PROJECT DESCRIPTION

THE PROJECT CONSISTS IN PART OF PLACING TWO STRUCTURES, EASTBOUND AND WESTBOUND STRUCTURES, RESPECTIVELY FOR THE PROPOSED SR 823 OVER BLUE RUN ROAD (CR 29). THE TWO STRUCTURES AS PLANNED, ARE SINGLE-SPAN STRUCTURES USING MSE WALLS TO HOLD BACK THE ROADWAY EMBANKMENTS AND CONTAIN THE ABUTMENTS.

HISTORIC RECORDS

HISTORIC BORING RECORDS FOR THE AREA WERE REQUESTED FROM THE ODOT OFFICE OF GEOTECHNICAL ENGINEERING AND THE DISTRICT, HOWEVER, NO SUCH RECORDS EXISTED.

GEOLOGY

THE AREA OF THIS STRUCTURE IS CHARACTERIZED BY GENTLY SLOPING TO STEEPLY SLOPING TOPOGRAPHY. THE PROJECT AREA IS LOCATED IN THE SHAWNEE-MISSISSIPPIAN PLATEAU OF THE UNGLACIATED PORTION OF THE APPALACHIAN PLATEAU PHYSIOGRAPHIC REGION. THE SHAWNEE-MISSISSIPPIAN PLATEAU IS CHARACTERIZED BY DEVONIAN AGED TO PENNSYLVANIAN AGED ROCKS AND CONTAINS RESIDUAL, COLLUVIAL, GLACIAL, ALLUVIAL, AND LACUSTRINE SOILS.

RECONNAISSANCE

SEVERAL SITE RECONNAISSANCE VISITS WERE MADE BETWEEN AUGUST 2004 AND SEPTEMBER 2006. THE SURROUNDING AREA IS DESCRIBED AS RURAL RESIDENTIAL. THE PROJECT AREA IS BOUNDED ON THE WEST BY STEEP WOODED SLOPES AND ON THE EAST BY PASTURE WITH AREAS ALONG FENCES COVERED WITH TREES AND BRUSH. TWO RESIDENTIAL STRUTURES ARE WITHIN THE PROJECT AREA.

SUBSURFACE EXPLORATION

THE FIELD EXPLORATION CONSISTED IN PART OF TWO BORINGS (B-13 AND B-14) DRILLED FOR THE FINAL (APPROVED) BRIDGE CONFIGURATION AND FOUR BORINGS (TR-07 THROUGH TR-10) DRILLED FOR A PRELIMINARY BRIDGE CONFIGURATION. BORINGS B-13 AND B-14 WERE DRILLED ON JUNE 30, 2006. BORINGS TR-07 THROUGH TR-10 AND WERE DRILLED BETWEEN MARCH 11 AND 15, 2005 WITH AN ATV-MOUNTED ROTARY DRILL RIG, USING 3 1/4 -INCH I.D. HOLLOW STEM AUGERS TO ADVANCE THE HOLES THROUGH SOIL. DISTURBED SOIL SAMPLES WERE OBTAINED IN ACCORDANCE WITH THE STANDARD PENETRATION TEST (AASHTO T206) AT 1.5 TO 5.0-FOOT INTERVALS FOR THE FULL DEPTH OF THE SOIL PORTION OF THE BORINGS. UNDISTURBED SOIL SAMPLES WERE OBTAINED AT THE DEPTHS SHOWN ON THE LOGS AND IN THE PROFILE, IN ACCORDANCE WITH AASHTO T207. WHERE BEDROCK WAS ENCOUNTERED, THE BORINGS WERE ADVANCED AND THE ROCK WAS SAMPLED USING A TYPE NQ SERIES CORE BARREL, WATER METHOD.

EXPLORATION FINDINGS

ALL BORINGS ENCOUNTERED SURFICIAL MATERIAL CONSISTING OF 1 INCH TO 4 INCHES OF TOPSOIL. NATIVE COHESIVE SOIL DEPOSITS UNDERLAY THE TOPSOIL IN ALL BORINGS. THE COHESIVE DEPOSITS CONSISTED MAINLY OF MEDIUM STIFF TO HARD SANDY SILT (A-4A), STIFF TO HARD SILT (A-4B), SOFT TO HARD SILT AND CLAY (A-6A), AND SOFT SILTY CLAY (A-6B). THE NATIVE SOIL DEPOSITS EXTENDED TO DEPTHS RANGING BETWEEN APPROXIMATELY 3.0 AND 18.5 FEET BELOW THE GROUND SURFACE, WHERE BEDROCK WAS ENCOUNTERED.

