9/15/21
P
6/10/14
6/10/15
WC

BBCM
B-002-0-06
STA 132+38
99' Rt. of W.B. I-90 ℄
14' Lt. of X-SEC D-D'
TOPSOIL/ROOTMAT = 2"

11 15/23/38
12/15/13
7/10/9
3/5/6
W 3/4/4
23 3/4/3
2/2/3
22 2/3/5
21 2/5/8
18 5/7/10
4/11/10
28 4/4/6
P
P
3/6/7
24 3/5/5
4/7/8
22 6/9/10
6/11/14
6/9/10
24 4/7/9
5/8/11
4/8/11
22 5/7/9
5/8/9
5/9/10
WC

BBCM
B-108-A-06
STA 133+25
108' Rt. of W.B. I-90 ℄
6' Lt. of X-SEC D-D'
TOPSOIL = 3"

4/3/3
2/5/6
14 3/5/5
16 3/4/3
W 4/4/4
28 3/4/6
2/3/4
31 2/2/3
3/5/6
4/5/7
23 4/5/7
4/5/8
5/7/8
P
4/4/5
5/8/10
19 8/11/13
5/7/10
4/6/10
WC

BBCM
B-109-0-94
STA 134+10
139' Rt. of W.B. I-90 ℄
25' Rt. of X-SEC D-D'

24/34/31
5/6/4
2/1/1
3/2/2
21 2/3/5
2/3/5
24 1/3/6
25 P
P
5/5/6
P
P
P
P
P
4/6/9
23 4/7/8
WC

NOTE: PLAN VIEW SHOWN ON SHEET 56.

