

NOTES FOR EXPLORATION LOGS

KEY TO USCS TERMINOLOGY AND GRAPHIC SYMBOLS

MAJOR DIVISIONS (BASED UPON ASTM D 2488)			SYMBOLS	
			GRAPHIC	LETTER
COARSE - GRAINED SOILS MORE THAN 50% OF MATERIAL IS LARGER THAN NO. 200 SIEVE SIZE	GRAVEL AND GRAVELY SOILS MORE THAN 50% OF COARSE FRACTION RETAINED ON NO. 4 SIEVE	CLEAN GRAVELS (LESS THAN 5% PASSING THE NO. 200 SIEVE)		GW
				GP
		GRAVELS WITH FINES (MORE THAN 15% PASSING THE NO. 200 SIEVE)		GM
	SAND AND SANDY SOILS MORE THAN 50% OF COARSE FRACTION PASSING ON NO. 4 SIEVE	CLEAN SANDS (LESS THAN 5% PASSING THE NO. 200 SIEVE)		SW
				SP
		SANDS WITH FINES (MORE THAN 15% PASSING THE NO. 200 SIEVE)		SM
FINE - GRAINED SOILS MORE THAN 50% OF MATERIAL IS SMALLER THAN NO. 200 SIEVE SIZE	SILTS AND CLAYS LIQUID LIMIT LESS THAN 50	SILT OR CLAY ($<15\%$ RETAINED THE NO. 200 SIEVE)		ML
		SILT OR CLAY WITH SAND OR GRAVEL (15% TO 30% RETAINED THE NO. 200 SIEVE)		CL
		SANDY OR GRAVELY SILT OR CLAY ($>30\%$ RETAINED THE NO. 200 SIEVE)		OL
	SILTS AND CLAYS LIQUID LIMIT GREATER THAN 50	SILT OR CLAY ($<15\%$ RETAINED THE NO. 200 SIEVE)		MH
		SILT OR CLAY WITH SAND OR GRAVEL (15% TO 30% RETAINED THE NO. 200 SIEVE)		CH
		SANDY OR GRAVELY SILT OR CLAY ($>30\%$ RETAINED THE NO. 200 SIEVE)		OH
HIGHLY ORGANIC SOILS				PT

NOTE: DUAL SYMBOLS ARE USED TO INDICATE COARSE-GRAINED SOILS CONTAINING AN ESTIMATED 10% FINES BY VISUAL CLASSIFICATION OR WHEN THE SOIL HAS BETWEEN 5 AND 12 PERCENT FINES FROM LABORATORY TESTS; AND FOR FINE-GRAINED SOILS WHEN THE PLOT OF LIQUID LIMIT & PLASTICITY INDEX VALUES FALLS IN THE PLASTICITY CHART'S CROSSHATCHED AREA. FINE-GRAINED SOILS ARE CLASSIFIED AS ORGANIC-OL OR OH, WHEN ENOUGH ORGANIC PARTICLES ARE PRESENT TO INFLUENCE ITS PROPERTIES. LABORATORY TEST RESULTS ARE USED TO SUPPLEMENT SOIL CLASSIFICATION BY THE VISUAL-MANUAL PROCEDURES OF ASTM D2488.

ADDITIONAL TERMINOLOGY AND GRAPHIC SYMBOLS

ADDITIONAL DESIGNATION	DESCRIPTION		GRAPHIC SYMBOLS
	TOPSOIL		
	MAN-MADE FILL		
	GLACIAL TILL		
	COBBLES AND BOULDERS		
RESIDUAL SOIL DESIGNATION	DESCRIPTION	"N" VALUE	
	HIGHLY WEATHERED ROCK	50 TO 50/1"	
	PARTIALLY WEATHERED ROCK	MORE THAN 50 BLOWS FOR 1" PENETRATION, AUGER PENETRABLE	

COARSE-GRAINED SOILS (GRAVEL AND SAND)

DESIGNATION	BLOWS PER FOOT (BPF) "N"
VERY LOOSE	0 - 4
LOOSE	5 - 10
MEDIUM DENSE	11 - 30
DENSE	31 - 50
VERY DENSE	>50

NOTE: "N" VALUE DETERMINED AS PER ASTM D1586

FINE-GRAINED SOILS (SILT AND CLAY)

