TE-93
500-7-68

MICHIGAN-WEED
SEP 16 1968

GENERAL INFORMATION

INTRODUCTION

THE REVISED PROJECT CONSISTS OF THE SOILS INVESTIGATION OF 0.13 MILE OF USR 30, BEGINNING 170 FEET WEST OF DEUBER AVENUE AND 170 FEET SOUTH OF 14TH STREET, EXTENDING EASTWARD AND TERMINATING AT CLEVELAND AVENUE, APPROXIMATELY 0.85 MILE NORTHEAST OF THE CLEVELAND AVENUE-CHURCH ROAD JUNCTION. INCLUDED IN THIS REPORT ARE SOIL PROFILES OF THE USR 30-IR 77 INTERCHANGE RAMPS A, B, C, E, F, G AND H.

PROPOSED GRADES INDICATE THE FOLLOWING MAXIMUM PROPOSED CUTS AND FILL EMBANKMENTS:

	CUTS (MAX.)	FILL EMBANKMENTS (MAX.)
USR 30	24'	63'
RAMP A	-	28'
RAMP B	-	-
RAMP C	-	60'
RAMP E	-	49'
RAMP F	-	40'
RAMP G	-	45'
RAMP H	-	30'

GEOLOGY OF THE PROJECT

THE PROJECT IS LOCATED ON THE BROAD FLOODPLAIN BETWEEN THE WEST AND EAST BRANCHES OF NIMISHILLEN CREEK, IN AN AREA WHERE MODERATELY DEEP TO DEEP ALLUVIAL AND OUTWASH DEPOSITS OVERLIE SANDSTONE, SHALE AND LIMESTONE BEDROCK, OF PENNSYLVANIAN AGE.

EXPLORATION

EXPLORATORY BORINGS WERE MADE BY MEANS OF TRUCK-MOUNTED MECHANICAL SOIL AUGER, ROTARY-TYPE DRILL RIG, AND RETRACTABLE TYPE PEAT SAMPLER, BETWEEN NOVEMBER 5 AND 30, 1967, JANUARY 9 AND 16, 1969, AND MARCH 11 AND 12, 1969. INCLUDED IN THIS REPORT ARE LOGS OF BORINGS MADE FOR STA-77-9.56 AND SUPPLEMENTAL BORINGS MADE APRIL 15, 1968 AND APRIL 9, 1969 AND JULY 15 AND 16, 1970.

INVESTIGATIONAL FINDINGS

MATERIALS ENCOUNTERED ON THE PROJECT WERE PREDOMINANTLY COMPRISED OF GRAVELS (A-1-a) AND SANDY GRAVELS (A-1-b AND A-2-4), GENERALLY HAVING LOW MOISTURE CONTENTS, WITH SOME WET SANDY SILTS (A-4a).

WET AND/OR ORGANIC MATERIALS, WITH SOME LOW STRENGTH COMPRESSIBLE PEATS WERE ENCOUNTERED AT USR 30 STATIONS 958+50, 958+75 AND 960+00, RAMP A STATIONS 959+45 AND 962+00, BETWEEN RAMP B STATIONS 951+00 AND 952+00, RAMP C STATIONS 954+75 AND 966+00, AT RAMP D STATION 965+70, BETWEEN RAMP F STATIONS 960+00 AND 965+00, AND AT RAMP G STATION 980+75.

RANDOM FILL MATERIALS, COMPRISED OF CINDERS, BRICKBATS, FLY ASH, GLASS AND METAL WERE ENCOUNTERED AT USR 30 STATIONS 963+00, 966+40 AND 967+00, RAMP A STATIONS 957+50 AND 963+00, RAMP B STATIONS 952+00, 954+20, 961+60, 961+80, 964+70, 966+05, AND 966+40, RAMP C STATIONS 954+75, 957+15 AND 963+40, RAMP D STATIONS 965+70 AND 966+25, RAMP E STATION 975+00, RAMP F STATIONS 960+15 AND 963+20, AND RAMP G STATIONS 968+15 AND 980+75.

All available soil and bedrock information which can be conveniently shown on the soil profile and/or structure foundation investigation sheets has been so reported. Additional subsurface investigations 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 Bureau of Tests at 1600 West Broad Street, the Pavement and Soils Section of the Bureau of Roadway Design or in the Bridge Bureau at 25 South Front Street.

LEGEND FOR PROJECT AVERAGE RESULTS OF TESTS— 259 SAMPLES TESTED

DESCRIPTION	H.R.B. CLASS	OHIO CLASS	% AGG.	% C. SAND	% F. SAND	% SILT	% CLAY	LIQUID LIMIT	PLASTICITY INDEX	WATER CONTENT	SAMPLES TESTED
GRAVEL	A-1-a(0)	A-1-a	64	18	11	4	3	NP	NP	11	111
GRAVEL WITH SAND	A-1-b(0)	A-1-b	38	30	21	5	6	NP	NP	12	50
FINE SAND	A-3(0)	A-3	14	23	56	3	4	NP	NP	11	10
FINE AND COARSE SAND	-----	A-3a	8	38	41	6	7	NP	NP	24	15
GRAVEL WITH SAND AND SILT	A-2-4(0)	A-2-4	38	15	19	16	12	NP	NP	18	10
GRAVEL WITH SAND, SILT AND CLAY	A-2-6(0)	A-2-6	32	8	29	15	16	31	14	34	4
SANDY SILT	A-4(4)	A-4a	13	10	24	29	24	26	4	24	30
SILT	A-4(8)	A-4b	5	4	9	60	22	28	2	20	3
SILT AND CLAY	A-6(7)	A-6a	12	5	14	36	33	29	11	19	5
ELASTIC SILT AND CLAY	A-5(6)	A-5	17	6	21	34	22	69	8	77	2
ELASTIC CLAY	A-7-5(15)	A-7-5	11	4	19	39	27	63	25	57	8
CLAY	A-7-6(4)	A-7-6	28	14	18	21	19	49	24	94	1
FIBROUS PEAT			VISUAL CLASSIFICATION								4
FINE-TEXTURED PEAT			VISUAL CLASSIFICATION								6
CINDERS			VISUAL CLASSIFICATION								-
CLAY BEDROCK			VISUAL CLASSIFICATION								-
SHALE			VISUAL CLASSIFICATION								-
BOULDERY ZONE			VISUAL CLASSIFICATION								-
RANDOM FILL			VISUAL CLASSIFICATION								-
VARIOUS OTHER MATERIALS			VISUAL CLASSIFICATION								-

SOD AND/OR TOPSOIL=X'=APPROXIMATE DEPTH.

BERM MATERIAL.

AUGER BORING-PLAN VIEW.

DRIVE SAMPLE AND/OR CORE BORING-PLAN VIEW.

AUGER BORING PLOTTED TO VERTICAL SCALE ONLY.

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

WATER CONTENT NEARLY EQUAL TO OR GREATER THAN LIQUID LIMIT.

INDICATES A NON-PLASTIC MATERIAL WITH A HIGH WATER CONTENT.

FREE WATER.

NUMBER OF BLOWS FOR "STANDARD PENETRATION" TEST.
X=NUMBER OF BLOWS FOR FIRST 6 INCHES.
Y=NUMBER OF BLOWS FOR SECOND 6 INCHES.

NOTE: FIGURES BESIDE BORINGS INDICATE WATER CONTENT IN PERCENT F G. 15

REVISED 4/9/69
REVISED 5/8/70
REVISED 7/28/70

SOIL PROFILE

1/41

STARK COUNTY

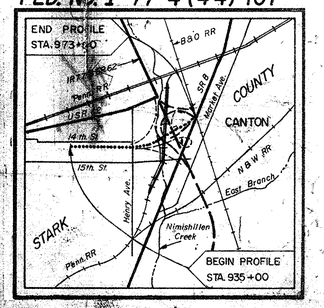
STA-30-14.12
STA-77-9.22

OHIO STATE HIGHWAY TESTING LABORATORY
1620 W. BROAD ST. COLUMBUS 23, OHIO

1/8

NOTE: INFORMATION SHOWN BY THIS SUBGRADE PROFILE WAS OBTAINED SOLELY FOR 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.

FED. NO. I-77-4(44) 107



LOCATION MAP

Recon - J.S.M - 10/27/67
Drilling-Auger - L.M.D. - 11/5/67 to 11/30/67
Drafting - D.E.N - 3/19/68

REVISION
Drilling - Auger - T.R.S. - 1/9/69, 1/14/69 to 1/16/69
-Core - C.J.C. - 3/11/69 and 3/12/69
Drafting - C.L.I. - 4/9/69

REVISION
Drafting - A.F, C.L.I., D.E.N. - 5/8/70

REVISION
Drilling - Core - E.F.L. - 7/15/70 and 7/16/70
Drafting - L.L.L. - 7/28/70

DRIVE SAMPLE SOIL TEST DATA

STATION & OFFSET	DEPTH FROM	TO	% AGG.	% C.S.	% F.S.	% SILT	% CLAY	L.L.	P.I.	% W.C.	SOIL CLASS.
RAMP F											
968+55 120'Lt	5.0	6.0	52	29	15	2	2	NP	NP	14	A-1-a
	10.0	11.0	70	13	8	6	3	NP	NP	9	A-1-a
	15.0	16.0	BROWNISH-GRAY SAND				-	NP	NP	-	VISUAL
	20.0	21.0	73	16	5	3	2	NP	NP	9	A-1-a
	25.0	26.0	GRAY SAND				-	NP	NP	-	VISUAL
	30.0	31.0	88	11	1	0	0	NP	NP	4	A-1-a
	35.0	36.0	71	15	8	3	3	NP	NP	10	A-1-a
	40.0	41.0	69	16	9	3	3	NP	NP	13	A-1-a
	45.0	46.0	43	16	12	15	14	NP	NP	12	A-2-4
	50.0	51.0	67	16	7	8	2	NP	NP	9	A-1-a
	55.0	55.5	GRAY SAND			-	-	NP	NP	-	VISUAL
	60.0	61.0	GRAY SAND			-	-	NP	NP	-	VISUAL
	65.0	66.0	GRAY GRAVELLY SAND					NP	NP	-	VISUAL
	70.0	71.0	BROWN GRAVELLY SAND					NP	NP	-	VISUAL
RAMP G											
966+55 80'Rt	5.0	6.0	(21	44	32	2	1	NP	NP	23)	
			BROWN GRAVELLY SAND WITH BRICKBATS								VISUAL
	10.0	11.0	68	19	13	2	8	NP	NP	11	A-1-a
	15.0	16.0	60	19	22	6	2	NP	NP	9	A-1-a
	20.0	21.0	GRAY GRAVEL			-	-	NP	NP	-	VISUAL
	25.0	26.0	47	32	17	2	2	NP	NP	11	A-1-b
	30.0	31.0	68	22	9	1	0	NP	NP	10	A-1-a
	35.0	36.0	72	18	9	1	0	NP	NP	9	A-1-a
	40.0	41.0	57	29	13	1	0	NP	NP	13	A-1-a
	45.0	45.5	57	28	10	3	2	NP	NP	10	A-1-a
	50.0	50.5	67	17	9	6	1	NP	NP	7	A-1-a
	55.0	55.6	GRAY SAND			-	-	NP	NP	-	VISUAL
	60.0	61.0	GRAY SAND			-	-	NP	NP	-	VISUAL
	65.0	66.0	58	21	16	4	1	NP	NP	13	A-1-a
	70.0	71.0	75	19	4	1	1	NP	NP	9	A-1-a
974+90 50'Lt	5.0	6.0	68	15	10	4	3	NP	NP	8	A-1-a
	10.0	11.0	68	13	11	4	4	NP	NP	8	A-1-a
	15.0	16.0	59	16	16	5	4	NP	NP	10	A-1-a
	20.0	21.0	62	20	11	4	3	NP	NP	11	A-1-a
	25.0	26.0	61	23	10	3	3	NP	NP	9	A-1-a
	30.0	31.0	71	19	6	2	2	NP	NP	8	A-1-a
	35.0	36.0	67	18	9	3	3	NP	NP	7	A-1-a
	40.0	41.0	67	15	9	5	4	NP	NP	10	A-1-a
	45.0	46.0	58	15	15	6	6	NP	NP	9	A-1-a
	50.0	51.0	43	30	20	4	3	NP	NP	12	A-1-b

SUPPLEMENTAL DRIVE SAMPLE SOIL TEST DATA

STATION & OFFSET	DEPTH FROM	TO	% AGG.	% C.S.	% F.S.	% SILT	% CLAY	L.L.	P.I.	% W.C.	SOIL CLASS.
953+00 0L	2.5	3.5	20	6	12	34	28	30	14	9	A-6a
	5.0	6.0	7	7	19	38	29	46	17	38	A-7-6
	7.5	8.6	49	24	11	-	16	-	NP	57	A-1-b
	10.0	11.0	55	18	18	-	9	-	NP	4	A-1-a
	12.5	13.5	85	9	4	-	2	-	NP	4	A-1-a
	15.0	15.6	60	10	20	-	10	-	NP	8	A-1-a
	20.0	21.0	52	30	14	-	4	-	NP	13	A-1-a
	25.0	26.0	71	16	8	-	5	-	NP	12	A-1-a

MICROFILMED
SEP 16 1969

REVISED 4/9/69
REVISED 5/8/70
REVISED 7/28/70

SOIL PROFILE

STARK COUNTY

STA-30-14.12
STA. 77+522

OHIO STATE HIGHWAY TESTING LABORATORY
1620 W. BROAD ST. COLUMBUS 23, OHIO

2/41
2/8

SUMMARY OF SOIL TEST DATA

NOTE: NP SHOWN IN LIQUID LIMIT AND PLASTICITY INDEX COLUMNS INDICATES THAT THE MATERIAL IS NON-PLASTIC.
*DENOTES SAMPLE TAKEN AT OR NEAR GRADE.

STATION & OFFSET	DEPTH FROM	TO	% AGG.	% C.S.	% F.S.	% SILT	% CLAY	L.L.	P.I.	% W.C.	SHTL CLASS.
					USR 30						
935+00 CL	0	3.0	11	5	13	43	28	27	6	18	A-4a
	3.0	8.0	12	13	33	29	13	NP	NP	13	A-4a
	8.0	13.0	21	40	28	6	5	NP	NP	6	A-1-b
	13.0	18.0	2	26	65	4	3	NP	NP	5	A-3
939+25 10'Lt	0	3.0	59	19	11	6	5	NP	NP	10	A-1-a
	3.0	7.0	3	4	12	50	31	28	6	16	A-4b
	7.0	11.0	8	47	37	4	4	NP	NP	6	A-1-b
	11.0	14.0	57	17	18	4	4	NP	NP	10	A-1-a
944+60 15'Lt	0	5.0	22	44	25	4	5	NP	NP	6	A-1-b
	5.0	11.0	56	12	23	5	4	NP	NP	11	A-1-b*
948+00 CL	0	3.0	4	7	19	44	26	29	7	19	A-4a*
	3.0	8.0	13	33	34	8	12	NP	NP	15	A-3a
	8.0	14.0	12	54	26	4	4	NP	NP	9	A-1-b
	14.0	17.0	16	22	33	15	14	NP	NP	13	A-3a
955+50 CL	0	3.0	0	3	9	46	42	30	11	24	A-6a
	3.0	8.0	13	29	42	7	9	NP	NP	10	A-3a
	8.0	12.5	41	23	24	6	6	NP	NP	6	A-1-b
958+50 20'Lt	0	6.0	22	12	20	25	21	24	5	22	A-4a
	6.0	7.0	28	14	18	21	19	49	24	94	A-7-6
	7.0	10.0	(58 GRAY SANDY SILTY GRAVEL	10	14	9	9	NP	NP	24)	VISUAL
	10.0	15.0	51	13	29	4	3	NP	NP	19	A-1-b
959+75 135'Lt	0	4.0	33	14	19	17	17	22	6	12	A-2-4
	4.0	5.0	0	4	22	47	27	NP	NP	81	A-4a
	5.0	10.0	45	18	25	6	6	NP	NP	13	A-1-b
	10.0	14.0	32	14	47	4	3	NP	NP	16	A-3
960+00 CL	0	4.0	19	32	27	12	10	NP	NP	9	A-1-b
	4.0	5.0	BLACK FINE-TEXTURED PEAT					NP	NP	28	VISUAL
	5.0	8.0	8	11	34	29	18	NP	NP	30	A-4a
	8.0	11.0	41	25	24	5	5	NP	NP	12	A-1-b
	11.0	16.0	21	24	46	4	5	NP	NP	15	A-3
960+00 95'Rt	0	6.0	14	12	24	25	25	22	7	15	A-4a
	6.0	9.0	8	6	60	9	17	35	14	38	A-2-6
	9.0	11.0	19	13	43	12	13	NP	NP	22	A-3a
	11.0	15.0	72	12	8	4	4	NP	NP	9	A-1-a
963+10 98'Rt	0	5.0	(50 CINDERS	13	19	11	7	NP	NP	8)	VISUAL
	5.0	11.0	(26 CINDERS	18	32	15	9	NP	NP	19)	VISUAL
	11.0	16.0	3	10	37	22	28	NP	NP	41	A-4a
	16.0	22.0	63	17	12	4	4	NP	NP	15	A-1-a
966+40 110'Lt	0	5.0	(48 ASHES, CINDERS AND BRICKBATS	18	16	10	8	NP	NP	19)	VISUAL
	5.0	9.0	(18 ASHES, WOOD AND BRICKBATS	14	28	22	18	NP	NP	29)	VISUAL
	9.0	15.0	70	18	7	3	2	NP	NP	11	A-1-a
967+00 30'Lt	0	6.0	(40 BROWN CINDERS, SAND SOIL	23	21	8	8	NP	NP	14)	VISUAL
	6.0	10.0	11	18	29	23	19	NP	NP	17	A-4a
	10.0	14.0	36	41	13	5	5	NP	NP	5	A-1-b
968+00 25'Rt	0	4.0	17	16	22	23	22	29	8	21	A-4a
	4.0	10.0	25	13	56	3	3	NP	NP	6	A-3
970+22 210'Lt	0	4.0	3	7	16	42	32	NP	NP	13	A-4a
	4.0	9.0	59	16	16	4	5	NP	NP	4	A-1-a
973+00 CL	0	4.0	0	6	18	37	39	32	12	22	A-6a
	4.0	8.0	51	28	10	6	5	NP	NP	6	A-1-a
	8.0	14.0	1	34	59	3	3	NP	NP	5	A-3
					RAMP A						
955+50 20'Rt	0	5.0	67	6	7	10	10	NP	NP	15	A-1-b
	5.0	9.0	21	34	36	5	4	NP	NP	5	A-1-b
957+50 110'Lt	0	5.0	(56 CINDERS, STONE FRAGMENTS AND SOIL	14	14	10	6	NP	NP	16)	VISUAL
	5.0	10.0	(53 CINDERS, GLASS, METAL AND SOIL	10	15	17	5	NP	NP	39)	VISUAL
	10.0	15.0	(44 CINDERS, GLASS, METAL AND SOIL	8	20	20	8	NP	NP	35)	VISUAL
	15.0	20.0	(64 CINDERS, GLASS, METAL AND SOIL	8	10	12	6	NP	NP	41)	VISUAL
	20.0	25.0	(73 CINDERS, GLASS, METAL AND WOOD	10	8	6	3	NP	NP	27)	VISUAL
	25.0	30.0	76 CINDERS, METAL AND GLASS	12	8	4	3	NP	NP	30)	VISUAL
958+15 75'Rt	0	5.0	44	18	26	6	6	NP	NP	7	A-1-b
	5.0	11.0	50	21	16	7	6	NP	NP	15*	A-1-a
	11.0	15.0	50	32	15	2	1	NP	NP	16	A-1-a
959+20 50'Lt	0	5.0	30	19	38	7	6	NP	NP	10	A-3a
	5.0	10.0	60	18	18	2	2	NP	NP	12	A-1-a
	10.0	15.0	52	35	11	1	1	NP	NP	8	A-1-a
959+ 70'Rt	0	4.0	27	11	22	22	18	21	7	12	A-4a
	4.0	5.0	FIBROUS PEAT			-	-	NP	NP	142	VISUAL
	5.0	10.0	8	23	63	3	3	NP	NP	26	A-3
	10.0	15.0	73	8	17	1	1	NP	NP	9	A-1-a
960+55 45'Lt	0	4.0	28	13	19	22	18	27	6	19	A-4a
	4.0	10.0	33	20	22	12	13	NP	NP	24	A-1-b
	10.0	14.0	74	14	8	2	2	NP	NP	12	A-1-a
	14.0	19.0	48	40	9	2	1	NP	NP	10	A-1-b

STATION & OFFSET	DEPTH FROM	TO	% AGG.	% C.S.	% F.S.	% SILT	% CLAY	L.L.	P.I.	% W.C.	SHTL CLASS.
962+00 60'Lt	0.0	4.0	(29 CINDERS, BRICKS, SAND AND SOIL	15	22	22	12	NP	NP	20)	VISUAL
	4.0	8.0	FINE-TEXTURED PEAT					NP	NP	80	VISUAL
	8.0	14.0	59	17	15	5	4	NP	NP	28	A-1-a
	14.0	17.0	28	34	24	7	7	NP	NP	9	A-1-b
963+00 60'Lt	0.0	6.0	(24 CINDERS, ASHES AND SOIL	14	18	25	19	NP	NP	61)	VISUAL
	6.0	11.0	64	10	15	6	5	NP	NP	16	A-1-a
	11.0	16.0	29	48	17	3	3	NP	NP	14	A-1-b
966+20 10'Lt	0.0	6.0	29	2	9	36	24	20	8	11	A-4a
	6.0	12.0	26	9	10	36	28	28	12	11	A-6a
	12.0	18.0	28	2	9	37	24	25	7	9	A-4a
					RAMP B						
951+90 15'Lt	0.0	1.5	GRAY ORGANIC CLAY SILT					NP	NP	0	VISUAL
952+00 100'Rt	0.0	4.0	(31 CINDERS	18	22	15	14	NP	NP	23)	VISUAL
	4.0	11.0	34	9	14	23	20	49	6	45	A-5
	11.0	14.0	56	24	12	3	5	NP	NP	16	A-1-a
	14.0	17.0	60	22	13	3	2	NP	NP	12	A-1-a
952+90 BL	0.0	5.0	9	8	41	24	18	39	NP	46	A-4a
	5.0	11.0	6	3	16	46	29	92	37	74	A-7-5
	11.0	14.0	51	13	17	10	9	NP	NP	27	A-1-b
	14.0	16.5	5	2	7	67	19	39	16	25	A-4a
953+65 25'Lt	0.0	4.5	-	-	-	-	-	33	26	52	A-7-5
954+00 BL	0.0	4.0	13	17	27	18	25	NP	NP	15	A-4a
	4.0	9.0	37	15	26	10	12	NP	NP	26	A-1-b
	9.0	15.0	61	16	11	5	7	NP	NP	22	A-1-a
954+20 100'Rt	0.0	4.0	(29 CINDERS, BRICKS, SAND AND SOIL	15	22	22	12	NP	NP	20)	VISUAL
	4.0	8.0	BLACK FINE-TEXTURED PEAT					NP	NP	80	VISUAL
	8.0	14.0	59	17	15	5	4	NP	NP	28	A-1-a
	14.0	17.0	28	34	24	7	7	NP	NP	9	A-1-b
954+85 25'Rt	0.0	4.0	0	1	13	55	31	56	24	57	A-7-5
	4.0	7.0	37	10	16	24	13	27	6	35	A-4a
	7.0	12.0	58	18	14	5	5	NP	NP	15	A-1-a
	12.0	16.0	62	18	13	4	3	NP	NP	10	A-1-a
955+90 20'Rt	0.0	5.0	16	3	23	37	21	59	21	50	A-7-5
	5.0	10.0	15	2	28	36	19	59	26	65	A-7-5
	10.0	15.0	72	13	11	2	2	NP	NP	14	A-1-a
957+00 BL	0.0	4.0	58	13	15	5	9	NP	NP	7	A-1-a
	4.0	8.0	61	15	16	4	4	NP	NP	14	A-1-a
	8.0	13.0	6	13	58	3	20	NP	NP	123	A-3a
	13.0	18.5	70	9	11	3	7	NP	NP	21	A-1-a
958+65 115'Rt	0.0	4.0	19	32	27	12	10	NP	NP	9	A-1-b
	4.0	5.0	BLACK FINE-TEXTURED PEAT					NP	NP	28	VISUAL
	5.0	8.0	8	11	34	29	18	NP	NP	30	A-4a
	8.0	11.0	41	25	24	5	5	NP	NP	12	A-1-b
	11.0	16.0	21	24	46	4	5	NP	NP	15	A-3
961+60 30'Lt	1.0	7.0	(71 CINDERS, ASHES AND BRICKBATS	9	11	5	4	NP	NP	12)	VISUAL
	7.0	14.0	(63 CINDERS, ASHES AND BRICKBATS	11	10	10	6	NP	NP	67)	VISUAL
	14.0	20.0	73	15	9	2	1	NP	NP	9	A-1-a
	20.0	25.0	7	5	8	64	16	NP	NP	19	A-4b
	25.0	28.0	33	35	17	8	7	NP	NP	11	A-1-b
961+80 80'Rt	0.0	6.0	(26 BROWN CINDERS WITH SOIL	17	37	10	10	NP	NP	14)	VISUAL
	6.0	11.0	BLACK FINE-TEXTURED PEAT					NP	NP	145	VISUAL
	11.0	16.5	38	32	14	8	8	NP	NP	12	A-1-b
966+05 75'Lt	0.0	8.0	(44 CINDERS AND SOIL	17	21	9	9	NP	NP	15)	VISUAL
	8.0	10.0	28	13	28	15	16	27	15	40	A-2-6
	10.0	15.0	53	30	10	4	3	NP	NP	12	A-1-a
966+40 25'Rt	0.0	5.0	(29 CINDERS	20	21	14	16	NP	NP	14)	VISUAL
	5.0	9.0	(38 CINDERS	9	33	8	12	NP	NP	11)	VISUAL
	9.0	12.5	62	16	14	4	4	NP	NP	10	A-1-a
967+50 25'Rt	0.0	2.0	3	15	28	26	28	24	6	20	A-4a
	2.0	7.0	42	27	22	4	5	NP	NP	6	A-1-b
	7.0	11.0	56	25	12	4	3	NP	NP	4	A-1-a
968+65 10'Rt	0.0	3.0	8	11	36	10	35	NP	NP	11	A-4a
	3.0	8.0	27	31	34	4	4	NP	NP	7	A-1-b
	8.0	12.5	34	24	34	4	4	NP	NP	5	A-1-b
					RAMP C						
954+75 10'Lt	0.0	6.0	(48 ASHES, CINDERS AND BRICKBATS	17	19	9	7	NP	NP	12)	VISUAL
	6.0	12.0	(42 ASHES, CINDERS AND BRICKBATS	12	28	8	10	NP	NP	24)	VISUAL
	12.0	14.0	BLACK FIBROUS PEAT					NP	NP	194	VISUAL
	14.0	18.0	61	17	17	2	3	NP	NP	16	A-1-a
957+75 BL	0.0	5.0	(50 CINDERS	13	19	11	7	NP	NP	8)	VISUAL
	5.0	11.0	(26 CINDERS	18	32	15	9	NP	NP	19)	VISUAL
	11.0	16.0	3	10	37	22	28	NP	NP	41	A-4a
	16.0	22.0	63	17	12	4	4	NP	NP	15	A-1-a

