

KANSAS DEPARTMENT OF TRANSPORTATION



RTE./CO. 75-89	SOUNDING NO. CD #1	SHEET 1 OF 2
BRIDGE STA. 99+490.118	PROJ. NO. K-5666-01	BRIDGE NO. 75-89-18;01
SITE NAME N.B. US-75 over KS. River		HOLE STA. 99+727.8m RT NB E
GEOLOGIST R. Billinger	SCALE: 1:100 (10mm = 1 Meter)	DATE 6-29-98
DRILLER R. Veruyrick/B. Bergman	RIG TYPE Mobile B-61	TOP HOLE ELEV: 269.85
GROUNDWATER ELEV 246.65	TOTAL DEPTH 34.34 m	M/B ELEV. 256.34

NE 27-4-15E

BIT TYPE	GEOLOGIC NAME	STRATIGRAPHIC COLUMN	DEPTH Meters	ELEVATION	CLASSIFICATION OF MATERIALS DESCRIPTION AND REMARKS	UNCONFINED COMPRESSION kPa	STANDARD PENETRATION OR CASING DRIVE	
							Blows	ELEV (Base of Sample)
					Top Hole = 269.85 meters			
			1.48	268.37	Silt to Sandy Silt	Too fragile for Qu.	Shelby 1	269.25
			2.75	267.1	Sand & gravel which was dumped in when current bridge was built	Sand. No qu	Shelby 2	267.72
			3.30	266.55	Silt, gray	41.1	Shelby 3	267.0
						Sand. No qu	Shelby 4	266.5
				265				
				260	Sand, fairly clean but some zones have a clay binder. Fine to coarse grained.	Sand. No qu.	Shelby 5	263.15
			13.51	256.34				
			14.98	255	Shale, firm, gray, clayey to sandy	228.5	sample 1	255.55
			15.15	254.7	Coal Seam at 254.87 to 254.84			
					Sandstone, gray, some shaly lenses	15096.2	sample 2	254.28

Hawthorne Alluvium

Calhoun Fm.

		SOUNDING NO. <u>CD #1</u>		PROJECT NO. <u>K-5666-01</u>		SHEET <u>2</u> OF <u>2</u>		
DATE <u>6-29-98</u>		RTE./CO. <u>75-89</u>		TOTAL DEPTH <u>34.34</u>		THE <u>269.85</u>		
BIT TYPE	GEOLOGIC NAME	STRATIGRAPHIC COLUMN	Meters		CLASSIFICATION OF MATERIALS DESCRIPTION AND REMARKS	UNCONFINED COMPRESSION	STANDARD PENETRATION OR CASING DRIVE	
			DEPTH	ELEVATION			BLOWS	ELEV
			16.15	253.7	Sandstone, gray	kPa		
					Shale, very sandy, gray, numerous thin sandstone lenses.			
						2004.4	Sample 3	251.0
			21.64	248.21	Sandstone, gray, shaly numerous sandy shale lenses.			
			23.07	246.78				
					Sandstone, a few very thin shaly lenses			
			31.4	238.45				
					Limestone, gray, blocky to massive.	51151.7	Sample 4	238.03
						21151.1	Sample 5	236.25
			34.34	235.51	Total Depth of Hole			
				235				

Longyear Diamond & Carbide

Calhoun Fm.

Longyear Diamond Engine Creek Mbr.

