

KANSAS DEPARTMENT OF TRANSPORTATION

RTE./CO. 70-89	SOUNDING NO. CD#1	SHEET 1 OF 2
BRIDGE STA. 40+598.795 EB & WB	PROJ. NO. K-6358-01	BRIDGE NO. 70-89-0000(002) EB 70-89-0.010(001) WB
SITE NAME I-70 over Cassville Road (RS 315)		HOLE STA. 40+573, 38m. ht. Proj. E
GEOLOGIST Randy Billinger	SCALE: 1:100 (10mm = 1 Meter)	DATE 1-30-01
DRILLER Rob Veruyneck	RIG TYPE Mobile B-61	TOP HOLE ELEV. 306.99
GROUNDWATER ELEV. 304.85	TOTAL DEPTH 20.75 m	M/B ELEV. 305.78

BIT TYPE	GEOLOGIC NAME	STRATIGRAPHIC COLUMN	DEPTH	ELEVATION	CLASSIFICATION OF MATERIALS DESCRIPTION AND REMARKS	UNCONFINED COMPRESSION	STANDARD PENETRATION OR CASING DRIVE	
							BLOWS	ELEV
			0°	306.99				
	Mantle		1.21	305.78	Mantle, Silty clay. Casing set to 305.78.			
	Wagon Sh.		1.55	305.44	Shale, weathered, yellow-brown.			
	Tarkio 1.5 mbr.			305	Limestone, blocky, tan/brown, hard. Abundant fusulinid fossils.	1297.7	Sample 1	304.92
				304		619.8	Sample 2	304.10
			3.56	303.43		15077.9	Sample 3	303.58
				303	Shale, sandy, gray, firm.			
				302	Thin sandstone lenses are common.	Sample Broke	Sample 4	301.97
				301				
				300		876.5	Sample 5	300.41
				299		1307.1	Sample 6	299.16
			8.28	298.61				
				298	Shale, gray, firm, clayey.	Sample Broke	Sample 7	297.88
				297				
				296		1955.1	Sample 8	296.14
				295		1567.9	Sample 9	295.11
				294				
				293				
				292				

		SOUNDING NO. <u>CD #1</u>		PROJECT NO. <u>K-6358-01</u>		SHEET <u>2</u> OF <u>2</u>		
DATE <u>1-30-01</u>		RTE./CO. <u>70-89</u>		TOTAL DEPTH <u>20²⁵ m</u>		THE <u>306.99</u>		
BIT TYPE	GEOLOGIC NAME	STRATIGRAPHIC COLUMN	DEPTH	ELEVATION	CLASSIFICATION OF MATERIALS DESCRIPTION AND REMARKS	UNCONFINED COMPRESSION	STANDARD PENETRATION OR CASING DRIVE	
							BLOWS	ELEV.
				292		2142.8	Sample 10	291⁹⁷
	Willard Shale Fm.			291	Shale, gray, firm, clayey. Maybe a couple thin limestone stringers.	1542.8	Sample 11	290 ⁶⁶
			290					
			289					
			288 ⁶⁵				1704.10	Sample 12
	Elmont LS		19 ⁶⁵	288	Limestone, platy & shaly. Interbedded limy shale beds.	11765.9	Sample 13	287 ⁴¹
			14	287 ³⁴				
	Harveysville Sh.		20 ²⁵	287	Shale, firm, gray-green.	1415.8	Sample 14	287 ⁰⁰
				286 ²⁴				
				286				

I-70 over Russell Road

	meters		feet	
1-30-01				
Core Hole #1	306.99	0 ⁰ -1.21	1007.18	0 ⁰ -40
Sta 40+573.38 m pt	305.78	1.21-1.37	1003.18	40-45
Project	305.62	1.37	1002.16	45
Randy, Rob, Bill				
open closed				
2.13 m				
(304.85)				

Casing
 1 4.7
 4.0 ft in ground (1.21 m)
 .7 out

set casing: hit weathered shale @ ± 3° ft
 weathered shale, yellow-brown
 begin coring
 Wamesu
 Sta.