STATION & OFFSET	DEPTH FROM	TO	% AGG.	% C.S.	% F.S.	% SILT	% CLAY	L.L.	P.I.	% W.C.	SHTL CLASS.
959+65 65'Lt	0.0	2.0	ORGANIC CLAY			-	-	55	25	53	A-7-5
961+50 50'Lt	0.0	4.0	22	11	20	25	22	36	6	56	A-4a
	4.0	9.0	16	7	21	28	28	47	12	41	A-7-5
	9.0	13.0	66	18	8	3	2	NP	NP	13	A-1-a
	13.0	18.0	42	34	19	3	2	NP	NP	17	A-1-b
					RAMP E						
967+85 50'Lt	0.0	4.0	1	16	47	16	20	21	7	15	A-4a
	4.0	10.0	42	15	31	6	6	NP	NP	7	A-1-b
969+60 BL	0.0	5.0	5	13	31	28	23	20	6	16	A-4a
	5.0	10.0	31	12	21	18	18	25	11	17	A-6a
970+75 BL	0.0	4.0	3	7	16	42	32	NP	NP	13	A-4a
	4.0	9.0	59	16	16	4	5	NP	NP	4	A-1-a
975+00 50'Rt	0.0	3.0	(45 BROWN CINDERS AND BRICK FRAGMENTS	20	7	19	9	NP	NP	16)	VISUAL
	3.0	8.0	(19 BROWN CINDERS AND FLY ASH	9	58	3	11	NP	NP	8)	VISUAL
	8.0	12.0	29	19	30	10	12	NP	NP	10	A-2-4
	12.0	14.5	52	22	16	5	5	NP	NP	9	A-1-a
					RAMP F						
958+45 110'Rt	0.0	5.0	49	10	13	17	11	NP	NP	8	A-2-4
	5.0	10.0	57	14	21	4	4	NP	NP	7	A-1-a
960+15 85'Rt	0.0	8.0	(42 ASHES, CINDERS AND TIN	19	22	8	9	NP	NP	16)	VISUAL
	8.0	10.0	10	8	15	34	33	65	31	57	A-7-5
	10.0	12.0	68	8	13	5	6	NP	NP	32	A-1-a
	12.0	16.0	70	15	11	2	2	NP	NP	14	A-1-a
963+20 60'Lt	0.0	6.0	(26 BROWN CINDERS WITH SOIL	17	37	10	10	NP	NP	14)	VISUAL
	6.0	11.0	BLACK FINE-TEXTURED PEAT					NP	NP	145	VISUAL
	11.0	16.5	38	32	14	8	8	NP	NP	12	A-1-b
963+50 70'Rt	0.0	4.0	60	13	13	8	6	NP	NP	10	A-1-a
	4.0	8.0	68	16	12	4	0	NP	NP	104	A-1-a
	8.0	10.0	BLACK FIBROUS PEAT					NP	NP	104	VISUAL
	10.0	15.0	77	13	6	2	2	NP	NP	12	A-1-a
	15.0	20.0	71	19	5	3	2	NP	NP	10	A-1-a
964+55 10'Rt	0.0	5.0	26	19	25	14	16	20	5	12	A-2-4
	5.0	10.0	43	13	15	16	13	NP	NP	18	A-2-4
	10.0	14.0	BLACK FIBROUS PEAT					NP	NP	104	VISUAL
	14.0	20.0	79	14	6	1	0	NP	NP	8	A-1-a
965+50 90'Rt	0.0	4.0	53	21	14	6	6	NP	NP	8	A-1-a
					RAMP G						
9[illegible]+15 5'Lt	0.0	5.0	54	22	19	2	2	NP	NP	5	A-1-a
	5.0	10.0	47	24	21	4	4	NP	NP	10	A-1-b
968+15 50'Lt	0.0	5.0	(29 CINDERS	20	21	14	16	NP	NP	14)	VISUAL
	5.0	9.0	(38 CINDERS	9	33	8	12	NP	NP	11)	VISUAL
	9.0	12.5	62	16	14	4	4	NP	NP	10	A-1-a
968+40 20'Lt	0.0	4.0	6	27	61	3	3	NP	NP	9	A-3
	4.0	10.0	60	23	12	3	2	NP	NP	5	A-1-a
973+80 30'Lt	0.0	3.0	19	21	42	9	9	NP	NP	7	A-3a
	3.0	8.0	14	15	65	2	3	NP	NP	7	A-3
	8.0	13.0	61	24	11	2	2	NP	NP	3	A-1-a
	13.0	17.0	63	18	13	3	3	NP	NP	3	A-1-a
980+75 40'Rt	0.0	8.0	(44 CINDERS AND SOIL	17	21	9	9	NP	NP	15)	VISUAL
	8.0	10.0	26	13	28	15	16	27	15	40	A-2-6
	10.0	15.0	53	30	10	4	3	NP	NP	12	A-1-a
					RAMP H						
962+00 5L	0.0	3.0	4	4	9	43	40	28	11	20	A-6a
	3.0	8.0	61	10	12	7	10	23	4	14	A-1-b
	8.0	14.0	65	13	9	6	7	22	3	11	A-1-a
971+60 BL	0.0	3.0	9	11	27	24	29	23	6	14	A-4a
	3.0	7.0	15	32	45	4	4	NP	NP	8	A-3
	7.0	13.0	53	19	16	2	10	NP	NP	12	A-1-a
					DRIVE SAMPLE SOIL TEST DATA						
					RAMP C						
951+90 15'Lt	7.0	8.0	43	15	20	13	9	NP	NP	44	A-1-b
	10.0	11.0	29	9	6	38	22	NP	NP	19	A-4a
	12.5	13.5	-	-	-	-	-	NP	NP	13	A-4a
	15.0	16.0	35	37	22	3	3	NP	NP	13	A-1-b
	20.0	21.0	0	96	4	0	0	NP	NP	25	A-3a
	25.0	26.0	0	49	40	6	5	NP	NP	24	A-3a
	30.0	31.0	10	62	21	4	3	NP	NP	15	A-1-b
	35.0	36.0	0	66	33	1	0	NP	NP	23	A-3a
	40.0	41.0	40	49	6	3	2	NP	NP	13	A-1-b
953+65 25'Lt	5.0	6.0	53	23	10	4	4	NP	NP	16	A-1-a
	7.5	8.5	37	17	18	19	9	NP	NP	19	A-2-4
	10.0	11.0	38	18	18	17	9	NP	NP	66	A-2-4
	15.0	15.5	61	21	10	4	4	NP	NP	10	A-1-a
	20.0	20.5	54	32	8	3	3	NP	NP	10	A-1-a
	25.0	26.0	0	96	5	0	0	NP	NP	22	A-3a
	30.0	31.0	0	50	46	3	1	NP	NP	19	A-3a
	35.0	36.0	0	81	17	1	1	NP	NP	22	A-3a

STATION & OFFSET	DEPTH FROM	TO	% AGG.	% C.S.	% F.S.	% SILT	% CLAY	L.L.	P.I.	% W.C.	SHTL CLASS.
964+70 115'Rt	5.0	6.0	(21 BROWN GRAVELLY SAND WITH BRICKBATS	44	32	2	1	NP	NP	23)	VISLAL
	10.0	11.0	66	9	13	2	8	NP	NP	11	A-1-a
	15.0	16.0	60	10	22	6	2	NP	NP	8	A-1-a
	20.0	21.0	GRAY GRAVEL			-	-	NP	NP	-	VISUAL
	25.0	26.0	47	32	17	2	2	NP	NP	11	A-1-b
	30.0	31.0	68	22	9	1	0	NP	NP	10	A-1-a
	35.0	36.0	72	18	9	1	0	NP	NP	9	A-1-a
	40.0	41.0	57	29	13	1	0	NP	NP	13	A-1-a
	45.0	45.5	57	28	10	3	2	NP	NP	10	A-1-a
	50.0	50.5	67	17	9	6	1	NP	NP	7	A-1-a
	55.0	55.6	GRAY SAND			-	-	NP	NP	-	VISUAL
	60.0	61.0	GRAY SAND			-	-	NP	NP	-	VISUAL
	65.0	66.0	58	21	16	4	1	NP	NP	13	A-1-a
	70.0	71.0	75	19	4	1	1	NP	NP	9	A-1-a
					RAMP C						
949+25 2'Rt	5.0	6.0	66	20	6	5	3	NP	NP	9	A-1-a
	7.5	8.5	74	16	4	3	3	NP	NP	11	A-1-a
	10.0	11.0	58	15	25	1	1	NP	NP	13	A-1-a
	15.0	16.0	71	19	6	2	2	NP	NP	8	A-1-a
	20.0	21.0	69	17	8	3	3	NP	NP	8	A-1-a
	25.0	26.0	BROWN AND GRAY GRAVEL					NP	NP	-	VISUAL
	30.0	31.0	65	20	8	4	3	NP	NP	8	A-1-a
	35.0	36.0	BROWN SAND			-	-	NP	NP	-	VISUAL
	40.0	41.0	GRAY SAND			-	-	NP	NP	-	VISUAL
	45.0	46.0	46	17	32	3	2	NP	NP	13	A-1-b
	50.0	51.0	GRAY SAND			-	-	NP	NP	-	VISUAL
	55.0	56.0	BROWN SAND			-	-	NP	NP	-	VISUAL
	60.0	61.0	62	2	1	21	14	34	11	19	A-2-6
950+85 90'Rt	5.0	6.0	52	29	15	2	2	NP	NP	14	A-1-a
	10.0	11.0	70	13	8	6	3	NP	NP	9	A-1-a
	15.0	16.0	BROWNISH-GRAY SAND			-	-	NP	NP	5	VISUAL
	20.0	21.0	74	16	5	3	2	NP	NP	9	A-1-a
	25.0	26.0	GRAY SAND			-	-	NP	NP	7	VISUAL
	30.0	31.0	88	11	1	0	0	NP	NP	4	A-1-a
	35.0	36.0	71	15	8	3	3	NP	NP	10	A-1-a
	40.0	41.0	69	16	9	3	3	NP	NP	13	A-1-a
	45.0	46.0	43	16	12	15	14	NP	NP	12	A-2-4
	50.0	51.0	67	16	7	8	2	NP	NP	9	A-1-a
	55.0	56.0	GRAY SAND			-	-	NP	NP	-	VISUAL
	60.0	61.0	GRAY SAND			-	-	NP	NP	-	VISUAL
	65.0	66.0	GRAY GRAVELLY SAND					NP	NP	-	VISUAL
	70.0	71.0	BROWN GRAVELLY SAND					NP	NP	-	VISUAL
963+40 140'Rt	5.0	6.0	CINDERS, ASHES AND STONE FRAGMENTS					NP	NP	-	VISUAL
	7.5	8.5	GRAY CINDERS, ASHES AND STONE FRAGMENTS					NP	NP	-	VISUAL
	10.0	11.0	GRAY CINDERS, ASHES AND STONE FRAGMENTS					NP	NP	-	VISUAL
	12.5	13.5	CLAYEY SILT, ORGANIC					NP	NP	-	VISUAL
	15.0	16.0	61	16	14	5	4	NP	NP	-	A-1-a
	20.0	21.0	GRAY SAND			-	-	NP	NP	11	VISUAL
	25.0	26.0	GRAY SAND			-	-	NP	NP	7	VISUAL
	30.0	31.0	GRAY SANDY GRAVEL			-	-	NP	NP	6	VISUAL
	35.0	36.0	42	33	18	4	3	NP	NP	12	A-1-a
	40.0	41.0	GRAVELLY SAND			-	-	NP	NP	-	VISUAL
	45.0	46.0	GRAVELLY SAND			-	-	NP	NP	-	VISUAL
	50.0	51.0	GRAVELLY SAND			-	-	NP	NP	-	VISUAL
	55.0	56.0	SANDY GRAVEL			-	-	NP	NP	-	VISUAL
	60.0	61.0	SANDY GRAVEL			-	-	NP	NP	-	VISUAL
	65.0	66.0	SANDY GRAVEL			-	-	NP	NP	-	VISUAL
	70.0	71.0	SANDY GRAVEL			-	-	NP	NP	-	VISUAL
	75.0	76.0	SANDY GRAVEL			-	-	NP	NP	-	VISUAL
970+45 25'Lt	2.5	3.5	0	7	16	40	37	31	10	19	A-4a
	5.0	6.0	37	10	26	17	10	NP	NP	11	A-2-4
	7.5

MICROFILMED
SEP 10 1969

SOIL PROFILE

3/41

STARK COUNTY

STA-30-14.12

STA-77-9.22

OHIO STATE HIGHWAY TESTING LABORATORY
1620 W. BROAD ST. COLUMBUS 23, OHIO

3/8

REVISED 4/9/69
REVISED 5/8/70
REVISED 7/28/70

Dauber Ave.
Garfield Ave.
Scoville Ave.
Stark Ave.
Henry Ave.
14th St.
15th St.
Residential
Open field
Park
Commercial
Factory
Proposed USR 30
Ramp A
Ramp B
Ramp C
Ramp D
Ramp E
Ramp F
Ramp G
Ramp H
Proposed Retaining Wall A
Proposed Retaining Wall B
Proposed Retaining Wall D
Proposed Retaining Wall E
Wimbledon Creek Original Channel
Penn. RR
B & O R.R.
Mc Kinley Ave.
Cleveland Ave.
Market Ave.
Warner Ct.
High St.
LTR 77
MATCH LINE A
MATCH LINE B
LINE A
LINE B

PROFILE INDEX	
Profile	Sheet
USR 30	4+5
RAMP A	4
RAMP B	5
RAMP C	6
RAMP D	8
RAMP E	7
RAMP F	7
RAMP G	7
RAMP H	8

= Borings from STA-77-9.56 (7/11/63)

= Borings made (4/15/68)

= Supplemental borings made (4/15/68)

= New supplemental borings (4/9/69)

Additional supplemental boring (7/28/70)

MICROFILMED
SEP 16 1969

SOIL PROFILE

STARK COUNTY

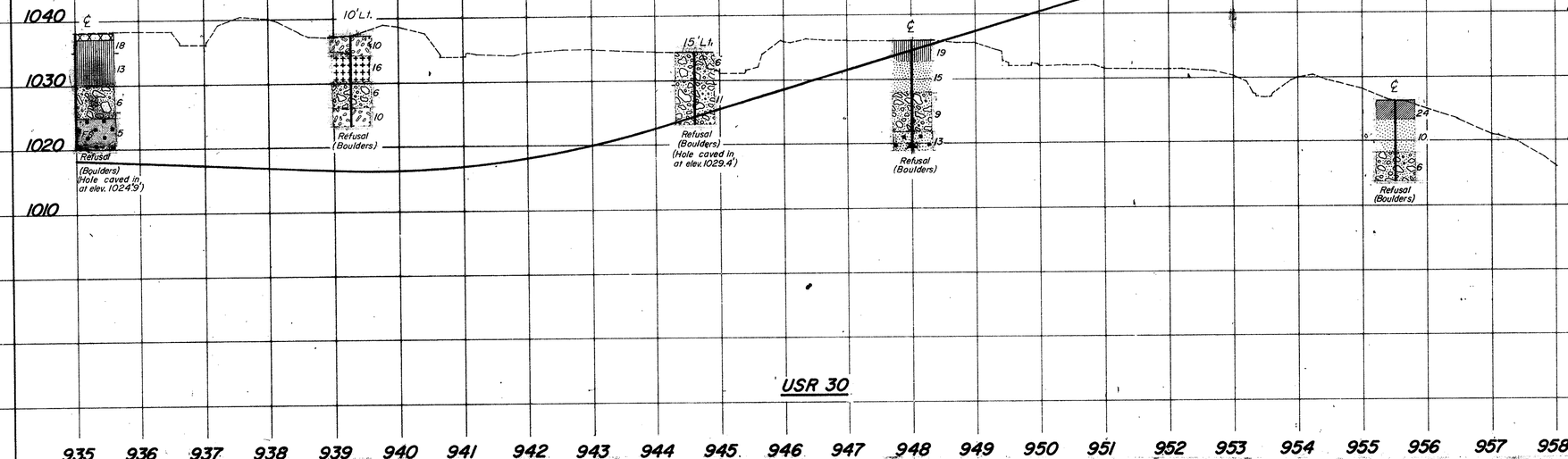
STA-30-14.12
STA-77-5.22

OHIO STATE HIGHWAY TESTING LABORATORY
1620 W. BROAD ST. COLUMBUS 23, OHIO

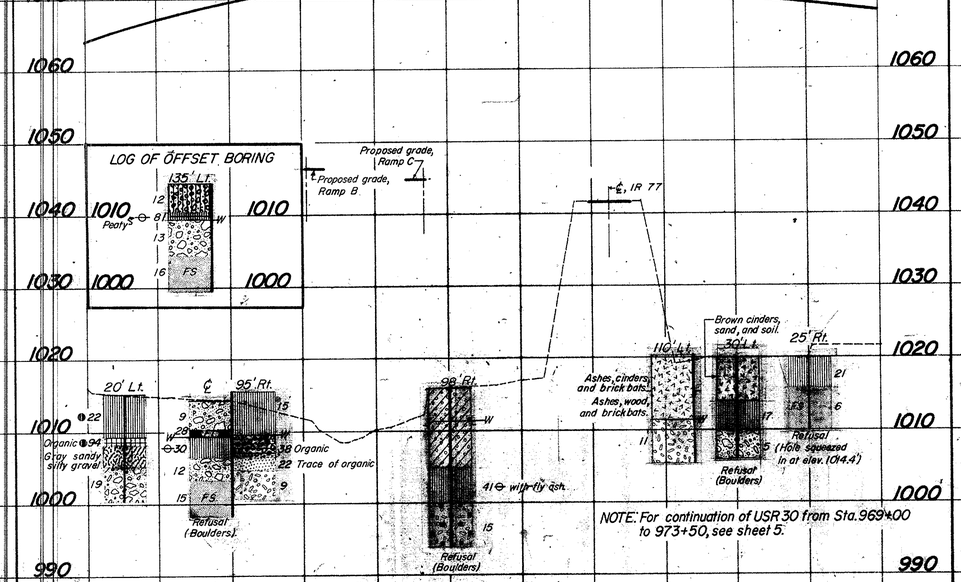
4/41
4/8

REVISED 4/9/69
REVISED 5/8/70
REVISED 7/28/70

USR 30

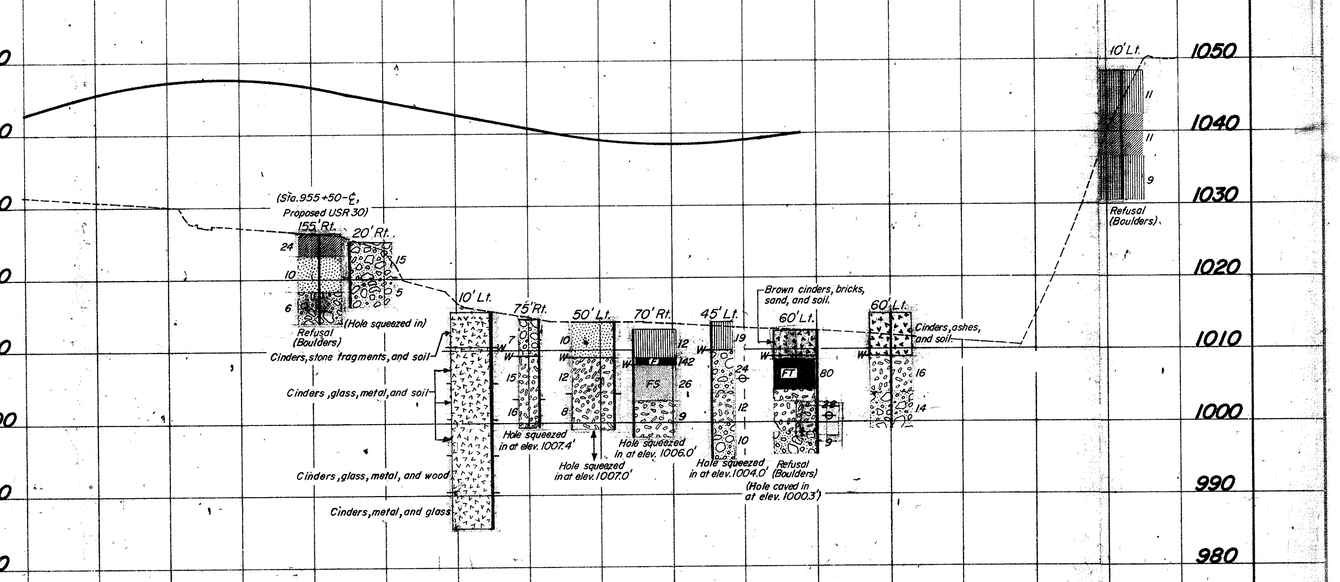


USR 30 (Cont'd)



NOTE: For continuation of USR 30 from Sta. 969+00 to 973+50, see sheet 5.

Ramp A



MICROFILMED
SEP 10 1969

REVISED 4/11/69
REVISED 5/8/70
REVISED 7/28/70

SOIL PROFILE

STARK COUNTY

STA - 30 - 14.12

OHIO STATE HIGHWAY TESTING LABORATORY
1620 W. BROAD ST. COLUMBUS 23, OHIO

5-41

5/8

1060 1050 1040 1030 1020 1010

210' Lt. 13 4 Refusal (Boulders)

℄ 22 16 FS 5 Hole caved in.

(Sta. 974+90-℄, Ramp D) 180' Lt. 17 8 Refusal (Boulders) (Hole caved in at elev. 1019.7')

10' Lt. 20 13 20 14 1 9 Refusal (Boulders)

60' Lt. 20 11 2 14 Hole caved in at elev. 1020.2'

℄ 12 8 4 4 Refusal (Boulders)

1050 1040 1030 1020 1010

969 970 971 972 973 974 975 976 977 978 979 980 981 982 983 984 985 986 987 988 989 990 991 992 993 994 995 996 997

STA-30-14.12 STA-30-15.04 USR 30

LOGS OF OFFSET AUGER-CORE BORINGS

1010 1000 990 980 970

15' Lt. W Organic clayey silt. 44 19 13 13 25 24 15 23 13 Material heaved in casing between elevs. 9850 and 969.0'

25' Lt. W 52 Organic 16 19 With wood. 66 10 20 22 Material heaved in casing between elevs. 990.0 and 974.0'

W = Refusal
WS = Wash sample

Ramp B (STA-30-14.12)

1070 1060 1050 1040 1030 1020 1010

15' Lt. 22 18 W 18 Refusal (Boulders)

℄ 14 12 7 Refusal (Boulders)

1050 1040 1030 1020 1010

997 998 999 1000 1001 1002

USR 30 (Cont'd)
(STA-30-15.04)

Proposed grade, USR 30

1070 1060 1050 1040 1030 1020 1010

(Sta. 965+70-85' Rt., Ramp D) 105' Lt. Gray cinders, ashes, and brickbats. 100 Rt. Organic 109 21 45 16 12 22 25 10 9 Gray gravel. Brown sand. Note: Bottom of boring at elev. 943.7'.

With fly ash. 46 74 27 23 Refusal (Boulders) Slightly organic.

℄ 100' Rt. 15 13 22 9 (103) 7 8 Refusal (Boulders) (Hole caved in at elev. 1000.3') Refusal (Boulders)

℄ 25' Rt. Brown cinders, bricks, sand and soil. 57 35 28 15 10 Refusal (Boulders)

Organic 20' Rt. W 50 85 Moisture Contents Sta. 953 +00 ℄ 1. 9 2. 36 Slightly Organic 3. 27 4. 91 5. 4 6. 8 7. 13 8. 12

℄ 7 14 123 With fly ash. 21 Refusal (Boulders)

115' Rt. 9 28 30 12 15 Refusal (Boulders)

Water elev. 1006.2

Cinders, ashes, and brickbats. 30' Lt. W 9 19 11 Hole squeezed in at elev. 1019.6'

80' Rt. W 145 12 Refusal (Boulders)

Ramp B (STA-30-14.12)

Proposed grade, Ramp C

℄, I.R. 77

Proposed grade, Ramp G

Brown Gravelly sand with brickbats

115' Rt. 8 12 18 19 21 24 10 12 6 12 18 12 10 11 22 21 8

75' Lt. Slightly organic. Cinders and soil. 25' Rt. 11 12 W 10 Refusal (Boulders) (Hole caved in) Hole squeezed in at elev. 1013.5' Gray gravel.

25' Rt. 20 6 4 Hole caved in

10' Rt. 11 7 5 Hole caved in

Note: Bottom of boring at elev. 948.6'.

1070 1060 1050 1040 1030 1020 1010 1000 990 980

950 951 952 953 954 955 956 957 958 959 960 961 962 963 964 965 966 967 968 969 970 971 972

MICROFILMED
SEP 16 1988

SOIL PROFILE

(6/41)

STARK COUNTY

STA- 30-14.12
STA. 73-972

OHIO STATE HIGHWAY TESTING LABORATORY
1620 W. BROAD ST. COLUMBUS 23, OHIO

(6/8)

REVISED	4/11/69
REVISED	5/8/70
REVISED	7/28/70

1070 1060 1050 1040 1030 1020 1010 1000 990 980 970 960 950 940

Proposed grade, USR 30.

℄, IR 77

2'Rt.

90'Rt.

(Sta. 964+70-115'Rt., Ramp B)

165'Rt.

10'Lt.

(Sta. 961+80-80'Rt, Ramp B)

Brown cinders with soil.

55'Lt.

(Sta. 961+60-30'Lt., Ramp B).

130'Lt.

℄ Sta. 957+00 ℄, Ramp B)

150'Lt.

65'Lt.

50'Lt.

(Sta. 954+00-℄, Ramp B)

90'Lt.

140'Rt.

(Sta. 966+95-20'Lt., Ramp D)

(Sta. 965+70-85'Rt., Ramp D)

122'Lt.

120'Lt.

25'Lt.

Brown gravelly sand with brickbats.

Ashes, cinders and brickbats.

Brownish-gray sand.

Brown and gray gravel.

Brown sand.

Gray sand.

Gray gravel

Gray sand.

Brown sand.

Gray sand.

Top of Rock

Gray gravelly sand.

Brown gravelly sand.

Hole squeezed in at elev. 1011.3'.

Refusal (Boulders)

Cinders, ashes, and brickbats.

Refusal (Boulders)

Hole squeezed in at elev. 1019.6'

Organic 53

Refusal (Peat sampler)

41 With fly ash.

With fly ash. 123

Refusal (Boulders)

56 Organic.

41 Organic.

Refusal (Boulders)

Gray cinders, ashes, and stone fragments

Organic.

Clayey silt, organic.

Gray sand.

Gray sandy gravel.

Gravelly sand.

Sandy gravel.

Cinders, ashes, and brickbats.

Brown and gray gravel.

Brown sand.

Gray gravel.

Gray sand.

Reddish-gray granite, boulder.

Refusal

Gray sand.

Gray sand.

Gray sand.

Gray sand.

Refusal

Refusal

Refusal

Refusal

Refusal

A. Clay shale, gray, firm, dense, fissile-in-part, very arenaceous and micaceous intervals, with interbedded clay seams which comprise 50% of interval. From elev. 958.2' to 957.2; very fissile, black, soft, and carbonaceous; very broken from elev. 960.3'. Core loss 10%.

RampC

LOGS OF OFFSET BORINGS

(Sta. 952+90-℄, Ramp B) 10.5 Lt.

(Sta. 952+00-100'Rt., Ramp B) 225 Lt.

46

74

27

25

Refusal (Boulders)

45 Slightly organic.

16

12

Refusal Boulders

STA. 966+00-170' Lt.

Visual Descriptions;

A. Gray cinders, ashes, and brickbats.
B. Gray gravel.
C. Brown sand.
D. Brown sand.
E. Brownish-gray sand.
F. Gray gravel.

947 948 949 950 951 952 953 954 955 956 957 958 959 960 961 962 963 964 965 966 967 968 969 970 971 972

MICROFILMED
SEP 26 1969

REVISED 4/9/69
REVISED 5/8/70
REVISED 7/28/70

SOIL PROFILE

STARK COUNTY

STA-30-14.12

S.N. 7-622

OHIO STATE HIGHWAY TESTING LABORATORY
1620 W. BROAD ST. COLUMBUS 23, OHIO

7/41

7/8

Ramp E

(Sta. 967+00-30' Lt., Proposed USR 30)
40' Rt.
50' Lt.
Brown cinders and soil.
Refusal (Boulders)
Refusal
(Hole squeezed in at elev. 1015.0')
℄
Refusal (Boulders)
℄
Refusal (Boulders)
Brown cinders and brick fragments
Brown cinders and fly ash.
50' Rt.
Refusal (Boulders)
(Hole caved in at elev. 1010.2')

Ramp F

(Sta. 955+50-℄, Proposed USR 30)
105' Lt.
Refusal (Boulders)
(Sta. 958+15-5' Lt., Ramp G)
35' Lt.
110' Rt.
Refusal (Hole squeezed in at elev. 1013.9')
Refusal (Boulders)
Ashes, cinders, and tin.
85' Rt.
Organic
Water elev. 1006.2'
Brown cinders with soil.
60' Lt.
70' Rt.
10' Rt.
50' Rt.
Refusal (Boulders and concrete slabs)
Refusal (Boulders)
130' Lt.
Brownish-gray sand
Gray sand
Note: Bottom of boring at elev. 953.9'.

Ramp G

Proposed grade, Ramp C
Proposed grade, Ramp G
℄, IR 77
(Sta. 960+00-95' Rt., Proposed USR 30)
5' Lt.
72' Lt.
Hole squeezed in at elev. 1013.9'
Water, elev. 1007.0'
Brown cinders with soil.
Organic
Trace of organic
(Sta. 963+20-60' Lt., Ramp F)
30' Rt.
153' Lt.
Refusal (Boulders)
(Sta. 963+00-96' Rt., Proposed USR 30)
Brown gravelly sand with brickbats.
41℄ with fly ash.
Refusal (Boulders)
Gray gravel.
80' Rt.
50' Lt.
20' Lt.
(Hole squeezed in at elev. 1026.0')
Refusal (Boulders) (Hole caved in)
Note: Bottom of boring at elev. 948.6'.
30' Lt.
50' Lt.
Refusal (Boulders) (Hole caved in at elev. 1023.9')
(Sta. 966+55-80' Rt., Ramp G)
55' Lt.
40' Rt.
Brown gravelly sand with brickbats.
Slightly organic
Cinders and soil.
Hole squeezed in at elev. 1013.5'
Gray gravel.
Note: Bottom of boring at elev. 948.6'.