Date: 6/29/98

Project No. 75-89 K-5666-01

Bridge No. 75-89-18.01(263)

Location: N.B. US-75 over the Kansas River

Core Hole #1

Core 1		Core 2		Core 3		Core 4		Core 5	
13.51 to 15.03		15.03 to 16.55		16.55 to 18.03		18.03 to 18.45		18.45 to 19.25	
256.34 to 254.82		254.82 to 253.30		253.30 to 251.82		251.82 to 251.40		251.4 to 250.6	
Cut	1.52	Cut	1.52	Cut	1.48	Cut	0.42	Cut	0.80
Recov.	1.55	Recov.	1.47	Recov.	0.44	Recov.	0.40	Recov.	0.80
RQD=	100%	RQD=	26%	RQD=	0%	RQD=	0%	RQD=	88%

Core 6		Core 7		Core 8		Core 9		Core 10	
19.25 to 20.73		20.73 to 22.25		22.25 to 23.07		23.07 to 24.59		24.59 to 26.11	
250.60 to 249.12		249.12 to 247.60		247.60 to 246.78		246.78 to 245.26		245.26 to 243.74	
Cut	1.48	Cut	1.52	Cut	0.82	Cut	1.52	Cut	1.52
Recov.	1.48	Recov.	0.83	Recov.	0.45	Recov.	0.0	Recov.	0.0
RQD=	47%	RQD=	0%	RQD=	0%	RQD=	0%	RQD=	0%

Core 11		Core 12		Core 13		Core 14			
26.11 to 27.63		27.63 to 29.15		31.40 to 32.92		32.92 to 34.34			
243.74 to 242.22		242.22 to 240.70		238.45 to 236.93		236.93 to 235.51			
Cut	1.52	Cut	1.52	Cut	1.52	Cut	1.42		
Recov.	0.32	Recov.	0.14	Recov.	1.52	Recov.	1.39		
RQD=	0%	RQD=	0%	RQD=	88%	RQD=	51%		

Note: The RQD for the above cores are probably much higher than recorded. Some of the low RQD values are partially due to trouble with the core barrel.

# Kansas Department of Transportation

## Report of sample of Geology Cores

Laboratory No. 98-2642

Date Reported. 7-14-98

Date Received. July 8, 1998

Specification No. -- Quantity ---

Source of material Project

Sample from Project

Submitted by Delmar Thompson, Lawrence Geology Office

Identification marks Tags with Samples

Project or POV 75-89 K-5666-01, US-75 over the Kansas River

Type of construction Bridge # 75-89-18.01 CP# / bedrock samples

### TEST RESULTS

Sample No.	Station	CL Dist. m	Depth m	Description	Qu. kPa	Dry Unit Weight kg/m <sup>3</sup>	Moisture (% of Dry Wt.)
T.H.E.=269.85							
S1	99 + 727	8 m RT	14.10-14.30	Shale, gray, clay	228.5	1771	17.6
S2	"	"	15.44-15.57	Sandstone, gray	15096.2	1980	12.5
S3	"	"	18.67-18.85	Shale, sandy, gray	2004.4	2156	9.3
S4	"	"	31.58-31.82	LS, gray	51151.7	2607	1.3
S5	"	"	33.41-33.60	LS, gray	21151.1	2529	4.7

	TSF	lbs/cu ft
#1	2.38	110.56
#2	157.52	123.6
#3	20.91	134.6
#4	533.7	162.75
#5	220.7	157.88

