GENERAL CCTV SITE LAYOUT

THE CONTRACTOR SHALL INSTALL THE CCTV 70 FOOT CONCRETE POLE, GROUND MOUNTED ITS CABINET, PULL BOXES, AND CONDUIT ACCORDING TO STANDARD CONSTRUCTION DRAWING ITS-10.11. THE LAYOUT MAY BE SHIFTED ACCORDING TO SITE SPECIFIC NEEDS BUT SHOULD TYPICALLY FOLLOW SCD ITS-10.11. EXAMPLE, A SITE MAY HAVE THE PULL BOXES REVERSED OR ON THE OPPOSITE SIDE OF THE WORK PAD BUT SHOULD STILL BE NEAREST THE CABINET. THE CCTV LOWERING UNIT ARM MAY ALSO BE ORIENTED SLIGHTLY DIFFERENT (AS DESCRIBED ON EACH PLAN SHEET) BUT SHALL NOT BE POSSIBLE TO BE LOWERED ON TOP OF THE CABINET OR TECHNICIAN OPERATING THE LOWERING DEVICE.

ELECTRICAL NOTE

A MINIMUM OF 10 FEET SLACK CABLE SHALL BE COILED IN EACH ELECTRICAL PULL BOX. THE DISTRIBUTION CABLE QUANTITIES ACCOUNTS FOR THREE CABLES BUNDLED (HOT, NEUTRAL, AND GROUND) FROM POWER SERVICE TO CCTV GROUND MOUNTED ITS CABINET. 10 FEET OF CABLE AT ALL SERVICE TERMINATIONS, 10 FEET OF CABLE FOR EACH PULL BOX, AND 15 FEET OF CABLE BETWEEN ODOT CABINETS AND NEAREST PULL BOX HAS BEEN ACCOUNTED FOR IN THE CABLE QUANTITIES.

THE DISCONNECT SHALL BE CAPABLE OF BEING PADLOCKED IN BOTH THE ON AND OFF POSITIONS AND SHALL ALSO BE CAPABLE OF SEPARATELY LOCKING THE DOOR SHUT. ONE PADLOCK SHALL BE USED TO LOCK THE DISCONNECT SWITCH IN THE APPROPRIATE POSITION AND ONE SHALL BE USED TO LOCK THE DOOR SHUT. PADLOCKS FURNISHED SHALL BE BRASS, EQUAL TO WILSON BOHANNAN 660A, AND SHALL BE KEYED IN ACCORDANCE WITH CMS 631.06 OR ODOT TYPE A.

ITEM 625: UNDERGROUND WARNING/MARKING TAPE, AS PER PLAN

IN ADDITION TO THE REQUIREMENTS OF CMS 725.22 AND SS 804 AND 809, THE CONTRACTOR SHALL FURNISH AND INSTALL UNDERGROUND WARNING/MARKING TAPE WHERE COMMUNICATION CONDUIT IS TO BE INSTALLED. THE TAPE SHALL INCLUDE AN INTEGRAL TRACER WIRE WHICH SHALL BE CONNECTED AND INSTALLED INTO 32" PULL BOXES PER SS 804.

COMMUNICATION CABLE MARKERS SHALL ALSO BE PROVIDED AND INSTALLED PER SS 809 WHICH SHALL HAVE THE TRACER WIRE CONNECTED FROM THE TOP OF TYPE 2 COMMUNICATION CABLE MARKERS AND INTO THE 32" PULL BOXES AND TO THE INTEGRAL TRACER WIRE IN THE TAPE. THE TAPE AND TRACER WIRE SHALL BE INSTALLED NEXT TO THE CONDUIT THROUGH THE PULL BOX SIDE WALL KNOCKOUTS AND THE PULL BOX SHALL THEN BE MORTARED AND SEALED TO PREVENT MUD AND DEBRIS FROM ENTERING THE BOX.

PAYMENT FOR UNDERGROUND WARNING/MAARKING TAPE SHALL BE MADE FOR THE ACCEPTED LINER FOOT QUANTITIES AT THE CONTRACT BID PRICE FOR ITEM 625, UNDERGROUND WARNING/MARKING TAPE, APP.

ITEM 625: GROUND ROD, AS PER PLAN

THE CONTRACTOR SHALL INSTALL GROUND RODS PER STANDARD CONSTRUCTION DRAWING ITS-50.10. IN ADDITION, A GROUND ROD SHALL BE INSTALLED AT EACH ELECTRIC PULL BOX INSTALLED ON THIS PROJECT AND CONNECTED TO THE PULL BOX FRAME. AT EACH PULL BOX LOCATION, THE GROUND ROD SHALL ALSO BE TIED INTO THE DISTRIBUTION CABLE USED AS THE GROUND WIRE TO SERVICE THE CAMERA CABINET, IN ORDER TO PROVIDE A COMPLETE GROUNDING SYSTEM.

ITEM 625: LIGHTING, MISC: STEP-DOWN TRANSFORMER AND SUPPORT

THE CONTRACTOR SHALL FURNISH AND INSTALL ALL MATERIALS NECESSARY FOR A POWER SERVICE PER ODOT CONSTRUCTION AND MATERIAL SPECIFICATION SECTION 625.15.

A 3.0 KVA, 480 VOLT TO 120/240 VOLT TRANSFORMER SHALL BE INCIDENTAL TO THIS PAY ITEM. AN EQUIPMENT STAND SHALL ALSO BE INCLUDED AND SHALL HAVE THE TRANSFORMER AND DISCONNECT MOUNTED UPON IT. THIS ITEM SHALL BE INSTALLED PER STANDARD CONSTRUCTION DRAWING ITS-50.11. THIS ITEM SHALL ALSO INCLUDE ALL CONDUIT AND MATERIALS NECESSARY TO RUN POWER WIRING OUT/IN THE NEAREST 18 INCH ELECTRIC PULL BOX, IN ORDER TO PROVIDE 120 VOLT POWER TO THE ITS CABINET AND A COMPLETE AND FUNCTIONAL POWER SERVICE.

THE CCTV RELATED POWER SERVICES SHALL BE MARKED WITH “ITS”. SEPARATE DISCONNECT SWITCHES SHALL BE FUSIBLE, RATED FOR 60 AMPS WITH NEMA 4X ENCLOSURE, AND SHALL BE FUSED AT 30 AMPS. THIS SERVICE SHALL PROVIDE 120 VOLTS TO EACH RELATED SITE

ITEM 633: CABINET FOUNDATION, AS PER PLAN

THE CONTRACTOR SHALL INSTALL A CABINET FOUNDATION FOR EACH ITS GROUND MOUNTED CABINET. SEE SUPPLEMENTAL SPECIFICATION 809 FOR CONDUIT REQUIREMENTS ENTERING THE ITS GROUND MOUNTED CABINET.

ITEM 809: ITS DEVICE, MISC: REMOVAL OF POLE OR DEVICE

THE CONTRACTOR SHALL REMOVE ANY POLE OR DEVICE REFERENCED IN THE PLANS. THE CONTRACTOR SHALL REMOVE FOUNDATIONS TO A DEPTH OF AT LEAST ONE FOOT BELOW GRADE AND RESTORE THE AREA. THE CONTRACTOR SHALL RELOCATE DEVICE IF PLAN NOTES CALL FOR. THE CONTRACTOR SHALL STORE AND DELIVER REMOVED POLES OR DEVICES TO ODOT ITS IF DESIRED BY ODOT. THE CONTRACTOR SHALL COORDINATE WITH THE PROJECT ENGINEER TO DECIDE IF IT IS DESIRED TO BE RETURNED TO ODOT OR NOT. IF NOT, THE CONTRACTOR SHALL DISPOSE OF THE POLE OR DEVICE. ANY UNDERGROUND CONDUIT OR CABLING THAT IS NO LONGER BEING UTILIZIED, SHALL BE ABANDONED IN PLACE.

ITEM 809: AS-BUILT CONSTRUCTION PLANS / GPS COORDINATES

PRIOR TO THE FINAL ACCEPTANCE OF THE PROJECT, THE CONTRACTOR SHALL PROVIDE AS-BUILT PLANS AND GPS COORDINATES PER THE REQUIREMENTS IN SUPPLEMENTAL SPECIFICATION 809.

ITEM 809: CCTV CONCRETE POLE, 70 FEET

THE CONTRACTOR SHALL FURNISH AND INSTALL THIS ITEM ACCORDING TO ODOT SUPPLEMENTAL SPECIFICATION 809, AS WELL AS ANY STANDARD CONSTRUCTION DRAWINGS NOTED ON THE PLANS. IN ADDITION, THE CONTRACTOR SHALL INCLUDE A 1/2" ISOLATION JOINT MATERIAL BETWEEN THE CONCRETE POLE AND CONCRETE WORK PAD. THE CONTRACTOR SHALL PROVIDE 1 COMPLETE LOWERING UNIT TOOL/WINCH ASSEMBLY PER EVERY 10 POLE-TOP LOWERING UNITS INSTALLED FOR A TOTAL OF 4 LOWERING UNIT TOOLS PER SUPPLEMENTAL SPECIFICATION 809 TO ODOT AT THE END OF THE PROJECT.

ODOT AND THE OFFICE OF GEOTECHNICAL ENGINEERING HAVE OBTAINED AND ANALYZED THE SOIL BORING DATA FOR THESE SITES AND DETERMINED THE POLE HEIGHT ABOVE THE GROUND AND EMBEDMENT DEPTH AS NOTED ON THE PLAN SHEETS. THE CONTRACTOR SHALL FURNISH/INSTALL POLES WITH THE CORRECT LENGTH/EMBEDMENT AND ALL COUPLINGS, HANDHOLES, ETC., IN THE APPROPRIATE LOCATION ABOVE GROUND ACCORDING TO SCD ITS-12.10. THE CONTRACTOR MAY FURNISH/INSTALL LONGER OVERALL LENGTH POLES AT A DEEPER EMBEDMENT DEPTH IF IT IS MORE BENEFICIAL FOR MANUFACTURING, SHIPPING, ETC., AS LONG AS ALL ABOVE GROUND COMPONENTS MAINTAIN APPROPRIATE HEIGHT LEVEL. IF NEEDED DUE TO UNFORESEEN CIRCUMSTANCES ARISING WITH BEDROCK, ETC., AND WITH APPROVAL FROM THE ODOT PROJECT ENGINEER, THE CONTRACTOR MAY FIELD CUT AN APPROPRIATE AMOUNT FROM THE BASE OF THE CONCRETE POLE WHICH WOULD REQUIRE LESS EMBEDMENT DEPTH IN ORDER TO MAINTAIN APPROPRIATE LEVELS ABOVE GROUND. IF A POLE IS CUT, THE CONTRACTOR SHALL TAKE ALL PRECAUTIONS NECESSARY TO NOT DAMAGE THE INTEGRITY OF THE POLE PER MANUFACTURER RECOMMENDATIONS AND ANY EXPOSED STEEL STRANDS SHALL BE COATED WITH EPOXY.

THE CONTRACTOR SHALL SUBMIT ALL POLE MANUFACTURER FABRICATION DRAWING SUBMITTALS, AS WELL AS INSTALLATION PROCEDURES AND BACKFILL MATERIAL, TO THE ODOT PROJECT ENGINEER FOR ACCEPTANCE BEFORE ORDERING.

PAYMENT FOR EACH POLE COMPLETE, INSTALLED, AND ACCEPTED CONCRETE POLE, SHALL BE MADE AT THE UNIT BID PRICE FOR ITEM 809, CCTV CONCRETE POLE, 70 FEET

ITEM 625: ARC FLASH CALCULATIONS AND LABELS FOR ITS SITES

THIS ITEM SHALL INCLUDE PROVIDING ARC FLASH HAZARD CALCULATIONS AND LABELS PER SUPPLEMENTAL SPECIFICIATION 825. A SINGLE ARC FLASH HAZARD STUDY SHALL BE PERFORMED FOR EACH SITE CALLED OUT BELOW FROM UTILITY INTERCONNECTION TO ALL DOWNSTREAM DEVICES. LABELS FOR SITES CALLED OUT BELOW SHALL BE APPLIED TO THE OUTSIDE OF EACH ITS CABINET ON BOTH DOORS AND ALL DISCONNECTS/SAFETY SWITCHES. LABELS SHALL NOT COVER ANY EXISTING NAMEPLATES OR LABELS ON DISCONNECTS/SAFETY SWITCHES WHEN APPLIED. LABELS SHALL BE PROVIDED BY THE CONTRACTOR. CALCULATIONS SHALL BE GIVEN TO THE PROJECT ENGINEER AND ITS ENGINEER AS DESCRIBED IN THE SUPPLEMENTAL SPECIFICATION.
USE LABEL 825.08.A, ODOT VERSION “A”.

PAYMENT WILL BE MADE AT THE UNIT PRICE BID FOR EACH ITEM 625-ARC FLASH CALCULATIONS AND LABELS FOR EACH SITE INCLUDING ALL LABOR, MATERIALS AND INCIDENTALS NECESSARY.