DIGITIZED
SEP 26 2000

REVISED 7/28/70 REVISED 5/8/70 REVISED 4/11/69

SOIL PROFILE

STARK COUNTY

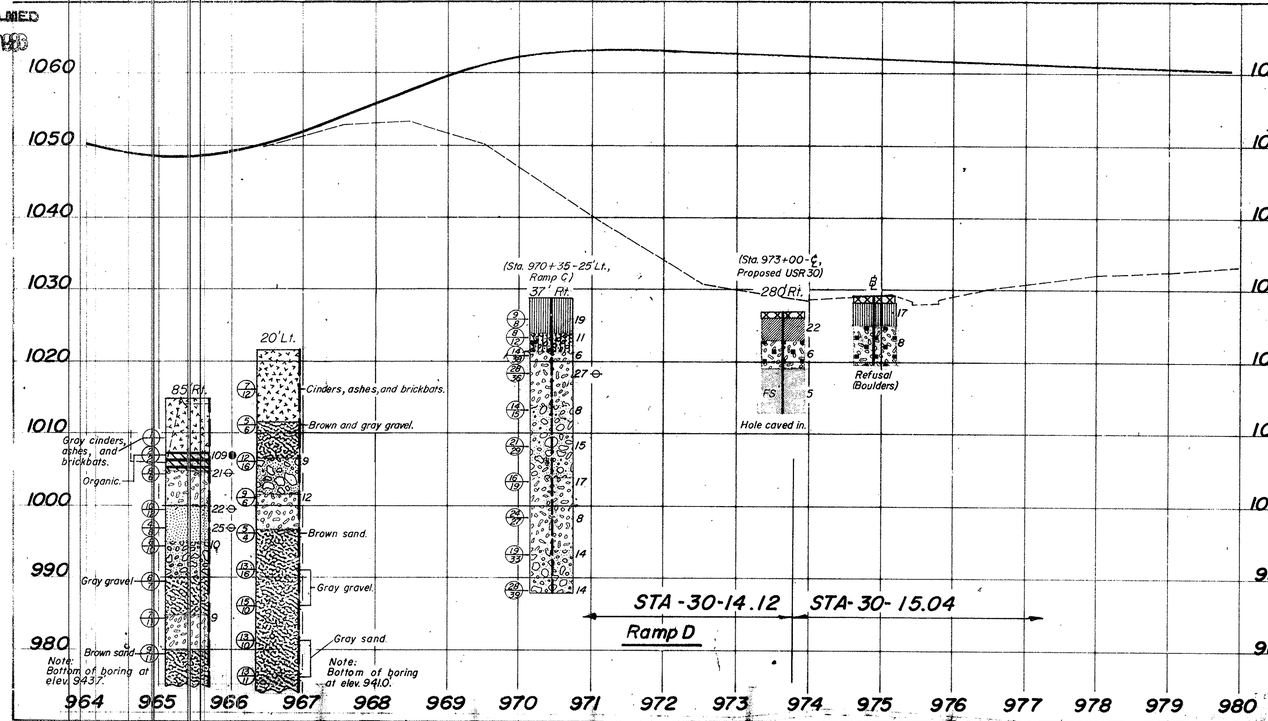
STA-30-14.12

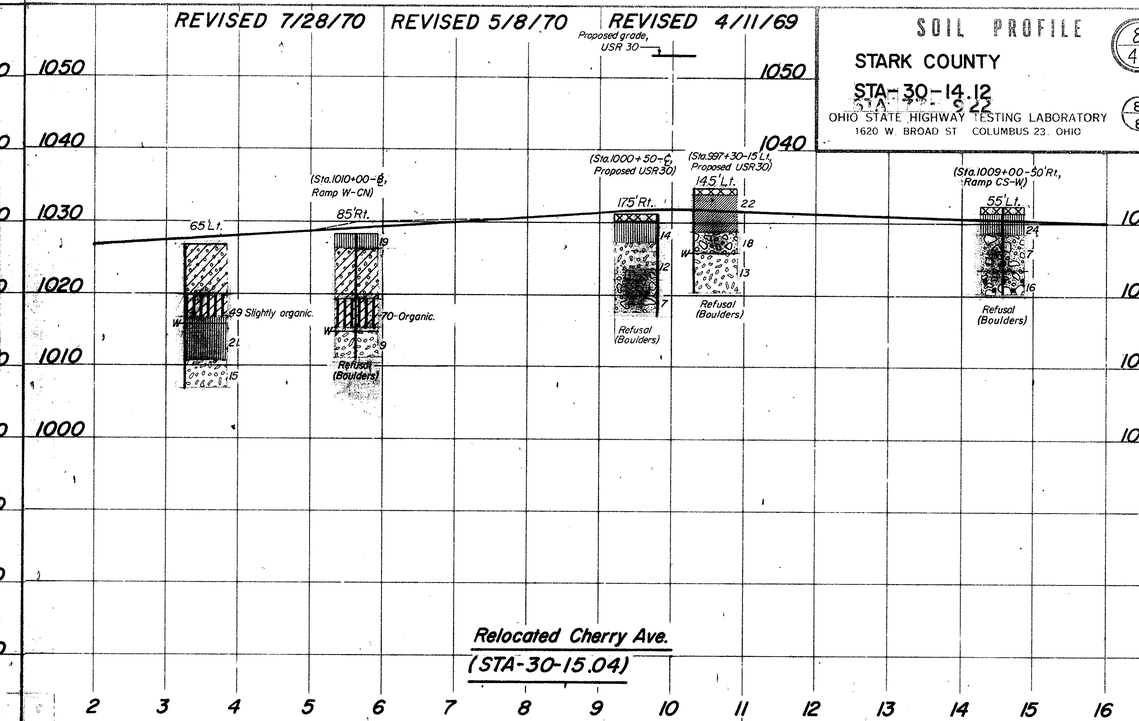
STA-30-15.04

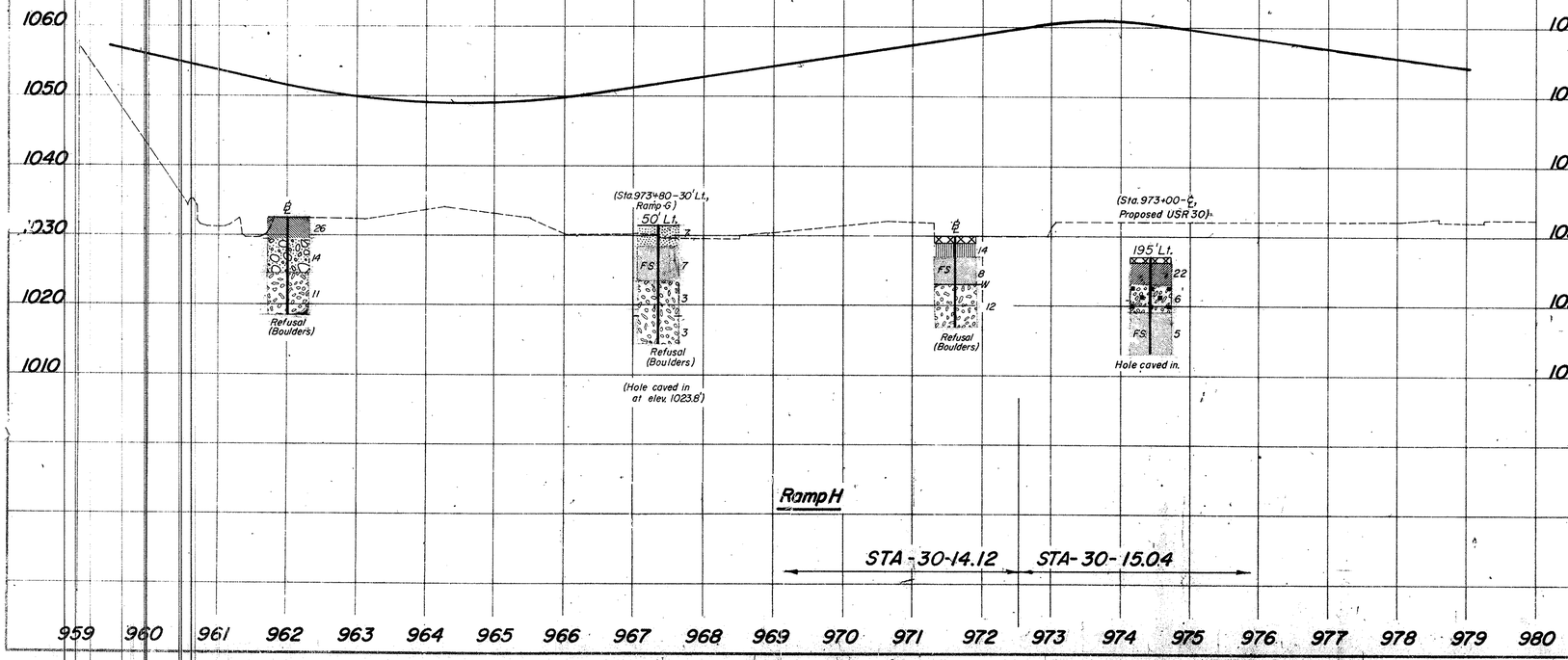
OHIO STATE HIGHWAY TESTING LABORATORY
1620 W. BROAD ST. COLUMBUS 23, OHIO

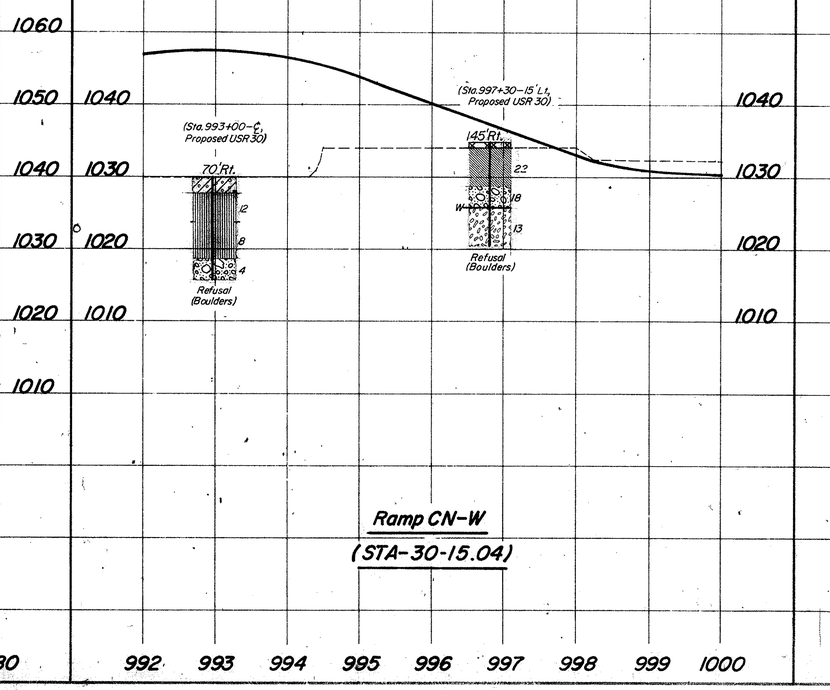
8/41

8/8









TE - 118
600 - 4 - 66

MICROFILMED
SEP 16 1968

STARK COUNTY
STA-30-14.12
STA-77-9.22

9
41
1
7

GEOLOGY OF THE SITE

THE STRUCTURE SITES ARE LOCATED IN THE DEEPLY BURIED NEEP STAGE VALLEY, IN AN AREA WHERE VALLEY FILL OVERLIES BEDROCK, OF PENNSYLVANIAN AGE.

EXPLORATION

THE EXPLORATION CONSISTED OF FOUR DRIVE SAMPLE BORINGS, MADE BETWEEN JULY 11 AND 25, 1968, AND NINE DRIVE ROD PENETRATION TESTS, MADE BETWEEN JUNE 19 AND 26, 1968.

INVESTIGATIONAL FINDINGS

BORINGS DISCLOSED UNSTRATIFIED INTERVALS OF LOOSE TO VERY DENSE GRAVELS, SANDS AND SILTS AND SCATTERED INTERVALS OF BOULDERS. THE BORINGS WERE TERMINATED AT 61 TO 86-FOOT DEPTHS, ELEVATIONS 968 TO 941 FEET, AFTER PENETRATING IN EXCESS OF 20 FEET OF MATERIAL REQUIRING IN EXCESS OF 30 BLOWS PER FOOT IN THE STANDARD PENETRATION TEST.

THE ROD SOUNDINGS GENERALLY PENETRATED TO GREATER DEPTHS THAN THE BORINGS, AND ENCOUNTERED GRADUALLY INCREASING RESISTANCE TO PENETRATION WITH INCREASING DEPTH AND WERE TERMINATED DUE TO REFUSAL OR NEAR-REFUSAL TO PENETRATION, OR PREDETERMINED DEPTHS, AT 60 TO 194 FEET, ELEVATIONS 970 TO 836 FEET, CONSIDERED TO BE IN VERY DENSE MATERIALS AND BOULDERS, SIMILAR TO THOSE MATERIALS REVEALED BY THE BORINGS AT HIGHER ELEVATIONS.

NO FREE WATER WAS OBSERVED IN ANY OF THE ROD SOUNDING HOLES.

NO TEST PENETRATED TO BEDROCK SURFACE.

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

HNTB BR# 1,5&15

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

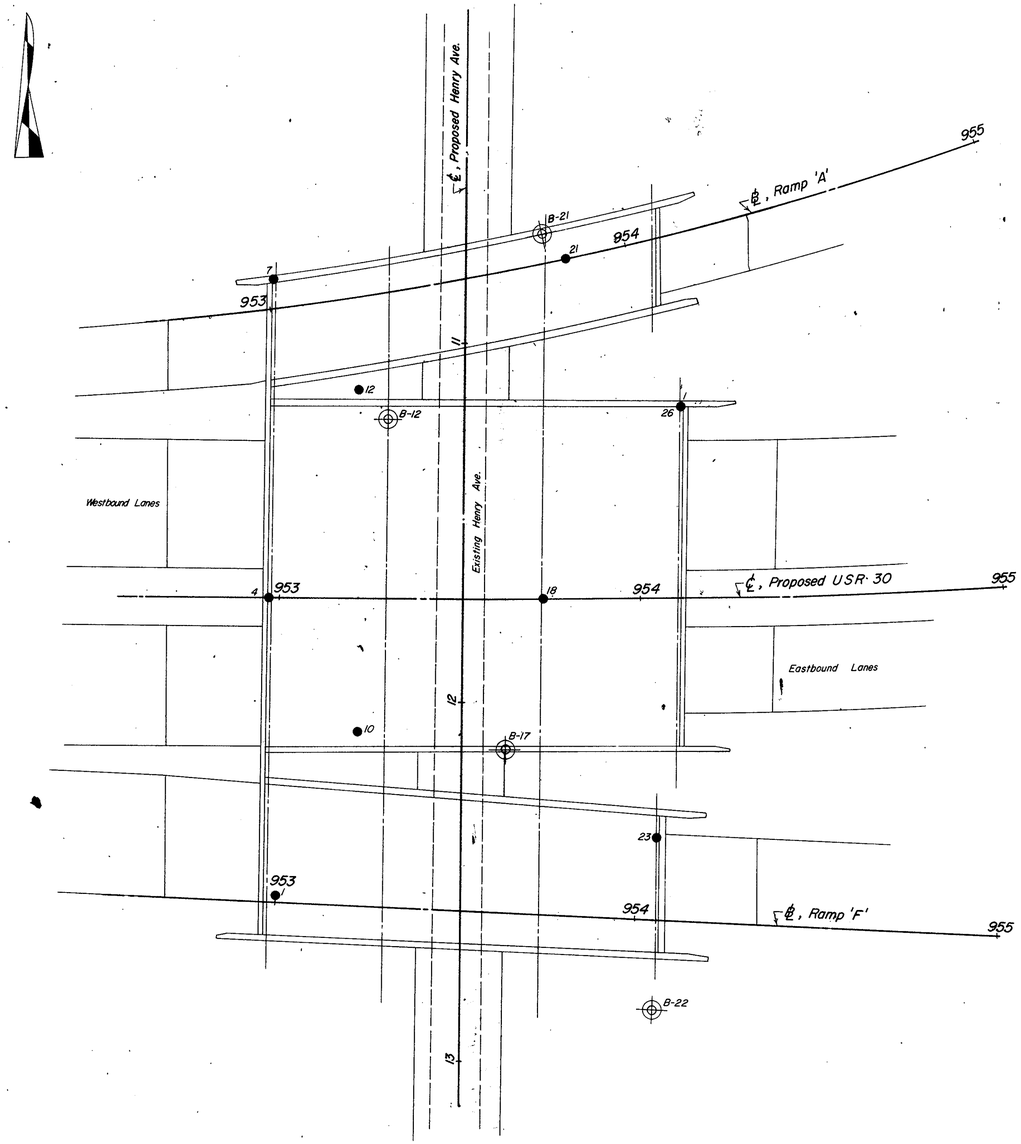
STRUCTURE FOUNDATION INVESTIGATION
BRIDGE NO. STA-30- AND RAMPS 'A & 'F'
OVER HENRY AVE.
SEC. STA-30-14.12

CHECKED BY	REVIEWED BY	DATE
L.N.L.	R.D.R.	8/29/68

TE - 122
600 - 4 - 66

MICROFILMED
SEP 16 1968

STA-30-14.12
STA-77-9.22



HNTB BR# 1.5815

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

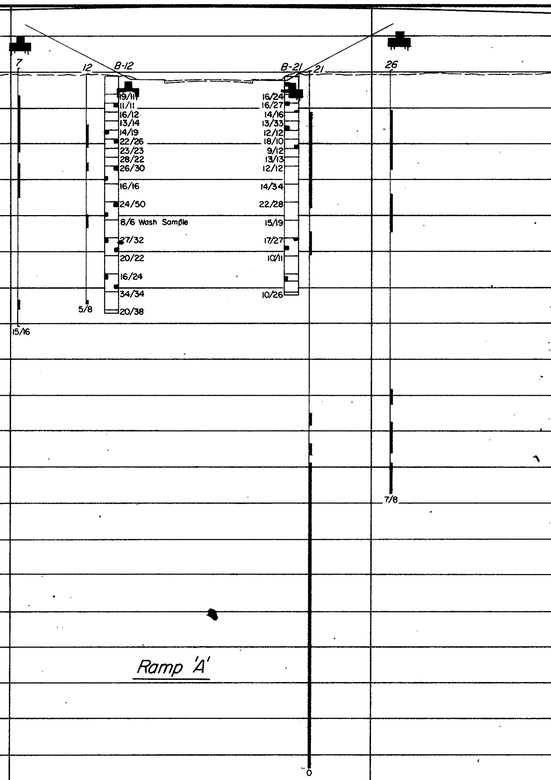
STRUCTURE FOUNDATION INVESTIGATION
BRIDGE NO. STA-30- AND RAMPS 'A' & 'F'
OVER HENRY AVE.
SEC. STA-30-14.12

BORING DATA

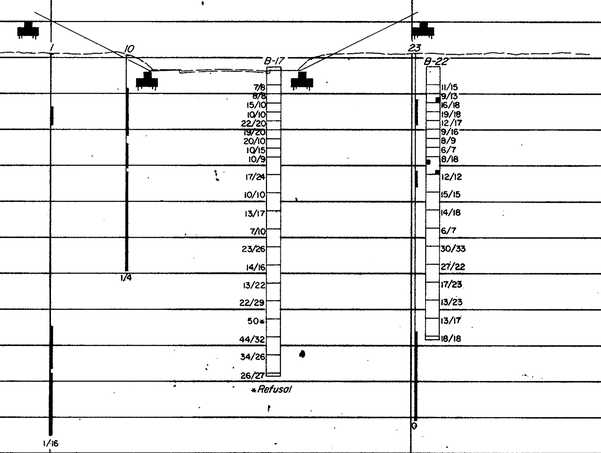
DRAWN BY	CHECKED BY	REVIEWED BY	DATE
M.S.F.	L.N.L.	R.D.R.	8/29/68

TE - 119
1000 - 4 - 66

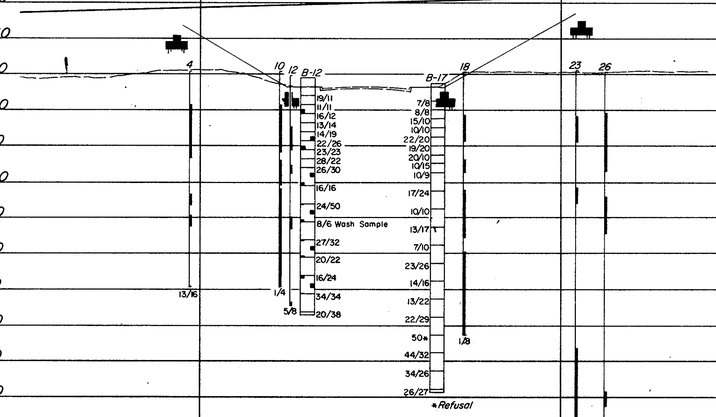
MICROFILMED
SEP 16 1968



Ramp 'A'



Ramp 'F'



USR 30

953 954 955

SCALE: 1" = 20'

HNTB BR# 1.5 & 15

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

STRUCTURE FOUNDATION INVESTIGATION

BRIDGE NO. STA-30- AND RAMPS 'A' & 'F'
OVER HENRY AVE.
SEC. STA-30-14.12

PLAN AND PROFILE

DRAWN BY	CHECKED BY	REVIEWED BY	DATE
M.S.F.	L.N.L.	R.D.R.	8/29/68

MICROFILMED
SEP 19 1968

LOG OF BORING

Date Started 7-11-68 Sampler Type SS Dia 1 3/8"
Date Completed 7-16-68 Casing Length 65' Dia 3 1/2"
Boring No. B-17 Station & Offset 952+66, 42' Rt. (Forward Pier) HSB 30 Surface Elev. 1027.4

Water Elev. ____

Elev.	Depth	Std. Pen. (N)	Rec. ft.	Loss ft.	Description	Sample No.	% Agg.	% C.S.	% F.S.	% Silt	% Clay	Physical Characteristics L.L.	P.I.	W.C.	SHTL Class.
1027.4	0														
	2														
1024.0	4														
1021.5	6	19/11			Brown Silty Gravelly Sand	1	48	16	17	10	9	NP	NP	13	A-1-b
	8	11/11			Brown Silty Gravelly Sand and Boulders	2	39	25	17	-19-		NP	NP	9	A-1-b
1018.0	10	16/12			Brown Silty Gravelly Sand	3	30	15	36	-19-		NP	NP	11	A-3a
1016.5	12	13/14			Brown Silty Gravelly Sand	4	0	34	60	-6-		NP	NP	19	A-3
1014.0	14	14/19			Brown Gravelly Sandy Silt and Boulders	5	54	15	13	-18-		NP	NP	6	A-1-b
1011.5	16	22/26			Brownish-Gray Silty Sandy Gravel and Boulders	6	55	18	12	-17-		NP	NP	9	A-1-b
1009.0	18	23/23			Brown Silty Gravelly Sand	7	55	7	22	-16-		NP	NP	11	A-1-b
1006.5	20	28/22			Brownish-Gray Silty Sandy Gravel	8	19	12	47	-22-		NP	NP	9	A-3a
1004.0	22	26/30			Brownish-Gray Silty Sand and Boulders	9	34	25	19	-22-		NP	NP	5	A-1-b
	24														
999.0	26	16/16			Brownish-Gray Sand (Heaved 2.0' in Casing)	10	0	55	40	- 5 -		NP	NP	23	A-1-b
	28														
	30														
	32														
994.0	34	24/50			Brownish-Gray Silty Sandy Gravel and Boulders	11	43	15	23	-19-		NP	NP	11	A-1-b
	36														
989.0	38														
	40	8/6			Gray Gravelly Sand (Wash Sample)	12	25	63	8	- 4 -		NP	NP	15	A-3a
	42														
984.0	44	27/32			Gray Silty Sandy Gravel and Boulders	13	56	24	9	-11-		NP	NP	10	A-1-b
	46														
979.0	48	20/22			Gray Sandy Gravel	14	63	26	6	- 5 -		NP	NP	11	A-1-b
	50														
974.3	52														
	54														
	56	16/24			Brownish-Gray Gravel and Sand and Boulders	15	-	-	-	-	-	-	-	4	Visual
	58														
969.0	60	34/34			Brown Gravel, Stone Fragments and Sand	16	-	-	-	-	-	-	-	8	Visual
	62														
	64														
	66	20/38			Brownish-Gray Stone Fragments and Sand	17	-	-	-	-	-	-	-	4	Visual
	68				BOTTOM OF BORING										

LOG OF BORING

Date Started 7-18-68 Sampler Type SS Dia 1 3/8"
Date Completed 7-23-68 Casing Length 775' Dia 3 1/2"
Boring No. B-22 Station & Offset 954+06, 25' Rt. (Forward Abutment) Ramp F Surface Elev. 1027.8'

Water Elev. ____

Elev.	Depth	Std. Pen. (N)	Rec. ft.	Loss ft.	Description	Sample No.	% Agg.	% C.S.	% F.S.	% Silt	% Clay	Physical Characteristics L.L.	P.I.	W.C.	SHTL Class.
1027.8	0														
	2														
1022.8	4	11/15			Brown Gravelly Sand	1	42	29	22	- 7 -		NP	NP	10	A-1-b
1020.3	6	9/13			Brown Silty Gravelly Sand with Boulders	2	28	35	9	-25-		NP	NP	10	A-3a
1017.8	8	16/18			Brown Sandy Gravel	3	49	21	22	- 8 -		NP	NP	10	A-1-b
1015.3	10	19/18			Brown Silty Sandy Gravel	4	48	17	15	-20-		NP	NP	7	A-1-b
1012.8	12	12/17			Brown Silty Gravelly Sand	5	38	33	13	-16-		NP	NP	8	A-1-b
1010.3	14	9/16			Brown Sandy Gravel	6	V	I	8	U	A	L		6	
1007.8	16	8/9			Brown Silty Sandy Gravel	7	48	25	13	-14-		NP	NP	10	A-1-b
1005.3	18	6/7			Brownish-Gray Sandy Gravel	8	70	18	8	- 4 -		NP	NP	6	A-1-a
1002.8	20	8/18			Gray Sandy Gravel with Boulders	9	67	18	9	- 6 -		NP	NP	11	A-1-a
	22														
997.8	24	12/12			Gray Gravelly Sand	10	27	53	12	- 8 -		NP	NP	16	A-1-b
	26														
992.8	28	15/15			Brownish-Gray Sandy Gravel	11	63	19	13	- 5 -		NP	NP	13	A-1-a
	30														
987.8	32	14/18			Brownish-Gray Silty Sandy Gravel	12	46	28	15	-11-		NP	NP	10	A-1-b
	34														
982.8	36	6/7			Brownish-Gray Sandy Gravel	13	59	19	12	-10-		NP	NP	7	A-1-a
	38														
977.8	40	30/33			Brownish-Gray Sandy Gravel	14	63	19	8	-10-		NP	NP	8	A-1-a
	42														
972.8	44	27/22			Brownish-Gray Silty Gravelly Sand	15	43	29	17	-11-		NP	NP	9	A-1-a
	46														
967.8	48	17/23			Gray Gravelly Sand	16	V	I	S	U	A	L	S	-	
	50														
962.8	52	13/23			Gray Silty Sand	17	8	58	14	-20-		NP	NP	10	A-1-b
	54														
957.8	56	13/17			Gray Silty Sand	18	9	61	14	-16-		NP	NP	9	A-1-b
	58														
952.8	60	18/18			Gray Silty Gravelly Sand	19	36	33	16	-15-		NP	NP	7	A-1-b
951.8	61				BOTTOM OF BORING										

LOG OF BORING

Date Started 7-16-68 Sampler Type SS Dia 1 3/8"
Date Completed 7-18-68 Casing Length 65' Dia 3 1/2"
Boring No. B-12 Station & Offset 953+30, 50' Lt. (Rear Pier) HSB 30 Surface Elev. 1029.0

Water Elev. ____

Elev.	Depth	Std. Pen. (N)	Rec. ft.	Loss ft.	Description	Sample No.	% Agg.	% C.S.	% F.S.	% Silt	% Clay	Physical Characteristics L.L.	P.I.	W.C.	SHTL Class.
1029.0	0														
	2														
	4														
1023.8	6	16/24			Brown Silty Gravelly Sand with Boulders	1	34	17	29	-20-		NP	NP	9	A-1-b
1021.3	8	16/27			Brown Silty Sandy Gravel with Boulders	2	40	20	20	-20-		NP	NP	5	A-1-b
1018.8	10	14/16			Brown Silty Gravelly Sand	3	32	34	17	-17-		NP	NP	7	A-1-b
1016.3	12	13/33			Brown Silty Sandy Gravel with Boulders	4	54	15	15	-16-		NP	NP	6	A-1-b
1013.8	14	12/12			Brown Silty Gravelly Sand	5	34	22	18	-26-		NP	NP	10	A-3a
1011.3	16	18/10			Brown Silty Gravelly Sand with Boulders	6	34	26	19	-21-		NP	NP	9	A-1-b
1008.8	18	9/12			Gray Silty Sandy Gravel	7	37	26	7	-30-		NP	NP	17	A-2-4
1006.3	20	13/13			Brown Silty Sandy Gravel	8	43	21	16	-20-		NP	NP	10	A-1-b
1003.8	22	12/12			Brown Silty Sandy Gravel	9	41	20	21	-18-		NP	NP	8	A-1-b
	24														
998.8	26	14/14			Brown Silty Sandy Gravel	10	44	13	15	-28-		NP	NP	7	A-2-4
	28														
993.8	30	22/28			Brownish-Gray Sandy Gravel	11	63	23	10	4	-	NP	NP	7	A-1-a
	32														
988.8	34	15/19			Gray Silty Sandy Gravel	12	57	21	10	-12-		NP	NP	7	A-1-a
	36														
983.8	38	17/27			Gray Silty Sandy Gravel with Boulders	13	54	14	17	-15-		NP	NP	2	A-1-b
	40														
978.8	42	10/11			Gray Silty Gravelly Sand	14	29	38	18	-15-		NP	NP	14	A-1-b
	44														
973.8	46				No Sample Recovered - Boulders (Driller's Description)		V	I	S	U	A	L		-	
	48														
	50														
	52														
968.8	54	10/26			Gray Gravelly Sand	15	26	52	20	- 2 -		NP	NP	19	A-1-b
967.8	55				BOTTOM OF BORING										

