NORTH PRATT MINING, LLC.

PRATT NO.1 MINE

P-3972

COARSE REFUSE AREA NO. 1
Reactivated / Modification

FOR

ALABAMA SURFACE MINING COMMISSION

BY

PERC ENGINEERING CO., INC.

P.O. BOX 1712

JASPER, AL 35502

Phone: (205)-384-5553

APRIL 19, 2012

U.S. Department of Labor

Mine Safety and Health Administration
135 Gemini Circle, Suite 213
Birmingham, Alabama 35209-5842

DISTRICT COPY

June 27, 1997

Bobby G. Meadows, Jr., President
Pratt Mine, I.D. No. 01-03101
Fossil Ridge Mining Company, Inc.
Post Office Box 9
Graysville, Alabama 35073

Dear Mr. Meadows:

This will acknowledge the receipt of your plan or reporting requirements for the construction of the following Refuse Area No. 1, Site I.D. No. 1211-AL7-00160, submitted under Section 77-215-2 of the CFR.

Section 77-215-1 of the Code of Federal Regulations refers to the requirements of a permanent identification marker, at least six feet high, to show the refuse pile identification number as assigned by the District Manager, the name associated with the refuse pile and the name of the person owning, operating or controlling the refuse pile. The identification marker shall be located on or immediately adjacent to the site within the time specified in paragraphs (a) and (b) of this section as applicable. The I.D. Number, Field Hazard Classification and Configuration assigned to Refuse Area No. 1 is 00160-00-IV-VII.

This recommendation for acceptance of the above plan is bases upon a site inspection on June 6, 1997. If you have any questions, please contact the Birmingham District Office at (205) 290-7300.

Very truly yours,

For: Michael J. Lawless
District Manager

TOTAL P.02

PERC
ENGINEERING CO., INC.

Telephone: (205) 384-5553
Facsimile: (205) 295-3114 - Main Building
(205) 295-3115 - Water Lab
Web Address: www.percengineering.com

April 19, 2013

Mr. Gary Heaton, P.E.
Alabama Surface Mining Commission
Post Office Box 2390
Jasper, Alabama 35502-2390

RE: North Pratt Mining LLC
North Pratt No. 1 Mine
P-3972

Dear Gary:

I hereby certify the attached detailed coarse refuse disposal area modification design plans for Coarse Refuse Disposal Area No. 1 Reauthorization / Modification for the above referenced mine are in accordance with the Regulations of the Alabama Surface Mining Commission as adopted by Act 81-435 of December 18, 1981 and amended to date, and are true and correct to the best of my knowledge and belief.

If you have any questions or required additional information, please feel free to call.

Sincerely,
PERC Engineering Co., Inc.

Leslie G. Stephens, P.L.S. & P.E.
AL Reg. No. 14117-E

UPDATES

The following updates have been made to the Coarse Refuse Disposal Area No. 1 Reauthorization / Modification Detailed Design Plans:

1) Include provisions, as requested by the Regulatory Authority, that once the processing plant becomes operational the refuse will be sampled & analyzed for the acid base account to determine lime requirements for raising the acid-base account to +15 and the analysis with lime requirement calculation for each 2 foot lift will be submitted along with the quarterly certification.

2) Add provisions for the removal of the existing cover material from the existing refuse mound to be stockpiled along with the topsoil and subsoil for use at the time of abandonment.

3) Submit modified grading plan and abandonment plan.

INTRODUCTION

The purpose of this study was to fulfill The Mine Safety and Health Administration's requirements for the design and plan approval of proposed waste banks as outlined in Title 30 - Mineral Resources, Chapter 1, Part 77, dated July 1, 1991, and Alabama Surface Mining Commission's regulations.

INVESTIGATIVE FINDINGS

Four (4) borings were made at or near the proposed waste bank site. The boring and test site locations are shown on drawing 4 of 6. The boring methodology and results are discussed in the paragraphs entitled, Field Testing and Sampling, Boring Method, Boring Result, and Field Density Testing. Results from the borings indicate a shale and sandstone foundation material overlain by silt and clay. The waste bank will consist of coarse & fine refuse produced by the Pratt No. 1 Mine. Our findings indicate that the design slopes as shown in the accompanying set of plans are stable with factors of safety higher than those recommended in the Design Guidelines prepared by the regulatory authorities.

Our field and laboratory testing and the computer output data from the stability analysis are included in the sections on Investigative Procedures and Stability Analyses, respectively.

SITE LOCATION

The waste bank site is located in Jefferson County, Alabama approximately one (1) mile West of the Graysville Community. The waste bank area is located in the SW 1/4 of NE 1/4 of Section 30, Township 16 South, Range 4 West, Jefferson County, Alabama, as found on the Adamsville, Brookside, Dora, and Sylvan Springs U.S. Quadrangle. (See Map 1 of 6 for site location) The waste bank site will be located on land under control by North Pratt Minning L.L.C. The construction area is located a safe distance away from all air shafts, preparation plants, tipples, and other such installations. No burning waste banks, abandoned mine opens, or steamlines exist at this facility.

SITE GEOLOGY

The disposal site is underlain by rocks of the Pottsville Formation of the Pennsylvania age. This strata consist primarily of alternating sandstones, shaley sandstones, shales, sandy shales, coal seams, and underclays. No exposed coal beds are located within the disposal area. The strike of the Pottsville formations in the area is in the northeasterly direction. The formation dips to the northwest at a very angle.

The area is in the Appalachian Plateau physiographic province, and seismic zone 2. Faults were not found to exist at the proposed disposal site. Faults in the vicinity are not active and pose no imminent hazard to the waste bank.

UNDERGROUND MINE LOCATIONS

Coarse Refuse Area No. 1 Reactivated / Modification was partially filled under P-3768. It is underlain by the abandoned Bessie Underground Mine. The underground workings are approximately 475 feet below the surface of the permit area. From the attached underground mapping the following information was obtained: a panel width of 450', a pillar size of 50' X 50', a center-center pillar width of 70', a seam thickness of 8', and an extraction ratio of 49%. Utilizing the information form "Surface Subsidence Caused by Underground Mining" provided by the Office for Informational Services and Technical Liaison of the University of Kentucky and the U.K. National Coal Board's method of predicting effects of subsidence, the following information was calculated:

SM = Maximum Subsidence = (SF)(m)

SF = Subsidence Factor, Taken from Figure 7 (See Attached) = 0.1.

m = Seam Thickness = 8 feet.

SM = (0.1)(8) = 0.8 feet.

From Table 1 the following subsidence profile table was developed:

Subsidence Profile Table

(1) s/S	0	.05	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	.95	1.0
(2)	0	0.4	0.8	.16	.24	.32	.40	.48	.56	.64	.72	.76	.80
(3)	1.18	.70	.59	.49	.43	.39	.35	.32	.27	.23	.16	.11	0
(4)	561	333	280	233	204	185	166	152	128	109	76	52	0

(1) Values of s/S, taken from Table 1, (See Attached).

(2) Subsidence in feet. Obtained by multiplying row (1) by Maximum Subsidence (SM) = 0.8'.

Fig. 7 Subsidence factor vs seam depth (pillar width and extraction ratio for room-and-pillar mining without pillar extraction).

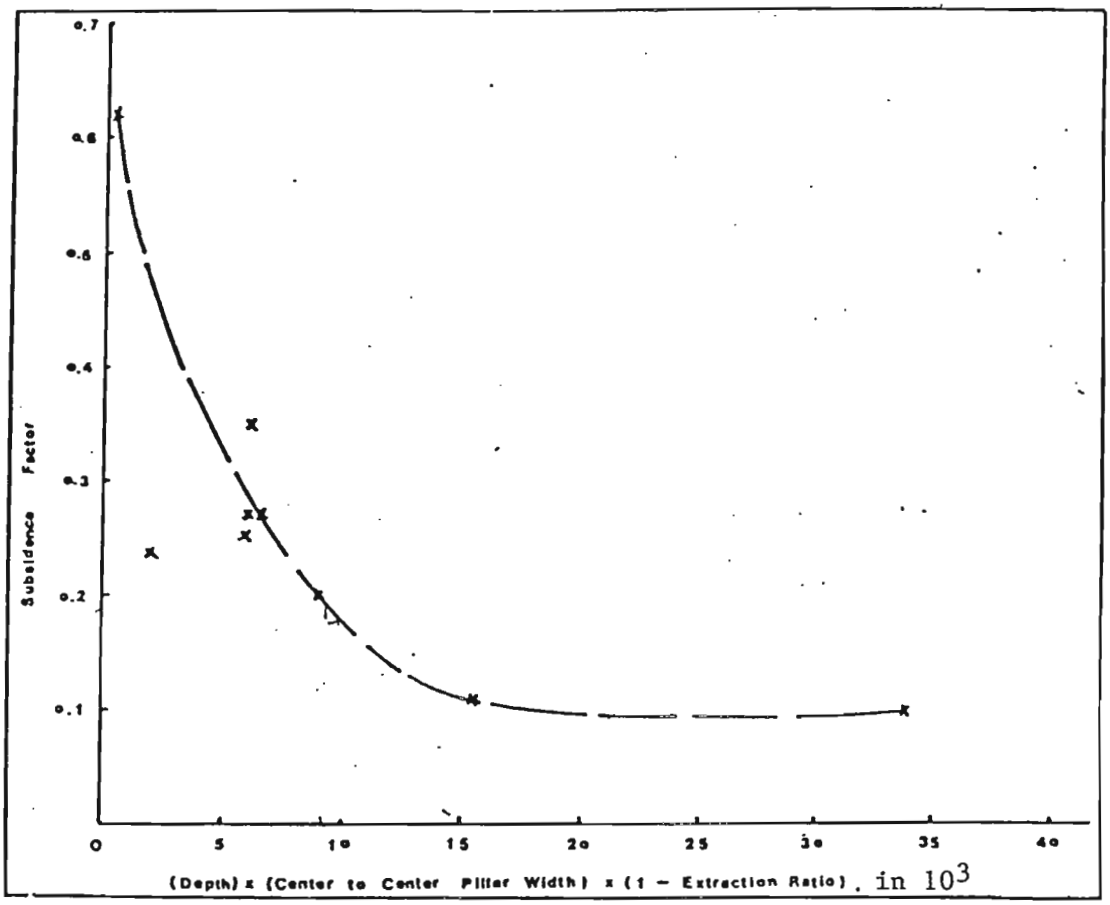


TABLE-1: Relationship between w/h and d/h for various points on a subsidence profile