Site #	Sheet #	Name	Latitude	Longitude	Expected Conditions	Boring ID	Embedment
1	P.24	US-250 & SR-2	41.39983	-82.65588	Expected Soil Profile Cohesive, Dry Installation per CMS 524	TH-2	14
2	P.25	SR-2/US-6 & Rye Beach Rd	41.40502	-82.59086			25
3	P.26	SR-2 & SR-58	41.41446	-82.20872	Expected Soil Profile Primarily Cohesive, Bedrock anticipated at EL. 630.9, Minimum Rock Embedment Length 5', Dry Installation Per CMS 524	B-16	10
4	P.27	US 20 & SR-301	41.31798	-82.11728	12 for 12' by observation, Expected Soil Profile Primarily Cohesive, Dry Installation Per CMS 524	B-1 & B-8	12
5	P.28	I-90 & SR-611	41.46331	-82.05508	Expected Soil Profile Cohesive, Dry Installation per CMS 524	B-2	12
6	P.29	I-90 & Nagel Rd	41.46491	-81.98921	Expected cohesive soil conditions, Bedrock Anticipated at EL. 625.3, Dry Installation per CMS 524	B-013-1-10 and B-13-3-10	15
7	P.30	I-71 & SR-3	41.19308	-81.7911	12 for 12' by observation, Expected Soil Profile Primarily Cohesive, Dry Installation Per CMS 524	B-6-1	12
8	P.31	I-76 & SR-57	41.03372	-81.76166			25
9	P.32	I-76 & SR-94	41.04698	-81.72925			25
10	P.33	I-271 & SR-94	41.19341	-81.74352			25
11	P.34	US-30 & SR-13	40.77871	-82.51188	Expected Soil Profile Cohesive, Dry Installation per CMS 524	B-10	20
12	P.35	I-480 & Grayton Rd	41.42365	-81.84625			25
13	P.36	I-480 & W150th St	41.42087	-81.80141			25
14	P.37	I-480 & Ridge Rd	41.42155	-81.73409	Shallow Bedrock - Minimum Rock Embedment 10'	B-005-0-23	10
15	P.38	I-480 & SR-176	41.42173	-81.68494	Varying Profile Cohesive and Granular Conditions, Possible Cobbles/Boulders approximately 10' below existing grade, bedrock anticpated at elevation 745.6, Minimum bedrock embedment 2'	B-10	15
16	P.39	I-480 & Great Northern Blvd	41.41349	-81.90225	Expected Soil Profile Cohesive, Dry Installation per CMS 524	B-8	14
17	P.40	I-480 & Stearns Rd	41.39662	-81.94428	12 for 12' by observation, Expected Soil Profile Cohesive, Dry Installation Per CMS 524	B-16, B-26	12
18	P.41	I-77 & Rockside Rd	41.39703	-81.65338			25
19	P.42	I-490 & E 55th St	41.4793	-81.66057	Expected Soil Profile Primarily Granular, Wet or Cased Installation Per CMS 524	C-4	18
20	P.43	I-71 & US-42/Pearl Rd	41.3569	-81.81887			25
21	P.44	I-90 & Crocker Rd	41.4678	-81.95042	Bedrock anticipated at Elevation 651.6', Minimum Rock Embedment 10', Dry Installation Per CMS 524	B-1	11
22	P.45	I-271 & Boston Mills Rd	41.26354	-81.55358	12 for 12' by observation, Expected Soil Profile Primarily Cohesive, Dry Installation Per CMS 524		12
23	P.46	I-76 & SR-43	41.10779	-81.3479	Expected Granular Soil Conditions, Wet or Cased Installation Per CMS 524	TH-10	25
24	P.47	I-76 & SR-44	41.10964	-81.24208	Varying Profile Cohesive and Granular Conditions, anticipate Wet or Cased Installation Per CMS 524	TH-9	25
25	P.48	I-76 & SR-14	41.10558	-81.15638	Expected Granular Soil Conditions, Wet or Cased Installation Per CMS 524	B-2	20
26	P.49	I-680 & I-80/SR-11	41.12436	-80.75194	12 for 12' by observation, Expected Soil Profile Primarily Cohesive, Dry Installation Per CMS 524	B-8, B-1	12
27	P.50	I-680 & US-224	41.02388	-80.62602	Expected Granular Soil Conditions, Wet or Cased Installation Per CMS 524	B-007-0-09	14
28	P.51	I-680 & Market St	41.09121	-80.65057	Expected Granular Soil Conditions, Wet or Cased Installation Per CMS 524	B-7 & B-9	18
29	P.52	I-90 & SR-193	41.88094	-80.66666	Expected Soil Profile Cohesive, Dry Installation per CMS 524	B-8	12
30	P.53	I-90 & SR-7	41.9167	-80.56828	Expected Soil Profile Cohesive, Bedrock anticipated at EL. 703.4, 5' Rock Embedment, Dry Installation CMS 524	B-7	10
31	P.54	I-90 & WB Rest Area - MM241	41.92381	-80.5475			25
32	P.55	I-480 & WarrensvilleCenter Rd	41.42522	-81.53757	12 for 12' by overservation, Expected Soil Prifile Cohesive, Dry Installation Per CMS 524	B-007-0-08 & B-002-0-65	12

ITS NOTES

D3/D4/D12 ITS CAMERA ADDITIONS

DESIGN AGENCY
WSP USA, Inc.
2 Miranova Pl,
Suite 450
Columbus, OH 43215

DESIGNER NWA
REVIEWER BPT 03/26/24
PROJECT ID 118895
SHEET P.9 TOTAL 55

ERI-2-11.94, 118895, Location 1

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
TESTING LABORATORY

LOG OF BORING

CO., RT. NO., SEC. ERI-6-11.30 BRIDGE NO. ERI-6-
U.S.250 & S.R. 13 OVER USR.6 & SR2 RELOC.

LOCATION: T.H. 2 STA. 47+11 OFFSET 30'LT FED. NO.

ELEV.	DEPTH	NO. BLOWS	SAMPLE NO.	DESCRIPTION
614.0	0			
	2			
	4			
609.0	6			
	8			
604.0	10			
	12	3/5	4591	Gray Silt and Clay
	14			
599.0	16	3/6	4592	Gray Silt and Clay W/Shale Fragments
	18			
594.0	20			
	22	4/11	4593	Gray Silt and Clay
	24			
589.0	26	6/14	4594	Gray Sandy Silt W/Few Sandstone Fragts.
	28			
585.0				TOP OF ROCK
	30			Sandstone, gray, hard, fine to medium grained, massive. Core Loss 0%.
581.9	32			
	34			Limestone, gray, hard, dense slightly fossiliferous, with a gray shale interval in upper 0.16'. Core Loss 0%.
578.0	36			

BOM
11-12-68

LOG OF BORING (CONTINUED) SHEET 3

BRIDGE NO. FRI-6 T.H. 2

ELEV.	DEPTH	NO. BLOWS	SAMPLE NO.	DESCRIPTION
	38			Shale, gray, medium hard, somewhat siliceous, with nodules of limestone, frequent grading into very siliceous shale. Core Loss 0%.
	40			
573.0	42			Limestone, gray, hard, dense, slightly fossiliferous, lower 2.0' dolomitic. Core Loss 0%.
	44			
569.0	46			BOTTOM OF BORING
	48			
	50			
	52			
	54			
	56			
	58			
	60			
	62			
	64			
	66			
	68			
	70			
	72			
	74			
	76			
	78			
	80			
	82			

ERI-2-15.53, 118895, Location 2

No available soil borings

LOR-2-7.46, 118895, Location 3

LOG OF BORING

Date Started 10-31-62 Sampler Type SS Dia. 1 3/8" Water Elev.

Date Completed 11-1-62 Casing: Length Dia.

Boring No. B-16 Station & Offset 393+74, 55' Lt. (FORWARD ABUTMENT) Surface Elev. 633.9'

Elev.	Depth	Std. Pen. (N)	Rec. ft.	Loss ft.	Description	Sample No.	Physical Characteristics: % Agg	% C.S.	% F.S.	% Silt	% Clay	LL.	PI.	W. C.	SHTL Class.
633.9	0														
	2				Grayish-Brown clay shale fragments. (Driller's Description)										
630.9	4		1.7	0.3	TOP OF ROCK										
	6														
	8		4.2	0.8	Shale, brown to dark-gray, argillaceous, siliceous, fissile; firm, weathered, crumbly to 6.5'; carbonaceous, hard and broken below, with a clay seam from 5.2 to 6.5'. Core loss 10%.										
	10														
	12		5.0	0.0											
618.9	14				BOTTOM OF BORING										

LOR-2-12.98, 118895, Location 4

Illustrated Clay

Weathered Shale

Shale

LOG OF BORING

Date Started 4-25-67 Sampler Type SS Dia. 1 3/8" Water Elev. ____

Date Completed 4-25-67 Casing: Length ____ Dia. ____

Boring No. B-1 Station & Offset 663+70, 40' Lt. (Rear Abutment) Surface Elev. 760.0'

Elev.	Depth	Std. Pen. (N)	Rec. ft.	Loss ft.	Description	Sample No.	Physical Characteristics % Agg.	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.	SHTL Class.
760.0	0														
	2														
757.5	4	8/7			Brown and Gray Sandy Silt	1	8	4	10	35	43	30	9	17	A-4a
755.0	6	10/14			Brown Sandy Silt	2	7	5	10	34	44	28	10	16	A-4a
752.5	8	22/26			Brown and Gray Sandy Silt	3	13	4	16	32	35	25	7	23	A-4a
750.0	10	15/23			Gray Sandy Gravelly Silt	4	26	6	10	22	36	26	8	13	A-4a
747.5	12	21/22			Gray Gravelly Sandy Silt	5	18	11	9	23	39	27	8	16	A-4a
745.0	14	18/22			Gray Silt and Clay	6	4	4	7	30	55	31	13	17	A-6a
742.5	16	23/25			Gray Gravelly Clay	7	11	3	7	28	51	31	13	18	A-6a
740.0	18	23/27			Gray Sandy Silt	8	7	5	15	38	35	23	6	13	A-4a
	20														
	22														
735.0	24														
	26	50* (0.8)			Gray Silty Gravelly Sand	9	30	20	17	15	18	19	3	16	A-2-4
	28														
730.0	30														
	32	50/*			Gray Sandy Gravelly Silt	10	31	4	21	22	22	25	7	12	A-4a
	34														
725.0	36	50* (0.2)			Gray Silty Sandy Gravel	11	39	15	16	18	12	-	-	52	-
	38														
720.0	40														
719.0		18/22			Brown Gravelly Sandy Silt — BOTTOM OF BORING	12	23	6	25	23	23	19	4	12	A-4a

*Refusal

LOG OF BORING

Date Started 4-25-67 | Sampler Type SS | Dia. 1 3/8" | Water Elev. _____

Date Completed 4-26-67 | Casing; Length 10' | Dia. 3 1/2"

Boring No. B-8 | Station & Offset 665+70, 33' Rt. (Forward Pier) | Surface Elev. 759.6'

Elev.	Depth	Std. Pen. (N)	Rec. ft.	Loss ft.	Description	Sample No.	Physical Characteristics % Agg	% C.S	% F.S	% Silt	% Clay	L.L.	P.I.	W.C.	SHTL Class.
759.6	0														
	2														
	4														
754.6	6	8/10			Brown Silt	1	0	3	13	51	33	25	6	17	A-4b
752.1	8	19/20			Brown and Gray Sandy Silt	2	14	6	12	35	33	NP	NP	12	A-4a
749.6	10	17/20			Gray Sandy Silt	3	6	6	11	37	40	28	9	13	A-4a
747.1	12	22/23			Gray Sandy Silt	4	7	6	11	38	38	26	9	11	A-4a
744.6	14	18/20			Gray Sandy Clay	5	7	5	8	32	48	29	11	13	A-6a
742.1	16	16/19			Gray Sandy Clay	6	10	4	8	32	46	31	12	14	A-6a
739.6	18	18/18			Gray Gravelly Clay	7	26	4	7	24	39	31	12	13	A-6a
	20														
	22														
734.6	24	14/17			Gray Silt and Clay	8	6	4	7	30	53	28	11	16	A-6a
	26														
	28														
729.6	30	20/32			Gray Silt	9	0	0	1	63	36	22	4	15	A-4b
	32														
	34														
724.6	36	15/34			Gray Sandy Silt	10	11	3	19	35	32	18	2	13	A-4a
	38														
719.6	40	50/*			Gray Sandy Silt	11	6	4	19	38	33	20	4	8	A-4a
	42														
	44														
714.6					BOTTOM OF BORING										
713.6	46	16/23			Brown Sandy Silt	12	0	0	30	44	26	NP	NP	15	A-4a

*Refusal

LOR-90-18.73, 118895, Location 5

LOG OF BORING

Date Started 3-8-65
Date Completed 3-9-65
Boring No. B-2
Sampler Type SS Dia. 1 3/8"
Casing: Length NONE Dia.
Station & Offset 221+04, 40' Lt (REAR ABUTMENT)
Water Elev.
Surface Elev. 627.8'

Elev.	Depth	Std. Pen. (N)	Rec. ft.	Loss ft.	Description	Sample No.	Physical Characteristics: % Agg.	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.	SHTL. Class.
627.8	0														
625.3	2														
	4	9/16			Brown and Gray Gravelly Clay	1	26	5	7	32	30	40	18	23	
622.8	6	15/28			Brown and Gray Clayey Silt	2	0	6	12	41	41	29	8	18	
620.3	8	14/3"			Brown and Gray Sandy Silt	3	0	10	11	42	37	30	7	17	
617.8	10	65/*			Gray Silt	4	0	6	11	47	36	22	3	12	
615.3	12	50/*			Gray Sandy Silt	5	0	13	12	42	33	23	5	9	
612.8	14	50/*			Gray Sandy Gravelly Silt	6	33	12	12	27	16	22	4	11	
610.3	16	50/*			Gray Silty Sandy Gravel	7	51	14	10	15	10	PL	18	12	
607.8	18	50* (0.3')			Dark-Gray Silt and Shale Fragments	8	V	I	S	U	A	L	PL	20	8
605.2	20				TOP OF ROCK										
	22		2.4	0.0	Shale, black, carbonaceous, fissile, medium-firm, jointed and broken between 25.0' and 27.5'. Core loss 15%.										
	24														
	26		3.1	0.9											
598.8	28				BOTTOM OF BORING										

