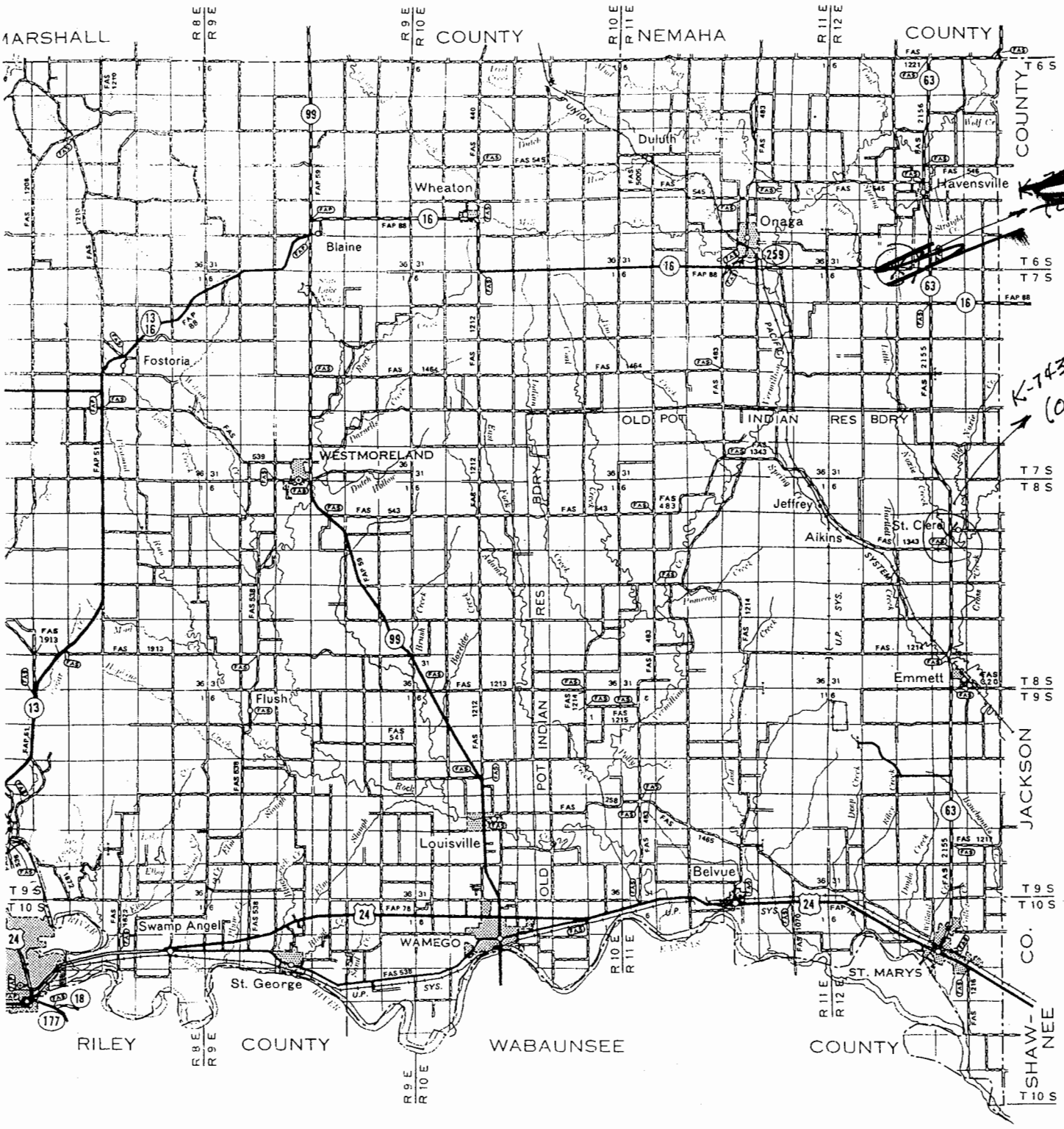
N2 S2 10-8-12E

63-75 K-7438
Little Noxie Creek



LEGEND

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

POLYCONIC PROJECTION

KEY TO COUNTIES

FA SYSTEM REVISED TO APRIL 2, 1992

GENERAL HIGHWAY MAP
POTTAWATOMIE 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

