



KANSAS DEPARTMENT OF TRANSPORTATION

1. ROUTE-COUNTY NO. 004-089	7. SOUNDING NO. 60112	2. SHEET 1 OF 2
2. BRIDGE STA. 51+42	4. PROJECT NO. K-6252-01	3. BRIDGE NO. 70-89-19.92(000)
3. DESCRIPTION CROCO ROAD OVER I-70	5. HOLE STA. 53+43, 48' RT	
4. GEOLOGIST R. BILLINGER	6. VERTICLE SCALE 1" = 10'	7. DATE 5-14-97
5. DRILLER H. SUNDERLAND	8. RIG MOBILE B-61	9. ELEVATION TOP OF HOLE 996.86
6. GROUND WATER ELEV. 992.8	10. TOTAL DEPTH OF HOLE 76 9	11. ELEVATION TOP OF ROCK 987.6

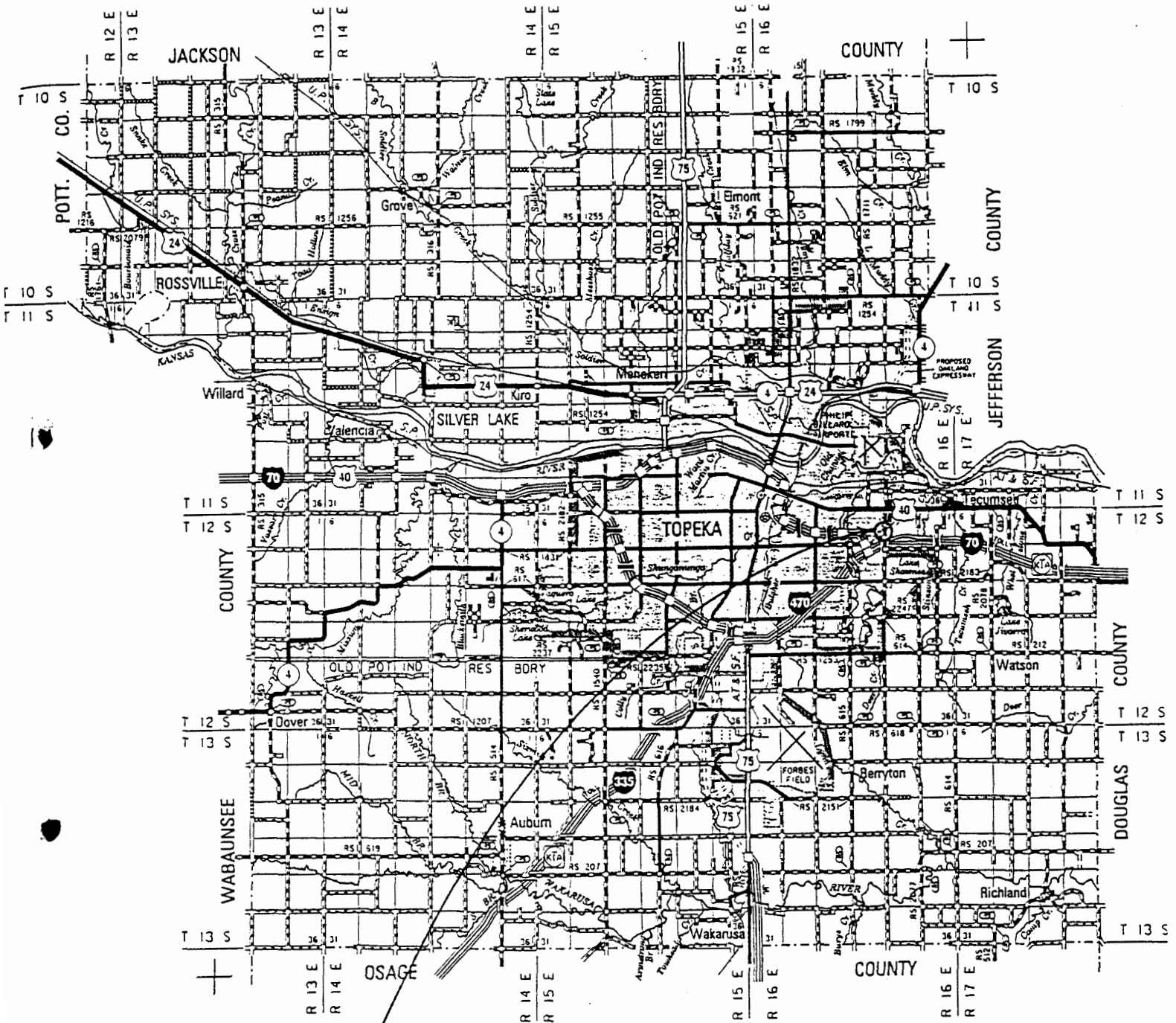
BIT TYPE & NO.	GEOLOGIC NAME	STRATIGRAPHIC COLUMN	DEPTH	ELEVATION	CLASSIFICATION OF MATERIALS DESCRIPTION AND REMARKS	UNCONFINED COMPRESSION	STANDARD PENETRATION OR CASING DRIVE	
							BLOWS	ELEV.
4" CHISEL	MANTLE		93	990	TOP HOLE ELEV. = 996.86			
				987.6	CLAY, DARK-BROWN TO TAN-YELLOW, SILTY			
			150	980	LIMESTONE GRAY TO LT. GRAY, W/ORANGE STAINING, FOSSILIFEROUS	341.010		
				981.9		154.900		
				981.2	SHALE, DRK GRAY, FIRM	3.231		
					LIMESTONE, GRAY TO LT GRAY, FOSSILIFEROUS	171.000		
			208	976.1	MASSIVE, HARD	448.785		
						3.776		
				970	SHALE, DARK GRAY, SANDY, FIRM, WITH SHALEY GRAY SANDSTONE BEDS	32.377		
					@ 973.2 TO 970.0,	45.987		
					968.8 TO 963.9,	86.893		
					961.4 TO 959.2,	38.247		
					956.2 TO 955.8,	34.466		
					945.2 TO 942.5	48.163		
				950	STREAK OF LS @ 940.6	27.491		
				940		52.838		
						37.421		
						207.029		
						29.680		
						31.390		
						56.034		
						42.058		
				930		20.840		

