

GEOLOGY

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SHENY PLAT
OF THE ALLEGHENY
LARGE POND IN THE

OF TR ...-MOUNTED MECHANICAL SOIL AUGER, ON MARCH 1 AND AUGUST

INVESTIGATION FINDINGS

BORINGS ENCOUNTERED GRAVELS (A-1-a), SANDY GRAVELS (A-1-b AND A-2-4), AND SANDS (A-3 AND A-3a), OVERLAIN IN PART BY SILTS (A-4a AND A-4b) AND FEW SILT CLAYS (A-6a), HAVING GENERALLY LOW MOISTURE CONTENTS, AND MOISTURE CONTENTS IN THE LOWER PORTION OF, OR BELOW THE PLASTIC RANGE.

WET MATERIALS WERE ENCOUNTERED AT STATIONS 872+40, 879+10, AND 916+75.



SAND	A-1-a(0)		21	12								
	A-1-b(0)	A-1-b	38	27	2					10		
FINE SAND	A-3(0)	A-3	7	25	61					12		
COARSE AND FINE SAND	----	A-3a	12	32	37					NP		
GRAVEL WITH SAND AND SILT	A-2-4(0)	A-2-4	47	14	13	14	12	25	6	12		
SANDY SILT	A-4(3)	A-4a	23	10	16	30	21	21	4	11		
SILT	A-4(8)	A-4b	1	3	5	61	30	28	4	24		
SILT AND CLAY	A-6(9)	A-6a	2	4	10	52	32	30	12	18		
SILTY CLAY	A-6(11)	A-6b	0	0	0	56	44	40	18	25		

AUGER BORING-PLAN VIEW.

AUGER 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.

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

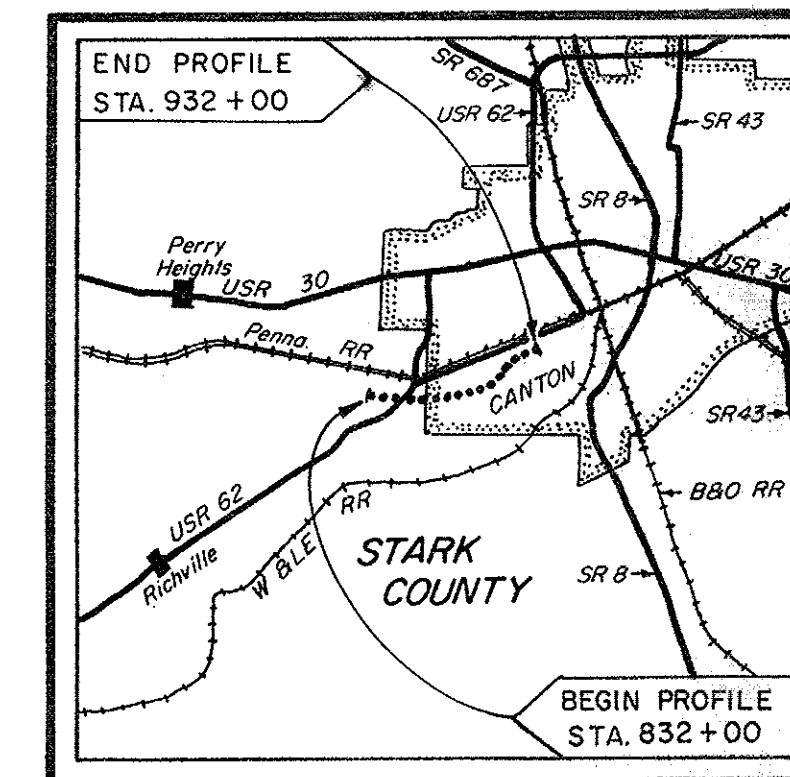
SOIL PROFILE

COUNTY
-12.47

STATE
167 W.

TESTING LABORATORY
ST. COLUMBUS 23, OHIO

NOTE: INFORMATION BY THIS SUBGRADE PROFILE WAS OBTAINED SO R 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.



LOCATION MAP

Recon - J.S.M. - 7/7/66
Drilling - T.R.S. - 3/11/66, 8/9/66 and 8/10/66.
Drafting - R.C.B., C.L.I. - 9/20/66

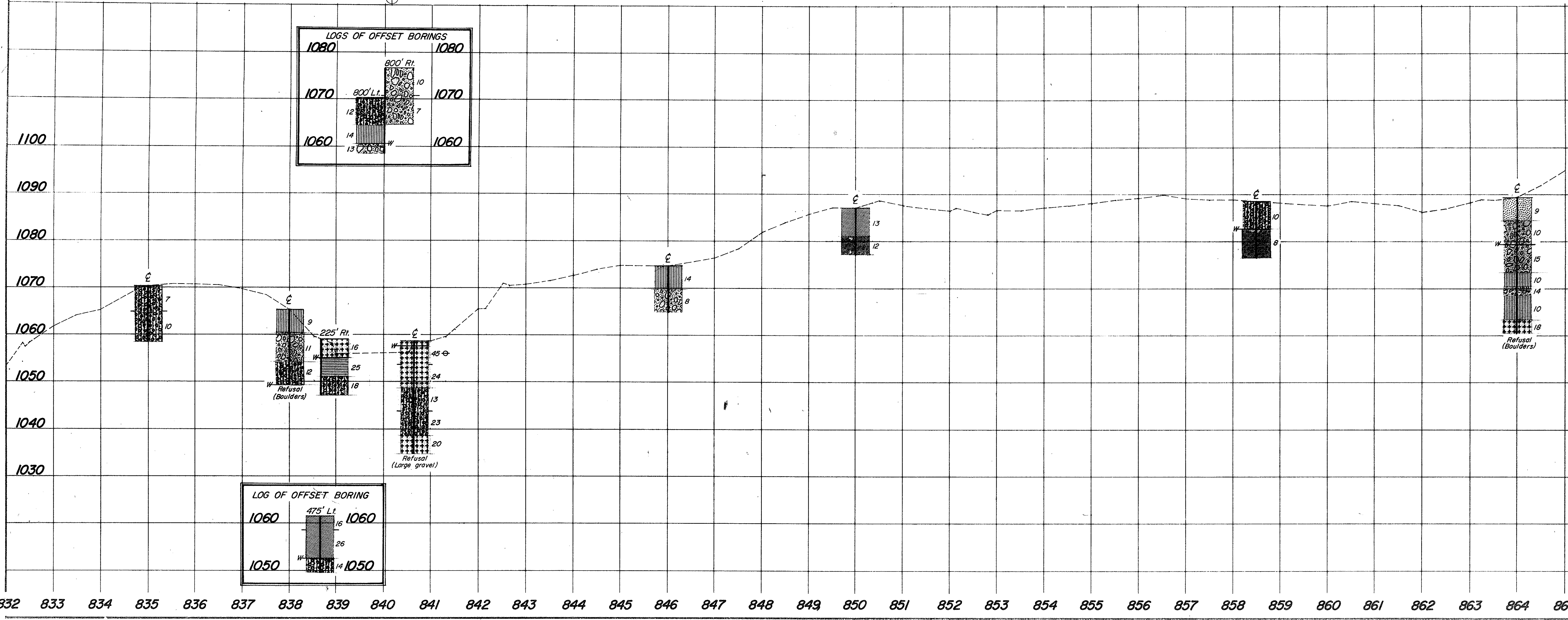
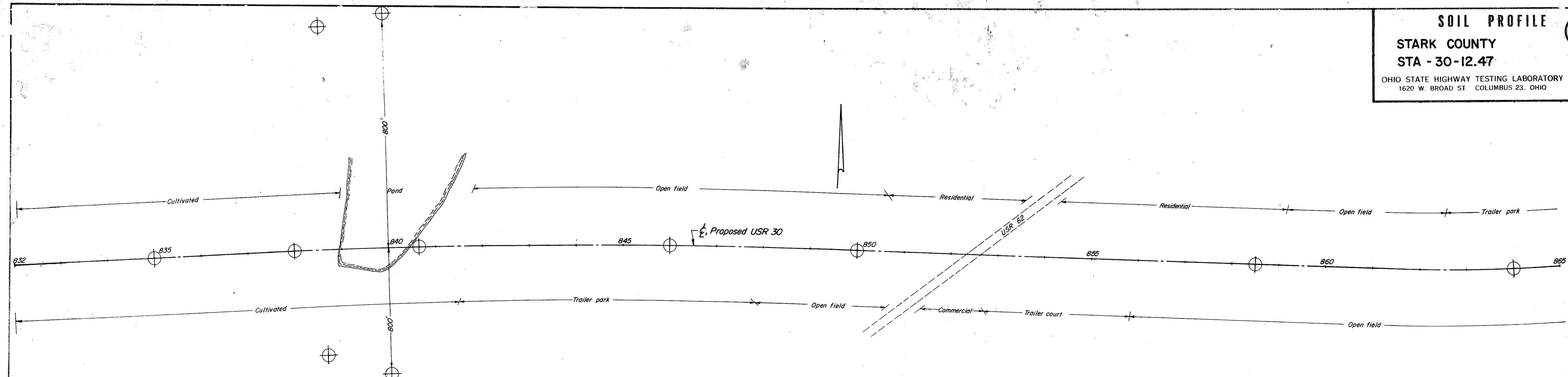
SUMMARY OF SOIL TEST DATA

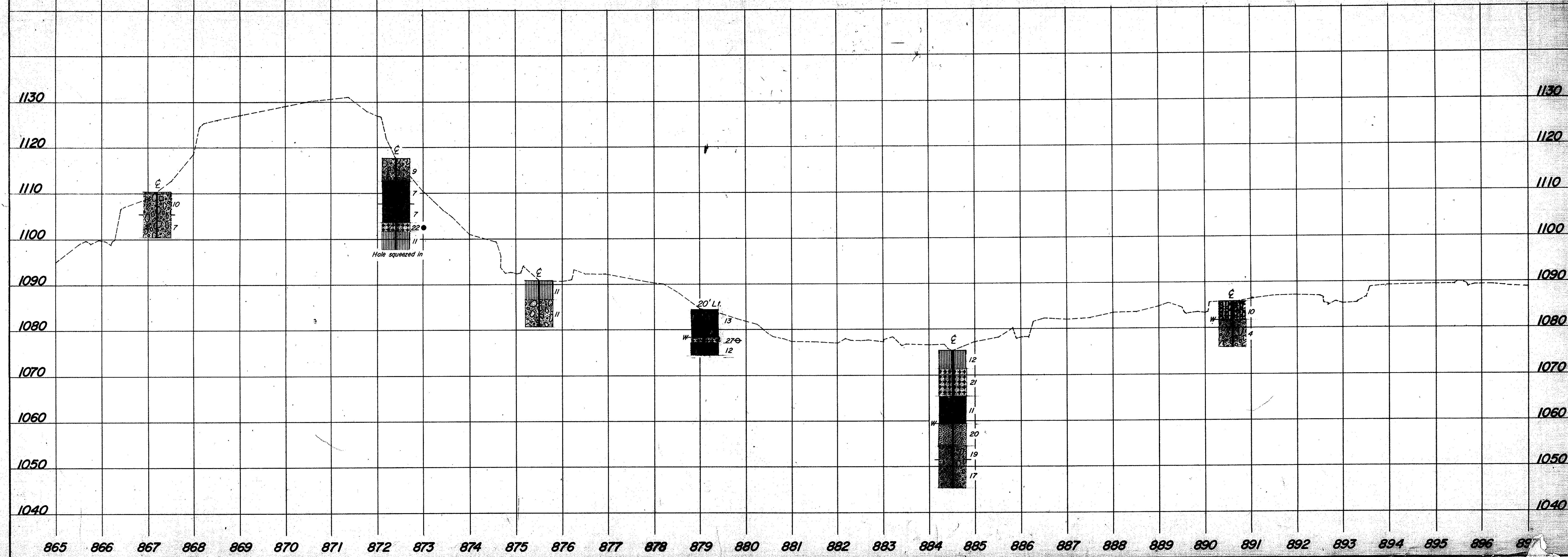
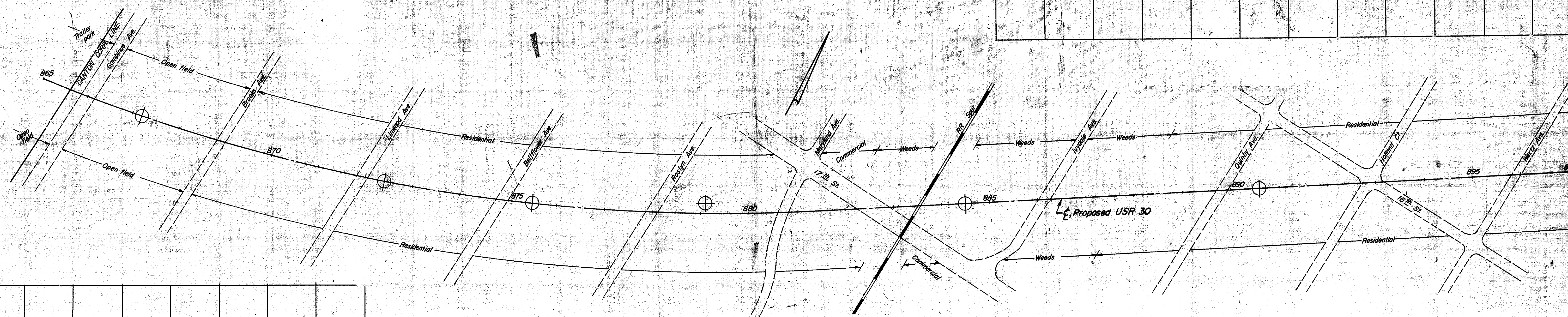
NOTE: NP SHOWN IN LIQUID LIMIT AND PLASTICITY INDEX COLUMNS INDICATES THAT THE MATERIAL IS NON-PLASTIC.
*DENOTES SAMPLE TAKEN AT OR NEAR GRADE.