	1-30-01	meters	feet	
Core #1		305.62	1002.68	4 ⁵ -4 ⁸
4 ⁵ -9 ⁵ ft		305.53	1002.38	4 ⁸ -5 ¹
1.37-2.89 m		305.44	1002.08	5 ¹ -5 ⁶
Cut 5° (1.52m)				
Recov. 4 ⁷ (1.43m)		305.29	1001.58	5 ⁶ -9 ⁵
RQD = 3 ⁷ /5 ⁰ = 74%				
		304.10	997.68	9 ⁵
Core 2		304.10	997.68	9 ⁵ -9 ⁶
9 ⁵ -14 ⁵ ft		304.07	997.58	9 ⁶ -9 ⁹
2.89-4.41 m		303.98	997.28	9 ⁹ -11 ⁷
Cut 5° (1.52m)		303.43	995.48	11 ⁷ -14 ⁵
Recov. 5° (1.52m)		302.58	992.68	14 ⁵
RQD = 2 ⁶ /5 ⁰ = 52%				

I-70 over Rossville Rd 11

weathered shale, lost ground away
 shale, weathered, yellow-brown
 LS, weathered, platy to blocky, tan
 abundant fusulinid fossils
 LS, blocky, weathered, tan/brown, abundant fusulinid fossils
 areas of yellow-brown.
 End Core 1

Wamego sh.

Tarkio LS

Sample 1 6³-6⁸ LS, weathered, tan, hard
 (1⁹²-2⁰⁷ m) 304.92

Sample 2 9⁰-9⁵ LS, tan weathered, hard
 (2⁷⁴-2⁸⁹ m) 304.10

LS, hard
 shale, very soft light tan
 LS, hard, unit bedded, tan, abundant fusulinid fossils
 Shale, gray, sandy.
 End Core 2

Tarkio LS

Wilmington Shale

Sample 3 10⁷-11² LS, hard, tan
 (3²⁶-3⁴¹ m) 303.58

1-30-01

I-70 over Rossville Road

Core 3

145-187 ft

4.41-5.69 m

Cut 4² (1.28 m)

Recov. 3⁹ (1.18 m)

RQP = 1⁸/4² = 43%

302.58	4 ⁴ -4 ⁹³	992.68	145-16 ²
302.06	4 ⁹³ -5 ⁶⁹	990.98	16 ² -18 ⁷
301.30	5 ⁶⁹	988.48	18 ⁷

Shale, gray sandy
 Shale, more clayey with sandy lenses, gray
 End core 3

Willard shale

Sample 4 16⁰-16⁵ shale sandy, gray
 (4⁸⁷-5⁰² m)
 301.97

1-31-01

Core 4

187-231 ft

5⁶⁹-7⁰⁴ m

Cut 4⁴ (1.34 m)

Recov. 4⁸ (1.24 m)

RQP = 2⁶/4⁴ = 59%

lost 0²

301.30	5 ⁶⁹ -7 ⁰⁴	988.48	18 ⁷ -23 ¹
299.95	7 ⁰⁴	984.08	23 ¹

Shale, gray, firm, sandy, numerous
 very sandy to shaly ss lenses.

End core 4

sample 5 21⁰-21⁶ shale, gray
 (6.4 - 6.58 m)
 300.41

	<u>meters</u>	<u>Feet</u>
Core 5	299.95	7 ⁰⁴ -8 ³⁸
23'-27 ⁵	298.61	184.08 23'-27 ⁵
7 ⁰⁴ -8 ³⁸ ft		979.68 27 ⁵
7 ⁰⁴ -8 ³⁸ m		
Cut 4.4 (1.34m)		
Recov 4 ³ (1.31m)		
RQD = 4 ³ /4 ⁴ = 91%		
lost 0'		
Core 6	298.61	8 ³⁸ -9 ²⁰
27 ⁵ -32 ⁵ ft	297.09	979.68 27 ⁵ -32 ⁵
8 ³⁸ -9 ²⁰ m		974.68 32 ⁵
Cut 5 ⁰ (1.52m)		
Recov 5 ⁰ (1.52m)		
RQD = 5 ⁰ /5 ⁰ = 82%		
Core 7	297.09	9 ²⁰ -11 ¹²
32 ⁵ -36 ⁵ ft	295.87	974.68 32 ⁵ -36 ⁵
9 ²⁰ -11 ¹² m		170.68 36 ⁵
Cut 4 ⁰ (1.21m)		
Recov 3 ⁷ (1.12m)		
RQD = 100%		

Shale, gray, less sandy, firm
End core 5

sample 6 25'-25⁷ Shale, gray
(7.65 - 7.83 m)