KANSAS DEPARTMENT OF TRANSPORTATION



1. ROUTE-COUNTY NO. 004-089	7. SOUNDING NO. CD No 2	9. SHEET 2 OF 2
2. BRIDGE STA. 51+42	4. PROJECT NO. K-6252-01	6. BRIDGE NO. 70-89-1992(000)
3. DESCRIPTION CROCO ROAD OVER I-70		8. HOLE STA. 53+43.48' RT
5. GEOLOGIST R. BILLINGER	10. VERTICLE SCALE 1"=10'	11. DATE 5-14-97
6. DRILLER H. SUNDERLAND	12. RIG MOBILE B-61	13. ELEVATION TOP OF HOLE 996.86
7. GROUND WATER ELEV. 992.8	14. TOTAL DEPTH OF HOLE 76.9	15. ELEVATION TOP OF ROCK 987.6

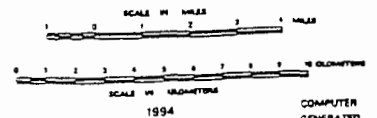
BIT TYPE & NO.	GEOLOGIC NAME	STRATIGRAPHIC COLUMN	DEPTH	ELEVATION	CLASSIFICATION OF MATERIALS DESCRIPTION AND REMARKS	UNCONFINED COMPRESSION	STANDARD PENETRATION OR CASING DRIVE	
							BLOWS	ELEV.
NATURAL DRILL	DEER CREEK LS FM. ERVINE CREEK LS MBR	<						



Project 004-089-6252-01
 Bridge No. 70-89-19.92(000)
 Croco Road over I-70
 Sta. 51+42.16
 Shawnee County

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



QC2

Bridge B

Kansas Department of Transportation

BUREAU OF MATERIALS AND RESEARCH

GEOTECHNICAL UNIT

GEOLOGY SECTION

TOPEKA, KANSAS

June 30, 1997

Proj. No. 004-089 K-6252-01

Br. No. 70-89-19.92(000)(250)

Croco Road over I-70, E.B. K-4, W.B. K-4, & Ramp 4N-470W

Sta. 51+42.16 Sta 412+70.87 @ I-70

Shawnee County

MEMORANDUM TO: MR. G. DAVID COMSTOCK, P.E., CHIEF.
BUREAU OF DESIGN

ATTENTION: MR. KEN HURST, P.E., ENGINEERING MANAGER
STATE BRIDGE OFFICE

SUBJECT: BRIDGE FOUNDATION GEOLOGY REPORT

Three copies of the above report are attached to this memorandum. An Engineering Geology Bridge Sheet has been drawn on the Microstation Workstation. This file has been placed on the Design file server witch under the filename 62521992.dgn. Two copies of the drill sounding logs are attached to this report. Enclosed is a floppy diskette of the design file for the consultant.