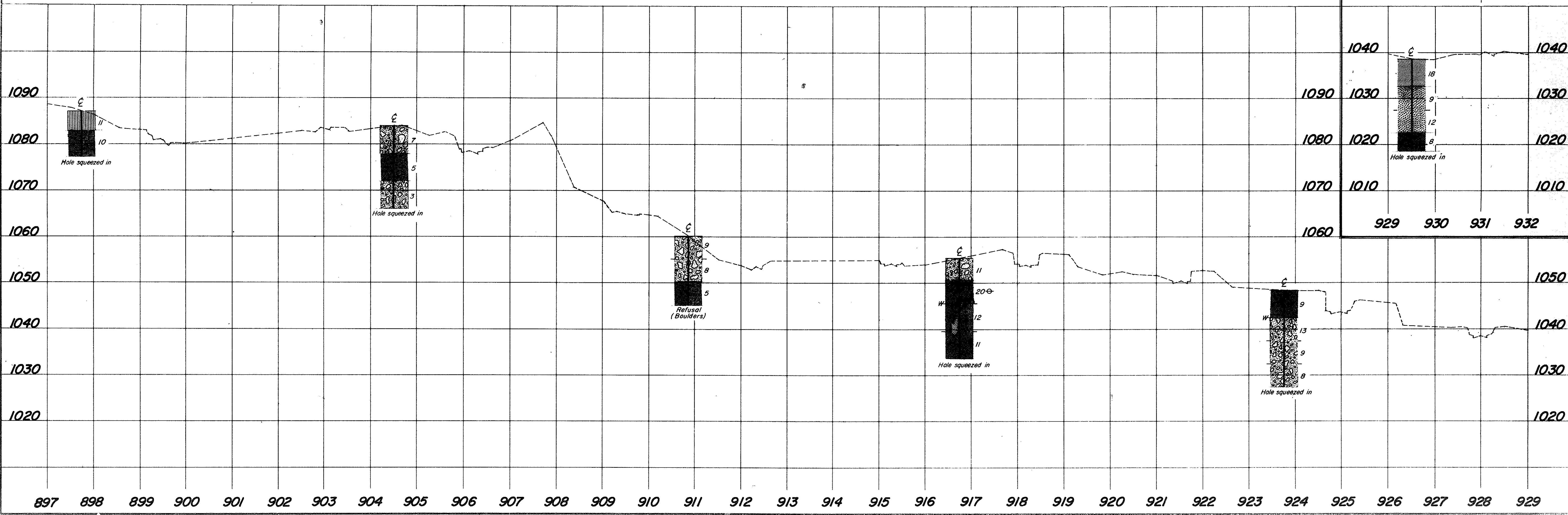
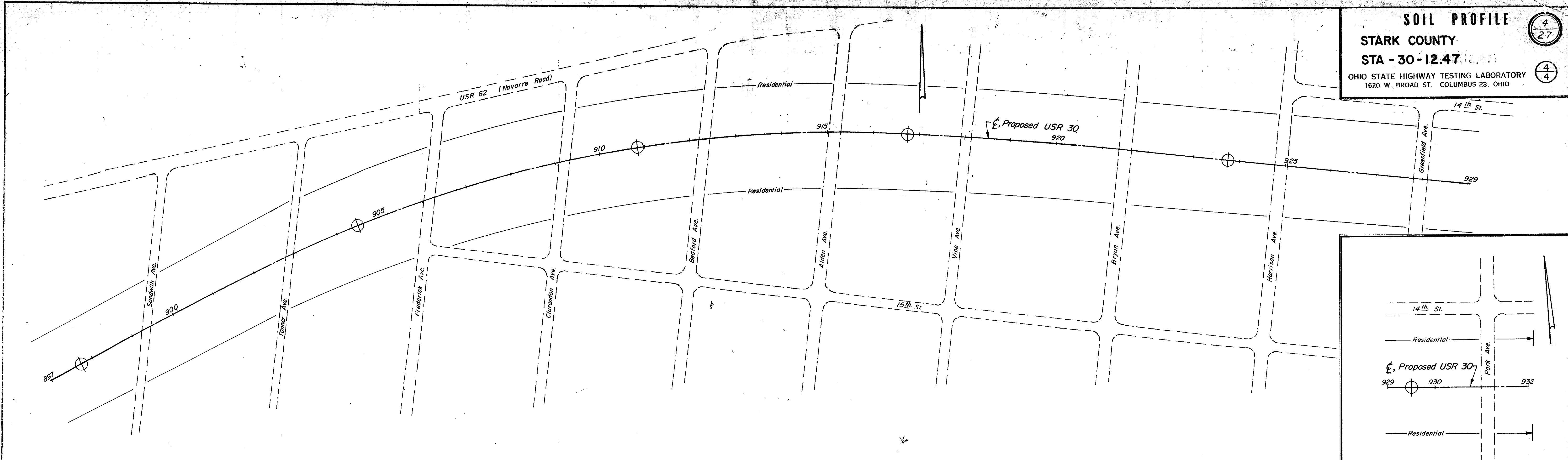
STATION & OFFSET		DEPTH		%	%	%	%	%	L.L.	P.I.	% W.C.	SHTL CLASS.
		FROM	TO	AGG.	C.S.	F.S.	SILT	CLAY				
835+00	CL	0.0-5.5	37	11	19	17	16	23	6	7	10	A-2-4
		5.5-12.0	39	28	13	9	11	26	8	10		A-2-4
838+00	CL	0.0-5.0	35	9	17	23	16	27	5	9		A-4a
		5.0-11.0	42	31	15	3	9	NP	NP	11		A-1-b
		11.0-16.0	49	11	14	14	12	22	6	12		A-2-4
838+65	475'Lt	0.0-3.0	0	1	2	56	41	33	12	16		A-6a
		3.0-9.0	0	0	2	57	41	34	13	26		A-6a
		9.0-12.0	32	17	19	23	9	19	2	14		A-2-4
838+65	225'Rt	0.0-4.0	0	2	2	53	43	30	8	16		A-4b
		4.0-8.0	0	0	0	56	44	40	18	25		A-6b
		8.0-12.0	57	13	8	11	11	27	9	18		A-2-4
840+00	800'Lt	0.0-6.0	37	19	13	17	14	23	4	12		A-2-4
		6.0-10.0	13	10	21	28	28	24	6	14		A-4a
		10.0-12.0	47	15	23	-	15	NP	NP	13		A-1-b
840+00	800'Rt	0.0-6.0	52	21	11	7	9	25	5	10		A-1-b
		6.0-12.0	51	18	14	10	7	NP	NP	7		A-1-b
840+65	CL	0.0-5.0	0	2	3	62	33	NP	NP	45		A-4b
		5.0-10.0	0	0	1	58	41	31	10	24		A-4b
		10.0-15.0	43	11	15	18	13	24	6	13		A-2-4
		15.0-20.0	66	5	8	13	8	28	7	23		A-2-4
		20.0-24.0	0	9	8	50	33	27	6	20		A-4b
846+00	CL	0.0-5.0	24	7	10	35	24	27	6	14		A-4a
		5.0-10.0	39	34	13	-	14	NP	NP	8		A-1-b

STATION & OFFSET		DEPTH		%	%	%	%	%	L.L.	P.I.	% W.C.	SHTL CLASS.
		FROM	TO	AGG.	C.S.	F.S.	SILT	CLAY				
850+00	CL	0.0-6.0	9	6	15	42	28	30	12	13		A-6a
		6.0-10.0	58	23	8	-	11	NP	NP	12		A-1-a
858+50	CL	0.0-6.0	52	14	10	12	12	27	8	10		A-2-4
		6.0-12.0	54	19	16	-	11	NP	NP	8		A-1-a
864+00	CL	0.0-5.0	21	27	25	14	13	NP	NP	9		A-3a
		5.0-10.0	41	22	20	-	13	NP	NP	10		A-1-b
		10.0-16.0	34	22	21	-	13	NP	NP	15		A-1-b
		16.0-19.0	18	13	22	29	18	NP	NP	10		A-4a
		19.0-21.0	31	22	24	14	9	NP	NP	14		A-1-b
		21.0-26.0	28	10	16	28	18	NP	NP	10		A-4a
		26.0-29.0	0	1	4	72	23	NP	NP	18		A-4b
867+20	CL	0.0-5.0	47	19	17	8	9	PL = 16	16	10		A-1-b
		5.0-10.0	23	37	33	-	7	NP	NP	7		A-1-b
872+40	CL	0.0-5.0	41	21	16	12	10	21	5	9		A-1-b
		5.0-10.0	52	22	14	-	12	NP	NP	7		A-1-a
		10.0-14.0	51	23	10	9	7	NP	NP	7		A-1-a
		14.0-16.0	0	6	10	55	29	24	3	22		A-4b
		16.0-20.0	29	13	13	27	18	25	4	11		A-4a
875+50	CL	0.0-4.0	0	9	30	41	20	24	6	11		A-4a
		4.0-10.0	54	19	12	8	7	NP	NP	11		A-1-b
879+10	20'Lt	0.0-6.0	62	13	14	5	6	NP	NP	13		A-1-a
		6.0-7.0	6	4	3	69	18	NP	NP	27		A-4b
		7.0-10.0	60	23	10	-	7	NP	NP	12		A-1-a

STATION & OFFSET		DEPTH		%	%	%	%	%	L.L.	P.I.	% W.C.	SHTL CLASS.
		FROM	TO	AGG.	C.S.	F.S.	SILT	CLAY				
884+50	CL	0.0-4.0	18	4	12	39	27	NP	NP	12		A-4a
		4.0-10.0	0	2	12	63	23	25	2	21		A-4b
		10.0-16.0	57	25	11	-	7	NP	NP	11		A-1-a
		16.0-21.0	15	20	52	-	13	NP	NP	20		A-3a
		21.0-24.0	20	40	35	-	5	NP	NP	19		A-1-b
		24.0-30.0	15	51	29	-	5	NP	NP	17		A-1-b
890+60	CL	0.0-4.0	54	14	12	9	11	26	8	10		A-2-4
		4.0-10.0	40	21	17	13	9	NP	NP	4		A-1-b
897+75	CL	0.0-4.0	41	18	5	20	16	26	7	11		A-4a
		4.0-10.0	64	20	8	-	8	NP	NP	10		A-1-a
904+50	CL	0.0-6.0	31	26	37	-	6	NP	NP	7		A-1-b
		6.0-12.0	61	19	17	-	3	NP	NP	5		A-1-a
		12.0-18.0	49	32	14	-	5	NP	NP	3		A-1-b
910+35	CL	0.0-5.0	52	10	16	12	10	NP	NP	9		A-1-b
		5.0-10.0	49	21	17	-	13	NP	NP	8		A-1-b
		10.0-15.0	64	19	10	-	7	NP	NP	5		A-1-a
916+75	CL	0.0-5.0	37	26	30	-	7	NP	NP	11		A-1-b
		5.0-10.0	0	1	92	-	7	NP	NP	20		A-3
		10.0-16.0	10	27	55	-	8	NP	NP	12		A-3
		16.0-22.0	14	25	52	-	9	NP	NP	11		A-3
923+75	CL	0.0-6.0	13	28	53	-	6	NP	NP	9		A-3
		6.0-11.0	39	20	30	-	11	NP	NP	13		A-1-b
		11.0-16.0	11	40	42	-	7	NP	NP	9		A-1-b
		16.0-21.0	31	37	25	-	7	NP	NP	8		A-1-b
929+50	CL	0.0-6.0	0	10	19	51	20	24	12	18		A-6a
		6.0-11.0	5	38	34	-	23	NP	NP	9		A-3a
		11.0-16.0	5	42	38	-	15	NP	NP	12		A-3a
		16.0-20.0	0	43	51	-	6	NP	NP	8		A-3







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.
-  Figures Beside the Boring Log in Profile Indicate the Number of Blows for Standard Penetration Test.
X = Number of Blows for First 6 inches.
Y = Number of Blows for Second 6 inches.
-  Drive Rod Penetration Resistance Sounding Log - Profile
-  Casing
-  Resistance "R" < 10,000 lbs.
-  Resistance "R" > 10,000 lbs.
-  Z Indicates Final Measurement of Penetration, in Inches.
-  W Indicates Free Water Elevation.
-  Indicates Static Water Elevation.

SYMBOLS OF ROCK TYPES

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

GENERAL INFORMATION

Drive Rod Penetration Sounding Tests

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

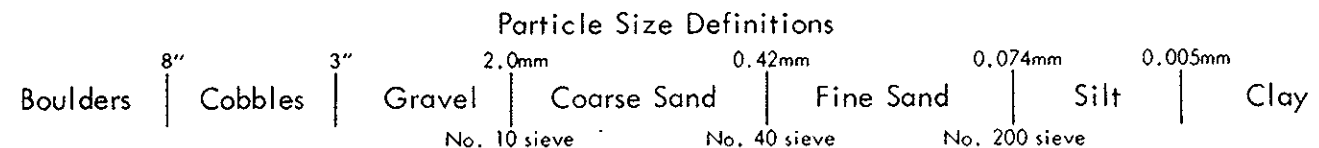
Drive Sample Borings - Drive-Press Sample Borings

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

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

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

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



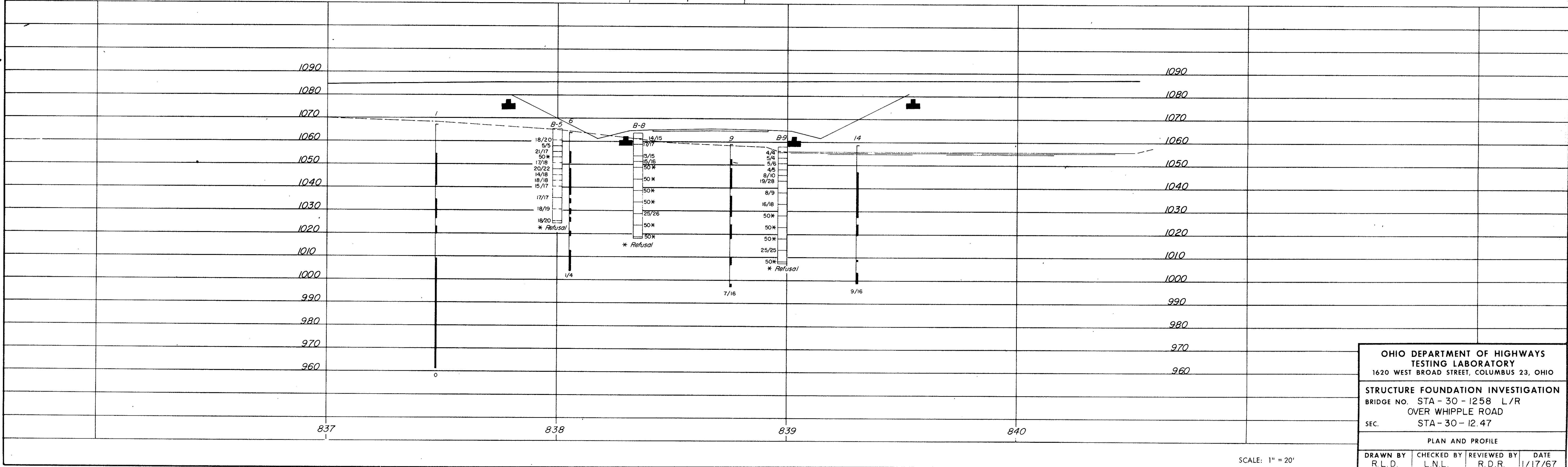
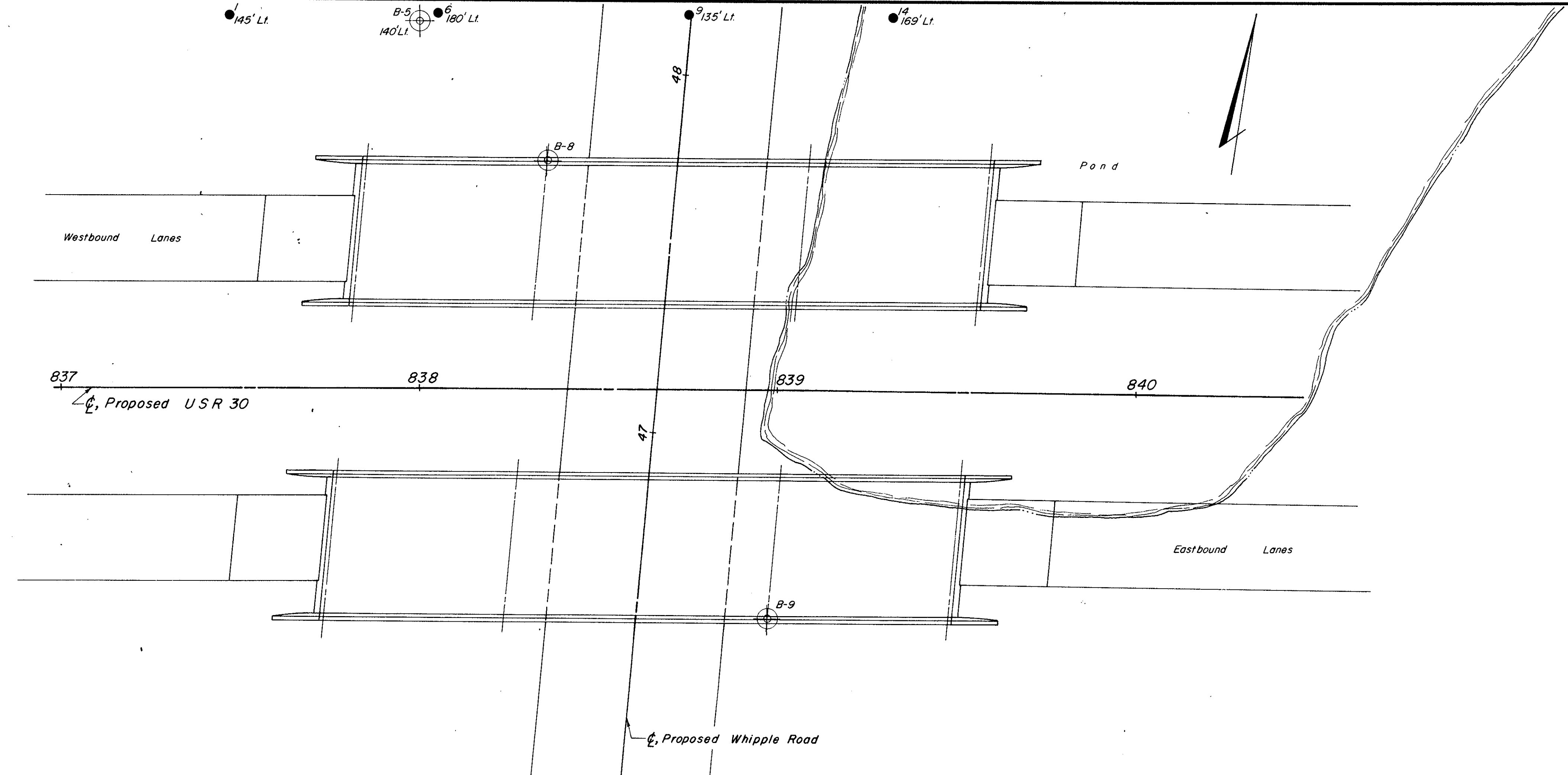
NOTE: Information shown by this subsurface investigation was obtained solely for the use in establishing design controls for the project. The State of Ohio does not guarantee the accuracy of this data and it is not to be construed as a part of the plans governing construction of the project.

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

STRUCTURE FOUNDATION INVESTIGATION
BRIDGE NO. STA - 30 - 1258 L/R
OVER WHIPPLE ROAD
SEC. STA - 30 - 12 47

CHECKED BY	REVIEWED BY	DATE
L N L	R D R	1/17/67

STA - 30 - 12.47



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

STRUCTURE FOUNDATION INVESTIGATION
BRIDGE NO. STA - 30 - 1258 L/R
OVER WHIPPLE ROAD
SEC. STA - 30 - 12.47

PLAN AND PROFILE

DRAWN BY R.L.D.	CHECKED BY L.N.L.	REVIEWED BY R.D.R.	DATE 1/17/67
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SCALE: 1" = 20'

LOG OF BORING

Date Started 10-17-66
Date Completed 10-18-66
Boring No. B-5

Sampler Type SS
Casing Length 40'
Station & Offset 838+00, 140' Lt.