SCALE

1990

75

KANSAS DEPARTMENT OF TRANSPORTATION

RTE./CO. 63-75	SOUNDING NO. CD*1	SHEET 1 OF 2
BRIDGE STA. 638+60.50	PROJ.NO. 63-75 K-7438-01	BRIDGE NO. 63-75-11.98(059)
SITE NAME K-63 over Little Noxie Creek		HOLE STA. 637+71, 23.9' Lt ℄ K-63
GEOLOGIST Neil Croxton	SCALE 1:120 (1"=10')	DATE December 6 2004
DRILLER Bob Bergman	RIG TYPE CME-75	TOP HOLE ELEV. 1096.45
GW ELEV. ⊣⊢	TOTAL DEPTH 75.5'	M/B ELEV. 1094.95

BIT TYPE	GEOLOGIC NAME	STRATIGRAPHIC COLUMN	DEPTH	ELEVATION	CLASSIFICATION OF MATERIALS DESCRIPTION AND REMARKS	UNCONFINED COMPRESSION TSF	STANDARD PENETRATION TEST (SPT) N COUNT	STANDARD PENETRATION TEST (SPT) ELEVATION
8" Hollow Stem Auger			0.0		THE=1096.45			
			1.5	1094.95	Soil Mantle, silty clay			
			3.0	1093.45	Limestone, green/gray, shaly, weathered			
Diamond	Long Creek LS Mbr	1	5.4	1091.05	Limestone, gray/brown, fine-grained stained orange at top			
	Hughes Creek Shale Member	2 3		1090	Limy shale with thin limestone stringers			
			11.9	1084.55		6.5		1083.95
			13.8	1082.65	Shale, dark gray to black			
		4	14.7	1081.75	Limestone hard dk gray wavy bedded			
		5		1080	Shale gray limy			
			19.3	1077.15				
			20.7		Limestone & shale, gray			
		6			Limy shales with thin, sporatic limestone stringers,	3.54		1070.65
		7		1070		32.45		1066.05
		8				2.92		1064.25
						1.87		1061.35
		9		1060		5.5		1060.15
			37.3	1059.15				
	Americus Limestone Member	10			Limestone, shaly, weathered, somewhat boxworked & porous	23.65		1056.85
						183.5		1052.65
		11	44.8	1051.65				
				1050	SILTSTONE, with occasional gypsup veins & nodules to shaly limestone	259.5		1049.35
		12				153.5		1046.65
						6.45		1044.55
			52.8	1043.65		51		1043.45
	Hamlin Shale Member	13			SHALE blue-green to gray, limy	172.5		1042.65
				1040		3.985		1041.05

KANSAS DEPARTMENT OF TRANSPORTATION

RTE./CO. 63-75	SOUNDING NO. CD*1	SHEET 2 OF 2
BRIDGE STA. 638+60.50	PROJ.NO. 63-75 K-7438-01	BRIDGE NO. 63-75-11.98(059)
SITE NAME K-63 over Little Noxie Creek		HOLE STA. 637+71, 23.9' Lt ℄ K-63