STA-30-14.12
STA-77-9.22

12/41 4/7

HNTB BR# 1, 5 & 15

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

STRUCTURE FOUNDATION INVESTIGATION
BRIDGE NO. STA-30- AND RAMPS 'A' & 'F'
OVER HENRY AVE
SEC. STA-30-14.12

BORING DATA

TYPED BY	CHECKED BY	REVIEWED BY	DATE
S.A.J.	R.C.	R.D.R.	8/29/68

MICROFILMED
SEP 19 1968

Test Location No. ____
Station & Offset ____
Surface Elev. ____ Water Elev. ____
Piling ____
Hammer ____
Formula ____
Reference ____
Rod Condition ____

Test Location No. ____
Station & Offset ____
Surface Elev. ____ Water Elev. ____
Piling ____
Hammer ____
Formula ____
Reference ____
Rod Condition ____

Test Location No. 4
Station & Offset 952+97 C L REAR ABUTMENT
Surface Elev. 1030.7' Water Elev. DRY-Hole closed @ El. 1010.7'
Piling ____
Hammer ____
Formula ____
Reference ____
Rod Condition POINT RENT 8'
LOST ROD

Test Location No. 10
Station & Offset 953+22.37' RT REAR PIER
Surface Elev. 1030.8' Water Elev. DRY-Hole closed @ El. 1010.8'
Piling ____
Hammer ____
Formula ____
Reference ____
Rod Condition ROD BADLY BENT 36'
LOST ROD

Test Location No. 12
Station & Offset 953+22.58' LT REAR PIER
Surface Elev. 1029.6' Water Elev. DRY-Hole closed @ El. 1009.6'
Piling ____
Hammer ____
Formula ____
Reference ____
Rod Condition GOOD
LOST ROD

Test Location No. 18
Station & Offset 953+73 C L FORWARD PIER
Surface Elev. 1027.2' Water Elev. ____
Piling ____
Hammer ____
Formula ____
Reference ____
Rod Condition LOST ROD-68'
LOST ROD

Test Location No. 26
Station & Offset 952+12.53' LT FORWARD ABUTMENT
Surface Elev. 1030.5' Water Elev. DRY-Hole closed @ El. 1015.5'
Piling ____
Hammer ____
Formula ____
Reference ____
Rod Condition LOST ROD-36
LOST ROD

Test Location No. 26 (CONT'D)
Station & Offset ____
Surface Elev. ____ Water Elev. ____
STA-30-14.12
STA-77-9.22
Piling ____
Hammer ____
Formula ____
Reference ____
Rod Condition ____

Capacity "R" in Thousands of Pounds

HNTB BR#1

OHIO STATE HIGHWAY TESTING LABORATORY
1620 WEST BROAD ST. COLUMBUS 23, OHIO

STRUCTURE FOUNDATION INVESTIGATION
BRIDGE NO. STA-30-
OVER HENRY AVE.
SEC. STA-30-14.12

DRIVE ROD PENETRATION RESISTANCE DATA

PLOTTED BY	CHECKED BY	REVIEWED BY	DATE
R.C.	L.N.L.	R.D.R.	8/29/68

COLE CO. -80M-10-67-1000

MICROFILMED
SEP 19 1968

Test Location No. ____
Station & Offset ____
Surface Elev. ____ Water Elev. ____
Piling ____
Hammer ____
Formula ____
Reference ____
Rod Condition ____

Capacity "R" in Thousands of Pounds

Test Location No. ____
Station & Offset ____
Surface Elev. ____ Water Elev. ____
Piling ____
Hammer ____
Formula ____
Reference ____
Rod Condition ____

Capacity "R" in Thousands of Pounds

Test Location No. ____
Station & Offset ____
Surface Elev. ____ Water Elev. ____
Piling ____
Hammer ____
Formula ____
Reference ____
Rod Condition ____

Capacity "R" in Thousands of Pounds

Test Location No. ____
Station & Offset ____
Surface Elev. ____ Water Elev. ____
Piling ____
Hammer ____
Formula ____
Reference ____
Rod Condition ____

Capacity "R" in Thousands of Pounds

Test Location No. 1
Station & Offset 953+00 2'LT
REAR ABUTMENT
Surface Elev. 1031.0' Water Elev. DRY-Hole Closed @ El. 1011.0'
Piling ____
Hammer ____
Formula ____
Reference ____
Rod Condition GOOD

Capacity "R" in Thousands of Pounds

Test Location No. 1 (Cont'd)
Station & Offset ____
Surface Elev. ____ Water Elev. ____
Piling ____
Hammer ____
Formula ____
Reference ____
Rod Condition ____

930
926
EST. ROD
922

Capacity "R" in Thousands of Pounds

Test Location No. 23
Station & Offset 954+05 23'LT
FORWARD ABUTMENT
Surface Elev. 1031.1' Water Elev. DRY-Hole Closed @ El. 1011.1'
Piling ____
Hammer ____
Formula ____
Reference ____
Rod Condition POINT BENT-B'

Capacity "R" in Thousands of Pounds

Test Location No. 23 (Cont'd)
Station & Offset ____
Surface Elev. ____ Water Elev. ____
Piling STA-30-14.12
STA-77-9.22
Hammer ____
Formula ____
Reference ____
Rod Condition ____

930
926
EST. ROD
922

Capacity "R" in Thousands of Pounds HNTB BR# 5

1034 1030 1026 1022 1018 1014 1010 1006 1002 998 994 990 986 982 978 974 970 966 962 958 954 950 946 942 938 934

10 20 30 40 50 60 70 80 90 100

OHIO STATE HIGHWAY
TESTING LABORATORY
1620 WEST BROAD ST. COLUMBUS 23, OHIO

STRUCTURE FOUNDATION INVESTIGATION
BRIDGE NO. STA-30-
RAMP 'F' OVER HENRY AVE.
SEC. STA-30-14.12

DRIVE ROD PENETRATION RESISTANCE DATA

PLOTTED BY	CHECKED BY	REVIEWED BY	DATE
R.C.	L.N.L.	R.D.R.	8/29/68

M. COLE CO.-80M-10-67-1000

FE-114
1000-11-67

MICROFILMED
SEP 19 1968

Test Location No. ____
Station & Offset ____
Surface Elev. ____ Water Elev. ____
Piling ____
Hammer ____
Formula ____
Reference ____
Rod Condition ____

1030 1026 1022 1018 1014 1010 1006 1002 998 994 990 986 982 978 974 970 966 962 958 954 950 946 942 938 934

10 20 30 40 50 60 70 80 90 100
Capacity "R" in Thousands of Pounds

Test Location No. ____
Station & Offset ____
Surface Elev. ____ Water Elev. ____
Piling ____
Hammer ____
Formula ____
Reference ____
Rod Condition ____

10 20 30 40 50 60 70 80 90 100
Capacity "R" in Thousands of Pounds

Test Location No. ____
Station & Offset ____
Surface Elev. ____ Water Elev. ____
Piling ____
Hammer ____
Formula ____
Reference ____
Rod Condition ____

10 20 30 40 50 60 70 80 90 100
Capacity "R" in Thousands of Pounds

Test Location No. ____
Station & Offset ____
Surface Elev. ____ Water Elev. ____
Piling ____
Hammer ____
Formula ____
Reference ____
Rod Condition ____

10 20 30 40 50 60 70 80 90 100
Capacity "R" in Thousands of Pounds

Test Location No. 7
Station & Offset 953+02.8' LT REAR ABUTMENT
Surface Elev. 1031.1' Water Elev. DRY-Hole Closed @ El. 1015.1'
Piling ____
Hammer ____
Formula ____
Reference ____
Rod Condition POINT BENT-B'

1030 1026 1022 1018 1014 1010 1006 1002 998 994 990 986 982 978 974 970 966 962 958 954 950 946 942 938 934

LOST ROD

10 20 30 40 50 60 70 80 90 100
Capacity "R" in Thousands of Pounds

Test Location No. 21
Station & Offset 953+83.0' LT FORWARD PIER
Surface Elev. 1030.1' Water Elev. DRY-Hole Closed @ El. 1010.1'
Piling ____
Hammer ____
Formula ____
Reference ____
Rod Condition LOST ROD-24'

10 20 30 40 50 60 70 80 90 100
Capacity "R" in Thousands of Pounds

Test Location No. 21 (Cont'd.)
Station & Offset ____
Surface Elev. ____ Water Elev. ____
Piling ____
Hammer ____
Formula ____
Reference ____
Rod Condition ____

930 926 922 918 914 910 906 902 898 894 890 886 882 878 874 870 866 862 858 854 850 846 842 838 834

TEST ROD

10 20 30 40 50 60 70 80 90 100
Capacity "R" in Thousands of Pounds

Test Location No. ____
Station & Offset ____
Surface Elev. ____ Water Elev. ____
Piling ____
Hammer ____
Formula ____
Reference ____
Rod Condition ____

STA-30-14.12
STA-77-9.22

1026 1022 1018 1014 1010 1006 1002 998 994 990 986 982 978 974 970 966 962 958 954 950

10 20 30 40 50 60 70 80 90 100
Capacity "R" in Thousands of Pounds HNTB BR#15

OHIO STATE HIGHWAY TESTING LABORATORY
1620 WEST BROAD ST. COLUMBUS 23, OHIO

STRUCTURE FOUNDATION INVESTIGATION
BRIDGE NO. STA-30-
RAMP 'A' OVER HENRY AVE.
SEC. STA-30-14.12

DRIVE ROD PENETRATION RESISTANCE DATA

PLOTTED BY	CHECKED BY	REVIEWED BY	DATE
R.C.	L.N.L.	R.D.R.	8/29/68

H. COLE CO. -90M- 10-67-1000

TE - 118
600 - 4 - 66

MICROFILMED
SEP 19 1968

GEOLOGY OF THE SITE

THE STRUCTURES SITES ARE LOCATED IN A DEEPLY BURIED DEEP STAGE VALLEY, IN AN AREA WHERE VALLEY FILL OVERLIES BEDROCK, OF PENNSYLVANIAN AGE.

EXPLORATION

THE EXPLORATION CONSISTED OF TEN DRIVE SAMPLE BORINGS AND TWENTY-SIX DRIVE ROD PENETRATION TESTS, MADE BETWEEN JULY 27 AND SEPTEMBER 19, 1968. ALSO INCLUDED IN THIS REPORT IS THE LOG OF BORING MADE FOR THE IR 77 STRUCTURE OVER CLEVELAND AVENUE.

INVESTIGATIONAL FINDINGS

BORINGS DISCLOSED UNSTRATIFIED INTERVALS OF LOOSE TO VERY DENSE GRAVELS, SANDS, SILTS (OCCASIONALLY CONTAINING VARIOUS AMOUNTS OF ORGANIC MATERIAL), AND BOULDERS. THE BORINGS WERE TERMINATED AT 51 TO 70-FOOT DEPTHS, ELEVATIONS 966 TO 949 FEET, AFTER PENETRATING GENERALLY IN EXCESS OF 25 FEET OF MATERIAL REQUIRING IN EXCESS OF 30 BLOWS PER FOOT IN THE STANDARD PENETRATION TEST.

THE ROD SOUNDINGS GENERALLY PENETRATED TO GREATER DEPTHS THAN THE BORINGS AND ENCOUNTERED GRADUALLY INCREASING RESISTANCE TO PENETRATION WITH INCREASING DEPTH AND WERE TERMINATED DUE TO HIGH RESISTANCE TO PENETRATION, OR PREDETERMINED DEPTHS, AT 13 TO 144 FEET, ELEVATIONS 1027 TO 882 FEET, CONSIDERED TO BE IN VERY DENSE MATERIALS SIMILAR TO THOSE MATERIALS REVEALED BY THE BORINGS AT HIGHER ELEVATIONS.

NO FREE WATER WAS OBSERVED IN ANY OF THE ROD SOUNDING HOLES.

NO TEST PENETRATED TO BEDROCK SURFACE.

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
- Boulders
- 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

H.N.T.B. BR.# 2,6,7 & 14

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.

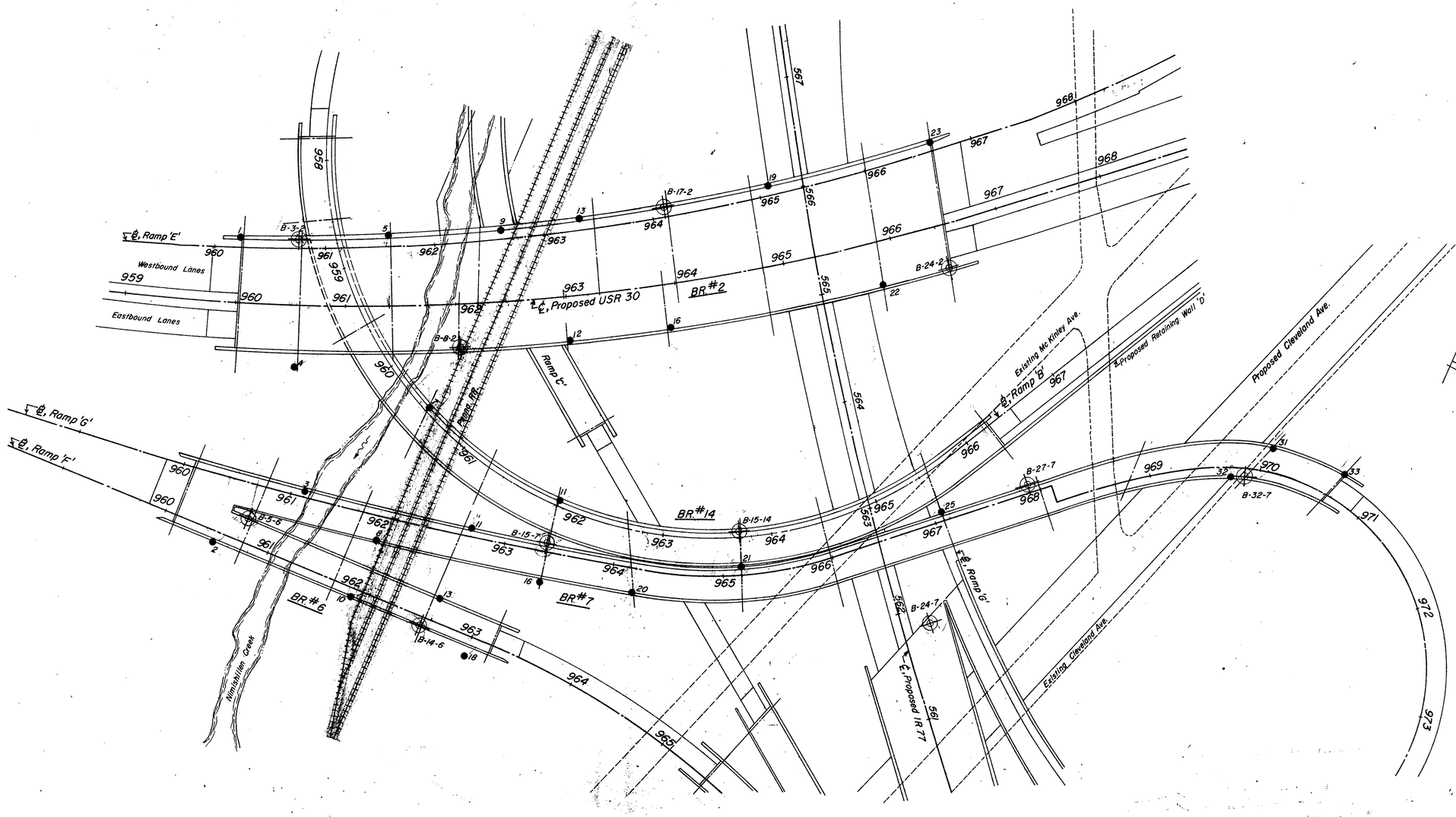
OHIO DEPARTMENT OF HIGHWAYS
TESTING LABORATORY
1620 WEST BROAD STREET, COLUMBUS 23, OHIO

STRUCTURE FOUNDATION INVESTIGATION
BRIDGE NO. STA-30 OVER PENNA. RR., RAMPS 'B' & 'C' & IR 77
RAMP 'F' OVER PENNA. RR.
RAMP 'G' OVER PENNA. RR., RAMPS 'C' & 'G' & IR 77
RAMP 'B' OVER PENNA. RR., RAMPS 'C' & 'G' & IR 77
SEC. STA-30-14.12 STA-30-15.04

CHECKED BY	REVIEWED BY	DATE
L.N.L.	R.D.R.	10/9/68

E - 122
- 11 - 64

MICROFILMED
SEP 19 1968

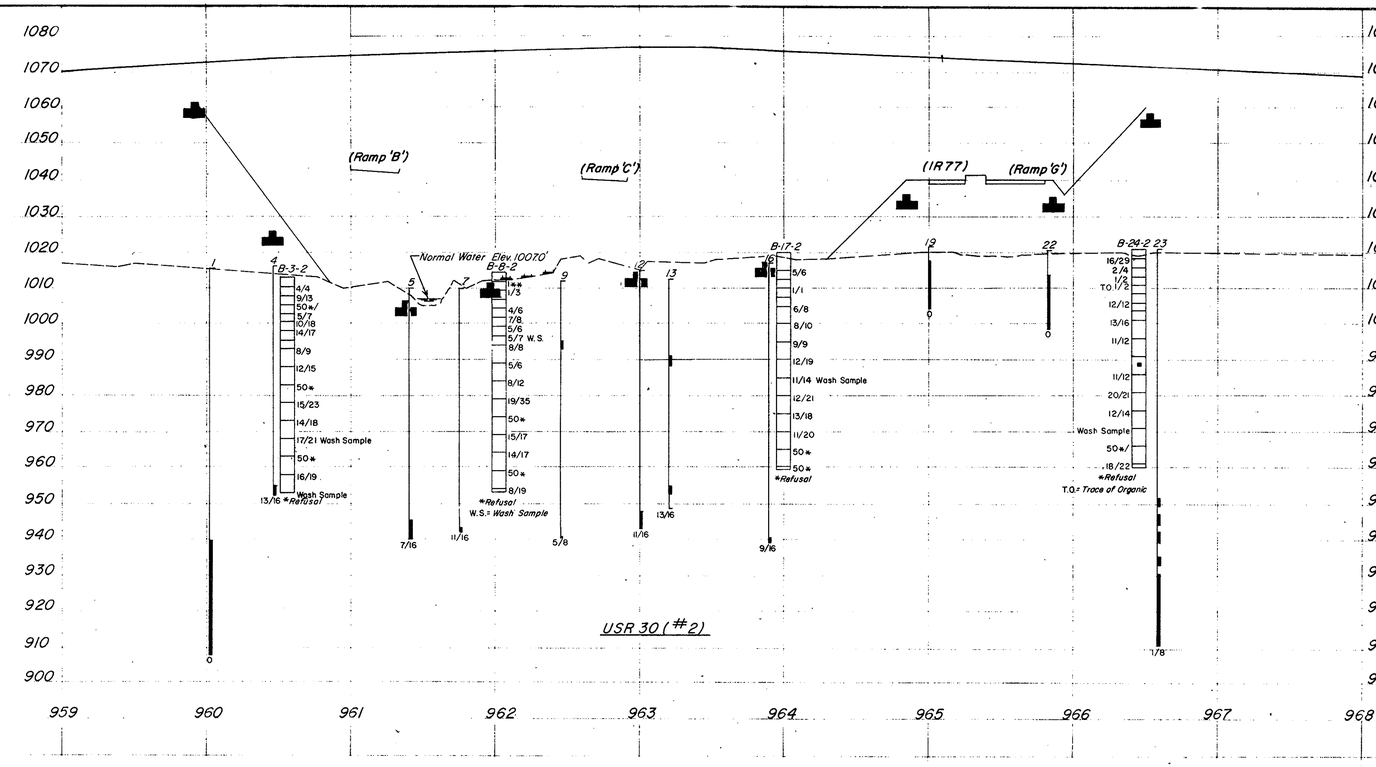


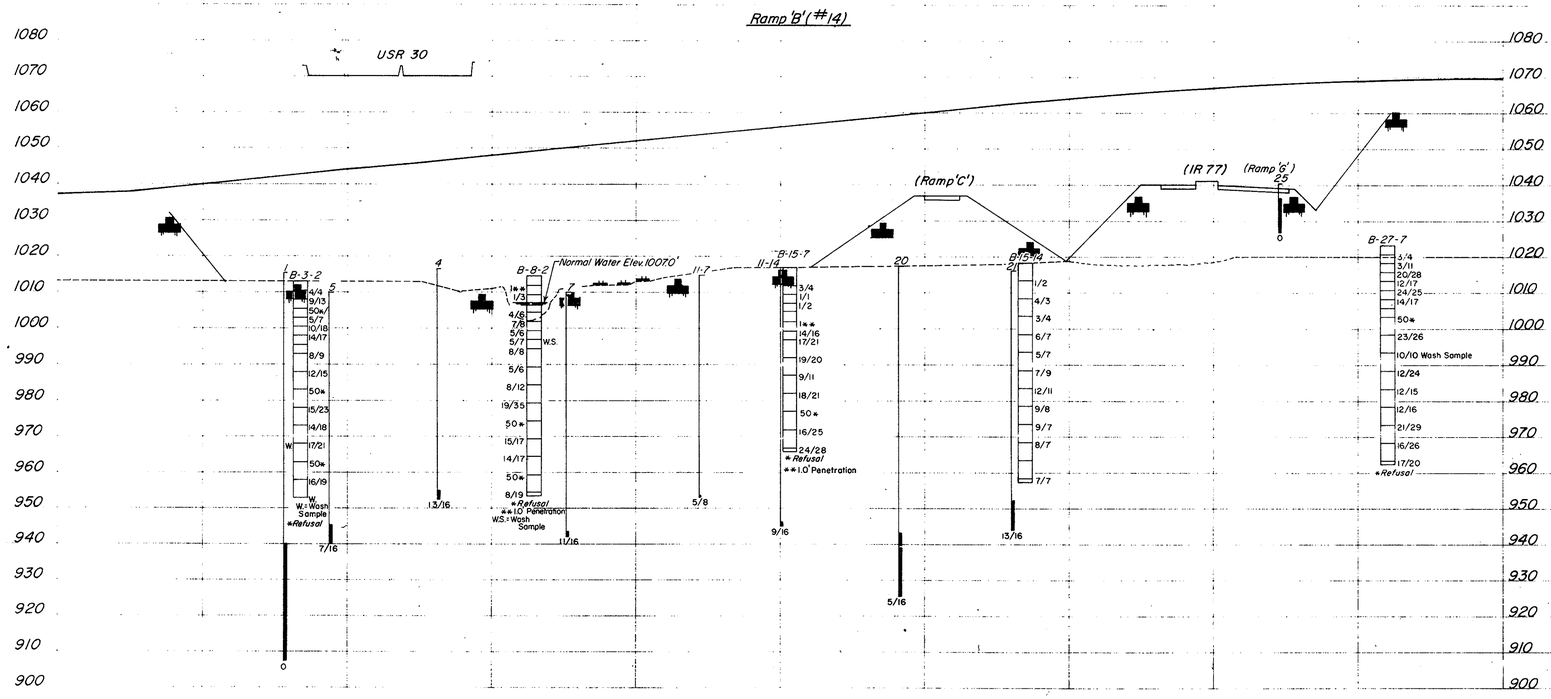
H.N.T.B. BR # 2.6.7.8.14

OHIO DEPARTMENT OF HIGHWAYS TESTING LABORATORY 1620 WEST BROAD STREET, COLUMBUS 23, OHIO			
STRUCTURE FOUNDATION INVESTIGATION BRIDGE NO. STA-30-OVER PENNA.RR., RAMPS B&C & IR 77 RAMP 'F' OVER PENNA. RR. RAMP 'G' OVER PENNA. RR., RAMPS C&G & IR 77 RAMP 'B' OVER PENNA. RR., RAMPS C&G & IR 77 SEC. STA-30-14.12 STA-30-15.04			
BORING DATA			
DRAWN BY J.E.C.	CHECKED BY L.N.L.	REVIEWED BY R.D.R.	DATE 10/9/68

MICROFILMED
SEP. 19 1968

STA-30-14.12
STA-77-9.22





H.N.T.B. BR #2 & 14

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

STRUCTURE FOUNDATION INVESTIGATION

BRIDGE NO. STA-30-
RAMP 'B' OVER PENNA. RR., RAMPS 'C' & 'G' & IR 77
USR 30 OVER PENNA. RR., RAMPS 'B' & 'C' & IR 77
SEC. STA-30-14.12 STA-30-15.04

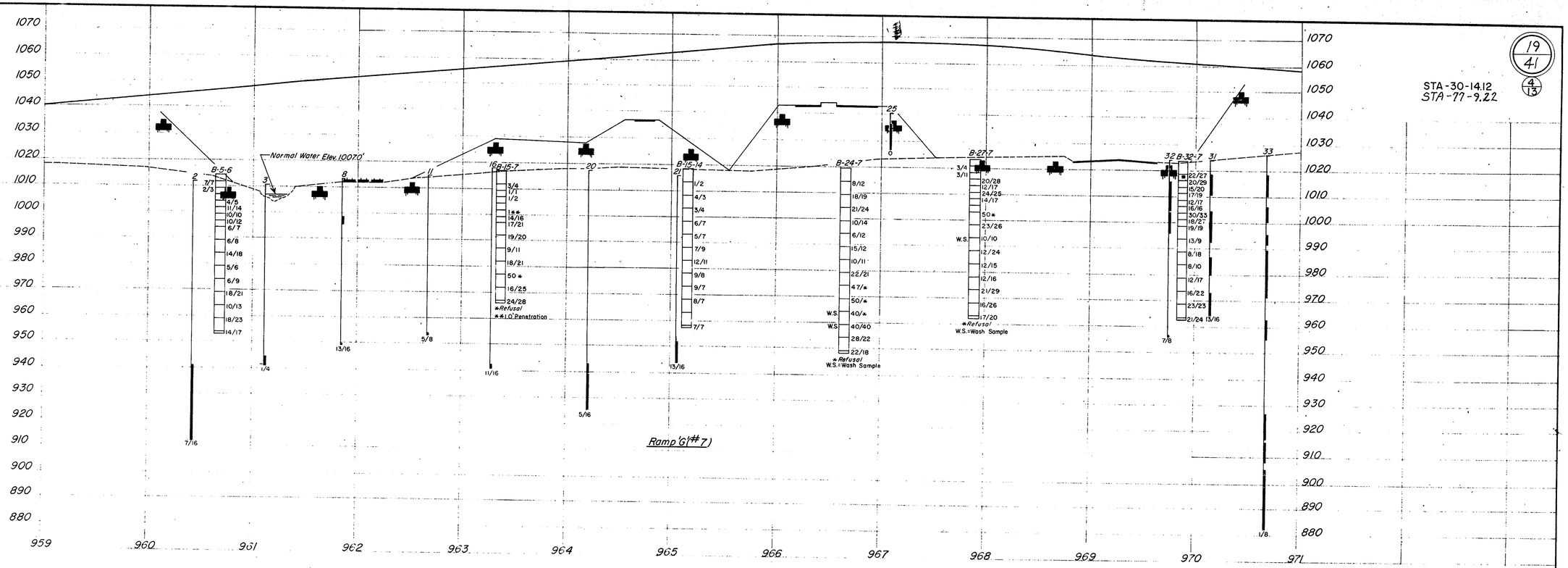
PLAN AND PROFILE

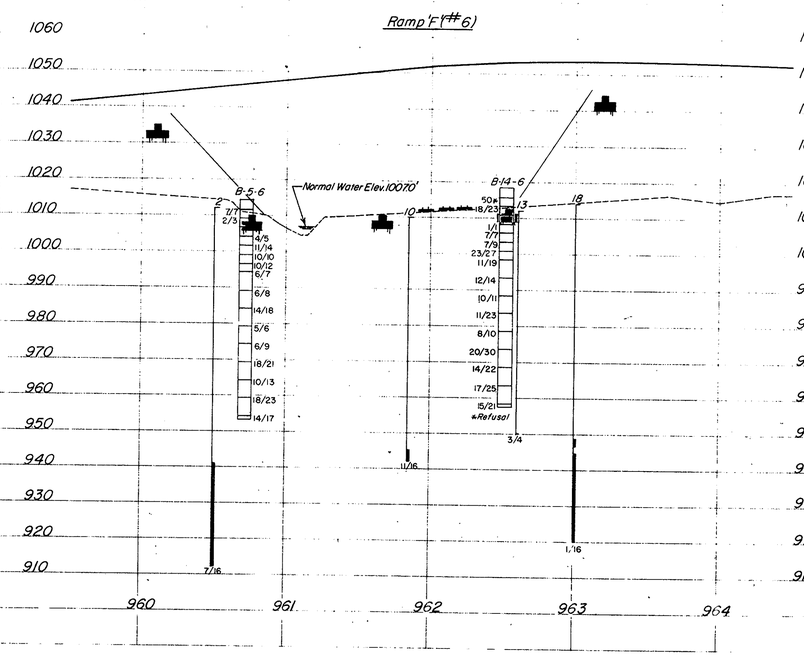
DRAWN BY	CHECKED BY	REVIEWED BY	DATE
J.E.C.	L.N.L.	R.D.R.	10/9/68

SCALE: HOR. = 1" = 50'
VERT. = 1" = 20'