Water Elev. _____
Surface Elev. 1065.6'

Elev.	Depth	Std. Pen. (N)	Rec. ft.	Loss ft.	Description	Sample No.	Physical Characteristics								SHTL Class.
							% Agg.	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.	
1065.6	0														
	2														
	4														
1060.6	6	18/20			Brown Silty Sandy Gravel	1	57	8	12	14	9	28	9	11	A-2-b
1058.1	8	5/5			Brown Silty Sandy Gravel	2	45	16	22	-17	-	NP	NP	12	A-1-b
1055.6	10	21/17			Brown Silty Sandy Gravel	3	54	13	12	-21	-	NP	NP	13	A-1-b
1053.1	12	50* (0.6)			Brown Silty Sandy Gravel	4	59	16	11	-14	-	NP	NP	10	A-1-a
1050.6	14	17/18			Brown Silty Sandy Gravel	5	48	23	15	-14	-	NP	NP	10	A-1-b
1048.1	16	20/22			Brown Silty Sandy Gravel	6	51	18	15	-16	-	NP	NP	7	A-1-b
1045.6	18	14/18			Brown Silty Gravelly Sand	7	40	21	21	-18	-	NP	NP	11	A-1-b
1043.1	20	18/18			Brown Silty Sandy Gravel	8	54	14	17	-15	-	NP	NP	12	A-1-b
1040.6	22	15/17			Brown Silty Sandy Gravel	9	42	18	20	-20	-	NP	NP	12	A-1-b
	24														
1035.6	26	17/17			Brown Silty Sandy Gravel	10	56	18	12	-14	-	NP	NP	11	A-1-a
	28														
1030.6	30	18/19			Brown Silty Gravelly Sand	11	40	22	21	17	-	NP	NP	8	A-1-b
	32														
1025.6	34														
1024.6	36	18/20			Brown Silty Sandy Gravel	12	50	17	14	-19	-	NP	NP	11	A-1-b
	38														
	40														

BOTTOM OF BORING

*Refusal

LOG OF BORING

Date Started 12-20-66
Date Completed 12-21-66
Boring No. B-8

Sampler Type SS
Casing Length 45'
Station & Offset 838+35, 64' Lt. (Rear Pier)

Water Elev. _____
Surface Elev. 1063.8'

Elev.	Depth	Std. Pen. (N)	Rec. ft.	Loss ft.	Description	Sample No.	Physical Characteristics								SHTL Class.
							% Agg.	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.	
1063.8	0														
	2														
1061.3	4	14/15			Brown Silty Gravelly Sand	1	34	25	20	13	8	NP	NP	17	A-1-b
1058.8	6	17/17			Brown Gravelly Sand	2	28	54	11	-7	-	NP	NP	18	A-1-b
	8														
1053.8	10	13/15			Brown Silty Sandy Gravel	3	52	20	14	-14	-	NP	NP	15	A-1-a
1051.3	12	15/16			Brown Sandy Gravel	4	58	32	6	-4	-	NP	NP	15	A-1-a
1048.8	14	50* (0.6)			Brown Silty Sandy Gravel	5	53	18	13	-16	-	NP	NP	9	A-1-b
	16														
1043.8	18	50* (0.8)			Brown Sandy Gravel	6	57	31	7	-5	-	NP	NP	18	A-1-a
	20														
1038.8	22	50* (0.6)			Brown Gravelly Sand	7	33	48	13	-6	-	NP	NP	17	A-1-b
	24														
1033.8	26	50* (0.6)			Brown Gravelly Sand	8	24	37	32	-7	-	NP	NP	23	A-1-b
	28														
1028.8	30	25/26			Brown Gravelly Sand	9	24	64	9	-3	-	NP	NP	14	A-1-b
	32														
1023.8	34														
1022.8	36	50* (0.7)			Brown Gravelly Sand	10	42	41	14	-3	-	NP	NP	16	A-1-b
	38														
1018.8	40														
1018.0	42	50* (0.8)			Brown Sandy Gravel	11	57	19	18	-6	-	NP	NP	15	A-1-a
	44														
	46														

BOTTOM OF BORING

*Refusal

LOG OF BORING

Date Started 12-21-66
Date Completed 12-22-66
Boring No. B-9

Sampler Type SS
Casing Length 50'
Station & Offset 838+98, 64' Rt. (Forward Pier)

Water Elev. _____
Surface Elev. 1058.0'

Elev.	Depth	Std. Pen. (N)	Rec. ft.	Loss ft.	Description	Sample No.	Physical Characteristics								SHTL Class.
							% Agg.	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.	
1058.0	0														
	2														
1055.5	4	4/4			Brownish-Gray Silt and Clay	1	0	5	4	27	64	32	11	27	A-6a
1053.0	6	5/4			Gray Clayey Silt	2	0	2	4	55	39	32	10	27	A-4b
1050.5	8	5/6			Brown Silty Gravelly Sand	3	43	22	23	-12	-	NP	NP	19	A-1-b
1048.0	10	4/5			Brown Silty Gravelly Sand	4	22	19	38	-21	-	NP	NP	23	A-3a
1045.5	12	8/10			Brown Silty Sand	5	0	36	50	-14	-	NP	NP	18	A-3a
1043.0	14	19/28			Brown Sandy Gravel	6	49	29	15	-7	-	NP	NP	9	A-1-b
	16														
1038.0	18	8/9			Brown Silty Sandy Gravel	7	41	13	19	16	11	NP	NP	12	A-2-b
	20														
1033.0	22	16/18			Gray Sandy Gravel	8	59	33	7	-1	-	NP	NP	14	A-1-a
	24														
1028.0	26	50* (0.6)			Gray Sandy Gravel	9	53	28	10	-9	-	NP	NP	13	A-1-a
	28														
1023.0	30	50* (0.6)			Gray Sand	10	0	82	17	-1	-	NP	NP	24	A-1-b
	32														
1018.0	34	50* (0.7)			Brown Sandy Gravel	11	65	28	6	-1	-	NP	NP	13	A-1-a
	36														
1013.0	38	25/25			Brown Sandy Gravel	12	51	31	12	-6	-	NP	NP	18	A-1-a
	40														
1008.0	42														
1007.1	44	50* (0.9)			Brown Gravelly Sand	13	27	62	9	-2	-	NP	NP	17	A-1-b
	46														
	48														
	50														

BOTTOM OF BORING

*Refusal

Test Location No. Station & Offset	Surface Elev.	Water Elev.	Piling	Hammer	Formula	Reference	Rod Condition
1074							
1070							
1066							
1062							
1058							
1054							
1050							
1046							
1042							
1038							
1034							
1030							
1026							
1022							
1018							
1014							
1010							
1006							
1002							
998							
994							
990							

Test Location No. Station & Offset	Surface Elev.	Water Elev.	Piling	Hammer	Formula	Reference	Rod Condition
1074							
1070							
1066							
1062							
1058							
1054							
1050							
1046							
1042							
1038							
1034							
1030							
1026							
1022							
1018							
1014							
1010							
1006							
1002							
998							
994							
990							

Test Location No. Station & Offset	Surface Elev.	Water Elev.	Piling	Hammer	Formula	Reference	Rod Condition
1074							
1070							
1066							
1062							
1058							
1054							
1050							
1046							
1042							
1038							
1034							
1030							
1026							
1022							
1018							
1014							
1010							
1006							
1002							
998							
994							
990							

Test Location No. Station & Offset	Surface Elev.	Water Elev.	Piling	Hammer	Formula	Reference	Rod Condition
1074							
1070							
1066							
1062							
1058							
1054							
1050							
1046							
1042							
1038							
1034							
1030							
1026							
1022							
1018							
1014							
1010							
1006							
1002							
998							
994							
990							

Test Location No. Station & Offset	Surface Elev.	Water Elev.	Piling	Hammer	Formula	Reference	Rod Condition
1074							
1070							
1066							
1062							
1058							
1054							
1050							
1046							
1042							
1038							
1034							
1030							
1026							
1022							
1018							
1014							
1010							
1006							
1002							
998							
994							
990							

Test Location No. Station & Offset	Surface Elev.	Water Elev.	Piling	Hammer	Formula	Reference	Rod Condition
1074							
1070							
1066							
1062							
1058							
1054							
1050							
1046							
1042							
1038							
1034							
1030							
1026							
1022							
1018							
1014							
1010							
1006							
1002							
998							
994							
990							

Test Location No. Station & Offset	Surface Elev.	Water Elev.	Piling	Hammer	Formula	Reference	Rod Condition
1074							
1070							
1066							
1062							
1058							
1054							
1050							
1046							
1042							
1038							
1034							
1030							
1026							
1022							
1018							
1014							
1010							
1006							
1002							
998							
994							
990							

Test Location No. Station & Offset	Surface Elev.	Water Elev.	Piling	Hammer	Formula	Reference	Rod Condition
1074							
1070							
1066							
1062							
1058							
1054							
1050							
1046							
1042							
1038							
1034							
1030							
1026							
1022							
1018							
1014							
1010							
1006							
1002							
998							
994							
990							

Test Location No. Station & Offset	Surface Elev.	Water Elev.	Piling	Hammer	Formula	Reference	Rod Condition
1074							
1070							
1066							
1062							
1058							
1054							
1050							
1046							
1042							
1038							
1034							
1030							
1026							
1022							
1018							
1014							
1010							
1006							
1002							
998							
994							
990							

GEOLOGY OF THE SITE

THE STRUCTURE SITE IS LOCATED ON A GENTLY ROLLING PORTION OF THE GLACIATED ALLEGHENY PLATEAU REGION, ADJACENT TO THE DEEP STAGE VALLEY, IN AN AREA WHERE MODERATELY DEEP MORAINAL DEPOSITS AND OUTWASH OVERLIE BEDROCK, OF PENNSYLVANIAN AGE.

EXPLORATION

THE EXPLORATION CONSISTED OF ONE DRIVE SAMPLE BORING AND ONE DRIVE SAMPLE-CORE BORING, MADE BETWEEN OCTOBER 19 AND 21, 1966, AND NINE DRIVE ROD PENETRATION TESTS, MADE ON DECEMBER 8 AND 14, 1966.

INVESTIGATIONAL FINDINGS

THE BORINGS DISCLOSED THAT SLOPING BEDROCK SURFACE, ENCOUNTERED AT 38-FOOT DEPTH, ELEVATION 1051 FEET, IN THE REAR PORTION OF THE STRUCTURE SITE, IS overlain BY UNSTRATIFIED INTERVALS OF LOOSE TO VERY DENSE GRAVELS, SANDS, AND SILTS, WITH SOME STIFF CLAYS. THE BORING B-12 WAS TERMINATED AT 66-FOOT DEPTH, ELEVATION 1026 FEET, AFTER PENETRATING IN EXCESS OF 30 FEET OF MATERIAL REQUIRING IN EXCESS OF 30 BLOWS PER FOOT IN THE STANDARD PENETRATION TEST. BORING B-5 WAS TERMINATED AT 45-FOOT DEPTH, ELEVATION 1043 FEET, AFTER PENETRATING 8 FEET BELOW BEDROCK SURFACE.

ROD SOUNDINGS MET GENERALLY GRADUAL, OCCASIONALLY ERRATIC, INCREASE IN RESISTANCE TO PENETRATION WITH INCREASE IN DEPTH, AND WERE TERMINATED UPON ENCOUNTER WITH NEAR-REFUSAL AND REFUSAL TO PENETRATION AT 32 TO 58-FOOT DEPTHS, ELEVATIONS 1057 TO 1035 FEET, CONSIDERED TO BE IN VERY DENSE SILTS IN THE FORWARD PORTION OF THE STRUCTURE SITE, AND ON OR SLIGHTLY ABOVE BEDROCK SURFACE IN THE REAR PORTION OF THE STRUCTURE SITE, AS REVEALED BY THE BORINGS.

FREE WATER WAS OBSERVED IN THE ROD SOUNDING HOLES BETWEEN ELEVATIONS 1088 AND 1085 FEET.

LEGEND

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

SYMBOLS OF ROCK TYPES

	Coal		Weathered Sandstone
	Weathered Indurated Clay		Sandstone
	Indurated Clay		Leached Dolomite
	Weathered Shale		Dolomite
	Shale		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.

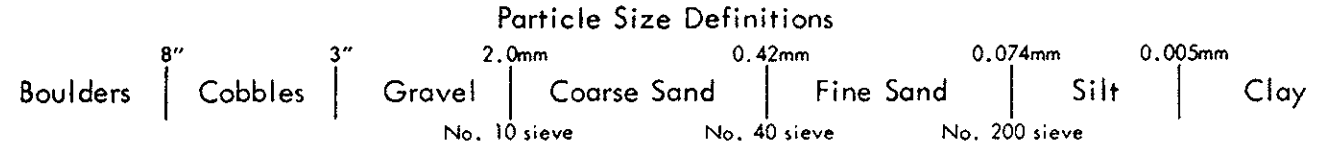
Drive Sample Borings - Drive-Press Sample Borings

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.

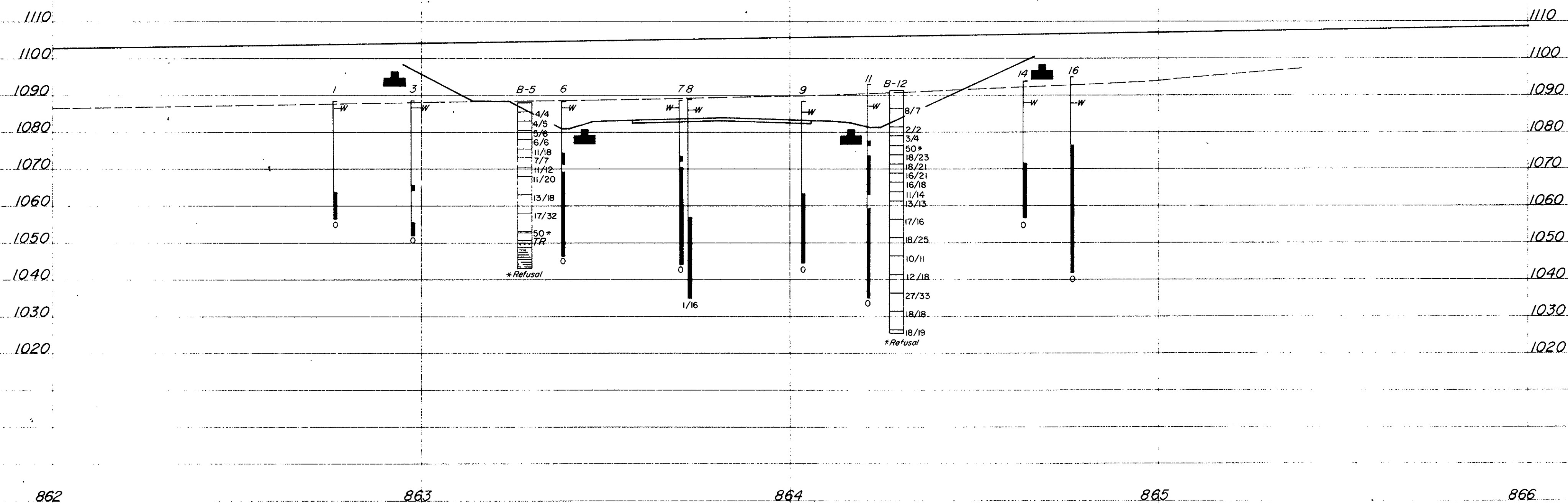
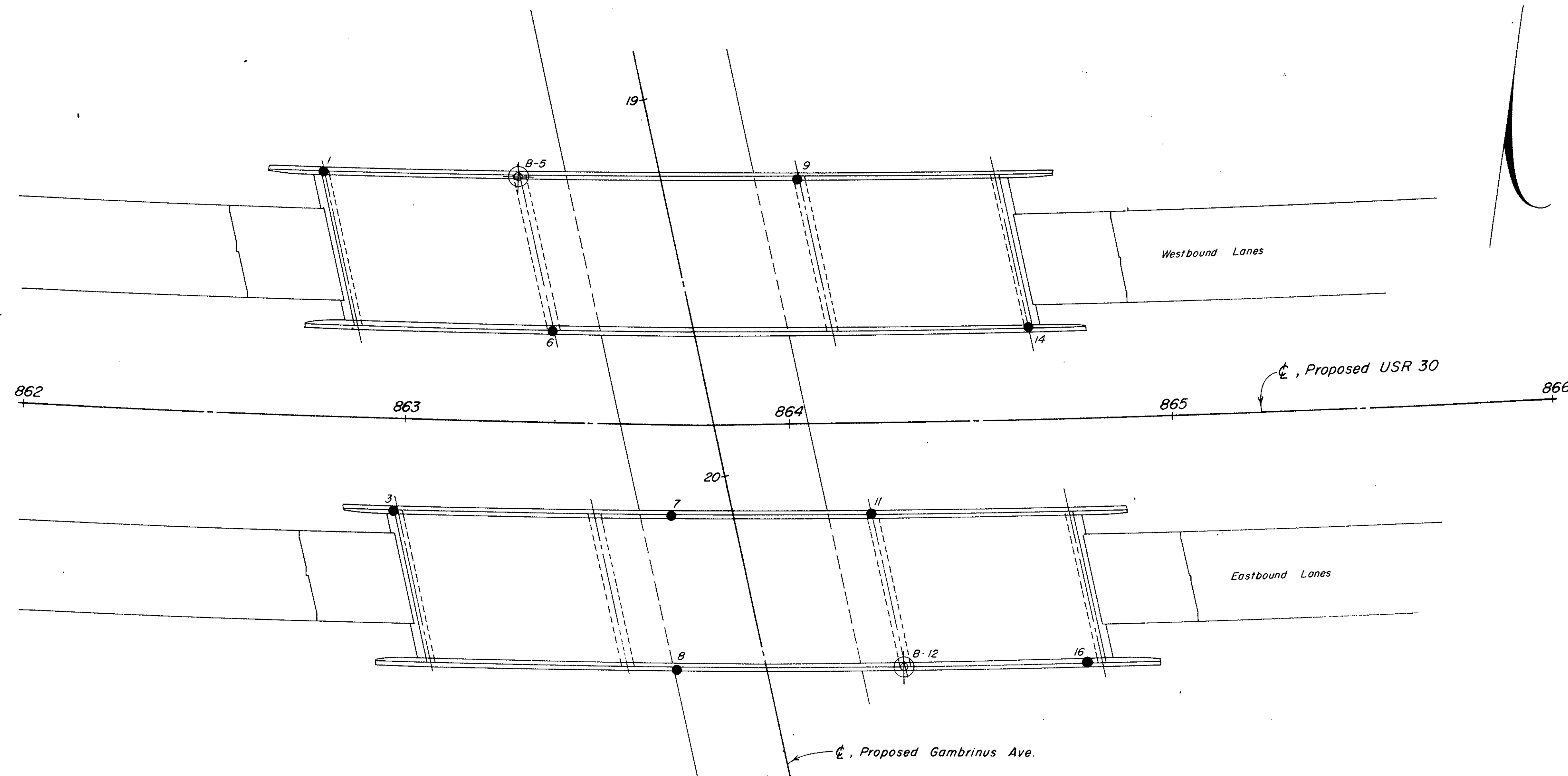


NOTE: Information shown by this subsurface investigation was obtained solely for the use in establishing design controls for the project. The State of Ohio does not guarantee the accuracy of this data and it is not to be construed as a part of the plans governing construction of the project.

