STANDARD PROCTOR COMPACTION TEST (ASTM D-698)

Company Name: Birmingham Coal & Coke Co., Inc
Location: Gooden Creek #2 Mine
Sample I.D.: Basin 037
Description: Dam Material

Sample Date: #######
Analyzed By: MB/RW
Date Analyzed: 6/3/2013
Requested By: JRW

Weight of Mold (W1): 4,250 Grams

Test No.	Wt. of Mold & Wet Soil (w2) grams	Wt. of wet Soil (w2-w1) grams	Wet Unit Wt. (w2-w1)/C lb/cu-ft	Moisture Content (w) %	Dry Unit Weight lb/cu-ft
1	5,874	1,624	107.4	7.5	99.9
2	5,961	1,711	113.2	9.6	103.3
3	6,035	1,785	118.1	11.9	105.5
4	6,087	1,837	121.5	16.0	104.7
5	6,052	1,802	119.2	19.6	99.6
6	6,039	1,789	118.3	23.4	95.9
7					

Constant C = 15.12 (conversion factor)

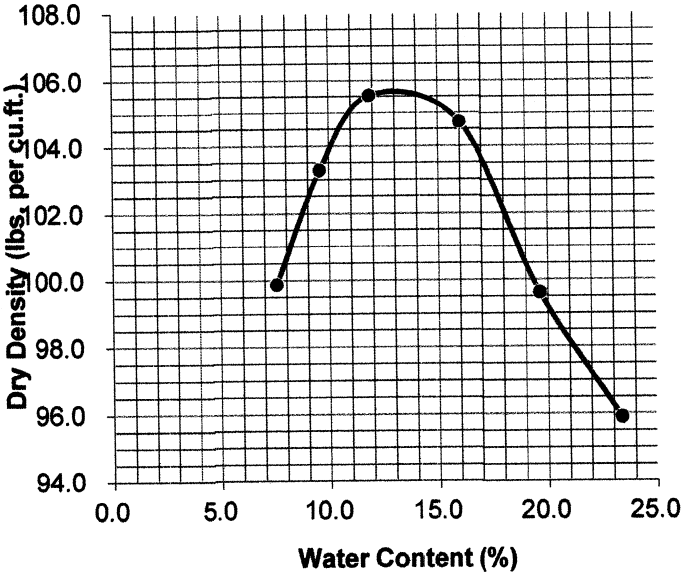
MOISTURE CONTENT DETERMINATION

Test No.	1	2	3	4	5	6	7
Can No.	1	2	3	4	5	6	
Wt. of Can, a, (g)	20.5	20.5	20.6	20.5	20.6	20.6	
Wt. of Can + Wet Soil, b, (g)	80.4	84.6	68.1	71.2	84.6	90.8	
Wt. of Can + Dry Soil, c, (g)	76.2	79.0	63.1	64.2	74.1	77.5	
* Moisture Content, w, (%)	7.5	9.6	11.9	16.0	19.6	23.4	

* Moisture Content, w = (b - c)/(c - a) x 100

Maximum Dry Density (Lb/Cu- 105.6
Optimum Moisture Content (% 13.0

Birmingham Coal & Coke Co., Inc
Gooden Creek #2 Mine, Basin 037, Dam Material
Moisture Density Relationship
(Proctor Method)



ASTM D-698 Method C	Water Content %	Specific Gravity	%> No. 4	%< No. 200	LL %	PL %	PI %
			23.10	22.30	24.6	19.1	5.5

Sample Description, Classification and Location	Sample No.: Basin 037 Dam Material
Coarse Grained Silty Clayey Sand (SM-SC)	Optimum Moisture Content= 13.0 Maximum Dry Density = 105.6

SIEVE ANALYSIS

(ASTM C136-96a)

Company Name: Birmingham Coal & Coke
Location: Gooden Creek #2 Mine
Sample I.D.: Basin 037
Description: Dam Material

Sample Date: 5/28/13
Analyzed By: MB/RW
Date Analyzed: 6/3/13
Requested By: JRW

Weight of Oven Dry Sample (W): **1029.0 Grams**

Sieve No.	Sieve + Sample Weight	Sieve Weight	Sample Weight Retained	Percent of Total Retained	Cumulative Weight Percent	Percent Retained	Percent Finer
1"	0.0	0.0	0.0	0.0	0.0	0.0	100.0
3/4"	0.0	0.0	0.0	0.0	0.0	0.0	100.0
1/2"	572.0	540.0	32.0	3.1	3.1	3.1	96.9
4	716.0	513.0	203.0	20.0	23.1	23.1	76.9
10	650.0	462.0	188.0	18.5	41.6	41.6	58.4
40	560.0	383.0	177.0	17.4	59.1	59.1	40.9
200	522.0	333.0	189.0	18.6	77.7	77.7	22.3
Pan	589.0	362.0	227.0	22.3	100.0	100.0	0.0
		Total Weight (W1):	1016.0				

