

NOV 12 1968

GEOLOGY OF THE SITE

THE STRUCTURE SITE IS LOCATED ON THE GLACIATED LAKE PLAIN, IN AN AREA WHERE MODERATELY DEEP LACUSTRINE DEPOSITS AND GLACIAL-DERIVED SOILS OVERLIE SHALE BEDROCK, OF DEVONIAN AGE.

EXPLORATION

THE EXPLORATION CONSISTED OF TWO DRIVE SAMPLE-CORE BORINGS, MADE BETWEEN FEBRUARY 8 AND 15, 1968, AND THREE DRIVE ROD PENETRATION TESTS, MADE ON MARCH 5 AND 6, 1968.

INVESTIGATIONAL FINDINGS

BORINGS DISCLOSED MEDIUM-DENSE TO VERY DENSE SILTS, SANDS, AND GRAVELS, AND VERY STIFF CLAYS AND SOME BOULDERS TO BEDROCK SURFACE, ENCOUNTERED AT 42 TO 45-FOOT DEPTHS, ELEVATIONS 737 AND 733 FEET. THE BORINGS WERE TERMINATED AT 51 AND 58-FOOT DEPTHS, ELEVATIONS 727 TO 721 FEET, AFTER PENETRATING 6 AND 16 FEET OF BEDROCK.

THE ROD SOUNDINGS ENCOUNTERED RAPID INCREASE IN PENETRATION RESISTANCE WITH INCREASING DEPTH, AND WERE TERMINATED DUE TO RATHER ABRUPT REFUSAL TO PENETRATION AT 27 TO 29-FOOT DEPTHS, ELEVATIONS 752 TO 750 FEET, CONSIDERED TO BE IN THE VERY DENSE MATERIAL ABOVE BEDROCK SURFACE, AS 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
- 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

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.

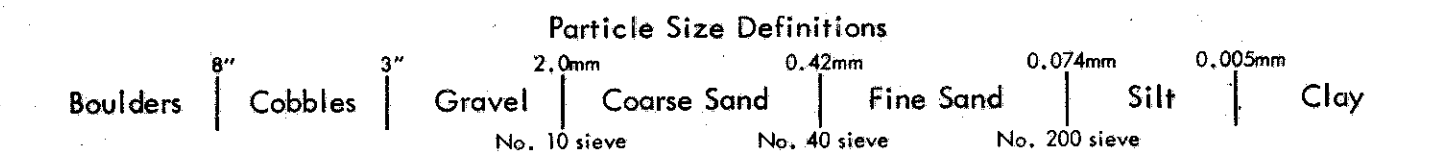
Drive Sample Borings - Drive-Press Sample Borings

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. CUY-80-
UNDER BUTTERNUT RIDGE ROAD
SEC. CUY-80-1.90

CHECKED BY L.N.L. REVIEWED BY R.D.R. DATE 3/28/68

LOG OF BORING

Date Started 2-8-68 Sampler Type SS Dia. 1 3/8" Water Elev. _____
Date Completed 2-9-68 Casing Length 35' Dia. 1 1/2"
Boring No. B-1 Station & Offset St. 1, 30' Lt. (Rear Pier) Surface Elev. 778.1'

Elev.	Depth	Std. Pen. (N)	Rec. ft.	Loss ft.	Description	Sample No.	Physical Characteristics							SMTL Class.		
							% App.	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.		W.C.	
778.1	0															
	2															
	4															
773.1	6	2/4			Brown Silty Gravelly Sand	1	17	22	31	14	16	NP	NP	18	A-3a	
770.6	8				Brown Gravelly Sand	2	29	25	43	-	-	NP	NP	20	A-1-b	
768.1	10	10/14			Brown Silty Gravelly Sand	3	40	14	29	7	10	NP	NP	10	A-1-b	
765.6	12	12/16			Gray Sandy Silt	4	11	6	13	25	45	23	5	19	A-4a	
763.1	14	10/16			Gray Sandy Silt	5	6	6	13	27	48	26	9	18	A-4a	
760.6	16	11/14			Gray Sandy Silt	6	7	7	11	27	48	29	10	18	A-4a	
758.1	18	14/20			Gray Sandy Clay	7	8	7	13	24	48	30	11	15	A-6a	
	22															
753.1	24	9/14			Gray Sandy Silt	8	9	7	12	28	44	28	9	17	A-4a	
	28															
748.1	30	34/47			Gray Sandy Silt	9	12	13	18	24	33	22	5	10	A-4a	
	32															
	34															
743.1	36	50*			Gray Sandy Silt	10	12	16	16	37	19	19	2	9	A-4a	
741.5	38	(0.6')														
	40															
738.1	42				Gray Fill With Boulders											
	44															
733.1	46	50*			Red Weathered Shale	12	33	5	9	16	37	31	10	9		
	48	(0.7')														
	50															
728.1	52	50*			Red Weathered Shale	13	39	3	5	21	32	32	11	27		
727.2	54	(0.7')														

LOG OF BORING		Date Started <u>2-14-68</u>		Sampler Type <u>SS</u> Dia. <u>1 3/8"</u>		Water Elev. _____		
		Date Completed <u>2-15-68</u>		Casing Length <u>25'</u> Dia. <u>3 1/2"</u>				
		Boring No. <u>B-8</u>		Station & Offset <u>10+60, 30' Lt. (Forward Pier)</u>		Surface Elev. <u>778.9'</u>		
Elev.	Depth	Std. Pen. (N)	Rec. ft.	Loss ft.	Description	Sample No.	Physical Characteristics	SMTL Class.
778.9	0							
	2							
	4							
773.9	8	2/3			Gray Gravelly Sandy Silt	1	23 15 21 21 20	NP NP 19 A-4a
	10							
768.9	12	1/2			Gray Silty Gravelly Sand	2	34 21 17 14 14	NP NP 19 A-2-a
	14							
763.9	16	5/6			Gray Gravelly Silt	3	15 4 9 31 41 27	9 18 A-4a
	18							
758.9	20	5/10			Gray Sandy Gravelly Silt	4	26 7 10 23 34 25	7 17 A-4a
	22							
753.9	24	7/13			Gray Sandy Gravelly Silt	5	17 6 10 28 39 28	9 15 A-4a
	26							
751.4	28	8/12			Gray Gravelly Sandy Silt	6	16 6 10 25 43 26	9 17 A-4a
	30							
748.9	32	24/26			Gray Gravelly Sandy Silt	7	16 7 10 28 39 25	8 14 A-4a
	34							
746.4	36	50*			Gray Sandy Silt	8	12 11 12 44 21 20	1 16 A-4a
	38							
743.9	40	50*			Gray Gravelly Sandy Silt	9	22 13 12 31 22 22	6 12 A-4a
	42							
741.4	44	90*			Gray Gravelly Silt	10	40 3 8 32 17 NP NP	14 A-4a
	46	(0.4')						
738.9	48	18/30			Gray Silty Clay	11	0 0 1 39 60 41 19 18	A-7-b
	50							
	52							
	54							
	56							
	58							
729.9	60							

TOP OF ROCK

BOTTOM OF BORING