BIT TYPE	GEOLOGIC NAME	STRATIGRAPHIC COLUMN	DEPTH	ELEVATION	CLASSIFICATION OF MATERIALS DESCRIPTION AND REMARKS	UNCONFINED COMPRESSION TSF	STANDARD PENETRATION TEST (SPT) N COUNT	STANDARD PENETRATION TEST (SPT) ELEVATION
			57.6	1038.85	Shale, dark gray, limy			
	Hamlin Shale Mbr	14	58.8	1037.65	Limestone, dark gray, slightly shaly, coarse-grained	271.5		1037.85
					Shale, dark gray, limy	33		1035.05
		15	63.0	1033.45		133		1032.75
	Five Point Limestone Member				Limestone, shaly, gray, fossiliferous,	61		1030.65
				1030				
		16	68.9	1027.55		371.5		1027.55
	West Branch Shale Member				Shale, dark gray, limy, gypsiferous	74.5		1026.65
						55		1024.45
		17	73.1	1023.35				
			74.8	1021.65	Limestone, shades of gray, shaly, fossiliferous	242		1022.35
			75.5	1020.95	Shale, dark gray			
				1020				

Core log
Br. No. 63-75-11.98(059)
K-63 over Little Noxie Creek
Pottawatomie County

December 6, 2004

Logs	Elevation	Depth	Description
CD-1 Sta. 637+71, 23.9 ft Lt centerline K-63	1096.45	0.00-1.5	Soil mantle, silty clay
THE=1096.45	1094.95	1.5-3.0	Limestone, weathered LONG CREEK LS MBR
Core #1	1093.45	3.0-4.7	Limestone, green/gray, shaly, weathered
3.0-7.0	1091.75	4.7-5.4	Limestone, gray/brown, fine-grained, (fg) stained orange at top
Cut 4.0, rec. 2.5 RQD=25%	1091.05	5.4-6.6	Shale, light gray-brown, very limy, brittle, top 0.1 weathered to clay HUGHES CK SHALE MEMBER
	1089.85	6.6-6.9	Limestone, light gray-brown, fine-grained, brittle
	1089.55	6.9-7.0	Shale, lt gray-brown, very limy
Core #2	1089.45	7.0-7.1	Shale, lt gray/brown, very limy
7.0-8.5	1089.35	7.1-8.0	Shale, gray to brown, soft
Cut 1.5, rec. 1.1	1088.45	8.0-8.5	Shale, dark gray
RQD=93%			
Core #3	1087.95	8.5-10.6	Shale, gray to dark gray
8.5-13.5	1085.85	10.6-11.2	Limestone, very shaly, dark gray
Cut 8.5-13.5	1085.25	11.2-11.9	Shale, dark gray
RQD=100%	1084.55	11.9-13.5	Shale, black
Sample #1, 12.0-12.5	1084.45	1083.95	Shale, Black Qu=13000
Core #4	1082.95	13.5-13.8	Shale, black
13.5-16.5 Cut 3.0, Rec. 3.0	1082.65	13.8-14.7	Limestone, hard, dark gray, crystalline, wavy contact at top, wavy/swirled bedding w/shale @ base
RQD=93%	1081.75	14.7-15.2	Shale, dark gray w/limy lamina
	1081.25	15.2-16.5	Shale, gray to dk gray, limy, upper 0.3 weathered
Core #5	1079.95	16.5-18.0	Shale, gray to dark gray, slightly limy, competent
16.5-21.0	1078.45	18.0-19.3	Shale, dark gray, w/limy lamina
Cut 4.5, Rec. 4.5 RQD=100%	1077.15	19.3-19.9	Limestone & Shale, laminated-dark gray, Shale, light gray, Limestone, hard
	1076.55	19.9-20.7	Limestone, gray and brown, banded, v. fine grained, hard
	1075.75	20.7-21.0	Shale, very limy, wavy-bedded, gray to dark gray with some brown on top
Sample #2 17.9-18.4	1078.55	1078.05	Shale, dk gray, limy-Broken on delivery, not tested
Core #6	1075.45	21.0-21.8	Shale, v limy, dk gray, fract, fractures iron-stained
21.0-26.0	1074.65	21.8-22.1	Shale, limy, dk gray & gray brown-wth'd, crumbling
Cut 5.0, rec. 5.0	1074.35	22.1-22.3	Limestone, lt gray, fg, algal w/wavy shale partings
RQD=74%	1074.15	22.3-23.5	Shale, limy, gray/brn badly wthd zone 23.0-23.1
	1072.95	23.5-26.0	Shale, limy w/xline calcite, lt gray w/grn/gray tint

