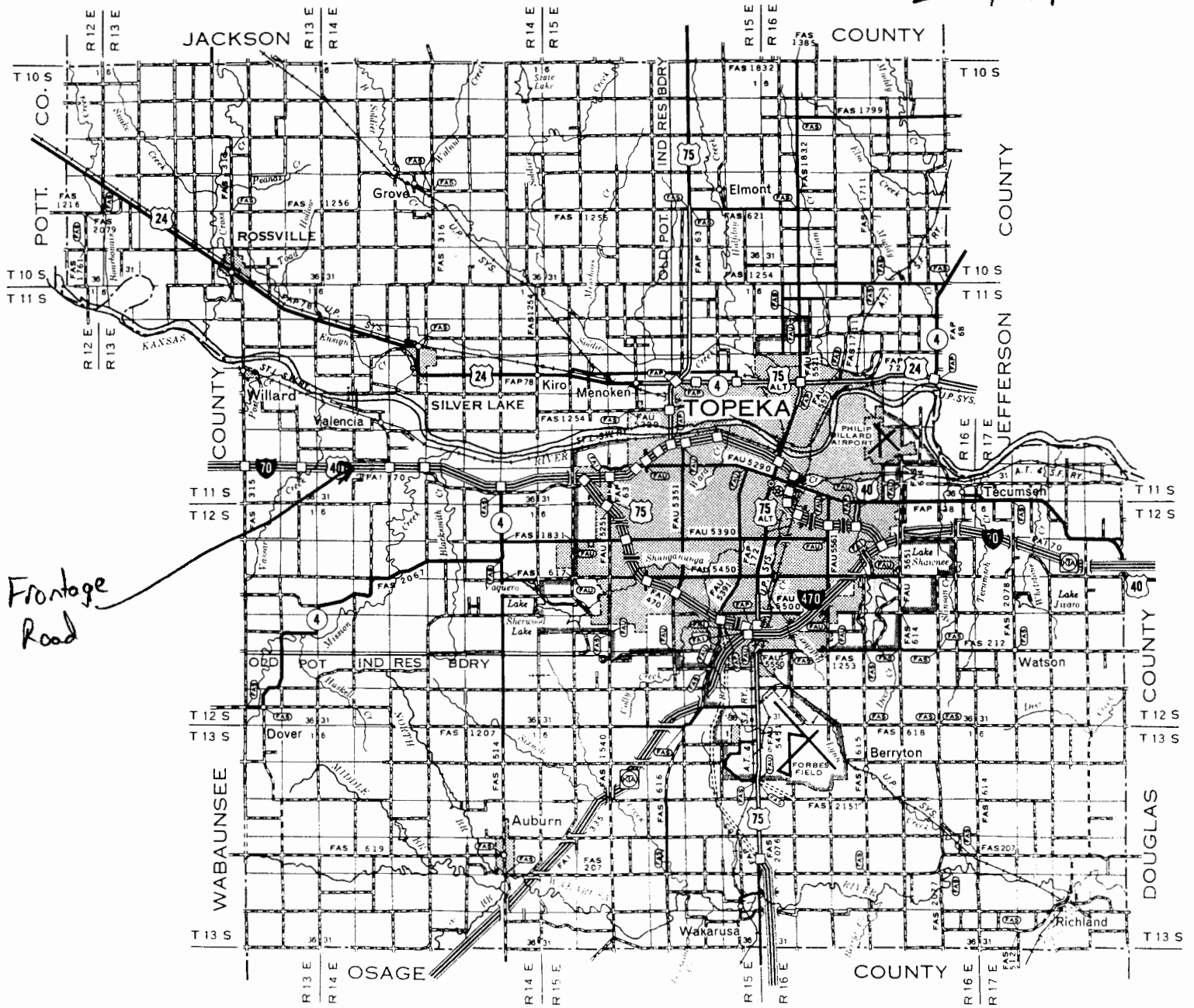


Project # 70-89 K-6358-01
 I-70 over Frontage Road west of Valencia Rd.
 Shawnee County
 ZBA1