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

STRUCTURE FOUNDATION INVESTIGATION
BRIDGE NO. STA-30-1305 L/R
OVER GAMBRINUS AVENUE
SEC. STA-30-12.47

CHECKED BY	REVIEWED BY	DATE
L.N.L.	R.D.R.	12/28/66



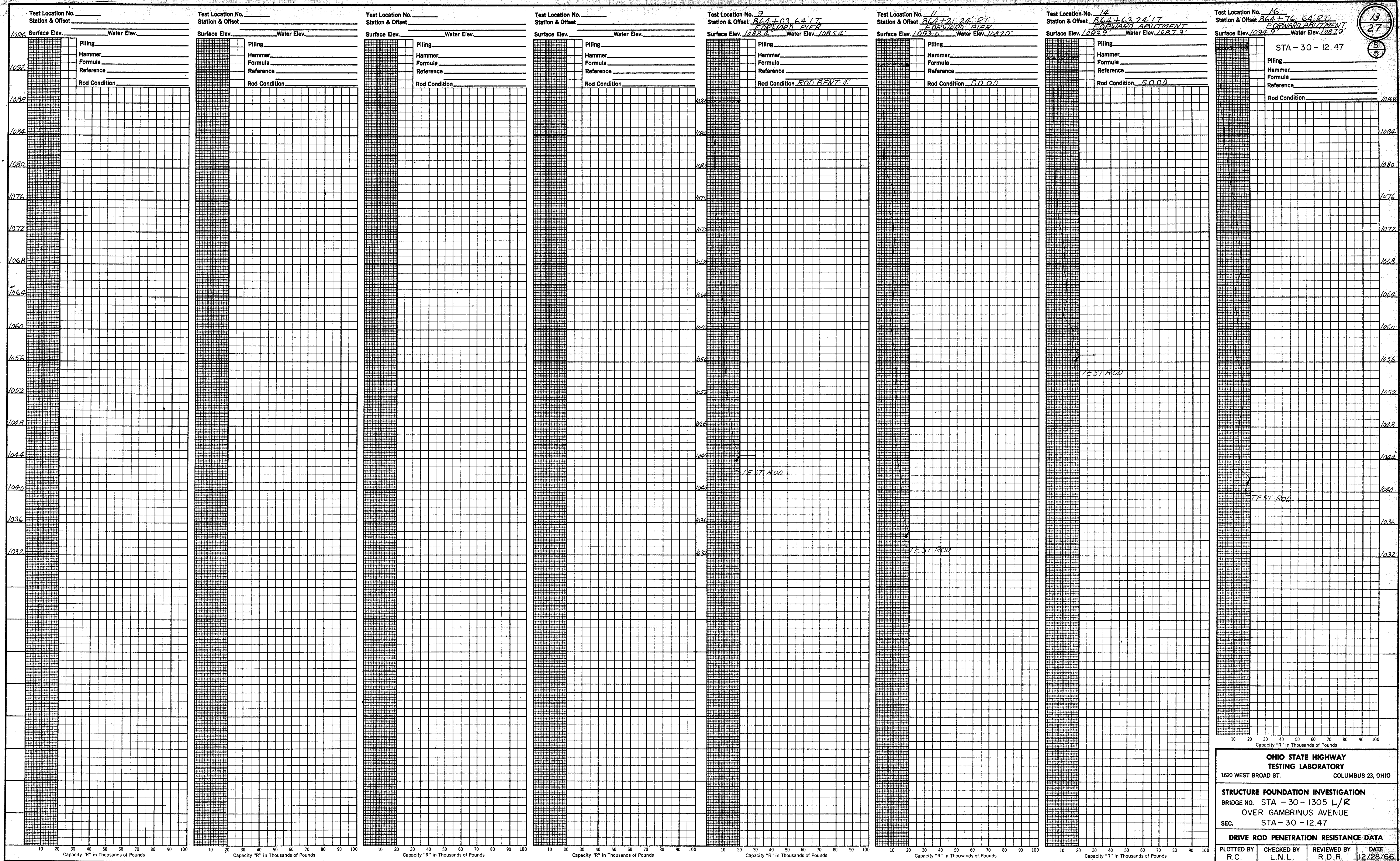
OHIO DEPARTMENT OF HIGHWAYS TESTING LABORATORY 1620 WEST BROAD STREET, COLUMBUS 23, OHIO			
STRUCTURE FOUNDATION INVESTIGATION			
BRIDGE NO.	STA-30-1305 L/R		
	OVER GAMBRINUS AVENUE		
SEC.	STA-30-12.47		
PLAN AND PROFILE			
DRAWN BY	CHECKED BY	REVIEWED BY	DATE
R.L.D.	L.N.L.	R.D.R.	12/28/66

SCALE: 1" = 20'

*Refusal

*Refusal

OHIO DEPARTMENT OF HIGHWAYS TESTING LABORATORY 1620 WEST BROAD STREET, COLUMBUS 23, OHIO			
STRUCTURE FOUNDATION INVESTIGATION BRIDGE NO. STA-30-1305 L/R OVER GAMBRINUS AVENUE SEC. STA-30-1247			
BORING DATA			
TYPED BY S.A.J.	CHECKED BY R.C.	REVIEWED BY R.D.R.	DATE 12/28/66



GEOLOGY OF THE SITE

THE STRUCTURE SITE IS LOCATED ON A GENTLY ROLLING PORTION OF THE GLACIATED ALLEGHENY PLATEAU REGION, ADJACENT TO THE DEEP STAGE VALLEY, IN AN AREA WHERE MODERATELY DEEP MORAINAL DEPOSITS AND OUTWASH OVERLIE BEDROCK, OF PENNSYLVANIAN AGE.

EXPLORATION

THE EXPLORATION CONSISTED OF FOUR DRIVE SAMPLE BORINGS, MADE BETWEEN OCTOBER 24 AND NOVEMBER 1, 1966, AND SIX DRIVE ROD PENETRATION TESTS, MADE ON DECEMBER 14 AND 15, 1966.

INVESTIGATIONAL FINDINGS

THE BORINGS ENCOUNTERED UNSTRATIFIED INTERVALS OF LOOSE TO VERY DENSE GRAVELS, SANDS, AND SILTS, WITH SOME STIFF CLAYS. THE BORINGS WERE TERMINATED AT 61 AND 66-FOOT DEPTHS, ELEVATIONS 1017 TO 1010 FEET.

ROD SOUNDINGS MET GENERALLY GRADUAL, OCCASSIONALLY ERRATIC, INCREASE IN RESISTANCE TO PENETRATION WITH INCREASE IN DEPTH, AND WERE TERMINATED UPON ENCOUNTER WITH REFUSAL TO PENETRATION AT 50 TO 62-FOOT DEPTHS, ELEVATIONS 1026 TO 1017 FEET, CONSIDERED TO BE IN VERY DENSE SILTS, AS REVEALED BY THE BORINGS.

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

LEGEND

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

SYMBOLS OF ROCK TYPES

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

GENERAL INFORMATION

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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.

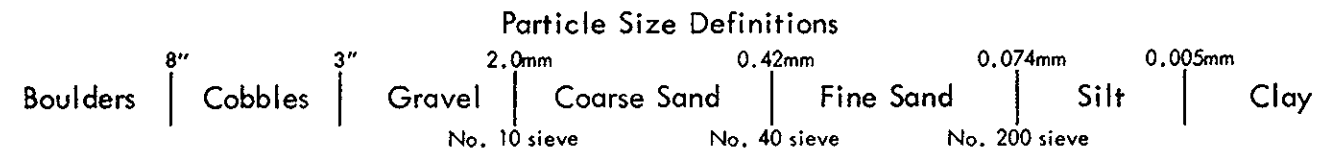
Drive Sample Borings - Drive-Press Sample Borings

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.



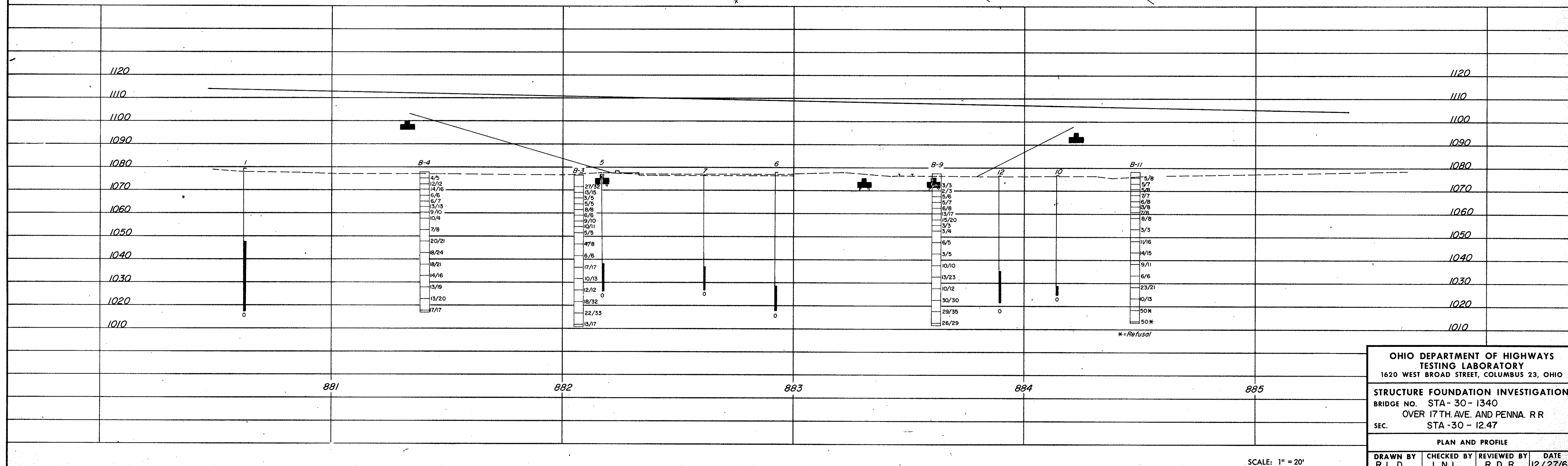
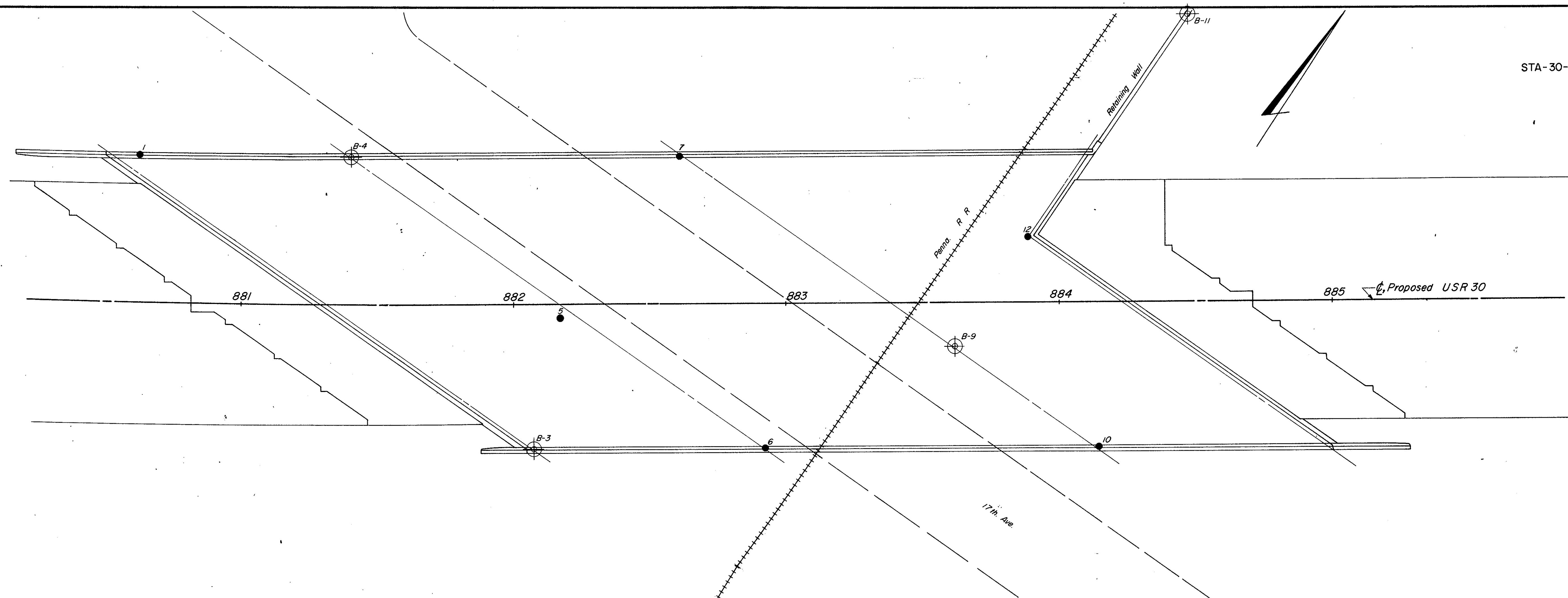
NOTE: Information shown by this subsurface investigation was obtained solely for the use in establishing design controls for the project. The State of Ohio does not guarantee the accuracy of this data and it is not to be construed as a part of the plans governing construction of the project.