MICROFILMED
SEP 19 1968

STA-30-14.12
STA-77-9.22





H.N.T.B. BR. #687

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

STRUCTURE FOUNDATION INVESTIGATION
BRIDGE NO. STA-30-RAMP 'F' OVER PENNA. RR.
RAMP 'G' OVER PENNA. RR., RAMPS 'C' & 'G' & IR 77
SEC. STA-30-14.12

PLAN AND PROFILE

DRAWN BY	CHECKED BY	REVIEWED BY	DATE
J. E. C.	L. N. L.	R. D. R.	10/9/68

SCALE: HOR. = 1" = 50'
VERT. = 1" = 20'

LOG OF BORING

Date Started 9-3-68 | Sampler Type SS | Dia 1 3/8"
Date Completed 9-5-68 | Casing: Length 60' | Dia 3 1/2"
Boring No. B-3-2 | Station & Offset 960+56, 60' Lt. (First Pier) | Surface Elev 1013.0'
Water Elev ____

Elev.	Depth	Std. Pen. (N)	Rec. ft.	Loss ft.	Description	Sample No.	% Agg.	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.	SHTL Class.
1013.0	0														
1010.5	2														
1008.0	4	4/4			Brown Silty Sandy Gravel	1	52	15	18	8	7	NP	NP	11	A-1-b
	6	9/13			Brown Silty Sandy Gravel	2	65	11	13	11	-	NP	NP	14	A-1-a
1005.5	8	50*/ (0.4')			Brown Silty Sandy Gravel	3	51	13	20	16	-	NP	NP	9	A-1-b
1003.0	10	5/7			Brownish-Gray Gravel and Wood Fragments	4	-	-	-	-	-	-	-	32	Visual
1000.5	12	10/18			Brownish-Gray Silty Gravelly Sand	5	37	19	24	9	11	NP	NP	11	A-1-b
998.0	14	14/17			Brownish-Gray Sandy Gravel	6	-	-	-	-	-	-	-	10	Visual
995.5	16				No Sample Recovered (Hole Caved in)		V	I		S	U	A	L		
993.0	18	8/9			Gray Sandy Gravel	7	-	-	-	-	-	-	-	7	Visual
990.5	20														
988.0	22	12/15			Brownish-Gray Silty Sandy Gravel	8	46	21	20	6	7	NP	NP	7	A-1-b
985.5	24														
983.0	26	50* (0.6')			Brownish-Gray Sandy Gravel	9	-	-	-	-	-	-	-	4	Visual
980.5	28														
978.0	30	15/23			Brownish-Gray Sandy Gravel	10	-	-	-	-	-	-	-	3	Visual
975.5	32														
973.0	34	14/18			Brownish-Gray Sandy Gravel	11	65	20	8	7	-	NP	NP	6	A-1-a
970.5	36														
968.0	38	17/21			Gray Sand (Wash Sample)	12	0	82	17	1	-	NP	NP	24	A-1-b
965.5	40														
963.0	42	50* (0.6')			Gray Sandy Gravel	13	-	-	-	-	-	-	-	8	Visual
960.5	44														
958.0	46	16/19			Gray Sandy Gravel	14	-	-	-	-	-	-	-	9	Visual
955.5	48														
953.0	50				Gray Gravelly Sand (Wash Sample) Heaved 5.0' in Casing	15	30	51	15	4	-	NP	NP	18	A-1-b
	52				BOTTOM OF BORING										

*Refusal

LOG OF BORING

Date Started 8-21-68 | Sampler Type SS | Dia 1 3/8"
Date Completed 8-23-68 | Casing: Length 60' | Dia 3 1/2"
Boring No. B-8-2 | Station & Offset 962+02, 40' Rt. (Third Pier) | Surface Elev 1014.5'
Water Elev ____

Elev.	Depth	Std. Pen. (N)	Rec. ft.	Loss ft.	Description	Sample No.	% Agg.	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.	SHTL Class.
1014.5	0														
1012.0	2														
1009.5	4	1**			Gray Sand and Gravel	1	-	-	-	-	-	-	-	51	Visual
	6	3/3			Gray Sandy Gravel	2	73	10	10	7	-	NP	NP	11	A-1-a
1007.0	8														
1004.5	10				No Sample Recovered (Hole Caved in)		V	I		S	U	A	L		
1002.0	12	4/6			Brown Silty Sandy Gravel	3	43	25	17	15	-	NP	NP	3	A-1-b
999.5	14	7/8			Brown Sandy Gravel	4	53	23	15	9	-	NP	NP	11	A-1-a
997.0	16	5/6			Brown Silty Sandy Gravel	5	66	10	8	5	11	NP	NP	11	A-1-b
994.5	18	5/7			Brown Sand (Wash Sample)	6	0	73	25	2	-	NP	NP	23	A-1-b
	20	8/8			Gray Sandy Gravel	7	68	19	10	3	-	NP	NP	9	A-1-a
989.5	22														
	24	5/6			Gray Sandy Gravel	8	79	13	7	1	-	NP	NP	10	A-1-a
984.5	26														
	28	8/12			Gray Sandy Gravel	9	58	30	3	9	-	NP	NP	10	A-1-a
979.5	30														
	32	19/35			Gray Sandy Gravel	10	65	15	12	8	-	NP	NP	11	A-1-a
974.5	34														
	36	50* (0.8')			Gray Sandy Gravel	11	71	19	6	4	-	NP	NP	7	A-1-a
969.5	38														
	40	15/17			Gray Sandy Gravel	12	76	17	5	2	-	NP	NP	8	A-1-a
964.5	42														
	44	14/17			Gray Sandy Gravel	13	76	13	10	1	-	NP	NP	12	A-1-a
959.5	46														
	48	50* (0.7')			Gray Sandy Gravel	14	76	15	7	2	-	NP	NP	12	A-1-a
954.5	50														
953.5	52	8/19			Gray Gravelly Sand	15	39	35	23	3	-	NP	NP	14	A-1-b
	54				BOTTOM OF BORING										

*Refusal
**1.0' Penetration

LOG OF BORING

Date Started 9-6-68 | Sampler Type SS | Dia 1 3/8"
Date Completed 9-11-68 | Casing: Length 60' | Dia 3 1/2"
Boring No. B-17-2 | Station & Offset 964+00, 70' Lt. (5th Pier) | Surface Elev 1020.0'
Water Elev ____

Elev.	Depth	Std. Pen. (N)	Rec. ft.	Loss ft.	Description	Sample No.	% Agg.	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.	SHTL Class.
1020.0	0														
	2														
1015.0	4														
	6	5/6			Brown Silty Gravelly Sand and Cinders - Fill Material	1	28	28	28	16	-	NP	NP	42	A-1-b
1012.5	8														
1010.0	10				No Sample Recovered (Hole Caved in)		V	I		S	U	A	L		
	12	1/1			Brown Woody Peat	2	-	-	-	-	-	-	-	144	Visual
1007.5	14														
1005.0	16				No Sample Recovered (Hole Caved in)		V	I		S	U	A	L		
	18	6/8			Gray Sandy Gravel	3	70	12	10	8	-	NP	NP	7	A-1-a
1000.0	20														
	22	8/10			Brown Silty Sandy Gravel	4	44	23	20	13	-	NP	NP	11	A-1-b
995.0	24														
	26	9/9			Gray Silty Gravelly Sand	5	34	26	19	21	-	NP	NP	13	A-1-b
990.0	28														
	30	12/19			Gray Sandy Gravel	6	55	19	17	9	-	NP	NP	11	A-1-a
985.0	32														
	34	11/14			Gray Sand (Wash Sample)	7	0	86	12	2	-	NP	NP	2	A-1-b
980.0	36														
	38	12/21			Gray Gravelly Sand	8	39	32	23	6	-	NP	NP	9	A-1-b
975.0	40														
	42	13/18			Gray Silty Sandy Gravel	9	60	17	11	12	-	NP	NP	9	A-1-a
970.0	44														
	46	11/20			Gray Silty Sandy Gravel	10	59	17	8	16	-	NP	NP	10	A-1-b
965.0	48														
	50	50* (0.6')			Gray Sandy Gravel	11	74	19	5	2	-	NP	NP	5	A-1-a
960.0	52														
959.5	54	50* (0.7')			Gray Sandy Gravel	12	55	34	8	3	-	NP	NP	13	A-1-a
	56				BOTTOM OF BORING										

*Refusal

LOG OF BORING

Date Started 8-14-68 | Sampler Type SS | Dia 1 3/8"
Date Completed 8-15-68 | Casing: Length 60' | Dia 3 1/2"
Boring No. B-24-2 | Station & Offset 966+45, 40' Rt. (Forward Abutment) | Surface Elev 1021.0'
Water Elev ____

Elev.	Depth	Std. Pen. (N)	Rec. ft.	Loss ft.	Description	Sample No.	% Agg.	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.	SHTL Class.
1022.0	0														
	2														
1018.5	4	16/29			Brown Silty Sand and Cinders, Fill Material	1	11	2	28	47	12	NP	NP	15	A-4a
1016.0	6	2/4			Red Silty Gravelly Sand and Cinders, Fill Material	2	16	32	32	20	-	NP	NP	14	A-3a
1013.5	8	1/2			Gray-Red Cinders Metal Frgts., Fill Material	3	-	-	-	-	-	-	-	17	Visual
1011.0	10	1/2			Gray Sandy Silt, Stone Fragments, Trace of Organic	4	14	13	18	33	22	NP	NP	21	A-4a
1008.5	12														
	14				No Sample Recovered (Hole Caved in)		V	I		S	U	A	L		
1006.0	16	12/12			Gray Silty Gravelly Sand	5	41	24	23	12	-	NP	NP	14	A-1-b
1003.5	18														
	20				No Sample Recovered (Hole Caved in)		V	I		S	U	A	L		
1001.0	22	13/16			Gray Silty Sandy Gravel	6	44	15	21	9	11	NP	NP	4	A-1-b
996.0	24														
	26	11/12			Gray Silty Sandy Gravel	7	61	14	14	11	-	NP	NP	4	A-1-a
991.0	28														
	30				No Sample Recovered - Brownish-Gray Sand with Boulders (Driller's Description)	8	-	-	-	-	-	-	-	20	Visual
986.0	32														
	34	11/12			No Sample Recovered-Gray Silty Gravelly Sand (Driller's Des.)		V	I		S	U	A	L		
981.0	36														
	38	20/21			Gray Silty Gravelly Sand	9	35	30	16	19	-	NP	NP	12	A-1-b
976.0	40														
	42	12/14			Gray Silty Sandy Gravel	10	46	28	15	11	-	NP	NP	5	A-1-b
971.0	44														
	46				Gray Sand (Wash Sample) Heaved 5.0' in Casing)	11	0	75	23	2	-	NP	NP	22	A-1-b
966.0	48														
	50	50*/ (0.4')			Brownish-Gray Gravel	12	-	-	-	-	-	-	-	8	Visual
963.5	52														
960.0	54	18/22			Gray Sandy Gravel	13	58	24	10	8	-	NP	NP	11	A-1-a
	56				BOTTOM OF BORING										

*Refusal

H.N.T.B. # 2

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

STRUCTURE FOUNDATION INVESTIGATION
BRIDGE NO. STA-30-
USR 30 OVER PENNA. RR., RAMPS 'B&C' & IR 77
SEC.
STA-30-14.12

BORING DATA

TYPED BY	CHECKED BY	REVIEWED BY	DATE
S.A.J.	L.N.L.	R.D.R.	10/9/68

STA-30-14.12
STA-77-9.22

20
41

TF - 122
00 - 11 - 64

MICROFILMED
SEP 19 1969

STA-30-14.12
STA-77-9.22

LOG OF BORING

Date Started 8-28-68 | Sampler Type SS | Dia 1 3/8" | Water Elev. —
Date Completed 8-29-68 | Casing: Length 60' | Dia 3 1/2"
Boring No. B-5-6 | Station & Offset 960+72, 22' Lt. (Rear Pier) | Surface Elev 1014.3'

Elev.	Depth	Std. Pen. (N)	Rec. ft.	Loss ft.	Description	Sample No.	% Agg.	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.	SHTL Class.
1014.3	0														
1011.8	4	7/7			Brown Silty Gravelly Sand, Cinders - Fill Material	1	38	29	22	11	-	NP	NP	21	A-1-b
1009.3	6	2/3			Black Gravelly Sand, Cinders - Fill Material	2	40	26	29	5	-	NP	NP	36	A-1-b
1006.8	8				No Sample Recovered (Hole Caved in)		V	I		S		U	A	L	
1004.3	10	4/5			Black Silty Sandy Gravel, Cinders	3	57	16	15	7	5	NP	NP	18	A-1-a
1001.8	12	11/14			Brownish-Gray Sandy Gravel	4	73	10	12	5	-	NP	NP	7	A-1-a
999.3	14	10/10			Brown Sandy Gravel	5	-	-	-	-	-	-	-	7	Visual
996.8	16	10/12			Brownish-Gray Sandy Gravel	6	82	12	4	2	-	NP	NP	8	A-1-a
994.3	18	6/7			Gray Gravel	7	84	8	5	3	-	NP	NP	9	A-1-a
989.3	20	6/8			Gray Silty Sandy Gravel	8	47	26	16	11	-	NP	NP	14	A-1-b
984.3	25	14/18			Gray Sandy Gravel	9	65	21	8	6	-	NP	NP	9	A-1-a
979.3	30	5/6			Gray Sandy Gravel	10	71	18	9	2	-	NP	NP	6	A-1-a
974.3	35	6/9			Gray Sandy Gravel	11	78	15	5	2	-	NP	NP	8	A-1-a
969.3	40	18/21			Gray Sandy Gravel	12	-	-	-	-	-	-	-	3	Visual
964.3	45	10/13			Gray Sandy Gravel	13	-	-	-	-	-	-	-	4	Visual
959.3	50	18/23			Gray Gravel	14	85	11	2	2	-	NP	NP	4	A-1-a
954.3	55	14/17			Gray Sandy Gravel	15	56	41	3	0	-	NP	NP	9	A-1-a
953.3	60				BOTTOM OF BORING										

LOG OF BORING

Date Started 8-26-68 | Sampler Type SS | Dia 1 3/8" | Water Elev. —
Date Completed 8-28-68 | Casing: Length 60' | Dia 3 1/2"
Boring No. B-14-6 | Station & Offset 962+52, 8' Rt. (Forward Pier) | Surface Elev 1018.4'

Elev.	Depth	Std. Pen. (N)	Rec. ft.	Loss ft.	Description	Sample No.	% Agg.	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.	SHTL Class.
1018.4	0														
1015.9	4	50* (0.7')			Brown Silty Gravelly Sand, Cinders - Fill Material	1	29	24	27	11	9	NP	NP	17	A-1-b
1013.4	6	18/23			Brownish-Gray Silty Gravelly Sand, Cinders - Fill Material	2	22	31	27	11	9	NP	NP	19	A-1-b
1010.9	8				No Sample Recovered (Hole Caved in)		V	I		S		U	A	L	
1008.4	10	1/1			Peat	3	-	-	-	-	-	-	-	191	Visual
1005.9	12	7/7			Gray Sandy Gravel	4	48	24	22	3	3	NP	NP	19	A-1-b
1003.4	14	7/9			Gray Gravelly Sand	5	27	53	15	5	-	NP	NP	13	A-1-b
1000.9	16	23/27			Gray Sandy Gravel	6	72	10	9	9	-	NP	NP	12	A-1-a
998.4	20	11/19			Gray Silty Sandy Gravel	7	48	25	15	5	7	NP	NP	7	A-1-b
993.4	25	12/14			Gray Sandy Gravel	8	66	27	5	2	-	NP	NP	11	A-1-a
988.4	30	10/11			Brownish-Gray Sandy Gravel	9	64	17	10	9	-	NP	NP	7	A-1-a
983.4	35	11/23			Gray Sandy Gravel	10	-	-	-	-	-	-	-	8	Visual
978.4	40	8/10			Gray Sand	11	0	61	38	1	-	NP	NP	28	A-1-b
973.4	45	20/30			Gray Sandy Gravel	12	55	28	9	8	-	NP	NP	12	A-1-a
968.4	50	14/22			Gray Sandy Gravel	13	-	-	-	-	-	-	-	8	Visual
963.4	55	17/25			Gray Sandy Gravel	14	56	30	12	2	-	NP	NP	14	A-1-a
958.4	60	15/21			Gray Sandy Gravel	15	59	26	13	2	-	NP	NP	17	A-1-a
957.4					BOTTOM OF BORING										

*Refusal

LOG OF BORING

Date Started 9-4-68 | Sampler Type SS | Dia 1 3/8" | Water Elev. —
Date Completed 9-5-68 | Casing: Length — | Dia —
Boring No. B-15-14 | Station & Offset 963+70, 05' Lt. (7th Pier) | Surface Elev 1018.5'

Elev.	Depth	Std. Pen. (N)	Rec. ft.	Loss ft.	Description	Sample No.	% Agg.	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.	SHTL Class.
1018.5	0														
1013.5	6	1/2			Brownish-Gray Silty Gravelly Sand - Fill Material	1	28	18	26	14	14	NP	NP	22	A-2-4
1008.5	10	4/3			Brown Sandy Gravel	2	-	-	-	-	-	-	-	5	Visual
1003.5	15	3/4			Brown Silty Sandy Gravel	3	50	15	17	11	7	NP	NP	13	A-1-b
998.5	20	6/7			Brownish-Gray Silty Gravelly Sand	4	22	17	22	25	14	NP	NP	18	A-4a
993.5	25	5/7			Brownish-Gray Gravelly Sandy Silt	5	16	14	25	35	10	NP	NP	15	A-4a
988.5	30	7/9			Gray Silty Sandy Gravel	6	62	11	13	14	-	NP	NP	5	A-1-a
983.5	35	12/11			Gray Gravelly Sand	7	-	-	-	-	-	-	-	9	Visual
978.5	40	9/8			Gray Sandy Gravel	8	-	-	-	-	-	-	-	6	Visual
973.5	45	9/7			Gray Sandy Gravel	9	-	-	-	-	-	-	-	6	Visual
968.5	50	8/7			Gray Gravelly Sand	10	-	-	-	-	-	-	-	7	Visual
963.5	55				Gray Sandy Gravel	11	59	21	12	8	-	NP	NP	5	A-1-a
958.5	60	7/7			Gray Gravel	12	-	-	-	-	-	-	-	6	Visual
957.5					BOTTOM OF BORING										

H.N.T.B. # 6814

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

STRUCTURE FOUNDATION INVESTIGATION
BRIDGE NO. STA-30-RAMP 'F' OVER PENNA. RR.
RAMP 'B' OVER PENNA. RR., RAMPS 'C' & 'G' & IR 77
SEC. STA-30-14.12 STA-30-15.04

BORING DATA

TYPED BY	CHECKED BY	REVIEWED BY	DATE
S.A.J.	L.N.L.	R.D.R.	10/9/68

TE-122
600-11-64

LOG OF BORING

Date Started 9-11-68 Sampler Type SS Dia 1 3/8" Water Elev —
Date Completed 9-12-68 Casing: Length 50' Dia 3 1/2"
Boring No. B-15-7 Station & Offset 963+37, 8' Lt. (4th Pier) Surface Elev 1017.0'

Elev.	Depth	Std. Pen. (N)	Rec. ft.	Loss ft.	Description	Sample No.	% Agg.	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.	SHTL Class.
1017.0	0														
	2														
	4														
1012.0	6	3/4			Brown Cinders - Fill Material	1	56	16	20	- 8 -		NP	NP	21	A-1-a
1009.5	8	1/1			Brown Cinders - Fill Material	2	41	18	31	-10 -		NP	NP	34	A-1-b
1007.0	10	1/2			Brown Silty Gravelly Sand	3	22	7	48	9	14	NP	NP	30	A-3a
1004.5	12				No Sample Recovered (Hole Caved in)		V		I		S	U	A	L	
1002.0	14	1**			Gray Sand	4	0	5	88	- 7 -		NP	NP	23	A-3
999.5	16	14/16			Gray Sandy Clay	5	9	5	6	25	55	31	11	19	A-6a
997.0	18	17/21			Gray Silty Sandy Gravel	6	60	13	11	-16 -		NP	NP	8	A-1-b
	20														
992.0	22	19/20			Gray Silty Sandy Gravel	7	49	20	20	-11 -		NP	NP	12	A-1-b
	24														
987.0	26	9/11			Gray Sandy Gravel	8	65	20	10	- 5 -		NP	NP	9	A-1-a
	28														
982.0	30	18/21			Gray Sandy Gravel	9	60	27	9	- 4 -		NP	NP	12	A-1-a
	32														
977.0	34	50*			Gray Sandy Gravel	10	76	15	7	- 2 -		NP	NP	6	A-1-a
	36	(0.6')													
972.0	38	14/25			Gray Sandy Gravel	11	58	30	10	- 2 -		NP	NP	12	A-1-a
	40														
967.0	42				BOTTOM OF BORING										
966.0	44	24/28			Gray Sandy Gravel	12	70	21	6	- 3 -		NP	NP	11	A-1-a

*Refusal
**1.0' Penetration

LOG OF BORING

Date Started 8-8-63 Sampler Type SS Dia 1 3/8" Water Elev —
Date Completed 8-13-63 Casing: Length 70' Dia 3 1/2"
Boring No. B-24-7 Station & Offset 966+66, 85' Rt. (7th Pier) Surface Elev. 1019.6'

Elev.	Depth	Std. Pen. (N)	Rec. ft.	Loss ft.	Description	Sample No.	% Agg.	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.	SHTL Class.
1019.6	0														
	2														
	4														
1014.6	6	8/12			Brown Gravelly Sand, Trace of Brickbats	1	21	44	32	- 3 -		NP	NP	23	A-3a
	8														
1009.6	10	18/19			Brown Sandy Gravel	2	68	9	13	2	8	NP	NP	11	A-1-a
	12														
1004.6	14														
	16	21/24			Brown Sandy Gravel	3	60	10	22	6	2	NP	NP	8	A-1-b
	18														
999.6	20	10/14			Gray Gravel	4	V		I		S	U	A	L	
	22														
994.6	24														
	26	6/12			Brown Gravelly Sand	5	47	32	17	- 4 -		NP	NP	11	A-1-b
	28														
989.6	30	15/12			Gray Sandy Gravel	6	68	22	9	- 1 -		NP	NP	10	A-1-b
	32														
984.6	34														
	36	10/11			Gray Sandy Gravel	7	72	18	9	- 1 -		NP	NP	9	A-1-a
	38														
979.6	40	22/21			Gray Sandy Gravel	8	57	29	13	- 1 -		NP	NP	13	A-1-a
	42														
974.6	44														
	46	47/*			Gray Sandy Gravel	9	57	28	10	- 5 -		NP	NP	10	A-1-b
	48														
969.6	50	50/*			Gray Sandy Gravel	10	67	17	9	6	1	NP	NP	7	A-1-a
	52														
	54														
964.6	56	40/*			Gray Sand - Heaved 3' (Wash Sample)	11	V		I		S	U	A	L	
	58														
959.6	60	40/40			Gray Sand - Heaved 3' (Wash Sample)	12	V		I		S	U	A	L	
	62														
	64														
954.6	66	28/22			Gray Sandy Gravel - Heaved 5'	13	58	21	16	4	1	NP	NP	13	A-1-b
	68														
949.6	70	22/18			Gray Sandy Gravel - Heaved 5'	14	75	19	4	- 2 -		NP	NP	9	A-1-a
948.0					BOTTOM OF BORING										

*Refusal

LOG OF BORING

Date Started 8-15-68 Sampler Type SS Dia 1 3/8" Water Elev —
Date Completed 8-20-68 Casing: Length 60' Dia 3 1/2"
Boring No. B-27-7 Station & Offset 967+90, 8' Lt. (Ninth Pier) Surface Elev 1023.4'

Elev.	Depth	Std. Pen. (N)	Rec. ft.	Loss ft.	Description	Sample No.	% Agg.	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.	SHTL Class.
1023.4	0														
	2														
1020.9	4	3/4			Gray Silty Sand	1	0	15	59	10	16	NP	NP	16	A-3a
1018.4	6	3/11			Gray Silty Sandy Gravel	2	48	12	21	9	10	NP	NP	12	A-1-b
1015.9	8	20/28			Brown Silty Sandy Gravel	3	58	15	12	-15 -		NP	NP	11	A-1-a
1013.4	10	12/17			Brown Silty Gravelly Sand	4	40	30	18	-12 -		NP	NP	8	A-1-b
1010.9	12														
	14	24/25			Brown Sandy Gravel	5	54	24	14	- 8 -		NP	NP	10	A-1-a
1008.4	16	14/17			Brown Sandy Gravel	6	64	19	11	- 6 -		NP	NP	8	A-1-a
1005.9	18				No Sample Recovered (Hole Caved in)		V		I		S	U	A	L	
1003.4	20	50*			Brown Sandy Gravel	7	67	19	7	- 7 -		NP	NP	7	A-1-a
	22	(0.6')													
	24														
998.4	26	23/26			Gray Silty Sandy Gravel	8	60	12	13	-15 -		NP	NP	8	A-1-a
	28														
993.4	30	10/10			Gray Silty Sand(Wash Sample)	9	0	43	28	-29 -		NP	NP	21	A-3a
	32														
	34														
988.4	36	12/24			Gray Sandy Gravel	10	70	13	13	- 4 -		NP	NP	11	A-1-a
	38														
983.4	40	12/15			Gray Sandy Gravel	11	50	28	15	- 7 -		NP	NP	9	A-1-a
	42														
978.4	44														
	46	12/16			Gray Sandy Gravel	12	62	19	11	- 8 -		NP	NP	9	A-1-a
	48														
973.4	50	21/29			Gray Gravelly Sand	13	41	42	10	- 7 -		NP	NP	12	A-1-b
	52														
	54														
968.4	56	16/26			Gray Silty Sandy Gravel	14	58	19	13	-10 -		NP	NP	8	A-1-a
	58														
963.4	60	17/20			Gray Sandy Gravel	15	78	18	2	- 2 -		NP	NP	9	A-1-a
962.4					BOTTOM OF BORING										

*Refusal

LOG OF BORING

Date Started 9-18-68 Sampler Type SS Dia 1 3/8" Water Elev —
Date Completed 9-19-68 Casing: Length 60' Dia 3 1/2"
Boring No. B-32-7 Station & Offset 969+88, 8' Rt. (11th Pier) Surface Elev 1023.6'

Elev.	Depth	Std. Pen. (N)	Rec. ft.	Loss ft.	Description	Sample No.	% Agg.	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.	SHTL Class.
1023.6	0														
	2														
	4														
1018.6	6	22/27			Brown Silty Sandy Gravel with Boulders	1	48	19	12	-21 -		NP	NP	6	A-1-b
1016.1	8	20/29			Gray Silty Sandy Gravel	2	54	11	16	10	9	NP	NP	6	A-1-b
1013.6	10	15/20			Brown Silty Sandy Gravel	3	58	14	10	11	7	NP	NP	10	A-1-b
1011.1	12	17/19			Brown Silty Sandy Gravel	4	52	17	13	9	9	NP	NP	6	A-1-b
1008.6	14	12/17			Brown Silty Sandy Gravel	5	46	15	20	8	11	NP	NP	8	A-1-b
1006.1	16	16/16			Brown Sandy Gravel	6	-	-	-	-	-	-	-	5	Visua
1003.6	18	30/33			Brown Silty Sandy Gravel	7	60	13	14	6	7	NP	NP	9	A-1-a
1001.1	20	18/27			Brown Silty Sandy Gravel	8	66	13	7	7	7	NP	NP	7	A-1-a
998.6	22	19/19			Brown Sandy Gravel	9	76	12	7	1	4	NP	NP	6	A-1-a
	24														
993.6	26	13/9			Gray Sandy Gravel	10	53	35	9	- 3 -		NP	NP	20	A-1-a
	28														
988.6	30	8/18			Brown Silty Sandy Gravel	11	66	7	16	7	4	NP	NP	9	A-1-a
	32														
983.6	34	8/10			Gray Sand	12	0	30	67	- 3 -		NP	NP	26	A-3
	36														
978.6	38	12/17			Gray Sandy Gravel	13	67	20	8	- 5 -		NP	NP	9	A-1-a
	40														
973.6	42	16/22			Gray Sand	14	0	39	56	- 5 -		NP	NP	25	A-3
	44														
968.6	46	23/23			Gray Sand	15	0	30	68	- 2 -		NP	NP	23	A-3
	48														
963.6	50				BOTTOM OF BORING										
962.6	52	21/24			Gray Sand	16	0	35	61	- 4 -		NP	NP	28	A-3