*Refusal

LOR-90-22.18, 118895, Location 6

PROJECT: **LOR-90-22.26** TYPE: **BRIDGE REPLACEMENT** PID: **83607** BR ID: **2226** START: **4/22/10** END: **4/22/10**	DRILLING FIRM/OPERATOR: **NCE/TB** SAMPLING FIRM/LOGGER: **J&L LABS/LC** DRILLING METHOD: **3.25" HSA/NX** SAMPLING METHOD: **STP/NX**	DRILL RIG: **CME 45** HAMMER: **--** CALIBRATION DATE: -- ENERGY RATIO (%): **--**	STATION/OFFSET: **50+92.8, 46.9' Lt.** ALIGNMENT: **CL NAGEL ROAD** ELEVATION: **639.1 (MSL)** EOB (FT): **31.2** COORD: **2108538.5712 N, 655556.6387 E**	EXPLORATION ID **B-013-1-10** PAGE 1 OF 1

MATERIAL DESCRIPTION AND NOTES	ELEV. 639.1	DEPTHS	STP/ RQD	N	REC (%)	SAMPLE ID	HP (TSF)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC (%)	ODOT CLASS (GI)	HOLE SEAL
TOPSOIL: 5 (in)	638.6	0																
A-7-6: Dark brown to gray, medium stiff to soft CLAY, with some silt, little shale/siltstone/sandstone fragments and sand, odorless, weak to no reaction with HCl, homogeneous soil structure, moist to wet.		1																
		2	3-4-4	8	100	SS-1	--	1	2	4	28	65	44	23	21	25	A-7-6 (13)	
		3																
		4	3-5-6	11	100	SS-2	--	4	8	9	22	57	41	18	23	21	A-7-6 (13)	
		5																
		6																
		7	2-3-3	6	100	SS-3	--	2	7	6	24	61	43	22	21	29	A-7-6 (13)	
		8																
		9	--	--	100	ST-4	--	0	2	5	24	69	45	22	23	26	A-7-6 (14)	
		10																
	627.6	11	TR															
WxST: Dark gray, HIGHLY WEATHERED SILTSTONE.		12	7-20-30	50	100	SS-5	--	--	--	--	--	--	--	--	--	11	ROCK (V)	
		13																
		14	14-50/3"	50+	100	SS-6	--	--	--	--	--	--	--	--	--	8	ROCK (V)	
		15																
		16																
		17																
		18																
	620.6	19																
WxST: Dark gray, WEATHERED SILTSTONE.		20	50/5"	50+	100	SS-7	--	--	--	--	--	--	--	--	--	7	ROCK (V)	
		21																
		22																
		23																
		24	50/3"	50+	100	SS-8	--	--	--	--	--	--	--	--	--	16	ROCK (V)	
		25																
		26																
		27																
		28																
		29	50/2"	50+	100	SS-9	--	--	--	--	--	--	--	--	--	15	ROCK (V)	
		30																
	607.9	31	EOB															
			50/2"	50+	0	SS-10	--	--	--	--	--	--	--	--	--	--	ROCK (V)	

NOTES:
'*' COMBINED SILT AND CLAY REPORTED IN THE 'CL' COLUMN '--' NOT TESTED OR DATA NOT AVALABLE.

NOTE: AS SHOWN ON THE JULY 2010 J&L SOIL PROFILE SHEETS.

BBC&M JOB: 012-01399.300

PROJECT: LOR-90-22.26	DRILLING FIRM / OPERATOR: OTB / C. BESSEY	DRILL RIG: OTB ATV D50	STATION / OFFSET: 50+89.5, 50.3 LT	EXPLORATION ID: B-013-3-10
TYPE: NEW INTERCHANGE	SAMPLING FIRM / LOGGER: BBCM / J. SNYDER	HAMMER: CME AUTOMATIC	ALIGNMENT: NAGEL RD CENTERLINE	
PID: 83607 BR ID: LOR-90-2226	DRILLING METHOD: 3.25" HSA	CALIBRATION DATE: 10/1/09	ELEVATION: 639.3 (MSL) EOB: 14.4 ft.	PAGE 1 OF 1
START: 8/30/10 END: 8/30/10	SAMPLING METHOD: SPT	ENERGY RATIO (%): 84	COORD: 655553.8059 N, 2108535.0768 E	

MATERIAL DESCRIPTION AND NOTES	ELEV. 639.3	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	BACK FILL
FILL: Dense brown **GRAVEL WITH SAND,** little silt, trace clay, contains many sandstone fragments, damp.																		
- Encountered cobbles (sandstone) from 1.0' to 2.0'.	636.3	1	19 23 11	48	67	SS-1		-	-	-	-	-	-	-	-	6	A-1-b (V)	
Very-stiff to hard brown mottled with gray **CLAY,** some silt, trace fine to coarse sand, trace fine gravel, contains few sand seams, damp.	633.3	3																
		4	3 3 4	10	72	SS-2	2.1-4.5	-	-	-	-	-	-	-	-	24	A-7-6 (V)	
Stiff to very-stiff brown mottled with gray **SILT AND CLAY,** little fine to coarse sand, trace fine gravel, contains few slightly organic pockets and few sand seams, moist.	631.3	6	2 2 2	6	94	SS-3	1.5-3.5	1	2	11	37	49	33	18	15	23	A-6a (10)	
Very-stiff to hard brown **SILT,** "and" clay, trace fine to coarse sand, moist.	628.3	8																
		9	3 3 4	10	89	SS-4	2.0-4.5+	0	2	5	50	43	29	20	9	23	A-4b (8)	
Hard dark gray **SANDY SILT,** some clay, trace fine to coarse gravel, contains few shale and siltstone fragments, similar in structure to weathered shale, damp.	625.3	11																
		12	4 9 22	43	100	SS-5	4.5+	-	-	-	-	-	-	-	-	10	A-4a (V)	
		13																
SHALE, gray, highly weathered, dry.	624.9	TR 14 EOB	8	-	100	SS-6A	4.5+	-	-	-	-	-	-	-	-	18	A-4a (V)	
			50-0.4'	-	100	SS-6B		-	-	-	-	-	-	-	-	6	Rock (V)	

NOTES:
- Encountered slight seepage at 6.9' within sand seam during drilling.
- After removal of augers, boring caved at 12.7' and was observed to be dry.
- Encountered cobbles (sandstone) from 1.0' to 2.0'.
- An offset hole was performed immediately adjacent to original boring where a Shelby tube sample was obtained. See log for Boring B-013-3A-10 for lab testing information for tests performed on this Shelby tube sample.

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: SOIL CUTTINGS

ODOT LOG (8.5X11) - CURRENT WITH PLATES - OH DOT.GDT - 9/29/10 14:44 - M:\DATA\GINTW\PROJECTS\201399300.GPJ

BBC&M JOB: 012-01399.300

PROJECT: LOR-90-22.26	DRILLING FIRM / OPERATOR: OTB / C. BESSEY	DRILL RIG: OTB ATV D50	STATION / OFFSET: 50+89.5, 50.3 LT	EXPLORATION ID: B-013-3A-10	
TYPE: NEW INTERCHANGE	SAMPLING FIRM / LOGGER: BBCM / J. SNYDER	HAMMER: CME AUTOMATIC	ALIGNMENT: NAGEL RD CENTERLINE		
PID: 83607 BR ID: LOR-90-2226	DRILLING METHOD: 3.25" HSA	CALIBRATION DATE: 10/1/09	ELEVATION: 639.3 (MSL) EOB: 14.4 ft.	PAGE 1 OF 1	
START: 8/30/10 END: 8/30/10	SAMPLING METHOD: ST	ENERGY RATIO (%): 84	COORD: 655553.8059 N, 2108535.0768 E		

MATERIAL DESCRIPTION AND NOTES	ELEV. 639.3	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	BACK FILL
FILL: Dense brown **GRAVEL WITH SAND,** little silt, trace clay, contains many sandstone fragments, damp.																		
- Encountered cobbles (sandstone) from 1.0' to 2.0'.	636.3	1																
Very-stiff to hard brown mottled with gray **CLAY,** some silt, trace fine to coarse sand, trace fine gravel, contains few sand seams, damp.	633.3	3																
		5			46	ST-7	1.6-4.5	1	2	8	26	63	50	23	27	23	A-7-6 (17)	
Stiff to very-stiff brown mottled with gray **SILT AND CLAY,** little fine to coarse sand, trace fine gravel, contains few slightly organic pockets and few sand seams, moist.	631.3	7																
Very-stiff to hard brown **SILT,** "and" clay, trace fine to coarse sand, moist.	628.3	8																
		10																
Hard dark gray **SANDY SILT,** some clay, trace fine to coarse gravel, contains few shale and siltstone fragments, similar in structure to weathered shale, damp.	625.3	11																
		12																
		13																
SHALE, gray, highly weathered, dry.	624.9	TR 14 EOB																

NOTES:
- This log is solely to provide laboratory testing results from the Shelby tube sample taken in the offset hole for Boring B-013-3-10. Lithology shown on this log has been copied from the log of Boring B-013-3-10.

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: NOT RECORDED

ODOT LOG (8.5X11) - CURRENT WITH PLATES - OH DOT.GDT - 9/29/10 14:45 - M:\DATA\GINTW\PROJECTS\201399300.GPJ

MED-71-20.96, 118895, Location 7

LOG OF BORING

Date Started 6-25-92 | Sampler Type SS | Dia. 2.00 inch. | Water Elev. 1033.5

Date Completed 6-25-92 | Casing: length -- | Dia. 3.25 inch.

Boring No. B6-1 | Station & Offset STA. 1102+96.99 26' L. | Surface Elev. 1066 ±

ELEV.	DEPTH	STD.PEN. (N)	REC. Ft.	LOSS Ft.	DESCRIPTION	SAMPLE NO.	SAMPLE TYPE	PHYSICAL CHARACTERITICS % AGG.	% COAR. SAND	% FINE SAND	% SILT	% CLAY	L.L.	P.L.	P.I.	W.C. %	SHTL. CLASS.
1066.0	0																
	1.5	2-5-7	0.7			1	SS										
	3.5	8-8-8	0.8			2	SS										
	8.5	3-5-9	1.0			3	SS										
	13.5	5-5-9	1.0		Stiff to hard, brown to brown and gray mottled SILT AND CLAY, trace to little gravel, trace to little sand, damp to moist.	4	SS	6.9	7.2	10.9	*	75.0	—	—	—	15.0	A-6a
	18.5	8-6-7	1.5			5	SS										
	22.5	7-15-13	1.2			6	SS										
	25.0	5-10-13	1.5			7	SS	13.3	6.8	9.5	*	70.4	29.6	15.8	13.8	14.0	A-6a
	27.5	6-8-8	1.3			8	SS	3.5	6.1	8.9	*	81.5	—	—	—	19.8	A-6a
	30.0	10-15-18	1.5			9	SS										
1034.0	32.0																
	32.5	8-7-6	1.5		Medium dense, brown SAND, little to some silt and clay, moist to saturated	10	SS										
1032.0	34.0																
	35.0	5-8-12	1.3			11	SS	7.0	8.0	12.9	*	72.1	23.6	16.0	7.6	15.1	A-4a
	37.5	5-8-8	1.5			12	SS										
	40.0	6-9-14	1.5			13	SS										
	42.5	9-10-13	1.5			14	SS										
	45.0	6-8-10	1.5			15	SS										
	48.5	5-7-9	1.2			16	SS										
	53.5	6-9-12	1.5		Very stiff to hard, gray SANDY SILT, trace to little gravel, wet. Note: - gravel decreases at 45.0 ft. - sand increases from 68.5 to 70.0 ft.	17	SS										
	58.5	7-10-13	1.5			18	SS										
	63.5	7-11-11	1.5			19	SS										
	68.5	10-16-12	1.5			20	SS										
	73.5	6-18-12	1.5		(cont.)	21	SS										
988.0	78.0																
	78.5	15-15-10	1.5		Medium dense, gray and brown GRAVEL W/ SAND AND SILT, little to some clay, saturated.	22	SS	38.4	22.3	10.8	*	28.5	—	—	—	14.0	A-2-4
966.0	80.0																
	83.5	10-14-14	1.5			23	SS										
	88.5	12-13-9	1.5			24	SS										
					Very stiff, gray and brown SANDY SILT, some gravel, saturated.												
	93.5	10-9-9	1.5			25	SS										
	98.5	7-13-16	1.5			26	SS										
	103.5	7-11-10	0.5			27	SS										
	108.5	7-10-10	1.0			28	SS	22.9	9.4	11.9	*	55.8	—	—	—	19.4	A-4a
956.0	110.0																
	113.5	6-12-12	1.0			29	SS										
	118.5	20-19-23	1.0		Medium dense to very dense, gray SANDSTONE FRAGMENTS W/ SILT AND CLAY, saturated.	30	SS	38.6	18.8	11.2	*	31.4	—	—	—	11.0	A-2-4
	125.0	25-28-35	1.0			31	SS										
939.5	126.5				TERMINATION DEPTH 126.5 FEET												

* SILT AND CLAY COMBINED

STRUCTURE FOUNDATION INVESTIGATION
BRIDGE No. MED-71-2090 (L&R)
MEDINA COUNTY, OHIO

R&R INTERNATIONAL, INC.
Geotechnical Engineers • Geologists
1234 S. CLEVELAND-MASSILLON ROAD
P.O. BOX 4383
AKRON, OH 44321

TYPED BY	CHECKED BY	REVIEWED	DATE
T.E.	J.X.	G.M.R.	10.29.92

CALCULATED | CHECKED

STRUCTURE FOUNDATION INVESTIGATION
MED - 71 - 2088E
MED - 71 - 2090 (L&R)
MED - 71 - 2092W
MED - 71 - 15.78

5/11

23/36

DESIGN FILE : I:\pd_med_ir71\dgn\soils\soils23.dgn
USERNAME : jrogers
DATE : 18-NOV-1999
TIME : 13:49

MED-76-8.15, 118895, Location 8

MED-76-10.18, 118895, Location 9

MED-271-3.79, 118895, Location 10

No available soil borings

RIC-30-11.90, 118895, Location 11

BBC&M ENGINEERING, INC.

