



BBC&M
ENGINEERING, INC.

LOG OF BORING NO. B-1
REPLACEMENT BRIDGE NO. MUS-60-43.517
MUSKINGUM COUNTY, OHIO

DEPTH, METERS	SAMPLE NO.	SAMPLES SAMPLING EFFORT	HAND PENETR- TROMETER	MOISTURE CONTENT LIQUID LIMIT	PLASTIC LIMIT	TYPE: 165mm I.D. Hollow-stem Auger 50mm O.D. Split-barrel Sampler NXM Core-barrel					LOCATION: Sta. 43+530.9 2.6m R of Centerline	
						COMPLETION DEPTH: 7.41m				ELEVATION: 239.50	DATE: 1/10/94	
				kPa	%	%	%	AGG	C.S.	F.S.	SILT	CLAY
0												
1	IA	3 / 3 / 3	95-285	22	36	19						
1	IB	1 / 2 / 1		38	28			0	2	29	69	
2	2	1 / 2 / 1										
2	3	1 / 1 / 2	75-95	32	33	22	1	1	19	56	23	
3	4	1 / 1 / 1	55-105	33			2	4	27	53	14	
4	5	6 / 4 / 6	38-45	23	24	16	1	II	45	31	12	
4	6A	17 / 58R	19-140	18								
4	6B	50-100mmR										
5	7	NXM REC	RQD									
6	8	97%	33%									
7												
8												

WATER LEVEL:  1.40

WATER NOTE:

DATE: 01/10/94

GENERAL INFORMATION

INTRODUCTION

IT IS PROPOSED TO REPLACE THE EXISTING BRIDGE (NO. MUS-60-45.517 SLK) WHICH CARRIES S.R. 60 OVER A BRANCH OF BIG RUN IN MUSKINGUM COUNTY, OHIO. IT IS UNDERSTOOD THAT THE REPLACEMENT STRUCTURE BEING CONSIDERED IS AN APPROXIMATE 10-METER-LONG, SINGLE-SPAN BRIDGE, AND THAT THE CURRENT ALIGNMENTS, BOTH HORIZONTALLY AND VERTICALLY, WILL REMAIN RELATIVELY UNCHANGED.

GEOLOGY

THE MUS-60-45.517 BRIDGE SITE IS IN A PORTION OF OHIO WHICH WAS NOT GLACIATED AND IS LOCATED AT THE EDGE OF A BURIED VALLEY WHERE THE SOIL OVERBURDEN TYPICALLY CONSISTS OF COLLUVIAL SAND AND GRAVEL. THE UPPERMOST BEDROCK IN THE AREA OF THIS PROJECT CONSISTS OF PENNSYLVANIAN AGE SANDSTONE AND SHALE, AND IS TYPICALLY LOCATED BETWEEN 3 AND 10 METERS BELOW THE GROUND SURFACE.

FIELD INVESTIGATION

ON JANUARY 10, 1994, ONE STRUCTURE AND THREE BEDROCK PROBE BORINGS WERE DRILLED AT THIS SITE. STRUCTURE BORING B-1 WAS DRILLED TO A DEPTH OF 7.41 METERS, AND BORINGS B-2 THROUGH B-4, CONSISTING OF BEDROCK PROBES, WERE ADVANCED TO DEPTHS OF 4.88 TO 6.07 METERS. THE BORINGS WERE ADVANCED THROUGH THE SOIL BY MEANS OF A 165mm I.D. HOLLOW-STEM AUGER. IN BORING B-1 AND AT THE APPROXIMATE SUBGRADE LEVEL IN BORING B-2, DISTURBED BUT REPRESENTATIVE SOIL SAMPLES WERE OBTAINED BY LOWERING A 50mm O.D. SPLIT-BARREL SAMPLER THROUGH THE HOLLOW-STEM AUGER AND THEN DRIVING THE SAMPLER INTO THE SOIL WITH BLOWS FROM A 64kg HAMMER FREELY FALLING 760mm. REFUSAL TO SOIL DRILLING AND SAMPLING METHODS WAS MET AT DEPTHS OF 4.36, 4.88, 5.06, AND 6.07 METERS IN BORINGS B-1 THROUGH B-4, RESPECTIVELY. BEDROCK PROBE BORINGS B-2 THROUGH B-4 WERE TERMINATED AT THESE DEPTHS. IN BORING B-1, A CHANGEOVER TO ROCK CORING TECHNIQUES WAS PERFORMED, AND 3.05 METERS OF BEDROCK WERE CORED WITH AN NXM DOUBLE-TUBE CORE BARREL AND DIAMOND BIT USING WATER AS A CIRCULATING/COOLING FLUID.