Frontage Road

VF NE 32-11S-14E

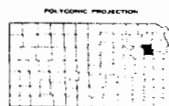
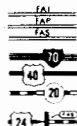
LEGEND

ROADS AND ROADWAY FEATURES

- PRIMITIVE ROAD
- UNIMPROVED ROAD
- GRADED AND DRAINED ROAD
- SOIL SURFACED ROAD
- GRAVEL OR STONE ROAD - NOT GRADED OR DRAINED
- GRAVEL OR STONE ROAD - GRADED AND DRAINED
- GRAVEL OR STONE ROAD WITH STABILIZED SURFACE
- BITUMINOUS ROAD - LOW TYPE
- PAVED ROAD
- DIVIDED HIGHWAY
- HIGHWAY WITH FULL CONTROL OF ACCESS AND INTERCHANGE

ROAD SYSTEM DESIGNATION

- FEDERAL-AID INTERSTATE HIGHWAY SYSTEM
- FEDERAL-AID PRIMARY HIGHWAY SYSTEM
- FEDERAL-AID SECONDARY HIGHWAY SYSTEM
- INTERSTATE NUMBERED HIGHWAY
- U.S. NUMBERED HIGHWAY
- STATE HIGHWAY SYSTEM OR STATE NUMBERED HIGHWAY
- END OF DESIGNATED SYSTEM OR MARKED ROUTE

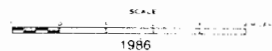


FA SYSTEM REVISED TO MAR 15, 1988

GENERAL HIGHWAY MAP
 SHAWNEE COUNTY
 KANSAS

KANSAS DEPARTMENT OF TRANSPORTATION
 BUREAU OF TRANSPORTATION PLANNING

U.S. DEPARTMENT OF TRANSPORTATION
 FEDERAL HIGHWAY ADMINISTRATION



1/2



KANSAS DEPARTMENT OF TRANSPORTATION

RTE./CO. 70-89	SOUNDING NO. CD 1	SHEET 1 OF 2
BRIDGE STA. 45+778.029 EB 45+777.916 WB	PROJ. NO. K-6358-01	BRIDGE NO. ?
SITE NAME I-70 Over Frontage Road		HOLE STA. 45+801, 42 m Rt. Projected E
GEOLOGIST Randy Billinger	SCALE: 1:100 (10mm = 1 Meter)	DATE 3-27-01
DRILLER Rob Veruyneck	RIG TYPE Mobile B-61	TOP HOLE ELEV. 309.78
GROUNDWATER ELEV. —	TOTAL DEPTH 11.85 m	M/B ELEV. 306.65

BIT TYPE	GEOLOGIC NAME	STRATIGRAPHIC COLUMN	DEPTH	ELEVATION	CLASSIFICATION OF MATERIALS DESCRIPTION AND REMARKS	UNCONFINED COMPRESSION kPa	STANDARD PENETRATION OR CASING DRIVE	
							BLOWS	ELEV
			0.0	309.78				
	Mantle			309	Mantle, silty clay, brown, & some yellow-brown, fill, shale.			
				308				
				307				
			3.13	306.65	Shale, weathered, yellow-brown.			
	Willard Shale Fm.			306		0.0	Sample 1	305.97
			4.48	305.20				
	Elmont Limestone Mbr	Core 1		305	Limestone, platy to blocky, brown & gray. Limy shale breaks. Weathered.			
		Core 2	5.88	304				
		Core 3		303.90		727.9	Sample 2	303.66
	Harveyville Shale Member			303	Shale, weathered, limy, yellow-brown.	473.6	Sample 3	303.11
		Core 4		303.00				
				302	Shale, gray, clayey, firm.	474.1	Sample 4	302.59