If questions arise over the contents of this report, please do not hesitate to contact the Geology Section.

LON S. INGRAM, P.E.

CHIEF, MATERIALS AND RESEARCH



G.N. CLARK, P.E.

GEOTECHNICAL ENGINEER

LSI:GNC:GRK:rjc

attachments

c: District 1
Bureau of Construction and Maintenance
Regional Geology Offices
Project File

CORE DESCRIPTION

PROJECT 4-89 K-6252-01

BRIDGE NO. 70-89-19.92 (000)

CROCO ROAD OVER I-70

SHAWNEE COUNTY

5-14-97 CORE DRILL NO 2

TOP HOLE ELEV = 996.86

STATION 53+43, 48' RT E CROCO ROAD

PIER NO 4 - RT

WATER LEVEL = 992.8

PUSHED CASING TO 9²996.9 0⁰-8⁵ CLAY, DRK BRN988.4 8⁵-9³ CLAY, TAN-YELLOW987.6 9³ TD

CORE NO 1

987.6 9³-9⁴ LS, GRAY WITH ORANGE STAINING (CURZON)9³-13³987.5 9⁴-9⁷ SHALECUT 4⁰987.2 9⁷-13⁰ LS, GRAY W/ ORANGE ZONES INTERBEDDED, HARD, MASSIVEREC 3⁷983.9 13⁰-13³ LS, LT GRAY, FOSSILIFEROUS

RQD = 90%

983.6 13³ TD SIS

CORE NO 2

983.6 13³-14⁵ LS, LT GRAY, HARD MASSIVE, FOSSILIFEROUS13³-18³982.4 14⁵-15⁰ LS, GRAY FOSSILIFEROUS (CURZON)CUT 5⁰981.9 15⁰-15⁷ SHALE, DRK GRAY, VERY FIRM (IOWA PT)REC 4⁸981.2 15⁷-18³ LS, GRAY, FOSSILIFEROUS, MASSIVE, HARD

RQD = 100%

978.6 18³ TD SIS

CORE NO 3

978.6 18³-20⁸ LS, LT GRAY, HARD, MASSIVE (HARTFORD)18³-23¹976.1 20⁸-23¹ SHALE, DARK GRAY (CALHOUN)CUT 4⁸973.8 23¹ TD SISREC 5⁰