CONSISTENCY	BPF "N"
VERY SOFT	<2
SOFT	2 - 4
MEDIUM STIFF	5 - 8
STIFF	9 - 15
VERY STIFF	16 - 30
HARD	>30

NOTE: ADDITIONAL DESIGNATIONS TO ADVANCE SAMPLER INDICATED IN BLOW COUNT COLUMN:
WOH = WEIGHT OF HAMMER
WOR = WEIGHT OF ROD(S)

SAMPLE TYPE

DESIGNATION	SYMBOL
SPLIT-SPOON	S-
SHELBY TUBE	U-
ROCK CORE	R-

WATER DESIGNATION

DESCRIPTION	SYMBOL
ENCOUNTERED DURING DRILLING	
UPON COMPLETION OF DRILLING	
24 HOURS AFTER COMPLETION	

NOTE: WATER OBSERVATIONS WERE MADE AT THE TIME INDICATED. POROSITY OF SOIL STRATA, WEATHER CONDITIONS, SITE TOPOGRAPHY, ETC. MAY CAUSE WATER LEVEL CHANGES.

LOG OF BORING NO. CR-1

Sheet 1 of 1

PROJECT: **Crosley Road Landslide**
PROJECT NO.: **31242996**
PROJECT LOCATION: **Crosley Road Bridgeport, OH**

WATER LEVEL (ft.): **19.8'**
DATE: **1/6/25**
CAVED (ft.): **13.2'**

DATE STARTED: **1/6/25**
DATE COMPLETED: **1/6/25**
DRILLING CONTRACTOR: **Pennsylvania Drilling Co.**
DRILLER: **Hunter**
DRILLING METHOD: **3.25" Hollow Stem Augers**
SOIL SAMPLING METHOD: **18" Split Spoon Sampler**
ROCK SAMPLING METHOD: **NQ2**

WATER ENCOUNTERED DURING DRILLING (ft.): **Dry**
GROUND SURFACE ELEVATION: **818'**
DATUM: **Verd. Plan**
DRILL MODEL: **CME**
DRILL CARRIER: **Truck Mounted**
LOGGED BY: **Jack McGuane**
CHECKED BY: **Tyler Furr, P.G.**

SAMPLE NUMBER	SAMPLE DEPTH (ft.)	SAMPLE RECOVERY (in.)	SAMPLE BLOWS/6 inches	N (blows/ft.)	ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
1	0.0	10	27-12-4	16	818.0	0			(FILL) 10" Gravel Subbase	
2	1.5	15	4-3-3	6	816.5		CL		Brown and black, moist, medium stiff to very stiff, Sandy LEAN CLAY	
3	3.0	7	5-3-12	15						
4	4.5	11	15-5-5	10		6				
5	6.0	14	6-6-20	26						
6	7.5	13	18-12-27	39	810.5		SC		Gray and brown, dry, dense, Clayey SAND with rock fragments	
7	9.0	18	17-21-24	45						
8	10.5	13	28-22-22	44	806.0	12	HW		Tan, dry, Highly Weathered SANDSTONE	
9	12.0	18	21-38-50/5	50/5						
10	13.5	3	50/3		804.0		ROCK		Soft to medium hard, highly weathered to weathered, moderately fractured, brown and gray, interbedded, SANDSTONE and CLAYSTONE Core 1: Recovery: 28/36 = 78% RQD:21/36 = 58% Core 2: Recovery: 49/60 = 82% RQD:30/60 = 50%	Augered to 14' Coring started at 14' due to split spoon refusal.
R-1	14.0	28				18				
R-2	17.0	49								
R-3	22.0	58			793.0	24			Core 3: Recovery: 58/60 = 97% RQD: 29/60 = 28%	
							ROCK		Medium hard to hard, weathered to fresh, slightly fractured, brown and gray, SANDSTONE Core 4: Recovery: 24/24 = 100% RQD:22/24 = 92%	
R-4	27.0	24			789.0					
						30			Boring terminated at 29.0'.	