		SOUNDING NO. CD 1	PROJECT NO. K-6358-01	SHEET 2 OF 2				
DATE 3-27-01		RTE./CO. 70-89	TOTAL DEPTH 11.85	THE 309.78				
BIT TYPE	GEOLOGIC NAME	STRATIGRAPHIC COLUMN	DEPTH	ELEVATION	CLASSIFICATION OF MATERIALS DESCRIPTION AND REMARKS	UNCONFINED COMPRESSION	STANDARD PENETRATION OR CASING DRIVE	
							BLOWS	ELEV
				302				
	Reading Horseville Shale Member		911	301	Shale, gray, clayey, firm.	1,058.1	Sample 5	301 ⁹⁸
	Reading LS Mbr.		996	300	Limestone, blocky, gray	* 1,330.3	Sample 6	300 ⁵²
	Auburn Shale Fm.		1185	299	Shale to mudstone, hard, gray	59,351.9	Sample 6A	300.34
				299		743.0	Sample 7	299 ⁵⁴
				298	Total Depth	32,749.7	Sample 8	299 ²¹
				297		1,939.7	Sample 9	298 ⁶⁴
					* Test results on sample 6 were believed to be in error. Sample 6A was sent in for retest.			

I-70 over Frontage Road Core Hole #1

Project No. 70-89 K-6358-01

	<u>Elevation</u>	<u>Depth</u>		
Core Hole #1	309.78	0.00	Set casing. When we cleaned out the casing, had brown, silty clay & yellow-brown, weathered shale.	
Sta. 45+801				
42 m Rt. Project C.L.	306.65	3.13	Strat. Shale, weathered, yellow-brown.	
Water Level ??? m	306.43	3.35	Start coring.	
Water Elevation ??????				
Date Drilled 3/27/01				
Core # 1	306.43	3.35	Shale, weathered. (Lost)	Willard Shale
3.35 to 4.87 m	306.22	3.56	Shale, weathered, yellow-brown.	Formation
Cut 1.52 m	305.30	4.48	Limestone, platy, brown/gray.	Elmont
Recovered 1.43 m	305.09	4.69	Limestone, blocky, brown/gray.	Limestone
RQD = 50%	304.91	4.87	End Core 1.	Member
lost 0.21 m off top. soft and ground away			Sample 1 3.71 to 3.87 Shale, yellow-brown.	
Core # 2	304.91	4.87	Shale, limy, gray-brown.	Elmont
4.87 to 5.94	304.76	5.02	Limestone, platy to blocky, weathered, gray-brown.	
Cut 1.06 m	304.27	5.51	Shale, limy, gray-green.	Limestone
Recovered 1.06 m	304.21	5.57	Limestone, platy, gray-brown.	Member
RQD = 22%	304.09	5.69	Limestone, blocky, weathered, brown.	
	303.90	5.88	Shale, weathered, yellow-brown.	Harveyville Shale
	303.84	5.94	End core 2.	Member
Core # 3	303.84	5.94	Shale, weathered, limy, yellow-brown.	
5.94 to 7.28 m	303.51	6.27	Shale, limy, gray.	Harveyville Shale
Cut 1.34 m	302.99	6.79	Shale, gray, clayey.	Member
Recovered 1.34 m	302.50	7.28	End core 3.	
RQD = 100%			Sample 2 5.97 to 6.12 Shale, limy, yellow-brown.	
			Sample 3 6.4 to 6.67 Shale, limy, gray.	
			Sample 4 7.04 to 7.19 Shale, gray, clayey.	
Core # 4	302.50	7.28	Shale, gray, clayey, firm.	Harveyville
7.28 to 8.74 m	301.04	8.74	End core 4.	Shale
Cut 1.46 m				Member
Recovered 1.46 m			Sample 5 7.65 to 7.80 Shale, gray, firm.	
RQD = 100%				

I-70 over Frontage Road Core Hole #1

Project No. 70-89 K-6358-01

	<u>Elevation</u>	<u>Depth</u>		
Core # 5	301.04	8.74	Shale, gray, firm.	Harveyville Shale
8.74 to 10.05 m	300.67	9.11	Limestone, hard, blocky, gray.	Reading
Cut 1.31 m	300.18	9.60	Limestone, platy, shaly.	Limestone
Recovered 1.31 m	300.09	9.69	Limestone, blocky, gray/brown.	Member
RQD = 100%	299.82	9.96	Shale, gray.	Auburn Shale
RQD in the shale is 100%	299.73	10.05	End core 5.	Formation

Sample 6 9.11 to 9.26 Limestone, gray.