299.16

Shale, gray, mostly, clayey, firm
End core 6

Sample 7 29⁴-29⁹ - Shale, gray
(8.96 - 9.11 m)

297.88

Shale, clayey, gray firm
End core 7

Sample 8 35⁰-35⁶ Shale, gray
(10.66 - 10.85 m)

296.14

Willard Shale

	meters	feet
Core 8	295.57	970.62
36 ⁵ -41 ³ ft	11 ¹² -12 ⁵⁸	36 ⁵ 41 ³
11 ¹² -12 ⁵⁸ m	294.41	965.88
Cut 4 ⁸ (1.46m)	12 ⁵⁸	41 ³
Recov. 4 ⁸ (1.46m)		
RQA = 3 ⁸ /4 ⁸ = 79%		
Core 9	294.41	965.88
41 ³ -46 ⁵ ft	12 ⁵⁸ -14 ¹⁷	41 ³ -46 ⁵
12 ⁵⁸ -14 ¹⁷ m	292.82	960.68
Cut 5 ² (1.58m)	14 ¹⁷	46 ⁵
Recov. 5 ⁵ (1.58m)		
RQA = did not get an RQA. Overfilled the core barrel		
Core 10	292.82	960.68
46 ⁵ -51 ⁵ ft	14 ¹⁷ 15 ⁶⁹	46 ⁵ -51 ⁵
14 ¹⁷ -15 ⁶⁹ m	291.30	955.68
Cut 5 ⁰ (1.52m)	15 ⁶⁹	51 ⁵
Recov. 4 ¹⁴ (1.40m)		
RQA = 100%		
lost 0 ⁴		

Shale, gray, firm clayey
End Core 8

Sample 9 38⁴-39⁰ Shale, gray
(11.70-11.88 m)
295.11

Shale, gray, firm clayey
End core 9

did not take a sample over filled core barrel

Shale, gray, firm, clayey
End core 10

Sample 10 48⁸-49³ Shale gray
(14.87-15.02 m)
291.97

Willard Shale

I-70 over Rossville Road 15

	meters	feet
Core 11	291.30	955.68
51 ⁵ -55 ⁵ ft	15 ⁶⁷ -16 ⁵²	51 ⁵ -54 ²
15 ⁶⁹ -16 ⁹¹ m	290.47	952.98
Cut 4° (1.21m)	16 ⁵² -16 ⁵⁵	54 ² -54 ³
Recov. 4° (1.21m)	290.44	952.88
RQD = 100%	16 ⁵⁵ -16 ⁹¹	54 ³ -55 ⁵
	290.08	951.68
	16 ⁹¹	55 ⁵
Core 12	290.08	951.68
55 ⁵ -59 ⁵ ft	16 ⁹¹ -18 ¹³	55 ⁵ -59 ⁵
16 ⁹¹ -18 ¹³ m	288.86	947.68
Cut 4° (1.21m)	18 ¹³	59 ⁵
Recov. 4° (1.21m)		
RQD = 100%		
Core 13	288.86	947.68
59 ⁵ -64 ⁵ ft	18 ¹³ -18 ³⁴	59 ⁵ -60 ²
18 ¹³ -19 ⁶⁵ m	288.65	946.98
Cut 5° (1.52m)	18 ³⁴ -18 ⁷⁴	60 ² -61 ⁵
Recov. 5° (1.52m)	288.25	945.68
RQD = 29/5° = 58%	18 ⁷⁴ -18 ⁹²	61 ⁵ -62 ¹
	288.07	945.08
	18 ⁹² -19 ⁵⁰	62 ¹ -64 ⁰
	287.49	943.18
	19 ⁵⁰ -19 ⁶²	64 ⁰ -64 ⁴
	287.37	942.78
	19 ⁶² -19 ⁶⁵	64 ⁴ -64 ⁵
	287.31	942.68
	19 ⁶⁵	64 ⁵

Shale, gray, firm clayey.
 LS lense
 Shale gray
 End core 11
 sample 11 53°-53⁶ shale gray
 (16.15-16.33 m)
 290.66