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

STRUCTURE FOUNDATION INVESTIGATION
BRIDGE NO. STA - 30 - 1340
OVER 17 TH. AVE. AND PENNA. R R
SEC. STA- 30 - 12.47

CHECKED BY L. N. L.	REVIEWED BY R. D. R.	DATE 12/27/66
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STA-30-12.47



LOG OF BORING															
Date Started <u>10-26-66</u>			Sampler Type <u>SS</u> Dia. <u>1 3/8"</u>			Water Elev. _____									
Date Completed <u>10-27-66</u>			Casing Length <u>55'</u> Dia. <u>3 1/2"</u>												
Boring No. <u>B-3</u>			Station & Offset <u>882+07.53' Rt. (Rear Abutment)</u>			Surface Elev. <u>1026.5'</u>									
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.
1076.5	0														
	2														
	4														
1071.5	6	27/32			Brown Silty Sandy Gravel	1	47	18	18	-17	-	NP	NP	8	A-1-b
1069.0	8	13/15			Brown Silty Sandy Gravel	2	40	14	22	-24	-	NP	NP	13	A-2-4
1066.5	10	3/5			Gray Clayey Silt	3	0	3	5	53	39	31	10	24	A-4b
1064.0	12	5/5			Gray Silt	4	0	1	4	59	36	NP	NP	25	A-4b
1061.5	14	8/8			Gray Silty Sandy Gravel	5	45	19	19	-17	-	NP	NP	18	A-1-b
1059.0	16	6/6			Brown Silty Gravelly Sand	6	34	21	24	-21	-	NP	NP	9	A-1-b
1056.5	18	9/10			Brown Silty Gravel	7	50	6	8	-36	-	NP	NP	23	A-4a
1054.0	20	10/11			Brown Sand	8	0	27	50	-23	-	NP	NP	24	A-3a
1051.5	22	5/5			Brown Silty Gravelly Sand	9	32	23	30	-15	-	NP	NP	8	A-1-b
	24														
1046.5	30	4/8			Brown Silty Gravelly Sand	10	20	28	35	-17	-	NP	NP	12	A-3a
	32														
1041.5	34	6/6			Brown Gravelly Sand	11	19	43	30	-8	-	NP	NP	20	A-1-b
	36														
1036.5	40	37/17			Gray Silty Gravelly Sand	12	23	36	29	-12	-	NP	NP	15	A-1-b
	42														
1031.5	44	10/13			Gray Silt	13	0	1	5	81	13	NP	NP	22	A-4b
	46														
1026.5	48	12/12			Gray Clayey Silt	14	0	0	0	52	48	29	8	27	A-4b
	50														
1021.5	52	18/32			Gray Clayey Silt	15	0	0	0	52	48	29	7	27	A-4b
	54														
1016.5	56	22/33			Gray Sandy Silt	16	0	0	46	44	10	NP	NP	25	A-4a
	58														
1011.5	60	13/17			Gray Silt	17	0	0	11	75	14	NP	NP	22	A-4b
1010.5	62														
	64														
	66														

LOG OF BORING															
Date Started <u>10-24-66</u>			Sampler Type <u>SS</u> Dia. <u>1 3/8"</u>			Water Elev. _____									
Date Completed <u>10-25-66</u>			Casing Length <u>50'</u> Dia. <u>3 1/2"</u>												
Boring No. <u>B-4</u>			Station & Offset <u>881+40.54' Lt. (Rear Pier)</u>			Surface Elev. <u>1077.2'</u>									
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.
1077.7	0														
	2														
1075.2	4	4/5			Brown Silty Sandy Gravel	1	40	14	13	-33	-	NP	NP	4	A-2-4
1072.7	6	12/12			Brown Silty Sandy Gravel	2	45	10	10	21	14	NP	NP	9	A-2-4
1070.2	8	14/16			Brown Gravelly Clay	3	36	4	3	29	28	36	15	12	A-6a
1067.7	10	6/6			Brown Silt	4	5	4	7	62	22	24	2	25	A-4b
	12														
1065.2	14	6/7			Brown Silt	5	0	2	9	67	22	27	4	23	A-4b
1062.7	16	13/13			Brown Gravelly Sandy Silt	6	28	18	10	30	14	NP	NP	13	-
1060.2	18	9/10			Brown Gravelly Sandy Silt	7	16	11	28	31	14	NP	NP	17	A-4a
1057.7	20	10/4			Brown Gravelly Sandy Silt	8	20	8	12	42	18	NP	NP	17	A-4a
	22														
1052.7	24	7/8			Brown Silty Gravelly Sand	9	20	39	22	-19	-	NP	NP	21	A-1-b
	26														
1047.7	30	20/21			Brown Silty Sand	10	10	35	36	-19	-	NP	NP	13	A-3a
	32														
1042.7	34	18/24			Gray Silty Sand	11	0	0	78	-22	-	NP	NP	24	A-3a
	36														
1037.7	40	18/21			Gray Sandy Silt	12	0	1	19	71	9	NP	NP	20	A-4b
	42														
1032.7	44	14/16			Gray Silt	13	0	1	2	69	28	27	6	23	A-4b
	46														
1027.7	48	13/19			Gray Silt	14	0	0	0	61	39	28	6	24	A-4b
	50														
1022.7	52	13/20			Gray Silt	15	0	4	1	57	38	26	6	30	A-4b
	54														
1017.7	56														
1016.7	60	17/17			Gray Sandy Silt	16	13	1	22	57	7	NP	NP	21	A-4b
	62														

OHIO DEPARTMENT OF HIGHWAYS TESTING LABORATORY 1620 WEST BROAD STREET, COLUMBUS 23, OHIO			
STRUCTURE FOUNDATION INVESTIGATION BRIDGE NO. STA-30-1340 OVER 17 TH. AVE. AND PENNA. RR SEC. STA-30-12.47			
BORING DATA			
TYPED BY S.A.J.	CHECKED BY R.C.	REVIEWED BY R.D.R.	DATE 12/27/66

LOG OF BORING															
Date Started <u>10-27-66</u>			Sampler Type <u>SS</u>			Dia. <u>1 3/8"</u>			Water Elev. _____						
Date Completed <u>10-28-66</u>			Casing Length <u>55'</u>			Dia. <u>2 1/2"</u>									
Boring No. <u>B-9</u>			Station & Offset <u>883+62, 16' Rt. (Forward Pier)</u>			Surface Elev. <u>1077.5'</u>									
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.
1077.5	0														
	2														
	4														
1072.5	6	3/3			Brown Silty Sandy Gravel	1	43	12	12	21	12	-	-	16	-
1070.0	8	2/3			Brown Sandy Silt	2	13	5	9	37	36	32	8	19	A-4a
1067.5	10	5/6			Gray Silt	3	0	3	8	61	28	NP	NP	26	A-4b
1065.0	12														
1062.5	14	5/7			Brown and Gray Clayey Silt	4	0	2	7	60	31	29	8	21	A-4b
	16	6/8			Brown Sandy Gravelly Silt	5	37	9	11	26	17	-	-	17	-
1060.0	18														
1057.5	20	13/17			Gray Silty Sandy Gravel	6	45	19	16	-20	-	NP	NP	8	A-1-b
	22	15/20			Gray Silty Sandy Gravel	7	47	20	13	-20	-	NP	NP	14	A-1-b
1055.0	24	3/3			Gray Silty Gravelly Sand	8	40	22	26	-12	-	NP	NP	17	A-1-b
1052.5	26	3/4			Brown Silty Sand	9	0	36	51	-13	-	NP	NP	16	A-3a
	28														
1047.5	30	6/5			Brown Silty Sand	10	0	11	71	-18	-	NP	NP	23	A-3a
	32														
1042.5	34														
	36	3/5			Brown Sandy Silt	11	0	13	49	25	13	NP	NP	25	A-4a
	38														
1037.5	40														
	42	16/10			Brown Silty Sand	12	5	34	49	-12	-	NP	NP	19	A-3a
	44														
1032.5	46	13/23			Gray Silt	13	0	0	8	81	11	NP	NP	20	A-4b
	48														
1027.5	50	10/12			Gray Silt	14	0	0	1	78	21	NP	NP	26	A-4b
	52														
	54														
1022.5	56	30/30			Gray Silt	15	0	0	2	73	25	NP	NP	24	A-4b
	58														
1017.5	60	29/35			Gray Silt	16	0	1	74	-25	-	NP	NP	20	A-3a
	62														
	64														
1012.5	66	26/29			Gray Silty Sand	17	0	1	74	-25	-	NP	NP	18	A-3a
1011.5	68														

LOG OF BORING																
Date Started <u>10-28-66</u>			Sampler Type <u>SS</u>			Dia. <u>1 3/8"</u>			Water Elev. <u> </u>							
Date Completed <u>11-1-66</u>			Casing Length <u>55'</u>			Dia. <u>3 1/2"</u>										
Boring No. <u>B-11</u>			Station & Offset <u>884+48, 105' Lt. (Retaining Wall)</u>			Surface Elev. <u>1078.1'</u>										
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.	
1078.1	0															
	2															
1075.6	4	5/8			Brown Silty Clay	1	0	1	3	52	44	38	16	20	A-6b	
1073.1	6	5/7			Brown Silt	2	0	1	7	64	28	27	6	24	A-4b	
1070.6	8	5/8			Brown Sandy Silt	3	0	4	17	58	21	23	3	21	A-4b	
1068.1	10	7/7			Brown Silty Sandy Gravel	4	45	21	19	-15	-	NP	NP	12	A-1-b	
1065.6	12															
	14	6/8			Brown Silty Gravelly Sand	5	42	26	17	-15	-	NP	NP	11	A-1-b	
1063.1	16	13/8			Brown Silty Gravelly Sand	6	20	28	30	-22	-	NP	NP	15	A-3a	
1060.6	18	7/8			Brown Silty Gravelly Sand	7	19	33	28	-20	-	NP	NP	12	A-1-b	
1058.1	20	8/8			Brown Silty Gravelly Sand (Driller's Description)	8	V	I	8	U	A	L	-	-	14	-
	22															
	24															
1053.1	26	3/3			Brown Silty Sand	9	0	28	39	17	16	NP	NP	20	A-3a	
	28															
1048.1	30	11/16			Brownish-Gray Sandy Silt	10	0	1	47	42	10	NP	NP	27	A-4a	
	32															
	34															
1043.1	36	14/15			Gray Silt	11	0	0	6	80	14	NP	NP	21	A-4b	
	38															
1038.1	40	9/11			Gray Silt	12	0	0	0	53	47	25	3	38	A-4b	
	42															
	44															
1033.1	46	6/6			Gray Silt	13	0	0	1	76	23	28	5	24	A-4b	
	48															
1028.1	50	23/21			Gray Silt	14	0	0	2	85	13	NP	NP	22	A-4b	
	52															
	54															
1023.1	56	10/13			Gray Silt	15	0	0	7	81	12	NP	NP	23	A-4b	
	58															
1018.1	60	50* (0.6)			Gray Sandy Silt	16	0	17	33	28	22	NP	NP	20	A-4a	
	62															
	64															
1013.1	66	50* (0.6)			Brown Silty Gravelly Sand	17	32	32	22	-14	-	NP	NP	-	A-1-b	
1012.3	68	Refusal														

OHIO DEPARTMENT OF HIGHWAYS TESTING LABORATORY 1620 WEST BROAD STREET, COLUMBUS 23, OHIO			
STRUCTURE FOUNDATION INVESTIGATION BRIDGE NO. STA - 30 - 1340 OVER 17TH. AVE. AND PENNA. RR SEC. STA - 30 - 12.47			
BORING DATA			
TYPED BY S. A. J.	CHECKED BY R. C.	REVIEWED BY R. D. R.	DATE 12/27/66

GEOLOGY OF THE SITE

THE STRUCTURE SITE IS LOCATED ON A GENTLY ROLLING PORTION OF THE GLACIATED ALLEGHENY PLATEAU REGION, ADJACENT TO THE DEEP STAGE VALLEY, IN AN AREA WHERE MODERATELY DEEP MORAINAL DEPOSITS AND OUTWASH OVERLIE BEDROCK, OF PENNSYLVANIAN AGE.

EXPLORATION

THE EXPLORATION CONSISTED OF TWO DRIVE SAMPLE BORINGS, MADE BETWEEN NOVEMBER 3 AND 8, 1966, AND FIVE DRIVE ROD PENETRATION TESTS, MADE ON DECEMBER 19 AND 22, 1966.

INVESTIGATIONAL FINDINGS

THE BORINGS ENCOUNTERED UNSTRATIFIED INTERVALS OF LOOSE TO VERY DENSE GRAVELS, SANDS, AND BOULDERS. THE BORINGS WERE TERMINATED AT 51-FOOT DEPTH, ELEVATIONS 1030 AND 1021 FEET, AFTER PENETRATING IN EXCESS OF 30 FEET OF MATERIAL REQUIRING IN EXCESS OF 30 BLOWS PER FOOT IN THE STANDARD PENETRATION TEST.

ROD SOUNDINGS, CASED TO PROPOSED FOOTING ELEVATION AS NOTED ON THE SITE PLAN AT THE ABUTMENT LOCATIONS, AND TO 16 AND 20-FOOT DEPTHS AT THE PIER LOCATIONS, MET GENERALLY GRADUAL, OCCASIONALLY ERRATIC, INCREASE IN RESISTANCE TO PENETRATION WITH INCREASE IN DEPTH, AND WERE TERMINATED UPON ENCOUNTER WITH REFUSAL TO PENETRATION AT 36 TO 43-FOOT DEPTHS, ELEVATIONS 1038 TO 1025 FEET, CONSIDERED TO BE IN VERY DENSE SANDS AND GRAVELS, AS REVEALED BY THE BORINGS.

FREE WATER WAS OBSERVED IN ROD SOUNDING HOLE NUMBER 1 AT ELEVATION 1047 FEET.

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
- 

Top of Rock
- 

Horizontal Bar on Boring Log Indicates the Depth the Sample Was Taken.
- 

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
- 

Resistance "R" < 10,000 lbs.
- 

Resistance "R" > 10,000 lbs.
- 

Indicates Final Measurement of Penetration, in Inches.
- 

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

LOG OF BORING															
Date Started <u>11-7-66</u>		Sampler Type <u>SS</u>		Dia. <u>1 3/8"</u>		Water Elev. _____									
Date Completed <u>11-8-66</u>		Casing Length <u>40'</u>		Dia. <u>3 1/2"</u>											
Boring No. <u>B-2</u>		Station & Offset <u>40+78, 7' Rt. (Rear Abutment)</u>		Surface Elev. <u>1081.2'</u>											
Elev.	Depth	Std. Pen. (N)	Rec. ft.	Loss ft.	Description	Sample No.	Physical Characteristics								SHTL Class.
							% Agg.	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.	
1081.2	0														
	2														
	4														
1076.2	6	16/30			Brown Sandy Silt	1	7	43	43	-7	-	NP	NP	26	A-1-b
	8														
1071.2	10	35/41			Brown Sandy Gravel	2	55	32	7	-6	-	NP	NP	12	A-1-a
	12														
	14														
1066.2	16	18/19			Brown Silty Sandy Gravel	3	56	20	13	-11	-	NP	NP	8	A-1-a
	18														
1061.2	20	20/26			Brown Gravelly Sand	4	25	40	26	-9	-	NP	NP	21	A-1-b
	22														
1058.7	24	50/*			Brown Gravelly Sand	5	26	60	11	-3	-	NP	NP	19	A-1-b
	26														
1056.2	28	16/31			Brown Silty Gravelly Sand	6	32	29	24	-15	-	NP	NP	15	A-1-b
	30														
1051.2	32	14/23			Brown Silty Sandy Gravel	7	51	17	16	-16	-	NP	NP	12	A-1-b
	34														
1046.2	36	13/19			Brown Silt	8	0	0	1	58	41	NP	NP	32	A-4b
	38														
1041.2	40	15/20			Brown Silt	9	0	0	11	80	9	NP	NP	31	A-4b
	42														
	44														
1036.2	46	13/23			Gray Silt	10	0	0	4	82	14	NP	NP	24	A-4b
	48														
1031.2	50				BOTTOM OF BORING										
1030.2	51/39				Gray Silt	11	0	0	0	67	33	NP	NP	11	A-4b
					*Refusal										

LOG OF BORING															
Date Started <u>11-3-66</u>		Sampler Type <u>SS</u>		Dia <u>1 3/8"</u>		Water Elev. _____									
Date Completed <u>11-4-66</u>		Casing Length <u>50'</u>		Dia <u>3 1/2"</u>											
Boring No. <u>B-9</u>		Station & Offset <u>42+88, 12' Lt. (Forward Abutment)</u>		Surface Elev. <u>1071.2'</u>											
Elev.	Depth	Std. Pen (N)	Rec. ft.	Loss ft.	Description	Sample No.	Physical Characteristics								SHTL Class.
							% Agg.	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.	
1071.2	0														
	2														
	4														
1066.2	6	11/12			Brown Silty Sandy Gravel	1	51	18	20	-11	-	NP	NP	8	A-1-b
	8														
1061.2	10	8/9			Brown Sandy Gravel	2	59	24	9	-8	-	NP	NP	9	A-1-a
	12														
1058.7	14	8/10			Brown Silty Sandy Gravel	3	45	20	20	-15	-	NP	NP	6	A-1-b
1056.2	16	10/11			Brown Silty Gravelly Sand	4	34	21	18	19	8	NP	NP	8	A-2-4
1053.7	18	9/9			Brown Silt	5	0	2	2	72	24	NP	NP	33	A-4b
1051.2	20	8/10			Brown Silt	6	0	0	2	82	16	NP	NP	25	A-4b
	22														
1048.7	24	6/10			Gray Silt	7	0	0	0	82	18	NP	NP	25	A-4b
1046.2	26	9/10			Brownish-Gray Silt	8	0	1	4	64	31	NP	NP	28	A-4b
1043.7	28	11/13			Brown Sandy Silt	9	0	0	39	53	8	NP	NP	21	A-4b
1041.2	30	13/15			Brown Silt	10	0	0	51	41	8	NP	NP	24	A-4a
	32														
	34														
1036.2	36	10/13			Brown Silt	11	0	0	1	85	14	NP	NP	33	A-4b
	38														
1031.2	40	19/41			Brown Silty Gravelly Sand	12	31	29	28	-12	-	NP	NP	13	A-1-b
	42														
	44														
1026.2	46	50* (0.6)			Brown Silty Sandy Gravel	13	61	16	12	-11	-	NP	NP	6	A-1-a
	48														
1021.2	50	50/*			BOTTOM OF BORING										
1020.7	50	50/*			Brown Silty Sandy Gravel	14	52	14	17	-17	-	NP	NP	8	A-1-b
					*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.

