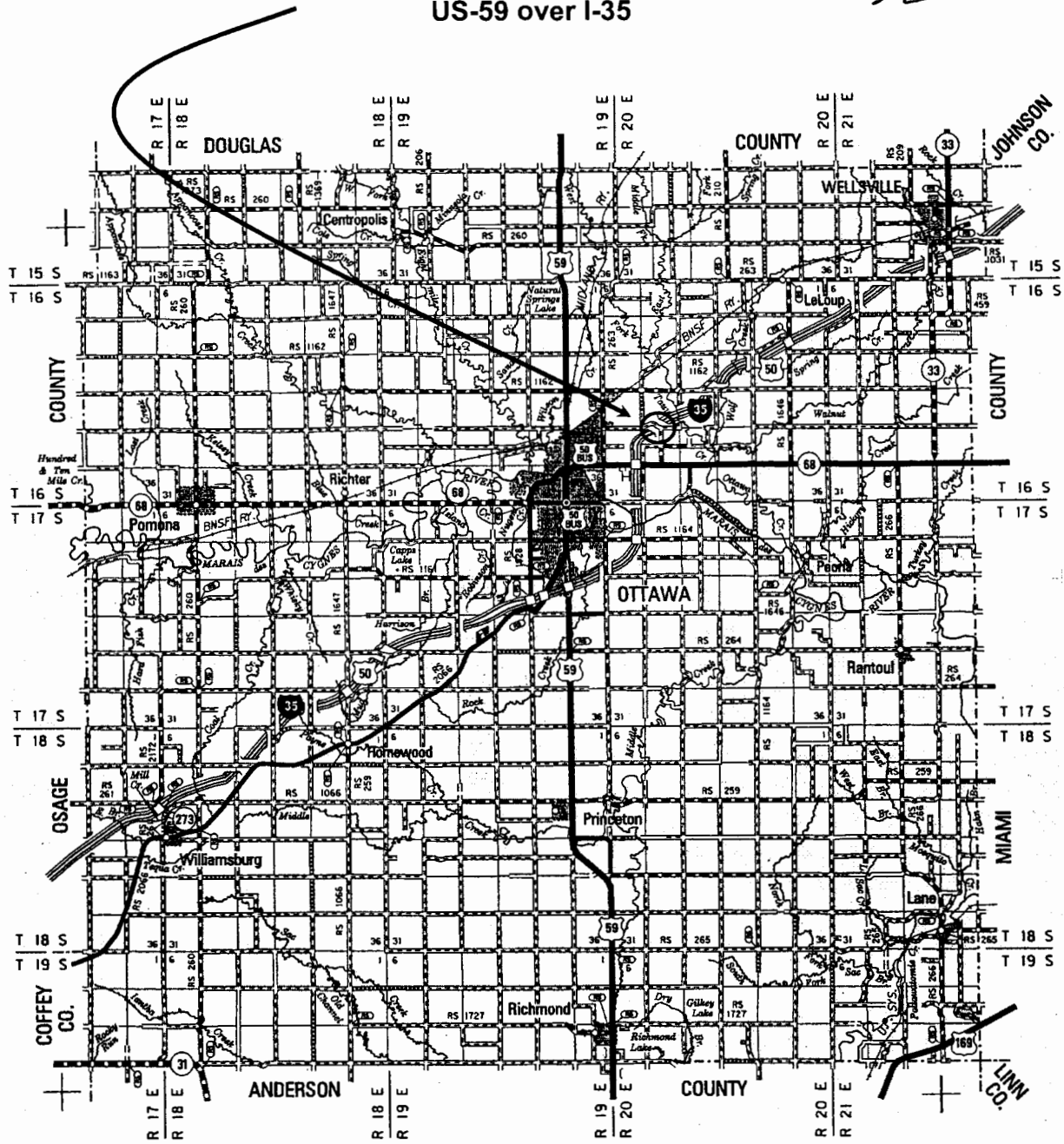


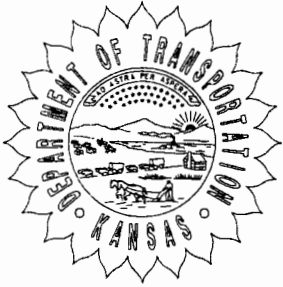
20-16-20E
SE SW

Project 59-30 K-7889-01
US-59 over I-35



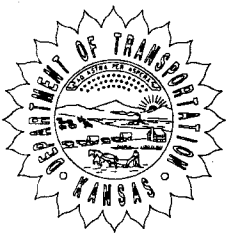
Franklin County

KANSAS DEPARTMENT OF TRANSPORTATION



RTE./CO.	59-30	SOUNDING NO.	CD-2
BRIDGE STA.	49-91.48; 30.0' Rt. 49-94.52; 30.0' Lt.	PROJ.NO.	K-7889-01
SITE NAME	US-59 over I-35		HOLE STA. 51+40.00; CL
GEOLOGIST	R.Crow	SCALE (1 unit = 1 foot)	DATE June 7, 2004
DRILLER	B. Bergman	RIG TYPE	CME-75
TOP HOLE ELEV.	932.35	M/B ELEV.	927.55
GW ELEV. +	923.85	TOTAL DEPTH	63.5

BIT TYPE	GEOLOGIC NAME	STRATIGRAPHIC COLUMN	DEPTH	ELEVATION	CLASSIFICATION OF MATERIALS DESCRIPTION AND REMARKS	UNCONFINED COMPRESSION (tsf)	ELASTIC MODULUS (tsf)	ELEVATION		
					T.H.E. = 932.35					
	Soil Mantle	[Diagonal Hatching]		932	Clay, silty, gray/black to gray/tan.	Shelby #1				
				931			0.255	9.25	930.35	
	Augers	[Cross-hatching]	4.8	930				930		
				929					929	
				928	927.55	Shale, tan/gray, weathered	Shelby #2		928	
				927					927	
				926			0.980	22.15	926 925.55	
				925					925	
				924					924	
				923					923	
				922				Shelby #3		922
				921	11.4 11.8	920.95	Clay/Shale, tan/gray to brown, stiffer.	0.525	21.2	921 920.55
	Core Barrel	[Vertical Hatching]		920	919.45			920		
			1	12.9	919	Shale, tan./olive with chert gravels.			919	
			2	13.8	918.55	Shale, tan./olive with chert gravels. No recovery.				



KANSAS DEPARTMENT OF TRANSPORTATION