MATCHLINE EL. 510

0+00 1+00 2+00 3+00 4+00 5+00

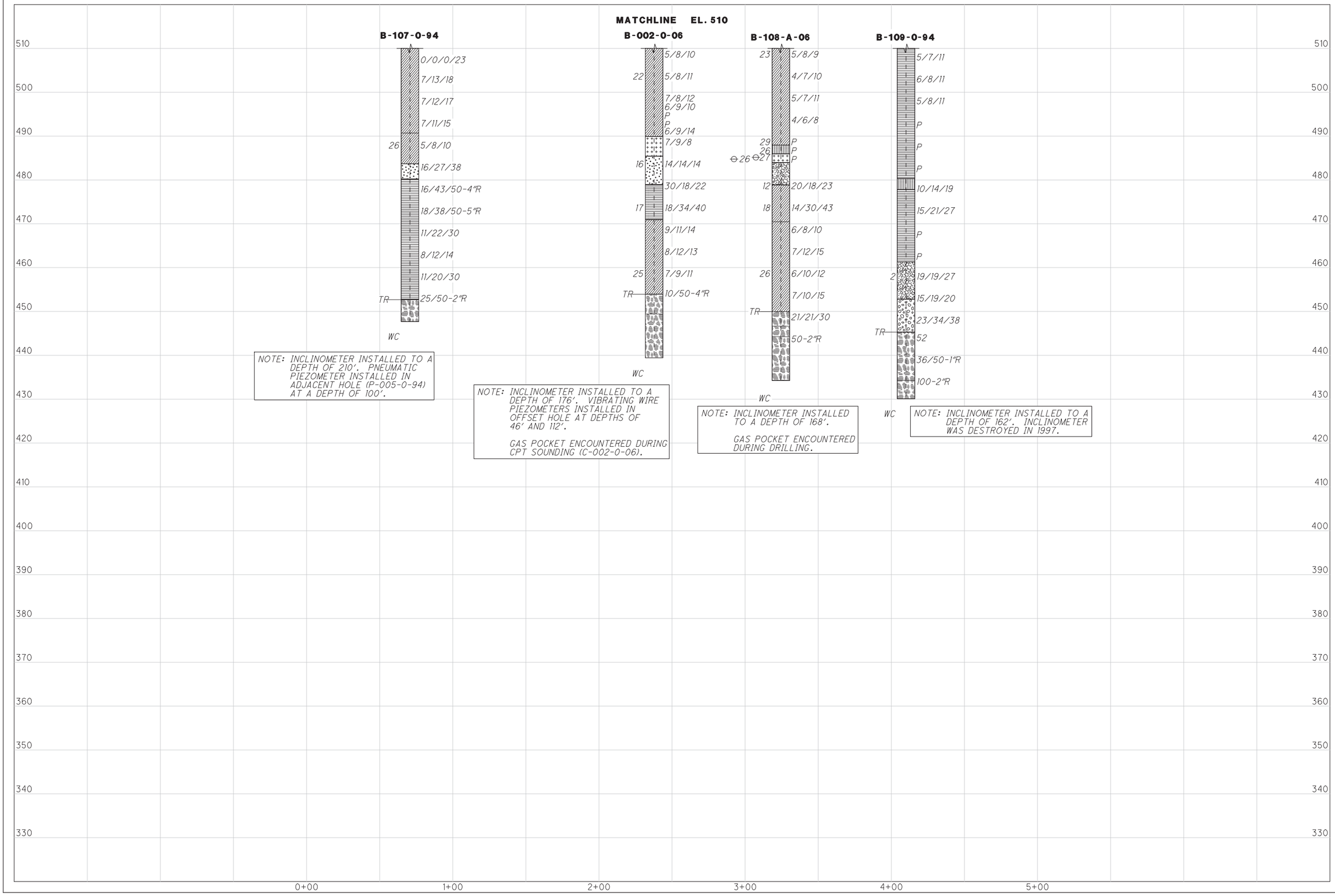
BBCM

60 30 0 HORIZONTAL SCALE IN FEET

W.B. I-90 - WEST ABUTMENT
CROSS SECTION D-D' - PROFILE

CUY-90-14.90

110 / 116



BBCM

60
30
0
HORIZONTAL SCALE IN FEET

W.B. I-90 - WEST ABUTMENT
CROSS SECTION D-D' - PROFILE

CUY-90-14.90

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* - PROFILE DATA PRESENTED HAS BEEN INTERPRETED FROM ORIGINAL SOIL PROFILE DRAWINGS THAT CONTAINED LIMITED INFORMATION NOT IN ACCORDANCE WITH CURRENT ODOT STANDARDS. A BORING LOG WAS NOT AVAILABLE.

BBCM
B-036-0-09
STA 130+00
343' Lt. of W.B. I-90 ℄
66' Lt. of X-SEC E-E'

EXISTING GROUND

PROPOSED GRADING FOR SLOPE FIX

BBCM
B-037-0-09
STA 131+65
302' Lt. of W.B. I-90 ℄
25' Lt. of X-SEC E-E'
ASPHALT = 5"
CONCRETE = 7"

BBCM
B-038-0-09
STA 132+80
306' Lt. of W.B. I-90 ℄
29' Lt. of X-SEC E-E'

NYC & ST LRR
B-001-0-55*
STA 133+57
289' Lt. of W.B. I-90 ℄
12' Lt. of X-SEC E-E'

NYC & ST LRR
B-002-0-55*
STA 134+43
294' Lt. of W.B. I-90 ℄
17' Lt. of X-SEC E-E'

WC N_{60}

NOTE: PLAN VIEW SHOWN ON SHEET 56.

MATCHLINE EL. 510

690 680 670 660 650 640 630 620 610 600 590 580 570 560 550 540 530 520 510

0+00 1+00 2+00 3+00 4+00 5+00

BBCM

HORIZONTAL SCALE IN FEET
0 30 60

W.B. I-90 - WEST ABUTMENT
CROSS SECTION E-E' - PROFILE

CUY-90-14.90

MATCHLINE EL. 510

B-001-0-55*

B-002-0-55*

BBCM
B-037-2-09
STA 131+57
267' LT. of W.B. I-90 ℄
10' Rt. of X-SEC E-E'
ASPHALT = 6"
SANDSTONE PAVERS = 7"
GRANULAR BASE = 5"

BBCM
B-038-1-09
STA 132+84
259' LT. of W.B. I-90 ℄
18' Rt. of X-SEC E-E'

PROPOSED GRADING FOR SLOPE FIX

NOTE: VIBRATING WIRE PIEZOMETER INSTALLED AT A DEPTH OF 19'.

NOTE: VIBRATING WIRE PIEZOMETER INSTALLED AT A DEPTH OF 25'.

WC N_{60}

0+00 1+00 2+00 3+00 4+00 5+00

HORIZONTAL SCALE IN FEET
0 30 60

W.B. I-90 - WEST ABUTMENT CROSS SECTION E-E' - PROFILE

CUY-90-14.90

113 / 116

730
720
710
700
690
680
670
660
650
640
630
620
610
600
590
580
570
560
550

BBCM
S-019-0-06
STA 3000+18
87' LT.
TOPSOIL = 5"
GRAVEL WITH SAND (FILL) = 12"
CONCRETE (POSS. OLD FOUNDATION) = 37"

BBCM
S-020-0-06
STA 3000+15
28' LT.
TOPSOIL = 5"

EXISTING GROUND

50-6"R
11 — 2/1/2, 4/6/14, 2/3/4, 2/3/3
10 — W — 3/3/3, 2/2/4, 2/2/3
5 — W — 3/5/8, 5/7/7
⊖ 20 — 5/13/15, 12/18/19, 6/10/11, 6/7/10
21 — 4/3/6
19 — 4/6/8
18 — 8/9/13, 4/7/9
21 — 2/5/9
25 — 1/3/3
26 — 2/4/5, 6/9/11
WC

3/7/11
4/4/3
W — 12 — 1/2/2, 3/3/3
2/2/1
1/5/5
7 — W — 7/7/8, 5/5/5
4/6/10
8/15/17
⊖ 22 — 5/10/12, 4/6/10
⊖ 25 — 10/12/7
⊖ 20 — 2/4/7
16 — 11/16/19
21 — 3/6/8
21 — 2/4/5
4/7/7
24 — 2/3/4
20 — 5/8/12
WC

NOTE: ALL BORINGS ON THIS SHEET ARE SHOWN IN PLAN VIEW ON SHEET 73.