Shale, gray, very firm
 End core 12

sample 12 59°-59⁵ shale, gray, firm
 (17⁹⁸-18¹³ m)
 288.86

Shale, gray, firm, clayey
 LS, platy, gray
 Shale, limy, gray
 LS, blocky, gray, couple thin shale bracks
 Shale, limy blocky, gray-green
 LS,
 End core 13

sample 13 63¹-63⁶ LS, gray
 (19²³-19³⁹ m) 287.61

Willard shale 48.5 ft

Almont ls 15 ft

I-70 over Rossville Rd Core Hole #1

Project No. 70-89 K-6358-01

	<u>Elevation</u>	<u>Depth</u>		
Core Hole #1	306.99	0.00	Set casing. Weathered shale @ 0.9 m.	
Sta. 40+573	305.78	1.21	Weathered shale, yellow brown.	Wamego Shale
38 m Lt. Project C.L.	305.62	1.37	Start coring.	Member
Water Level 2.13 m				
Water Elevation 304.85				
Date Drilled 1/30/01				
Core # 1	305.62	1.37	Weathered shale. Lost top 0.09 m.	Wamego
1.37 to 2.89 m	305.53	1.46	Shale, weathered.	Shale
Cut 1.52 m	305.44	1.55	Limestone, platy to blocky, tan, abundant fusulinids.	
Recovered 1.43 m	305.29	1.70	Limestone, blocky, weathered, abundant fusulinids.	
RQD = 74%	304.10	2.89	End core 1.	Tarkio Limestone
			Sample 1 1.92 to 2.07 Limestone, weathered, tan..	
			Sample 2 2.74 to 2.89 Limestone, weathered, tan..	
Core # 2	304.10	2.89	Limestone, hard.	Tarkio Limestone
2.89 to 4.41 m	304.07	2.92	Shale, soft, light tan.	
Cut 1.52 m	303.98	3.01	Limestone, hard, unit bedded, tan, abundant fusulinids	
Recovered 1.52 m	303.43	3.56	Shale, gray, sandy.	Willard Shale
RQD = 52%	302.58	4.41	End core 2.	Formation
			Sample 3 3.26 to 3.41 Limestone, hard, tan.	
Core # 3	302.58	4.41	Shale, sandy, gray.	Willard Shale
4.41 to 5.69 m	302.06	4.93	Shale, less sandy, but sandy lenses, gray	
Cut 1.28 m	301.30	5.69	End core 3.	Formation
Recovered 1.18 m				
RQD = 43%			Sample 4 4.87 to 5.02 Shale, sandy, gray.	
Core # 4	301.30	5.69	Shale, firm, gray, sandy, thin sandstone lenses	
5.69 to 7.04 m	299.95	7.04	End core 4	
Cut 1.34m				
Recovered 1.24 m				
RQD = 59%			Sample 5 6.4 to 6.58 Shale, gray.	
Core # 5	299.95	7.04	Shale, gray.	Willard Shale
7.04 to 8.38 m	298.61	8.38	End core 5.	Formation
Cut 1.34 m				
Recovered 1.31 m				
RQD = 91%			Sample 6 7.65 to 7.83 Shale, gray.	

I-70 over Rossville Rd Core Hole #1

Project No. 70-89 K-6358-01

Core # 6	298.61	8.38	Shale, gray, firm, mostly clayey.	Willard Shale Formation
8.38 to 9.90 m	297.09	9.90	End core 6.	
Cut 1.52 m				
Recovered 1.52 m			Sample 7 8.96 to 9.11 Shale, gray, firm.	
RQD = 82%				
Core # 7	297.09	9.90	Shale, gray, clayey, firm.	Willard Shale Formation
9.90 to 11.12 m	295.87	11.12	End core 7.	
Cut 1.21 m				
Recovered 1.12 m			Sample 8 10.66 to 10.85 Shale, gray.	
RQD = 100%				
Core # 8	295.87	11.12	Shale, gray, firm, clayey.	Willard Shale Formation
11.12 to 12.58 m	294.41	12.58	End core 8.	
Cut 1.46 m				
Recovered 1.46 m			Sample 9 11.70 to 11.88 Shale, gray.	
RQD = 79 %				
Core # 9	294.41	12.58	Shale, gray, firm, clayey.	Willard Shale Formation
12.58 to 14.17 m	292.82	14.17	End core 9.	
Cut 1.58 m				
Recovered 1.58 m			No sample taken. Overfilled cored barrel.	
RQD = NA				
RQD not recorded. Overfilled the core barrel.				
Core # 10	292.82	14.17	Shale, gray, firm, clayey.	Willard Shale Formation
14.17 to 15.69 m	291.30	15.69	End core 10.	
Cut 1.52 m				
Recovered 1.40 m			Sample 10 14.87 to 15.02 Shale, gray.	
RQD = 100 %				
Core # 11	291.30	15.69	Shale, gray, firm, clayey.	Willard Shale Formation
15.69 to 16.91 m	290.47	16.52	Limestone stringer, gray.	
Cut 1.21 m	290.44	16.55	Shale, gray, firm, clayey.	
Recovered 1.21 m	290.08	16.91	End core 11.	
RQD = 100%			Sample 11 16.15 to 16.33 Shale, gray.	
Core # 12	290.08	16.91	Shale, gray, firm, clayey.	Willard Shale Formation
16.91 to 18.13 m	288.86	18.13	End core 12.	
Cut 1.21 m				
Recovered 1.21 m			Sample 12 17.98 to 18.13 Shale, gray.	
RQD = 100%				