IN THE AREA OF THE PROPOSED STRUCTURE, BEDROCK WAS CONFIRMED BY CORING IN ALL BORINGS. THE BEDROCK CONSISTED OF SOFT TO HARD, SLIGHTLY WEATHERED TO DECOMPOSED, SLIGHTLY TO HIGHLY FRACTURED SANDSTONE. MEDIUM HARD TO HARD SANDSTONE WITH INTERBEDDED SILTSTONE WAS ENCOUNTERED IN BORING B-14 BELOW THE SANDSTONE. THE AMOUNT OF ROCK RECOVERED IN EACH CORE RUN VARIED BETWEEN 94 AND 100 PERCENT. THE ROCK QUALITY DESIGNATION (RQD) OF THE BEDROCK RANGED BETWEEN 17 AND 83 PERCENT WITH AN AVERAGE OF 60 PERCENT INDICATING FAIR QUALITY ROCK.

SEEPAGE WAS ENCOUNTERED IN BORINGS TR-09 AND TR-10 AT AN APPROXIMATE DEPTH OF 1 FOOT. NO MEASURABLE WATER LEVELS WERE OBSERVED IN ANY BORINGS PRIOR TO ROCK CORING OPERATIONS (BEFORE ADDING CORE WATER). WATER USED DURING ROCK CORING OPERATIONS MASKED ANY SEEPAGE ZONES THAT MIGHT EXIST IN THE ROCK.

SPECIFICATIONS

THIS GEOTECHNICAL EXPLORATION WAS PERFORMED IN ACCORDANCE WITH THE STATE OF OHIO, DEPARTMENT OF TRANSPORTATION, OFFICE OF GEOTECHNICAL ENGINEERING, SPECIFICATIONS FOR GEOTECHNICAL EXPLORATIONS, DATED NOVEMBER 1995.

AVAILABLE INFORMATION

ALL AVAILABLE SOIL AND BEDROCK INFORMATION THAT CAN BE CONVENIENTLY SHOWN ON THE SOIL PROFILE SHEETS HAS BEEN SO REPORTED. 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.

LEGEND

DESCRIPTION	ODOT CLASS	CLASSIFIED MECH.	CLASSIFIED VISUAL
SANDY SILT	A-4a	3	3
SILT	A-4b	4	2
SILT AND CLAY	A-6a	1	3
SILTY CLAY	A-6b	1	0
	TOTAL	9	8
WEATHERED SANDSTONE	VISUAL		
SANDSTONE	VISUAL		

BORING LOCATION - PLAN VIEW

DRIVE SAMPLE AND/OR CORE BORING LOCATION PLOTTED TO VERTICAL SCALE ONLY

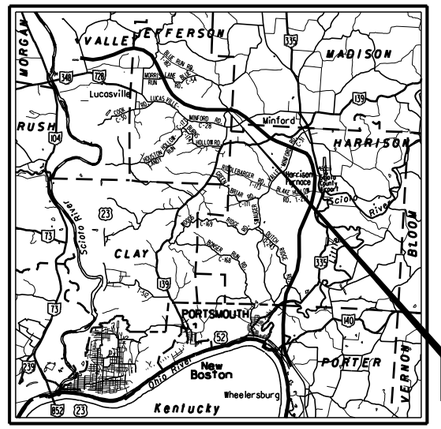
W —— INDICATES FREE WATER ELEVATION

▽—— INDICATES STATIC WATER ELEVATION

——TR INDICATES THE TOP OF ROCK ELEVATION

X/Y/Z — FIGURES BESIDE THE BORING IN PROFILE INDICATE THE 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

50 (n) — INDICATES NUMBER OF BLOWS (50) TO DRIVE A SPLIT-BARREL SAMPLER A DEPTH OF (n) INCHES OTHER THAN THE NORMAL 6 INCH INCREMENT.



LOCATION MAP

SCALE IN MILES
0 2 4 6 8

N

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. - AMJ AND SJR 06/04 to 06/06
DRILLING - DW AND RB 03/11-15/05, 06/30/06
DRAWN - RJH & AMJ 8/09
REVIEWED - AEN 8/19/09

DLZ
6121 HUNTLEY ROAD • COLUMBUS, OHIO 43229

PID NO. 79977

STRUCTURE FOUNDATION INVESTIGATION
BRIDGE NO. SCI-823-1096
SR 823 OVER BLUE RUN ROAD (CR 29)

SCI-823-10.13

1/6

8/21/2009
4:04:09 PM
M:\Proj\012\E3070.03\Portsmouth Bridge Drawings\Phase 2\SCI-823-1096\title09.dgn