RTE./CO.	59-30	SOUNDING NO.	CD-2
BRIDGE STA.	49+91.48; 30.0' Ft. 49+94.52; 30.0' Lt.	PROJ. NO.	K-7889-01
SITE NAME	US-59 over I-35		HOLE STA. 51+40.00; CL
			SHEET 2 OF 5
			BRIDGE NO. 59-30-18.75(100) 59-30-18.76(101)

BIT TYPE	GEOLOGIC NAME	STRATIGRAPHIC COLUMN	DEPTH	ELEVATION	CLASSIFICATION OF MATERIALS DESCRIPTION AND REMARKS	UNCONFINED COMPRESSION (tsf)	ELASTIC MODULUS (tsf)	ELEVATION
Core Barrel	Weston Sh. Mbr.		2	917	Shale, tan./olive with chert gravels. No recovery.			917
			16.6	916	915.75 Limestone or limy zone.			916
	South Bend Limestone Formation		17.3	915	915.05 Shale, weathered.			915
			19.8	913	912.55 Limestone, hard, gray, fossiliferous, occasional iron stains.			913
			23.8	909	908.55 Limestone, gray to black to tan, hard, fossiliferous.			909
			24.7	908	907.65			908
			25.5	907	Shale, tan./olive, very limy, thin coal seam (0.05' thick) at top of the shale.			907
	Rock Lake Shale Fm.		4	906	906.85 Limestone, crumbly.			906
			26.9	905	905.45 Shale, limy, green, gray at the base (0.20' thick).	2.12	40.95	905.05 905
			28.5	904	903.85 Limestone, hard, gray, crystalline.			904
	Stoner Limestone Mbr.		5	902				902
				901		585.0	80500	901 900.85



KANSAS DEPARTMENT OF TRANSPORTATION

RTE./CO.	59-30	SOUNDING NO.	CD-2
BRIDGE STA. 49+91.48; 30.0' Rt. 49+94.52; 30.0' Lt.		PROJ. NO.	K-7889-01
SITE NAME		US-59 over I-35	HOLE STA. 51+40.00; CL
		SHEET 3 OF 5	
		BRIDGE NO. 59-30-18.75(100) 59-30-18.76(101)	