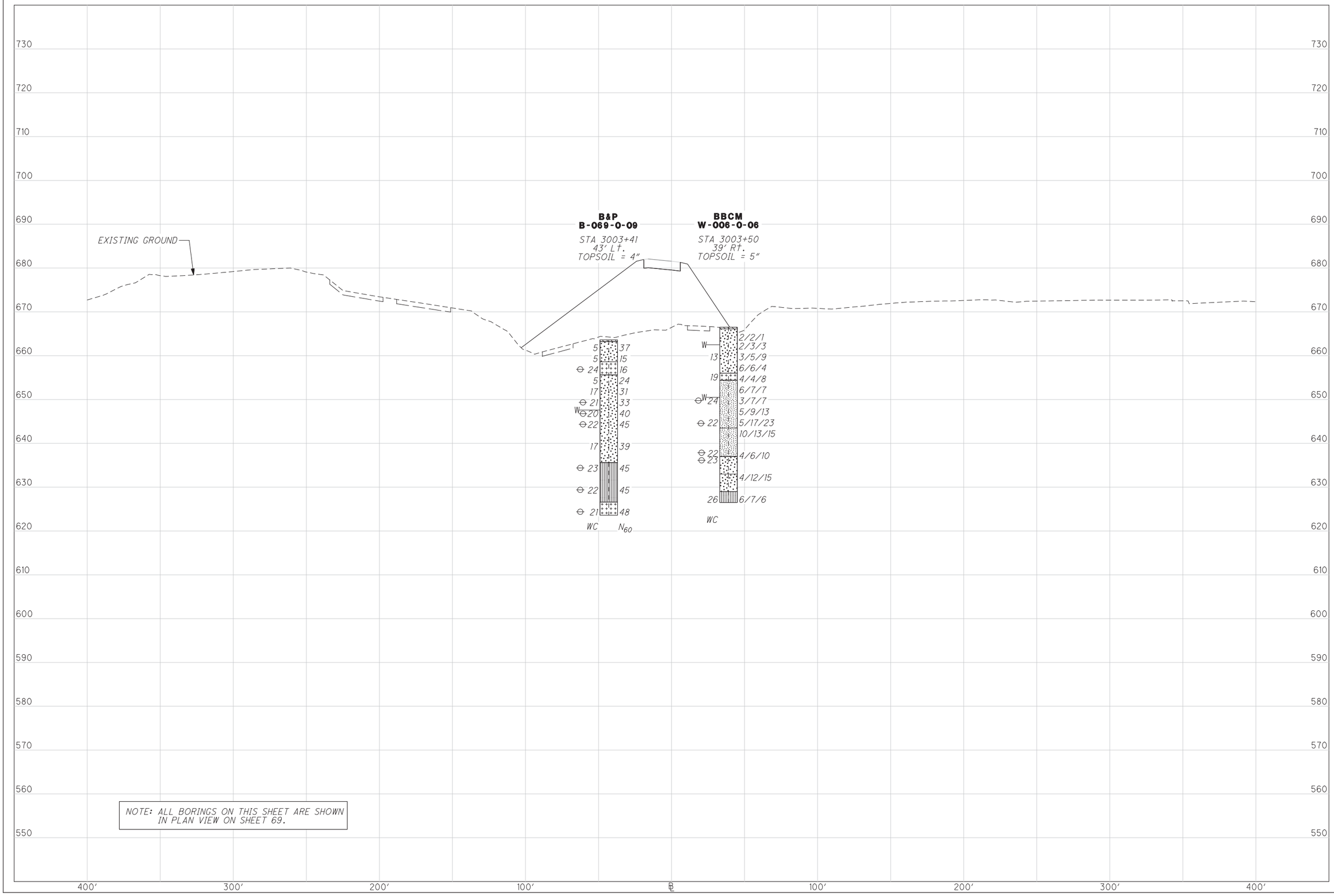
400' 300' 200' 100' ℄ 100' 200' 300' 400'

BBCM

0 30 60 HORIZONTAL SCALE IN FEET

SOIL PROFILE - TEMPORARY RAMP A3
CROSS SECTION STA. 3000+10

CUY-90-14.90



NOTE: ALL BORINGS ON THIS SHEET ARE SHOWN IN PLAN VIEW ON SHEET 69.

BBCM

HORIZONTAL SCALE IN FEET
0 30 60

SOIL PROFILE - TEMPORARY RAMP A3
CROSS SECTION STA. 3003+50

CUY-90-14.90

BBCM

0 30 60
HORIZONTAL SCALE IN FEET

SOIL PROFILE - RAMP A6
CROSS SECTION STA. 806+50

CUY-90-14.90

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