GENERAL SUBSURFACE CONDITIONS

THE SUBSURFACE STRATIGRAPHY ENCOUNTERED IN STRUCTURE BORING B-1 CAN BE DESCRIBED IN DESCENDING ORDER AS FOLLOWS:

- I) 480mm OF ASPHALT. THE PROBE BORINGS ALSO ENCOUNTERED THIS THICKNESS OF ASPHALT.
- 2) 0.88m OF EXISTING FILL AND POSSIBLE FILL CONSISTING OF STIFF TO VERY-STIFF BROWN AND GRAY SILTY CLAY (A-6b). PROBE BORING B-2 ENCOUNTERED 0.30m OF EXISTING FILL CONSISTING OF STIFF TO VERY-STIFF CLAYEY SILT (A-4a) AT THE APPROXIMATE SUBGRADE LEVEL.
- 3) 1.98m OF MEDIUM-STIFF TO STIFF GRAY SILTY CLAY (A-6a) WHICH WAS NOTED AS BEING PARTLY ORGANIC.
- 4) 0.52m OF LOOSE TO MEDIUM-DENSE GRAY FINE TO COARSE SAND, "AND" SOFT TO MEDIUM-STIFF CLAYEY SILT (A-4a).
- 5) 0.24m OF VERY-SOFT TO SOFT BROWN AND GRAY SILTSTONE WHICH WAS SIMILAR TO DENSE SILT.
- 6) BORING B-1 WAS TERMINATED AFTER CORING 3.05m INTO BEDROCK COMPRISING 1.77m OF SOFT TO MEDIUM-HARD SILTSTONE OVER 1.52m OF VERY-SOFT BECOMING MEDIUM-HARD GRAY SHALE.

IN THE BEDROCK PROBE BORINGS, VISUAL OBSERVATION OF THE AUGER CUTTINGS INDICATED THAT THE MAJORITY OF THE SOIL ENCOUNTERED IN BORINGS B-2 THROUGH B-4 CONSISTED OF MEDIUM-STIFF TO STIFF GRAY SILTY CLAY WHICH CONTAINED ZONES OF SILT AND BROWN CLAYEY SILT.

DURING DRILLING, GROUNDWATER SEEPAGE WAS NOTED AT A DEPTH OF 2.59m IN BORING B-1. AT THE COMPLETION OF DRILLING, GROUNDWATER WAS PRESENT BETWEEN THE DEPTHS OF 1.34m AND 1.98m IN BORINGS B-1 THROUGH B-3, AND AT A DEPTH OF 4.08m IN BORING B-4.

NOT

THE SOIL PROFILE AND/OR STRUCTURE FOUNDATION INVESTIGATION SHEETS CONTAIN ALL AVAILABLE SOIL AND BEDROCK INFORMATION WHICH CAN BE CONVENIENTLY SHOWN. ADDITIONAL SUBSURFACE INVESTIGATIONS MAY HAVE BEEN MADE TO STUDY SOME ASPECTS OF THE PROJECT. MORE INFORMATION, IF ANY, MAY BE OBTAINED IN DISTRICT 5, THE BUREAU OF TESTS AT 1600 WEST BROAD STREET, THE BUREAU OF LOCATION AND DESIGN, OR THE BUREAU OF BRIDGES AND STRUCTURAL DESIGN AT 25 SOUTH FRONT STREET IN COLUMBUS, OHIO.