RQD = 94%

CORE DESCRIPTION		PROJECT 7-89 K-6252-01	
CD No 2 CONT:		BRIDGE NO 70-89-19.92 (000)	
		CROCO ROAD OVER I-70	
		SIKAWNEE COUNTY	
CORE No 4	973.8	23 ¹ -23 ²	SHALE, DRK GRAY (CALHOUN)
23 ¹ -23 ¹	973.7	23 ² -23 ¹	SHALE, SANDY, DRK GRAY
CUT 5 ⁰	973.2	23 ¹ -24 ³	SANDSTONE, SHALEY, GRAY
REC 5 ⁰	972.6	24 ³ -24 ⁹	SHALE, VERY SANDY, GRAY
RQD=82%	972.0	24 ⁹ -25 ⁴	SANDSTONE, SHALEY GRAY
	971.5	25 ⁴ -26 ⁰	SHALE, VERY SANDY
	970.9	26 ⁰ -26 ⁹	SS, SHALEY, DRK GRAY
	970.0	26 ⁹ -28 ¹	SHALE, VERY SANDY
	968.8	28 ¹ TO	SIS
CORE No 5	968.8	28 ¹ -28 ⁹	SS, SHALEY, DRK GRAY
28 ¹ -33 ⁰	968.6	28 ³ -29 ⁰	SHALE, VERY SANDY
CUT 4 ⁹	967.9	29 ⁰ -32 ⁴	SS, GRAY
REC 4 ⁹	964.5	32 ⁴ -33 ⁰	SS, SHALEY, GRAY
RQD=92%	963.9	33 ⁰ TO	SIS
CORE No 6	963.9	33 ⁰ -33 ¹	SHALE, SANDY, GRAY
33 ⁰ -37 ⁹	963.2	33 ¹ -35 ⁰	SHALE, VERY SANDY, INTERBEDDED, GRAY
CUT 4 ⁹	961.4	35 ⁰ -35 ⁹	SS, SHALEY, GRAY
REC 4 ⁹	961.0	35 ⁹ -36 ⁶	SHALE, VERY SANDY, GRAY
RQD=92%	960.3	36 ⁶ -37 ¹	SS, SHALEY, GRAY
	959.2	37 ¹ -37 ⁹	SHALE, SANDY, GRAY
	959.0	37 ⁹ TO	SIS
CORE No 7	959.0	37 ⁹ -40 ¹	SHALE, SANDY GRAY TO DRK GRAY
37 ⁹ -42 ⁹	956.2	40 ¹ -41 ¹	SS, GRAY
CUT 5 ⁰	955.8	41 ¹ -42 ⁷	SHALE, SILTY TO SANDY, DRK GRAY
REC 5 ⁰	954.2	42 ⁷ -42 ⁸	SS, SHALEY
RQD=96%	954.1	42 ⁸ -42 ⁹	SHALE, SILTY, GRAY
	954.0	42 ⁹ TO	SIS

CORE DESCRIPTION

PROJECT 7-89K-6252-01

CD NO 2 CONT:

BRIDGE 70-89-19.92 (000)

CROCO ROAD OVER I-70

SPAWNEE COUNTY

CORE No 8 954.0 42⁹-45⁹ SHALE, SILTY, DRK-GRY, PLATEY
 42⁹-47⁹ 951.0 45⁹-47⁹ SHALE, SILTY, FIRMER, LESS PLATEY
 CUT 5⁰ 949.0 47⁹ TO SIS
 REC 5⁰
 RQD=100%

CORE No 9 949.0 47⁹-51¹ SHALE, SILTY, VERY FIRM, DARK-GRY
 47⁹-52⁸ 945.2 51¹-52⁸ SANDSTONE
 CUT 4⁹ 944.1 52⁸ TO SIS
 REC 4⁹
 RQD=100%

CORE No 10 944.1 52⁸-54⁴ SS, SHALEY, GRY
 52⁸-57⁶ 942.5 54⁴-55¹ SHALE, VERY SANDY, DARK GRAY
 CUT 4⁸ 941.8 55¹-56³ SS, WITH SHALE LENSES
 REC 4⁸ 940.6 56³-56⁵ LS, LIGHT GRAY, HARD
 RQD=81% 940.4 56⁵-56⁶ SHALE, LENSE, DARK GRAY, SANDY
 940.3 56⁶-57¹ SS, HARD GRAY (CALHOUN)
 939.8 57¹-57⁶ SHALE, DARK GRY, SANDY, SILTY
 939.3 57⁶ TO SIS

CORE No 11 939.3 57⁶-62⁶ SHALE, SILTY TO CLAYEY DRK GRY V. FIRM
 57⁶-62⁶ 934.3 62⁶ TO SIS
 CUT 5⁰
 REC 5⁰
 RQD=100%

CORE No 12 934.3 62⁶-66¹ SHALE, SILTY TO SLIGHTLY SANDY, V. FIRM, DRK GRY
 62⁶-67¹ 930.8 66¹-66⁷ SHALE, CLAYEY, SOFTER, PLATEY, DRK GRY
 CUT 4⁵ 930.2 66⁷-67¹ SHALE, SILTY, DRK GRY, FIRM
 REC 4⁵ 929.8 67¹ TO SIS
 RQD=78%

CORE DESCRIPTION

PROJECT 7-89 K-6252-01

BRIDGE NO 70-89-19.92 (000)

CD No 2 CONT:

CROCO ROAD OVER I-70

SHAWNEE COUNTY

CORE No 13

929.8 67¹-69¹ SHALE, GRY, V. FIRM (CALHOUN)67¹-71⁹927.8 69¹-71⁹ LS, UNIT BEDDED, MASSIVE, GRY, FOSSILIFEROUSCUT 4⁸925.0 71⁹ TD SIS