H.N.T.B. # 7

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

STRUCTURE FOUNDATION INVESTIGATION
BRIDGE NO. STA-30-
RAMP 'G' OVER PENNA. RR. RAMPS 'C&G' & IR 77
SEC. STA-30-14.12

BORING DATA

TYPED BY	CHECKED BY	REVIEWED BY	DATE
S.A.J.	L.N.L.	R.D.R.	10/9/68

STA-30-14.12
STA-77-9.22

Test Location No. ____
Station & Offset ____
Surface Elev. 1026 Water Elev. ____
Piling ____
Hammer ____
Formula ____
Reference ____
Rod Condition ____

Test Location No. ____
Station & Offset ____
Surface Elev. ____ Water Elev. ____
Piling ____
Hammer ____
Formula ____
Reference ____
Rod Condition ____

Test Location No. 8
Station & Offset 0+43.00 ℄ RAMP 'B'
Surface Elev. 1019 Water Elev. DRY Hole Closed
Piling EL. 990?
Hammer ____
Formula ____
Reference ____
Rod Condition GOOD

Test Location No. 10
Station & Offset 3+43.00 ℄ RAMP 'B'
Surface Elev. 1017.0 Water Elev. ____
Piling ____
Hammer ____
Formula ____
Reference ____
Rod Condition ____

Test Location No. 9
Station & Offset 0+00.00 ℄ RAMP 'B'
Surface Elev. 1021.7 Water Elev. ____
Piling SINGLE PIER
Hammer ____
Formula ____
Reference ____
Rod Condition POINT BENT 8

Test Location No. 22
Station & Offset 3+43.00 ℄ RAMP 'A'
Surface Elev. 1020.6 Water Elev. ____
Piling SEVENTH PIER
Hammer ____
Formula ____
Reference ____
Rod Condition POINT BENT 8

Test Location No. 23
Station & Offset 0+43.00 ℄ RAMP 'A'
Surface Elev. 1021.0 Water Elev. DRY Hole Closed
Piling EL. 1005?
Hammer ____
Formula ____
Reference ____
Rod Condition ____

Test Location No. 23 (Cont'd.)
Station & Offset ____
Surface Elev. ____ Water Elev. ____
Piling ____
Hammer ____
Formula ____
Reference ____
Rod Condition ____

STA-30-14.12
STA-77-9.22

1026 1022 1018 1014 1010 1006 1002 998 994 990 986 982 978 974 970 966 962 958 954 950 946 942 938 934 930 926

TEST ROD

10 20 30 40 50 60 70 80 90 100
Capacity "R" in Thousands of Pounds

H.N.T.B. BR. # 2

OHIO STATE HIGHWAY TESTING LABORATORY
1620 WEST BROAD ST. COLUMBUS 23, OHIO

STRUCTURE FOUNDATION INVESTIGATION
BRIDGE NO. STA-30-
USR 30 OVER PENNA. RR., RAMPS 'B & C' & IR 77
SEC. STA-30-14.12

DRIVE ROD PENETRATION RESISTANCE DATA

PLOTTED BY	CHECKED BY	REVIEWED BY	DATE
R. C.	L. N. L.	R. D. R.	10/9/68

COLE CO.-80M-10-67-1000

FE-114
1000-9-67

SEP 19 1968

Test Location No. ____
Station & Offset ____
Surface Elev. ____ Water Elev. ____
Piling ____
Hammer ____
Formula ____
Reference ____
Rod Condition ____

Test Location No. 1
Station & Offset 960+02 60'LT REAR ABUTMENT
Surface Elev. 1015.4' Water Elev. DRY-Hole Closed @El. 999.4'
Piling ____
Hammer ____
Formula ____
Reference ____
Rod Condition ____

Test Location No. 1 (Cont'd.)
Station & Offset ____
Surface Elev. ____ Water Elev. ____
Piling ____
Hammer ____
Formula ____
Reference ____
Rod Condition ____
TEST ROD

Test Location No. 4
Station & Offset 960+56.56'RT FIRST PIER
Surface Elev. 1016.3' Water Elev. DRY-Hole Closed @El. 1002.3'
Piling ____
Hammer ____
Formula ____
Reference ____
Rod Condition GOOD
TEST ROD

Test Location No. 5
Station & Offset 961+40 65'LT SECOND PIER
Surface Elev. 1010.0' Water Elev. ____
Piling ____
Hammer ____
Formula ____
Reference ____
Rod Condition GOOD
TEST ROD

Test Location No. 9
Station & Offset 962+45 65'LT THIRD PIER
Surface Elev. 1012.1' Water Elev. DRY-Hole Closed @El. 996.1'
Piling ____
Hammer ____
Formula ____
Reference ____
Rod Condition GOOD
TEST ROD

Test Location No. 12
Station & Offset 963+00 40'RT FOURTH PIER
Surface Elev. 1015.0' Water Elev. ____
STA-30-14.12
STA-77-9.22
Piling ____
Hammer ____
Formula ____
Reference ____
Rod Condition ____
TEST ROD

1029 1025 1021 997 993 989 985 981 977 973 969 965 961 957 953 949 945 941 937 933 929 925 921 917

Capacity "R" in Thousands of Pounds
10 20 30 40 50 60 70 80 90 100

H.N.T.B. BR. # 2

OHIO STATE HIGHWAY TESTING LABORATORY
1620 WEST BROAD ST. COLUMBUS 23, OHIO

STRUCTURE FOUNDATION INVESTIGATION
BRIDGE NO. STA-30-
USR 30 OVER PENNA. RR., RAMPS 'B' & 'C' & IR 77
SEC. STA-30-14.12

DRIVE ROD PENETRATION RESISTANCE DATA

PLOTTED BY	CHECKED BY	REVIEWED BY	DATE
R. C.	L.N.L.	R.D.R.	10/9/68

H. COLT CO. -1604-10-67-1000

FE-114
300-9-67
CROFILMED
SEP 19 1968

25
41

Test Location No. ——
Station & Offset ——
Surface Elev. —— Water Elev. ——
Piling ——
Hammer ——
Formula ——
Reference ——
Rod Condition ——

Capacity "R" in Thousands of Pounds

Test Location No. ——
Station & Offset ——
Surface Elev. —— Water Elev. ——
Piling ——
Hammer ——
Formula ——
Reference ——
Rod Condition ——

Capacity "R" in Thousands of Pounds

Test Location No. 2
Station & Offset 960+50, 10' RT.
REAR ABUTMENT
Surface Elev. 1012.0' Water Elev. ——
Piling ——
Hammer ——
Formula ——
Reference ——
Rod Condition GOOD

Capacity "R" in Thousands of Pounds

Test Location No. 2 (Cont'd.)
Station & Offset ——
Surface Elev. —— Water Elev. ——
Piling ——
Hammer ——
Formula ——
Reference ——
Rod Condition ——

Capacity "R" in Thousands of Pounds

Test Location No. 10
Station & Offset 961+85, 8' RT.
CENTER PIER
Surface Elev. 1010.0' Water Elev. ——
Piling ——
Hammer ——
Formula ——
Reference ——
Rod Condition GOOD

WEST ROD

Capacity "R" in Thousands of Pounds

Test Location No. 13
Station & Offset 962+60, 22' LT.
FORWARD PIER
Surface Elev. 1012.0' Water Elev. ——
Piling ——
Hammer ——
Formula ——
Reference ——
Rod Condition ——

EAST ROD

Capacity "R" in Thousands of Pounds

Test Location No. 18
Station & Offset 963+00, 18' RT.
FORWARD ABUTMENT
Surface Elev. 1014.0' Water Elev. ——
Piling ——
Hammer ——
Formula ——
Reference ——
Rod Condition ROD BENT 4.0'

WEST ROD

Capacity "R" in Thousands of Pounds

Test Location No. ——
Station & Offset ——
Surface Elev. —— Water Elev. ——
Piling ——
Hammer ——
Formula ——
Reference ——
Rod Condition ——

STA-30-14.12
STA-77-9.22

Capacity "R" in Thousands of Pounds

H.N.T.B. BR.#6

OHIO STATE HIGHWAY TESTING LABORATORY
1620 WEST BROAD ST. COLUMBUS 23, OHIO

STRUCTURE FOUNDATION INVESTIGATION
BRIDGE NO. STA-30-
RAMP F OVER PENNA. RR.
SEC. STA-30-14.12

DRIVE ROD PENETRATION RESISTANCE DATA

PLOTTED BY	CHECKED BY	REVIEWED BY	DATE
R. C.	L. N. L.	R. D. R.	10/9/68

CDLE CO -IBDM-10-67-1000

RECEIVED
SEP 19 1968

Test Location No. —
Station & Offset —
Surface Elev. — Water Elev. —
Piling —
Hammer —
Formula —
Reference —
Rod Condition —

Test Location No. —
Station & Offset —
Surface Elev. — Water Elev. —
Piling —
Hammer —
Formula —
Reference —
Rod Condition —

Test Location No. 21
Station & Offset 965+16, 8'LT SIXTH PIER
Surface Elev. 1016.0 Water Elev. —
Piling —
Hammer —
Formula —
Reference —
Rod Condition —

Test Location No. 25
Station & Offset 967+08, 8'LT EIGHTH PIER
Surface Elev. 1040.4 Water Elev. —
Piling —
Hammer —
Formula —
Reference —
Rod Condition GOOD
TEST ROD

Test Location No. 32
Station & Offset 969+75 8'RT ELEVENTH PIER
Surface Elev. 1022.1 Water Elev. DRY-Hole Closed @El.1008.1
Piling —
Hammer —
Formula —
Reference —
Rod Condition GOOD
TEST ROD

Test Location No. 31
Station & Offset 970+08.22'LT ELEVENTH PIER
Surface Elev. 1024.2 Water Elev. DRY-Hole Closed @El.1010.2'
Piling —
Hammer —
Formula —
Reference —
Rod Condition ROD BENT-28'
TEST ROD

Test Location No. 33
Station & Offset 970+68.25'LT FORWARD ABUTMENT
Surface Elev. 1026.3' Water Elev. DRY-Hole Closed @El.1010.3'
Piling —
Hammer —
Formula —
Reference —
Rod Condition ROD BENT(20'LOST)
TEST ROD

Test Location No. 33(Cont'd)
Station & Offset —
Surface Elev. — Water Elev. —
Piling STA-30-1412 STA-77-9.22
Hammer —
Formula —
Reference —
Rod Condition —
TEST ROD

Capacity "R" in Thousands of Pounds

H.N.T.B. BR #7

OHIO STATE HIGHWAY TESTING LABORATORY
1620 WEST BROAD ST. COLUMBUS 23, OHIO

STRUCTURE FOUNDATION INVESTIGATION
BRIDGE NO. STA-30-
RAMP 'G' OVER PENNA. RR., RAMPS 'C' & 'G' & IR77
SEC. STA-30-14.12

DRIVE ROD PENETRATION RESISTANCE DATA

PLOTTED BY	CHECKED BY	REVIEWED BY	DATE
R. C.	L.N.L.	R.D.R.	10/9/68

MICROFILMED
SEP 19 1968

27
41
12
13

STA-30-14.12
STA-77-9.22

Test Location No. ____
Station & Offset ____
Surface Elev. ____ Water Elev. ____
Piling ____
Hammer ____
Formula ____
Reference ____
Rod Condition ____

Test Location No. ____
Station & Offset ____
Surface Elev. ____ Water Elev. ____
Piling ____
Hammer ____
Formula ____
Reference ____
Rod Condition ____

Test Location No. 3
Station & Offset 961+12.5' LT
FIRST PIER
Surface Elev. 1010.0' Water Elev. ____
Piling ____
Hammer ____
Formula ____
Reference ____
Rod Condition GOOD

Test Location No. 8
Station & Offset 961+85.22' RT
SECOND PIER
Surface Elev. 1013.5' Water Elev. DRY-Hole closed @ El. 997.5'
Piling ____
Hammer ____
Formula ____
Reference ____
Rod Condition GOOD

Test Location No. 11
Station & Offset 962+67.8 LT
THIRD PIER
Surface Elev. 1015.0' Water Elev. ____
Piling ____
Hammer ____
Formula ____
Reference ____
Rod Condition ____

Test Location No. 16
Station & Offset 963+37.28' RT
FOURTH PIER
Surface Elev. 1018.0' Water Elev. ____
Piling ____
Hammer ____
Formula ____
Reference ____
Rod Condition ____

Test Location No. 20
Station & Offset 964+20.22' RT
FIFTH PIER
Surface Elev. 1017.5' Water Elev. ____
Piling ____
Hammer ____
Formula ____
Reference ____
Rod Condition POINT BENT-B

Test Location No. ____
Station & Offset ____
Surface Elev. ____ Water Elev. ____
Piling ____
Hammer ____
Formula ____
Reference ____
Rod Condition ____

1022 1018 1014 1010 1006 1002 998 994 990 986 982 978 974 970 966 962 958 954 950 946 942 938 934 930 926 922

TEST ROD

10 20 30 40 50 60 70 80 90 100
Capacity "R" in Thousands of Pounds

H.N.T.B. BR#7

OHIO STATE HIGHWAY TESTING LABORATORY
1620 WEST BROAD ST. COLUMBUS 23, OHIO

STRUCTURE FOUNDATION INVESTIGATION
BRIDGE NO. STA-30-
RAMP 'G' OVER PENNA. RR., RAMPS 'C' & 'G' & IR77
SEC. STA-30-14.12

DRIVE ROD PENETRATION RESISTANCE DATA

PLOTTED BY	CHECKED BY	REVIEWED BY	DATE
R. C.	L. N. L.	R. D. R.	10/9/68

MICROFILMED
SEP 19 1968

Test Location No. ____
Station & Offset ____
Surface Elev. ____ Water Elev. ____
Piling ____
Hammer ____
Formula ____
Reference ____
Rod Condition ____

Capacity "R" in Thousands of Pounds

Test Location No. ____
Station & Offset ____
Surface Elev. ____ Water Elev. ____
Piling ____
Hammer ____
Formula ____
Reference ____
Rod Condition ____

Capacity "R" in Thousands of Pounds

Test Location No. ____
Station & Offset ____
Surface Elev. ____ Water Elev. ____
Piling ____
Hammer ____
Formula ____
Reference ____
Rod Condition ____

Capacity "R" in Thousands of Pounds

Test Location No. ____
Station & Offset ____
Surface Elev. ____ Water Elev. ____
Piling ____
Hammer ____
Formula ____
Reference ____
Rod Condition ____

Capacity "R" in Thousands of Pounds

Test Location No. ____
Station & Offset ____
Surface Elev. ____ Water Elev. ____
Piling ____
Hammer ____
Formula ____
Reference ____
Rod Condition ____

Capacity "R" in Thousands of Pounds

Test Location No. ____
Station & Offset ____
Surface Elev. ____ Water Elev. ____
Piling ____
Hammer ____
Formula ____
Reference ____
Rod Condition ____

Capacity "R" in Thousands of Pounds

Test Location No. 7
Station & Offset 960+52, 5' LT THIRD PIER
Surface Elev. 1010.0' Water Elev. ____
Piling ____
Hammer ____
Formula ____
Reference ____
Rod Condition 6000

Capacity "R" in Thousands of Pounds

Test Location No. 11
Station & Offset 963+00, 5' LT FIFTH PIER
Surface Elev. 1017.0' Water Elev. ____
Piling STA-30-15.04 STA-77-9.22
Hammer ____
Formula ____
Reference ____
Rod Condition ____

Capacity "R" in Thousands of Pounds H.N.T.B. BR.# 14

28
41
13
14

OHIO STATE HIGHWAY TESTING LABORATORY
1620 WEST BROAD ST. COLUMBUS 23, OHIO

STRUCTURE FOUNDATION INVESTIGATION
BRIDGE NO. STA-30-
RAMP 'B' OVER PENNA RR., RAMPS 'C' & 'G' & IR 77
SEC. STA-30-15.04

DRIVE ROD PENETRATION RESISTANCE DATA

PLOTTED BY	CHECKED BY	REVIEWED BY	DATE
R. C.	L.N.L.	R.D.R.	10/9/68

TE - 118
600 - 4 - 66

MICROFILMED
SEP 19 1968

STARK COUNTY
STA-30-14.12
STA-77-9.22

29
41
1
6

GEOLOGY OF THE SITE

THE STRUCTURE SITE IS LOCATED IN A DEEPLY BURIED DEEP STAGE VALLEY, IN AN AREA WHERE VALLEY FILL OVERLIES BEDROCK, OF PENNSYLVANIAN AGE.

EXPLORATION

THE EXPLORATION CONSISTED OF FOUR DRIVE SAMPLE BORINGS, MADE BETWEEN AUGUST 22 AND 29, 1968, AND EIGHT DRIVE ROD PENETRATION TESTS, MADE BETWEEN AUGUST 19 AND 27, 1968. ALSO INCLUDED IN THIS REPORT ARE THE LOG OF A BORING AND THE CURVES OF TWO DRIVE ROD PENETRATION TESTS, MADE FOR THE FOUNDATION INVESTIGATION FOR THE STRUCTURE DESIGNATED H.N.T.B #2, AND THE LOG OF A BORING MADE FOR THE I-77 STRUCTURE.

INVESTIGATIONAL FINDINGS

BORINGS DISCLOSED UNSTRATIFIED INTERVALS OF LOOSE TO VERY DENSE GRAVELS, SANDS, SILTS, AND BOULDERS. THE BORINGS WERE TERMINATED AT 61 TO 71-FOOT DEPTHS, ELEVATIONS 961 TO 943 FEET, AFTER PENETRATING IN EXCESS OF 20 FEET OF MATERIAL REQUIRING IN EXCESS OF 30 BLOWS PER FOOT IN THE STANDARD PENETRATION TEST.

THE ROD SOUNDINGS PENETRATED TO GREATER DEPTHS THAN THE BORINGS AND ENCOUNTERED GRADUALLY INCREASING RESISTANCE TO PENETRATION WITH INCREASING DEPTH AND WERE TERMINATED DUE TO HIGH RESISTANCE TO PENETRATION, OR PREDETERMINED DEPTHS, AT 60 TO 150 FEET, ELEVATIONS 952 TO 866 FEET, CONSIDERED TO BE IN VERY DENSE MATERIALS SIMILAR TO THOSE MATERIALS REVEALED BY THE BORINGS AT HIGHER ELEVATIONS.

NO FREE WATER WAS OBSERVED IN ANY OF THE ROD SOUNDING HOLES.

NO TEST PENETRATED TO BEDROCK SURFACE.

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

H.N.T.B. BR. # 13

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.

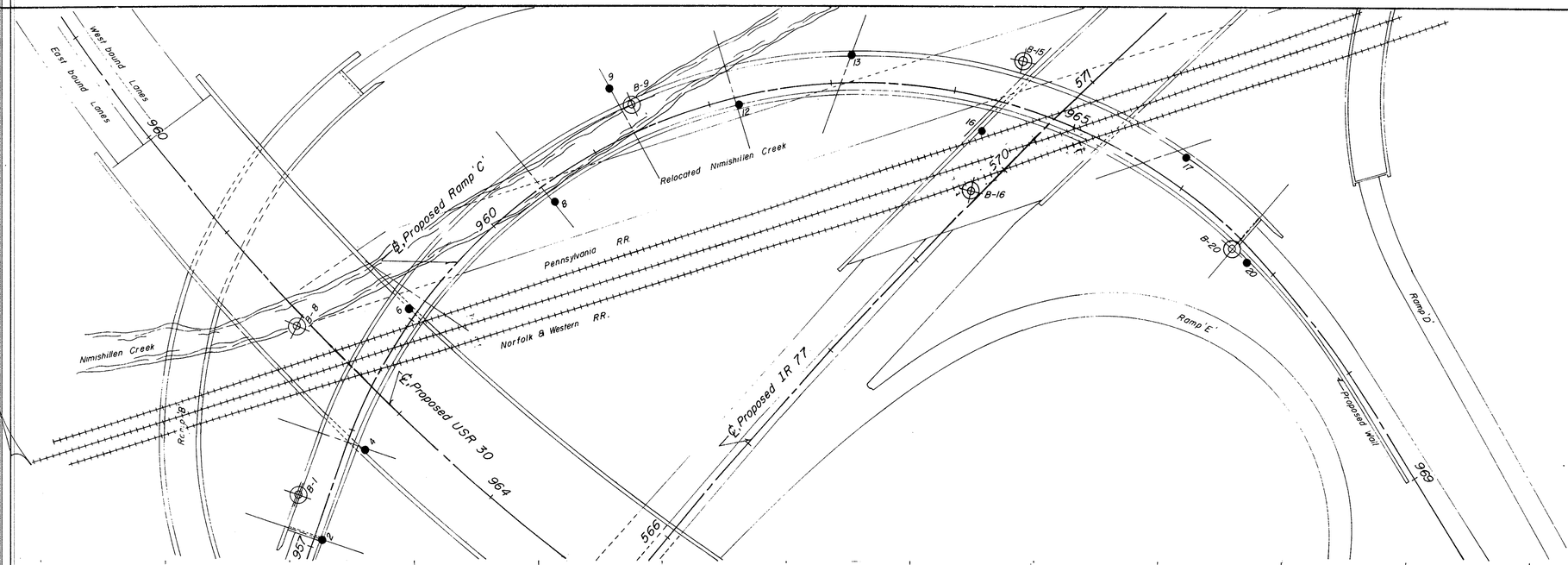
OHIO DEPARTMENT OF HIGHWAYS
TESTING LABORATORY
1620 WEST BROAD STREET, COLUMBUS 23, OHIO

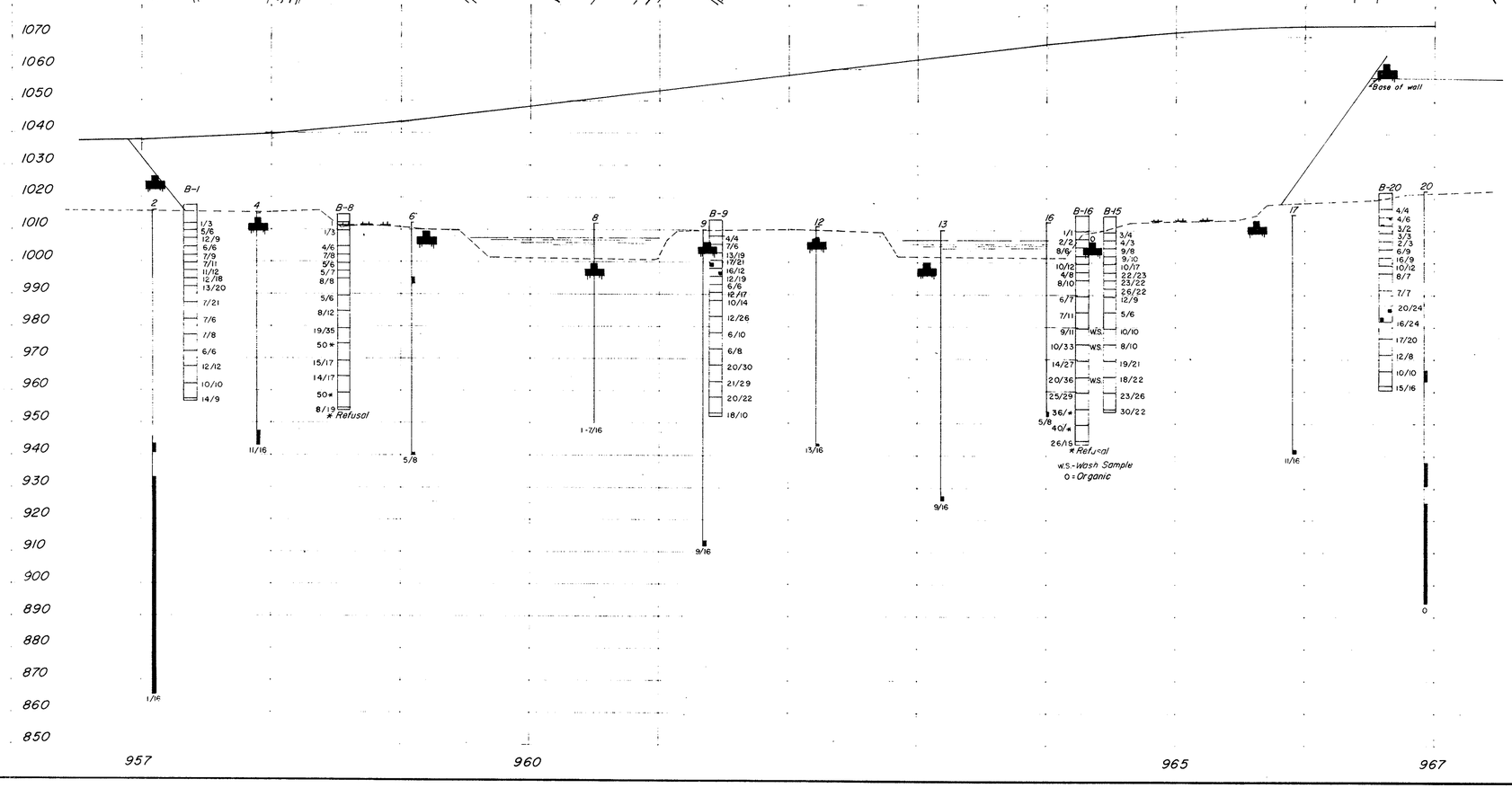
STRUCTURE FOUNDATION INVESTIGATION
BRIDGE NO. STA-30
RAMP 'C' OVER IR 77 AND PENNSYLVANIA RR.
SEC. STA-30-15.04

CHECKED BY	REVIEWED BY	DATE
L.N.L.	R.D.R	9/27/68

MICROFILMED
SEP 19 1968

STA-30-14.12
STA-77-9.22





SCALE: HOR. = 1" = 50'
VERT. = 1" = 20'

H.N.T.B. BR. # 13

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

STRUCTURE FOUNDATION INVESTIGATION
BRIDGE NO. STA-30
RAMP 'C' OVER IR 77 AND PENNSYLVANIA RR.
SEC. STA-30-15.04

PLAN AND PROFILE

DRAWN BY	CHECKED BY	REVIEWED BY	DATE
K.J.S.	L.N.L.	R.D.R.	9/27/68

MICROFILMED
SEP 19 1969

STA-30-14.12
STA-77-9.22

LOG OF BORING

Date Started 8-29-68
Date Completed 8-29-68
Boring No B-1
Sampler Type SS Dia 1 3/8"
Casing Length 30' Dia 3 1/2"
Station & Offset 957+37, 23' Lt. (Rear Abutment)
Water Elev ———
Surface Elev 1017.4'

Elev.	Depth	Std. Pen (N)	Rec ft.	Loss ft.	Description	Sample No.	% Agg	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.	SHTL Class.
1017.4	0														
	2														
1012.4	4														
	6	1/3			Brown Gravelly Sand and Cinders - Fill Material	1	21	43	26	-10 -	NP	NP	2	A-1-b
1009.9	8	5/6			Brown Silty Gravel and Cinders - Fill Material	2	-	-	-	-	-	-	27	Visual
1007.4	10	12/9			Gray Silty Sandy Gravel	3	-	-	-	-	-	-	9	Visual
1004.9	12														
1002.4	14	6/6			Gray Sandy Gravel	4	69	12	11	- 8 -	NP	NP	6	A-1-a
	16	7/9			Gray Sandy Silt	5	9	9	41	20	21	NP	NP	17	A-4a
999.9	18	7/11			Gray Silty Sandy Gravel	6	56	19	14	5	6	NP	NP	5	A-1-a
997.4	20	11/12			Gray Sandy Gravel	7	-	-	-	-	-	-	8	Visual
994.9	22														
	24	12/18			Gray Sandy Gravel	8	63	18	10	- 9 -	NP	NP	29	A-1-a
992.4	26	13/20			Gray Gravelly Sand	9	33	52	10	- 5 -	NP	NP	18	A-1-b
	28														
987.4	30														
	32	7/21			Gray Silty Gravelly Sand	10	33	38	15	-14 -	NP	NP	14	A-1-b
982.4	34														
	36	7/6			Gray Sand	11	-	-	-	-	-	-	11	Visual
	38														
977.4	40														
	42	7/8													
	44														
972.4	46	6/6			Gray Gravel	13	84	11	3	- 2 -	NP	NP	7	A-1-a
	48														
967.4	50														
	52	12/12			Gray Gravelly Sand	14	29	51	15	- 5 -	NP	NP	17	A-1-b
	54														
962.4	56	10/10			Gray Sand	15	-	-	-	-	-	-	15	Visual
	58														
957.4	60				BOTTOM OF BORING										
956.4		14/9			Gray Gravelly Sand	16	33	47	15	- 5 -	NP	NP	12	A-1-b

LOG OF BORING

Date Started 8-21-68
Date Completed 8-23-68
Boring No B-8
Sampler Type SS Dia 1 3/8"
Casing Length 60' Dia 3 1/2"
Station & Offset 958+55, 77' Lt. (1st Pier)
Water Elev ———
Surface Elev 1014.5'