Sample #3 25.3-25.8	1071.5	1070.65	Shale, limy, gray w/green Qu=7080
Core #7	1070.45	26.0-28.7	Shale gray w/green tint, slightly limy
26.0-31.0	1067.75	28.7-31.0	Shale gray w/green tint
Cut 5.0, rec. 4.7			
RQD=100%			
Sample #4 29.9-30.4	1066.55	1066.05	Shale, gray w/green tint Qu=64900
Core #8	1065.45	31.0-32.9	Shale, green/gray w/maroon bands, some silty zones
31.0-35.5	1063.55	32.9-35.1	Shale slightly limy & silty, lt gray trace gray/brown
Cut 4.5, rec. 4.5	1061.35	35.1-35.5	Shale, silty, slightly limy, gray to dark gray
RQD=84%			
Sample #5 31.7-32.2	1064.75	1064.25	Shale, green, gray, maroon Qu=5840
Sample #6 34.6-35.1	1061.85	1061.35	Shale, gray, slightly limy Qu=3740
Core #9	1060.95	35.5-35.8	Shale, dark gray, silty
35.5-40.0	1060.65	35.8-36.5	Shale, green-gray
Cut 4.5, rec. 3.8	1059.95	36.5-37.1	Shale, gray, slightly limy
RQD=73%	1059.35	37.1-37.3	Shale, limy, gray & green-gray, mottled
	1059.15	37.3-38.9	Limestone, boxworked, wthd, some dk gray shale remaining at top, completely washed 38.3-38.8 AMERICUS LIMESTONE MEMBER
	1057.55	38.9-40.0	Limestone, porous, gray brown & dk gray, wth'd
Sample #7 35.7-36.3	1060.75	1060.15	Shale, green-gray & dk gray Qu=11000
Sample #8 39.1-39.6	1057.35	1056.85	Limestone, porous, dk gray Qu=47300
Core #10	1056.45	40.0-42.6	Limestone, porous, wthd, vuggy, gray, damaged
40.0-44.4	1053.85	42.6-42.7	Clay, tan
Cut 4.4, rec. 3.4	1053.75	42.7-42.8	Limestone, shaly, dk grayw/dk gray shale at base
RQD=11%	1053.65	42.8-44.1	Limestone, gray & lt gray, vuggy above, porous below
	1052.35	44.1-44.4	Limestone, gray, vuggy and porous
	1052.05		
Sample #9 43.3-43.8	1053.15	1052.65	Limestone, vuggy, gray Qu=367000
Core #11	1052.05	44.4-44.8	Limestone, gray to dark gray, fine-grained, hard
44.4-47.6	1051.65	44.8-45.6	Washed away, possibly gypsum?
Cut 3.2, rec. 2.5	1050.85	45.6-46.9	Siltstone, gray, homogenous, hard
RQD=69%	1049.55	46.9-47.6	Siltstone, shaly, dk gray, gypsum nodules weathered from lower part
Sample #10 46.6-47.1	1049.85	1049.35	Siltstone, gray Qu=519000
Core #12 47.6-52.5	1048.85	47.6-48.9	Siltstone, shaly, gray w/blue gray tint, broken and weathered due to amber gypsum nodules
Cut 4.9, rec. 4.6	1047.55	48.9-50.2	Siltstone, shaly, hard, gray w/grn-gry tint, shell fossils
RQD=73%	1046.25	50.2-50.6	Shale, very silty, hard, dark gray
	1045.85	50.6-52.5	Shale, dark gray, fairly soft, thin clear gypsum layer at 52.1 (1044.35) , fractured below
Sample #11 49.3-49.8	1047.15	1046.65	Siltstone, shaly, gray Qu=307000
Sample #12 51.4-51.9	1045.05	1044.55	Shale, dark gray Qu=12900