Values of s/S	0	0.05	0.10	0.20	0.30	0.40	0.50	0.60	0.70	0.80	0.90	0.95	1.00
w/h RATIO OF PANEL	DISTANCES FROM PANEL CENTRE IN TERMS OF DEPTH												
2.6	2.00	1.51	1.39	1.29	1.24	1.19	1.16	1.12	1.08	1.03	0.95	0.87	0.41
2.4	1.90	1.41	1.29	1.19	1.14	1.10	1.06	1.02	0.98	0.93	0.85	0.77	0.31
2.2	1.80	1.31	1.19	1.09	1.04	1.00	0.96	0.92	0.88	0.83	0.75	0.67	0.23
2.0	1.70	1.21	1.09	0.99	0.94	0.90	0.86	0.82	0.78	0.73	0.65	0.57	0.16
1.8	1.60	1.11	1.00	0.90	0.84	0.80	0.76	0.72	0.68	0.63	0.55	0.47	0.10
1.6	1.50	1.01	0.90	0.80	0.74	0.70	0.66	0.62	0.58	0.53	0.45	0.37	0.05
1.4	1.40	0.91	0.80	0.70	0.64	0.60	0.56	0.52	0.48	0.43	0.35	0.27	0.01
1.3	1.35	0.86	0.75	0.65	0.59	0.55	0.51	0.47	0.43	0.38	0.30	0.23	0
1.2	1.30	0.81	0.70	0.60	0.54	0.50	0.46	0.42	0.38	0.33	0.25	0.19	0
1.1	1.25	0.77	0.65	0.55	0.50	0.45	0.42	0.38	0.34	0.29	0.21	0.16	0
1.00	1.20	0.72	0.61	0.51	0.45	0.41	0.37	0.33	0.29	0.24	0.18	0.13	0
0.98	1.19	0.71	0.60	0.50	0.44	0.40	0.36	0.33	0.28	0.24	0.17	0.12	0
0.96	1.18	0.70	0.59	0.49	0.43	0.39	0.35	0.32	0.27	0.23	0.16	0.11	0
0.94	1.17	0.69	0.58	0.48	0.42	0.38	0.34	0.31	0.26	0.22	0.16	0.11	0
0.92	1.16	0.68	0.57	0.47	0.41	0.37	0.33	0.30	0.26	0.21	0.15	0.10	0
0.90	1.15	0.68	0.57	0.46	0.40	0.36	0.32	0.29	0.25	0.20	0.14	0.10	0
0.88	1.14	0.67	0.56	0.45	0.40	0.36	0.32	0.28	0.24	0.20	0.13	0.10	0
0.86	1.13	0.66	0.55	0.45	0.39	0.35	0.31	0.27	0.23	0.19	0.13	0.09	0
0.84	1.12	0.65	0.54	0.44	0.38	0.34	0.30	0.26	0.22	0.18	0.12	0.09	0
0.82	1.11	0.64	0.53	0.43	0.37	0.33	0.29	0.26	0.21	0.17	0.12	0.08	0
0.80	1.10	0.63	0.52	0.42	0.36	0.32	0.28	0.25	0.21	0.17	0.11	0.08	0
0.78	1.09	0.63	0.52	0.42	0.36	0.32	0.28	0.24	0.20	0.16	0.11	0.08	0
0.76	1.08	0.62	0.51	0.41	0.35	0.31	0.27	0.23	0.20	0.16	0.11	0.07	0
0.74	1.07	0.61	0.50	0.40	0.34	0.30	0.26	0.23	0.19	0.15	0.10	0.07	0
0.72	1.06	0.61	0.50	0.39	0.34	0.30	0.26	0.22	0.18	0.15	0.10	0.07	0
0.70	1.05	0.60	0.49	0.39	0.33	0.29	0.25	0.21	0.18	0.14	0.10	0.07	0
0.68	1.04	0.60	0.49	0.38	0.32	0.28	0.24	0.21	0.17	0.14	0.10	0.07	0
0.66	1.03	0.60	0.48	0.38	0.32	0.28	0.24	0.20	0.17	0.14	0.09	0.06	0
0.64	1.02	0.59	0.48	0.37	0.31	0.27	0.23	0.20	0.17	0.13	0.09	0.06	0
0.62	1.01	0.59	0.47	0.37	0.31	0.27	0.23	0.19	0.16	0.13	0.09	0.06	0
0.60	1.00	0.59	0.47	0.36	0.30	0.26	0.22	0.19	0.16	0.13	0.09	0.06	0
0.58	0.99	0.59	0.47	0.35	0.30	0.25	0.22	0.18	0.16	0.13	0.09	0.06	0
0.56	0.98	0.59	0.47	0.35	0.29	0.25	0.21	0.18	0.15	0.12	0.08	0.06	0
0.54	0.97	0.59	0.47	0.34	0.29	0.25	0.21	0.18	0.15	0.12	0.08	0.06	0
0.52	0.96	0.59	0.47	0.34	0.28	0.24	0.21	0.17	0.15	0.12	0.08	0.06	0
0.50	0.95	0.59	0.47	0.34	0.28	0.24	0.21	0.17	0.15	0.12	0.08	0.06	0
0.48	0.94	0.59	0.47	0.33	0.28	0.23	0.20	0.17	0.15	0.12	0.08	0.06	0
0.46	0.93	0.59	0.47	0.33	0.28	0.23	0.20	0.17	0.15	0.12	0.08	0.06	0
0.44	0.92	0.59	0.47	0.33	0.28	0.23	0.20	0.17	0.15	0.12	0.08	0.06	0
0.42	0.91	0.59	0.47	0.34	0.28	0.24	0.20	0.17	0.15	0.12	0.08	0.06	0
0.40	0.90	0.59	0.47	0.34	0.28	0.24	0.21	0.18	0.15	0.12	0.08	0.06	0
0.38	0.89	0.60	0.48	0.35	0.29	0.24	0.21	0.18	0.15	0.12	0.08	0.06	0
0.36	0.88	0.60	0.48	0.35	0.29	0.25	0.21	0.18	0.15	0.12	0.08	0.06	0
0.34	0.87	0.60	0.49	0.36	0.30	0.25	0.22	0.19	0.16	0.12	0.08	0.06	0
0.32	0.86	0.60	0.49	0.37	0.31	0.26	0.22	0.20	0.16	0.13	0.09	0.06	0
0.30	0.85	0.61	0.50	0.38	0.32	0.27	0.23	0.20	0.17	0.13	0.09	0.06	0
0.28	0.84	0.61	0.51	0.39	0.33	0.28	0.24	0.21	0.18	0.14	0.09	0.07	0
0.26	0.83	0.62	0.52	0.41	0.35	0.30	0.26	0.22	0.19	0.15	0.10	0.07	0
0.24	0.82	0.62	0.53	0.43	0.36	0.32	0.28	0.24	0.20	0.16	0.11	0.07	0
0.22	0.81	0.63	0.55	0.46	0.39	0.34	0.30	0.26	0.21	0.17	0.11	0.08	0
0.20	0.80	0.64	0.57	0.48	0.41	0.37	0.32	0.28	0.23	0.19	0.13	0.08	0

TABLE 4 Relationship for various strain values in a subsidence profile

	Extension (+E)								Compression (—E)									
Values of e/E	0	0.20	0.40	0.60	0.80	1.00	0.80	0	0.20	0.40	0.60	0.80	1.00	0.80	0.60	0.40	0.20	0
w/h RATIO OF PANEL	DISTANCES FROM PANEL CENTRE IN TERMS OF DEPTH																	
3.0	2.2	1.78	1.67	1.61	1.56	1.50	1.46	1.36	1.34	1.31	1.28	1.25	1.19	1.10	1.03	0.96	0.90	0.70
2.6	2.0	1.58	1.47	1.41	1.36	1.30	1.26	1.16	1.14	1.11	1.08	1.05	0.99	0.90	0.83	0.77	0.70	0.50
2.2	1.8	1.38	1.27	1.21	1.15	1.10	1.06	0.96	0.94	0.91	0.88	0.85	0.79	0.70	0.63	0.57	0.50	0.30
2.0	1.7	1.28	1.17	1.11	1.05	1.00	0.96	0.86	0.84	0.81	0.78	0.75	0.69	0.60	0.53	0.47	0.40	0.20
1.8	1.6	1.17	1.07	1.01	0.95	0.90	0.86	0.76	0.73	0.71	0.68	0.65	0.59	0.50	0.43	0.37	0.30	0.10
1.6	1.5	1.08	0.97	0.91	0.85	0.80	0.76	0.66	0.63	0.61	0.58	0.55	0.49	0.40	0.33	0.27	0.20	0.03
1.4	1.4	0.98	0.87	0.81	0.75	0.70	0.66	0.56	0.53	0.51	0.48	0.45	0.39	0.30	0.23	0.17	0.10	0
1.3	1.35	0.93	0.82	0.76	0.70	0.65	0.61	0.51	0.49	0.46	0.43	0.40	0.34	0.25	0.18	0.12	0.05	0
1.2	1.3	0.88	0.77	0.71	0.66	0.61	0.56	0.46	0.44	0.41	0.38	0.35	0.29	0.20	0.13	0.07	0.02	0
1.1	1.25	0.83	0.72	0.66	0.61	0.56	0.52	0.42	0.39	0.37	0.33	0.31	0.24	0.15	0.09	0.03	0	0
1.0	1.2	0.79	0.68	0.62	0.57	0.51	0.47	0.37	0.35	0.32	0.29	0.26	0.20	0.10	0.05	0	0	0
0.98	1.19	0.78	0.67	0.61	0.56	0.50	0.46	0.36	0.34	0.31	0.28	0.25	0.19	0.09	0.04	0	0	0
0.96	1.18	0.77	0.66	0.60	0.55	0.49	0.45	0.35	0.33	0.30	0.27	0.24	0.18	0.09	0.04	0	0	0
0.94	1.17	0.76	0.65	0.59	0.54	0.48	0.44	0.35	0.32	0.30	0.26	0.23	0.17	0.08	0.03	0	0	0
0.92	1.16	0.75	0.64	0.58	0.53	0.47	0.43	0.34	0.31	0.29	0.25	0.22	0.16	0.07	0.02	0	0	0
0.90	1.15	0.74	0.63	0.57	0.52	0.46	0.42	0.33	0.30	0.28	0.24	0.21	0.15	0.06	0.02	0	0	0
0.88	1.14	0.73	0.62	0.56	0.51	0.46	0.41	0.32	0.29	0.27	0.24	0.21	0.15	0.05	0.01	0	0	0
0.86	1.13	0.72	0.61	0.55	0.50	0.45	0.40	0.31	0.29	0.26	0.23	0.20	0.14	0.05	0	0	0	0
0.84	1.12	0.71	0.60	0.54	0.49	0.44	0.39	0.30	0.28	0.25	0.22	0.19	0.13	0.04	0	0	0	0
0.82	1.11	0.70	0.59	0.53	0.48	0.43	0.38	0.29	0.27	0.25	0.21	0.18	0.12	0.03	0	0	0	0
0.80	1.10	0.69	0.58	0.53	0.48	0.42	0.37	0.29	0.26	0.24	0.20	0.17	0.11	0.02	0	0	0	0
0.78	1.09	0.68	0.57	0.52	0.47	0.41	0.36	0.28	0.26	0.23	0.20	0.17	0.11	0.02	0	0	0	0
0.76	1.08	0.67	0.57	0.51	0.46	0.40	0.36	0.27	0.25	0.22	0.19	0.16	0.10	0.01	0	0	0	0
0.74	1.07	0.67	0.56	0.50	0.45	0.39	0.35	0.26	0.24	0.22	0.18	0.15	0.09	0.01	0	0	0	0
.072	1.06	0.66	0.55	0.49	0.44	0.38	0.34	0.26	0.24	0.21	0.17	0.15	0.09	0	0	0	0	0
0.70	1.05	0.65	0.54	0.48	0.44	0.37	0.33	0.25	0.23	0.20	0.17	0.14	0.08	0	0	0	0	0
0.68	1.04	0.64	0.54	0.47	0.43	0.37	0.32	0.24	0.22	0.20	0.16	0.13	0.07	0	0	0	0	0
0.66	1.03	0.64	0.53	0.47	0.42	0.36	0.31	0.24	0.22	0.19	0.16	0.13	0.07	0	0	0	0	0
0.64	1.02	0.63	0.53	0.46	0.41	0.35	0.31	0.23	0.21	0.19	0.15	0.12	0.06	0	0	0	0	0
0.62	1.01	0.63	0.52	0.45	0.41	0.34	0.30	0.23	0.21	0.18	0.15	0.12	0.05	0	0	0	0	0
0.60	1.00	0.62	0.52	0.45	0.40	0.34	0.29	0.22	0.20	0.18	0.14	0.11	0.05	0	0	0	0	0
0.58	0.99	0.62	0.51	0.44	0.39	0.33	0.29	0.22	0.19	0.17	0.14	0.10	0.04	0	0	0	0	0
0.56	0.98	0.61	0.51	0.44	0.39	0.33	0.28	0.22	0.19	0.17	9.13	0.10	0.03	0	0	0	0	0
0.54	0.97	0.61	0.51	0.43	0.39	0.32	0.28	0.21	0.19	0.16	0.13	0.09	0.03	0	0	0	0	0
0.52	0.96	0.60	0.51	0.43	0.38	0.32	0.27	0.21	0.18	0.16	0.12	0.09	0.02	0	0	0	0	0
0.50	0.95	0.60	0.51	0.43	0.38	0.32	0.27	0.21	0.18	0.16	0.12	0.08	0.02	0	0	0	0	0
0.48	0.94	0.60	0.51	0.43	0.38	0.31	0.27	0.20	0.18	0.15	0.12	0.08	0.01	0	0	0	0	0
0.46	0.93	0.60	0.51	0.43	0.38	0.31	0.27	0.20	0.18	0.15	0.11	0.08	0.01	0	0	0	0	0
0.44	0.92	0.60	0.51	0.43	0.39	0.31	0.27	0.20	0.18	0.15	0.11	0.07	0.01	0	0	0	0	0
0.42	0.91	0.60	0.51	0.44	0.39	0.31	0.27	0.20	0.18	0.15	0.11	0.07	0	0	0	0	0	0
0.40	0.90	0.61	0.52	0.45	0.40	0.32	0.28	0.21	0.18	0.15	0.11	0.07	0	0	0	0	0	0
0.38	0.89	0.61	0.53	0.45	0.41	0.32	0.28	0.21	0.18	0.15	0.11	0.07	0	0	0	0	0	0
0.36	0.88	0.62	0.53	0.46	0.42	0.33	0.29	0.21	0.18	0.15	0.11	0.07	0	0	0	0	0	0
0.34	0.87	0.62	0.54	0.48	0.43	0.34	0.30	0.22	0.19	0.15	0.11	0.07	0	0	0	0	0	0
0.32	0.86	0.63	0.55	0.49	0.45	0.35	0.30	0.22	0.19	0.16	0.12	0.97	0	0	0	0	0	0
0.30	0.85	0.65	0.57	0.51	0.47	0.37	0.32	0.23	0.20	0.16	0.12	0.08	0	0	0	0	0	0
0.28	0.84	0.66	0.58	0.54	0.49	0.39	0.33	0.24	0.21	0.17	0.13	0.08	0	0	0	0	0	0
0.26	0.83	0.68	0.60	0.57	0.51	0.41	0.35	0.26	0.22	0.18	0.14	0.09	0	0	0	0	0	0
0.24	0.82	0.70	0.63	0.60	0.54	0.44	0.37	0.28	0.23	0.20	0.15	0.10	0	0	0	0	0	0
0.22	0.81	0.72	0.66	0.63	0.58	0.47	0.39	0.30	0.25	0.21	0.16	0.11	0	0	0	0	0	0
0.20	0.80	0.74	0.69	0.66	0.61	0.49	0.42	0.32	0.27	0.23	0.18	0.12	0	0	0	0	0	0