Elev.	Depth	Std. Pen (N)	Rec ft.	Loss ft.	Description	Sample No.	% Agg	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.	SHTL Class.
1014.5	0														
	2														
1012.0	4	1			Gray Sand and Gravel	1	-	-	-	-	-	-	51	Visual
1009.5	6	1/3			Gray Sandy Gravel	2	73	10	10	- 7 -	NP	NP	11	A-1-a
1007.0	8						V	I	S	U	A	L			
	10				No Sample Recovered - (Hole Caved in)										
1004.5	12	4/6			Brown Silty Sandy Gravel	3	43	25	17	-15 -	NP	NP	3	A-1-b
1002.0	14	7/8			Brown Sandy Gravel	4	53	23	15	- 9 -	NP	NP	11	A-1-a
999.5	16	5/6			Brown Silty Sandy Gravel	5	66	10	8	5	11	NP	NP	11	A-1-b
997.0	18	5/7			Brown Sand (Wash Sample)	6	0	73	25	- 2 -	NP	NP	23	A-1-b
994.5	20	8/8			Gray Sandy Gravel	7	68	19	10	- 3 -	NP	NP	9	A-1-a
	22														
989.5	24														
	26	5/6			Gray Sandy Gravel	8	79	13	7	- 1 -	NP	NP	10	A-1-a
984.5	28														
	30	8/12			Gray Sandy Gravel	9	58	30	3	- 9 -	NP	NP	10	A-1-a
979.5	32														
	34														
	36	19/35			Gray Sandy Gravel	10	65	15	12	- 8 -	NP	NP	11	A-1-a
974.5	38														
	40														
	42	50* (0.8')			Gray Sandy Gravel	11	71	19	6	- 4 -	NP	NP	7	A-1-a
969.5	44														
	46	15/17			Gray Sandy Gravel	12	76	17	5	- 2 -	NP	NP	8	A-1-a
964.5	48														
	50	14/17			Gray Sandy Gravel	13	76	13	10	- 1 -	NP	NP	12	A-1-a
959.5	52														
	54														
	56	50* (0.7')			Gray Sandy Gravel	14	76	15	7	- 2 -	NP	NP	12	A-1-a
954.5	58														
953.5	60	8/19			Gray Gravelly Sand	15	39	35	23	- 3 -	NP	NP	14	A-1-b

BOTTOM OF BORING
*Refusal

LOG OF BORING

Date Started 8-28-68
Date Completed 8-29-68
Boring No B-9
Sampler Type SS Dia 1 3/8"
Casing Length 60' Dia 3 1/2"
Station & Offset 961+43, 21' Lt. (4th Pier)
Water Elev ———
Surface Elev 1013.0'

Elev.	Depth	Std. Pen (N)	Rec ft.	Loss ft.	Description	Sample No.	% Agg	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.	SHTL Class.
1013.0	0														
	2														
1008.0	4														
	6	4/4			Gray Silty Gravelly Sand, with Coal Blossom	1	30	24	23	13	10	NP	NP	42	A-1-b
1005.5	8	7/6			Gray Sandy Gravel	2	50	20	20	-10 -	NP	NP	12	A-1-a
1003.0	10	13/19			Brown Silty Sandy Gravel	3	55	20	13	-12 -	NP	NP	11	A-1-a
1000.5	12	17/21			Brown Silty Sandy Gravel and Boulders	4	-	-	-	-	-	-	6	Visual
998.0	14	16/12			Brownish-Gray Sandy Gravel and Boulders	5	65	17	10	- 8 -	NP	NP	10	A-1-a
995.5	16	12/19			Brown Sandy Gravel	6	69	17	8	- 6 -	NP	NP	7	A-1-a
993.0	18	6/6			Brownish-Gray Silty Sandy Gravel	7	52	9	17	-22 -	NP	NP	11	A-1-b
990.5	20	12/17			Brownish-Gray Silty Sandy Gravel	8	-	-	-	-	-	-	9	Visual
988.0	22	10/14			Brown Silty Sandy Gravel	9	38	19	12	- 1 -	NP	NP	9	A-1-a
	24														
983.0	26														
	28	12/26			Brown Sandy Gravel	10	71	19	9	- 1 -	NP	NP	9	A-1-a
978.0	30														
	32														
	34	6/10			Brownish-Gray Sandy Gravel	11	55	31	9	- 5 -	NP	NP	10	A-1-a
973.0	36														
	38														
	40	6/8			Brownish-Gray Sandy Gravel	12	62	33	3	- 2 -	NP	NP	10	A-1-a
968.0	42														
	44														
963.0	46	20/30			Brownish-Gray Silty Sandy Gravel (Heaved 1.0' in Casing)	13	49	21	9	-21 -	NP	NP	9	A-1-b
	48														
	50	21/29			Brown Sandy Gravel (Heaved 1.0' in Casing)	14	64	18	8	-10 -	NP	NP	7	A-1-a
958.0	52														
	54														
	56	20/22			Brownish-Gray Sandy Gravel (Heaved 1.0' in Casing)	15	71	15	10	- 4 -	NP	NP	8	A-1-a
953.0	58														
952.0	60	18/10			Gray Sandy Gravel (Heaved 1.0' in Casing)	16	48	34	13	- 5 -	NP	NP	12	A-1-b

BOTTOM OF BORING

H.N.T.B. BR.# 13

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

STRUCTURE FOUNDATION INVESTIGATION
BRIDGE NO. STA-30
RAMP 'C' OVER IR 77 AND PENNSYLVANIA RR.
SEC. STA-30-15.04

BORING DATA

TYPED BY	CHECKED BY	REVIEWED BY	DATE
S.A.J.	R.C.	R.D.R.	9/27/68

MICROFILMED
SEP 19 1969

STA-30-14.12
STA-77-9.22

LOG OF BORING

Date Started 8-27-68 | Sampler Type SS | Dia 1 3/8"
Date Completed 8-28-68 | Casing Length 60' | Dia 3 1/2"
Boring No B-15 | Station & Offset 964+49, 35' Lt. (8th Pier)
Water Elev ——— | Surface Elev 1014.4'

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.
1014.4	0														
	2														
	4														
1009.4	6	3/4			Brownish-Gray Silty Sandy Gravel	1	44	25	14	8	9	PL=	24	23	-
1006.9	8	4/3			Brown Gravelly Sand	2	45	41	8	-	6	NP	NP	13	A-1-b
1004.4	10	9/8			Brown Silty Sand	3	9	4	56	25	6	NP	NP	17	A-3a
1001.9	12	9/10			Brown Sandy Silt	4	0	1	58	33	8	NP	NP	18	A-4a
999.4	14	10/17			Brownish-Gray Silty Sand	5	7	7	63	8	15	NP	NP	22	A-3a
996.9	16	22/23			Brown Sandy Gravel	6	70	13	9	4	4	NP	NP	6	A-1-a
994.4	18	23/22			Brownish-Gray Silty Sandy Gravel	7	48	29	12	-11	-	NP	NP	8	A-1-b
991.9	20	26/22			Brown Silty Sandy Gravel	8	52	21	12	8	7	NP	NP	10	A-1-a
989.4	22	12/9			Brownish-Gray Sandy Gravel	9	62	22	10	-	6	NP	NP	10	A-1-a
	24														
984.4	26	5/6			Brownish-Gray Gravelly Sand	10	42	41	15	-	2	NP	NP	14	A-1-b
	28														
979.4	30	10/10			Brownish-Gray Gravelly Sand	11	29	26	37	1	7	NP	NP	15	A-1-b
	32														
974.4	34	8/10			Brownish-Gray Gravelly Sand	12	32	39	19	-10	-	NP	NP	8	A-1-b
	36														
969.4	38	19/21			Gray Sandy Gravel	13	60	26	9	-	5	NP	NP	8	A-1-a
	40														
964.4	42	18/22			Gray Sandy Gravel	14	60	29	9	-	2	NP	NP	12	A-1-a
	44														
959.4	46	23/26			Gray Silty Gravelly Sand (Heaved 2.0' in Casing)	15	26	41	15	-18	-	NP	NP	14	A-1-b
	48														
954.4	50	30/27			Brownish-Gray Silty Gravelly Sand	16	44	31	14	-11	-	NP	NP	8	A-1-b
953.4					BOTTOM OF BORING										

LOG OF BORING

Date Started 7-31-63 | Sampler Type SS | Dia 1 3/8"
Date Completed 8-2-63 | Casing Length 70' | Dia 3 1/2"
Boring No B-16 | Station & Offset 964+28, 75' Rt. (7th Pier)
Water Elev ——— | Surface Elev 1014.7'

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.
1014.7	0														
	2														
	4														
1009.7	6	1/1			Gray Cinders, Ashes and Brickbats	1	V		I		S		U	A	L
1007.2	8	2/2			Dark-Brown Sandy Silt, Organic	2	0	3	28	45	24	89	10	109	A-7-5
1004.7	10	8/6			Gray Sandy Gravel	3	64	24	5	-	7	NP	NP	21	A-1-a
1002.2	12				No Sample Recovered, Hole Caved										
	14														
999.7	16	10/12			Brown Silty Sand	4	0	0	86	-14	-	NP	NP	22	A-3
997.2	18	4/8			Brownish-Gray Silty Sand	5	0	1	88	-11	-	NP	NP	25	A-3
994.7	20	8/10			Gray Gravelly Sand	6	46	32	15	-	7	NP	NP	10	A-1-b
	22														
	24														
989.7	26	6/7			Gray Gravel	7	V		I		S		U	A	L
	28														
984.7	30	7/11			Gray Sandy Gravel	8	69	16	9	-	6	NP	NP	9	A-1-a
	32														
979.7	34	9/11			Brown Sand (Wash Sample)	9	V		I		S		U	A	L
	36														
974.7	38	10/33			Brown Sand (Wash Sample)	10	V		I		S		U	A	L
	40														
969.7	42	14/27			Gray Silty Sandy Gravel	11	55	14	17	7	7	NP	NP	10	A-1-b
	44														
964.7	46	20/36			Brownish-Gray Sand (Wash Sample)	12	V		I		S		U	A	L
	48														
959.7	50	25/29			Gray Gravelly Sand	13	41	35	18	-	6	NP	NP	13	A-1-b
	52														
954.7	54	36/*			Gray Sandy Gravel	14	71	20	7	-	2	NP	NP	10	A-1-a
	56														
949.7	58	40/*			Gray Gravel	15	V		I		S		U	A	L
	60														
944.7	62	26/18			Brownish-Gray Sandy Gravel	16	80	15	3	-	2	NP	NP	11	A-1-a
943.7					BOTTOM OF BORING										

*Refusal

LOG OF BORING

Date Started 8-22-68 | Sampler Type SS | Dia 1 3/8"
Date Completed 8-27-68 | Casing Length 60' | Dia 3 1/2"
Boring No B-20 | Station & Offset 966+62, 10' Rt. (Forward Abutment)
Water Elev ——— | Surface Elev 1022.1'

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.
1022.1	0														
	2														
	4														
1017.1	6	4/4			Brown Silty Gravelly Sand, Cinders and Wood-Fill Material	1	43	28	16	7	6	NP	NP	17	A-1-b
1014.6	8	4/6			Brown Sandy Gravel, Cinders - Fill Material	2	52	36	11	-	1	NP	NP	16	A-1-a
1012.1	10	3/2			Silty Gravel, Cinders and Boulders	3	-	-	-	-	-	-	-	18	
1009.6	12	3/3			Brown Silty Gravelly Sand, Cinders - Fill Material	4	23	49	16	-12	-	NP	NP	25	A-1-b
1007.1	14	2/3			Brown Gravelly Sand, Cinders - Fill Material	5	38	49	8	-	5	NP	NP	23	A-1-b
1004.6	16	6/9			Brown Gravelly Sand	6	-	-	-	-	-	-	-	12	Visual
1002.1	18	16/9			Brownish-Gray Gravel	7	-	-	-	-	-	-	-	5	Visual
999.6	20	10/12			Gray Gravelly Sand	8	45	28	21	-	6	NP	NP	8	A-1-b
997.1	22	8/7			Gray Gravelly Sand	9	41	30	22	-	7	NP	NP	13	A-1-b
	24														
992.1	26	7/7			Gray Silty Gravelly Sand	10	42	26	21	1	10	NP	NP	15	A-1-b
	28														
987.1	30	20/24			Gray Sandy Gravel and Boulders	11	55	26	13	-	6	NP	NP	10	A-1-a
	32														
982.1	34	16/24			Gray Gravelly Sand	12	25	53	12	-10	-	NP	NP	11	A-1-b
	36														
977.1	38	17/20			Gray Sand	13	0	20	72	-	8	NP	NP	13	A-3
	40														
972.1	42	17/8			Gray Gravelly Sand	14	41	35	19	-	5	NP	NP	26	A-1-b
	44														
967.1	46	10/10			Gray Sandy Gravel	15	55	21	15	-	9	NP	NP	11	A-1-a
	48														
962.1	50	15/16			Brownish-Gray Sandy Gravel	16	47	29	14	-10	-	NP	NP	10	A-1-b
961.1					BOTTOM OF BORING										

H.N.T.B. BR* 13

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

STRUCTURE FOUNDATION INVESTIGATION
BRIDGE NO. STA-30
RAMP 'C' OVER IR 77 AND PENNSYLVANIA RR
SEC. STA-30-15.04

BORING DATA

TYPED BY	CHECKED BY	REVIEWED BY	DATE
S.A.J.	R.C.	R.D.R.	9/27/68

MICROFILMED
SEP 19 1983

Test Location No. 2
Station & Offset 957+08 6' RT
REAR ABUTMENT
Surface Elev. 1015.7' **Water Elev.** DRY-Hole Closed @ El 1001.7'
Piling
Hammer
Formula
Reference
Rod Condition

Test Location No. 2 (Cont'd.)
Station & Offset
Surface Elev. **Water Elev.**
Piling
Hammer
Formula
Reference
Rod Condition
TEST ROD

Test Location No. 4
Station & Offset 957+88 15' RT
FIRST PIER
Surface Elev. 1015.0' **Water Elev.**
Piling
Hammer
Formula
Reference
Rod Condition
TEST ROD

Test Location No. 6
Station & Offset 959+06 7' LT
SECOND PIER
Surface Elev. 1012.1' **Water Elev.** DRY-Hole Closed @ El 996.1'
Piling
Hammer
Formula
Reference
Rod Condition GOOD
TEST ROD

Test Location No. 8
Station & Offset 960+50 15' RT
THIRD PIER
Surface Elev. 1012.0' **Water Elev.**
Piling
Hammer
Formula
Reference
Rod Condition LOST ROD-48'
TEST ROD

Test Location No. 9
Station & Offset 961+34 40' LT
FOURTH PIER
Surface Elev. 1010.0' **Water Elev.**
Piling
Hammer
Formula
Reference
Rod Condition POINT BENT-8'

Test Location No. 9 (Cont'd)
Station & Offset
Surface Elev. **Water Elev.**
Piling
Hammer
Formula
Reference
Rod Condition
TEST ROD

Test Location No. 12
Station & Offset 962+21 6' RT
FIFTH PIER
Surface Elev. 1011.0' **Water Elev.**
Piling STA-77-9.22
Hammer
Formula
Reference
Rod Condition POINT ROD-8'
TEST ROD

1016 1012 1008 1004 1000 996 992 988 984 980 976 972 968 964 960 956 952 948 944 940 936 932 928 924 920 916

10 20 30 40 50 60 70 80 90 100
Capacity "R" in Thousands of Pounds

H.N.T.B.BR.# 13

OHIO STATE HIGHWAY TESTING LABORATORY
1620 WEST BROAD ST. COLUMBUS 23, OHIO

STRUCTURE FOUNDATION INVESTIGATION
BRIDGE NO. STA-30
RAMP 'C' OVER IR 77 AND PENNSYLVANIA RR.
SEC. STA-30-15.04

DRIVE ROD PENETRATION RESISTANCE DATA

PLOTTED BY	CHECKED BY	REVIEWED BY	DATE
R.C.	L.N.L.	R.D.R.	9/27/68

FE-114
1000-P-67

RECEIVED
SEP 19 1968

Test Location No. ____
Station & Offset ____
Surface Elev. ____ Water Elev. ____
Piling ____
Hammer ____
Formula ____
Reference ____
Rod Condition ____

Test Location No. ____
Station & Offset ____
Surface Elev. ____ Water Elev. ____
Piling ____
Hammer ____
Formula ____
Reference ____
Rod Condition ____

Test Location No. ____
Station & Offset ____
Surface Elev. ____ Water Elev. ____
Piling ____
Hammer ____
Formula ____
Reference ____
Rod Condition ____

Test Location No. 13
Station & Offset 963+18 22'LT SIXTH PIER
Surface Elev. 1010.0 Water Elev. ____
Piling ____
Hammer ____
Formula ____
Reference ____
Rod Condition 6000

Test Location No. 16
Station & Offset 964+28 26'RT SEVENTH PIER
Surface Elev. 1012.6 Water Elev. ____
Piling ____
Hammer ____
Formula ____
Reference ____
Rod Condition ____

Test Location No. 17
Station & Offset 965+90 23'LT EIGHTH PIER
Surface Elev. 1014.9 Water Elev. ____
Piling ____
Hammer ____
Formula ____
Reference ____
Rod Condition 6000

Test Location No. 20
Station & Offset 966+80 10'RT FORWARD ABUTMENT
Surface Elev. 1022.1 Water Elev. ____
Piling ____
Hammer ____
Formula ____
Reference ____
Rod Condition ____

Test Location No. 20 (Cont'd)
Station & Offset ____
Surface Elev. ____ Water Elev. ____
Piling STA-77-9.22
Hammer ____
Formula ____
Reference ____
Rod Condition ____

1023 1019 1015 1011 1007 1003 999 995 991 987 983 979 975 971 967 963 959 955 951 947 943 939 935 931 927 923

10 20 30 40 50 60 70 80 90 100
Capacity "R" in Thousands of Pounds

TE - 118
600 - 4 - 66

MICROFILMED
SEP 19 1968

STARK COUNTY
STA-30-14.12
STA-77-9.22

GEOLOGY OF THE SITE

THE STRUCTURE SITE IS LOCATED IN THE DEEPLY BURIED DEEP STAGE VALLEY, IN AN AREA WHERE VALLEY FILL OVERLIES BEDROCK, OF PENNSYLVANIAN AGE.

EXPLORATION

THE EXPLORATION CONSISTED OF ONE DRIVE SAMPLE BORING AND ONE DRIVE SAMPLE-CORE BORING, MADE BETWEEN JULY 31 AND AUGUST 15, 1968, AND SIX DRIVE ROD PENETRATION TESTS, MADE BETWEEN JULY 9 AND 10, 1968. INCLUDED IN THIS REPORT ARE THE LOGS OF TWO BORINGS MADE FOR EXISTING STRUCTURE FOUNDATION INVESTIGATION.

INVESTIGATIONAL FINDINGS

BORINGS DISCLOSED UNSTRATIFIED INTERVALS OF LOOSE TO VERY DENSE GRAVELS, SANDS AND SILTS AND SCATTERED INTERVALS OF BOULDERS, TO SLOPING BEDROCK SURFACE ENCOUNTERED AT 55 AND 65-FOOT DEPTHS, ELEVATIONS 974 AND 963 FEET, IN THE FORWARD PORTION OF THE STRUCTURE SITE. BORINGS B-3 AND B-6, LOCATED IN THE REAR PORTION OF THE STRUCTURE SITE WERE TERMINATED AT 66 AND 71-FOOT DEPTHS, ELEVATIONS 955 AND 953 FEET, AFTER PENETRATING IN EXCESS OF 20 FEET OF MATERIAL REQUIRING IN EXCESS OF 30 BLOWS PER FOOT IN THE STANDARD PENETRATION TEST. BORINGS B-10 AND B-10A WERE TERMINATED AT 65 AND 70-FOOT DEPTHS, ELEVATIONS 963 AND 957 FEET, AFTER PENETRATING 5 AND 10 FEET BELOW BEDROCK SURFACE. CONSIDERABLE RUNNING SAND WAS ENCOUNTERED IN BORINGS B-3 AND B-6.

THE ROD SOUNDINGS GENERALLY PENETRATED TO GREATER DEPTHS THAN THE BORINGS, AND ENCOUNTERED GRADUALLY INCREASING RESISTANCE TO PENETRATION WITH INCREASING DEPTH AND WERE TERMINATED DUE TO REFUSAL OR NEAR-REFUSAL TO PENETRATION, AT 18 TO 106 FEET, ELEVATIONS 1021 TO 917 FEET, CONSIDERED TO BE IN VERY DENSE MATERIALS AND BOULDERS, SIMILAR TO THOSE MATERIALS REVEALED BY THE BORINGS.

NO FREE WATER WAS OBSERVED IN ANY OF THE ROD SOUNDING HOLES.

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
- Boulders
- 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	

H.N.T.B. BR. #9

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

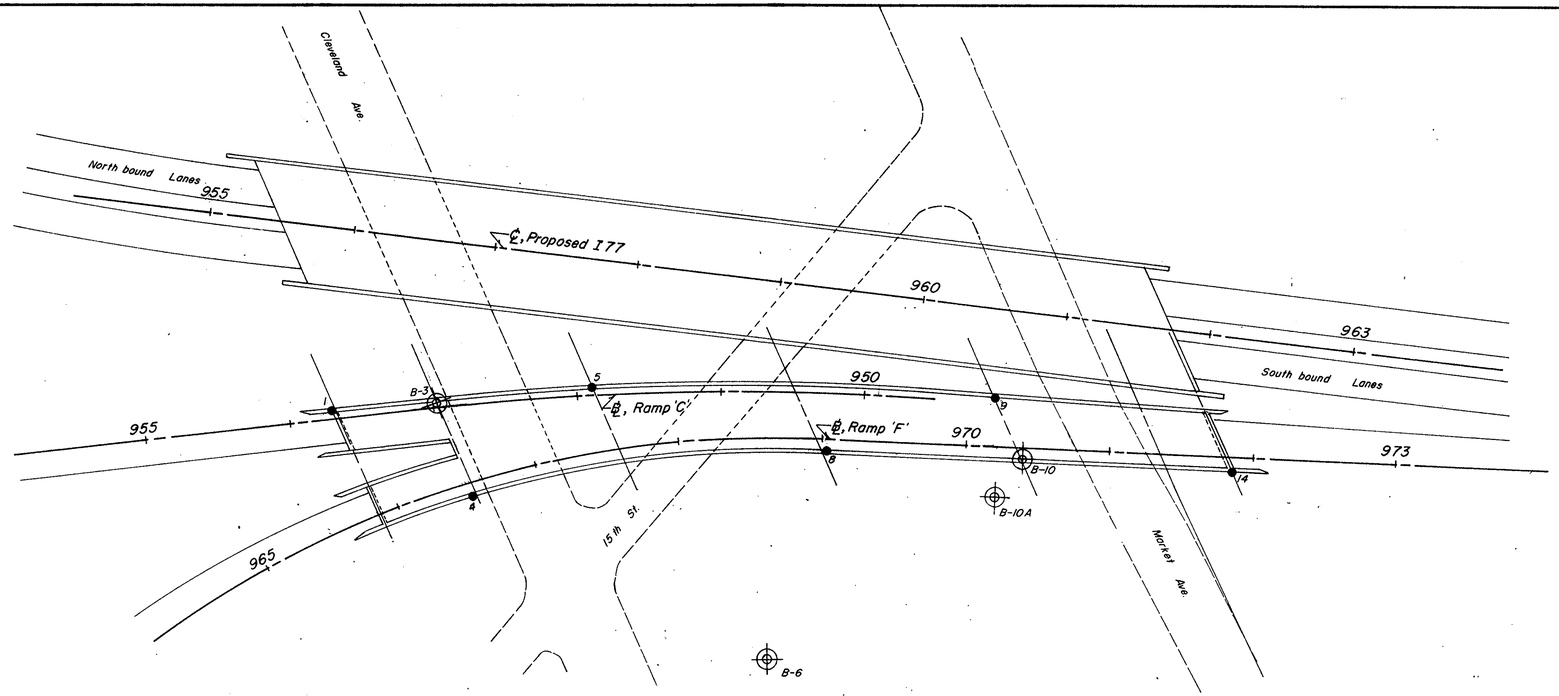
STRUCTURE FOUNDATION INVESTIGATION
BRIDGE NO. STA-30
RAMPS 'F' AND 'C' OVER
MARKET AVE. AND CLEVELAND AVE.
SEC. STA-30-15.04

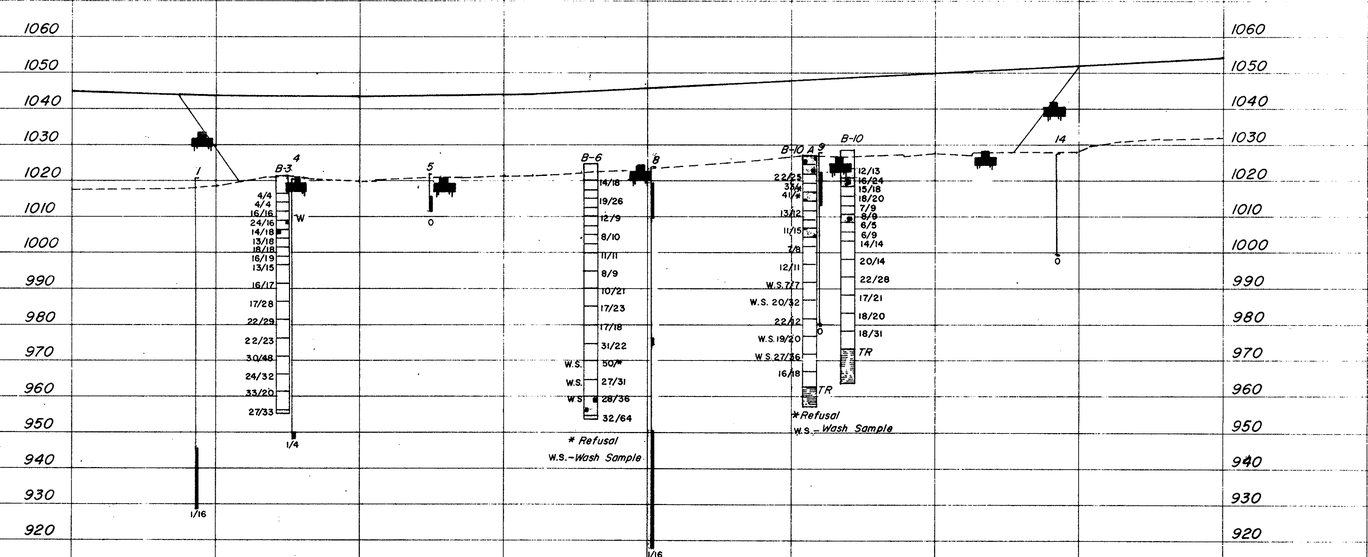
CHECKED BY	REVIEWED BY	DATE
L.N.L.	R.D.R.	9/17/68

TE - 121
200 - 11 - 64

MICROFILMED
SEP 19 1969

STA-30-14,12
STA-77-9.22





SCALE: HOR.= 1" = 50'
VERT.= 1" = 20'

H.N.T.B. BR. # 9

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

STRUCTURE FOUNDATION INVESTIGATION
BRIDGE NO. STA-30
RAMPS 'F' AND 'C' OVER
MARKET AVE. AND CLEVELAND AVE.
SEC. STA-30-15.04

PLAN AND PROFILE

DRAWN BY	CHECKED BY	REVIEWED BY	DATE
K.J.S.	L.N.L.	R.D.R.	9/17/68

LOG OF BORING

Date Started 7-25-68 Sampler Type SS Dia 1 3/8"
Date Completed 7-30-68 Casing Length 65' Dia 3 1/2"
Boring No B-3 Station & Offset 966+47, 60' Lt. (First Pier) Surface Elev 1021.1' Water Elev

Elev	Depth	Std Pen (N)	Rec ft.	Loss ft.	Description	Sample No	% Agg	% C S	% F S	% Silt	% Clay	L L	P I	W C	SHTL Class
1021.1	0														
	2														
	4														
1016.1															
	6	4/4			Red Silty Gravelly Sand and Brick Fragments	1	35	27	24	-14-		NP	NP	12	A-1-b
1013.6	8	4/4			Brown Sandy Silt	2	10	21	27	18	24	NP	NP	20	A-4a
1011.1	10	16/16			Red Gravel and Boulders	3	V	I	S	U	A	L	16		
1008.6	12														
	14	24/16			Brown Sandy Gravel	4	75	11	7	-7-		NP	NP	5	A-1-a
1006.1	16	14/18			Brown Silty Sandy Gravel	5	71	9	8	3	9	NP	NP	8	A-1-a
1003.6	18	13/18			Brown Silty Sandy Gravel	6	60	13	9	6	12	NP	NP	6	A-1-b
1001.1	20	18/18			Brownish-Gray Silty Sandy Gravel	7	68	11	8	4	9	NP	NP	6	A-1-a
998.6	22														
	24	16/19			Brownish-Gray Silty Sandy Gravel	8	54	20	15	-11-		NP	NP	6	A-1-a
996.1	26	13/15			Brown Sandy Gravel (Heaved 1.0' in Casing)	9	67	20	7	-6-		NP	NP	3	A-1-a
	28														
991.1	30	16/17			Gray Sandy Gravel (Heaved 1.0' in Casing)	10	52	28	10	-10-		NP	NP	10	A-1-a
	32														
986.1	34														
	36	17/28			Gray Silty Sandy Gravel (Heaved 1.0' in Casing)	11	41	26	13	9	11	NP	NP	10	A-1-b
	38														
981.1	40														
	42	22/29			Gray Gravelly Sand (Heaved 1.0' in Casing)	12	29	39	23	-9-		NP	NP	10	A-1-b
	44														
976.1	46	22/23			Gray Silty Gravelly Sand (Heaved 1.0' in Casing)	13	38	33	9	-20-		NP	NP	9	A-1-b
	48														
971.1	50														
	52	30/48			Brownish-Gray Silty Sand (Heaved 1.5' in Casing)	14	8	51	25	-16-		NP	NP	10	A-1-b
	54														
966.1	56	24/32			Brownish-Gray Silty Gravelly Sand (Heaved 1.0' in Casing)	15	15	43	20	-22-		NP	NP	15	A-1-b
	58														
961.1	60														
	62	33/20			Gray Sand (Heaved 1.5' in Casing)	16	0	54	36	-10-		NP	NP	19	A-1-b
	64														
956.1															
955.1	66	27/33			Gray Sand	17	0	60	32	-8-		NP	NP	23	A-1-b