LOG OF BORING NO. B-10
RIC-30-11.45
MANSFIELD, OHIO

TYPE: 3-1/4" I.D. HOLLOW-STEM AUGER
2" O.D. SPLIT-BARREL SAMPLER

LOCATION: 627+35.62
58.23' LEFT

COMPLETION DEPTH: 80.0' ELEVATION: 1145.3 DATE: 3/11/99 3/11/99

ELEVATION	DEPTH, FEET	SAMPLE NO.	SAMPLES SAMPLING EFFORT	HAND PENETROMETER tsf	MOISTURE CONTENT %	LIQUID LIMIT %	PLASTIC LIMIT %	AGG. %	C.S. %	F.S. %	SILT %	CLAY %	DESCRIPTION
1145.3	0	1	1/3/2	2.0-3.5									TOPSOIL - 7 INCHES
		2	2/1/3	1.5-2.5	27	50	26	0	1	14	45	40	Very-stiff dark-gray organic silty clay, trace fine to medium sand, few roots. Visual
1140	5	3	1/2/1	0.75-1.5									
		4	S/H-12"/1	0.25-1.0	41	46	25	0	0	1	59	40	Stiff to very-stiff gray mottled with brown silty clay, little fine to medium sand, few roots. A-7-6(16)
	10	5	S/H-12"/2										
		6	S/2/1/1	0.0-0.75	44	21	16	16	11	20	35	18	Medium-stiff to stiff brown mottled with gray silty clay, trace to little fine to coarse sand, contains pockets of silt. Est. A-7-6
1130	15	7	S/H-12"/1	0.5-1.25									
		8	S/H-12"/2	0.5-1.25	44	51	32						Soft to medium-stiff gray silty clay, trace fine sand, few seams of silt. A-7-6(14)
	20	9	S/H-12"/2	0.75-1.25									
1120	25	10	S/H-18"	0.0-0.25									PEAT: Black organic clayey silt, trace fine to medium sand, few pockets of silty clay, contains decayed wood. Visual
	30	11	4/5/6										Very-soft to medium-stiff dark-gray organic clayey silt, "and" fine to coarse sand, trace fine gravel, interbedded with silty clay. Visual
1110	35	12	2/4/5		25			0	1	3	83	13	Medium-stiff to stiff gray organic silty clay, interbedded with organic clayey silt, little fine to medium sand, contains shell fragments. Visual
	40	13	1/2/1										Very-soft gray organic silty clay, trace fine to medium sand. Visual
1100	45	14	2/2/2					36	30	30	4		Medium-dense dark-gray fine to coarse sand, some fine to coarse gravel, trace silt. Est. A-1-b
	50	15	3/5/6					3	37	47	13		Loose gray silt, trace fine to medium sand. A-4b(8)
1090	55	16	1/3/3										Very-loose gray fine to medium sand, trace coarse sand, trace to little fine gravel, trace silt. Est. A-3
	60	17	3/5/6										Very-loose gray fine to coarse sand, some fine gravel, trace silt. A-1-b(0)
1080	65	18	3/5/6					24	44	20	12		Loose to medium-dense gray fine to medium sand, little clayey silt, trace coarse sand, trace fine gravel. A-3a(0)
	70	19	4/6/5										Medium-dense gray fine to coarse sand, trace to little fine to coarse gravel, little silt. A-1-b(0)
1070	75	20	5/6/8										Medium-dense gray silt, some to "and" fine to medium sand, little clay.
	80	21	8/10/14					0	2	22	61	15	A-4b(8)
1060	85												- Encountered water at 26.0'.
	90												
1050	95												
	100												
	105												
	110												
	115												
	120												
	125												
	130												

WATER LEVEL: ▽ 2.0'
WATER NOTE:
DATE: 03/11/99

Job No. 99005BLG Date 10/30/00 Drawn By CAR,HN,SCB

BBC&M ENGINEERING, INC.

STRUCTURE FOUNDATION INVESTIGATION
BRIDGE NO. RIC-30-1157 OVER ASHLAND RAILWAY, NORFOLK SOUTHERN RAILWAY, ROCKY FORK AND SR 13

RIC-30-11.56

DESIGNED	DRAWN	REVIEWED	DATE
BBC&M	HN	DAP	7/22/99
CHECKED	REVISED	STRUCTURE FILE NO.	
DT		7001177	

10/11

10/14

CUY-480-7.25, 118895, Location 12

CUY-480-9.46, 118895, Location 13

No available soil borings

CUY-480-13.08, 118895, Location 14

PROJECT: CUY-90-19.77	DRILLING FIRM / OPERATOR: SME / EP/ OA	DRILL RIG: CME 55 TRUCK 293	STATION / OFFSET:	EXPLORATION ID B-005-0-23
TYPE: ROADWAY	SAMPLING FIRM / LOGGER: SME / CW	HAMMER: CME AUTOMATIC	ALIGNMENT:	
PID: 119642 SFN:	DRILLING METHOD: 4" SSA	CALIBRATION DATE: 8/5/23	ELEVATION: 771.0 (MSL) EOB: 6.5 ft.	PAGE 1 OF 1
START: 7/27/23 END: 7/27/23	SAMPLING METHOD: SPT	ENERGY RATIO (%): 77	LAT / LONG: 41.421433, -81.734015	

MATERIAL DESCRIPTION AND NOTES	ELEV. 771.0	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	BACK FILL
9" CONCRETE	770.2																		
10" AGGREGATE BASE	769.4																		
SHALE, GRAY, HIGHLY WEATHERED, VERY WEAK, FREQUENT CLAY SEAMS.		TR 1 2 3 4	5 10 13	30	67	SS-1	-	-	-	-	-	-	-	-	-	7	Rock (V)	443	
			18 10 30	51	67	SS-2	-	-	-	-	-	-	-	-	-	7	Rock (V)	-	
	766.0	5	20 50/3"	-	133	SS-3A	-	-	-	-	-	-	-	-	-	6	Rock (V)	-	
SHALE, GRAY, MODERATELY WEATHERED, WEAK.						SS-3B	-	-	-	-	-	-	-	-	-	-	Rock (V)	-	
	764.5	6 EOB	50/5"	-	100	SS-4	-	-	-	-	-	-	-	-	-	4	Rock (V)	-	

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: ASPHALT PATCH; MIXED WITH AUGER CUTTINGS

CUY-480-15.62, 118895, Location 15

LOG OF BORING

Date Started 2-24-72 | Sampler Type SS | Dia. 1 3/8" | Water Elev. ———
Date Completed 2-25-72 | Casing: Length 27' | Dia. 3 1/2"
Boring No. B-10 | Station & Offset 43+91, 8' RT. (FORWARD ABUTMENT) | Surface Elev. 773.3'

Elev.	Depth	Std. Pen. (N)	Rec. ft.	Loss ft.	Description	Sample No.	Physical Characteristics: % Agg.	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.	SHTL Class.
773.3	0														
	2														
	4														
768.3	6	3/4			BROWN SANDY SILT	1	11	8	18	41	22	24	9	22	A-4a
	8														
763.3	10	6/8			GRAY SILT	2	2	3	9	63	23	21	6	18	A-4b
	12														
758.3	14														
	16	5/5			GRAY SILT	3	0	1	6	63	30	22	6	18	A-4b
	18														
753.3	20	6/9			GRAY SILT AND CLAY	4	2	3	4	30	61	32	11	28	A-6a
	22														
	24				BOULDERS (DRILLER'S DESCRIPTION)										
748.3	26	22/37			GRAY SANDY SILT WITH SHALE FRAGMENTS	5	57	14	7	14	8	20	5	18	A-1-b
746.3					← TOP OF ROCK										
	28		2.6	0.4											
	30														
	32		5.0	0.0	CLAY SHALE, DARK-GRAY AND GRAY, MEDIUM-FIRM, CARBONACEOUS AND FISSILE-IN-PART, VERY BADLY BROKEN IN UPPER 10 FEET, BROKEN AND JOINTED IN REMAINDER. CORE LOSS 3%.										
	34														
	36														
	38		5.0	0.0											
733.3	40														

BOTTOM OF BORING

CUY-480-3.98, 118895, Location 16

Dolomite

Boulders

Date Started 2-14-68 | Sampler Type SS | Dia 1 3/8"
Date Completed 2-15-68 | Casing Length 10' | Dia 3 1/2"
Boring No B-8 | Station & Offset 70+72, 34' Rt. (Forward Pier) | Surface Elev 762.1'

Elev	Depth	Std. Pen. (N)	Rec. ft.	Loss ft.	Description	Sample No	Physical Characteristics: % Agg	% C S	% F S	% Silt	% Clay	L.L.	P.I.	V.C	Class
762.1	0														
	2														
	4														
757.1	6	16/11			Brown Sandy Silt	1	11	5	12	37	35	28	9	15	A-4a
	8														
752.1	10	11/16			Gray Gravelly Silt	2	25	4	9	23	39	30	10	16	A-4a
	12														
	14														
747.1	16	22/26			Gray Gravelly Sandy Silt	3	15	7	11	39	28	23	4	13	A-4a
	18														
742.1	20	10/16			Gray Sandy Silt	4	11	7	9	36	37	26	7	14	A-4a
739.6	22	10/12			Gray Silt and Clay	5	7	2	3	23	65	40	12	25	A-6a
737.1	24	6/10			Gray Silty Clay	6	0	1	1	21	77	45	16	27	A-7-6
734.6	26	8/12			Gray Clay	7	0	0	0	18	82	53	23	30	A-7-6
732.1	28	8/12			Gray Silty Clay	8	0	0	1	11	88	46	16	32	A-7-6
729.6	30	9/13			Gray Silty Clay	9	0	1	1	14	84	48	17	28	A-7-6
727.1	32				TOP OF WEATHERED ROCK										
	34	30/*			Gray Weathered Shale	10	49	8	8	18	17	27	7	16	Visual
724.6	36				TOP OF ROCK										
	38		2.5	0.0											
	40														
	42		5.0	0.0	Shale, dark-gray, carbonaceous, firm, fissile, broken and jointed. No Core Loss.										
	44														
	46														
	48		5.0	0.0											
712.1	50				BOTTOM OF BORING										

*Refusal

CUY-480-1.49, 118895, Location 17

LOG OF BORING

Date Started 3-11-69 | Sample: Type SS | Dia 1 3/8" | Water Elev.
Date Completed 3-11-69 | Casing: Length 20' | Dia 3 1/2"
Boring No. B-16 | Station & Offset 110+50, 25' Rt. (Forward Pier) | Surface Elev. 784.4'

Elev.	Depth	Std. Pen. (N)	Rec. ft.	Loss ft.	Description	Sample No.	Physical Characteristics: % A-gg	% G.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.	SHTL Class.
784.4	0														
	2														
	4														
779.4	6	11/19			Brown Sandy Clay	1	9	8	12	23	48	35	13	27	A-6a
776.9	8	12/22			Brown Sandy Clay	2	-	-	-	-	-	33	13	16	Visual
774.4	10	23/24			Gray Sandy Clay	3	13	10	11	26	40	29	11	17	A-6a
771.9	12	20/30			Gray Sandy Clay	4	8	8	12	26	46	29	11	14	A-6a
769.4	14	50* (0.7')			Gray Sandy Gravelly Silt	5	26	7	9	26	32	25	7	12	A-4a
766.9	16	50/*			Gray Sandy Silt	6	8	7	11	37	37	24	9	10	A-4a
764.4	18	30/*			Gray Clayey Silt with Cobbles	7	-	-	-	-	-	21	7	13	Visual
761.9	20														
759.4	22				No Sample Recovered - Cobbles(Driller's Des.)		V	I		S	U		A	L	
	24	50*/ (0.3')			No Sample Recovered (Driller's Description)		V	I		S	U		A	L	
754.9	26		0.5	4.5	TOP OF ROCK										
	28														
	30														
	32		4.7	0.3	Sandstone, gray, medium-firm, friable, fine-grained, micaceous in part, thin-bedded. Core Loss 2%.										
	34														
	36														
	38		5.0	0.0											
744.4	40				BOTTOM OF BORING *Refusal										

State of Ohio
Department of Transportation
Division of Highways
Testing Laboratory

LOG OF BORING

Date Started 5/10/07 Sampler: Type SS Dia. 2.0" Water Elev. 760.9ft
Date Completed 5/10/07 Casing: Length ____ Dia 3.25"

Project: CUY-480-0.93 (Noise Barrier Replacement)
Project No.: A070106
Location North Olmsted, Ohio

Boring No. B-026-0-07 Station & Offset 177+57.91, 148.99' Lt Surface Elev 780.88ft

GROUNDWATER DURING DRILLING ▼ GROUNDWATER UPON COMPLETION ▽

Elev (ft)	Depth (ft)	Blows/6 inch or RQD	Rec (ft)	Loss (ft)	Description	Sample No	Physical Characteristics % Agg	% C S	% F.S	% Silt	% Clay	LL	PI	W.C	ODOT Class
780.9	0														
780.3		8 - 8 - 8			TOPSOIL (7.0 inches thick) Very stiff, brown SILT AND CLAY (A-6a), some sand, trace rock fragments, moist (fill)	1	--	--	--	--	--			14	Visual
777.4	4	4 - 8 - 11			Very stiff, brown SILT AND CLAY (A-6a), some sand, trace rock fragments, moist	2	6	9	15	--	70*	32	13	15	A-6a
	6	5 - 9 - 12				3	--	--	--	--	--			15	Visual
	8	6 - 11 - 13				4	--	--	--	--	--			13	Visual
	10				Note: Gray color present below 9.3 feet										
769.9	12	5 - 9 - 11			Very stiff to hard, gray, plastic SANDY SILT (A-4a), some clay, trace rock fragments, moist (till)	5	--	--	--	--	--			13	Visual
	14	6 - 18 - 24				6	8	10	11	46	26	25	8	9	A-4a
	16	10 - 16 - 21				7	--	--	--	--	--			10	Visual
761.7	18	13 - 32 - 45				8	--	--	--	--	--			7	Visual
	20				Very dense, light gray SANDSTONE FRAGMENTS (A-1-a), moist										
759.4	22	10 - 16 - 23			Dense to very dense, gray COARSE AND FINE SAND (A-3a), little fines, trace to little sandstone fragments, moist to wet. Note: Groundwater was encountered at 22.3 feet during drilling	9	--	--	--	--	--			16	Visual
756.5	24	21 - 50/0.4			Note: Changed to little rock fragments at 23.5 foot sample	10	--	--	--	--	--			11	Visual
					TERMINATION DEPTH = 24.4 FEET										

