CUYAHOGA COUNTY
CUY-480/17-8.00/7.59

25
27
1
3

GEOLOGY OF THE SITE

The structure site is located on the glaciated, relatively flat Lake Plain region, in an area where deep glacially derived soils overlie shale bedrock, of Devonian age.

EXPLORATION

The exploration consisted of two drive sample borings and four drive rod penetration tests, made on January 5 and 6, and between February 24 and March 2, 1966.

INVESTIGATIONAL FINDINGS

Borings disclosed moist, very stiff to hard sandy and gravelly clays, and medium-dense to dense sandy and gravelly silts to 20-foot depths, elevation 767 feet; below this, moist, dense sandy and gravelly silts. Borings were terminated at 51 and 56-foot depths, elevations 736 and 731 feet, after penetrating more than 30 feet of material requiring in excess of 30 blows per foot in the standard penetration test.

Rod soundings met increasing resistance to penetration with increasing depth, and were terminated upon encounter with refusal or near refusal to penetration at 21 to 24-foot depths, elevations 767 to 763 feet, in the dense materials revealed by the borings.

No test penetrated to bedrock.

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
- Weathered Sandstone
- Sandstone
- Leached Dolomite
- Dolomite

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 post 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 2-24-66 — Sampler Type SS — Dia. 1 3/8" — Water Elev. —
Date Completed 3-1-66 — Casing: Length 20' — Dia. 3 1/2"
Boring No. B-1 — Station & Offset 278+82, 21' Rt. (Rear Abutment) — Surface Elev 787.5'

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.
787.5	0														
	2														
	4														
782.5	6	7/14			Brownish-Gray Sandy Silt	1	11	9	11	25	44	29	9	14	A-4a
780.0	8	11/21			Brown Gravelly Sandy Silt	2	18	8	11	26	35	28	8	14	A-4a
777.5	10	11/23			Gray Silty Gravelly Sand	3	17	33	16	17	17	20	4	12	A-2-4
775.0	12	12/21			Gray Gravelly Clay	4	25	6	8	25	36	28	11	13	A-6a
772.5	14	9/11			Gray Sandy Silt	5	15	5	16	28	36	23	7	11	A-4a
770.0	16	8/16			Gray Sandy Gravelly Silt	6	19	7	11	25	38	25	7	14	A-4a
767.5	18	10/20			Gray Sandy Gravelly Silt	7	23	9	10	30	28	23	5	9	A-4a
765.0	20	18/28			Gray Sandy Silt	8	8	11	11	36	34	22	4	13	A-4a
762.5	22	13/20			Gray Sandy Silt	9	11	10	10	38	31	24	7	11	A-4a
	24														
	26														
757.5	28	13/24			Gray Sandy Silt	10	11	8	7	42	32	23	7	13	A-4a
	30														
752.5	32	22/35			Gray Sandy Silt	11	15	10	9	34	32	23	6	13	A-4a
	34														
747.5	36	15/30			Gray Sandy Silt	12	12	8	8	33	39	25	7	13	A-4a
	38														
742.5	40	20/43			Gray Sandy Gravelly Silt	13	18	8	9	32	33	24	6	12	A-4a
	42														
737.5	44	17/33			Gray Sandy Silt	14	8	9	8	34	41	26	8	13	A-4a
	46														
732.5	48				BOTTOM OF BORING										
731.5	50	9/29			Gray Sandy Silt	15	9	9	10	38	34	22	5	14	A-4a
	52														
	54														
	56														

LOG OF BORING

Date Started 3-1-66 — Sampler Type SS — Dia. 1 3/8" — Water Elev. —
Date Completed 3-2-66 — Casing: Length 10' — Dia. 3 1/2"
Boring No. B-8 — Station & Offset 280+10, 53' Lt. (Forward Abutment) — Surface Elev 787.3'

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.
787.3	0														
	2														
	4														
782.3	6	6/8			Brown Sandy Clay	1	7	7	11	33	42	34	16	18	A-6b
779.8	8	14/25			Brown Sandy Clay	2	11	7	11	29	42	36	17	20	A-6b
777.3	10	8/17			Gray Silt and Clay	3	0	8	12	33	47	26	11	13	A-6a
774.8	12	8/17			Gray Gravelly Clay	4	18	5	8	30	39	30	13	14	A-6a
772.3	14	8/14			Gray Sandy Gravelly Clay	5	16	5	10	27	42	31	14	15	A-6a
769.8	16	6/18			Gray Sandy Clay	6	10	7	9	31	43	28	12	15	A-6a
767.3	18	18/32			Gray Sandy Silt	7	0	10	13	45	32	22	6	11	A-4a
764.8	20	24/32			Gray Sandy Gravelly Clay	8	25	10	10	29	26	23	11	14	A-6a
762.3	22	16/28			Gray Sandy Silt	9	0	8	13	44	35	22	6	11	A-4a
	24														
	26														
757.3	28	14/28			Gray Sandy Gravelly Silt	10	17	7	9	38	29	22	5	11	A-4a
	30														
752.3	32	17/32			Gray Gravelly Silt	11	20	7	7	37	29	23	6	12	A-4a
	34														
747.3	36	16/33			Gray Silt	12	0	6	11	47	36	23	6	12	A-4a
	38														
742.3	40	36/51			Gray Sandy Silt	13	11	7	11	44	27	22	5	11	A-4a
	42														
737.3	44				BOTTOM OF BORING										
736.3	46	12/22			Gray Sandy Gravelly Silt	14	18	6	10	31	35	23	8	12	A-4a
	48														
	50														

Particle Size Definitions

Boulders	Cobble	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	

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-IR 80-
BROOKPARK RD. (SR 17) OVER RAMP B-5
SEC. CUY-IR 80-7.09

CHECKED BY	REVIEWED BY	DATE
L.N.L.	R.D.R.	3/16/66