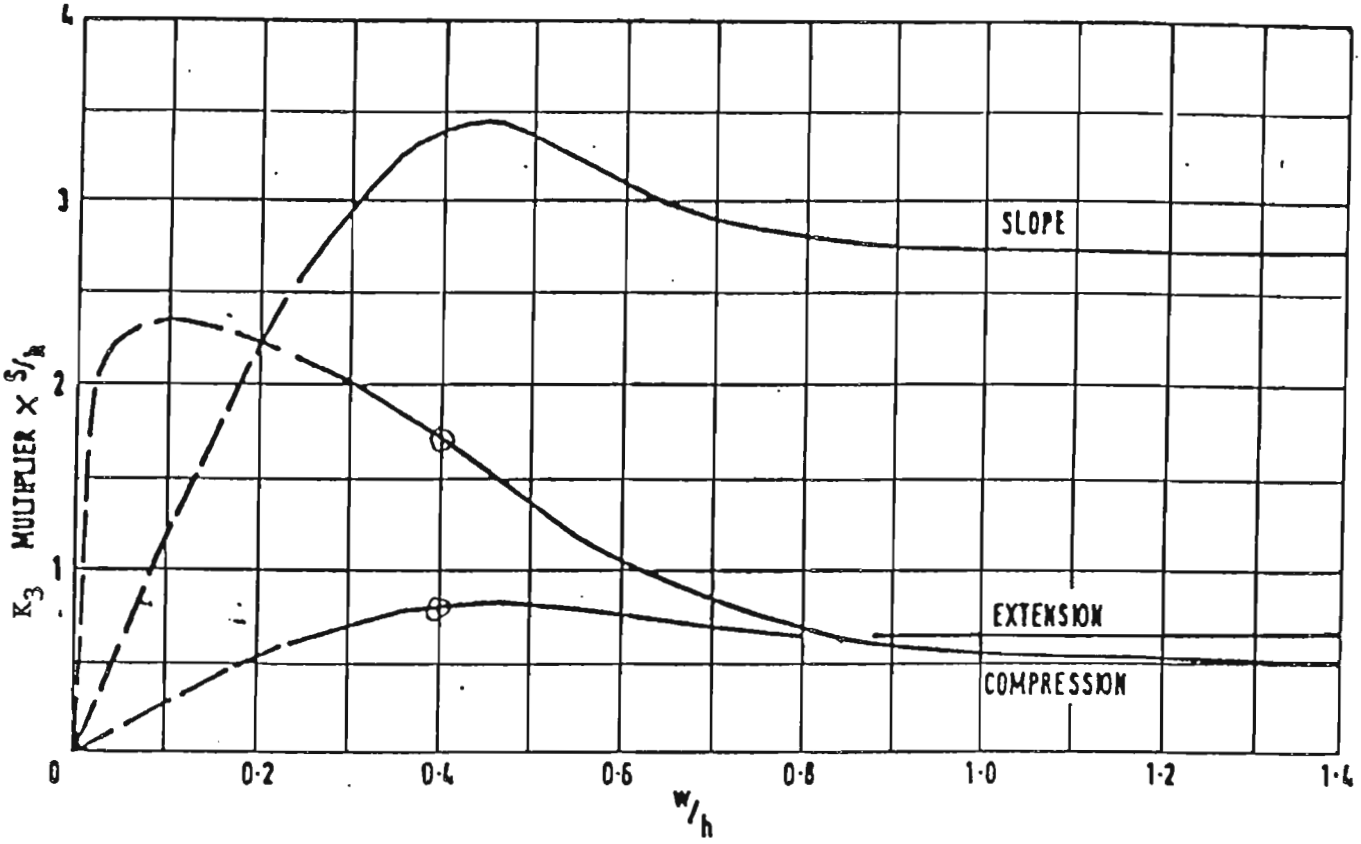


Fig. 9.4.10 Graph for predicting maximum slope and strain for various width/depth ratios of the opening (12). Courtesy U.K. National Coal Board.

(3) Taken from Table 1, for a panel width to depth ratio of 450/475, or 0.96.

(4) Horizontal location of subsidence. Obtained by multiplying row (3) by depth (475').

From Figure 9.4.10, and Table 4 the following strain profile table was developed:

Strain Profile Table

Extension Zone Compression Zone

(1)	0	.2	.4	.6	.8	1	.8	0	.2	.4	.6	.8	1	.8	.6	.4	.2	0
(2)	0	0.2	0.4	0.6	0.8	1.0	0.8	0	0.2	0.4	0.6	0.8	1.0	0.8	0.6	0.4	0.2	0
(3)	1.18	.77	.66	.60	.55	.49	.45	.35	.33	.30	.27	.24	.18	.09	.04	0	0	0
(4)	561	366	314	285	262	233	214	166	157	143	129	114	86	43	19	0	0	0

(1) Values of e/E, taken from Table 4, (See Attached).

(2) Strain expressed in 10^{-3}. Obtained by multiplying row (1) by K_3 multiplier obtained from Figure 9.4.10., (See Attached) for panel width to depth ration of 450/475 = .96, and subsidence to depth ration of 0.8/475 = 0.0017, K_3 extension = (.0017)(.58) = .001 and K_3 compression = (.0017)(.52) = .001.

(3) Taken from Table 4., for a panel width to depth ratio of 450/475, or .96.

(4) Horizontal location of strain value. Obtained by multiplying row (3) by depth (475').

From the above tables, the surface disturbance caused by subsidence ranges from the settling of the surface from **0.5 inches to a maximum of 9.6 inches**, with strain values ranging from **.0002 to .001 extension and .0002 to .001 compression.** Note that the minimum subsidence and strain values are at the maximum horizontal distance from the center of the panel, 500 feet, and the maximum subsidence and strain values are located directly over the center of the panel. The effects to a waste bank would range from **minor** stress cracking, through which minor seepage may occur from surface diversions, to the settling of surface elevations of the structure. These effects would not be severe enough to cause a massive failure of the waste bank overlying the underground workings. In addition, Coarse Refuse Disposal Area No. 1 is underlain by the abandoned workings of the Lindbergh No. 6 Mine of the Pratt Seam. The workings are 20' to 180' below the surface with a seam thickness of approximately 3'. Dr. Christopher Mark of the U.S. Bureau of Mines, phone no. (412)-892-6552, was contacted to aid in evaluating the effects to the waste bank as a result of subsidence from the Lindbergh Mine No. 6. Dr. Mark stated that due to the age of the workings being in excess of 30 years old and the fact that Coarse Refuse Disposal Area No. 1 is a non-impounding structure, no additional effects to the waste bank other than those listed above would be present as a result of subsidence. In a effort to ensure stability of the structures, the structures will be monitored bi-monthly by personnel from

North Pratt Mining, LLC.., to ensure that the waste bank is functioning properly. In the event that subsidence causes damage to the structure, all damage will be repaired immediately. Repairs may consist of the increasing of the settled portion of the surface, repair to surface routing diversions, and the repair to and slope failures along the perimeter of the waste bank.

WASTE BANK DESCRIPTION

The waste bank will consist of the filling of a natural hollow. Coarse refuse produced at the Pratt No. 1 Mine will be transported to the waste bank area using conveyors and mobile equipment. The coarse refuse will be spread in 24 inch (maximum) horizontal lifts and compacted to 90% of the standard proctor density.

FIELD TESTING AND SAMPLING

Field operations performed by PERC Engineering Co., Inc., and Walker Drilling Services were conducted in accordance with ASTM standard specifications where applicable, as well as procedures adopted for the specific appraisal of conditions existing at the Pratt Mine site.

BORING METHOD

Four (4) borings were performed at the proposed Coarse Refuse Area No. 1 site by Dale Farley of Walker Drilling Services from 4-21-97 to 4-22-97. The drill was operated by Dale Farley. All borings were made using a Gardener Denver GD1000 Rotary Drill. This set up was rotated at high speeds and cuttings were brought to the surface by circulating air under high pressure and a core barrel system. See the attached drillers logs.

BORING RESULTS

Resulting values and analysis of the borings indicate a solid foundation material. Foundation material at the waste bank site as indicated, by samples, are found to be competent shale and sandstone overlain by silt and clay. (See Map 4 of 6 for Boring Sites and Results and Cross-Sections).

LABORATORY TESTING

Laboratory testing was conducted by PERC Engineering Co., Inc., Jasper, Alabama and Ground Engineering and Testing Services, Birmingham, Alabama. The samples selected for the testing program and the procedures used for the various tests are presented in the following discussion.