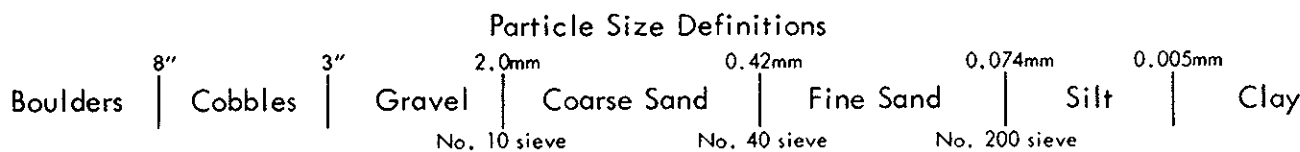
Drive Sample Borings - Drive-Press Sample Borings

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.

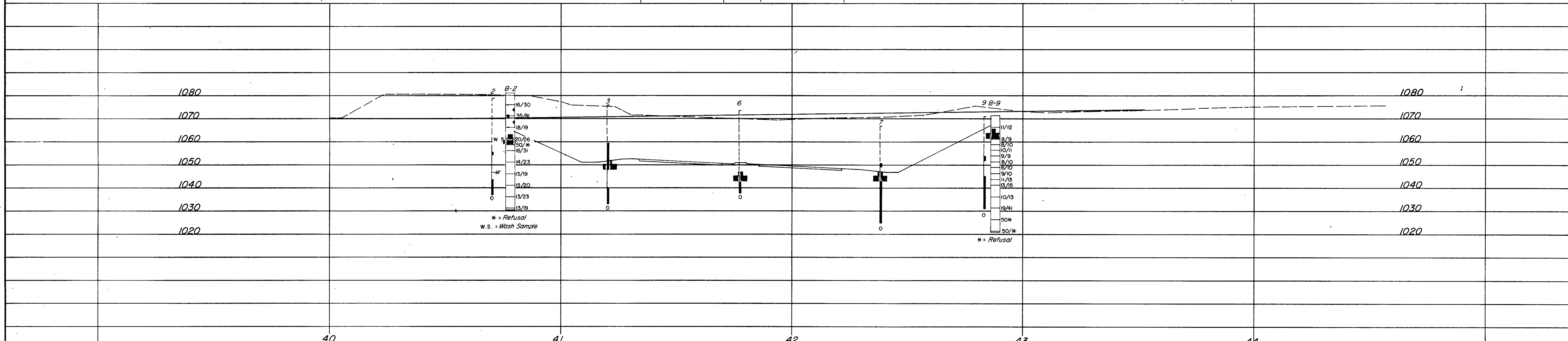
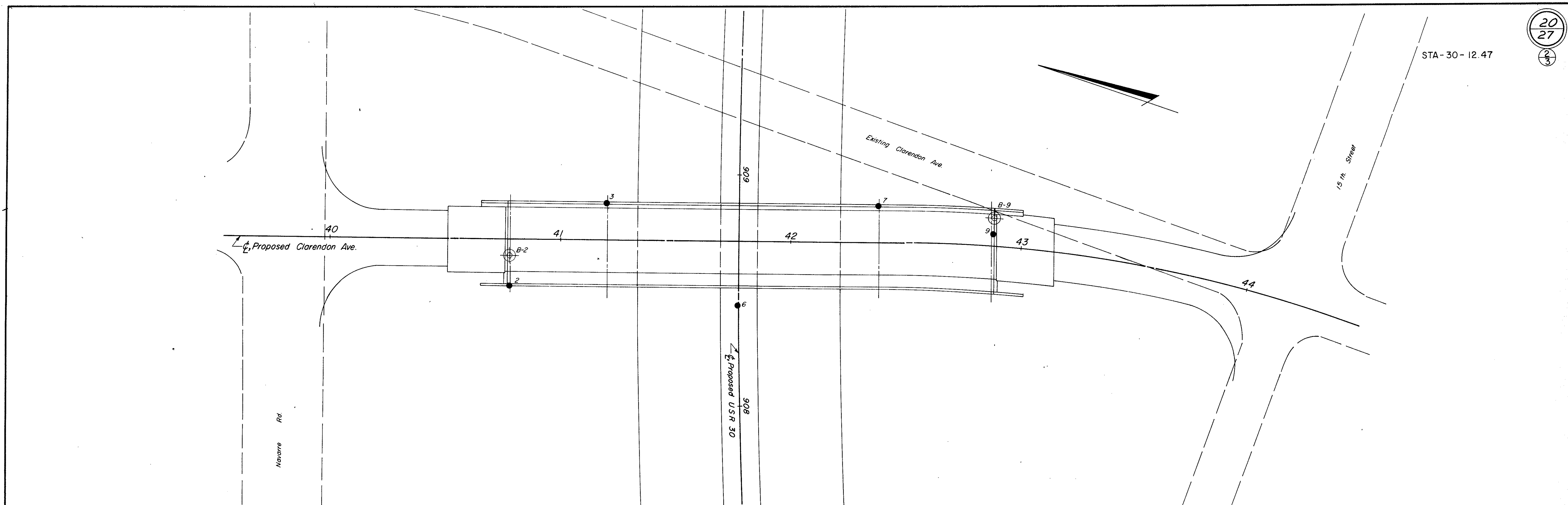


NOTE: Information shown by this subsurface investigation was obtained solely for the use in establishing design controls for the project. The State of Ohio does not guarantee the accuracy of this data and it is not to be construed as a part of the plans governing construction of the project.

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

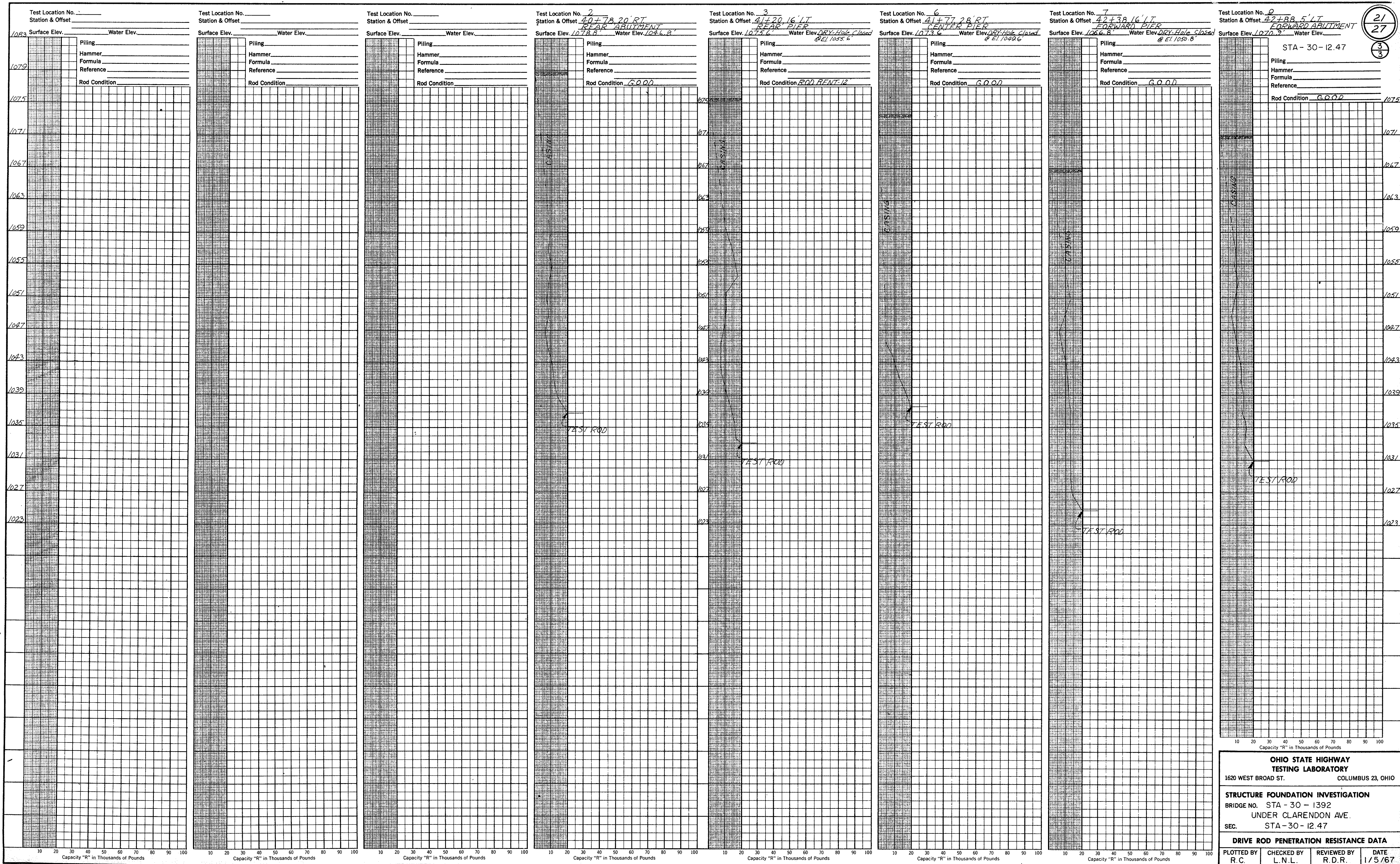
STRUCTURE FOUNDATION INVESTIGATION
BRIDGE NO. STA - 30 - 1392
UNDER CLARENDON AVE.
SEC. STA- 30 - 12.47

CHECKED BY L.N.L.	REVIEWED BY R.D.R.	DATE 1/5/67
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OHIO DEPARTMENT OF HIGHWAYS TESTING LABORATORY 1620 WEST BROAD STREET, COLUMBUS 23, OHIO			
STRUCTURE FOUNDATION INVESTIGATION			
BRIDGE NO. STA - 30 - 1392			
UNDER CLARENDON AVE.			
SEC. STA - 30 - 12.47			
PLAN AND PROFILE			
DRAWN BY R.L.D.	CHECKED BY L.N.L.	REVIEWED BY R.D.R.	DATE 1/5/67

SCALE: 1" = 20'



GEOLOGY OF THE SITE

THE STRUCTURE SITE IS LOCATED ON A GENTLY ROLLING PORTION OF THE GLACIATED ALLEGHENY PLATEAU REGION, ADJACENT TO THE DEEP STAGE VALLEY, IN AN AREA WHERE MODERATELY DEEP MORAINAL DEPOSITS AND OUTWASH OVERLIE BEDROCK, OF PENNSYLVANIAN AGE.

EXPLORATION

THE EXPLORATION CONSISTED OF TWO DRIVE SAMPLE BORINGS, MADE BETWEEN NOVEMBER 9 AND 18, 1966, AND FIVE DRIVE ROD PENETRATION TESTS, MADE ON DECEMBER 16 AND 22, 1966.

INVESTIGATIONAL FINDINGS

THE BORINGS ENCOUNTERED UNSTRATIFIED INTERVALS OF LOOSE TO VERY DENSE GRAVELS AND SANDS. THE BORINGS WERE TERMINATED AT 51-FOOT DEPTH, ELEVATION 994 FEET, AFTER PENETRATING IN EXCESS OF 30 FEET OF MATERIAL REQUIRING IN EXCESS OF 30 BLOWS PER FOOT IN THE STANDARD PENETRATION TEST.

ROD SOUNDINGS, THE MAJORITY OF WHICH WERE CASED TO PROPOSED FOOTING ELEVATION AS NOTED ON THE SITE PLAN, PENETRATED TO GREATER DEPTHS THAN THE BORINGS, MET GENERALLY GRADUAL, OCCASIONALLY ERRATIC, INCREASE IN RESISTANCE TO PENETRATION WITH INCREASE IN DEPTH, AND WERE TERMINATED UPON ENCOUNTER WITH MEDIUM-HIGH RESISTANCE TO PENETRATION AT 62 TO 132-FOOT DEPTHS, ELEVATIONS 983 TO 913 FEET, CONSIDERED TO BE IN VERY DENSE SANDS AND GRAVELS, AS REVEALED BY THE BORINGS, AND THE GEOLOGY OF THE AREA.

NO FREE WATER WAS ENCOUNTERED 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

Top of Rock

Horizontal Bar on Boring Log Indicates the Depth the Sample Was Taken.

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.

Indicates Final Measurement of Penetration, in Inches.

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

LOG OF BORING

Date Started 11-17-66 Sampler Type SS Dia 1 3/8"
Date Completed 11-18-66 Casing Length 50' Dia 3 1/2"
Boring No. B-4 Station & Offset 49+44.25' Rt. (Rear Pier) Surface Elev 1044.8'

Elev.	Depth	Std. Pen. (N)	Rec. ft.	Loss ft.	Description	Sample No.	Physical Characteristics										SHTL Class.
							% Agg.	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.			
1044.8	0																
	2																
	4																
1039.8	6	7/7			Brown Silty Sandy Gravel	1	61	11	13	8	7	NP	NP	12			A-1-b
	8																
1034.8	10	3/4			Brown Silty Sand	2	0	17	69	-14	-	NP	NP	31			A-3a
	12																
	14																
1029.8	16	7/16			Brown Sandy Gravel	3	68	11	12	3	6	NP	NP	9			A-1-a
	18																
1024.8	20	20/17			Brown Silty Gravelly Sand	4	31	27	28	7	7	NP	NP	11			A-1-b
1022.3	22	20/24			Brown Silty Gravelly Sand	5	31	18	38	6	7	NP	NP	9			A-3a
1019.8	24	26/20			Brown Silty Sandy Gravel	6	56	17	15	7	5	NP	NP	7			A-1-a
1017.3	26	26/22			Brown Silty Sandy Gravel	7	45	24	18	6	7	NP	NP	10			A-1-b
1014.8	28	20/19			Brown Silty Gravelly Sand	8	25	28	33	7	7	NP	NP	12			A-1-b
1012.3	30	24/29			Brown Silty Sandy Gravel	9	48	20	17	7	8	NP	NP	11			A-1-b
1009.8	32	30/43			Brown Silty Gravelly Sand	10	18	18	51	-13	-	NP	NP	16			A-3a
1007.3	34	26/33			Brown Silty Sandy Gravel	11	50	18	11	16	5	NP	NP	11			A-1-b
1004.8	36	15/16			Brown Silty Sandy Gravel	12	53	16	13	12	6	NP	NP	10			A-1-b
	38																
	40																
999.8	42	24/38			Brown Silty Sandy Gravel	13	48	17	15	13	7	NP	NP	9			A-1-b
	44																
	46																
994.8	48																
993.8	50	26/37			Brown Silty Sandy Gravel	14	62	17	8	-13	-	NP	NP	7			A-1-a

BOTTOM OF BORING

LOG OF BORING

Date Started 11-9-66 Sampler Type SS Dia 1 3/8"
Date Completed 11-10-66 Casing Length 50' Dia 3 1/2"
Boring No. B-7 Station & Offset 50+57.24' Lt. (Forward Pier) Surface Elev 1044.6'

Elev.	Depth	Std. Pen. (N)	Rec. ft.	Loss ft.	Description	Sample No.	Physical Characteristics										SHTL Class.
							% Agg.	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.			
1044.6	0																
	2																
	4																
1039.6	6	28/36			Brown Silty Sandy Gravel	1	57	17	11	-15	-	NP	NP	8		A-1-a	
	8																
1034.6	10	14/20			Brown Sandy Gravel	2	49	30	12	-9	-	NP	NP	7		A-1-b	
	12																
	14																
1029.6	16	17/18			Brown Silty Sandy Gravel	3	58	17	11	-14	-	NP	NP	8		A-1-a	
	18																
1024.6	20	19/41			Brown Silty Sandy Gravel	4	51	14	24	-11	-	NP	NP	9		A-1-b	
1022.1	22																
	24	14/28			Brown Gravelly Sand	5	37	36	22	-5	-	NP	NP	14		A-1-b	
1019.6	26																
	28	21/26			Brown Silty Gravelly Sand	6	34	31	20	-15	-	NP	NP	11		A-1-b	
1017.1	30																
	32	22/27			Brown Silty Sandy Gravel	7	51	26	13	-10	-	NP	NP	10		A-1-b	
1014.6	34																
	36	36/43			Brown Silty Sandy Gravel	8	46	21	17	-16	-	NP	NP	11		A-1-b	
	38																
1009.6	40	30/41			Brown Silty Sandy Gravel	9	50	20	17	-13	-	NP	NP	13		A-1-a	
1007.1	42																
	44	28/36			Brown Silty Sandy Gravel	10	49	17	22	-12	-	NP	NP	11		A-1-b	
1004.6	46																
	48	15/24			Brown Silty Sandy Gravel	11	58	17	14	-11	-	NP	NP	9		A-1-a	
	50																
	52																
	54																
999.6	56	13/21			Brown Silty Sandy Gravel	12	49	27	15	-9	-	NP	NP	10		A-1-b	
	58																
	60																
994.6	62	16/23			Brown Sandy Gravel	13	62	21	9	-8	-	NP	NP	7		A-1-a	

BOTTOM OF BORING

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.

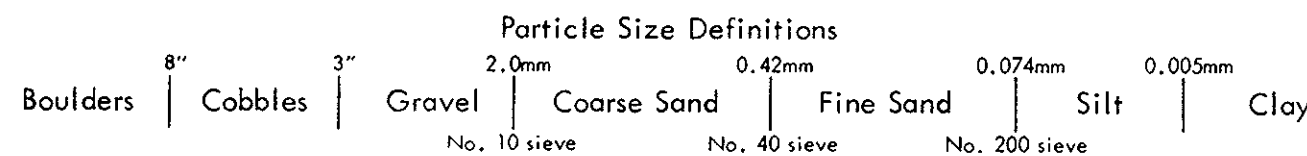
Drive Sample Borings - Drive-Press Sample Borings

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.