BIT TYPE	GEOLOGIC NAME	STRATIGRAPHIC COLUMN	DEPTH	ELEVATION	CLASSIFICATION OF MATERIALS DESCRIPTION AND REMARKS	UNCONFINED COMPRESSION (tsf)	ELASTIC MODULUS (tsf)	ELEVATION		
	Stoner Limestone Member		5	32.7	900	Limestone, hard, gray, dense, styalitic, fossiliferous.		900		
				6	37.0		899	295.5	76000	899.05 899
				7	41.5		898			898
				8	46.0		897			897
				9	46.7		896			896
							895			895
							894	409.5	78500	894 893.55
							893			893
							892			892
	Eudora Shale Mbr.			891			891			
				890			890			
				889			889			
				888	46.0	888	250.0	48615	888 887.45	
			887	887			887			
			886	886	885.65		886			
			885	885	Shale, gray to black, fissile.	32.5	1155.0	885 884.85		



KANSAS DEPARTMENT OF TRANSPORTATION

RTE./CO.	59-30	SOUNDING NO.	CD-2
BRIDGE STA.	49-91.48; 30.0' Rt. 49-94.52; 30.0' Lt.	PROJ. NO.	K-7889-01
SITE NAME	US-59 over I-35		HOLE STA. 51+40.00; CL
			SHEET 4 OF 5
			BRIDGE NO. 59-30-18.75(100) 59-30-18.76(101)

BIT TYPE	GEOLOGIC NAME	STRATIGRAPHIC COLUMN	DEPTH	ELEVATION	CLASSIFICATION OF MATERIALS DESCRIPTION AND REMARKS	UNCONFINED COMPRESSION (tsf)	ELASTIC MODULUS (tsf)	ELEVATION	
Core Barrel	Eudora Shale Member		9	883	Shale, black, fissile.			883	
			47.5	882				882	
				881				881	
			10	880				880	
				879				879	
			54.5	878		877.85	Shale, dark gray, very hard, laminated.	67.0	74500
		877				877			
	55.75	876	876.60	Limestone, blue-gray to gray, cherty, nodular, wavy bedded, stylonitic seams, gray shale breaks.				876	
		875						875	
		874				441.0		108000	874.35
	58.8	873							873
		872				273.5	71500	872.75	
	871						871		
	870					870			
	869	868.85				869			
					TD = 63.5				
				868			868		



KANSAS DEPARTMENT OF TRANSPORTATION

RTE./CO.	59-30	SOUNDING NO.	CD-2
BRIDGE STA. 49+91.48; 30.0' Rt. 49+94.52; 30.0' Lt.		PROJ. NO.	K-7889-01
SITE NAME		US-59 over I-35	HOLE STA. 51+40.00; CL
		SHEET 5 OF 5	
		BRIDGE NO. 59-30-18.75(100) 59-30-18.76(101)	