I-70 over Rossville Rd Core Hole #1

Project No. 70-89 K-6358-01

Core # 13	288.86	18.13	Shale, gray, firm, clayey.	<u>Willard Shale</u>
18.13 to 19.65 m	288.65	18.34	Limestone, platy, gray.	<u>Elmont</u>
Cut 1.52 m	288.25	18.74	Shale, limy, gray.	<u>Limestone</u>
Recovered 1.52 m	288.07	18.92	Limestone, blocky, gray.	<u>Member</u>
RQD = 58%	287.49	19.50	Shale, limy, blocky, gray-green.	
	287.37	19.62	Limestone.	
	287.34	19.65	End core 13.	

Sample 13 19.23 to 19.38 Limestone, gray.

Core # 14	287.34	19.65	Shale, very firm, gray-green.	Harveyville Shale
19.65 to 20.75 m	286.24	20.75	Total depth. End core hole 1. Stopped in shale.	

Cut 1.09 m

Recovered 1.03 m

RQD = 100%

Sample 14 19.81 to 19.99 Shale, gray-green, firm.

Kansas Department of Transportation

Report of sample of Shelby/Geology Cores

Laboratory No. 01-274

Date Reported. February 16, 2001

Date Received. February 6, 2001

Specification No. -- Quantity --

Source of material Project

Sample from Project

Submitted by Randy Billinger, Lawrence Regional Geology Office

Identification marks Tags with samples

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

Type of construction Bridge I-70 over Rossville Rd CD #1

TEST RESULTS

Sample No.	Station	Dist. m	Depth m	Description	Qu. kPa	Dry Unit Weight kg/m ³	Moisture (% of Dry Wt.)
S# 1	40+573	38m LT	1.92-2.07	LS, Weathered	1,297.7	2,590	3.3%
S# 2	"	"	2.74-2.89	LS, Weathered	619.8	2,296	7.4%
S# 3	"	"	3.26-3.41	LS, Tan, Hard	157.3 15,077.9	144.1 2,310	6.1%
S# 4	"	"	4.87-5.02	Shale, Sandy, Gray	"	"	"
S# 5	"	"	6.4-6.58	Shale, Gray	9,154.5 876.5	127.9 2,049	12.0%
S# 6	"	"	7.65-7.83	Shale, Gray	1,307.1	2,074	11.0%
S# 7	"	"	8.96-9.11	Shale, Gray	#	#	#
S# 8	"	"	10.66-10.85	Shale, Gray	20,433.5 1,955.1	126.8 2,032	12.3%
S# 9	"	"	11.70-11.88	Shale, Gray	1,567.9	2,008	13.2%
S# 10	"	"	14.87-15.02	Shale, Gray	2,142.8	2,075	11.6%
S# 11	"	"	16.15-16.33	Shale, Gray	1,542.8	2,056	12.3%
S# 12	"	"	17.98-18.13	Shale, Gray	1,704.1	2,069	13.1%
S# 13	"	"	19.23-19.38	LS, Gray	11,765.9	2,425	3.6%
S# 14	"	"	19.81-19.99	Shale, Gray-Green	1,415.8	2,034	12.3%