Particle Sizes Agg => 2.00mm, Coarse Sand = 2.00-0.42mm, Fine Sand = 0.42-0.074mm, Silt = 0.074-0.005mm, Clay =< 0.005mm (*Indicates silt & clay combined)

State of Ohio
Department of Transportation
Division of Highways
Testing Laboratory

LOG OF BORING

Date Started 5/10/07 Sampler Type SS Dia. 2.0" Water Elev 759.3ft
Date Completed 5/10/07 Casing. Length ____ Dia 3.25"

Project: CUY-480-0.93 (Noise Barrier Replacement)
Project No: A070106
Location: North Olmsted, Ohio

Boring No. B-027-0-07 Station & Offset 179+61.22, 289.05' Lt Surface Elev. 781.25ft

▼ GROUNDWATER DURING DRILLING ▽ GROUNDWATER UPON COMPLETION

Elev (ft)	Depth (ft)	Blows/6 inch or RQD	Rec. (ft)	Loss (ft)	Description	Sample No	Physical Characteristics % Agg	% C S	% F.S	% Silt	% Clay	LL	PI	W.C	ODOT Class
781.3	0														
781.0		8 - 9 - 10			TOPSOIL (3.0 inches thick) Very stiff, brown and gray SILT AND CLAY (A-6a), some sand, trace rock fragments, moist (fill)	1	--	--	--	--	--			15	Visual
777.8	4	7 - 10 - 14			Very stiff to hard, brown, plastic SANDY SILT (A-4a), some clay, little rock fragments, moist (fill)	2	11	8	12	35	34	32	10	15	A-4a
	6	7 - 14 - 17			Note: Trace roots in the 6.0 foot sample	3	--	--	--	--	--			13	Visual
	8	6 - 12 - 14				4	--	--	--	--	--			13	Visual
771.7	10				Very stiff, gray SILT AND CLAY (A-6a), some sand, trace rock fragments, moist.										
	12	4 - 9 - 11				5	--	--	--	--	--			12	Visual
767.8	14	15 - 17 - 20			Hard, gray, plastic SANDY SILT (A-4a), some clay, trace rock fragments, moist (fill)	6	--	--	--	--	--			9	Visual
	16	6 - 16 - 21				7	--	--	--	--	--			7	Visual
764.4	18				Very dense, gray SANDSTONE FRAGMENTS WITH SAND AND SILT (A-2-4), moist										
	20	8 - 17 - 49				8	39	6	27	22	7	NP	NP	8	A-2-4
760.3	▽ 22	5 - 31 - 50/0			Hard, dark gray, plastic SANDY SILT (A-4a), little clay, trace rock fragments, moist. (till)	9	--	--	--	--	--			8	Visual
757.8	▼ 24	43 - 48 - 50/0.3			Soft, gray, decomposed SANDSTONE Note: Groundwater was encountered at 24.0 feet during drilling	10	--	--	--	--	--			19	Visual
756.3					TERMINATION DEPTH = 25.0 FEET										

Particle Sizes. Agg => 2.00mm, Coarse Sand = 2.00-0.42mm, Fine Sand = 0.42-0.074mm, Silt = 0.074-0.005mm, Clay =< 0.005mm (*Indicates silt & clay combined)

CUY-77-8.41, 118895, Location 18

No available soil borings

CUY-77-14.35, 118895, Location 19

State of Ohio
Department of Transportation
Division of Highways
Testing Laboratory

LOG OF BORING

HOLLOW STEM

Date Started 6/29/78 Sampler: Type AUGER Dia. _____ Water Elev. _____
Date Completed 6/29/78 Casing: Length _____ Dia. _____

Project Identification: CUYAHOGA
CUY - 490-1.49
HIGH MAST LIGHT TOWERS
SUBSURFACE INVESTIGATION

Boring No. C-4 Station & Offset 7+80-197' RT-RAMP S-W Surface Elev. 657.1'

Elev.	Depth	Std. Pen. (N)	Description	Field No.	Lab Nos. So.	Physical Characteristics % Agg.	% C.S.	% F.S.	% Silt	% Clay	L.L.	Pl.	W.C.	SHTL Class
657.1	0													
655.1	2	AUGERED	BROWN CLAYEY SANDY SILT	11	11917	6	13	41	26	14	16	2	8	A-4a
	4													
652.1	6	9/11/14	BROWN-GRAY SILTY SAND	12	11918	0	15	62	17	6	NP	NP	9	A-3a
649.6	8	9/12/18	BROWN SAND	13	11919	5	24	59	7	5	NP	NP	4	A-3a
647.1	10	14/15/17	BROWN SILTY SAND	14	11920	0	5	65	24	6	NP	NP	5	A-3a
644.6	12	9/10/14	BROWN SAND	15	11921	0	5	88	0	7	NP	NP	6	A-3a
642.1	14	7/9/11	BROWN SILTY SAND	16	11922	0	0	65	32	3	NP	NP	10	A-3a
639.6	16	8/14/14	BROWN SANDY SILT	17	11923	0	0	12	78	10	NP	NP	23	A-4b
637.1	18	5/6/10	BROWN-GRAY SAND	18	11924	0	2	83	9	6	NP	NP	22	A-3a
	20													
	22													
632.1	24													
	26	17/16/21	GRAY CLAYEY SANDY SILT	19	11925	0	0	28	60	12	NP	NP	24	A-4b
	28													
627.1	30	50	GRAY-BROWN SANDY SILT	20	11926	0	0	45	46	9	NP	NP	18	A-4a
626.4	32	(0.7)	BOTTOM OF BORING											
	34													
	36													

Form TE-153 Particle Sizes: Agg.= >2.00mm, Coarse Sand=2.00-0.42mm, Fine Sand=0.42-0.074mm, Silt=0.074-0.005mm, Clay=< 0.005mm

CUY-71-5.61, 118895, Location 20

No available soil borings

CUY-90-0.95, 118895, Location 21

TE - 118
6M - 11 - 64

JUL 11 1966

20
28
3

CUYAHOGA COUNTY

CUY – 90 – 0.00

GEOLOGY OF THE SITE

The structure site is located on a relatively flat portion of the glaciated Lake Plain Region, in an area where moderately deep glacial-derived soils overlie shale bedrock, of Devonian age.

EXPLORATION

The exploration consisted of two drive sample-core borings, and five drive rod penetration tests, made on July 6, 7, and 8, 1966.

INVESTIGATIONAL FINDINGS

The borings disclosed that relatively flat-lying bedrock surface, encountered at 4 and 5-foot depths, elevations 652 and 640 feet, is overlain by silty clay. The borings were terminated 10 and 11 feet below bedrock surface, elevations 640 and 639 feet.

Rod soundings met rapid increase in penetration resistance with increase in depth and were terminated upon encounter with rather abrupt refusal to penetration 5 feet below ground surface, elevations 640 to 639 feet, considered to be on or slightly below bedrock surface, as revealed by the borings.

No free water was observed in any of the rod sounding holes.

If it is the intention to found pier substructure units on bedrock, it is considered advisable that the open excavations be inspected in the field in order to insure that the excavations have been extended to rock throughout the entire founding area. It is further suggested that the area of the footing contact not be subjected to prolonged atmospheric exposure, and that the excavations be kept drained at all times, due particularly to the fact that while this shale bedrock is generally firm in place, it is susceptible to disintegration upon exposure to the atmosphere and water.

Unconfined compression tests on similar shale bedrock indicate a crushing strength on the order of 100 tons per square foot.

LEGEND

- Auger Boring Location - Plan View.
- Press and / or Drive Sample and / or Core Boring Location - Plan View.
- Drive Rod Penetration Resistance Sounding Location - Plan View.
- Capped Pile
- Footing
- Footing on Pile
- TR — Top of Rock
- Horizontal Bar on Boring Log Indicates the Depth the Sample Was Taken.
- X/Y — Figures Beside the Boring Log 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.
- Drive Rod Penetration Resistance Sounding Log - Profile
- Casing
- Resistance "R" < 10,000 lbs.
- Resistance "R" > 10,000 lbs.
- Z — Indicates Final Measurement of Penetration, in Inches.
- W — Indicates Free Water Elevation.
- Indicates Static Water Elevation.

SYMBOLS OF ROCK TYPES

- Coal
- Weathered Indurated Clay
- Indurated Clay
- Weathered Shale
- Shale
- Weathered Sandstone
- Sandstone
- Leached Dolomite
- Dolomite
- Leached Limestone
- Limestone

GENERAL INFORMATION

Drive Rod Penetration Sounding Tests

Drive rod penetration resistance tests constitute driving a 1.315-inch diameter steel rod, with a 45° cone point, into the ground, using a 122-pound drop-hammer with a free fall of five feet. At one or two-foot depth intervals, a measurement is taken to determine the amount of penetration achieved in three hammer drops. This reading is converted to an empirical value for capacity "R", in thousands of pounds (which is a measure of both the point resistance and frictional resistance on the rod), by using charts prepared by the Ohio Department of Highways, Bureau of Bridges, on the basis of correlation study of rod penetration with past performance of pile driving. For interpretation, a graph is prepared by plotting the value "R" against the depth at which the reading was taken, and connecting the plotted points. The curve so obtained reflects the density of subsurface materials in a manner that can be readily compared with data from similar tests at other locations on the structure site. From this comparison, the overall uniformity of subsurface condition may be evaluated.

Drive Sample Borings - Drive-Press Sample Borings

Drive sample borings are made by means of a rotary-type drill rig, employing a 2" O.D., 1-3/8" I.D. sampler, at 2-1/2 and / or 5-foot depth intervals, driven by means of a 140 - pound drop-hammer with a free fall of 30 inches. The number of blows required to drive the sampler 12 inches is considered the standard penetration test.

Drive-press sample borings are made by means of a rotary-type drill rig, employing a 2" O.D., 1+3/8" I.D. drive sampler, and 3" O.D. thin-wall press sampler. The press sampler is advanced by continuous uniform pressure, applied by the drill rig.

The boring log sheets show a graphic plot of the information obtained, including depth and elevation of the sample, number of blows for the standard penetration tests in two 6-inch increments, depth of press samples, field sample number, sample description - based on laboratory tests and the Casagrande AC classification system - and gradation, plasticity, and moisture content determinations. Results of strength and consolidation testing, if performed, appear on separate enclosures.

At depths where materials are bouldery or gravelly to the extent that the sampler can not be driven, a wash sample is procured for visual classification, in order to determine the general character of the material. These samples are not considered sufficiently representative to warrant laboratory testing.

Particle Size Definitions

Boulders	Cobbles	Gravel	Coarse Sand	Fine Sand	Silt	Clay
	8"	3"	2.0mm (No. 10 sieve)	0.42mm (No. 40 sieve)	0.074mm (No. 200 sieve)	0.005mm

LOG OF BORING

Date Started 7-7-66 — Sampler Type SS — Dia. 1 3/8" — Water Elev. —
Date Completed 7-8-66 — Casing: Length — Dia. —
Boring No. B-1 — Station & Offset 133+48, 29' lt. (Rear Abutment) — Surface Elev. 655.1'

Elev.	Depth	Std. Pen. (N)	Rec. ft.	Loss ft.	Description	Sample No.	Physical Characteristics: % Agg.	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.	SHTL Class.
655.1	0														
652.6	2														
651.6	4	8/20			Gray Silty Clay	1	0	3	5	30	62	42	16	27	A-7-5
	6		1.3	0.2	TOP OF ROCK										
	8		4.4	0.6	Shale, dark gray, slightly carbonaceous, fissile, medium-firm, jointed with clay seams, badly broken. Core Loss 7%										
	10														
	12		5.0	0.0											
640.1	14				BOTTOM OF BORING										

LOG OF BORING

Date Started 7-7-66 — Sampler Type SS — Dia. 1 3/8" — Water Elev. —
Date Completed 7-7-66 — Casing: Length — Dia. —
Boring No. B-8' — Station & Offset 135+82, 26' Rt. (Forward Pier) — Surface Elev. 653.8'

Elev.	Depth	Std. Pen. (N)	Rec. ft.	Loss ft.	Description	Sample No.	Physical Characteristics: % Agg.	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.	SHTL Class.
653.8	0														
651.3	2														
648.8	4	6/10			Gray Silty Clay	1	0	2	3	23	72	49	18	26	A-7-5
	6				TOP OF ROCK										
	8		4.4	0.6	Shale, dark gray, slightly carbonaceous, fissile, medium-firm, jointed and badly broken with few clay seams. Core Loss 9%*										
	10														
	12		4.7	0.3											
638.8	14				BOTTOM OF BORING										

* Core Loss partially due to mechanical difficulties.

NOTE: Information shown by this subsurface investigation was obtained solely for the use in establishing design controls for the project. The State of Ohio does not guarantee the accuracy of this data and it is not to be construed as a part of the plans governing construction of the project.