(ERVINE CRK)

REC 4⁸

RQD = 100%

CORE No 14

925.0 71⁹-72⁸ LS, UNIT BEDDED, DRK GRY, FOSSILIFEROUS71⁹-76⁹924.1 72⁸-74⁰ LS, LT GRY, UNIT BEDDEDCUT 5⁰922.9 74⁰-74³ LS, DRK GRYREC 5⁰922.6 74³-76⁹ LS, LT GRY, MASSIVE SIMILAR @ 75⁵ & 76²

RQD = 100%

920.0 76⁹ TD SISTD = 76⁹ = 920.0

DATE 6/2/97

PROJECT 4-89K-6252-01

BRIDGE NO. 70-89-19.92(000)

CROCO ROAD OVER I-70

SHAWNEE COUNTY

CORE SAMPLE DEPTHS & ELEVATIONS

LAB. NO 97-1793

CD NO2 STA 53+43, 48' RT E CROCO ROAD

TOP HOLE ELEV: 996.86

SAMPLE NO.	ELEVATIONS	DEPTH	QU T.S.F.
S# 1	986.3 - 985.7	10 ⁴ - 11 ²	341.010
S# 2	983.0 - 982.4	13 ² - 14 ²	154.800
S# 3	981.7 - 981.3	15 ² - 15 ⁴	3.221
S# 4	981.2 - 980.6	15 ² - 16 ²	171.000
S# 5	978.3 - 977.6	18 ⁴ - 19 ²	448.785
S# 6	975.7 - 974.9	21 ² - 22 ²	3.776
S# 7	972.6 - 972.0	24 ² - 24 ²	32.377
S# 8	969.3 - 968.9	27 ⁴ - 28 ²	45.987
S# 9	966.9 - 966.3	30 ² - 30 ⁴	86.893
S# 10	963.8 - 963.4	33 ¹ - 33 ⁵	38.247
S# 11	961.1 - 960.6	35 ² - 36 ²	34.466
S# 12	955.9 - 955.3	41 ⁴ - 41 ⁴	48.163
S# 13	953.4 - 952.8	43 ² - 44 ¹	27.491
S# 14	950.7 - 950.2	46 ² - 46 ²	52.838
S# 15	946.7 - 946.1	50 ² - 50 ³	37.421
S# 16	945.0 - 944.5	51 ² - 52 ²	207.029
S# 17	942.3 - 941.8	54 ⁴ - 55 ¹	29.680
S# 18	941.1 - 940.6	55 ² - 56 ²	21.390
S# 19	936.7 - 936.2	60 ² - 60 ²	56.034
S# 20	932.9 - 932.3	64 ² - 64 ⁴	42.058
S# 21	928.9 - 928.4	68 ² - 68 ²	20.840
S# 22	927.8 - 927.2	69 ¹ - 69 ²	331.505
S# 23	925.0 - 924.5	71 ² - 72 ⁴	188.885
S# 24	922.3 - 921.5	74 ⁴ - 75 ¹	816.839

KANSAS DEPARTMENT OF TRANSPORTATION

Page 1 of 2

Report of sample of Geology CoresLaboratory No. 97-1783Date Rep'td. May 28, 1997Date Rec'd. May 21, 1997Specification No. - - Quantity - - -Source of material ProjectSample from ProjectSubmitted by Delmar Thompson, Lawrence Geology OfficeIdentification marks Tags with samplesProject or POV 004-089 K-6252-01, Shawnee County, District 1Type of construction Bridge #19.92, Croco Rd. over I-70 at Pier #4, Core Hole #2