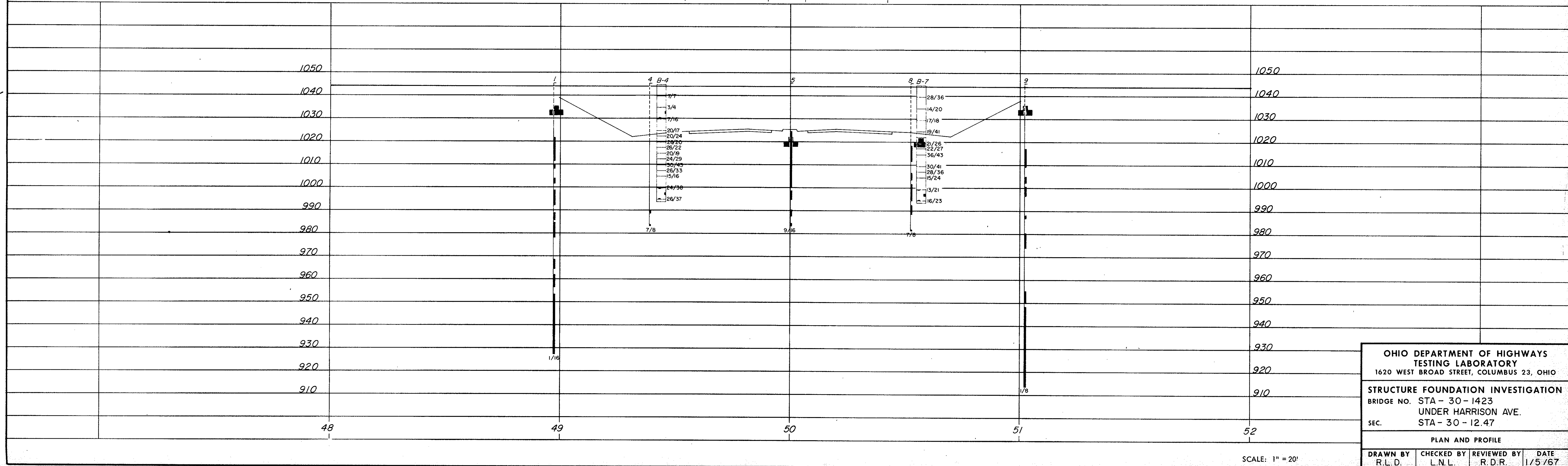
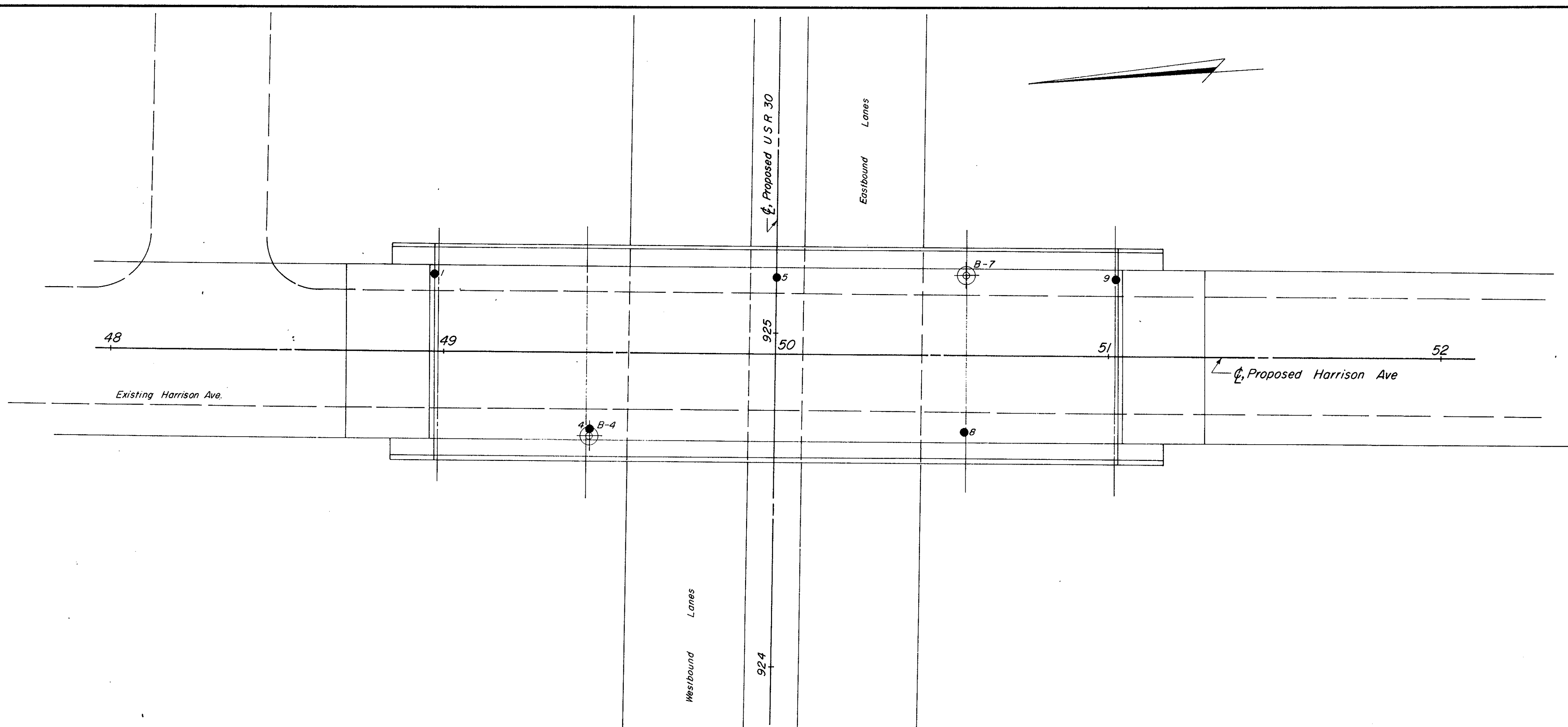
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TESTING LABORATORY
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STRUCTURE FOUNDATION INVESTIGATION
BRIDGE NO. STA - 30 - 1423
UNDER HARRISON AVE.
SEC. STA - 30 - 12.47

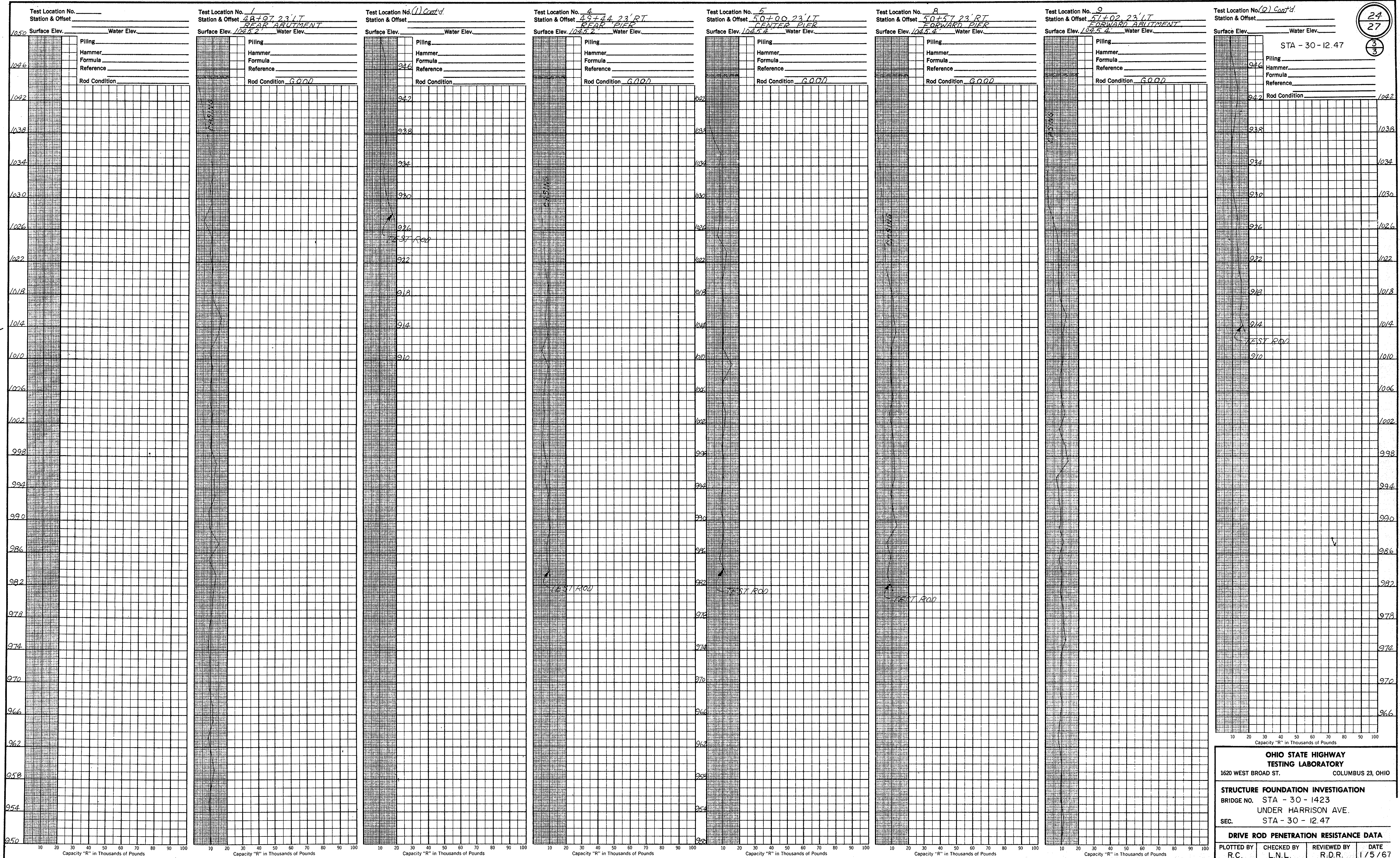
CHECKED BY L. N. L.	REVIEWED BY R. D. R.	DATE 11/5/67
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OHIO DEPARTMENT OF HIGHWAYS TESTING LABORATORY 1620 WEST BROAD STREET, COLUMBUS 23, OHIO			
STRUCTURE FOUNDATION INVESTIGATION			
BRIDGE NO. STA - 30 - 1423 UNDER HARRISON AVE.			
SEC. STA - 30 - 12.47			
PLAN AND PROFILE			
DRAWN BY R.L.D.	CHECKED BY L.N.L.	REVIEWED BY R.D.R.	DATE 1/5/67

SCALE: 1" = 20'



THE STRUCTURE SITE IS LOCATED ON A GENTLY ROLLING PORTION OF THE GLACIATED ALLEGHENY PLATEAU REGION, ADJACENT TO THE DEEP STAGE VALLEY, IN AN AREA WHERE MODERATELY DEEP MORAINAL DEPOSITS AND OUTWASH OVERLIE BEDROCK, OF PENNSYLVANIAN AGE.

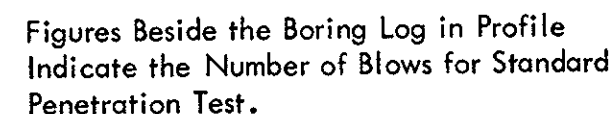
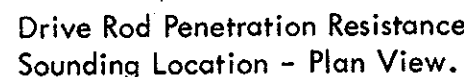
THE EXPLORATION CONSISTED OF TWO DRIVE SAMPLE BORINGS, MADE BETWEEN DECEMBER 6 AND 13, 1966, AND FIVE DRIVE ROD PENETRATION TESTS, MADE ON DECEMBER 6 AND 13, 1966.

THE BORINGS ENCOUNTERED UNSTRATIFIED INTERVALS OF DENSE TO VERY DENSE GRAVELS AND SANDS. THE BORINGS WERE TERMINATED AT 46 AND 51-FOOT DEPTHS, ELEVATIONS 992 AND 987 FEET, AFTER PENETRATING IN EXCESS OF 30 FEET OF MATERIAL REQUIRING IN EXCESS OF 30 BLOWS PER FOOT IN THE STANDARD PENETRATION TEST.

ROD SOUNDINGS, PENETRATING TO GREATER DEPTHS THAN THE BORINGS, MET GENERALLY GRADUAL, OCCASIONALLY ERRATIC, INCREASE IN RESISTANCE TO PENETRATION WITH INCREASE IN DEPTH, AND WERE TERMINATED UPON ENCOUNTER WITH MEDIUM-HIGH RESISTANCE TO PENETRATION AT 60 TO 108-FOOT DEPTHS, ELEVATIONS 978 TO 921 FEET, CONSIDERED TO BE IN VERY DENSE SANDS AND GRAVELS, AS REVEALED BY THE BORINGS AND THE GEOLOGY OF THE AREA.

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

NO TEST PENETRATED TO BEDROCK SURFACE.



X = Number of Blows for First 6 inches

Y = Number of Blows for Second 6 inches.

Resistance "R" $\leq$ 10,000 lbs.Resistance "R" $\geq$ 10,000 lbs.

Coal



Date Started 12-13-66 Sampler Type SS Dia. 1 3/8"
Date Completed 12-13-66 Casing Length 45' Dia. 3 1/2"
Boring No. B-1 Station & Offset 48+96, 26' Lt. (Rear Abutment)

LOG OF BORING

Date Started <u>12-15-66</u>	Sampler Type <u>SS</u>	Dia. <u>1 3/8"</u>
Date Completed <u>12-20-66</u>	Casing: Length <u>50'</u>	Dia. <u>1 1/2"</u>
Boring No. <u>B-10</u>	Station & Offset: <u>50+90, 25' Rt. (Forward Abutment)</u>	

Particle Size Definitions

Boulders | 8" | Cobbles | 3" | Gravel | 2.0mm | Coarse Sand | 0.42mm | Fine Sand | 0.074mm | Silt | 0.005mm | Clay