NOTES:



GEO-TECHNOLOGY ASSOCIATES, INC.
206 Bursca Dr
Bridgeville, PA, 15017

LOG OF BORING NO. CR-1

Sheet 1 of 1

LOG OF BORING NO. CR-2

Sheet 1 of 1

PROJECT: **Crosley Road Landslide**
PROJECT NO.: **31242996**
PROJECT LOCATION: **Crosley Road Bridgeport, OH**

WATER LEVEL (ft): ∇ **3.7'** ∇ **11.7'** ∇
DATE: **1/7/25** **1/7/25**
CAVED (ft):

DATE STARTED: **1/7/25**
DATE COMPLETED: **1/7/25**
DRILLING CONTRACTOR: **Pennsylvania Drilling Co.**
DRILLER: **Hunter**
DRILLING METHOD: **3.25" Hollow Stem Augers**
SOIL SAMPLING METHOD: **18" Split Spoon Sampler**
ROCK SAMPLING METHOD: **NQ2**

WATER ENCOUNTERED DURING DRILLING (ft.): **Dry**
GROUND SURFACE ELEVATION: **818'**
DATUM: **Verd. Plan**
DRILL MODEL: **CME**
DRILL CARRIER: **Truck Mounted**
LOGGED BY: **Jack McGuane**
CHECKED BY: **Tyler Furr, P.G.**

SAMPLE NUMBER	SAMPLE DEPTH (ft.)	SAMPLE RECOVERY (in.)	SAMPLE BLOWS/6 inches	N (blows/ft.)	ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
1	0.0	10	26-15-9	24	818.0	0			(FILL) 10" Gravel/Subbase	
2	1.5	11	7-4-3	7	816.5		SC		Brown to light brown, dry, loose, Clayey SAND with rock fragments	
3	3.0	13	2-3-5	8	815.0		CH		Brown, moist, medium stiff, FAT CLAY	∇
4	4.5	15	7-6-12	18	813.5		SC		Brown to light brown, moist, loose to dense, Clayey SAND with rock fragments	
5	6.0	10	10-6-4	10		6				
6	7.5	13	6-8-10	18						
7	9.0	3	7-11-12	23						
8	10.5	17	12-19-27	46	806.0	12	HW		Tan, dry, Highly Weathered SANDSTONE	∇
9	12.0	8	44-50/2	50	804.5		ROCK		Soft to medium hard, highly weathered to weathered, moderately fractured, brown, SANDSTONE Core 1: Recovery: 42/42 = 100% RQD: 25/42 = 60%	Augered to 13.5' Coring started at 13.5 due to split spoon refusal.
R-1	13.5	42							Core 2: Recovery: 15/18 = 83% RQD: 9/18 = 50%	
R-2	17.0	15			799.5	18			Boring terminated at 18.5'	
						24				
						30				

NOTES:



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Bridgeville, PA, 15017

LOG OF BORING NO. CR-2

Sheet 1 of 1



Photo 1 - Boring CR-1, Box 1 of 1



Photo 2 - Boring CR-2, Box 1 of 1



CORE BOX PHOTOGRAPHS
CROSLY RD LANDSLIDE
BRIDGEPORT
BELMONT COUNTY, OHIO

GEOTECHNICAL EXPLORATION

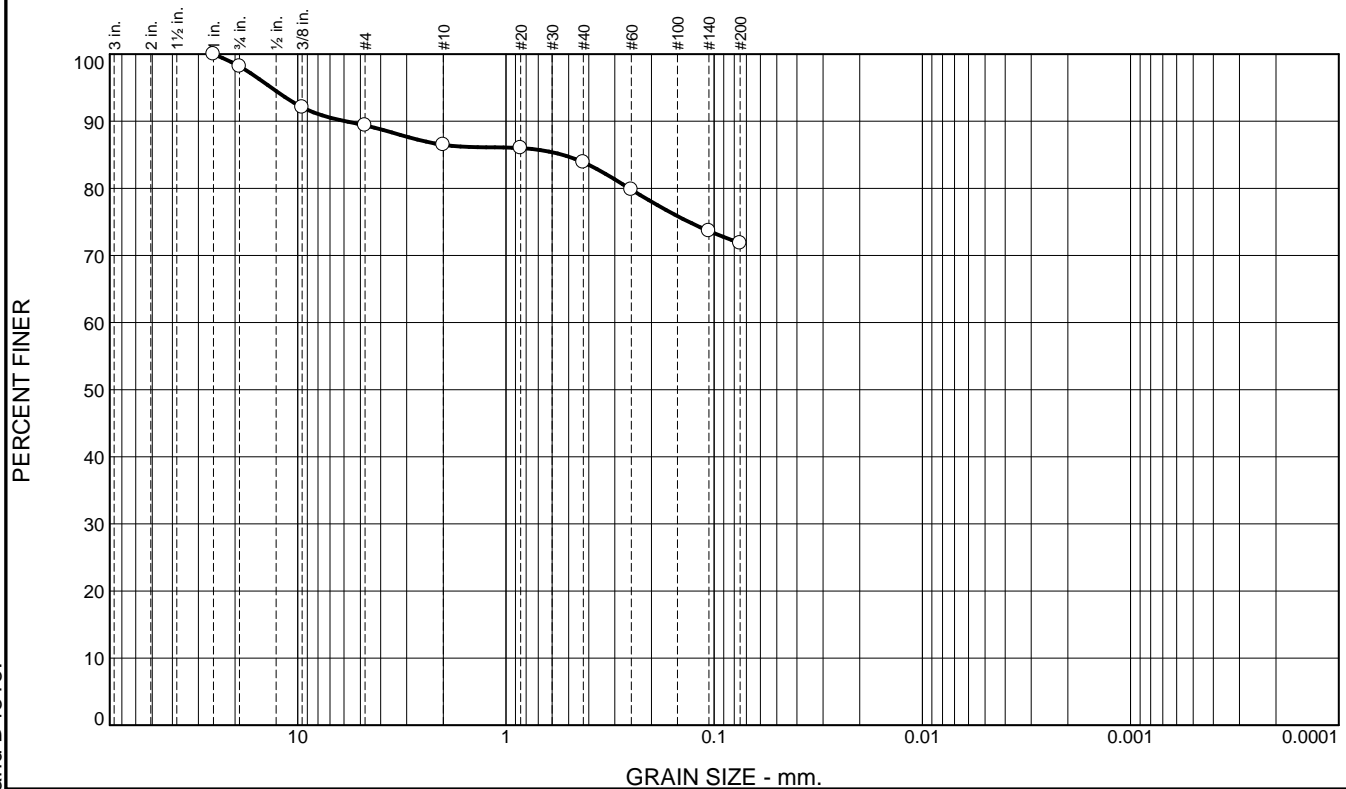
NATURAL MOISTURE CONTENT

CROSLLEY ROAD LANDSLIDE

[illegible]

ASTM Specifications performed may include: D421, D422, D2216, D2217, and D4318.

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	1.8	8.8	2.9	2.6	12.1		71.8

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	98.2		
.375	92.1		
#4	89.4		
#10	86.5		
#20	86.0		
#40	83.9		
#60	79.8		
#140	73.6		
#200	71.8		

* (no specification provided)

Soil Description

Lean Clay with Sand

Atterberg Limits

PL= 21 LL= 49 PI= 28 NM= 26.4

Coefficients

D₉₀= 5.8950 D₈₅= 0.5349 D₆₀=
D₅₀= D₃₀= D₁₅=
D₁₀= C_u= C_c=

Classification

USCS= CL AASHTO= A-7-6(19)

Remarks

Location: CR-1 S3

Sample Number: CR-1 S3

Depth: 3.0'-4.5'

Date: 02/03/2025



GEO-TECHNOLOGY
ASSOCIATES, INC.