0 10 20 40
HORIZONTAL SCALE IN FEET

DRAWN | CHECKED

STRUCTURE FOUNDATION INVESTIGATION
BRIDGE NO. SCI-823-1096
S.R. 823 OVER BLUE RUN ROAD (CR-29)

SCI-823-10.13

2 / 6

860
840
820
800
780
760
740
720
700
680

578 579 580 581 582 583

EXISTING SURFACE

PROPOSED PROFILE

TR-7
44.9' RT.
TOPSOIL-2"
1/1/2
4/5/5 16
8/20/22
18/30/46 TR

B-14
31.8' RT.
TOPSOIL-1"
7/9/8
7/8/6 12
9/6/7
6/8/17 13
18/21/27
7/18/40 26
21/50(3) TR

TR-9
39.1' RT.
TOPSOIL-3"
12 WOH/WOH/2
4/5/5
TR 19/50(3)

B-13
43.8' LT.
TOPSOIL-4"
4/5/8 15
28/50(2) TR

TR-10
51.8' LT.
TOPSOIL-3"
1/2/2 19
12/11/41 TR

TR-8
46.7' LT.
TOPSOIL-1"
2/3/2
2/2/3 16
1/1/2 22
3/7/8 13
4/10/19
13/31/46 TR

580

DRAWN | CHECKED

STRUCTURE FOUNDATION INVESTIGATION
BRIDGE NO. SCI-823-1096
SR 823 OVER BLUE RUN ROAD (CR-29)

SCI-823-10.13

3 / 6

Client: TranSystems, Inc. | Project: SCI-823-0.00 | Job No. 0121-3070.03

LOG OF: Boring B-13 | Location: Sta. 578+27.4, 43.8 ft. LT of SR 823 CL | Date Drilled: 06/30/06

WATER OBSERVATIONS: Water seepage at: None
Water level at completion: None (Prior to coring rock) 7.0' (Includes drilling water, inside hollowstem augers)

Depth (ft)	Elev. (ft)	Blows per 6"	Recovery (in)	Sample No. Drive	Sample No. Press / Core	Hand Penetrometer (tsf)	DESCRIPTION	% Aggregate	% C. Sand	% M. Sand	% F. Sand	% Silt	% Clay	STANDARD PENETRATION (N)
0.3	769.7						Topsoil - 4"							
	770.0	4 5 8	17	1		3.0	Very stiff brown SILT (A-4b), some clay, trace fine to coarse sand; damp.	0	3	–	4	68	25	
3.5	766.5	28 50/2	7	2			Severely weathered gray SANDSTONE.							50+
5.6	765.0						Medium hard to hard gray SANDSTONE; very fine to fine grained, moderately weathered, laminated to thinly bedded, moderately fractured.							
10		Core 120"	Rec 114"	RQD 76%	R-1		@ 10.7', qu=11,952 psi.							
15.0	755.0						Bottom of Boring - 15.0'							
20														
25														
30														

Client: TranSystems, Inc. | Project: SCI-823-0.00 | Job No. 0121-3070.03

LOG OF: Boring B-14 | Location: Sta. 579+80.2, 31.8 ft. RT of SR 823 CL | Date Drilled: 06/30/06

WATER OBSERVATIONS: Water seepage at: None
Water level at completion: None (Prior to coring) 13.5' (Includes drilling water, inside hollowstem augers)

Depth (ft)	Elev. (ft)	Blows per 6"	Recovery (in)	Sample No. Drive	Sample No. Press / Core	Hand Penetrometer (tsf)	DESCRIPTION	% Aggregate	% C. Sand	% M. Sand	% F. Sand	% Silt	% Clay	STANDARD PENETRATION (N)
0.1	801.7						Topsoil - 1"							
	801.6	7 9 8	15	1		4.5+	Hard brown SILT AND CLAY (A-6a), little fine to coarse sand, trace gravel; damp.							
		7 8 6	14	2		4.5+		10	8	–	8	49	25	
5		9 6 7	3	3		4.5+	@ 8.0', some gravel (rock fragments).							
8.5	793.2	8 8 17	13	4		4.0	Hard brown SANDY SILT (A-4a), little gravel, little clay; damp.	17	12	–	11	45	15	
10		18 21 27	18	5		4.5+								
14.0	787.7	7 18 40	18	6		4.5+	Hard mottled brown and gray SILT (A-4b), some clay, trace fine to coarse sand; moist.	0	1	–	5	70	24	
15		21 50/3	8	7		4.5+								58
18.5	783.2						Medium hard to hard brown SANDSTONE; fine to medium grained, moderately weathered, argillaceous, laminated to thinly bedded, moderately fractured. @ 20.0', 21.4', iron stained, high angle fractures.							50+
20														
21.5	780.2						Medium hard to hard gray SANDSTONE interbedded with SILTSTONE; very fine to fine grained, moderately weathered, pyritic (halos), thinly bedded, highly to moderately fractured.							
		Core 120"	Rec 116"	RQD 61%	R-1		@ 26.8'-27.3', qu=5,840 psi, Er=627,457 psi.							
28.5	773.2						Bottom of Boring - 28.5'							
30														