BIT TYPE	GEOLOGIC NAME	STRATIGRAPHIC COLUMN	DEPTH	ELEVATION	CLASSIFICATION OF MATERIALS DESCRIPTION AND REMARKS	UNCONFINED COMPRESSION (tsf)	ELASTIC MODULUS (tsf)	ELEVATION																																																																																																		
					<table border="1" style="width: 100%; border-collapse: collapse; margin: auto;"> <thead> <tr> <th>Core</th> <th>Depth</th> <th>Elev.</th> <th>Cut</th> <th>Rec</th> <th>%</th> <th>RQD</th> </tr> </thead> <tbody> <tr><td>1</td><td>11.8</td><td>920.55</td><td>2.0</td><td>2.0</td><td>100</td><td>75%</td></tr> <tr><td>2</td><td>13.8</td><td>918.55</td><td>2.8</td><td>0.0</td><td>0</td><td>0%</td></tr> <tr><td>3</td><td>19.8</td><td>912.55</td><td>4.0</td><td>4.0</td><td>100</td><td>100%</td></tr> <tr><td>4</td><td>23.8</td><td>908.55</td><td>4.5</td><td>4.5</td><td>100</td><td>62%</td></tr> <tr><td>5</td><td>28.3</td><td>904.05</td><td>4.4</td><td>4.4</td><td>100</td><td>89%</td></tr> <tr><td>6</td><td>32.7</td><td>899.65</td><td>4.3</td><td>4.3</td><td>100</td><td>81%</td></tr> <tr><td>7</td><td>37.0</td><td>895.35</td><td>4.5</td><td>4.5</td><td>100</td><td>98%</td></tr> <tr><td>8</td><td>41.5</td><td>890.85</td><td>4.5</td><td>4.5</td><td>100</td><td>94%</td></tr> <tr><td>9</td><td>46.0</td><td>886.35</td><td>4.5</td><td>3.9</td><td>87</td><td>87%</td></tr> <tr><td>10</td><td>50.5</td><td>881.85</td><td>4.0</td><td>4.9</td><td>122</td><td>90%</td></tr> <tr><td>11</td><td>54.5</td><td>877.85</td><td>4.3</td><td>4.3</td><td>100</td><td>N/A</td></tr> <tr><td>12</td><td>58.8</td><td>873.55</td><td>4.7</td><td>4.7</td><td>100</td><td>94%</td></tr> <tr><td>Total</td><td>63.5</td><td>868.85</td><td>48.5</td><td>46.0</td><td>95</td><td>XXXX</td></tr> </tbody> </table>	Core	Depth	Elev.	Cut	Rec	%	RQD	1	11.8	920.55	2.0	2.0	100	75%	2	13.8	918.55	2.8	0.0	0	0%	3	19.8	912.55	4.0	4.0	100	100%	4	23.8	908.55	4.5	4.5	100	62%	5	28.3	904.05	4.4	4.4	100	89%	6	32.7	899.65	4.3	4.3	100	81%	7	37.0	895.35	4.5	4.5	100	98%	8	41.5	890.85	4.5	4.5	100	94%	9	46.0	886.35	4.5	3.9	87	87%	10	50.5	881.85	4.0	4.9	122	90%	11	54.5	877.85	4.3	4.3	100	N/A	12	58.8	873.55	4.7	4.7	100	94%	Total	63.5	868.85	48.5	46.0	95	XXXX			
Core	Depth	Elev.	Cut	Rec	%	RQD																																																																																																				
1	11.8	920.55	2.0	2.0	100	75%																																																																																																				
2	13.8	918.55	2.8	0.0	0	0%																																																																																																				
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9	46.0	886.35	4.5	3.9	87	87%																																																																																																				
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US-59 Over I-35

Project No. 59-30 K-7889-01

Note: All measurements are in English

	<u>Elevation</u>	<u>Depth</u>		
Core Hole #2	932.35	0.00	Pushed shelby #1. Gray-black silty clay.	
Sta. 51+40	930.35	2.00	Silty clay, gray-tan.	
centerline	927.55	4.80	Pushed shelby #2. Clay, tan-gray.	Mantle
	925.55	6.80	Clay, gray tan.	
Date Drilled 6/7/04	922.55	9.80	Pushed shelby #3. Clay.	
Geologist: Rocky Crow	920.55	11.80	Tried to core (core 1 and 2). Mostly clay and shale castes.	
Driller: Bob Bergman			Some gravel. Recovery poor. Set augers to to 19.8.	
			Hit weathered shale at 17.4 feet. Begin coring at 19.8 with core 3.	
	914.95	17.40	Shale, weathered.	
	912.55	19.80	Resume coring with core 3.	Weston Shale FM.
Core # 3	912.55	19.80	Limestone, light gray, fossiliferous, thin shale break.	
19.8 to 23.8 ft.			Some iron staining.	
Cut 4.0 ft.	908.55	23.80	End Core 3.	South Bend LS.
Recovered 4.0 ft.				Member
RQD = 100%			Sample 1 21.7 to 22.4	
Core # 4	908.55	23.80	Limestone, gray and tan to dark gray, fossiliferous	
23.8 to 28.3 ft.	907.65	24.70	Thin coal bed.	
Cut 4.5 ft.	907.55	24.80	Shale, tan-olive, limy.	
Recovered 4.5 ft.	906.85	25.50	Limestone, crumbly. light gray grading to dark gray, massive.	
RQD = 62%	905.45	26.90	Shale, limy, gray-green.	
	904.05	28.30	End Core 4.	Rock Lake Sh. Mbr.
			Sample 2 26.8 to 27.3	
Core # 5	904.05	28.30	Shale, Limy, gray.	
28.3 to 32.7 ft.	903.85	28.50	Limestone, hard gray, crystalline.	
Cut 4.4 ft.	899.65	32.70	End Core 5.	Stoner Ls. Mbr.
Recovered 4.4 ft.				
RQD = 89%			Sample 3 30.5 to 31.5	
Core # 6	899.65	32.70	Limestone, massive, hard, dense, gray, fossiliferous.	
32.7 to 37.0 ft.	895.35	37.00	End Core 6.	
Cut 4.3 ft.				
Recovered 4.3 ft.			Sample 4 32.7 to 33.3	
RQD = 81%				