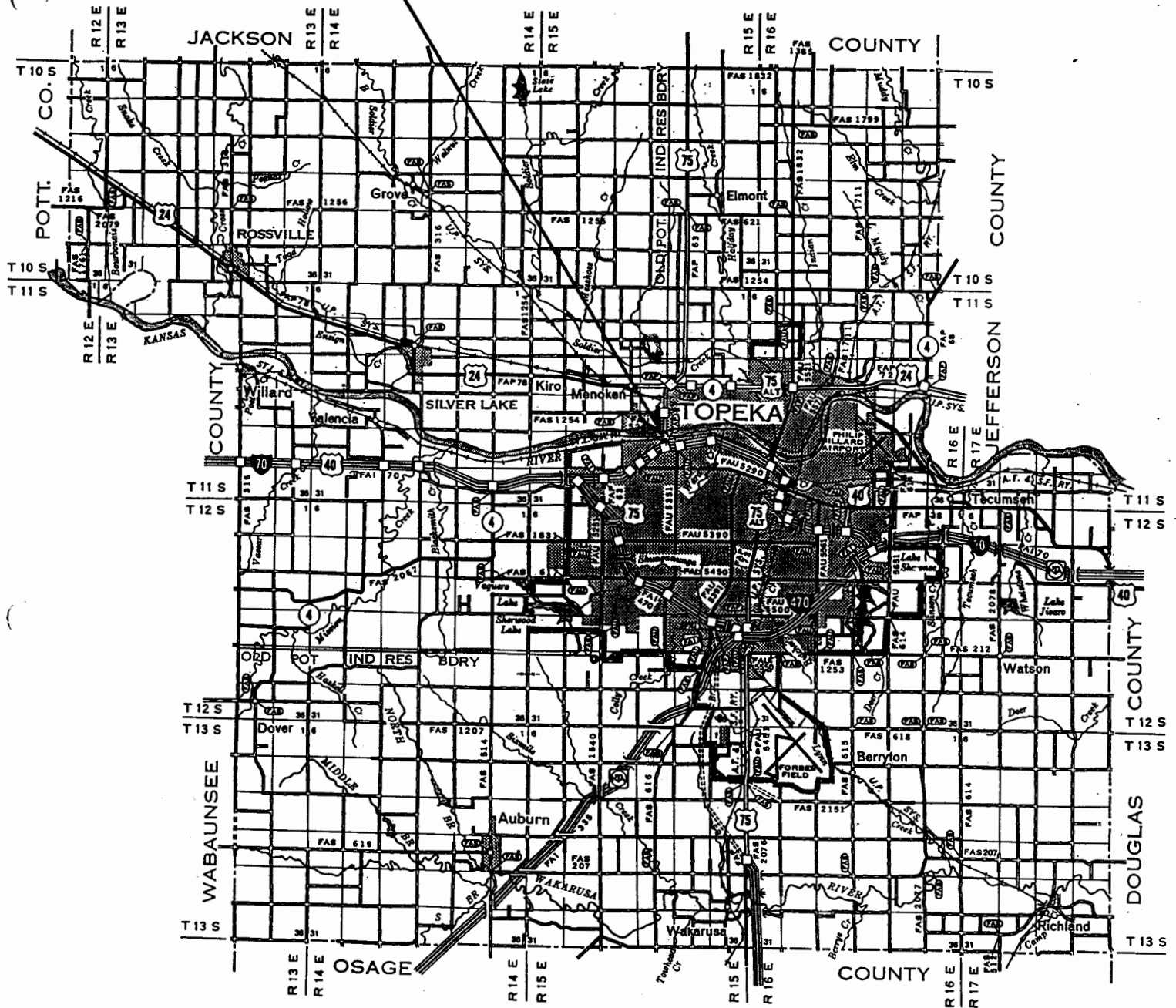
cc: L.S. Ingram  
 G.R. Koontz  
~~D. Thompson~~  
 J.J. Brennan  
 Soil Section  
 File