SOIL CLASSIFICATION

Unified System (ASTM D-2487)

Liquid Limit: 24.6
Plastic Limit: 19.1
Plasticity Index: 5.5

Soil Classification: SM-SC

Coarse Grained
Silty, Clayey Sand

Effective Cohesion: 1.2500 psi
Total Cohesion: 1.940 psi
Permeability: 1.40 ft/yr
Maximum Dry Density: 120.0 pcf
Optimum Moisture: 13.3 %
Effective Cohesion: 180.0 psf
Angle of Internal Friction: 30.54 degrees
Mass Unit Weight: 135.96 pcf

SIEVE ANALYSIS

(ASTM C136-96a)

Company Name: Birmingham Coal & Coke
Location: Gooden Creek #2 Mine
Sample I.D.: Basin 037
Description: Foundation

Sample Date: 5/28/13
Analyzed By: MB/RW
Date Analyzed: 6/3/13
Requested By: JRW

Weight of Oven Dry Sample (W): **1034.0 Grams**

Sieve No.	Sieve + Sample Weight	Sieve Weight	Sample Weight Retained	Percent of Total Retained	Cumulative Weight Percent	Percent Retained	Percent Finer
1"	0.0	0.0	0.0	0.0	0.0	0.0	100.0
3/4"	0.0	0.0	0.0	0.0	0.0	0.0	100.0
1/2"	589.0	540.0	49.0	4.8	4.8	4.8	95.2
4	828.0	513.0	315.0	30.7	35.5	35.5	64.5
10	680.0	462.0	218.0	21.3	56.8	56.8	43.2
40	525.0	383.0	142.0	13.9	70.6	70.6	29.4
200	410.0	333.0	77.0	7.5	78.1	78.1	21.9
Pan	586.0	362.0	224.0	21.9	100.0	100.0	0.0
		Total Weight (W1):	1025.0				

SOIL CLASSIFICATION

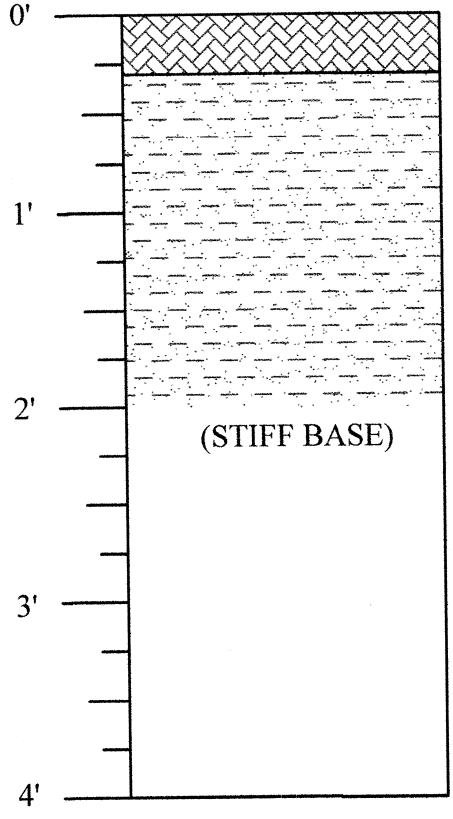
Unified System (ASTM D-2487)

Liquid Limit: 20.1
Plastic Limit: 18.4
Plasticity Index: 1.3

Soil Classification: SM

Coarse Grained
Silty Sand

Effective Cohesion: 1.8750 psi
Total Cohesion: 6.528 psi
Permeability: 12.30 ft/yr
Maximum Dry Density: 115.0 pcf
Optimum Moisture: 14.9 %
Effective Cohesion: 270.0 psf
Angle of Internal Friction: 33.02 degrees
Mass Unit Weight: 132.14 pcf



INTERVAL:	DESCRIPTION:
0' - 0.3'	Surface Material
0.3' - 2.0'	Silty Sand

SAMPLED BY:MWB on 05/28/13

BIRMINGHAM COAL AND COKE CO., INC.

DRAWN BY: JRW	DATE: 06/05/13	GOODEN CREEK #2, P-39-- BASIN 037P FOUNDATION INVESTIGATION
APPROVED BY: J.R.W.	DATE: 06/05/13	
SCALE: 1" = 1'	SHEET: 1 OF 1	CARBON HILL, GLENN ALEN, GOLD MINE & LYNN USGS QUADRANGLE