

GEOLOGY OF THE SITE

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

EXPLORATION

The exploration consisted of two drive sample borings, made between June 2 and 8, 1965, and ten drive rod penetration tests, made between May 28 and June 10, 1965.

INVESTIGATIONAL FINDINGS

The borings encountered unstratified intervals of very dense gravelly sandy silts, sands, and some intervals of stiff clays and boulders. The borings were terminated at 36 and 45-foot depths, elevations 747 and 739 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 met gradual increase in penetration resistance with increase in depth and were terminated upon encounter with refusal to penetration 21 to 27 feet below ground surface, elevations 764 to 757 feet, considered to be in very dense gravelly sandy silt, as revealed by the borings.

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

No test penetrated to bedrock surface.

- 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

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

LEGEND

- 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.
- Z Indicates Final Measurement of Penetration, in Inches.
- Indicates Free Water Elevation.
- Indicates Static Water Elevation.

SYMBOLS OF ROCK TYPES

- 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.

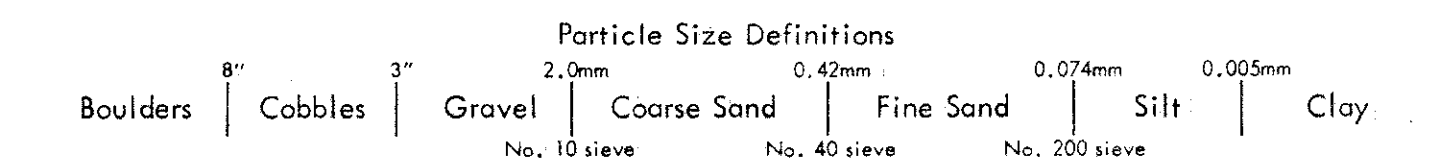
Drive Sample Borings - Drive-Press Sample Borings

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.



LOG OF BORING
Date Started 6-2-65 Date Completed 6-3-65 Boring No. B-1
Sampler Type 28 Dia. 1 3/8" Casing Length 30' 0" Dia. 3 1/2" Station & Offset 30+0.00 01' 0" (Near Abutment) Surface Elev. 784.8' Water Elev. _____

Elev.	Depth	Std. Pen. (N)	Rec. ft.	Loss ft.	Description	Physical Characteristics										SHTL Class.			
						Sample No.	% Agg.	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.					
784.8	0																		
779.8	2																		
777.3	4	6/12			Brown Sandy Silt	1	8	6	11	34	41	30	8	17					
774.8	6	10/20			Brown and Gray Sandy Clay	2	8	7	12	34	39	33	15	15					
772.3	8	14/18			Brown and Gray Sandy Silt	3	9	6	12	36	37	29	9	14					
769.8	10	13/20			Gray Sandy Silt	4	9	6	10	35	40	25	7	14					
767.3	12	16/18			Gray Sandy Gravelly Silt	5	17	6	9	40	28	24	8	12					
764.8	14	14/17			Gray Gravelly Silt	6	17	5	7	37	34	24	7	11					
759.8	16	14/20			Gray Sandy Silt	7	8	5	7	40	40	26	9	14					
754.8	18	15/35			Gray Gravelly Silt	8	13	4	6	36	41	26	7	14					
749.8	20				Gray Gravelly Silt	9	18	4	5	38	35	28	8	15					
744.8	22				Gray Gravelly Silt	10	18	4	5	38	35	28	8	15					
739.8	24				Gray Gravelly Silt	11	0	0	11	24	12	22	22	15					
736.3	26				Gray Silty Sand														

LOG OF BORING
Date Started 6-3-65 Date Completed 6-8-65 Boring No. B-10
Sampler Type 28 Dia. 1 3/8" Casing Length 33' 0" Dia. 3 1/2" Station & Offset 33+0.00 03' 0" (Forward Abutment) Surface Elev. 783.5' Water Elev. _____

Elev.	Depth	Std. Pen. (N)	Rec. ft.	Loss ft.	Description	Physical Characteristics										SHTL Class.			
						Sample No.	% Agg.	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.					
783.5	0																		
778.5	2																		
776.0	4	10/17			Brownish-Gray Sandy Clay	1	8	5	8	39	40	34	15	16					
773.5	6	12/21			Brown and Gray Gravelly Sandy Clay	2	15	9	9	33	34	32	12	15					
771.0	8	13/18			Gray Gravelly Clay	3	16	6	9	33	36	28	11	13					
768.5	10	15/19			Gray Sandy Silt	4	12	6	9	36	37	27	10	16					
766.0	12	24/34			Gray Sandy Silt	5	12	8	10	39	31	21	5	12					
763.5	14	30/50			Gray Gravelly Sandy Silt	6	17	8	10	36	29	22	5	11					
758.5	16	17/23			Gray Sandy Silt	7	10	9	8	36	37	25	8	13					
753.5	18	20/27			Gray Gravelly Silt	8	18	5	6	35	36	25	8	13					
747.5	20	30/45			Gray Sandy Gravelly Clay	9	27	9	7	25	32	28	11	12					
747.5	22	20/36			Gray Clayey Silt	10	0	1	11	49	39	23	8	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. CUY-IR80-0869 & 0873
UNDER RAMPS R & T
SEC. CUY-IR80-8.54

CHECKED BY L.N.L.	REVIEWED BY R.D.R.	DATE 8/16/65
----------------------	-----------------------	-----------------