STRUCTURE FOUNDATION INVESTIGATION
BRIDGE NO. SCI-823-1096
SR 823 OVER BLUE RUN ROAD (CR-29)

DRAWN | CHECKED

SCI-823-10.13

Client: TranSystems, Inc. | Project: SCI-823-0.00 | Job No. 0121-3070.03

LOG OF: Boring TR-7 | Location: Sta. 580+57.2, 44.9 ft. RT of SR 823 CL | Date Drilled: 03/15/05

WATER OBSERVATIONS: Water seepage at: None; Water level at completion: None (prior to coring) 4.1' (includes drilling water)

Depth (ft)	Elev. (ft)	Blows per 6"	Recovery (in)	Sample No. Drive	Sample No. Press / Core	Hand Penetro-meter (tsf)	DESCRIPTION	% Aggregate	% C. Sand	% M. Sand	% F. Sand	% Silt	% Clay	STANDARD PENETRATION (N) Natural Moisture Content, % - ● PL ⊢ LL Blows per foot - ○ 10 20 30 40
0.2	814.1	1 1 2	5	1			Topsoil - 2"							
							Soft dark gray SILT AND CLAY (A-6a), little fine to coarse sand, trace gravel; organic; damp.							
3.0	811.3													
		4 5 5	17	2		2.0	Stiff light brown SILT AND CLAY (A-6a), some fine to coarse sand, trace gravel; contains relic rock structure; damp.	3	14	–	7	48	28	
5														
6.5	807.8	8 20 22	18	3			Severely weathered light brown SANDSTONE.							
		18 30 46	12	4		4.5+								76
10.0	804.3	Core 54"	Rec 52"	RQD 17%	R-1		Soft light brown SANDSTONE; very fine grained, highly weathered to decomposed, thinly laminated to thinly bedded, highly fractured, contains several healed fractures.							
13.0	801.3						Soft to medium hard gray SANDSTONE; very fine to fine grained, highly weathered, thinly laminated, argillaceous, highly fractured.							
15														
18.0	796.3	Core 120"	Rec 120"	RQD 60%	R-2		Medium hard gray SANDSTONE; highly to moderately weathered, argillaceous, micacious, thinly laminated to medium bedded, slightly fractured.							
20							@ 21.0'-21.2', decomposed.							
24.5	789.8						Bottom of Boring - 24.5'							
25														
30														

Client: TranSystems, Inc. | Project: SCI-823-0.00 | Job No. 0121-3070.03

LOG OF: Boring TR-8 | Location: Sta. 579+73.0, 46.7 ft. LT of SR 823 CL | Date Drilled: 03/11/05 to 03/14/05

WATER OBSERVATIONS: Water seepage at: None; Water level at completion: None (prior to coring) 17.4' (includes drilling water)

Depth (ft)	Elev. (ft)	Blows per 6"	Recovery (in)	Sample No. Drive	Sample No. Press / Core	Hand Penetro-meter (tsf)	DESCRIPTION	% Aggregate	% C. Sand	% M. Sand	% F. Sand	% Silt	% Clay	STANDARD PENETRATION (N) Natural Moisture Content, % - ● PL ⊢ LL Blows per foot - ○ 10 20 30 40
0.1	802.4						Topsoil - 1"							
	802.3	2 3 2	14	1		2.0	Stiff dark gray SANDY SILT (A-4a), little clay, some gravel, contains organic material; damp.							
		2 2 3	11	2		1.0		22	10	–	7	46	15	
5														
6.5	795.9	1 1 2	9	3		1.5	Stiff to very stiff brown SILT (A-4b), little to some clay, little to some fine to coarse sand, trace gravel; damp to moist.	1	11	–	7	60	21	
		3 7 8	10	4		2.0		5	13	–	12	50	20	
10		4 10 19	18	5		3.5								
13.5	788.9	13 31 46	18	6		4.5	Severely weathered light brown SANDSTONE.							
15.0	787.4						Soft light brown SANDSTONE; highly weathered to decomposed, highly fractured.							77
19.3	783.1	Core 114"	Rec 107"	RQD 46%	R-1		Soft to medium hard gray SANDSTONE; very fine grained, highly weathered, micaceous, argillaceous, thinly laminated to thinly bedded, highly fractured, contains ferric bands.							
20														
25							@ 27.7'-27.9', decomposed zone.							
30	772.4	Core 120"	Rec 120"	RQD 81%	R-2		Soft to medium hard gray SANDSTONE; very fine grained, highly weathered, micaceous, argillaceous, thinly laminated to thinly bedded, highly fractured, contains ferric bands.							
34.5	767.9						Bottom of Boring - 34.5'							
35														
40														
45														
50														
55														
60														