OHIO DEPARTMENT OF HIGHWAYS
TESTING LABORATORY
1620 WEST BROAD STREET, COLUMBUS 23, OHIO

STRUCTURE FOUNDATION INVESTIGATION
BRIDGE NO. CUY – 90 – 0095
UNDER RELOCATED BASSETT ROAD
SEC. CUY – 90 – 0.00

CHECKED BY	REVIEWED BY	DATE
L.N.L.	R.D.R.	7/22/66

SUM-271-8.52, 118895, Location 22

STA. 463+95.95, 74.19' LT.
℄ R/W & SURVEY I.R. 271
R-26
ASPHALT 0.8'

SLAG BASE
10/10/9
4/7/11
BROWN, MOIST
16 VERY STIFF, BROWN & GRAY, LITTLE SAND, TRACE ROCK FRAG., MOIST
GRAY COLOR PRESENT AT 1.5'
17
TERMINATION DEPTH = 5.0 FT.

STA. 456+00.78, 29.06' LT.
℄ R/W & SURVEY I.R. 271
R-24
TOPSOIL 0.2'

15 VERY STIFF, BROWN & GRAY, LITTLE SAND, TRACE ROCK FRAG., MOIST
7/11/11
6/9/14
5/6/8
6/7/7
16 VERY STIFF, GRAY, SOME CLAY, TRACE SAND, MOIST
24
27
TERMINATION DEPTH = 10.0 FT.

STA. 452+16.40, 73.72' LT.
℄ R/W & SURVEY I.R. 271
R-23
ASPHALT 0.8'

14/12/12
9/12/14
15 VERY STIFF, GRAY TO BROWN, SOME CLAY, TRACE TO LITTLE ROCK FRAG., MOIST
7 COLOR CHANGE TO BROWN AT 3.5'
TERMINATION DEPTH = 5.0 FT.

STA. 445+92.86, 73.55' LT.
℄ R/W & SURVEY I.R. 271
R-22
ASPHALT 0.9'

15 BROWN, MOIST FROZEN 1' TO 1.4'
30/12/7
3/4/10
20 VERY STIFF, BROWN & GRAY, SOME CLAY, TRACE ROCK FRAG., MOIST
6 MED. BROWN, BROWN, MOIST
TERMINATION DEPTH = 5.0 FT.

770 760 750 740 730 720 710 700

442+00 445+00 450+00 455+00 460+00 465+00 467+00

SOUTHBOUND PROFILE

STA. 460+00.88, 26.73' RT.
℄ R/W & SURVEY I.R. 271
R-25
TOPSOIL 0.2'

15 BROWN, LITTLE SAND, TRACE ROCK FRAG., MOIST
9/8/9
7/9/12
2/4/7
7/8/10
20 MED. DENSE, GRAY, LITTLE SAND, TRACE ROCK FRAG., MOIST
26
26
TERMINATION DEPTH = 10.0 FT.

760 750 740 730 720 710 700 690

442+00 445+00 450+00 455+00 460+00 465+00 467+00

NORTHBOUND PROFILE

SOILF5.DGN 3/29/03 SAM

PRIME ENGINEERING, INC. AND
RICHLAND ENGINEERING LIMITED
29 NORTH PARK STREET
MANSFIELD, OHIO 44902

DESIGNED	DRAWN	REVIEWED
PEA	SAM	PRS
CHECKED	REVISED	DATE
		10/21/03

SOIL PROFILE
STA. 442+00 TO STA. 467+00

SUM-271-8.02

15
15

POR-76-3.05, 118895, Location 23

FIELD DATA - SOIL LOG

Location No. #20 1-H County: Fannin

Forward ~~Pier~~ - Abut. Bridge No. Fan-18-0900

Station: 21+13 Over: RT 43 Over 18

Offset: 32' Ct Rt

Started: 6-28-56 Equipment: Handauger

Completed: 6-28-56 Diameter 3"

Proposed Footer:

Water Level: 1160.5

Ground Line Hole Closed 1159.2

Depth Feet	Log	Samples	Elevation	
0			1168.2	
0.4			1167.8	Sod
5				
				Like #1 Fast Auger
10				
				→ Water Came In
14.0			1154.2	
15				
20				
		#4	X	Wet Brown Silty Sand Fast Auger
25				

Depth Feet	Log	Samples	Elevation	
26			1168.2	
29.0			1139.2	
30		#5	X	Wet Gray Silty Sand Fast Auger
				#5
35				
40				
42.0			1126.2	
45				
		#6	X	#6 Dense Gray Silty Sand Fast Auger
50				
				→ Hard Spot
52.0			1116.2	Easy Slow Auger
				→ Hard Sandstone Cannot Auger Further Auger Stalls
55				
60				

Remarks: Drill Head Worn

Party C.S. S.H.

Chief of Party H.C.C.

POR-76-8.56, 118895, Location 24

FIELD DATA - SOIL LOG

Location No. #79 County: Portage

Forward ~~Pier~~ - Abut. Bridge No. Por-18-0851

Station: 450+02 Over: Rt 18 Over Rt 94

Offset: 49' Lt ℄

Started: 7-6-56 Equipment: Handsocq

Completed: 7-7-56 Diameter 3"

Proposed Footer:

Water Level:

Depth Feet	Log	Samples	Elevation	Ground Line
0			1093.8	
1.0			1092.8	Sod-Top Soil
				Like #1 Fast Penet.
6.0			1087.8	
				Like #2 Fast Penet.
15.5			1078.3	
				Like #3 Fast Penet
22.0			1071.8	
26			1093.8	
				Like #4 Slower Penet.
38.0			1056.8	
	#7	X		Light Gray Sandy Silt Clay Slow Penet.
45.5			1048.3	
				Like #5 Very Slow Penet
				→ Layers of Gray Shale
60.0			1033.8	

Remarks:

Party J. Bh A. V

Chief of Party McGee

POR-76-13.13, 118895, Location 25

State of Ohio
Department of Transportation
Office of Materials Management

(3/6)

LOG OF BORING

Date Started 9/18/01 Sampler: Type SS Dia. 1 3/8" Water Elev. 1133.6' Project Identification: PORTAGE
Date completed 9/18/01 Datum Approx. POR-76-1306
Boring No. B-2 Station & Offset 100+17, CL Surface Elev. 1143.6' OVER S.R. 14

Elev.	Depth	Std. Pen./ R.O.D.	Rec. ft	Loss ft	Description	Sample No.	Physical Characteristics % Agg	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.	ODOT Class
1143.6	0	AUGERED			ASPHALT	-	-	-	-	-	-	-	-	-	VISUAL
1142.8	2														
1141.1	4	4/6/5			BROWN AND GRAY SANDY SILT	35	0	8	26	34	32	NP	NP	13	A-4a
1138.6	6	4/8/10			BROWN AND GRAY SILTY CLAY	36	0	1	2	43	54	40	16	24	A-6b
1136.1	8	5/14/11			BROWN SILTY GRAVELLY SAND	37	23	16	30	20	11	NP	NP	13	A-2-4
1133.6	10	5/8/9			BROWN SANDY SILT	38	0	8	19	44	29	NP	NP	15	A-4a
1131.1	12	4/7/9			BROWN SANDY SILT	39	7	9	17	39	28	NP	NP	22	A-4a
1128.6	14	5/8/15			BROWN SANDY SILT	40	0	10	28	37	25	NP	NP	36	A-4a
1126.1	16	8/9/9			GRAY SILTY GRAVELLY SAND	41	24	19	21	25	11	NP	NP	13	A-4a
1123.6	18	7/5/5			GRAY GRAVELLY SANDY SILT	42	18	14	27	26	15	NP	NP	11	A-4a
	20														
	22														
	24														
1118.6	26	6/11/16			GRAY SANDY SILT	43	11	10	25	30	24	NP	NP	12	A-4a
	28														
1113.6	30	6/8/9			GRAY SANDY SILT	44	0	9	30	34	27	NP	NP	12	A-4a
	32														
	34														
1108.6	36	8/17/20			GRAY SANDY SILT	45	8	7	34	37	14	NP	NP	21	A-4a
	38														

Particle Sizes: Agg= >2.00mm, Coarse Sand= 2.00-0.42mm Fine Sand= 0.42-0.074mm, Silt= 0.074-0.005mm, Clay= <0.005mm

Form TE-154 Revised 9/95

Boring No. B-2 Datum Station & Offset 100+17, CL Water Elev. Approx. 1133.6' Surface Elev. 1143.6' Project POR-76-1306

Elev.	Depth	Std. Pen. (N)	Rec. ft	Loss ft	Description	Sample No.	Physical Characteristics % Agg	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.	ODOT Class
1103.6	40														
	42	21/29/32			BROWN AND GRAY SILTY SAND	46	11	9	55	19	6	NP	NP	13	A-3a
	44														
1098.6	46	70(0.5)			GRAY SILTY SAND	47	0	5	62	23	10	NP	NP	14	A-3a
	48														
1093.6	50	75(0.5)			GRAY SANDY CLAY	48	-	-	-	-	-	-	-	10	VISUAL
	52				TOP OF ROCK										
	54														
1088.1		100(0.5)			GRAY, BROKEN AND JOINTED SANDSTONE W/THICK CLAY SEAMS	49	-	-	-	-	-	-	-	10	VISUAL
					BOTTOM OF BORING										

Particle Sizes: Agg= >2.00mm, Coarse Sand= 2.00-0.42mm, Fine Sand= 0.42-0.074mm, Silt= 0.074-0.005mm, Clay= <0.005mm

Form TE-151 Revised 9/95

NOTE: SAND HEAVED 5.0' IN THE AUGER FLIGHTS BEFORE THIS SAMPLE WAS TAKEN.

MAH-80-4.69, 118895, Location 26

State of Ohio
Department of Highways
Testing Laboratory

LOG OF BORING

Date Started 6-11-62 Sampler Type SS Dia. 1 3/8" Water Elev. ____
Date Completed 6-12-62 Casing Length ____ Dia. ____

Project Identification: MAHONING
MAH-18-12.78
MAH-18-1337A-R
UNDER SR 11 & USR 62 SB

Boring No. B-1 Station & Offset 845+81, 20' Lt. (REAR ABUTMENT) Surface Elev. 1052.7

Elev.	Depth	Spl. Pen. /M	Rec. Ft.	Loss Ft.	Description	Field No.	Lab. Nos.	Physical Characteristics: % Agg	% C.S	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.	SMTL Class
1052.7	0															
	2															
	4															
1047.7	5															
	6	9/12			Brown Gravelly Silt	1	67677	40	3	6	21	30	23	5	18	
1045.2	8	8/14			Brown Gravelly Sandy Silt	2	67678	19	10	9	25	37	26	9	20	
1042.7	10	7/10			Brown Sandy Gravelly Silt	3	67679	23	12	10	28	27	25	8	25	
1040.2	12	7/16			Brown Silty Sandy Gravel	4	67680	45	6	12	10	18	18	4	16	
1037.7	14	8/17			Brown Silty Sandy Gravel	5	67681	53	6	11	15	15	19	4	16	
1035.2	16	14/19			Brown Sandy Gravelly Silt	6	67682	29	6	10	32	23	20	2	14	
1033.2	18	56/*			Brown Silty Sandy Gravel	7	67683	42	7	12	14	15	21	3	13	
1032.2	20				TOP OF ROCK											
	22		4.4	0.1												
	24				Sandstone, gray, fine-grained, micaceous, hard, broken, with a shale (gray, argillaceous, arenaceous, micaceous, hard, broken) interbed from 21.3' to 22.3'. Core Loss 2%.											
	26															
	28		5.0	0.0												
1022.7	30				BOTTOM OF BORING											
	32															
	34				* Refusal											
	36															

Particle Sizes: Agg = >2.00mm, Coarse Sand = 2.00-0.42mm, Fine Sand = 0.42-0.074mm, Silt = 0.074-0.005mm, Clay = <0.005mm

SHEET 6 OF 13 SHEETS

State of Ohio
Department of Highways
Testing Laboratory

LOG OF BORING

Date Started 6-13-62 Sampler Type SS Dia 1 3/8" Water Elev ____
Date Completed 6-14-62 Casing Length ____ Dia ____

Project Identification MAHONING
MAH-18-12.78
MAH-18-1332B-R
UNDER SR 11, USR 62 SB & RAMP G

Boring No B-8 Station & Offset 16+18, 4' Lt. (FORWARD ABUT.) Surface Elev 1049.2

Elev.	Depth	Std. Pen. (N)	Rec. ft.	Loss ft.	Description	Field No.	Lab Nos.	Physical Characteristics % Agg.	% C S	% F S	% Silt	% Clay	LL	PI	WC	SHTL Class
1049.2	0															
	2															
	4															
1044.2	6	5/3			Brown Sandy Gravelly Silt	1	67684	17	5	10	31	37	17	2	18	
	8															
1039.2	10															
	12	10/18			Brown Sandy Gravelly Silt	2	67685	30	9	16	26	19	18	4	15	
1036.7	14	15/33			Brown Sandy Gravelly Silt	3	67686	32	5	11	28	24	NP	NP	14	
1034.2	16	9/14			Brown Sandy Gravelly Silt	4	67687	34	6	12	25	23	23	8	14	
1031.2	18		2.1	0.4	TOP OF ROCK											
	20															
	22															
	24		5.0	0.0	Sandstone, brown to gray, fine-grained, micaceous, hard, broken to badly broken. No Core Loss											
	26															
	28		5.0	0.0												
1019.2	30				BOTTOM OF BORING											
	32															
	34															
	36															

Particle Sizes: Agg = >2.00mm, Coarse Sand = 2.00-0.42mm, Fine Sand = 0.42-0.074mm, Silt = 0.074-0.005mm, Clay = <0.005mm

MAH-680-12.13, 118895, Location 27

PROJECT: MAH-224-19.53	DRILLING FIRM / OPERATOR: BBCM / M. WOLF	DRILL RIG: D50 AW RODS	STATION / OFFSET: 23+11, 19.2 LT	EXPLORATION ID B-007-0-09
TYPE: INTERCHANGE IMPROVEMENTS	SAMPLING FIRM / LOGGER: BBCM / T. MARSILLO	HAMMER: CME AUTOMATIC	ALIGNMENT: U.S. 224 C.L.	
PID: 79864 BR ID: MAH-224-1965	DRILLING METHOD: 3.25" HSA / NQ2	CALIBRATION DATE: 10/13/09	ELEVATION: 1061.4 (MSL) EOB: 41.5 ft.	PAGE 1 OF 1
START: 1/27/10 END: 1/28/10	SAMPLING METHOD: SPT / NQ2	ENERGY RATIO (%): 83	COORD: 500221.3 N, 2485775.2 E	

