



10-23 KA-1826-01

Br. No. 10-23-2.63(191)

Bob Billings Parkway over K-10

K-10 (South Lawrence Trafficway)/Bob Billings Parkway

Douglas Co

CD1

N:38.959693 E:-95.333960 (Approx.)

NW ¼, SW ¼, SW ¼, S32, T12S, R19E

KANSAS DEPARTMENT OF TRANSPORTATION



RTE./CO.	K-10 / Douglas	SOUNDING NO.	CD 01		
		PROJ. NO.	10-23 KA-1826-01		
SITE NAME	K-10 Bob Billings Parkway Interchange		HOLE STA.	48+70 Bob Billings, CL	
GEOLOGIST	R. Crow, P.G.	SCALE	1 inch = 5.0 feet	DATE	October 17, 2011
DRILLER	R. Vervynck	RIG TYPE	CME 55	TOP HOLE ELEV.	962.42
GW ELEV.	937.4	TOTAL DEPTH	58.0	M/B ELEV.	958.52

BOREHOLE REPORT - KANSAS DOT.GDT - 2/5/13 16:05 - C:\GEOLOGY\BRIDGE\10-23 KA-1826-01\BOB BILLINGS INTERCHANGE\2.GPJ

Bit Type	GEOLOGIC NAME	STRATIGRAPHIC COLUMN	DEPTH	ELEVATION	CLASSIFICATION OF MATERIALS DESCRIPTION AND REMARKS	UNCONFINED COMPRESSION (TSF)	ELASTIC MODULUS (PSF)	N60 COUNT (SPT)	ELEVATION	
8" Hollow Augers	Mantle			962.4	Silty clay, brown, dry					
				960		2.8	547000		960.42	
NQ2 Diamond	Plattsmouth Limestone Member		3.9	958.5	Limestone, cherty, broken, mud seams, rust stain	419	1.75E+08		956.62	
			8.5	953.9	Limestone, hard, few clay seams, rust stain, cherty	302	1.27E+08		952.72	
				950						
				945						
			17.7	944.7	Limestone, gray, shaly, crinoidal					
			18.5	943.9	Shale, gray with small white fossil debris					
LVNR Heebner Shale Member			19.1	943.3	Shale, gray, gradual transition to black					
			20.1	942.3	Shale, black, fissile, hard, phosphatic nodules					
				940						
			24.3	938.2	Leavenworth Limestone, hard, gray, vertical fracture					
	936.4	Shale, very limy, gray, fossil fragments			143	4.76E+07		935.62		
	935.6	Shale, gray to greenish-gray, clayey, shear planes								



KANSAS DEPARTMENT OF TRANSPORTATION

RTE./CO.	K-10 / Douglas	SOUNDING NO.	CD 01	SHEET 2 of 3
		PROJ. NO.	10-23 KA-1826-01	BRIDGE NO.
SITE NAME	K-10 Bob Billings Parkway Interchange			HOLE STA. 48+70 Bob Billings, CL.

Bit Type	GEOLOGIC NAME	STRATIGRAPHIC COLUMN	DEPTH	ELEVATION	CLASSIFICATION OF MATERIALS DESCRIPTION AND REMARKS	UNCONFINED COMPRESSION (TSF)	ELASTIC MODULUS (PSF)	N60 COUNT (SPT)	ELEVATION
	Snyderville Shale Member		6	930	Shale, gray to greenish-gray, clayey, shear planes	14	3200000		931.92
			7	925		15.6	3950000		927.92
	Toronto Limestone Member		37.8 38.0	924.6 924.4	Limestone, nodular, shaly Limestone, hard, gray, somewhat wavy bedded, visible fossil debris				
			8	920		259	1.47E+08		919.42
			9	915		221	1.35E+08		916.32
	Lawrence Shale Formation		49.0	913.5	Shale, gray, clayey				
			10	910		41	7850000		909.42
			11	906.6		39	4850000		906.52
			57.7 58.0	904.7 904.42	no recovery T.D. = 58				

BOREHOLE REPORT - KANSAS.DOT.GDT - 2/5/13 16:05 - Q:\GEOLOGY\BRIDGE\10-23 KA-1826-01\BOB BILLINGS INTERCHANGE\2.GPJ



KANSAS DEPARTMENT OF TRANSPORTATION

RTE./CO.	K-10 / Douglas	SOUNDING NO.	CD 01	SHEET 3 of 3	
		PROJ. NO.	10-23 KA-1826-01	BRIDGE NO.	
SITE NAME	K-10 Bob Billings Parkway Interchange			HOLE STA.	48+70 Bob Billings, CL

