43+500 43+540 STA 43+530.9 STA 43+512.9 STA 43+513.5 STA 43+530.6 2.6m R 2.6m R 2.9m L ASPHALT = 480 mm ASPHALT = 480 mm ASPHALT = 480 mm ASPHALT = 480 mm 240 238 237 TOP OF BEDROCK TOP OF BEDROCK 100mm **5**0 **235** 235 VERY-SOFT TO MEDIUM-HARD BROWN AND GRAY SILTSTONE TOP OF BEDROCK 234 234 233 233 VERY-SOFT TO MEDIUM-HARD GRAY SHALE 232 230 230

43+520

43+540

43+500

ERS	ON H	LES	SAMPLING EFFORT	HAND PENE-	STURE	SUID	ASTIC	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						
METERS	SAMPLE	SAMPLE	AMPLING EFFORT	P.E.	MOIS		PL/ LII	CON	/PLE	TION	DEPT	—— Н•	7.4lm ELEVATION: 239.50 DATE: 1/10/94	
	SAI	S	S/S	kPa	%	%	%		.c.s.					
		$\dagger \dagger$:	/0	70	/6						ASPHALT PAVEMENT - 480 MILLIMETERS	
				<i>i</i> .								 `	- Note: At point Im W and Im S, encountered concrete at 0.37m.	
	IA	र्थात्रीत.	3	95-285	22	36	19	- -				į.	FILL: Stiff to very-stiff brown silty clay, little to some	
	IB	I d'Alian	3/3	:				0	2	29	6	9	fine to medium sand, few fine sand and silt lenses.	
												 	Est. A-6b	
	<u>⊽</u> 2	dartisa biduska	1/2,	38	28								POSSIBLE FILL: Stiff to very-stiff (est.) gray silty clay, some fine to medium sand, few silt seams.	
\exists		Hellin	<u> </u>	•								 	Est. A-6b	
											,		Medium-stiff to stiff gray partly organic silty clay, little	
=												 	to some fine to coarse sand, trace fine gravel interbedded with silt, little to some fine sand, contains decayed	
		Lattal.	1,										vegetation.	
	3	Cartelys, Ut	1/2	75-95	32	33	22	1	1	19	56	23		
╡	•	(Patalufis	7, 7											
	4	i istmic	1/	55-105	33			2	4	27	53	14 	A-6a(8,7)	
		High weight	6,	70.45					l		.		Loose to medium-dense gray fine to coarse sand, "and"	
	5 6A	Ad Rock Broke	17,	38-45 19-140		24	16	. I		45	31	12 . 	soft to medium-stiff clayey silt, trace fine gravel, few seams of fine to medium sand, few zones of silty clay.	
4	6B	AFFIA	58R 50-		10							j .	A-4a(2)	
	7.	Brollé	100mm	₹				+				! !	Very-soft to soft brown and gray siltstone and fine- grained sandstone, nearly horizontally bedded, similar to	
╡		lis residu	NXM	4								į	dense silt and fine sand.	
=		inggalajes	REC	RQD								 		
3		i i i i i i i i i i i i i i i i i i i						,					Soft to medium-hard gray siltstone, nearly horizontally bedded, many vertical fractures, few diagonal fractures,	
\exists		n.Uphlak										 	few very-soft siltstone seams.	
\exists		Sept. Gales												
		dilaw.m	;											
\exists	8	bystalik <i>a</i> a	97%	33%									Very-soft to soft gray shale, nearly horizontally bedded,	
		is selline										1	fragmented, few horizontal fractures, contains slickensides, few siltstone seams.	
\exists		Series design										İ		
\exists		South Alle							•			 	- From 6.43m to 7.19m; reddish-brown color.	
\exists		iti:Tudika										į	- Unconfined compressive strength: 860 kPa.	
\exists		and saturda										. 		
\exists		Ling)											Medium-hard gray shale, nearly horizontally bedded, many	
\exists													horizontal fractures.	
\exists														
_													- Encountered slight seepage at 2.59m.	
												1		

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 IO-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-I 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-I 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-I THROUGH B-4, RESPECTIVELY. BEDROCK PROBE BORINGS B-2 THROUGH B-4 WERE TERMINATED AT THESE DEPTHS. IN BORING B-I, 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

WAS SIMILAR TO DENSE SILT.

THE SUBSURFACE STRATIGRAPHY ENCOUNTERED IN STRUCTURE BORING B-I 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

6) BORING B-I 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-I. AT THE COMPLETION OF DRILLING, GROUNDWATER WAS PRESENT BETWEEN THE DEPTHS OF 1.34m AND 1.98m IN BORINGS B-I THROUGH B-3, AND AT A DEPTH OF 4.08m IN BORING B-4.

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.