Note: During core 5, we lost all return in the Reading Limestone. Void? Fracture?
Never regained any circulation.

Core # 6	299.73	10.05	Shale, gray, firm.	Auburn Shale
10.05 to 10.45 m	299.33	10.45	End core 6.	Formation
Cut 0.39 m				
Recovered 0.39 m			Sample 7 10.05 to 10.24	Shale, gray.
RQD = 100%				

Core # 7	299.33	10.45	Shale/mudstone, hard, gray.	Auburn Shale
10.45 to 11.85 m	299.18	10.60	Shale, gray, clayey, very firm.	Formation
Cut 1.40 m	298.20	11.58	Fell in hole. Gray shale.	
Recovered 1.12 m	297.93	11.85	End core 7. Total depth. End core hole 1.	
RQD = 100%				
			Sample 8 10.45 to 10.57	Mudstone, gray.
			Sample 9 10.97 to 11.12	Shale, gray.

Kansas Department of Transportation

Report of sample of Shelby/Geology Cores

Laboratory No. 01-781

Date Reported. April 6, 2001

Date Received. March 29, 2001

Specification No. -- Quantity --

Source of material Project

Sample from Project

Submitted by Delmar Thompson, Lawrence Regional Geology Office

Identification marks Tags with samples

Project or POV 70-89 K-6358-01, Shawnee County

Type of construction Bridge

TEST RESULTS

Sample No.	Station	ϕ Dist. m	Depth m	Description	Qu. kPa	Dry Unit Weight kg/m ³	Moisture (% of Dry Wt.)
S# 1	45+801	42 Rt.	3.71-3.87	Shale, Weathered	0.0	1,664	23.2%
S# 2	"	"	5.97-6.12	Shale, Limey, Weathered	727.9	2,136	9.2%
S# 3	"	"	6.4-6.67	Shale, Limey, Gray	473.6	2,066	11.1%
S# 4	"	"	7.04-7.19	Shale, Clayey, Gray	4.9 474.1	121.5 1,947	14.8%
S# 5	"	"	7.65-7.80	Shale, Gray, Firm	11.04 1,058.1	123.5 1,978	13.5%
S# 6	"	"	9.11-9.26	LS, Gray -	1,330.3	2,548	3.3%
S# 7	"	"	10.05-10.24	Shale, Gray	743.0	1,967	14.5%
S# 8	"	"	10.45-10.57	Mudstone, Hard, Gray	32,749.7	2,366	6.8%
S# 9	"	"	10.97-11.12	Shale, Gray	1,939.7	2,028	11.0%

cc: L.S. Ingram
G.R. Koontz
D. Thompson
J.J. Brennan
Soil Section
File

Reported by: L.S. Ingram

Title James J. Brennan, Soils Engineer

Kansas Department of Transportation

Report of sample of Shelby/Geology Cores

Laboratory No. 01-968

Date Reported. April 20, 2001

Date Received. April 16, 2001

Specification No. -- Quantity ---

Source of material Project

Sample from Project

Submitted by Delmar Thompson, Lawrence Regional Geology Office

Identification marks Tags with samples

Project or POV 70-89 K-6358-01, Shawnee County

Type of construction Bridge

TEST RESULTS

Sample No.	Station	Dist. m	Depth m	Description	Qu. kPa	Dry Unit Weight kg/m ³	Moisture (% of Dry Wt.)
6A	45+801	42m Rt	9.32-9.44	LS, Gray	59,351.9 <i>619 + sf</i>	2,600 <i>162.3</i>	0.3

cc: L.S. Ingram
G.R. Koontz
D. Thompson
J.J. Brennan
Soil Section
File

Reported by: *L. A. Gosholt*

Title James J. Brennan, Soils Engineer

0.163

*0.6020
0.0120*

*2476.00
3095.0*