Page _____

LOG OF DRILLING

AREA MR PRATT No. BH-1

LAND TITLE _____

County JEFF. State AL

SEC _____ TWP _____ RG _____ LOC _____

Driller WALKER DRILLING DF Date Drilled 4-21-97

Est. Elev. _____ Act. Elev. _____

TOTAL FT. & 10ths		STRATA	THICKNESS FT. & 10ths	
0	0	SILT & CLAY	7	0
7	0	SANDSTONE, WEATH. w/CLAY	16	0
23	0	SANDSTONE, WEATH.	3	0
26	0	SANDSTONE	2	0
28	0	SANDSTONE; SHALE @ 30'	4	0
32	0	SHALE, WEATHERED	1	0
33	0	SHALE	2	0
35	0	SANDSTONE w/SHALE LENS	13	0
48	0	SHALE w/SANDSTONE LENS	7	0
55	0	SHALE, SANDY w/SS LENS	41	0
96	0	SHALE	9	0
105	0	SHALE w/OCC. SS LENS.	57	0
162	0	TOTAL DEPTH		

Page _____

LOG OF DRILLING

AREA MR PRATT No. BH-2

LAND TITLE _____

County JEFF. State AL

SEC _____ TWP _____ RG _____ LOC _____

Driller WALKER DRILLING DF Date Drilled 4-21-22, 1997

Est. Elev. _____ Act. Elev. _____

TOTAL FT. & 10ths		STRATA	THICKNESS FT. & 10ths	
0	0	SILT & CLAY	8	0
8	0	SANDSTONE, WEATH. w/CLAY	9	0
17	0	SANDSTONE, WEATHERED	5	0
22	0	CLAY	5	0
27	0	SANDSTONE, WEATHERED	3	0
30	0	SHALE, WEATHERED	3	0
33	0	SANDSTONE w/SHALE LENSES	1	0
34	0	SHALE	1	0
35	0	SANDSTONE w/OCC. SHALE LENS.	12	0
47	0	SHALE w/OCC. SS LENSES	11	0
58	0	SHALE, SANDY w/OCC. SS LENS.	45	0
103	0	SHALE	12	0
115	0	SHALE w/OCC. SS LENS.	31	0
146	0	SANDSTONE	1	0
147	0	SHALE	13	0
160	0	SHALE w/SS LENSES	2	0
162	0	TOTAL DEPTH		

Page _____

LOG OF DRILLING

AREA MR PRATT No. BH-3

LAND TITLE _____

County JEFF. State AL

SEC _____ TWP _____ RG _____ LOC _____

Driller WALKER DRILLING DF Date Drilled 4-22-97

Est. Elev. _____ Act. Elev. _____

TOTAL FT. & 10ths		STRATA	THICKNESS FT. & 10ths	
0	0	SHALE, WEATHERED	12	0
12	0	SHALE	1	0
13	0	SANDSTONE	1	0
14	0	SANDSTONE w/SHALE LENS	3	0
17	0	SHALE	1	0
18	0	SANDSTONE	8	0
26	0	SHALE	3	0
29	0	SANDSTONE	0	5
29	5	SHALE	52	5
82	0	SANDSTONE	8	0
90	0	SHALE	2	0
92	0	SANDSTONE	2	0
94	0	SHALE	6	0
100	0	TOTAL DEPTH		

Page _____

LOG OF DRILLING

AREA MR. PRATT No. BH-4

LAND TITLE _____

County JEFF. State AL

SEC _____ TWP _____ RG _____ LOC _____

Driller APH Date Drilled 7-14-97

Est. Elev. _____ Act. Elev. _____

TOTAL FT. & 10ths		STRATA	THICKNESS FT. & 10ths	
0	0	SILT & CLAY	5	0
5	0	SHALE, WEATHERED	6	0
6	0	SANDSTONE	6	5
6	5	TOTAL DEPTH		

Samples of the foundation material were taken during the application for P-3768. Laboratory analyses of the samples included the following tests:

1) Standard Proctor Compaction Tests,
2) Triaxial Shear Testing (consolidated undrained), and
3) Quality Analysis

Laboratory specimens of the foundation material were remolded to a density equivalent to 95% of the maximum proctor density at a moisture content of optimum plus 3% prior to performing a triaxial shear test upon the material. Laboratory specimens of coarse refuse material were remolded to a density equivalent to 90% of the maximum proctor density at a moisture content of optimum plus 3% prior to performing a triaxial shear test upon the material

Due to no significant changes in the geometric configuration of the structure no new stability analysis was performed. The safety factors in the approved plans in P-3768 were of sufficient value to demonstrate long term stability.

The foundation material was found to be a weathered clay material overlying a sandstone and shale material. A composite sample of the interval from 0 to 5 feet of bore hole BH-4 was chosen to represent the foundation material. Triaxial shear testing of the weathered clay material resulted in an angle of internal friction of 39.6 degrees, a density of 130.3 pounds per cubic foot, and an effective cohesion of 300.0 pounds per square foot.

An effective cohesion of 10,000.0 pounds per square foot, a density of 135.0 pounds per cubic foot, and an angle of internal friction of 33.0 degrees was assumed for the sandstone and shale foundation.

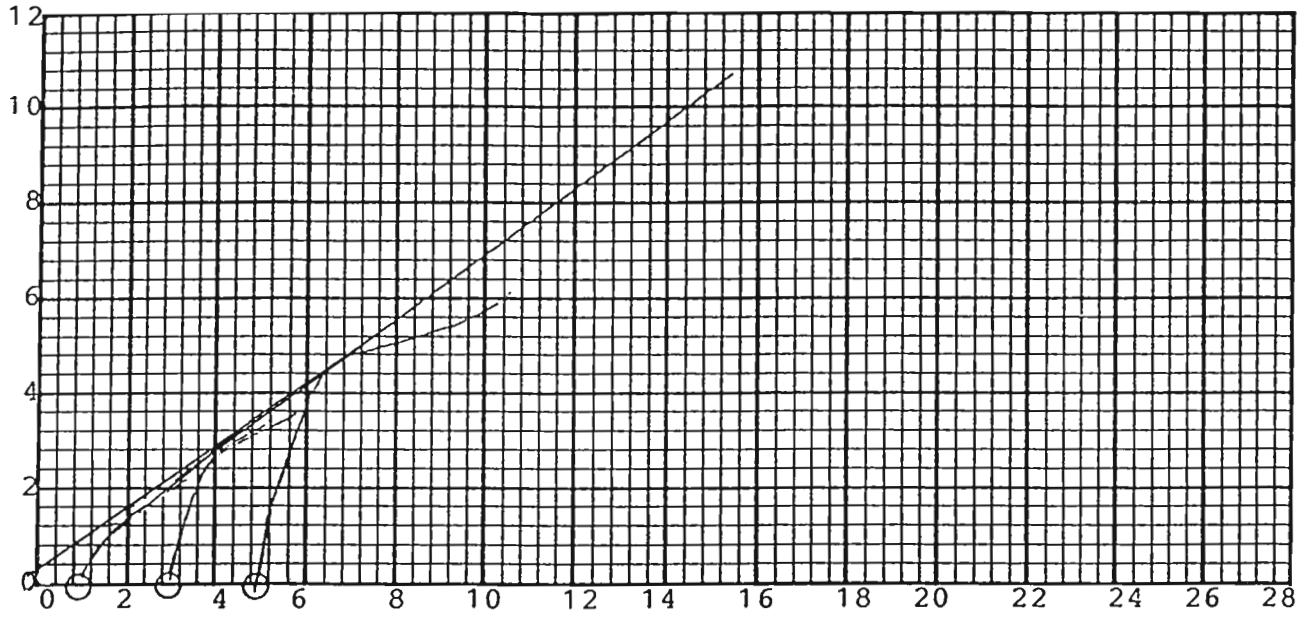
Samples of the sink from the Pratt seam were collected and analyzed. Chemical analysis of the sink of coal samples indicate that the coarse refuse produced at the Pratt Mine has a potential to be acid forming. In an effort to neutralize the coarse refuse and to minimize the formation of acid mine drainage, lime will be added to each 24 inch horizontal lift for the first 10 vertical feet of Coarse Refuse Disposal Area No. 1

TRIAXIAL SHEAR TEST
CONSOLIDATED UNDRAINED / PORE PRESSURE

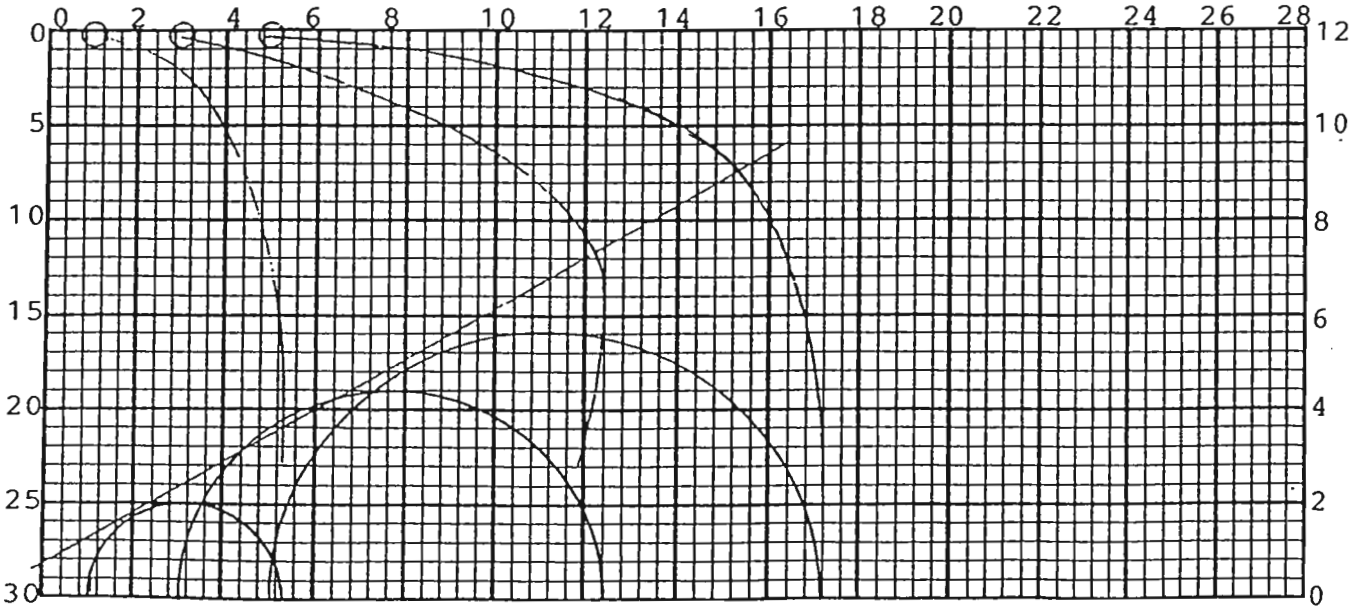
GROUND ENGINEERING & TESTING SERVICE, INC.