TEST RESULTS

Sample No.	Station	Dist.ft. CL	Depth ft.	Description	Qu. t.s.f.	Sample p.c.f. by Dry Wt.	Moisture (% of Dry Wt.)
1	53+43	48 Rt.	106-112	Limestone	341.010	158.9	2.3
2	"	"	139-145	Limestone, gry	154.800	146.9	4.7
3	"	"	1515-1555	Shale, Dark gray	3.221	120.4	14.5
4	"	"	157-163	Limestone, gray	171.000	140.2	8.5
5	"	"	1855-193	LS, Light gray	448.785	155.7	4.4
6	"	"	212-220	Shale, Dark gray	3.776	121.7	15.1
7	"	"	243-249	Shale, very sandy	32.377	130.7	10.0
8	"	"	2755-280	Sandy Sh/Shaly SS	45.987	134.1	9.2
9	"	"	300-306	Sandstone, Gray	86.893	121.3	13.0
10	"	"	331-335	Shale, Sandy, gray	38.247	135.0	9.2
11	"	"	358-363	Shaly SS/Sandy Sh	34.466	131.4	9.9
12	"	"	410-4155	Shale, Silty/Sandy	48.163	133.2	9.4
13	"	"	435-441	Shale, Silty	27.491	134.9	9.6
14	"	"	462-467	Shale, Silty	52.838	137.2	8.4
15	"	"	5015-5075	Shale, Silty	37.421	137.1	8.5

Sample No.	Station	Dist.ft. CL	Depth ft.	Description	Qu. t.s.f.	Sample p.c.f. by Dry Wt.	Moisture (% of Dry Wt.)
16	53+43	48 Rt	519-524	Sandstone	207.029	149.0	8.3
17	"	"	546-551	Shale, very sandy	29.680	132.2	9.9
18	"	"	558-563	SS/w shale lenses	21.390	122.6	12.4
19	"	"	602-607	Shale, Dark gray	56.034	134.4	9.7
20	"	"	640-646	Shale, Silty	42.058	133.8	10.0
21	"	"	680-685	Shale	20.840	128.4	12.7
22	"	"	691-697	LS, gray	331.505	153.4	4.8
23	"	"	719-724	LS. impure	188.885	143.9	7.0
24	"	"	746-753 ⁵	LS, light gray	816.839	163.5	1.1

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

Reported by *Manis Hunt for*
Title James J. Brennan, Soils Engineer

KANSAS DEPARTMENT OF TRANSPORTATION

01/02

INFORMATION SHEET FOR SOIL SAMPLES

Submitted by Delmar Thompson Address Lawrence Geology Date 5-20-97Engineer in Charge N Clark Sampled by Randy BillingerProject No. 004-089 K-6252-01 County ShawneeType of Constr. Bridge Check whether: Active ☒ Prelim. ☐ Research ☐

SAMPLE NUMBER	STATION	DIST. &	DEPTH	TESTS REQUIRED	REMARKS
1	53+43	48 Rt	10 ⁶ -11 ²	Unconfined	Limestone
2			13 ⁹ -14 ⁵		Limestone, gray
3			15 ¹⁵ -15 ⁵⁵		Shale, dark gray
4			15 ⁷ -16 ³		LS, gray
5			18 ⁵⁵ -19 ³		LS, light gray
6			21 ² -22 ⁰		shale, dark gray
7			24 ³ -24 ⁹		Shale, very sandy
8			27 ⁵⁵ -28 ⁰		sandy shale/shaly ss.
9			30 ⁰ -30 ⁶		Sandstone, gray
10			33 ¹ -33 ⁵		Shale, sandy, gray
11			35 ⁸ -36 ³		shaly sandstone/sandy shale
12			41 ⁰ -41 ⁵⁵		shale, silty/sandy
13			43 ⁵ -44 ¹		shale, silty
14			46 ² -46 ⁷		Shale, silty
15			50 ¹⁵ -50 ⁷⁵		Shale silty
16			51 ⁹ -52 ⁴		Sandstone
17			54 ⁶ -55 ¹		shale, very sandy

LABORATORY RECORD

Date received _____ Laboratory No. _____

Remarks: Croco Rd over I-70 Bridge #19.92 Core Hole #2
at Pier #4

NOTE - One copy of this form completely filled out must accompany each sample or group of samples submitted to the Materials & Research Center, 2300 Van Buren, Topeka, Kansas 66611.