US-59 Over I-35

Project No. 59-30 K-7889-01

	<u>Elevation</u>	<u>Depth</u>		
Core # 7	895.35	37.00	Limestone, massive, hard, dense, gray, fossiliferous.	
37.0 to 41.5 ft.	890.85	41.50	End core 7.	
Cut 4.5 ft.				Stoner Ls. Mbr.
Recovered 4.5 ft.				
RQD = 98%				
Core # 8	890.85	41.50	Limestone, massive, hard, dense, gray, fossiliferous.	
41.5 to 46.0 ft.	886.35	46.00	End core 8.	
Cut 4.5 ft.				
Recovered 4.5 ft.				
RQD = 94%			Sample 6 44.4 to 44.9	
Core # 9	886.35	46.00	Limestone, massive, hard, dense, gray, fossiliferous.	
46.0 to 50.5 ft.	885.65	46.70	Shale gray.	
Cut 4.5 ft.	887.55	44.80	Shale, black fissile.	Eudora Shale Mbr.
Recovered 4.5 ft.	881.85	50.50	End Core 9.	
RQD = 87%			Sample 7 46.9 to 47.5	
Core # 10	881.85	50.50	Shale, black.	
50.5 to 54.5 ft.	877.85	54.50	End Core 10.	
Cut 4.0 ft.				
Recovered 4.0 ft.			Sample 8 53.4 to 54.1	
RQD = 90%				
Core # 11	877.85	54.50	Shale, dark gray, hard, laminated.	Eudora Shale Mbr.
54.5 to 58.8 ft.	876.55	55.80	Limestone, wavy bedded, blue-gray, cherty, thin shale seams.	
Cut 4.3 ft.	873.55	58.80	End core 11.	Captain Creek Ls. Member
Recovered 4.3 ft.				
RQD = not recorded			Sample 9 57.3 to 58.0	
Core # 12	873.55	58.80	Limestone, dense, hard, gray, crystalline, fossiliferous.	
58.8 to 63.5 ft.	868.85	63.50	End core 12. Total depth.	Captain Creek Ls. Member
Cut 4.7 ft.				
Recovered 4.7 ft.				
RQD = 94%			Sample 10 59.1 to 59.6	

Kansas Department of Transportation

Report of sample of geology cores & shelly tubes

Laboratory N°: 04-2026

Date Reported: 6/29/2004

Date Received: 6/10/2004

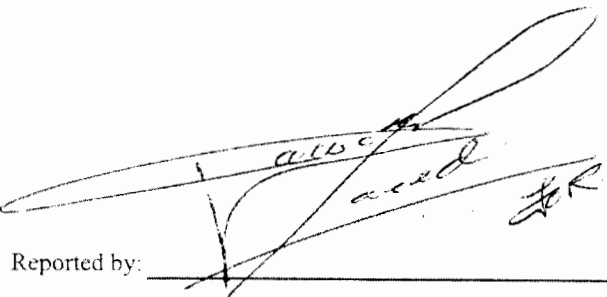
Specification N°	AASHTO T-208	Quantity:	10 cores & 3 tubes
Source of Material	59-32 K-7889-01	County:	Franklin
Sampled from	59-32 K-7889-01		
Submitted by:	Rocky Crow		
Identification marks:	tags on samples		
Project or POV	59-32 K-7889-01		
Description of site:	US 59 over I-35 North side CD#2		
Type of Construction	Bridge Foundation		