Reported by: *James J. Brennan*

Title James J. Brennan, Soils Engineer

75-89 K-5666-01  
 N.B. US-75 over the Kansas River

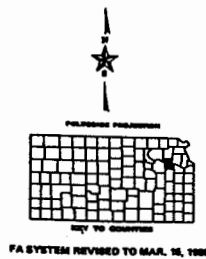
Corr Box



NE Sec. 27 T 11 S R 15 E

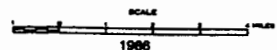
LEGEND

- | ROADS AND ROADWAY FEATURES   |       | ROAD SYSTEM DESIGNATION               |       |
|------------------------------|-------|---------------------------------------|-------|
| PRIMITIVE ROAD               | ..... | FEDERAL-AID INTERSTATE HIGHWAY SYSTEM | ..... |
| UNIMPROVED ROAD              | ..... | FEDERAL-AID PRIMARY HIGHWAY SYSTEM    | ..... |
| GRADED AND DRAINED ROAD      | ..... | FEDERAL-AID SECONDARY HIGHWAY SYSTEM  | ..... |
| SOIL SURFACED ROAD           | ..... | INTERSTATE NUMBERED HIGHWAY           | ..... |
| GRAVEL OR STONE ROAD         | ..... | U S NUMBERED HIGHWAY                  | ..... |
| NOT GRADED OR DRAINED        | ..... | STATE NUMBERED HIGHWAY OR             | ..... |
| GRAVEL OR STONE ROAD         | ..... | STATE NUMBERED HIGHWAY                | ..... |
| GRADED AND DRAINED           | ..... | END OF DESIGNATED SYSTEM OR           | ..... |
| LEVEL OR STONE ROAD WITH     | ..... | MARKED ROUTE                          | ..... |
| TARREZED SURFACE             | ..... |                                       |       |
| TERRACED ROAD-LOW TYPE       | ..... |                                       |       |
| PAVED ROAD                   | ..... |                                       |       |
| DIVIDED HIGHWAY              | ..... |                                       |       |
| HIGHWAY WITH FULL CONTROL OF | ..... |                                       |       |
| ACCESS AND INTERCHANGE       | ..... |                                       |       |



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



# Kansas Department of Transportation

Report of sample of Shelby Tubes

Laboratory No. 98-2643

Date Reported. 7-31-98

Date Received. July 8, 1998

Specification No. -- Quantity ---

Source of material Project

Sample from Project

Submitted by Delmar Thompson, Lawrence Geology Office

Identification marks Tags with Samples

Project or POV 75-89 K-5666-01, N.B. US-75 over the Kansas River

Type of construction Bridge #75-89-18.01 CD #1

## TEST RESULTS

Sample No.	Station	CL Dist. m	Depth m	Description	Qu. kPa	Dry Unit Weight kg/m <sup>3</sup>	Moisture (% of Dry Wt.)
				T.H.E.=269.85			
SH1	99 + 727	8 m RT	0.00-0.60	Too fragile for QU.			
SH2	"	"	1.48-2.13	Sand, RTN. Only.			
SH3	"	"	2.31-2.85	Gray to Gray-Brn. Silt	41.1	1664	16.6
SH4	"	"	3.00-3.60	Sand, RTN Only.			
SH5	"	"	6.08-6.70	Sand, RTN Only.			

See attached gradation test results for scour analysis.

0.43 tsf      103.9 lbs/ft<sup>3</sup>

cc: L.S. Ingram  
G.R. Koontz  
  
Bridge Design  
J.J. Brennan  
Soil Section  
File

Reported by: Walter C VonDeunfang for

Title James J. Brennan, Soils Engineer

Auger hole

Elevation meters	268.85	0.00 - 0.60
		0.60 - 1.48
	268.37	1.48 - 2.13
	267.72	2.13 - 2.31
	267.54	2.31 - 2.85
	267.0	2.85 - 3.00
		3.00 - 3.30
266.59	3.30	Sand
		3.60 - 4.61
		4.61 - 6.08
		6.08 - 6.70
	263.15	6.70

Shelby #1 pushed 0.60 m Recover 0.49 m  
hit a rock, sand to sandy silt, fairly fine grained  
Sandy silt, moist, gray brown

Shelby #2 pushed 0.65 m recover 0.25 m  
hit a rock, sand, medium grained & some coarse  
did not recover much due to damage to tube  
when we went back to auger through this area,  
we hit heavy gravel, pieces coming up fist size  
Think this may have been LS gravel dumped in  
when building existing pier.