INFORMATION SHEET FOR SOIL SAMPLES

03/02

Type of Constr. Bridge Check whether: Active X Prelim. _____ Research _____

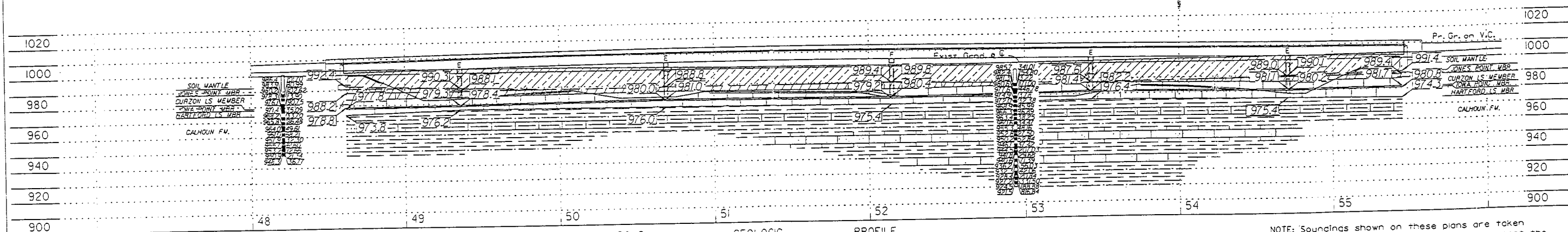
[illegible]

Remarks: Croco Rd Over I-70 Bridge #19.92 Core hole Z
at Pier #4

Rev. 2-84

PROG. FROM BL NO.		PROJ.	CO. CHECKS	
DESIGN	DATE	DATE	DATE	DATE
COLLA.	DATE	DATE	DATE	DATE
QUANTITIES	DATE	DATE	DATE	DATE
TRACING	DATE	DATE	DATE	DATE
RETRACTO	DATE	DATE	DATE	DATE

Plotted By : \$USER\$NAME**	Std. base File : RJ Crow WFC 291.386l
Plot1 File : *****DONOT/C*****	Sorter File : /usr7/grotech/6250/992.dgn
Server : wlsch	View: PLOT



LOGIC SYMBOLS GEOLOGIC

SOUNDINGS

② Core drill

⊙ Power auger

○ Hand tools

✕ Air hammer

▼ Dutch cone penetrometer

≡ Water level

05/97

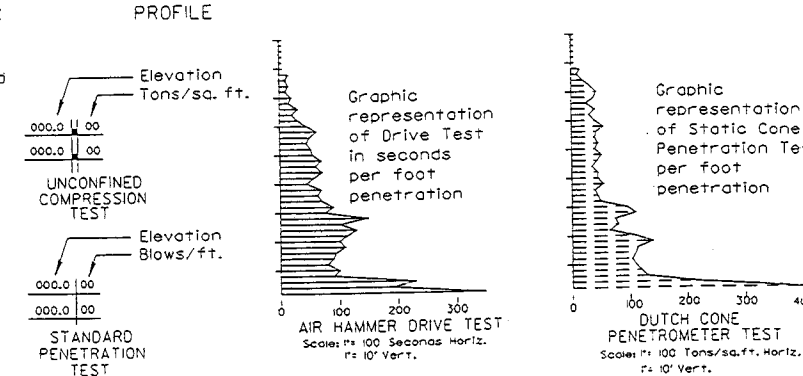
1000.0 Elevation interpolated or from adjacent soundings

