

ENGINEERING SERVICES DEPARTMENT

GEOTECHNICAL UNIT
GEOLOGY SECTION

BRIDGE FOUNDATION GEOLOGY REPORT
99-75 K-0672-01
F-BRF-059-3(8)
Elm Slough, Bridge No. 3.61
Pottawatomie County



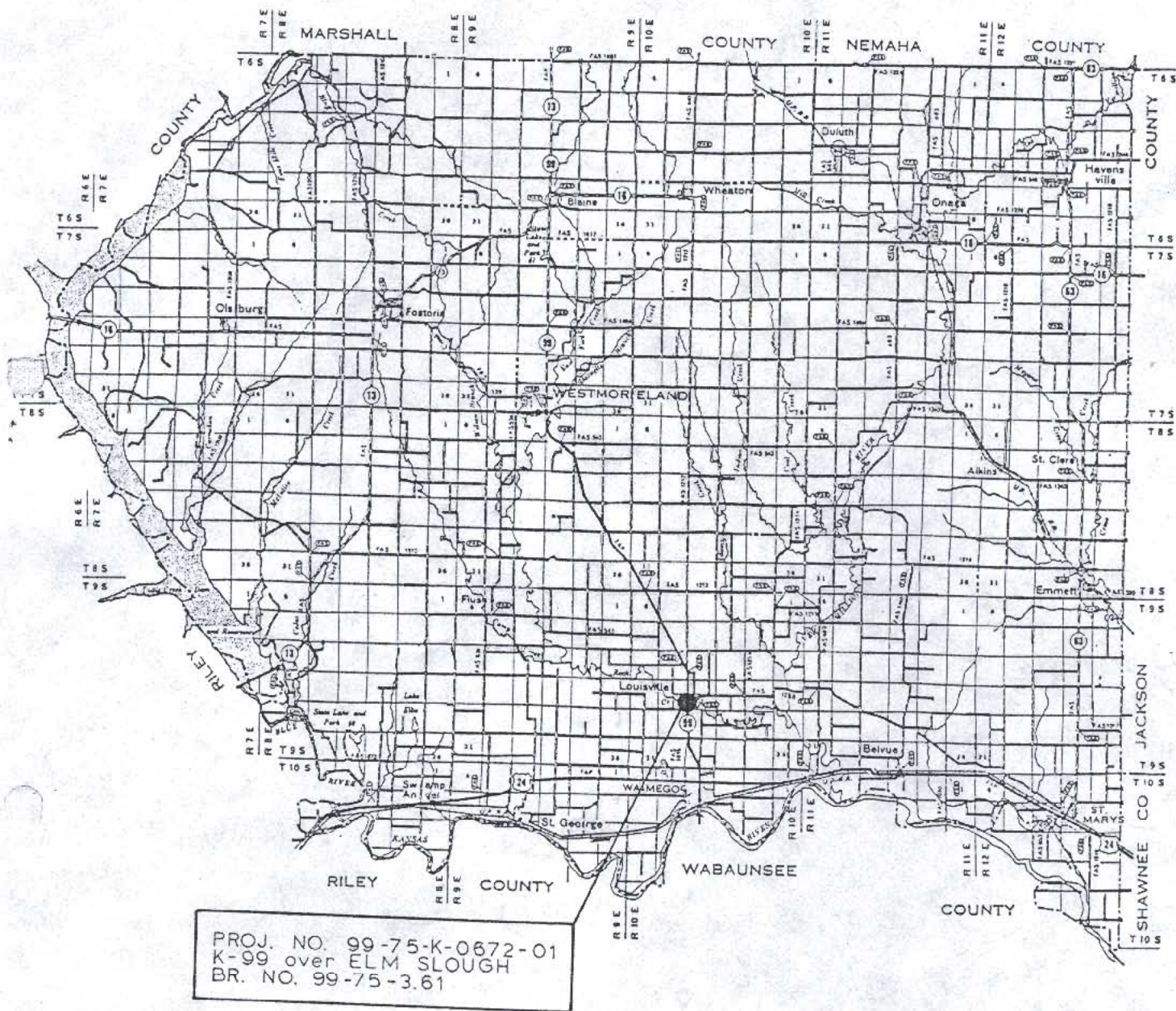
LAWRENCE A. ROCKERS
CHIEF GEOLOGIST

By

Alex A. Kotoyantz, Geologist II

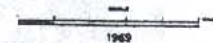
Wallace K. Taylor, Regional Geologist

December 1980



GENERAL HIGHWAY MAP
POTTAWATOMIE COUNTY
KANSAS

DIVISION OF THE
 STATE HIGHWAY COMMISSION OF KANSAS
 DEPARTMENT OF PLANNING AND DEVELOPMENT
IN COOPERATION WITH THE
 U. S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION



1969

FOUNDATION GEOLOGIC MATERIAL

The mantle consists of fill material, and alluvial deposits. The mantle is composed of sand with clay binder, silty clay-sandy, sand with gravel and clay.