TEST RESULTS

Sample N°	Station	Offset Feet	Depth Feet	Description	Unconfined Compression Qu (psf)	Elastic Modulus E (psf)	Dry Density γ_d (lb/ft ³)	Moisture Percent % γ_d
SA-1			21.7-22.4	LS	1278000	1.8E+08	163	1.2
SA-2			26.8-27.3	Shale, gray	4240	81900	118	14.7
SA-3			30.5-31.5	LS	1170000	1.61E+08	163	1.2
SA-4			32.7-33.3	LS	591000	1.52E+08	164	0.9
SA-5			38.1-38.8	LS	819000	1.57E+08	155	3.2
SA-6			44.4-44.9	LS	500000	97230000	152	4.6
SA-7			46.9-47.5	Shale, black	65000	2310000	134	10.3
SA-8			53.4-54.1	Shale, black	134000	1.49E+08	136	8.9
SA-9			57.3-58.0	LS, gray & brown	882000	2.16E+08	163	1.5
SA-10			59.1-59.6	LS	547000	1.43E+08	145	5.8
SH-1			0.9-2.0	Silty clay, dk brown, soft	510	18500	83	27.9
SH-2			5.4-6.8	Silty clay, lt to dk brown	1960	44300	98	26.3
SH-3			10.4-11.8	Silty clay, lt brown	1050	42400	104	23.2

See attached routine test results

cc: L.S. Ingram
R. Fuller
R. Henthorne
Soil Section
File 18-3


 Reported by: _____

Title: Robert Fuller; Soils Engineer

INDEX OF SHEETS

Volume 1

- 1 Title Sheet
- 2 - 5 Typical Sections
- 6 - 40 Plan & Profile Sheets
- 41 - 86 Interchange Details
- 87 Miscellaneous Details
- 88 Drainage Data Sheet
- 89 - 130 Bridge Sheets
- 131 - 140 Fencing Plans
- 141 Construction Sequencing
- 142 - 144 Drainage Area Sheets