BOTTOM OF BORING

LOG OF BORING

Date Started 8-14-63 Sampler Type SS Dia 1 3/8"
Date Completed 8-15-63 Casing Length 70' Dia 3 1/2"
Boring No B-6 Station & Offset 968+60, 154' Rt. (Second Pier) Surface Elev 1024.9' Water Elev

Elev	Depth	Std Pen (N)	Rec ft.	Loss ft.	Description	Sample No	% Agg	% C S	% F S	% Silt	% Clay	L L	P I	W C	SHTL Class
1024.9	0														
	2														
	4														
1019.9	6	14/18			Brown Sandy Gravel	1	52	29	15	2	2	NP	NP	14	A-1-b
1017.4	8				No Sample Recovered - Hole Caved in		V	I	S	U	A	L			
1014.9	10	19/26			Brown Sandy Gravel	2	70	13	8	6	3	NP	NP	9	A-1-a
1012.4	12				No Sample Recovered - Hole Caved in		V	I	S	U	A	L			
1009.9	14	12/9			Brownish-Gray Sand	3	V	I	S	U	A	L	5		
1007.4	18				No Sample Recovered - Hole Caved in		V	I	S	U	A	L			
1004.9	20	8/10			Brown Sandy Gravel	4	74	16	5	-5-		NP	NP	9	A-1-a
1000.4	22				No Sample Recovered - Hole Caved in		V	I	S	U	A	L			
	24														
999.9	26	11/11			Gray Sand	5	V	I	S	U	A	L	7		
	28														
994.9	30	8/9			Gray Gravel	6	88	11	1	-0-		NP	NP	4	A-1-a
	32														
989.9	34														
	36	10/21			Gray Sandy Gravel - Heaved 1'	7	71	15	8	-6-		NP	NP	10	A-1-a
	38														
984.9	40														
	42	17/23			Brown Sandy Gravel - Heaved 1'	8	69	16	9	-6-		NP	NP	13	A-1-a
	44														
979.9	46	17/18			Gray Silty Sandy Gravel - Heaved 3'	9	43	16	12	-29-		NP	NP	12	A-2-4
	48														
974.9	50	31/22			Gray Silty Sandy Gravel - Heaved 4'	10	67	16	7	8	2	NP	NP	9	A-1-a
	52														
	54														
969.9	56	50/4			Gray Sand-Heaved 4' (Wash Sample)	11	V	I	S	U	A	L			
	58														
964.9	60	27/31			Gray Sand - Heaved 5' (Wash Sample)	12	V	I	S	U	A	L			
	62														
	64														
959.9	66	28/36			Gray Gravelly Sand - Heaved 5' (Wash Sample) with Boulders	13	V	I	S	U	A	L			
	68														
954.9	70														
953.9		32/64			Brown Gravelly Sand - Heaved 5'	14	V	I	S	U	A	L			

BOTTOM OF BORING

*Refusal

LOG OF BORING

Date Started 7-30-68 Sampler Type SS Dia 1 3/8"
Date Completed 7-31-68 Casing Length 52' Dia 3 1/2"
Boring No B-10 Station & Offset 970+40, 8' Rt. (4th Pier) Surface Elev 1028.8' Water Elev

Elev	Depth	Std Pen (N)	Rec ft.	Loss ft.	Description	Sample No	% Agg	% C S	% F S	% Silt	% Clay	L L	P I	W C	SHTL Class
1028.8	0														
	2														
	4														
1023.8	6	12/13			Brown Silty Sandy Gravel	1	51	17	14	8	10	NP	NP	5	A-1-b
1021.3	8	16/24			Brown Silty Sandy Gravel with Boulders	2	49	13	19	-19-		NP	NP	4	A-1-b
1018.8	10	15/18			Brown Silty Sandy Gravel	3	48	17	15	8	12	NP	NP	4	A-1-b
1016.3	12														
	14	18/20			Brown Silty Sandy Gravel	4	53	16	10	9	12	NP	NP	3	A-1-b
1013.8	16	7/9			Brownish-Gray Silty Sandy Gravel	5	49	28	12	-11-		NP	NP	8	A-1-b
1011.3	18	8/9			Brownish-Gray Sand and Gravel with Boulders	6	-	-	-	-	-	-	-	7	Visual
1008.8	20	6/5			Brown Silty Sandy Gravel	7	62	15	8	6	9	NP	NP	9	A-1-a
1006.3	24	6/9			Brownish-Gray Silty Sandy Gravel	8	54	22	14	-10-		NP	NP	10	A-1-a
1003.8	26	14/14			Brownish-Gray Silty Sandy Gravel	9	59	15	10	6	10	NP	NP	8	A-1-b
	28														
998.8	30	20/14			Brownish-Gray Sandy Gravel	10	64	18	10	-8-		NP	NP	7	A-1-a
	32														
993.8	34														
	36	22/28			Brownish-Gray Sand and Gravel	11	-	-	-	-	-	-	-	5	Visual
	38														
988.8	40														
	42	17/21			Brownish-Gray Silty Sandy Gravel	12	54	9	20	8	9	NP	NP	23	A-1-b
	44														
983.8	46	18/20			Brown Silty Gravelly Sand	13	30	19	34	6	11	NP	NP	9	A-3a
	48														
978.8	50	18/31			Brown Stone Fragments	14	-	-	-	-	-	-	-	10	Visual
	52														
973.8	54														
	56				TOP OF ROCK										
	58		4.8	0.2	Shale, black, slightly silty top part, fissile, clayey, grading into medium-gray toward bottom, hard, uniform throughout. Core Loss 2%.										
	60														
	62		3.0	2.0											
963.8	64				BOTTOM OF BORING										

LOG OF BORING

Date Started 8-7-63 Sampler Type SS Dia 1 3/8"
Date Completed 8-8-63 Casing Length 60' Dia 3 1/2"
Boring No B-10A Station & Offset 970+21, 35' Rt. (4th Pier) Surface Elev 1027.2' Water Elev

Elev	Depth	Std Pen (N)	Rec ft.	Loss ft.	Description	Sample No	% Agg	% C S	% F S	% Silt	% Clay	L L	P I	W C	SHTL Class
1027.2	0														
	2														
1024.7	4				Boulders (Driller's Description)		V	I	S	U	A	L			
1022.2	6	22/25			Brown Sandy Gravel	1	66	20	6	5	3	NP	NP	9	A-1-a
1019.7	8	33/*			Brown Sandy Gravel	2	74	16	4	-6-		NP	NP	11	A-1-a
1017.2	10	41/*			Brown Sandy Gravel with Boulders	3	58	15	25	-2-		NP	NP	13	A-1-b
1014.7	12														
1012.2	14				No Sample Recovered - Hole Caved in		V	I	S	U	A	L			
1009.7	16	12/13			Brown Sandy Gravel	4	71	19	6	-4-		NP	NP	8	A-1-a
1007.2	18				No Sample Recovered - Hole Caved in		V	I	S	U	A	L			
1004.7	20	11/15			Brownish-Gray Sandy Gravel with Boulders	5	69	17	8	-6-		NP	NP	8	A-1-a
1002.2	22				No Sample Recovered - Hole Caved in		V	I	S	U	A	L			
	24														
	26	7/8			Brown and Gray Gravel	6	V	I	S	U	A	L			
	28														
997.2	30	12/11			Brown Sandy Gravel	7	65	20	8	-7-		NP	NP	8	A-1-a
	32														
992.2	34														
	36	7/7			Brown Sand (Wash Sample)	8	V	I	S	U	A	L			
	38														
987.2	40														
	42	20/32			Gray Sand (Wash Sample)	9	V	I	S	U	A	L			
	44														
982.2	46	22/12			Gray Gravelly Sand	10	46	17	32	-5-		NP	NP	13	A-1-b
	48														
977.2	50	19/20			Gray Sand (Wash Sample)	11	V	I	S	U	A	L			
	52														
	54														
972.2	56	27/36			Brown Sand (Wash Sample)	12	V	I	S	U	A	L			
	58														
967.2	60	16/18			Dark-Gray Clayey Gravel	13	62	2	1	21	14	34	11	19	A-2-4
	62														
962.7	64				TOP OF ROCK										
	66		1.0	1.0	Clay shale, gray, firm, dense, fissile-in-part, very arenaceous and micaceous intervals, with interbedded clay seams which comprise 50% of interval. From 69.0' to 70.0'; very fissile, black, soft, and carbonaceous. From 64.5' to 66.5', very broken. Core Loss 10%.										
	68		2.0	0.0											
957.2	70		2.0	0.0											

BOTTOM OF BORING

*Refusal

H.N.T.B. BR #9

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

STRUCTURE FOUNDATION INVESTIGATION

BRIDGE NRAMPS "B" AND "C" OVER MARKET AVE. AND CLEVELAND AVE.
STA-30-15.04
SEC STA-30-14.12
STA-77-9.22

BORING DATA

TYPED BY S.A.J. CHECKED BY R.C. REVIEWED BY R.D.R. DATE 9/17/68

MICROFILMED SEP 1968

MICROFILMED
SEP 19 1968

Test Location No. 1
Station & Offset 965+85.80'LT REAR ABUTMENT
Surface Elev. 1020.7' Water Elev. DRY-1008.7'
Piling
Hammer
Formula
Reference
Rod Condition GOOD

Test Location No. 1 (cont'd)
Station & Offset
Surface Elev. Water Elev.
Piling
Hammer
Formula
Reference
Rod Condition
TEST ROD

Test Location No. 4
Station & Offset 966+52.10'RT FIRST PIER
Surface Elev. 1020.2' Water Elev. 1010.2'
Piling
Hammer
Formula
Reference
Rod Condition GOOD
TEST ROD

Test Location No. 5
Station & Offset 967+48.45'LT SECOND PIER
Surface Elev. 1021.9' Water Elev. DRY-Hole open
Piling
Hammer
Formula
Reference
Rod Condition POINT BENT-8"
TEST ROD

Test Location No. 8
Station & Offset 969+02.8'RT THIRD PIER
Surface Elev. 1023.5' Water Elev. DRY-Hole Closed @ El. 1011.5'
Piling
Hammer
Formula
Reference
Rod Condition

Test Location No. 8 (cont'd)
Station & Offset
Surface Elev. Water Elev.
Piling
Hammer
Formula
Reference
Rod Condition
TEST ROD

Test Location No. 9
Station & Offset 970+19.35'LT FOURTH PIER
Surface Elev. 1028.2' Water Elev. DRY-Hole Closed @ El. 1014.2'
Piling
Hammer
Formula
Reference
Rod Condition LOST ROD-36'
TEST ROD

Test Location No. 14
Station & Offset 971+86.10'RT FORWARD ABUTMENT
Surface Elev. 1027.6' Water Elev. DRY-Hole Closed @ El. 1017.6'
Piling STA-30-14.12 STA-77-9.22
Hammer
Formula
Reference
Rod Condition GOOD
TEST ROD

1029 1025 1021 1017 1013 1009 1005 1001 997 993 989 985 981 977 973 969 965 961 957 953 949 945 941 937 933 929

921 917

10 20 30 40 50 60 70 80 90 100
Capacity "R" in Thousands of Pounds

H.N.T.B. BR. # 9

OHIO STATE HIGHWAY
TESTING LABORATORY
1620 WEST BROAD ST. COLUMBUS 23, OHIO

STRUCTURE FOUNDATION INVESTIGATION

BRIDGE NO. STA-30
RAMPS 'F' AND 'C' OVER
MARKET AVE. AND CLEVELAND AVE.
SEC. STA-30-15.04

DRIVE ROD PENETRATION RESISTANCE DATA

PLOTTED BY	CHECKED BY	REVIEWED BY	DATE
R.C.	L.N.L.	R.D.R.	9/17/68

TE - 118
600 - 4 - 66

MICROFILMED
SEP 20 1968

STARK COUNTY
STA-30-14.12
STA-77-9.22

GEOLOGY OF THE SITE
THE STRUCTURE SITE IS LOCATED IN THE DEEPLY BURIED DEEP STAGE VALLEY, IN AN AREA WHERE VALLEY FILL OVERLIES BEDROCK, OF PENNSYLVANIAN AGE.

EXPLORATION
THE EXPLORATION CONSISTED OF TWO DRIVE SAMPLE BORINGS, MADE BETWEEN AUGUST 20 AND 23, 1968 AND TWO DRIVE ROD PENETRATION TESTS, MADE ON AUGUST 1, 1968.

INVESTIGATIONAL FINDINGS
BORINGS DISCLOSED UNSTRATIFIED INTERVALS OF LOOSE TO VERY DENSE GRAVELS, SANDS AND SILTS AND SCATTERED INTERVALS OF BOULDERS. THE BORINGS WERE TERMINATED AT 61-FOOT DEPTH, ELEVATION 969 FEET.

THE ROD SOUNDINGS GENERALLY PENETRATED TO GREATER DEPTHS THAN THE BORINGS, AND ENCOUNTERED GRADUALLY INCREASING RESISTANCE TO PENETRATION WITH INCREASING DEPTH AND WERE TERMINATED DUE TO HIGH RESISTANCE TO PENETRATION, OR PREDETERMINED DEPTHS, AT 92 TO 116 FEET, ELEVATIONS 940 TO 914 FEET, CONSIDERED TO BE IN VERY DENSE MATERIALS AND BOULDERS, SIMILAR TO THOSE MATERIALS REVEALED BY THE BORINGS AT HIGHER ELEVATIONS.

NO FREE WATER WAS OBSERVED IN ANY OF THE ROD SOUNDING HOLES.

NO TEST PENETRATED TO BEDROCK SURFACE.

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
- Coal
- Weathered Indurated Clay
- Indurated Clay
- Weathered Shale
- Shale
- Boulders
- 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.

LOG OF BORING

Date Started 8-21-68 | Sampler Type SS | Dia 1 3/8" | Water Elev ---
Date Completed 8-23-68 | Casing Length 60' | Dia 3 1/2"
Boring No B-1 | Station & Offset 966+64, 29' Lt. (Rear Abutment) | Surface Elev 1030.1'

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.
1030.1	0														
	2														
	4														
1025.1	6	2/4			Brown Silty Gravelly Sand	1	39	16	35	5	5	NP	NP	12	A-1-b
1022.6	8														
	10	10/14			Brown Silty Gravelly Sand	2	23	25	34	3	15	NP	NP	13	A-3a
1020.1	10														
	12	5/5			Brown Silty Gravelly Sand	3	34	26	28	5	7	NP	NP	15	A-1-b
1017.6	14	14/20			Brown Silty Sandy Gravel	4	46	25	15	-14	-	NP	NP	6	A-1-b
1015.1	16	18/28			Brown Silty Sandy Gravel with Boulders	5	43	17	18	11	11	NP	NP	12	A-1-b
1012.6	18				Gray Gravelly Sand with Boulders (Wash Sample)	6	24	59	13	- 4	-	NP	NP	23	A-1-b
1010.1	20	16/22			Brown Silty Sandy Gravel with Boulders	7	44	18	21	8	9	NP	NP	10	A-1-b
1007.6	22														
	24	14/16			Gray Sandy Gravel	8	56	26	11	2	5	NP	NP	11	A-1-a
1005.1	26	10/10			Brownish-Gray Silty Sandy Gravel	9	57	18	16	3	6	NP	NP	8	A-1-a
	28														
1000.1	30	14/14			No Sample Recovered-Sand, Gravel & Boulders (Driller's Des.)										
	32														
	34														
995.1	36	8/9			Gray Silty Sandy Gravel	10	62	20	8	3	7	NP	NP	8	A-1-a
	38														
990.1	40	7/8			Gray Sand	11	6	86	6	- 2	-	NP	NP	16	A-1-b
	42														
	44														
985.1	46	7/11			Gray Silty Sand (Heaved 1.0' in casing)	12	11	65	13	-11	-	NP	NP	13	A-1-b
	48														
980.1	50	7/10			Gray Gravelly Sand	13	28	67	4	- 1	-	NP	NP	15	A-1-b
	52														
	54														
975.1	56	12/27			Gray Sandy Gravel	14	47	33	13	- 7	-	NP	NP	11	A-1-b
	58														
970.1	60	7/8			Gray Sandy Gravel	15	55	34	6	- 5	-	NP	NP	8	A-1-a
969.1					BOTTOM OF BORING										

LOG OF BORING

Date Started 8-20-68 | Sampler Type SS | Dia 1 3/8" | Water Elev ---
Date Completed 8-21-68 | Casing Length 60' | Dia 3 1/2"
Boring No B-4 | Station & Offset 969+06, 12' Rt. (Forward Abutment) | Surface Elev 1030.4'

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.
1030.4	0														
	2														
	4														
1025.4	6	9/10			Brown Silty Gravelly Sand	1	40	23	18	5	14	NP	NP	12	A-1-b
1022.9	8	9/16			Brown Silty Gravelly Sand	2	41	22	22	5	10	NP	NP	12	A-1-b
1020.4	10	9/16			Brown Gravelly Sand	3	17	40	34	- 9	-	NP	NP	13	A-1-b
1017.9	12	11/18			Brown Silty Gravelly Sand	4	28	35	27	-10	-	NP	NP	10	A-1-b
1015.4	16	22/27			Brown Silty Sandy Gravel with Boulders	5	49	21	13	5	12	NP	NP	7	A-1-b
1012.9	18	50* (0.7')			Brown Silty Sandy Gravel with Boulders	6	47	16	8	22	7	NP	NP	4	A-2-4
1010.4	20	20/30			Brownish-Gray Silty Sandy Gravel with Boulders	7	61	14	11	7	7	NP	NP	10	A-1-a
1007.9	22														
	24				Brownish-Gray Gravelly Sand with Boulders (Wash Sample)	8	37	41	19	- 3	-	NP	NP	17	A-1-b
1005.4	26	8/9			Brownish-Gray Sandy Gravel	9	69	17	8	- 6	-	NP	NP	4	A-1-a
	28														
1000.4	30	12/34			Brown Silty Sandy Gravel	10	44	29	15	-12	-	NP	NP	7	A-1-b
	32														
	34														
995.4	36	7/7			Gray Gravelly Sand	11	47	39	13	- 1	-	NP	NP	19	A-1-b
	38														
990.4	40	6/18			Gray Gravelly Sand	12	43	42	10	- 5	-	NP	NP	15	A-1-b
	42														
	44														
985.4	46	7/17			Gray Sandy Gravel	13	57	30	9	- 4	-	NP	NP	12	A-1-a
	48														
980.4	50	7/9			Gray Gravelly Sand	14	44	45	8	- 3	-	NP	NP	13	A-1-b
	52														
	54														
975.4	56	9/20			Gray Sandy Gravel	15	67	19	9	- 5	-	NP	NP	9	A-1-a
	58														
970.4	60	17/40			Gray Sandy Gravel	16	53	33	9	- 5	-	NP	NP	12	A-1-a
969.4					BOTTOM OF BORING										

*Refusal

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	

H.N.T.B. BR. # 10

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

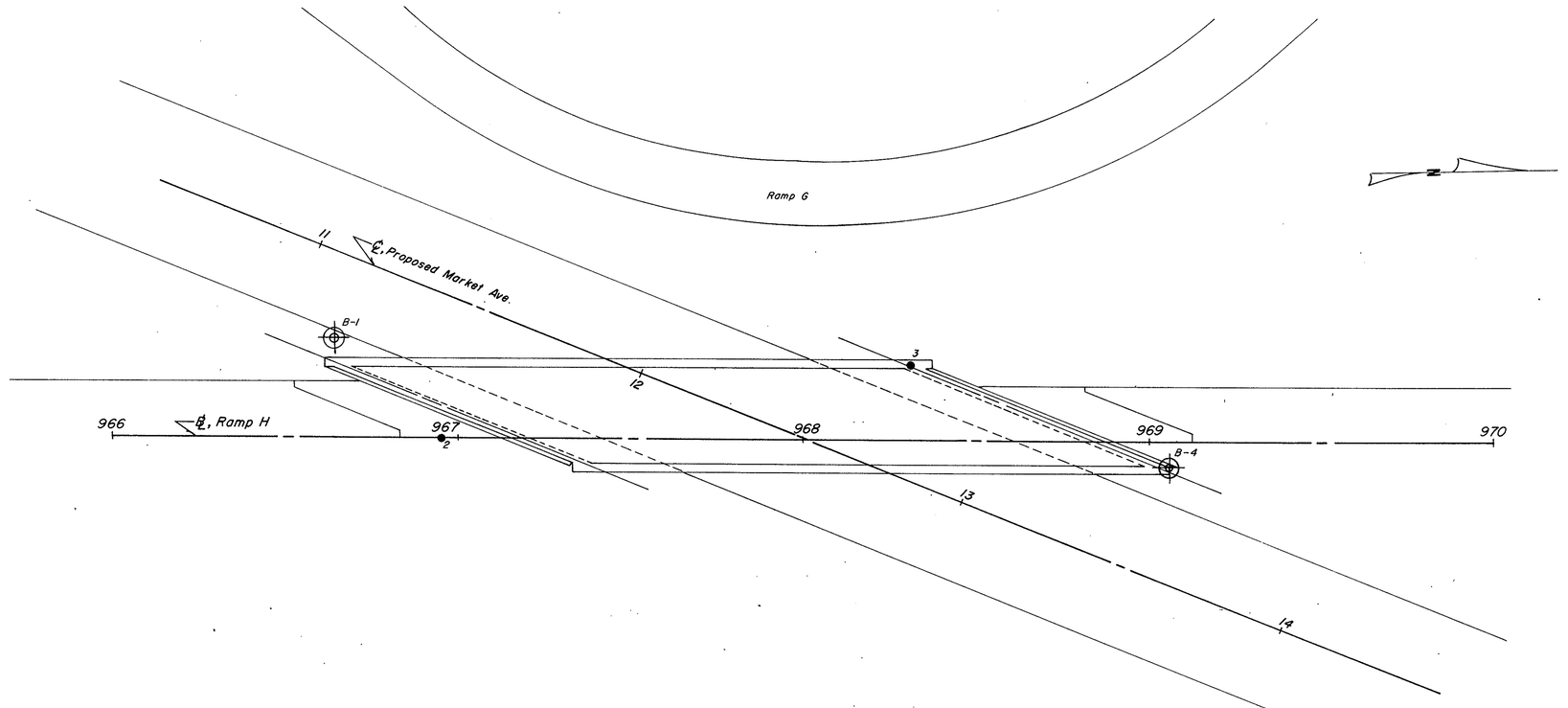
STRUCTURE FOUNDATION INVESTIGATION
BRIDGE NO. STA-30
RAMP 'H' OVER MARKET AVE.
SEC. STA-30-15.04

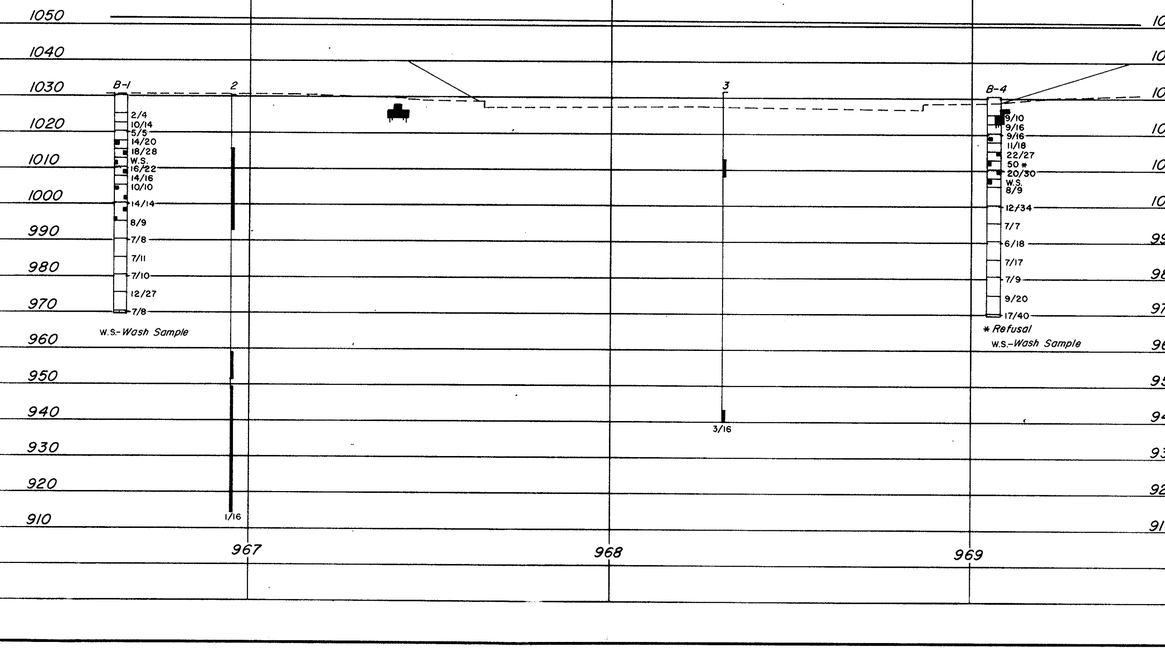
CHECKED BY	REVIEWED BY	DATE
L.N.L.	R.D.R.	9/17/68

TE - 119
1000 - 4 - 66

MICROFILMED
SEP 21 1988

STA-30-14.12
STA-77-9.22





SCALE: 1" = 20'

H.N.T.B. BR. # 10

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

STRUCTURE FOUNDATION INVESTIGATION
BRIDGE NO. STA-30
RAMP 'H' OVER MARKET AVE.
SEC. STA-30-15.04

PLAN AND PROFILE

DRAWN BY	CHECKED BY	REVIEWED BY	DATE
K.J.S.	L.N.L.	R.D.R.	9/17/68

MICROFILMED
SEP 2 1969

Test Location No. ____
Station & Offset ____
Surface Elev. ____ Water Elev. ____
Piling ____
Hammer ____
Formula ____
Reference ____
Rod Condition ____

Test Location No. ____
Station & Offset ____
Surface Elev. ____ Water Elev. ____
Piling ____
Hammer ____
Formula ____
Reference ____
Rod Condition ____

Test Location No. ____
Station & Offset ____
Surface Elev. ____ Water Elev. ____
Piling ____
Hammer ____
Formula ____
Reference ____
Rod Condition ____

Test Location No. ____
Station & Offset ____
Surface Elev. ____ Water Elev. ____
Piling ____
Hammer ____
Formula ____
Reference ____
Rod Condition ____

Test Location No. 2
Station & Offset 966+95 C L REAR ABUTMENT
Surface Elev. 1030.3' Water Elev. DRY-Hole Closed @ El. 1014.3'
Piling ____
Hammer ____
Formula ____
Reference ____
Rod Condition POINT BENT-B

Test Location No. 2 (Cont'd.)
Station & Offset ____
Surface Elev. ____ Water Elev. ____
Piling ____
Hammer ____
Formula ____
Reference ____
Rod Condition ____

TEST ROD

Test Location No. 3
Station & Offset 968+31.22 LT FORWARD ABUTMENT
Surface Elev. 1031.7' Water Elev. DRY-Hole Closed @ El. 1011.7'
Piling ____
Hammer ____
Formula ____
Reference ____
Rod Condition POINT BENT-B

TEST ROD

Test Location No. ____
Station & Offset ____
Surface Elev. ____ Water Elev. ____
STA-30-14.12
Piling STA-77-9.22
Hammer ____
Formula ____
Reference ____
Rod Condition ____

1032 1028 1024 1020 1016 1012 1008 1004 1000 996 992 988 984 980 976 972 968 964 960 956 952 948 944 940 936 932

10 20 30 40 50 60 70 80 90 100
Capacity "R" in Thousands of Pounds

Capacity "R" in Thousands of Pounds HN.T.B. BR. # 10

OHIO STATE HIGHWAY TESTING LABORATORY
1620 WEST BROAD ST. COLUMBUS 23, OHIO

STRUCTURE FOUNDATION INVESTIGATION
BRIDGE NO. STA-30
RAMP 'H' OVER MARKET AVE.
SEC. STA-30-15.04

DRIVE ROD PENETRATION RESISTANCE DATA

PLOTTED BY	CHECKED BY	REVIEWED BY	DATE
R.C.	L.N.L.	R.D.R.	9/17/68