Shelby #3 pushed 0.54 m recover 0.35  
hit gravel? at end of this push, trying to push 0.60 m  
Silt grayish to gray brown, moist  
Silt grayish

Shelby #4 pushed 0.60 recover 0.60  
smooth push, silt at top grading to fine grained  
sand at bottom  
Sand, clean, fine, (water 4.60?)

fine grained sand with clay binder, gray  
Shelby #5 pushed 0.62 recovered 0.52  
Sand with clay binder grading to clean  
medium grained sand, hit rock near  
bottom & bent Shelby tube.

Sand with very little silty binder, grayish  
(tried to get split spoon at 9.13 m but flowing  
sand came back up the auger)  
sand is fine to medium grained.

6.70  
- .3

258.55 11.30

13.7 m Casing for CD #1

Casing		
1 - 1.82	14.01	
2 - 2.16	- 0.66	
<del>3 - 2.98</del>	13.35	
<del>4 - 2.98</del>	+ 0.60	had to drive casing down more
<del>5 - 6.70</del>	13.95	
4 - 2.15	+ 0.59	drove more casing
8.31	14.54	drove more casing
5 - 2.17	+ 0.63	" "
10.48	15.17	
6 - 2.40	- 0.34	
12.58	14.83	
7 - 1.43		
14.01		

Core barrel = 2.18 m  
Hawthorne = 1.97 m

tried split spoon at 10.67 m. but flopping  
sand came up the auger again.  
Tried split spoon at 11.28 with mud. sand flowed  
up the hole. pull out + drive casing to start  
core hole.  
Total depth. stopped in clean sand.

Rods

1	- 6.6		
2	5.0		
3	5.0		Calhoun Fm = 856.214
4	5.0		SS in Calhoun = 259.5 (15.4)
5	5.0		" " 248.87 (21.0)
6	5.0		Ervine creek = 237.75 (32.1)
7	5.0		
8	1.52	12.16	18 - 1.52 27.36 hang
9	1.52	13.68	19 1.52 28.88 hang
10	1.52	15.20	20 1.52 30.40 hang
11	1.52	16.72	21 1.52 - 31.92 hang
12	1.52	18.24	22 hang
13	1.52	19.76	
14	1.52	21.28	
15	1.52	22.80	
16	1.52	24.32	
17	1.52	25.84	



Elevation  
meters

CD # | 26985 | 0.00 - 13.35

Sta 997727, 8RT

\*6-30-98

B. Bergman

R. Vorwyndk

R. Billinger

D. Karl

M. Law

D. Bayel

H<sub>2</sub>O level - cased at 5.18m

Jet on bottom so

water level is  $\approx$  5.20m

Cone #1

13.51 - 15.03

Cut 1.52m

Recon. 1.55m

RQD  $\approx$  100%

Sample #1

14.10 - 14.30

Drove casing... went in to clean out casing and had sand in casing at 9.45. Cleaned from 9.45 to 13.35, fine to medium grained sand; hard, probably LS rock in casing from cut casing drive, lots of LS chips washing up. Got through LS gravel and hit the Calhoun shale, gray shale chips coming up

Shale, firm, gray, clayey

Shale, sandy, gray

coal seam

Shale, clayey to slightly sandy, gray

End core #1

Shale, clayey, gray

Core #2

15.03 - 16.55

Cut 1.52

Recov. 1.97

RQD = 0.4 / 1.52

15.03 - 15.15

254.7 15.15 - 16.15

253.7 16.15 - 16.55

253.3 16.55

Sample #2 15.44 - 15.57

Core #3

16.55 - 18.03

Cut 1.48

Recov. 0.97

RQD = 0%

253.3 16.55 - 16.99

252.86 16.99 - 18.03

Core #4

18.03 - 18.45

Cut 0.42

Recov. 0.40

RQD = 0%

recovered 0.2 in  
core #5

18.03 - 18.45

Shale, gray sandy

Sandy shale, gray

Sandstone, gray, some shaly lenses

Shale, gray, sandy

end core #2

Sandstone, gray

Sandstone, shaly, platy gray  
slipped out (lost 1.09)