JOB NO. B1778	JOB NAME Perc Engineering	BORING/PIT NO. PO1414
REVIEWED	LOCATION Jasper, Alabama	SAMPLE NO./TYPE FS-1
DATE 5/97	TEST PROCEDURE 95% @ OPTM	DEPTH/ELEVATION

SPECIMEN NO.	1	2	3	TOTAL Ø = 30°
CONFINING PRESSURE, KSF	1	3	5	TOTAL C = 0.78 KSF
INITIAL DRY DENSITY, PCF	102.8	102.9	102.9	EFF. Ø = 39.6°
INITIAL MOISTURE, %	20.5	20.5	20.5	EFF. C = .30 KSF
INITIAL VOID RATIO, e	0.615	0.614	0.613	Gs = 2.66
CONS. DRY DENSITY, PCF	104.2	106.4	107.0	
CONS. MOISTURE, %	22.3	21.0	20.7	
CONS. VOID RATIO, e	0.593	0.559	0.552	

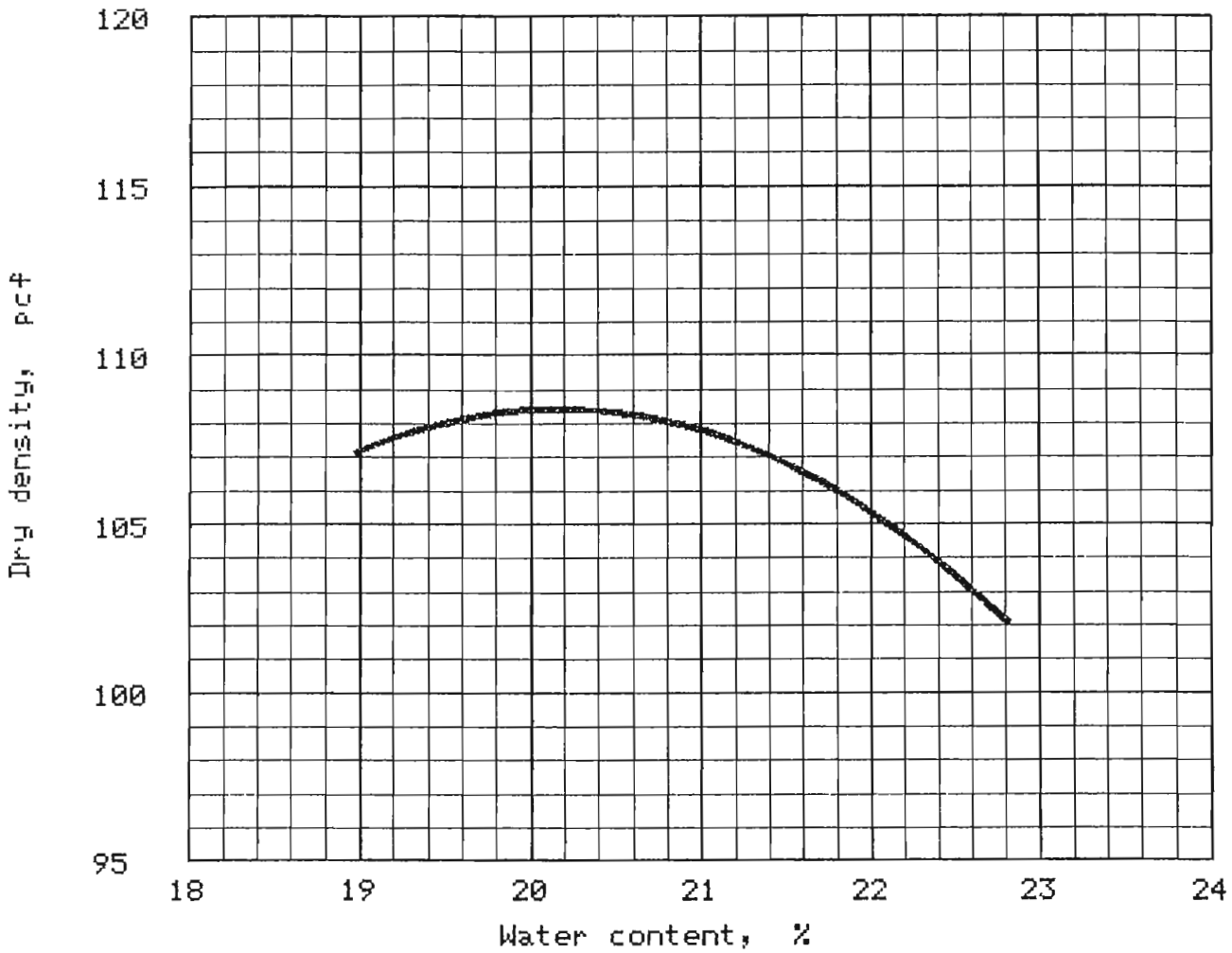


AXIAL STRESS, KSF



STRESS - STRAIN CURVES / MOHR DIAGRAMS

PROCTOR TEST REPORT



"Standard" Proctor, ASTM D 698, Method B

Elev/ Depth	Classification		Nat. Moist.	Sp.G.	LL	PI	% > 3/8 in	% < No. 20
	USCS	AASHTO						

TEST RESULTS	MATERIAL DESCRIPTION
Optimum moisture = 20.2 % Maximum dry density = 108.4 pcf	Tan Clayey Silt

Project No.:
Project: MR Pratt One, LLC
Location: Pratt Mine

Date: 4-15-1997

Remarks:
Coarse Refuse Area #1
BH-4 Foundation

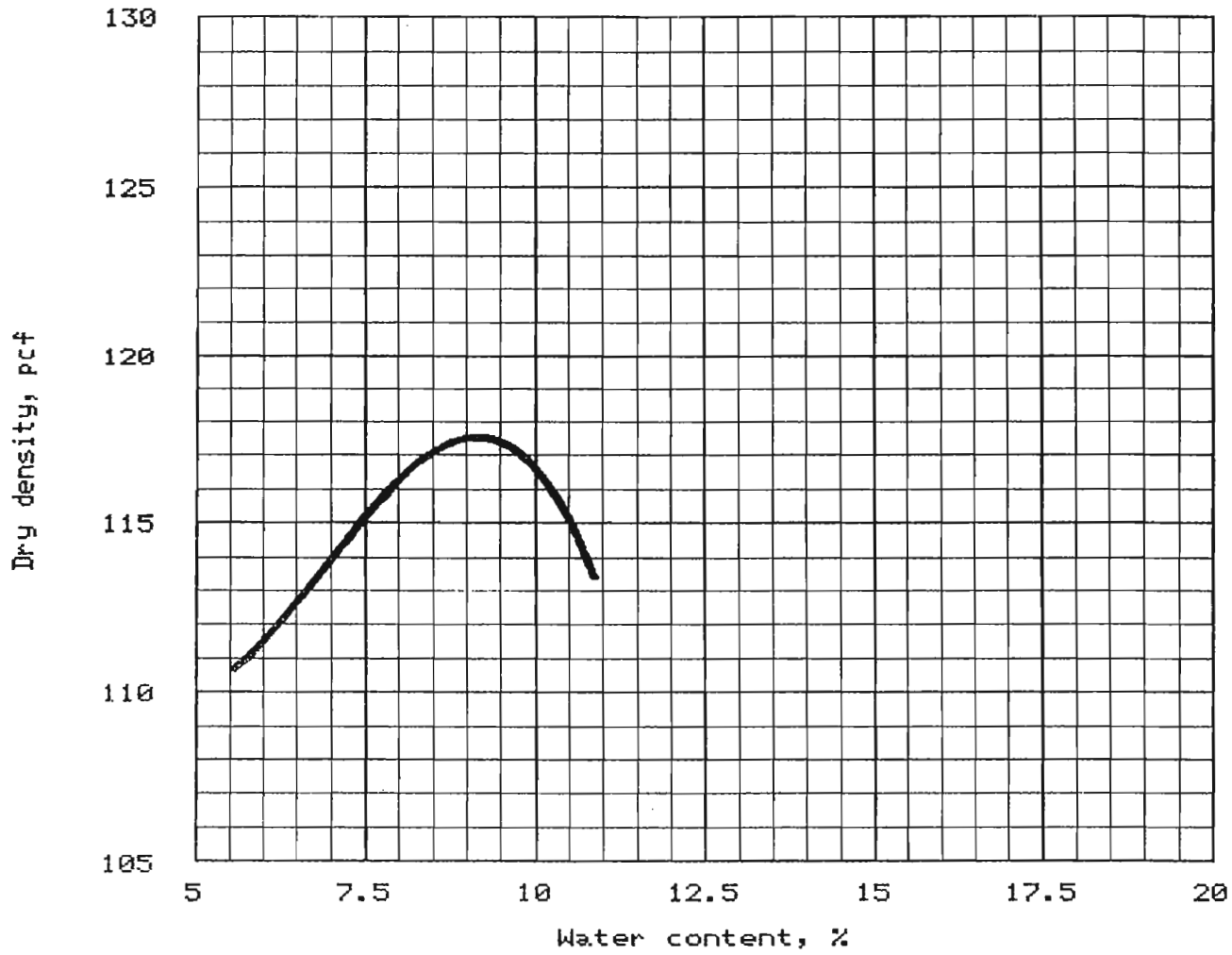
PROCTOR TEST REPORT

PERC ENGINEERING CO., INC.

Figure No._____

PROCTOR TEST REPORT

Taken from P-3222



"Standard" Proctor, ASTM D 698, Method C

Elev/ Depth	Classification		Nat. Moist.	Sp.G.	LL	PI	% > No.4	% < No.200
	USCS	AASHTO	%				%	%

TEST RESULTS	MATERIAL DESCRIPTION
Optimum moisture = 9.2 % Maximum dry density = 117.5 pcf	COARSE REFUSE

Project No.:

Project: PITTSBURG & MIDWAY COAL

Location: NORTH RIVER UNDERGROUND #1

Date: 3-05-1992

Remarks:

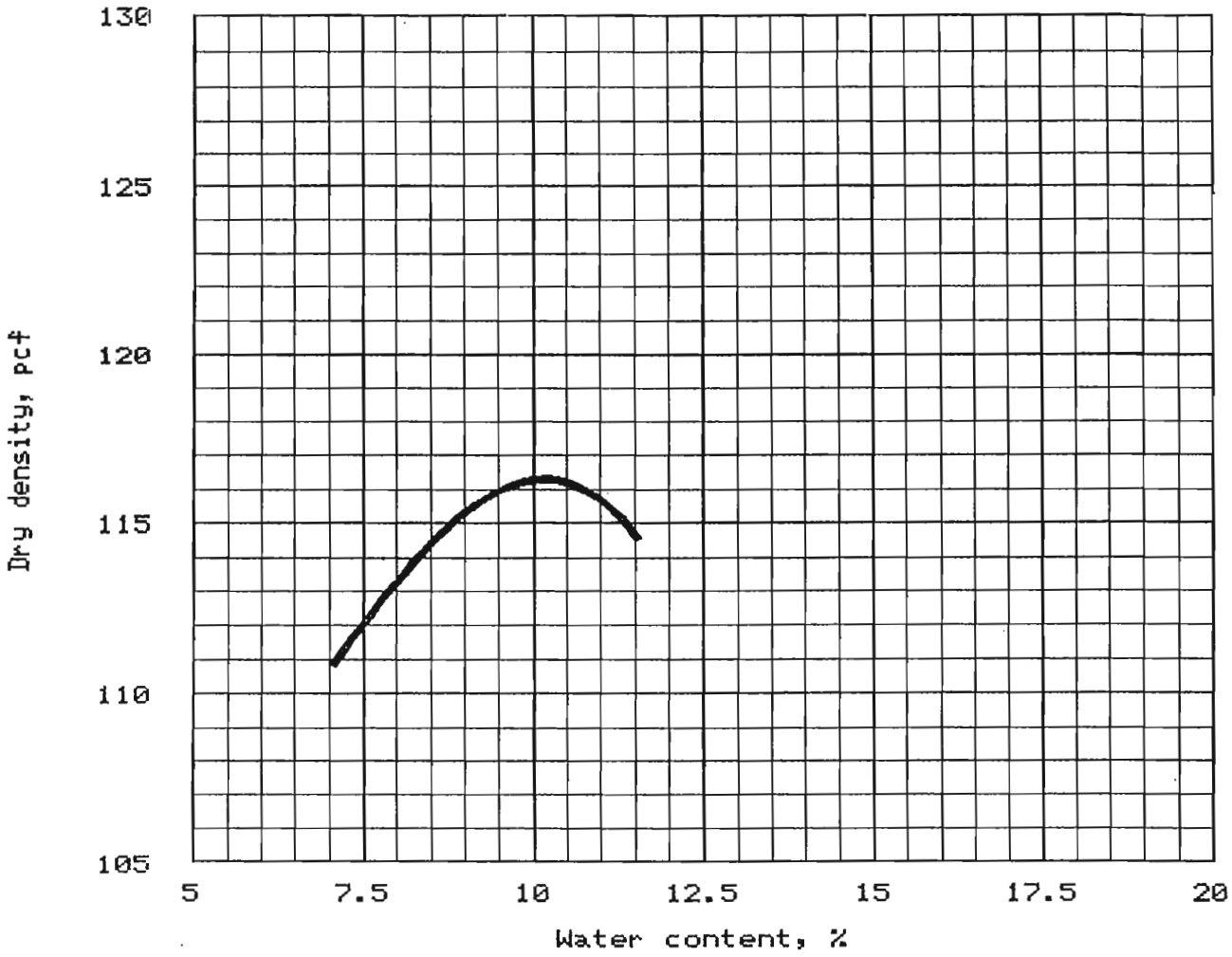
SAMPLE B-1

PROCTOR TEST REPORT

PERC ENGINEERING CO., INC.