The bedrock units that were encountered in the soundings are the Willard Shale Formation, Elmont Limestone Member, and the Harveyville Shale Member.

The air hammer drives, and the casing drive penetrated the soil mantle without much resistance or difficulty, and refused in the upper portion of Elmont Limestone Member.

PILE RECOMMENDATION

All types of pile, pipe, H-pile or precast-prestressed concrete pile should all penetrate the mantle, and obtain point bearing in the Elmont Limestone Member. When the piles have obtained bearing in formation, further driving may damage the pile, and should therefore be avoided.

The following approximate pile tip elevations are being recommended:

<u>Location</u>	<u>H-Pile Tip Elev.</u>	<u>Pipe Pile, Precast-Prestressed Concrete Pile Tip Elevation</u>
Abutment No. 1 Station 157+63	967.0	968.0
Pier No. 1 Station 158+00	967	968.0
Pier No. 2 Station 158+46	967	968.0
Abutment No. 2 Station 158+83	969.0	970.0

INVESTIGATION PROCEDURE

Two air hammer drives, two core drill soundings, and one power auger sounding were made at the bridge site to develop the Foundation Engineering Geology

HYDROLOGY

Excavation for the piers will be below the flowline of the stream and will be wet. The alluvial material is very sandy and sheeting of some type will be required to secure the excavation.

ACKNOWLEDGEMENT

Recognition is given to Leo E. Teasley, Larry Cavender, Bob Staadt, Bill Werner, David Schurle, and Terri Kellenberger, Engineering Technicians, for their aid in obtaining the field data.

DISTRIBUTION

The Engineering Geology Sheet with the drill logs is being transmitted to the Bridge Engineer with a copy of this report. Copies of the report are being transmitted to the Construction Engineer to be used during the construction of the bridge.

Pottawatomie County

99-75-K-0672-01

Project 99-75-F-BRF-059-3(8)

Location Elm Slough

Bridge No. 3.61 Station 158+23

Date 1-22-81

Above transmitted to L. Rocker

with copy of drill logs and report.

In Geology Files;

1 Cronaflex or ~~linen~~

2 Print of Engineering Geology Sheet

15 Half-size print of Engineering Geology sheet

2 Foundation Geology Report } original & copy
3 Original Drill Logs }

1 Air Hammer Drive Data

 Cores

 Split spoon samples

15 Location maps

*Report being prepared
1/22/80
Transmitted
1/22/81*

SOUNDING DATA

KANSAS DEPARTMENT OF TRANSPORTATION

Sheet 1 of 4

COUNTY Pottawatomie		PROJECT NO. 99-75-K-0672-01		BRIDGE NO. 3-003-61					
G. STA. 158+23		NAME Elm Slough		STA. 157+63 RT/LT 8'					
GROUNDWATER EL.		VERTICAL SCALE 1" = 10'		DATE 11-3-1980					
B.M. NO. 12		B.M. EL. 1012.19		SUBMITTED BY Alex A. Kotoyantz					
POINT	B.S.	H.I.	F.S.	ELEV.	POINT	B.S.	H.I.	F.S.	ELEV.
T ₁	3.92	1016.11		1012.19					
CD-1			4.35	1011.76					

FORM	BIT	EL.	LOG	ACC. DEP.	GEOLOGIC DESCRIPTION AND REMARKS	CASING DRIVE REC. DEPTH	BL/10
					TH. 1011.8 CD-1		
		1010			Sand, fine, with clay binder		
		1000		11± 1000.3			
		990			Silty clay, sandy, fine, dk. brown-black		
		980		31± 980.6			
					Sand, fine		
				37± 974.3			
					Clay lt. gray		
		970		41± 970.5			
					Gravel, coarse		
				41.5 970.3			
					Sh., clayey, dk. gray		
				42.5 969.3			
					Ls., dense, hard, lt. gray		
				44± 967.3			
					Ls., shaly, dk. gray		
				45.1 966.7			
					Ls., dense, hard, creamy in color.		
				46.2 965.6			
					Sh., limy, ls. stringers, tannish green.		
				47± 964.3			
					Sh., limy, silty, lt. gray, dk. gray		
		960		51± 960.4			
					Core #1, 39±-43± (972±-968±) Cut 4± Rec. 1±		
					Core #2, 43±-46± (968±-965±) Cut 3± Rec. 3±		
					Core #3, 46±-51± (965±-960±) Cut 5± Rec. 0±		

Alluvium & Fill Section

Honeyville Elmwood Willard
 Mbr. Fbr. Mbr. Mbr.