1420 W. Main Street
Alliance, OH 44601

Client: Verdantas

Project: Crosley Road Landslide

Project No: 31242996

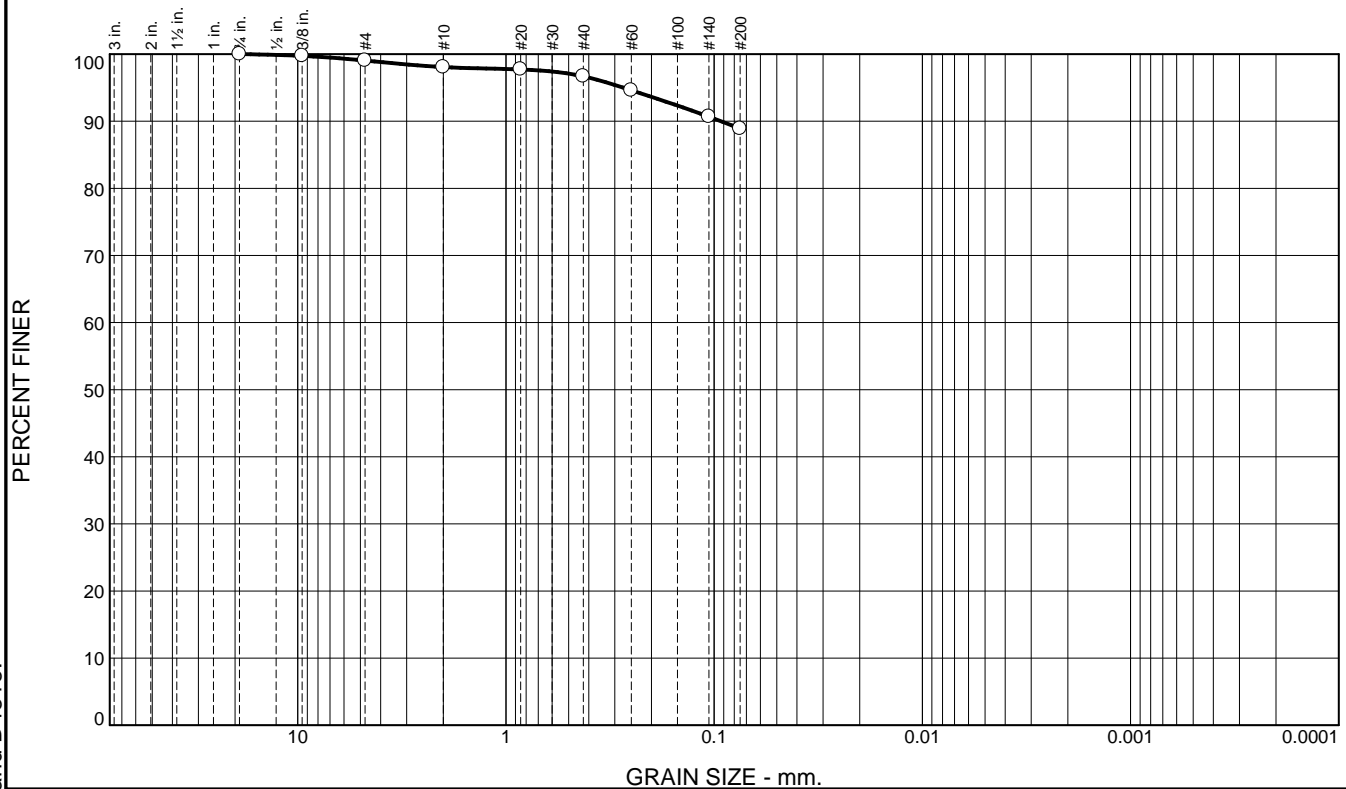
Figure

Tested By: KEM

Checked By: TF

ASTM Specifications performed may include: D421, D422, D2216, D2217, and D4318.

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.0	0.9	1.4	7.8	88.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.75	100.0		
.375	99.7		
#4	99.0		
#10	98.1		
#20	97.7		
#40	96.7		
#60	94.6		
#140	90.7		
#200	88.9		

* (no specification provided)

Soil Description

Fat Clay

Atterberg Limits

PL= 22 LL= 52 PI= 30 NM= 24.0

Coefficients

D₉₀= 0.0928 D₈₅= D₆₀=

D₅₀= D₃₀= D₁₅=

D₁₀= C_u= C_c=

Classification

USCS= CH AASHTO= A-7-6(29)

Remarks

Location: CR-2 S3

Sample Number: CR-2 S3

Depth: 3.0'-4.5'