1000.0 Actual sounding elevation

1000.0 Drive started

1000.0 Refusal

CASING DRIVE TEST

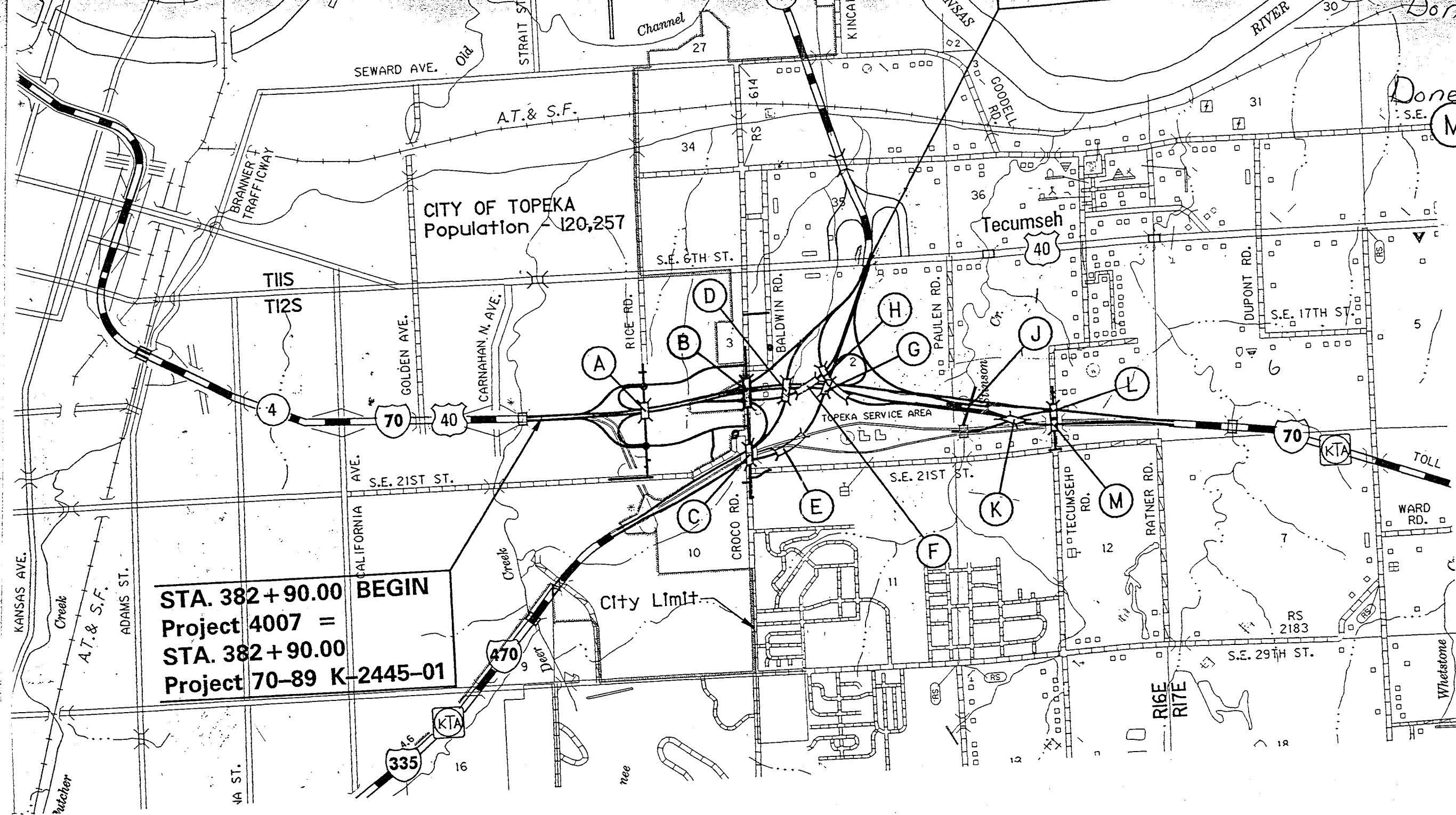


NOTE: Soundings shown on these plans are taken from notes obtained in the field and represent the best information available. Logs of these soundings are in the files of the Kansas Department of Transportation and are available at their offices at Topeka, Kansas for inspection by interested and qualified bidders.

3			
2			
1			
NO.	DATE	REVISIONS	BY APP'D

KANSAS DEPARTMENT OF TRANSPORTATION
 BR. NO. 70-89-19.92(000) STA. 439+56.70 & I-70
 STA. 51+42.16 & Croco Road
 ENGINEERING GEOLOGY
 Croco Road over I-70
 PROJ. NO. 70-89 K-6252-OISHAWNEE COUNTY

SHEET NO.	OF	SCALE	APP'D	QUANTITIES	TRACED
OF SIGN		DETAILS		QUANTITIES	TRACE CK.
OF SIGN CK.		DETAIL CK.		QUANTITIES	TRACE CK.



32'-0" Roadway

STA. 521+16.57
Tecumseh Road
Br. No. 70-89-2
70'-125'-70' Cor
32'-0" Roadway

Note: (I) not u

PF
HN
AR
OV
D/

Sheets see Sheet No. 2
out See Sheet No.

GROSS LENGTH OF PROJECT	10,936.33 FT.	2.071 MILES
EXCEPTIONS	FT.	MILES
ADDITIONS	FT.	MILES

RECOM. FOR APPROVAL-DATE

CHIEF, BUREAU OF DESIGN
KANSAS DEPARTMENT OF TRANSPORTATION

APPROVED - DATE