SOUNDING DATA

KANSAS DEPARTMENT OF TRANSPORTATION

Sheet 2 of 4

COUNTY	Pottawatomie		PROJECT NO.	99-75-K-0672-01		BRIDGE NO.	3-503.61		
STA.	158+23		NAME	Elm Slough		STA.	158+83		
RT/ET	91		SOUND. NO.	CD-2					
GROUNDWATER EL.			VERTICAL SCALE	1"=10'		DATE	11-4-1980		
B.M. NO.	12		B.M. EL.	1012.19		SUBMITTED BY			
POINT	B.S.	H.I.	F.S.	ELEV.	POINT	B.S.	H.I.	F.S.	ELEV.
T.	3.50	1015.69							
CD-2			4.21	1011.48					

FORM	BIT	EL.	LOG	ACC. DEP.	GEOLOGIC DESCRIPTION AND REMARKS	CASING DRIVE REC. DEPTH	BL/10
					TH. 1011.5 CD-2		
		1010			Sand, fine, clay binder, tan brown.	Pushed 2 1/2" casing	
		1000		123	999.1		123 999.1
		970			Silty clay, sandy, dk. brown - dk. gray.		
		950		30	981.5		
				37	974.5		
				40	971.5 clay, dk. brown - dk. gray.		
				40E	971.0 ls gravel		
		970		42L	969.4 ls, dense, crystalline, hard, gray		40E 970.9
				42.7	968.8 ls, shaly, dk. gray		60 BPT
				43.8	967.7 ls, dense, hard, creamy in color		
				45.1	966.4 sh, limy, ls. stringers, tannish green.		
					sh, limy, limy stringers tannish gray + gray.		
		960		51	960.1		
					Core #1, 40 ^E - 45 ^E (970 ^E - 965 ^E) Cut 5 ^E Rec. 4 ^E		
					Core #2, 45 ^E - 46 ^E (965 ^E - 964 ^E) Cut 1 ^L Rec. 0 ^S		
					Core #3, 46 ^E - 51 ^E (964 ^E - 960 ^E) Cut 4 ^E Rec. 4 ^E		

Elmont Mbr.
Harveyville Mbr.

Power Auger Soundings

Proj 99-75-K-0672-01

(F-100)

Br. No. ~~3-00~~ 3.61

?? over Elm Slough Ck.

Pottawatomie County

PA # 1

Sta 158+30 Lt 22	993.0	0 ^o -4 ⁵	Silt, dk-brown
11-12-80	988.5	4 ⁵ -5 ^o	Silt & gravel lt. brown
Closed	988.0	5 ^o -9 ^o	Silty clay, sandy, dk. brown
	984.0	9 ^o -22 ⁸	Sand, Silty - fine
	970.2	22 ⁵ -23 ²	Gravel & clay
	969.8	23 ² -24 ²	Ls. hard
	968.3	24 ² -25 ³	Ls. shaly
	967.7	25 ³ -25 ⁸	Ls. hard
	967.2	25 ⁸	S. I. S.

Survey Notes

Proj 99-75-K-0672-01

Br. No 3.00 3.61

99 over Elm Slough Ck.

Pottawatomie County

Sta	B. S.	H. I.	F. S.	Elev.	Plans BM #13
BM #13	3.21	1015.39		1012.181	"t" cut on S.W. Wing of Bridge 3.07
AH #1			3.90	1011.49	15' Lt. Sta 160+79.5 Elev. 1012.181
AH #2			3.62	1011.77	
BM #13			3.21	1011.18	

Sta	B. S.	H. I.	F. S.	Elev.	Plans BM #12
BM #12	3.92	1016.11		1012.191	"t" cut on S.W. Wing of Bridge 3.00
CD #1			4.35	1011.76	15' Lt. Sta 157+73.75 Elev. 1012.191
BM #12			3.92	1012.19	

Sta	B. S.	H. I.	F. S.	Elev.
BM #12	3.50	1015.69		1012.191
CD #2			4.21	1011.48
BM #12			3.50	1012.19

Sta	B. S.	H. I.	F. S.	Elev.
BM #12	2.70	1014.89		1012.191
PA #1			21.90	992.99
BM #12			2.70	1012.19