Date: 02/03/2025



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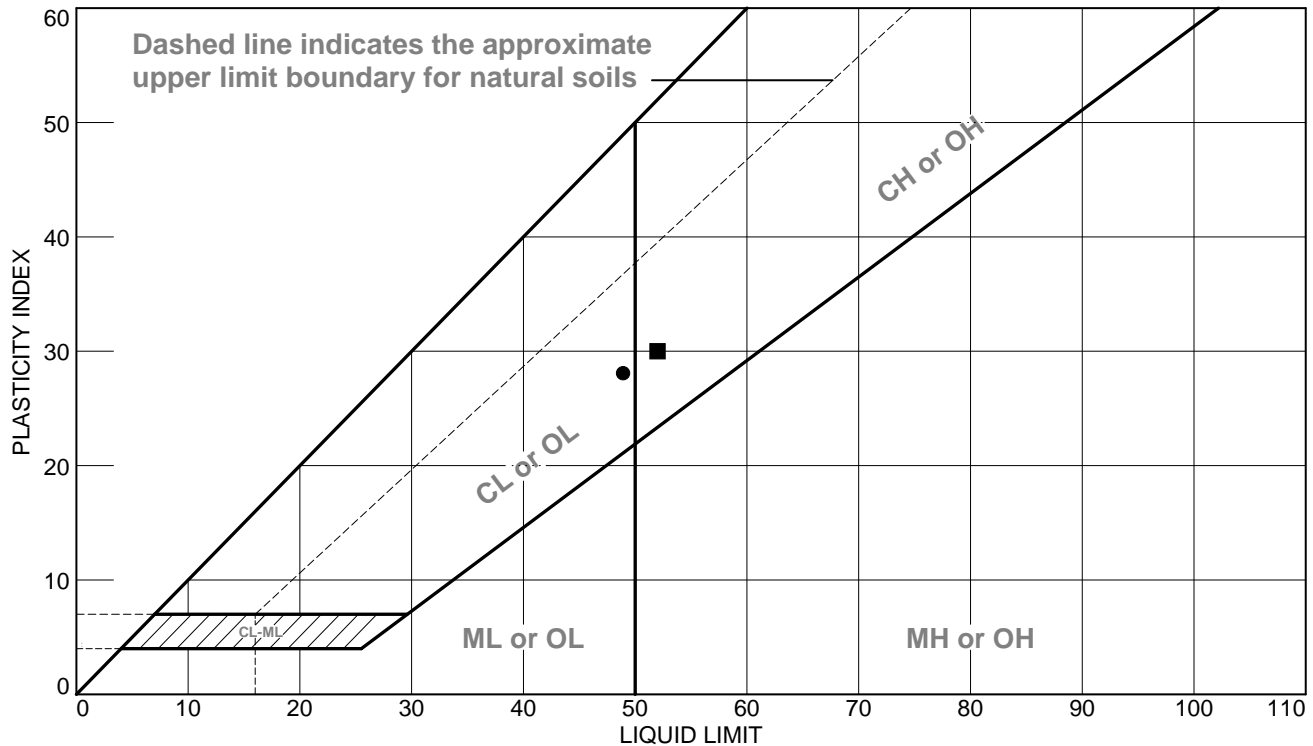
Project No: 31242996

Figure

Tested By: KEM

Checked By: TF

LIQUID AND PLASTIC LIMITS TEST REPORT - ASTM D4318



SOIL DATA

	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●		CR-1 S3	3.0'-4.5'	26.4	21	49	28	CL
■		CR-2 S3	3.0'-4.5'	24.0	22	52	30	CH



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Client: Verdantas

Project: Crosley Road Landslide

Project No.: 31242996

Figure

Tested By: KEM

Checked By: TF

ASTM Specifications performed may include: D421, D422, D2216, D2217, and D4318.

CORE ID	CR-1 R3
Depth	25.3'-25.8'
Diameter	2.0"
Length	4.172
	4.190
	4.178
	Average 4.180
Pounds	7530
PSI	2398



CORE ID	CR-1 R4
Depth	28.3'-28.8'
Diameter	2.0"
Length	4.062
	4.060
	4.053
	Average 4.058
Pounds	8550
PSI	2723