Fig. No. _____

PROCTOR TEST REPORT Taken from P-3222



"Standard" Proctor, ASTM D 698, Method C

Elev/ Depth	Classification		Nat. Moist.	Sp.G.	LL	PI	% > No.4	% < No.200
	USCS	AASHTO						
			%				%	%

TEST RESULTS	MATERIAL DESCRIPTION
Optimum moisture = 10.2 % Maximum dry density = 116.3 pcf	COARSE REFUSE

Project No.:
Project: PITTSBURG & MIDWAY COAL MINING CO
Location: NORTH RIVER UNDERGROUND #1

Date: 3-05-1992

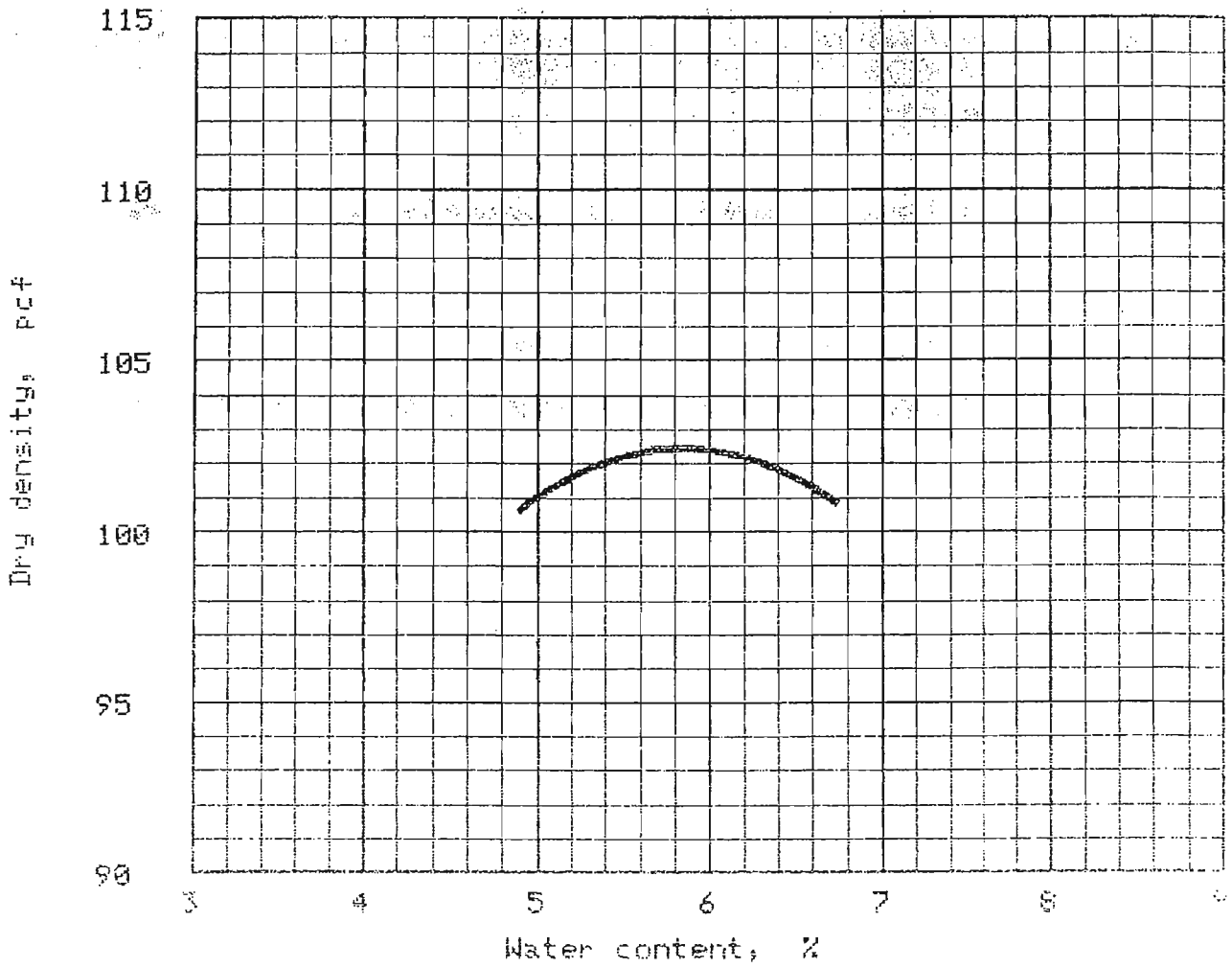
Remarks:
SAMPLE B-2

PROCTOR TEST REPORT

PERC ENGINEERING CO., INC.

Fig. No. _____

PROCTOR TEST REPORT



"Standard" Proctor, ASTM D 698, Method C

Elev/ Depth	Classification USCS	Classification AASHTO	Nat. Moist.	Sp.G.	LL	PI	% > 3/4 in	% < No. 200

TEST RESULTS	MATERIAL DESCRIPTION
Optimum moisture = 5.8 % Maximum dry density = 102.4 pcf	Coarse Refuse

Project No.: 1798
Project: Jim Walter Resources
Location: Mine #5

Date: 8-30-1995

Remarks:

PROCTOR TEST REPORT
PERC ENGINEERING CO., INC.

Figure No.____

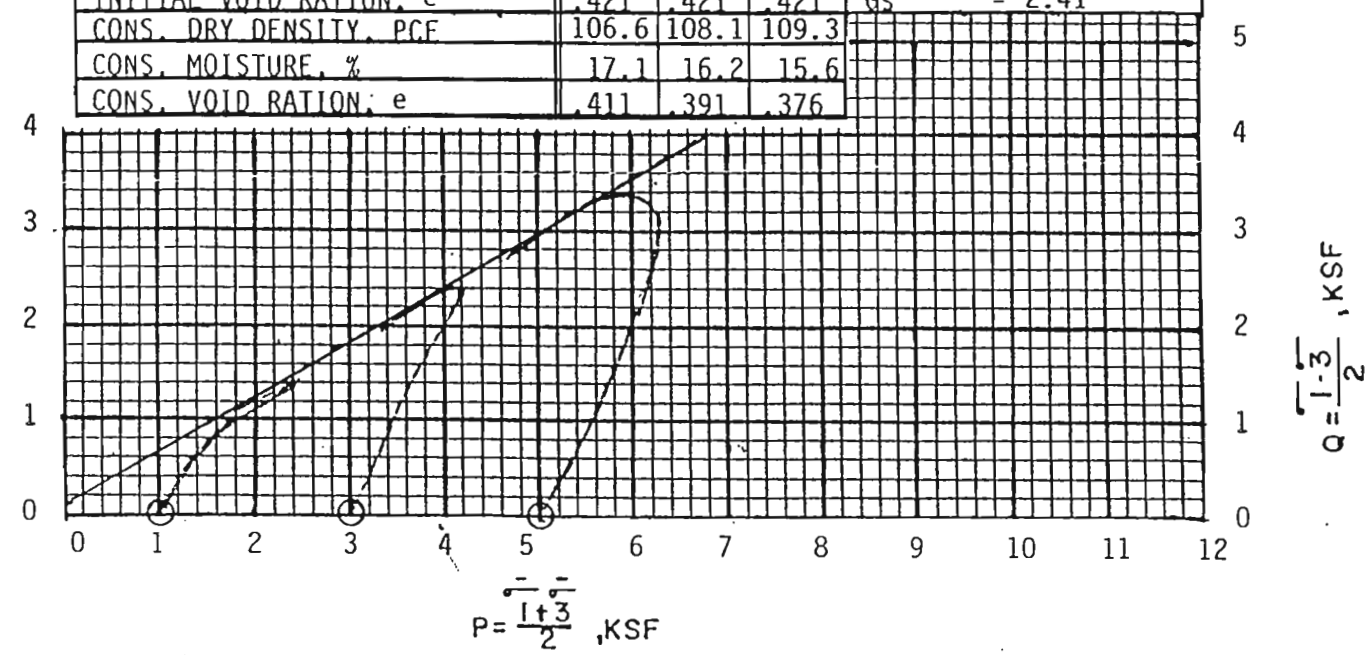
Taken from P-3222

TRIAXAL SHEAR/CONSOLIDATED UNDRAINED/PORE PRESSURE

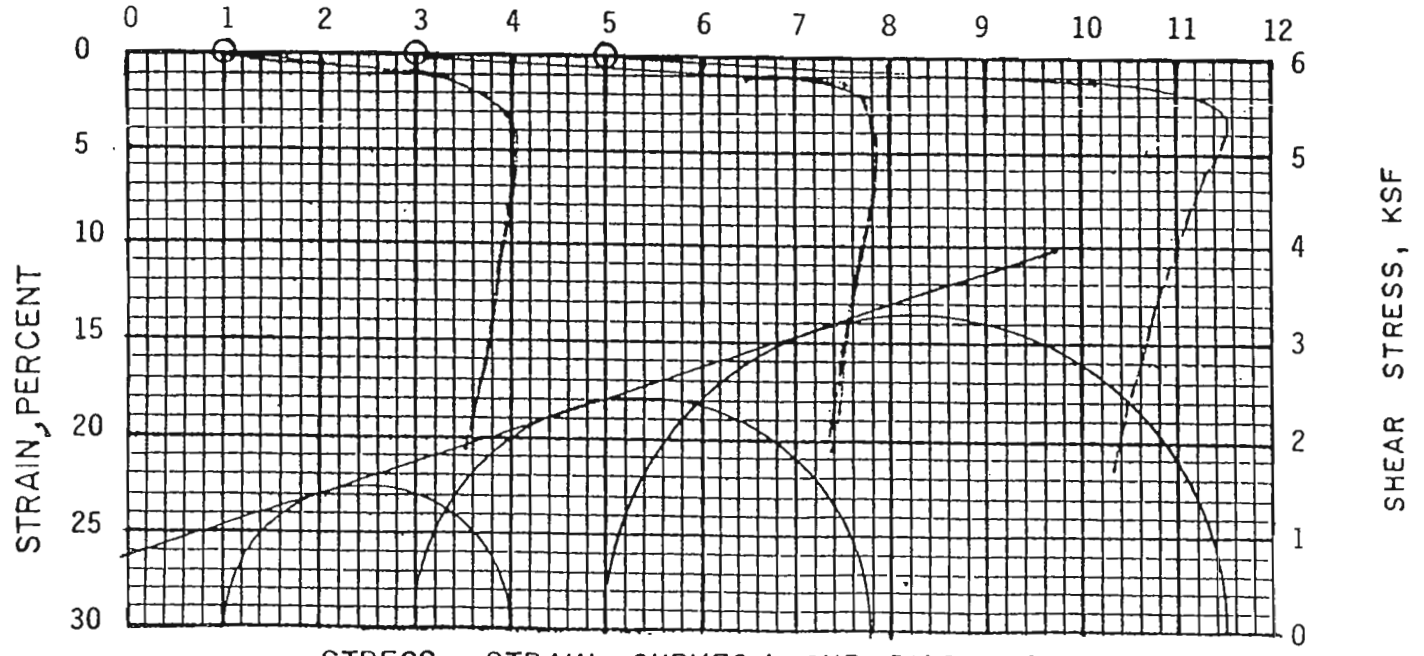
JOB NO. B1778	JOB NAME Perc Engineering	BORING/PIT NO. B-1
REVIEWED	LOCATION PMNR #1	SAMPLE NO./TYPE S-1
DATE 09/91	TEST PROCEDURE Remolded 90%	DEPTH/ELEV. 0