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N60	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GD)	BACK FILL
ASPHALT - 11.75 INCHES	1061.4																	
	1060.4																	
BASE (CEMENTED SLAG) - 13.5 INCHES	1059.3																	
FILL: Hard brown intermixed with gray SANDY SILT, little to some clay, trace fine gravel, contains few asphalt and slag fragments, dry to damp.			9 12 13	35	78	SS-1	-	10	12	23	35	20	19	14	5	8	A-4a (4)	
			3 4 5	12	72	SS-2	-	9	12	23	35	21	20	15	5	10	A-4a (4)	
- Slag and asphalt from 6.0' to 6.3'.			6 10 32	58	87	SS-3	-	-	-	-	-	-	-	-	-	13	A-4a (V)	
	1054.9																	
POSSIBLE FILL: Hard brown and dark brown SANDY SILT, some clay, trace fine gravel, damp.	1053.4		8 10 11	29	100	SS-4	-	-	-	-	-	-	-	-	-	19	A-4a (V)	
Medium-dense brown SANDY SILT, little clay, little fine gravel, damp.			5 4 5	12	83	SS-5	-	-	-	-	-	-	-	-	-	15	A-4a (V)	
			2 3 6	12	100	SS-6	-	-	-	-	-	-	-	-	-	14	A-4a (V)	
	1047.4		2	-	100	SS-7A	-	-	-	-	-	-	-	-	-	14	A-4a (V)	
Medium-dense brown COARSE AND FINE SAND, some fine gravel, little silt, trace clay, damp.	1046.4	W	5 4	12	100	SS-7B	-	-	-	-	-	-	-	-	-	11	A-3a (V)	
Very-loose to loose brown COARSE AND FINE SAND, some fine gravel, little silt, trace clay, wet.			0 0 6	8	67	SS-8	-	22	21	31	18	8	NP	NP	NP	19	A-3a (0)	
	1042.9		0	-	100	SS-9A	-	-	-	-	-	-	-	-	-	-	A-3a (V)	
Stiff to very-stiff gray SANDY SILT, some clay, trace fine gravel, damp.	1041.4		1 4	7	39	SS-9B	-	-	-	-	-	-	-	-	-	13	A-4a (V)	
Hard gray SANDY SILT, some clay, little fine gravel (sandstone and shale fragments), damp.			4 9 12	29	78	SS-10	-	-	-	-	-	-	-	-	-	12	A-4a (V)	
			9 8 15	32	56	SS-11	-	-	-	-	-	-	-	-	-	15	A-4a (V)	
	1036.4																	
Very-dense GRAVEL WITH SAND AND SILT, little clay, moist.			6 10 28	53	78	SS-12	-	44	13	14	18	11	23	18	5	9	A-2-4 (0)	
	1033.4																	
Dense gray SANDY SILT, some fine gravel (sandstone and shale fragments), little clay, damp.			7 13 17	42	78	SS-13	-	-	-	-	-	-	-	-	-	11	A-4a (V)	
	1031.4	TR																
SHALE, gray, severely weathered, very weak.	1029.9		50-0.4'	-	100	SS-14	-	-	-	-	-	-	-	-	-	8	Rock (V)	
INTERBEDDED SHALE (55%) AND SANDSTONE (45%), RQD 5%, REC 92%; Shale: Gray, highly to severely weathered, very weak to weak, laminated, highly fractured, narrow to open, slightly rough, contains few clayey silt seams. Sandstone: Gray, slightly to moderately weathered, slightly to moderately strong, laminated, highly fractured, narrow to open, slightly rough.			0		87	NQ2-15											CORE	
- From 40.3' to 40.8': Qu = 1,036 psi.	1019.9	EOB	10		97	NQ2-16											CORE	

NOTES:
- Boring was relocated from the pavement core location due to potential conflicts with underground utilities. The pavement core, renamed as X-007-0-09, was performed at Sta. 23+11, 22.4' Lt. of U.S. 224 centerline.
- Encountered seepage at 15.0' during drilling.
- Water measured at 20.0' inside hollow-stem augers prior to coring.
- Encountered auger refusal at 31.5'.

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: SAND; SOIL CUTTINGS

MAH-680-6.58, 118895, Location 28

Form No. 630—10-59

THE H. C. NUTTING COMPANY

4120 AIRPORT ROAD
CINCINNATI 26, OHIO

TESTING ENGINEERS AND SOILS CONSULTANTS

LOG OF BORING

Split Spoon 2"O.D.

DATE STARTED 9/17/62 SAMPLER: TYPE & Core Barrel DIA. NXM WATER ELEV. IMMEDIATE None CLIENT: City of Youngstown, Ohio

DATE COMPLETED 9/17/62 CASING: LENGTH Hollow Stem Augers DIA. 3.5"I.D. AFTER 24 HOURS 932.0 PROJECT: Youngstown Expressway

BORING No. 7 STATION AND OFFSET 13+02, Base Line SURFACE ELEV. 950.2 Bridge No. MAH-7-1514 (Ramp BX)

ELEV.	DEPTH	SAMPLE No.	STD. PEN. (N)	% REC.	DESCRIPTION	Physical Characteristics % AGG.	% C.S.	% F.S.	% SILT	% CLAY	L.L.	P.I.	W.C.	SHTD. CLASS
950.2	0													
948.2	2	1	18-18-24	13"	Light brown sandy silt, trace of fine gravel, with rock coal and brick fragments, fill, (visual), moist - hard.	No Tests Performed.								
945.7	4	2	7-6-1	6"	Light brown sandy silt, trace tile and slag, cavity 3.5 to 3.9-ft., fill, (visual) slightly moist to moist - medium stiff.	Cavity - 3.5-3.9-ft.								
944.7	6	3A	48	4"	Gray slag and fine silty sand, fill, (visual) moist - very dense.	No Tests Performed.								
943.2		3B	31-27	7"	Light brown silt, little sand, trace gravel, with sandstone and charcoal fragments, fill, dry - very stiff.	3	3	11	61	22	28	6	9	A-4b
	8	4	24-18-19	14"	Light brown sandy silt, some gravel with sandstone and charcoal fragments, fill, dry - very stiff.	20	7	11	37	25	28	6	11	A-4a
	10	5	15-22-18	10"	do do do	20	9	12	37	22	28	7	9	A-4a
	12				Light brown sandy silt, some gravel with 2" layer of light brown silty sand									
936.2	14	6	11-15-13	11"	containing fine gravel, moist - stiff.	26	4	9	44	17	23	3	20	A-4a
934.5		7A	16	4"	Light brown silt, little sand, trace gravel, moist - stiff.	7	5	12	50	26	24	6	16	A-4b
	16	7B	48-50	12"	Brown gravelly sand, little silt with rock fragments, moist - very dense.	57	19	8	-15-				5	A-1-b
	18	8A	70	4"		No Tests Performed.								
931.2		8B	50-64	10"	Brown gravelly sand, little silt, moist - very dense.	36	31	19	-14 -				4	A-1-b
	20	9	69-101	3"	Brown silty sand and gravel, moist - very dense.	45	13	13	19	10	20	4	39	A-2-4
	22													
925.7	24	10	101-99-88	8"	do do do	56	9	9	19	7	23	6	6	A-2-4*
		11A	52	2"		No Tests Performed.								
	26	11B	16	2"	Light brown sandy silt, trace gravel	5	6	48	33	8	NP	NP	14	A-4a
		11C	16	4"	with 1" layer of stiff tan clay, moist -	No Tests Performed.								
	28				dense.									
920.2	30													
919.7		12	106	4"	Brn. gravelly sand, some silt, with sandstone fragments, moist - very dense.	55	9	13	-23-				5	A-1-b
	32	13	NXM	75%	Shale, gray, soft, finely micaceous, with horizontal planes of separation 1/2 to 2" averaging 1" apart; mostly broken, interbedded with fine grained, firm, thinly bedded (1" to 3" pieces averaging 1½") light gray sandstone, 59% shale, 41% sandstone.									
	34													

Form No. 530

THE H. C. NUTTING COMPANY

4120 AIRPORT ROAD
CINCINNATI 26, OHIO

TESTING ENGINEERS AND SOILS CONSULTANTS

Split Spoon 2"O.D. **LOG OF BORING**

DATE STARTED 9/17/62 SAMPLER: TYPE & Core Barrel DIA. NXM WATER ELEV. IMMEDIATE None CLIENT: City of Youngstown, Ohio

DATE COMPLETED 9/17/62 CASING: LENGTH _____ DIA. 3.5"I.D. Hollow Stem Augers AFTER 24 HOURS 932.0 PROJECT: Youngstown Expressway Bridge No. MAH-7-1514

BORING No. 7 STATION AND OFFSET 131+02, Base Line SURFACE ELEV. 950.2 (Ramp BX)

ELEV.	DEPTH	SAMPLE No.	STD. PEN. (IN)	% REC.	DESCRIPTION	Physical Characteristics % AGG.	% C.S.	% F.S.	% SILT	% CLAY	L.L.	P.I.	W.C.	SNTL CLASS
914.7	34	14	NXM	113%	Sandstone, light gray, fine-grained, firm, thin to medium bedded (1/2 to 7½" averaging 3") interbedded with firm, gray, siliceous, shale, having horizontal planes of separation 1/8" to 1" averaging 1/2" apart, 82% sandstone, 18% shale.									
	36				Boring Completed.									
	38													
	40				REMARKS: *Coarse gravel returned to surface by augers.									
	42				Could not fill augers with water at start of coring operations. Water first returned during coring at 31.5-ft.. Lost water at 32.5-ft.. Water returned to surface at 32.7-ft..									
	44													
	46													
	48													
	50													

Form No. 530—16-59

THE H. C. NUTTING COMPANY

4120 AIRPORT ROAD
CINCINNATI 26, OHIO

TESTING ENGINEERS AND SOILS CONSULTANTS

LOG OF BORING

DATE STARTED 9/8/62 SAMPLER: TYPE Split Spoon & Core Barrel DIA. 2"O.D. NXM WATER ELEV. IMMEDIATE 912.9 CLIENT: City of Youngstown, Ohio

DATE COMPLETED 9/10/62 CASING: LENGTH DIA. 3.5"I.D. Hollow Stem Augers AFTER 24 HOURS 942.0 PROJECT: Youngstown Expressway Bridge No. MAH-7-1514 (Ramp BX)

BORING No. 9 STATION AND OFFSET 13+82, Base Line SURFACE ELEV. 947.9

ELEV.	DEPTH	SAMPLE No.	STD. PEN. (N)	% REC.	DESCRIPTION	Physical Characteristics								
						% AGG.	% C.S.	% F.S.	% SILT	% CLAY	L.L.	P.I.	W.C.	SHTL CLASS
947.9	0	1A	6	3"	Topsoil, moist - stiff.	No Tests Performed.								
944.9	2	1B	25-19	11"	Light brown sandy silt and gravel, with rock fragments and trace topsoil, fill, moist - very stiff.	37	11	14	22	16	26	8	9	A-4a
	4													
939.9	6	2	13-21-18	19"	Light brown sandy silt, some gravel and sandstone fragments, moist - very stiff.	32	12	15	27	14	24	6	9	A-4a
	8													
	10	3	7-8-9	12"	Light brown silty sand and gravel and rock fragments, moist - medium dense.	47	13	12	16	12	25	7	11	A-2-4
	12													
933.4	14	4	11-21-22	10"	Light brown silty sand and gravel with sandstone fragments, moist - dense.	48	13	12	- 27 -				6	A-2-4
	16	5	26-36-30	5"	Light brown gravelly sand, some silt, moist - very dense.	39	26	14	- 21 -				5	A-1-b
	18	6	13-37-27	10"	Light brown gravelly sand, little silt, moist - very dense.	32	27	22	- 19 -				4	A-1-b
	20													
925.9	22	7	13-14-17	12"	Light brown gravelly sand, little silt, moist - dense.	30	29	27	- 14 -				4	A-1-b
		8A	30	4"		No Tests Performed.								
923.4	24	8B	59-84	6"	Light brown sandy gravel, little silt, moist - very dense.	62	12	13	- 13 -				3	A-1-a
921.9	26	9A	9-16	11"	Light tan gravelly sand, little silt, moist - medium dense.	46	26	16	- 12 -				8	A-1-b
		9B	20	4"	Light brown sandy silt, some gravel and rock fragments, moist - very stiff.	20	10	15	35	20	23	6	13	A-4a
918.9	28	10	38-40-102	13"	Brown and gray sandy silt, some gravel, and rock fragments, with streaks and 1" + layers of fine sand, moist - very dense.	31	7	12	33	17	23	5	19	A-4a
916.9	30	11	83-102	7"	Rust brown sandy gravel, little silt, trace clay with streaks and 1" layers of fine sand, moist - very dense.	61	12	12	10	5	20	3	9	A-1-a
	32	12	103	4"	Brown sandy silt, some gravel and rock fragments, with evidence of cobbles and/or boulder at 915.1, moist - very dense.	32	13	17	23	15	20	5	11	A-4a
	34													

Form No. 530—16-59 CINCINNATI 26, OHIO

TESTING ENGINEERS AND SOILS CONSULTANTS

LOG OF BORING

DATE STARTED 9/8/62 SAMPLER: TYPE Split Spoon 2"O.D. & Core Barrel DIA. NXM WATER ELEV. IMMEDIATE 912.9 CLIENT: City of Youngstown, Ohio

DATE COMPLETED 9/10/62 CASING: LENGTH DIA. 3.5"I.D. Hollow Stem Augers AFTER 24 HOURS 942.0 PROJECT: Youngstown Expressway Bridge No. MAR-7-1514 (Ramp BX)

BORING No. 9 STATION AND OFFSET 13+82, Base Line SURFACE ELEV. 947.9

ELEV.	DEPTH	SAMPLE No.	STD. PEN. (N)	% REC.	DESCRIPTION	Physical Characteristics % AGG.	% C.S.	% F.S.	% SILT	% CLAY	L.L.	P.I.	W.C.	SHTL CLASS
913.9	34													
912.4	36	13A	30	6"	Brown coarse and fine sand, little silt, trace gravel, moist - very dense.	1	12	75	- 12 -				17	A-3a
911.6		13B	75-102	5"	Gray and brown sandy silt and rock fragments, moist - hard.	39	7	13	24	17	23	7	14	A-4a
908.9	38	14	NXM	77%	Sandstone, gray, fine grained, thinly bedded (2 to 4" averaging 3") hard, sparingly fossiliferous (Marine), with high angle joint, interbedded with siliceous, micaceous, gray shale, 90% Sandstone, 10% Shale.									
906.4	40	15	NXM	90%	Sandstone, gray, fine grained, thinly bedded (2 to 7" averaging 3.5") hard, interbedded with brittle, broken, gray shale, 95% sandstone, 5% shale.									
	42				Boring Completed.									
	44													
	46													
	48													
	50													

REMARKS: (T) Indicates for Standard Penetration Test sample obtained with trap equipped split spoon.