Bit Type	GEOLOGIC NAME	STRATIGRAPHIC COLUMN	DEPTH	ELEVATION	CLASSIFICATION OF MATERIALS DESCRIPTION AND REMARKS	UNCONFINED COMPRESSION (TSF)	ELASTIC MODULUS (PSF)	N60 COUNT (SPT)	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>Rec %</th> <th>RQD</th> </tr> </thead> <tbody> <tr><td>1</td><td>4.6</td><td>957.82</td><td>3.9</td><td>3.0</td><td>77</td><td>13%</td></tr> <tr><td>2</td><td>8.5</td><td>953.92</td><td>5.0</td><td>5.0</td><td>100</td><td>24%</td></tr> <tr><td>3</td><td>13.5</td><td>948.92</td><td>5.0</td><td>4.6</td><td>92</td><td>54%</td></tr> <tr><td>4</td><td>18.5</td><td>943.92</td><td>5.0</td><td>5.0</td><td>100</td><td>88%</td></tr> <tr><td>5</td><td>23.5</td><td>938.92</td><td>5.0</td><td>5.0</td><td>100</td><td>88%</td></tr> <tr><td>6</td><td>28.5</td><td>933.92</td><td>5.0</td><td>4.1</td><td>82</td><td>72%</td></tr> <tr><td>7</td><td>33.5</td><td>928.92</td><td>4.5</td><td>5.2</td><td>114</td><td>34%</td></tr> <tr><td>8</td><td>38.0</td><td>924.42</td><td>5.0</td><td>5.0</td><td>100</td><td>96%</td></tr> <tr><td>9</td><td>43.0</td><td>919.42</td><td>5.0</td><td>5.0</td><td>100</td><td>92%</td></tr> <tr><td>10</td><td>48.0</td><td>914.42</td><td>5.0</td><td>5.0</td><td>100</td><td>100%</td></tr> <tr><td>11</td><td>53.0</td><td>909.42</td><td>5.0</td><td>4.7</td><td>94</td><td>80%</td></tr> <tr> <td>Total</td> <td>58</td> <td>904.42</td> <td>53.4</td> <td>51.5</td> <td>97</td> <td>69%</td> </tr> </tbody> </table>	Core	Depth	Elev.	Cut	Rec	Rec %	RQD	1	4.6	957.82	3.9	3.0	77	13%	2	8.5	953.92	5.0	5.0	100	24%	3	13.5	948.92	5.0	4.6	92	54%	4	18.5	943.92	5.0	5.0	100	88%	5	23.5	938.92	5.0	5.0	100	88%	6	28.5	933.92	5.0	4.1	82	72%	7	33.5	928.92	4.5	5.2	114	34%	8	38.0	924.42	5.0	5.0	100	96%	9	43.0	919.42	5.0	5.0	100	92%	10	48.0	914.42	5.0	5.0	100	100%	11	53.0	909.42	5.0	4.7	94	80%	Total	58	904.42	53.4	51.5	97	69%				
Core	Depth	Elev.	Cut	Rec	Rec %	RQD																																																																																														
1	4.6	957.82	3.9	3.0	77	13%																																																																																														
2	8.5	953.92	5.0	5.0	100	24%																																																																																														
3	13.5	948.92	5.0	4.6	92	54%																																																																																														
4	18.5	943.92	5.0	5.0	100	88%																																																																																														
5	23.5	938.92	5.0	5.0	100	88%																																																																																														
6	28.5	933.92	5.0	4.1	82	72%																																																																																														
7	33.5	928.92	4.5	5.2	114	34%																																																																																														
8	38.0	924.42	5.0	5.0	100	96%																																																																																														
9	43.0	919.42	5.0	5.0	100	92%																																																																																														
10	48.0	914.42	5.0	5.0	100	100%																																																																																														
11	53.0	909.42	5.0	4.7	94	80%																																																																																														
Total	58	904.42	53.4	51.5	97	69%																																																																																														

BOREHOLE REPORT - KANSAS DOT.GDT - 2/5/13 16:05 - Q:\GEOLOGY\BRIDGE\10-23 KA-1826-01\BOB BILLINGS INTERCHANGE\2.GPJ