SPECIMEN NO.	1	2	3
CONFINING PRESSURE, KSF	1	3	5
INITIAL DRY DENSITY, PCF	105.9	105.9	105.9
INITIAL MOISTURE, %	9.2	9.2	9.2
INITIAL VOID RATION, e	.421	.421	.421
CONS. DRY DENSITY, PCF	106.6	108.1	109.3
CONS. MOISTURE, %	17.1	16.2	15.6
CONS. VOID RATION, e	.411	.391	.376

TOTAL $\emptyset$ = 18°
TOTAL C = 0.45 ksf
EFF. $\emptyset$ = 34.5°
EFF. C = 0.18 ksf
Gs = 2.41



AXIAL STRESS, KSF



STRESS - STRAIN CURVES/MOHR DIAGRAMS

GROUND ENGINEERING
AND TESTING SERVICE, INC

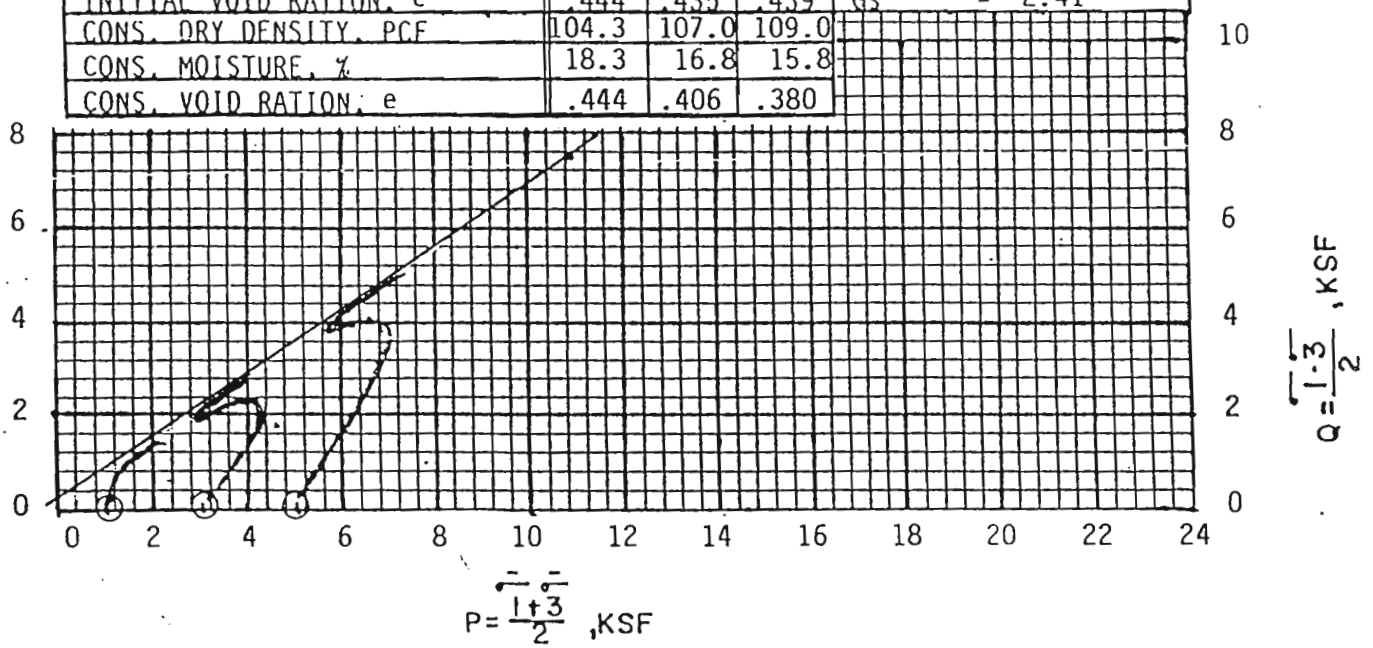
Taken from P-3222

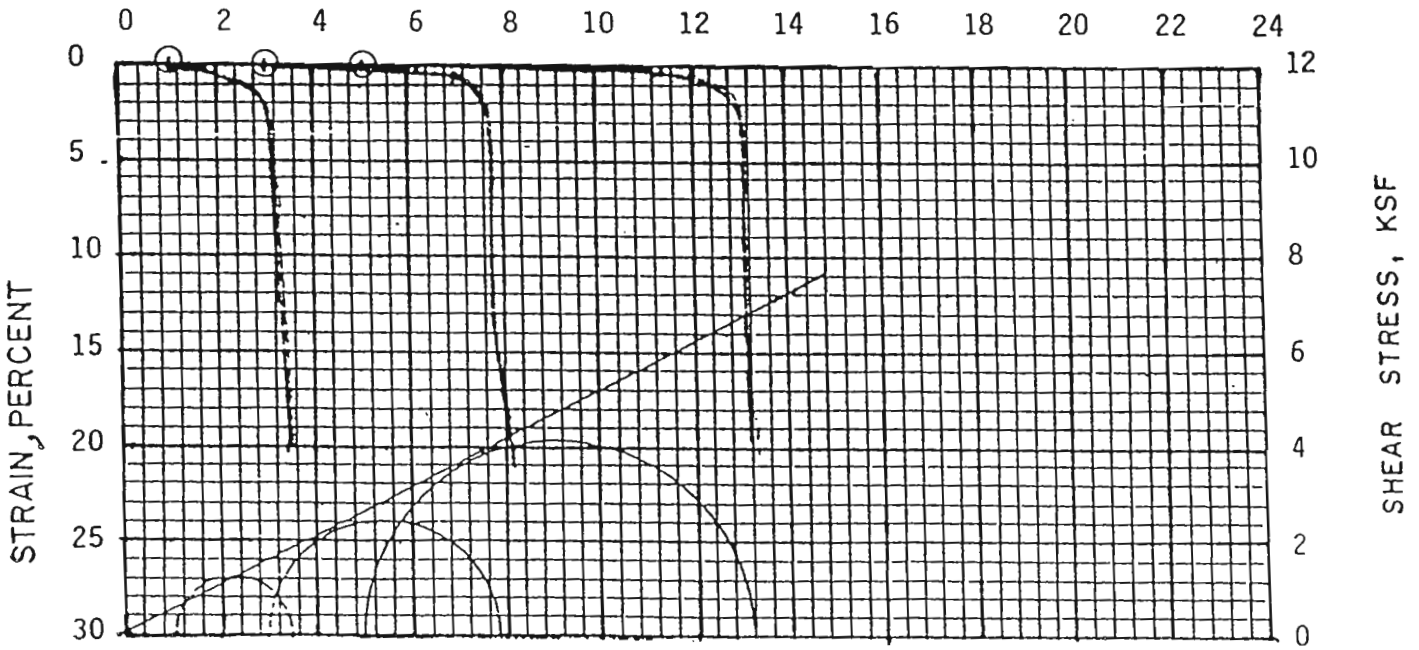
TRIAXAL SHEAR/CONSOLIDATED UNDRAINED/PORE PRESSURE

JOB NO. B1778	JOB NAME Perc Engineering	BORING/PIT NO. B-2
REVIEWED	LOCATION PMNR #2	SAMPLE NO./TYPE S-2
DATE 09/91	TEST PROCEDURE Remolded 90%	DEPTH/ELEV. 0

SPECIMEN NO.	1	2	3
CONFINING PRESSURE, KSF	1	3	5
INITIAL DRY DENSITY, PCF	104.2	104.3	104.5
INITIAL MOISTURE, %	10.2	10.2	10.2
INITIAL VOID RATION, e	.444	.435	.439
CONS. DRY DENSITY, PCF	104.3	107.0	109.0
CONS. MOISTURE, %	18.3	16.8	15.8
CONS. VOID RATION, e	.444	.406	.380

TOTAL ϕ = 17.2°
TOTAL C = 0.4 ksf
EFF. ϕ = 38.7°
EFF. C = 0.12 ksf
Gs = 2.41





STRESS - STRAIN CURVES / MOHR DIAGRAMS

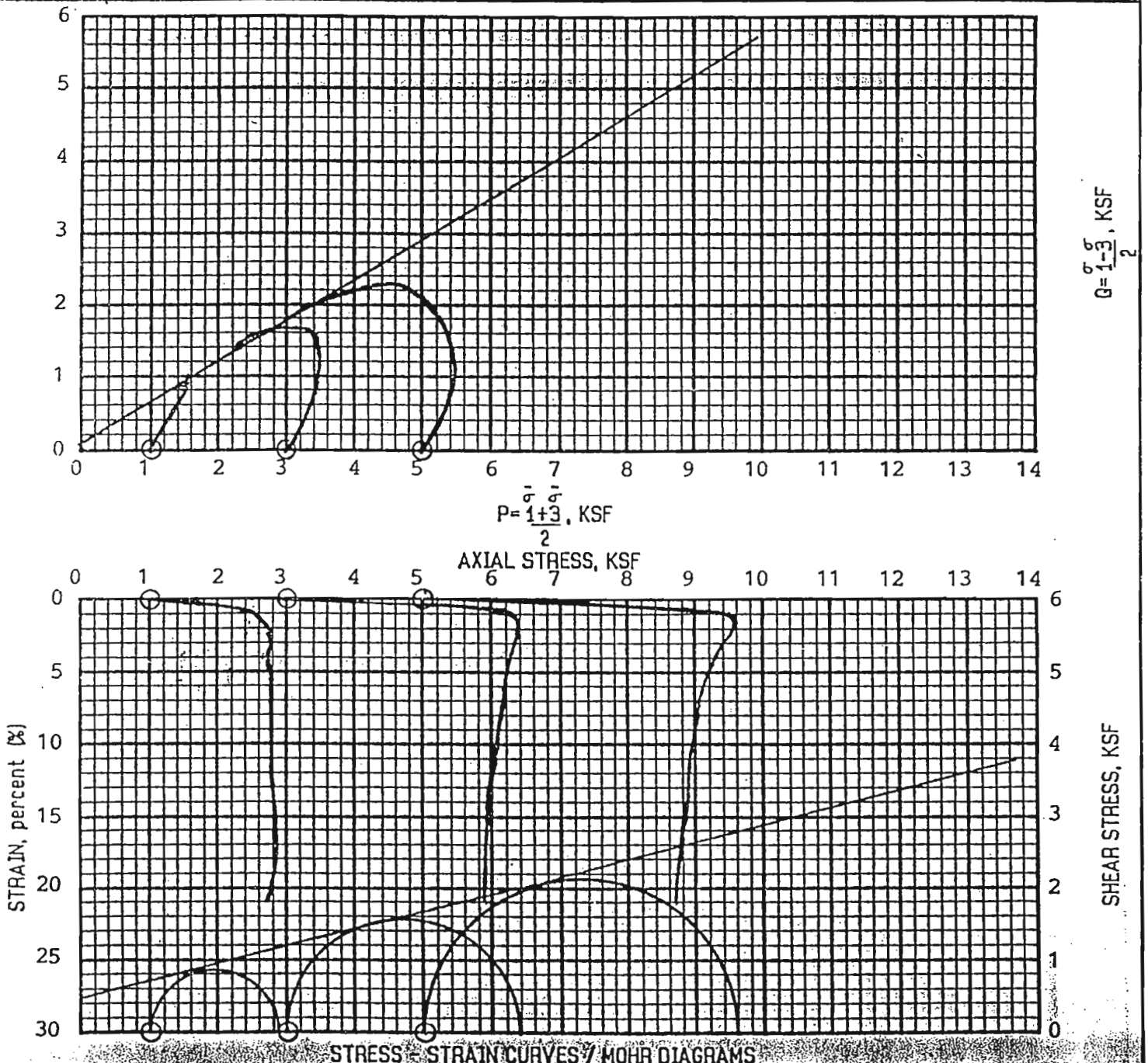
GROUND ENGINEERING
AND TESTING SERVICE INC.