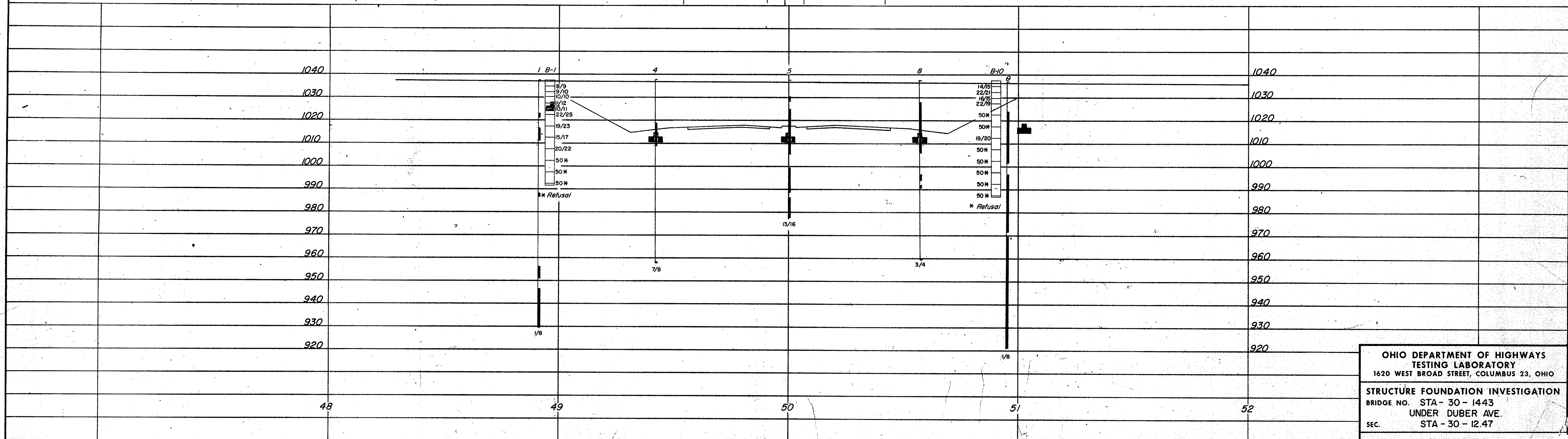
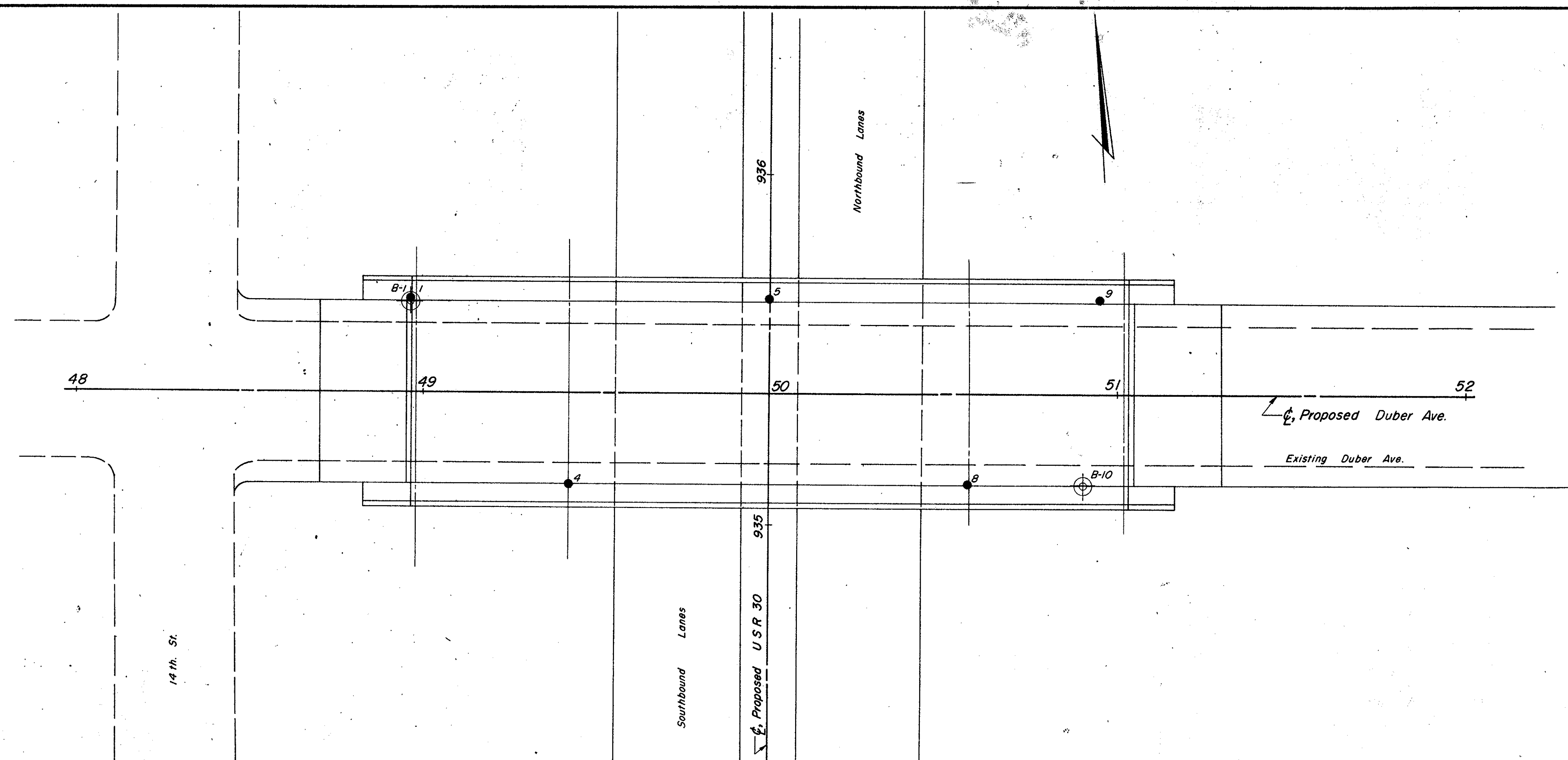
No. 10 sieve No. 40 sieve No. 200 sieve

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BRIDGE NO. STA - 30 - 1443
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SEC. STA - 30 - 12.47

CHECKED BY N	REVIEWED BY B.D.R.	DATE 1/16/67
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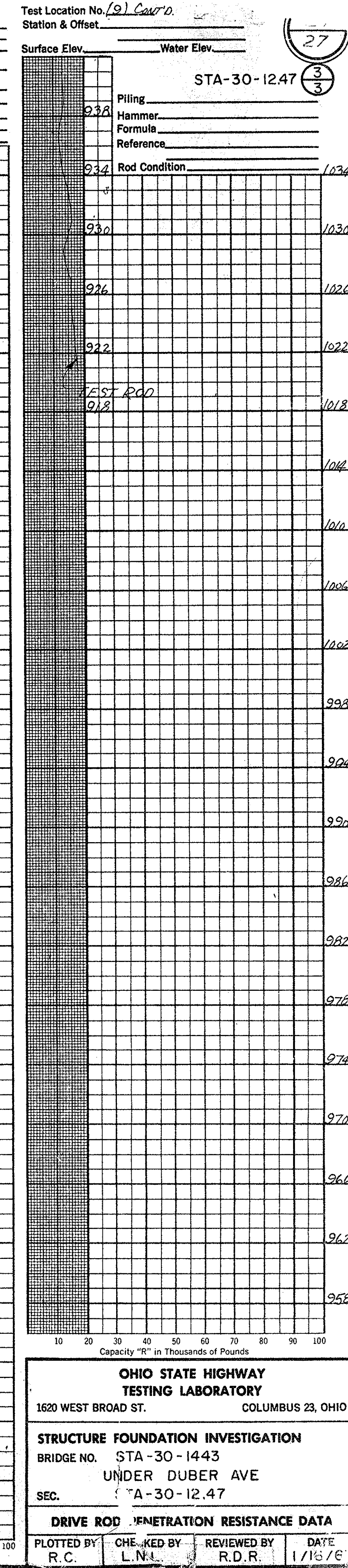
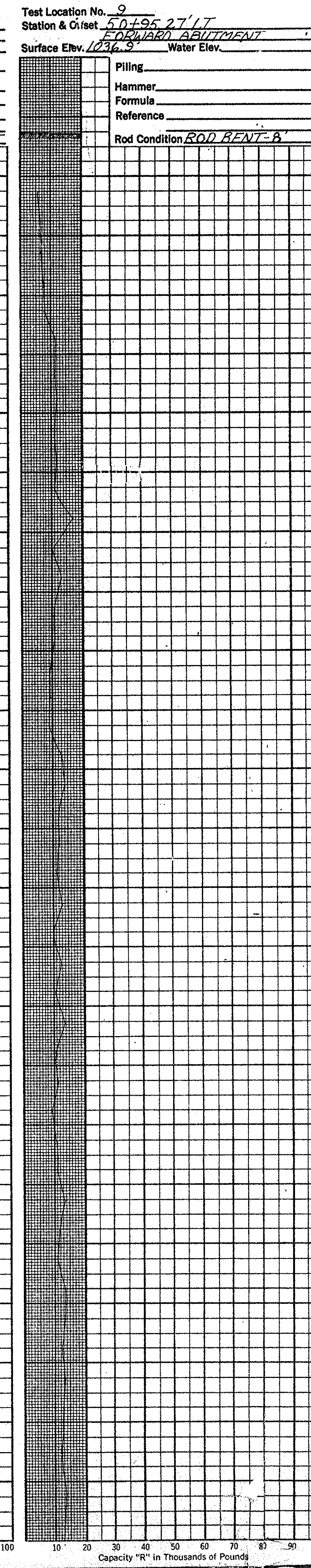
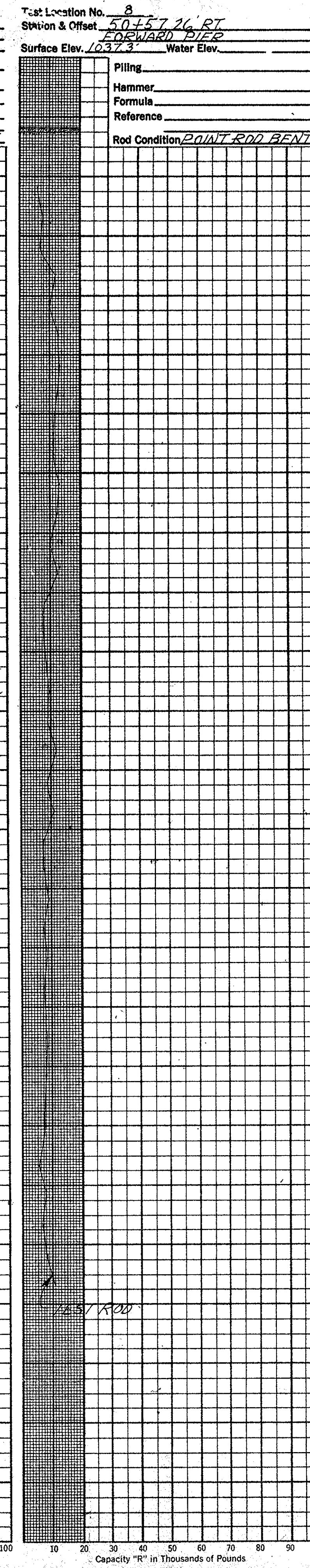
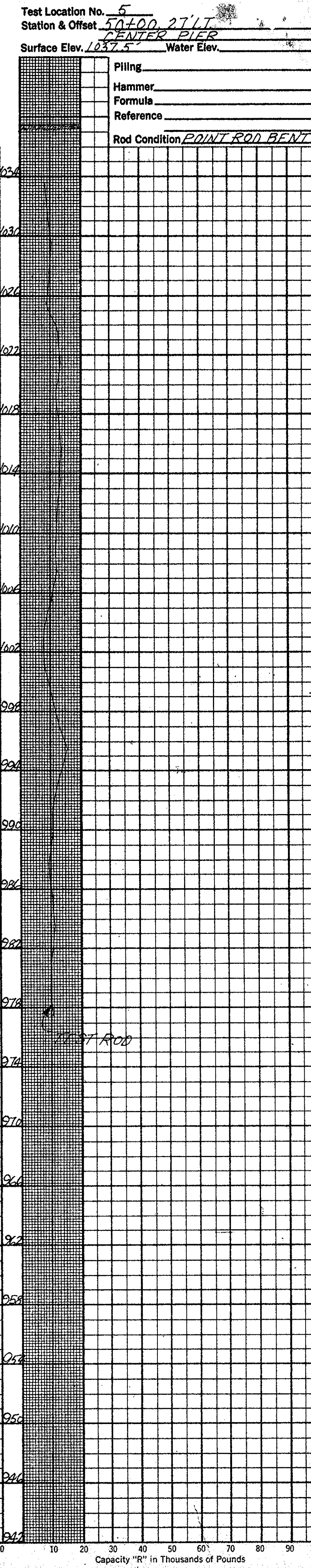
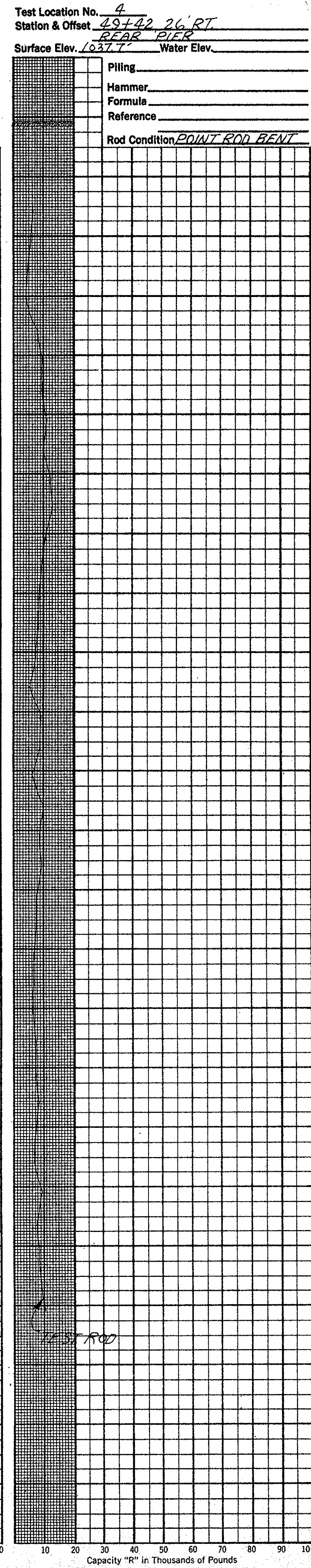
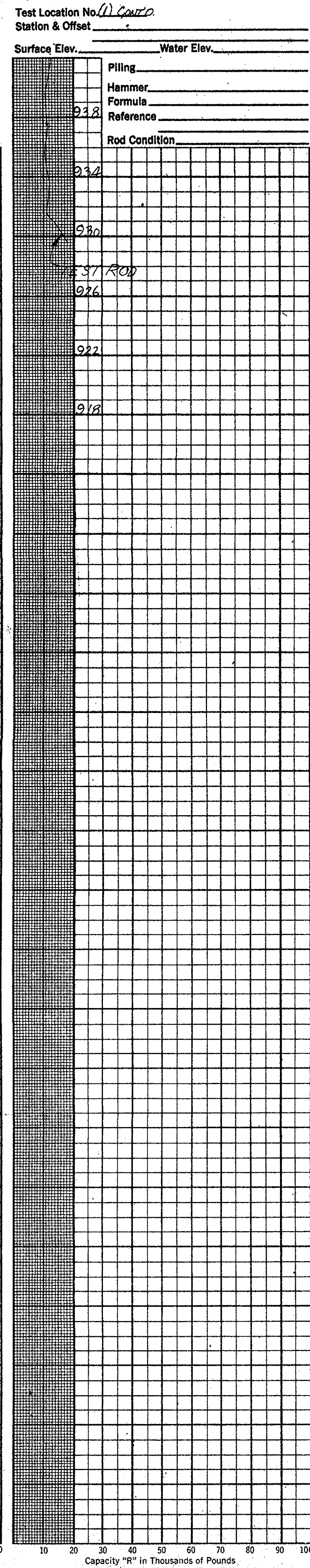
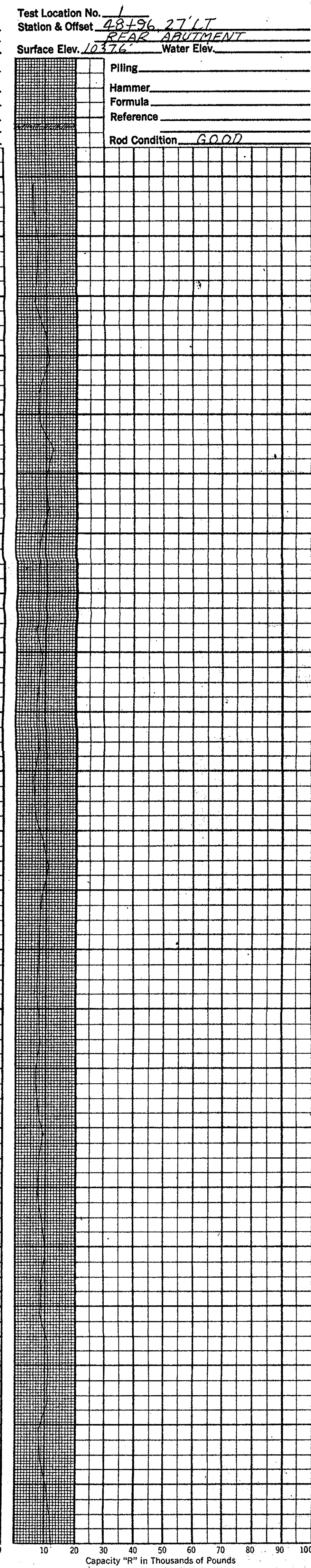
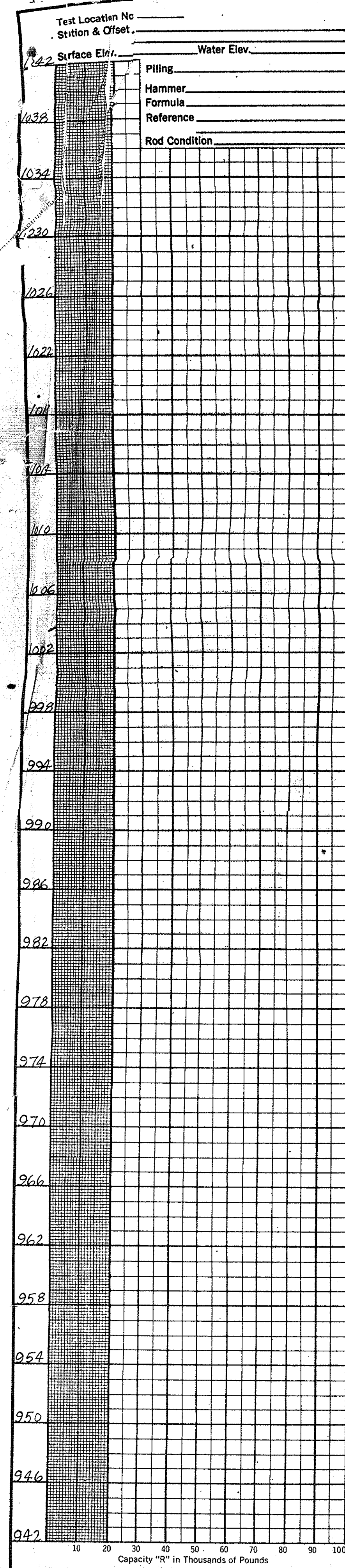


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PLAN AND PROFILE

DRAWN BY	CHECKED BY	REVIEWED BY	DATE
R.L.D.	L.N.L.	R.D.R.	1/7



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

STRUCTURE FOUNDATION INVESTIGATION
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SEC. STA-30-12.47

DRIVE ROD PENETRATION RESISTANCE DATA

PLOTTED BY R.C. CHECKED BY L.N. REVIEWED BY R.D.R. DATE 1/16/67