Volume 2

XS-1 - XS-260 Cross Sections

Volume 3

XS-261 - XS-417 Cross Sections

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	59-30 K-7889-01	2006	1	

STATE OF KANSAS
DEPARTMENT OF TRANSPORTATION

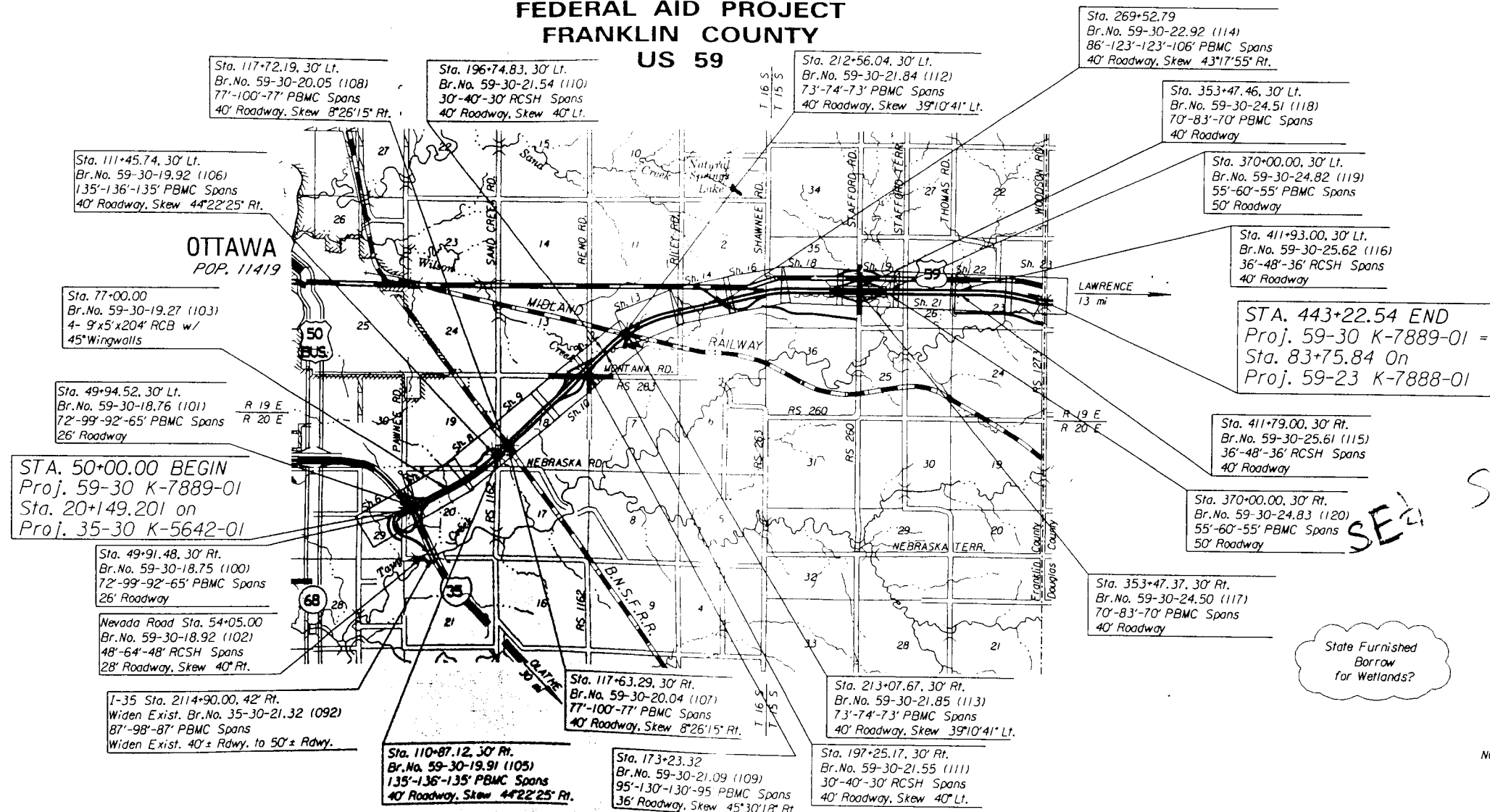


PLAN AND PROFILE OF PROPOSED
STATE HIGHWAY

FEDERAL AID PROJECT
FRANKLIN COUNTY
US 59

PROJ. NO. 59-30 K-7889-01
K788-0(90I)

GRADING
BRIDGES
FENCING
SEEDING



Scale = 1" : 4,000'

STA. 443+22.54 END
Proj. 59-30 K-7889-01 =
Sta. 83+75.84 On
Proj. 59-23 K-7888-01

SE 23

Spec 23 TIES PIPE

State Furnished
Borrow
for Wetlands?

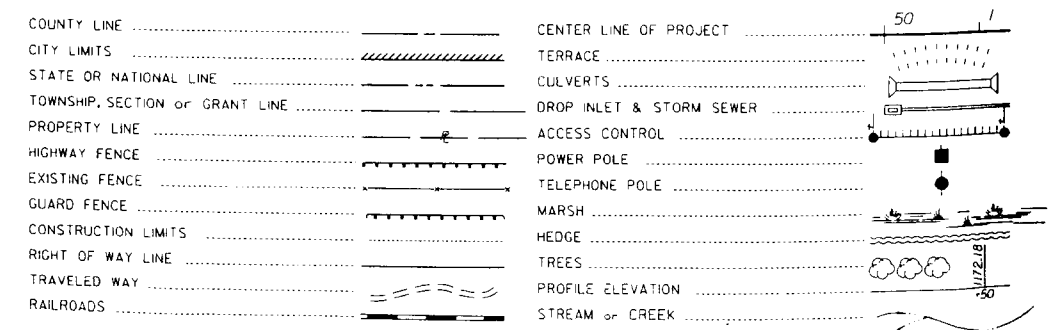
NOTE: TRAFFIC TO BE CARRIED THRU CONSTRUCTION.
FOR CONSTRUCTION SEQUENCE SEE SH. NO. 141

PLANS PREPARED AND SUBMITTED BY:
GEORGE BUTLER ASSOCIATES, INC.
LENEXA KANSAS

DESIGN DESIGNATION

- AADT (2007) = 6900
- AADT (2027) = 10500
- DHV = 11%
- D = 60/40
- T = 7%
- V = 70 mph
- C of A = FULL
- Clear Zone = 34'

CONVENTIONAL SIGNS



GROSS LENGTH OF PROJECT	39,322.54	FT.
EXCEPTIONS	None	
ADDITIONS	None	
NET LENGTH OF PROJECT	39,322.54	FT.
NET LENGTH OF BRIDGES	1,511.00	FT.
NET LENGTH OF ROAD	37,811.54	FT.

FEB 23 2005

RECOM. FOR APPROVAL-DATE

CHIEF, BUREAU OF DESIGN
KANSAS DEPARTMENT OF TRANSPORTATION

APPROVED - DATE

STATE TRANSPORTATION ENGINEER
KANSAS DEPARTMENT OF TRANSPORTATION

RECOM. FOR APPROVAL-DATE

ENGINEER
FEDERAL HIGHWAY ADMINISTRATION
DEPARTMENT OF TRANSPORTATION

APPROVED - DATE

DIVISION ADMINISTRATOR
FEDERAL HIGHWAY ADMINISTRATION
DEPARTMENT OF TRANSPORTATION