1.09

1.31

18 24  
9  
171

18.45  
20  
19.25

Core #5  
18.45-19.25  
cut 0.80  
Recov. 1.00 \*  
RQD = 0.70/0.80  
\* recovered 0.20 from Core #4

Shale, sandy gray, very firm  
  
Shale, sandy, gray, very firm

Core #6  
19.25-20.73  
cut 1.48  
Recov. 1.48  
RQD = 0.7/1.48

Shale, sandy, gray firm  
Shale, very sandy, sand-shale lenses ~~lenticular~~ bedded

Note: when we went back in for core  
had come in bottom of casing and  
21.48 0.6m more, went in and cleaned

#7, could not get to bottom of hole. sand  
filled  $\frac{1}{2}$  m of hole, drove casing down  
out hole, ready for core #7

Core #7  
20.73-22.25  
cut 1.52  
Recov. 0.83  
RQD = 0%  
248.21 21.64-21.79  
21.79-21.97  
21.97-22.22  
22.22-22.25

lost gravel in top ground away core  
Shale, very sandy, ss lenses gray  
Sandstone, very shaly, gray, flaser bedded  
Shale, very sandy, ss lenses, gray, lenticular bedded  
sandstone, shaly  
Shale, sandy gray

(lost 0.69 from gravel)  
grinding away core.

Core #8		22.25-22.62
22.25-23.07	247.23	22.62-22.89
Cut 0.82		22.89-23.03
Recov. 0.45		23.03-23.07
RQD = 0%		23.07

Core #9	246.78	23.07-24.59
23.07-24.59		
Cut 1.52		
Recov. 0.00		
RQD ?		
	245.26	24.59

Core #10		24.59-26.11
24.59-26.11		
Cut 1.52		
Recov. 0.00		
	243.74	26.11

lost gravel in barrel ground away core  
 SS, shaly stringers gray  
 Shale & SS beds gray  
 Shale, sandy, gray  
 End core 8

Core slid out of core barrel  
 drove more casing down & then went in  
 to clean out hole with Hawthorne bit  
 lots of sand & small gravel

End core 9

No core ground away due to sand  
 maybe sandstone because real fine sand  
 coming up in return water.

End core 10

Core #11  
26.11-27.63  
cut 1.52  
Recov. 0.32  
RQD = 0.96  
lost 1.20

Core #12  
27.63-29.15  
cut 1.52  
Recov. 0.14  
RQD = 0.14  
29.15

Note: stopped coring & went in with the  
of Ervine Creek.

29.15-31.40

238.45 31.40

Sandstone, gray (fine grained gray sand  
lost in cuttings. No shale)

End core #11

(felt like we set back down over at least 0.90 of  
core when we went back in for core #12)

Sandstone, gray, (only fine grained, gray sand coming  
lost up in cuttings) (no shale cuttings)

End core #12

Hawthorne bit & will start to top

Sandstone, very fine grained, gray  
No shale cuttings, under pressure staying  
steady low.

May have hit a thin shale bed @ 31.30  
LB. (started coring again)

Core #13  
31.90 - 32.92

cut 1.52

Recov. 1.52

RQD = 1.33/1.52

Sample #4

31.40 - 32.30  
32.30 - 32.92

32.92

31.58 - 31.82

LS, gray, blocky to massive  
LS, shaly lenses, gray blocky, shaly lenses are  
dark gray to blackish.

End core 13

LS gray massive

Core #14  
32.92 - 34.34

cut 1.42

Recov. 1.39

RQD = 0.72/1.42

235.51

Sample #5

32.92 - 34.34

34.34

33.41 - 33.60

LS, gray, blocky to massive, several thin  
shaly stringers, fossiliferous

TD Stopped in LS.

LS, gray, massive

TBM #1

$\pi_1$  0.471 275.497

TBM #2

6.984 268.513

275.026

set TBM #2 on Stump