ATB-90-20.10, 118895, Location 29

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
TESTING LABORATORY

LOG OF BORING

CO., RT. NO., SEC. ATB-1-19.20 FORWARD PIER — BRIDGE NO. ATB-1-2010
SR 90 OVER PROP. SR 1

LOCATION: T.H. 8 STA. 25+78 OFFSET 15' RT. FED. NO.

ELEV.	DEPTH	NO. BLOWS	SAMPLE NO.	DESCRIPTION
778.1	0			
	2			
	4			
773.1	6	31	74118	BROWN & GRAY SILT
	8			
768.1	10	46	74119	GRAY SILT & CLAY
	12			
	14			
763.1	16	40	74120	GRAY SANDY SILT
	18			
758.1	20	----	------	BOULDERY GRAY CLAY & SILT
	22			
	24			
753.1	26	-----	------	BOULDERY GRAY CLAY & SILT
750.1	28			WEATHERED & BROKEN SILICEOUS SHALE WITH CLAY SEAMS
748.1	30			TOP OF ROCK
	32			SHALE, GRAY, SILICEOUS, FIRM, GRADING IN SOME THIN LAYERS TO FINE GRAINED SANDSTONE. CORE LOSS: 4%
	34			
743.1	36			BOTTOM OF BORING

EC

ATB-90-25.78, 118895, Location 30

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
TESTING LABORATORY

LOG OF BORING

CO., RT. NO., SEC. ATB-1-(25.18-28.69) REAR PIER — BRIDGE NO. ATB-1-2576 SR 1 UNDER PROP. SR 7

LOCATION: T.H. 7 STA. 1526+51 OFFSET 16' RT. FED. NO.

ELEV.	DEPTH	NO. BLOWS	SAMPLE NO.	DESCRIPTION
708.8	0			
	2			BROWN SANDY SILT CLAY WITH BROKEN BROWN SHALE
704.0	4			TOP OF ROCK
	6			SHALE, GRAY, SILICEOUS TO SLIGHTLY SILICEOUS, GENERALLY FIRM BUT WITH THIN SEAMS OF CLAY AND SOFT SHALE, JOINTED IN TOP HALF. CORE LOSS: 13%
	8			
698.8	10			
	12			BOTTOM OF BORING
	14			
	16			
	18			
	20			
	22			
	24			
	26			
	28			
	30			
	32			
	34			
	36			

RC
11-30-57

ATB-90-26.96, 118895, Location 31

No available soil borings

CUY-480-23.86, 118895, Location 32

LOG OF BORING

Date Started 7-20-65 | Sampler Type SS | Dia. 1 3/8" | Water Elev. —
Date Completed 7-21-65 | Casing: Length — | Dia. —
Boring No. B-2 | Station & Offset 14+19, 43' Rt. (Rear Abutment) | Surface Elev. 1025.0'

Elev.	Depth	Std. Pen. (N)	Rec. ft.	Loss ft.	Description	Sample No.	Physical Characteristics: % Agg	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.	SHTL Class.
1025.0	0														
	2														
1020.0	4														
	6	2/5			Brown and Gray Silt and Clay	1	0	7	13	40	40	32	11	19	
	8														
1015.0	10														
	12	9/16			Gray Clayey Silt	2	0	0	1	55	44	27	10	12	
	14														
1010.0	16	9/12			Gray Gravelly Sandy Silt	3	17	9	8	31	35	26	8	19	
	18														
1005.0	20														
	22	8/11			Gray Silt	4	0	7	12	43	38	24	6	10	
	24														
1000.0	26	8/14			Gray Gravelly Sandy Silt	5	19	8	11	35	27	26	7	11	
	28														
995.0	30														
	32	23/34													
992.5	34	18/26			Gray Gravelly Sandy Silt	6	V	I	S	U	A	L	29	10	17
990.0	36	12/21			Gray Gravelly Clay	7	19	5	6	32	38	30	11	14	
987.5	38	12/20			Gray Clayey Silt	8	0	7	8	35	50	28	9	17	
985.0	40	11/22			Gray Clayey Silt	9	0	4	7	39	50	29	9	15	
982.5	42	12/21			Gray Gravelly Sandy Silt	10	27	9	21	22	21	19	4	14	
980.0	44	13/21			Gray Gravelly Sandy Silt	11	17	4	25	13	41	26	9	11	
977.5	46	32/45			Grayish-Brown Silty Sandy Gravel	12	54	14	11	15	6	NP	NP	5	
975.0	48	43/50			Gray Silty Sandy Gravel	13	49	8	14	21	8	NP	NP	7	
	50														
	52														
	54														
970.0	56	50/*			Gray Sandy Gravelly Silt	14	34	9	12	35	10	-	-	3	
	58														
965.0					BOTTOM OF BORING										
964.6	60	50*(0.4)			Gray Silty Sandy Gravel	15	60	11	11	-18	-	NP	NP	2	

*Refusal

LOG OF BORING

Date Started 7-15-65 | Sampler Type SS | Dia. 1 3/8" | Water Elev. —
Date Completed 7-20-65 | Casing: Length 67' | Dia. 3 1/2"
Boring No. B-9 | Station & Offset 16+75, 40' Lt. (Forward Abutment) | Surface Elev. 1023.4'

Elev.	Depth	Std. Pen. (N)	Rec. ft.	Loss ft.	Description	Sample No.	Physical Characteristics: % Agg	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.	SHTL Class.
1023.4	0														
	2														
	4														
1018.4	6	11/18			Brownish-Gray Clayey Silt	1	0	6	13	43	38	28	7	15	
	8														
1013.4	10														
	12	8/14			Gray Gravelly Sandy Silt	2	17	8	9	33	33	27	9	14	
	14														
1008.4	16	9/16			Gray Sandy Gravelly Silt	3	18	6	9	32	35	27	9	15	
	18														
1003.4	20														
	22	9/13			Gray Sandy Silt	4	11	7	9	37	36	26	8	14	
	24														
998.4	26	8/14			Gray Gravelly Silt	5	19	5	9	45	22	24	7	16	
	28														
993.4	30														
	32	9/20			Gray Silt and Clay	6	0	6	11	38	45	29	11	14	
990.9	34	11/17			Gray Silt and Clay	7	0	7	8	37	48	28	11	13	
988.4	36	12/16			Gray Silt and Clay	8	0	6	8	35	51	29	11	12	
985.9	38	10/18			Gray Silt and Clay	9	0	4	8	37	51	30	13	16	
983.4	40	11/17			Gray Gravelly Clay	10	17	6	6	30	41	39	14	15	
980.9	42	19/34			Gray Gravelly Silt	11	43	51	2	-4	-	NP	NP	12	
978.4	44	29/50			Greenish-Brown Silty Sandy Gravel	12	55	16	8	14	7	NP	NP	7	
	46														
973.4	48														
	50	32/24			Gray Silty Sandy Gravel	13	65	13	8	9	5	NP	NP	9	
	52														
968.4	54														
	56	50* (0.4)			Gray Silty Sandy Gravel	14	58	11	6	17	8	NP	NP	7	
963.4	58														
	60	50* (0.4)			Gray Sandy Gravelly Silt	15	31	10	15	31	13	NP	NP	9	
958.4	64														
	66	50/*			Gray Sand	16	0	28	62	-10	-	NP	NP	14	
953.4	68														
	70														
	72	50* (0.4)			Gray Sandy Silt	17	0	15	36	36	13	-	-	11	
948.4	74				BOTTOM OF BORING										
947.9	76	50/*			Gray Silt	18	0	2	1	79	18	NP	NP	14	

*Refusal

BBCM

STRUCTURE FOUNDATION EXPLORATION
BRIDGE NO. CUY-480-2386
WARRENSVILLE CENTER ROAD OVER I.R. 480

CUY-480-23.86

9 / 9

BBC&M JOB: 012-01175.300

Page 1 of 3

C-R-S : CUY-480-23.86
PID No. : 80558
Bridge No. : 1813676

LOG OF BORING NO. B-007-0-08
CUY-480-23.86
WARRENSVILLE HEIGHTS, OHIO

TYPE: 3-1/4" I.D. Hollow-stem Auger, 2-7/8" Tri-Cone Roller Bit, 4" O.D. Casing, 2" O.D. Split-barrel Sampler, 3" O.D. Shelby Tube Sampler

LOCATION: Sta. 13+87, 20' Rt. of Warrensville Center Road Centerline

COORDINATES: N 642225.3; E 2232711.7

COMPLETION DEPTH: 59.5'
ELEVATION: 1021.9
DATE: 3/18/09

Elev. (feet)	Depth (feet)	Samp.	Std. Pen. / RQD-%	N_{60}	Hand Pen. (tsf)	Sample Rec-%	Description	Samp. No.	Physical Characteristics % Agg.	% CS	% FS	% Silt	% Clay	LL	PL	PI	WC	ODOT Class
1021.7	0						0.2 ASPHALT - 2 INCHES											
1020.7							1.2 CONCRETE - 12 INCHES											
1020.4							1.5 GRANULAR BASE - 4 INCHES											
			1/2/2	6	2.0-4.25	53	POSSIBLE FILL: Hard brown mottled with gray SILT AND CLAY, some fine to coarse sand, trace fine gravel, contains few wood, sandstone and siltstone fragments, contains few very-stiff zones, damp.	1									17	A-6a (Vis.)
			3/5/6	15	4.0-4.5+	67		2									18	A-6a (Vis.)
	5																	
			5/5/9	20	4.5+	100		3	6	8	13	38	35	29	18	11	15	A-6a(8)
			9/15/15	42	4.5+	93		4									14	A-6a (Vis.)
1011.4	10						10.5											
			4/7/11	25	4.5+	100	Very-stiff to hard brown and gray SILT AND CLAY, little fine to coarse sand, trace fine gravel, dry to damp.	5									15	A-6a (Vis.)
			4/7/9	22	3.75-4.5+	87		6									16	A-6a (Vis.)
	15																	
			3/6/8	20	3.0-4.5+	100		7	7	8	11	32	42	28	17	11	15	A-6a(8)
1003.9							18.0											
			3/5/6	15	2.75-3.5	100	Very-stiff to hard gray SANDY SILT, "and" clay, trace to little fine to coarse gravel, contains few shale fragments, damp to moist.	8									15	A-4a (Vis.)
	20																	
			P		2.75-4.5+	70		9	6	8	11	32	43	26	16	10	16	A-4a(8)
			6/10/12	31	4.0-4.5+	67		10									14	A-4a (Vis.)
	25																	

WATER LEVEL: "Dry" | 10.0 |
WATER NOTE: Prior to Rotary Drilling | Caved at 48' |
DATE: 3/18/09 | 3/18/09 |

Drill Rod Energy Ratio : 0.84
Last Calibration Date : 09/13/07
Drill Rig Number : OTB TRUCK 2800

-CONTINUED-

BBC&M JOB: 012-01175.300

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C-R-S : CUY-480-23.86
PID No. : 80558
Bridge No. : 1813676

LOG OF BORING NO. B-007-0-08
CUY-480-23.86
WARRENSVILLE HEIGHTS, OHIO

TYPE: 3-1/4" I.D. Hollow-stem Auger, 2-7/8" Tri-Cone Roller Bit, 4" O.D. Casing, 2" O.D. Split-barrel Sampler, 3" O.D. Shelby Tube Sampler

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	25						Very-stiff to hard gray SANDY SILT, "and" clay, trace to little fine to coarse gravel, contains few shale fragments, damp to moist.												
			8/12/19	43	4.5+	67		11	12	10	12	35	31	24	16	8	12	A-4a(6)
	30																	
			7/14/19	46	4.5+	100		12									13	A-4a (Vis.)
	35																	
984.4							37.5											
			4/7/11	25	2.0-3.75	100	Very-stiff gray SILT AND CLAY, little fine to coarse sand, trace fine gravel, damp to moist.	13	7	6	8	32	47	30	15	15	17	A-6a(10)
	40																	
			4/7/11	25	2.0-3.0	100		14									19	A-6a (Vis.)
	45																	
			6/7/10	24		0												
	50																	

WATER LEVEL: "Dry" | 10.0 |
WATER NOTE: Prior to Rotary Drilling | Caved at 48' |
DATE: 3/18/09 | 3/18/09 |

Drill Rod Energy Ratio : 0.84
Last Calibration Date : 09/13/07
Drill Rig Number : OTB TRUCK 2800

-CONTINUED-