Core #13	1043.95	52.5-52.8	Siltstone, shaly @ top, limy @ base trans zone gray
52.5-57.3	1043.65	52.8-53.4	Shale, limy w/fossils, gray w/blue-green tint, fossils HAMLIN SHALE MEMBER
Cut 4.8, rec. 5.2	1043.05	53.4-53.9	Shale, limy, blue-gray to gray
RQD=85%	1042.55	53.9-54.6	Shale, limy w/fossils, dark gray, fossils, white
	1041.85	54.6-55.4	Shale, dark gray, limy w/scattered fossils at top
		55.4-57.3	Shale, very dark gray to black, pink-white gypsum nodule between 56.1-56.6 (1040.35-1039.85)
Sample #13 52.5-53.0	1043.95	1043.45	Siltstone & Shale, limy Qu=102000
Sample #14 53.3-53.8	1043.15	1042.65	Shale, limy, gray w/blue tint Qu=345000
Sample #15 54.9-55.4	1041.55	1041.05	Shale, dk gray, limy Qu=7970
Core #14	1039.15	57.3-57.4	Shale, dark gray, limy
57.3-62.0	1039.05	57.4-57.6	Shale, gray & Limestone
Cut 4.7, rec. 4.4	1038.85	57.6-58.8	Limestone, dark gray, slightly shaly, coarse-grained
RQD=87%	1037.65	58.8-60.4	Shale, limy, dark gray w/thin limy lamina
	1036.05	60.4-61.0	Shale, limy w/interbedded bands of gray limestone
	1035.45	61.0-62.0	Shale, limy dk gray w/scattered irregular LS layers
Sample #16 58.1-58.6	1038.35	1037.85	Limestone, dark gray Qu=543000
Sample #17 60.9-61.4	1035.55	1035.05	Shale, limy, dark gray Qu=66000
Core #15 62.0-66.5	1034.45	62.0-63.0	Shale, dk gray, slightly limy w/thin LS stringers in upper part, 0.03' disc of gypsum, translucent @62.6
Cut 4.5, rec. 4.7	1033.45	63.0-65.9	Limestone, v. fossiliferous & shaly, gray to dark gray FIVE POINT LIMESTONE MEMBER
RQD=96%	1030.55	65.9-66.5	Shale, dark gray, abundant Brachiopod fossils
Sample #18 63.2-63.7	1033.25	1032.75	Limestone, shaly, fossiliferous Qu=266000
Sample #19 65.3-65.8	1032.95	1030.65	Limestone, v. shaly, dk gray Qu=122000
Core #16	1029.95	66.5-67.3	Limestone, shades of gray, shaly, very fossiliferous
66.5-71.5	1029.15	67.3-67.7	Shale, limy at top, dark gray, weathered
Cut 5.0, rec. 4.0 RQD=95%	1028.75	67.7-68.9	Limestone, shades of gray, shaly at top & bottom, fosiliferous
	1027.55	68.9-71.5	Shale, dk gray, limy, 0.2 gypsum @70.4 (1026.05)becoming less limy with depth WEST BRANCH SHALE MEMBER
Sample # 20 68.3-68.9	1028.15	1027.55	Limestone, slightly shaly, gray Qu=743000
Sample #21 69.3-69.8	1027.15	1026.65	Shale, dark gray, limy Qu=149000
Core #17	1024.95	71.5-73.1	Shale, dark gray, featureless
71.5-75.5 Cut 4.0, rec. 5.0	1023.35	73.1-74.8	Limestone, shades of gray, shaly becoming more so with depth, fossiliferous, irregular within limestone
RQD=96%	1021.65	74.8-75.5	Shale, dark gray
	1020.95	75.5	Total Depth, End of Core
Sample #22 71.5-72.0	1024.95	1024.45	Shale, dark gray Qu=110000
Sample #23 73.5-74.1	1022.95	1022.35	Limestone, shaly, gray Qu=484000