* Sample broken on delivery

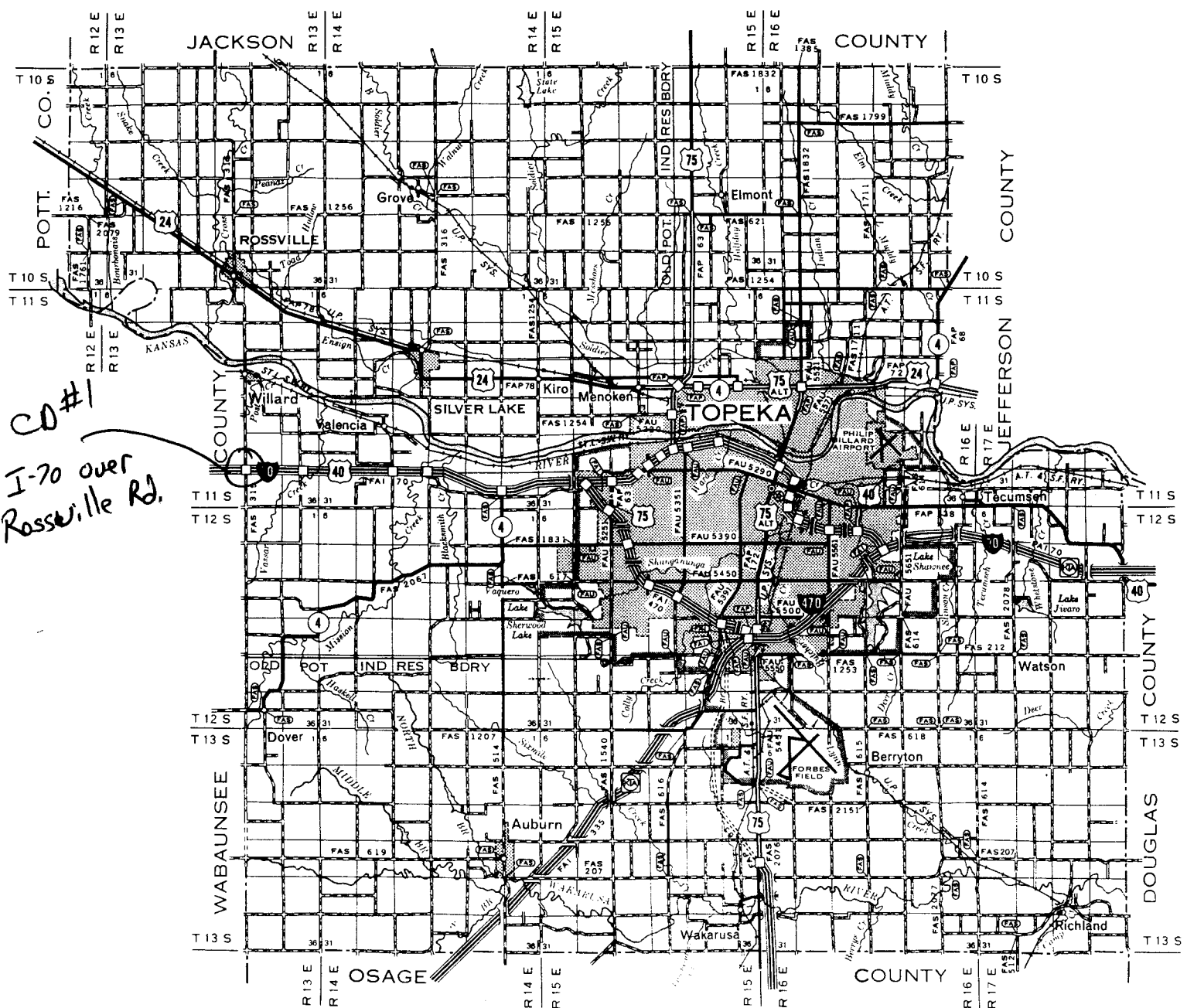
Sample broken during trimming

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

Reported by: Luella Moulton

Title James J. Brennan, Soils Engineer

2AAD ✓

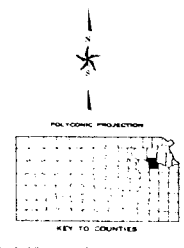


CO#1
I-70 over
Rossville Rd.

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**

PREPARED BY THE
KANSAS DEPARTMENT OF TRANSPORTATION
BUREAU OF TRANSPORTATION PLANNING
IN COOPERATION WITH THE
U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