DRAWN | CHECKED

STRUCTURE FOUNDATION INVESTIGATION
BRIDGE NO. SCI-823-1096
SR 823 OVER BLUE RUN ROAD (CR-29)

SCI-823-10.13

Client: TranSystems, Inc. | Project: SCI-823-0.00 | Job No. 0121-3070.03

LOG OF: Boring TR-9 | Location: Sta. 578+73.6, 39.1 ft. RT of SR 823 CL | Date Drilled: 03/15/05

Elev. (ft): 772.8

WATER OBSERVATIONS: Water seepage at: None; Water level at completion: None (prior to coring) 3.5' (includes drilling water)

Depth (ft)	Elev. (ft)	Blows per 6"	Recovery (in)	Sample No. Drive	Sample No. Press / Core	Hand Penetrometer (tsf)	DESCRIPTION	% Aggregate	% C. Sand	% M. Sand	% F. Sand	% Silt	% Clay	STANDARD PENETRATION (N) Natural Moisture Content, % - ● PL ⊢ LL Blows per foot - ○ 10 20 30 40
0.3	772.5						Topsoil - 3"							
		WOH WOH	7	1		0.25	Soft dark brown SILTY CLAY (A-6b), trace to little fine to coarse sand; contains shale fragments; damp.	0	5	–	5	52	38	● ⊢
3.0	769.8	2												
		4 5	18	2		2.5	Very stiff brown SANDY SILT (A-4a), trace clay, trace gravel; damp.							
5		5												
6.0	766.8	19												
		50/3	8	3		4.5+	Severely weathered light brown SANDSTONE, argillaceous.							50+
7.0	765.8						Medium hard gray SANDSTONE; slightly weathered, micaceous, argillaceous, massive, slightly fractured. @ 7.0'-7.3', broken.							
		Core 120"	Rec 120"	RQD 83%	R-1									
10														
15														
17.0	755.8						Bottom of Boring - 17.0'							
20														
25														
30														

Client: TranSystems, Inc. | Project: SCI-823-0.00 | Job No. 0121-3070.03

LOG OF: Boring TR-10 | Location: Sta. 577+84.9, 51.8 ft. LT of SR 823 CL | Date Drilled: 03/15/05

Elev. (ft): 768.1

WATER OBSERVATIONS: Water seepage at: None; Water level at completion: None (prior to coring) 1.3' (includes drilling water)

Depth (ft)	Elev. (ft)	Blows per 6"	Recovery (in)	Sample No. Drive	Sample No. Press / Core	Hand Penetrometer (tsf)	DESCRIPTION	% Aggregate	% C. Sand	% M. Sand	% F. Sand	% Silt	% Clay	STANDARD PENETRATION (N) Natural Moisture Content, % - ● PL ⊢ LL Blows per foot - ○ 10 20 30 40
0.3	767.8						Topsoil - 3"							
		1 2 2	8	1		1.0	Medium stiff dark brown SANDY SILT (A-4a), some gravel, little clay; damp to moist.	29	12	–	7	38	14	● ⊢
3.0	765.1						Severely weathered light grayish brown SANDSTONE.							
		12 11 41	18	2										52
5.6	763.1						Medium hard light brown SANDSTONE; highly weathered, thickly bedded, broken, contains high angle healed fractures.							
7.1	761.0						Medium hard to hard gray SANDSTONE; slightly to moderately weathered, micaceous, argillaceous, massive, moderately to slightly fractured.							
		Core 54"	Rec 54"	RQD 33%	R-1									
10														
15		Core 120"	Rec 120"	RQD 87%	R-2									
19.5	748.6						Bottom of Boring - 19.5'							
20														
25														
30														

DRAWN | CHECKED

STRUCTURE FOUNDATION INVESTIGATION
BRIDGE NO. SCI-823-1096
SR 823 OVER BLUE RUN ROAD (CR-29)

SCI-823-10.13

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