TRIAXIAL SHEAR TEST
CONSOLIDATED UNDRAINED / PORE PRESSURE

GROUND ENGINEERING & TESTING SERVICE, INC.

JOB NO. B1778-010	JOB NAME PERK ENGINEERING		BORING/PIT NO. N/A
REVIEWED	LOCATION		SAMPLE NO./TYPE Coarse Refuse 90% Compaction
DATE 9/95	TEST PROCEDURE SEE NOTE 1		DEPTH/ELEVATION N/A

SPECIMEN NO.	1	2	3	TOTAL Ø = 14.5°
CONFINING PRESSURE, KSF	1	3	5	TOTAL C = 0.5 KSF
INITIAL DRY DENSITY, PCF	91.7	91.7	91.7	EFF. Ø = 33.35°
INITIAL MOISTURE, %	6.5	6.5	6.5	EFF. C = 0.12 KSF
INITIAL VOID RATIO, e	.4706	.4699	.4699	Gs = 2.16
CONS. DRY DENSITY, PCF	94.6	95	95.4	
CONS. MOISTURE, %	19.7	19.4	19.1	
CONS. VOID RATIO, e	.4250	.4182	.4121	



STRESS - STRAIN CURVES / MOHR DIAGRAMS

NOTE 1: REMOLDED TO 90% MOD PFC @ OPTIM

Reactivation / Modification at a rate of 225 tons per acre. When the Pratt No. 1 Mine preparation plant becomes operational, refuse from the plant will be sampled and analyzed. The liming rate required to raise the acid-base account to +15 will be calculated and submitted to the regulatory authority for approval prior to adjusting the rate. This additional analysis and liming rate adjustment will be done prior to having more than 10 vertical feet within the fill. A copy of the chemical analysis will be submitted quarterly to the Regulatory Authority with each quarterly certification submitted..

Additional testing was performed on the proposed cover material to be used during the abandonment of the waste bank. These test results are as follows.

PERC ENGINEERING CO., INC.

ENGINEERS & SURVEYORS

TELEPHONE (205) 384-5553
FACSIMILE (205) 384-9491

P.O. BOX 1712
JASPER, ALABAMA 35502

COMPANY NAME: M R Pratt One L.L.C.

COLLECTED BY:

MINE NAME: Pratt Mine

DATE COLLECTED:

DRILL HOLE: Washer Refuse Sink

ANALYZED BY: J.R.

DATE ANALYZED: 2-7-97

All analysis is performed according to
EPA standards.

	INTERVAL		PASTE pH	% SULFUR	MAX. POT. *ACIDITY	NEUT. *POT	A-B *ACCOUNT	ACID FORMING
0.00		0.01	2.810	2.810	87.813	-6.250	-94.063	Y
**AVERAGE			2.810	2.810	87.813	-6.250	-94.063	Y

*Calculated in tons CaCo3 per 1000 tons of material.
**Averages do not include coal seam to be mined or intervals below lowest seam.
***Not analyzed

PERC ENGINEERING CO., INC.

ENGINEERS & SURVEYORS

TELEPHONE (205) 384-5553
FACSIMILE (205) 384-9491

P.O. BOX 1712
JASPER, ALABAMA 35502

COMPANY NAME: MR Pratt One, L.L.C.

MINE NAME: Pratt Mine

DRILL HOLE: CM-1

COLLECTED BY: SG

DATE COLLECTED: 4-14-97

ANALYZED BY: JF

DATE ANALYZED: 5-1-97

All analysis is performed according to
EPA standards.

	INTERVAL		PASTE pH	% SULFUR	MAX. POT. *ACIDITY	NEUT. *POT	A-B *ACCOUNT	ACID FORMING
0.00		0.01	4.360	0.004	0.125	-2.000	-2.125	N

*Calculated in tons CaCo3 per 1000 tons of material.

PERC ENGINEERING CO., INC.

ENGINEERS & SURVEYORS

TELEPHONE (205) 384-5553
FACSIMILE (205) 384-9491

P.O. BOX 1712
JASPER, ALABAMA 35502

COMPANY NAME: MR Pratt One, L.L.C.

COLLECTED BY: SG

MINE NAME: Pratt Mine

DATE COLLECTED: 4-14-97

DRILL HOLE: CM-2

ANALYZED BY: JF

DATE ANALYZED: 5-1-97

All analysis is performed according to
EPA standards.

INTERVAL		PASTE pH	% SULFUR	MAX. POT. *ACIDITY	NEUT. *POT	A-B *ACCOUNT	ACID FORMING
0.00	0.01	4.510	0.005	0.156	-1.250	-1.406	N

*Calculated in tons CaCo3 per 1000 tons of material.

SOIL PARAMETERS

The soil and foundation parameters selected for the design are shown below. These values used are the results of laboratory testing by PERC Engineering Co., Inc., Jasper, Alabama and Ground Engineering and Testing of Birmingham, Alabama.

MATERIAL	LOCATION	UNIT WEIGHT (WET) PCF	EFFECTIVE ANGLE OF FRICTION	EFFECTIVE COHESION PSF
Coarse Refuse	Waste Bank	121.6	35.5 degrees	140.0
Shale/Sandstone	Foundation	170.0	45.0 degrees	10000.0
Weathered Clay	Foundation	130.3	39.0 degrees	300.0

METHODOLOGY

The proposed waste bank was evaluated under static loading conditions. A pore pressure ratio of 0.1 was utilized in the stability analyses. The stability analyses were performed using an approximate form of the limiting equilibrium approach as developed by Bishop. The location of the failure surface yielding the minimum safety factor was determined by allowing the computer to use a grid and search routine. The computer program used was the Reame Slope Stability program by Dr. Yang H. Huang, P.E. of the University of Kentucky.

DRAINAGE CONTROL

Drainage will be routed over, around, and under the waste bank through a series if slope benches, diversion ditches and an underdrain. The drainage structure locations are shown on the attached Drainage Control Map, Map 5 of 7. Slope benches 3-4, 5-6 and 8-6 and Diversion 6-7 will be used to route drainage over Coarse Refuse Area No. 1. Diversions 9-10, 10-11, 11-7, 7-4, 4-2,2-12, 13-12, 14-13, and 15-14 will be used to route drainage around Coarse Refuse Area No. 1. The specifications for the proposed slope benches and diversion ditches follows this section.

Slope benches 3-4, 5-6 and 8-6 and Diversions 9-10, 10-11, 11-7, 6-7, 4-2, 2-12, 13-12, 14-13, and 15-14 will be constructed at the appropriate locations as filling operations of the waste bank allow. As the outslope within the area of Diversion 6-7 is completed and prior to allowing drainage from respective slope benches to enter Diversion 6-7, Diversion 6-7 will be constructed and lined from the lowest section to the area to immediately above any slope bench discharge point. This is done to prevent erosion of the fill as a result of

discharges from the exit point of any slope bench. The slope benches and diversions will be rough graded as soon as possible and will be finished graded including the addition of cover material and vegetation upon the completion of outslope grading and rough grading of the subsequent slope bench of the fill.

Site inspections were performed at the Coarse Refuse Area No. 1 on 4-12-97 and 7-14-97 to determine the existence of seeps or springs. No evidence of seeps or springs were observed during these times. Since the weather conditions during these times were unusually wet, and no seeps or springs were observed, it is assumed that no seeps and springs will exist at any other time.

The underdrains were designed and installed under P-3768 and described in the following paragraph. Due to the nonexistence of seeps and springs at the waste bank site, underdrains were designed using the computer model SEDCAD3, utilizing a 10 yr - 24 hr., Type II, storm event of 6.00 inches of rainfall. The maximum storm runoff from the underdrains watershed under surface conditions of curve number of 100 and 81 were calculated. The runoff volume of the watershed with a curve number of 81 was subtracted from the watershed with a curve number of 100 to obtain the infiltration volume. The time required for the infiltration volume to move through the fill was determined by dividing the vertical distance of travel by the permeability of the fill material. Due to there being no existing coarse refuse available for testing from the Pratt Mine, a permeability rate was taken from testing of similar material from Jim Walter Resources, Inc.'s Mine No. 5 Rock Dump No. 3. The infiltration flow rate was the determined by dividing the infiltration volume by the time required for infiltration. The maximum cross-sectional area of the underdrain was then determined by using Darcy's Equation. The underdrain calculations are as follows:

SPECIFICATIONS FOR DIVERSION CHANNELS AND DIVERSION BERMS

1. Diversions shall be designed, constructed, and maintained in a manner which prevents additional contributions of suspended solids to stream flow and to runoff outside the permit area, to the extent possible, using the best technology currently available. Appropriate sediment control measures for these diversions may include, but not be limited to, maintenance of appropriate gradients, channel lining, revegetation, roughness structures, and detention basins.

2. No diversion shall be located so as to increase the potential for land slides and no diversion shall be constructed on existing land slides.

3. When no longer needed, each temporary diversion shall be removed and the affected land regraded, topsoiled, and revegetated in accordance with Rules 880-X-10C-.10, 880-X-10C-.11, 880-X-10C-.52 - 880-X-10C-.58, 880-X-10C-.60, and 880-X-10C-.62.

4. Channel linings, when slopes are between 1-3 percent shall consist of both perennial and annual grasses and when slopes are greater than 3 percent, shall consist of riprap or be cut into non-erodible material.

5. Freeboard shall provide protection for transition of flows and for critical areas such as swales and curves along the entire channel length.

6. Energy dissipators shall be installed, when necessary, at discharge points where natural streams and exit velocity of the diversion ditch flow is greater than that of the receiving stream.

7. Excess excavated material not necessary for diversion channel geometry or regrading of the channel shall be disposed of in accordance with Rule 880-X-10C-.36.

8. Topsoil removed from the diversion excavations shall be handled in accordance with Rule 880-X-10C-.07 through 880-X-10C-.11.

9. Diversions shall not be constructed or operated to divert water into underground mines.

10. The embankment or berm foundation area shall be cleared of all organic matter, all surfaces sloped to no steeper than lv:lh and the entire foundation surface scarified.

11. The entire embankment or berm shall be compacted to 90% density, based on standard proctor as outlined in ASTM.

12. The material placed in the berm shall be free of sod, roots, stones over 6 inches in diameter, and other objectionable materials. The fill material shall be placed and spread over the entire fill area, starting at the lowest point of the foundation, in layers not to exceed 12 inches in thickness. Construction of the fill shall be undertaken only at such times as the moisture content of the fill material will permit satisfactory compaction in accordance with paragraph 11.

13. The berm and all disturbed areas shall be seeded with both perennial and annual grasses in order to insure that erosion is minimized. Hay bales or riprap may be placed at the toe of the berm immediately upon completion of construction.

14. All berms shall be examined quarterly for structural weakness, instability, erosion, or other hazardous conditions and maintenance performed as necessary.

North Pratt Mining L.L.C.
Pratt No. 1 Mine
P-3972

RIP-RAP CLASSIFICATION SPECIFICATIONS

CLASS 1 RIP-RAP

No more than 10% of the stone will have a diameter greater than twelve (12) inches; no more than 50% of the stone will have a diameter less than ten (10) inches; and no more than 10% of the stone will have a diameter of less than six (6) inches. The thickness of the rip-rap liner will be no less than twelve (12) inches.

CLASS 2 RIP-RAP

No more than 10% of the stone will have a diameter greater than sixteen (16) inches; no more than 50% of the stone will have a diameter less than twelve (12) inches; and no more than 10% of the stone will have a diameter of less than six (6) inches. The thickness of the rip-rap liner will be no less than sixteen (16) inches.

CLASS 3 RIP-RAP

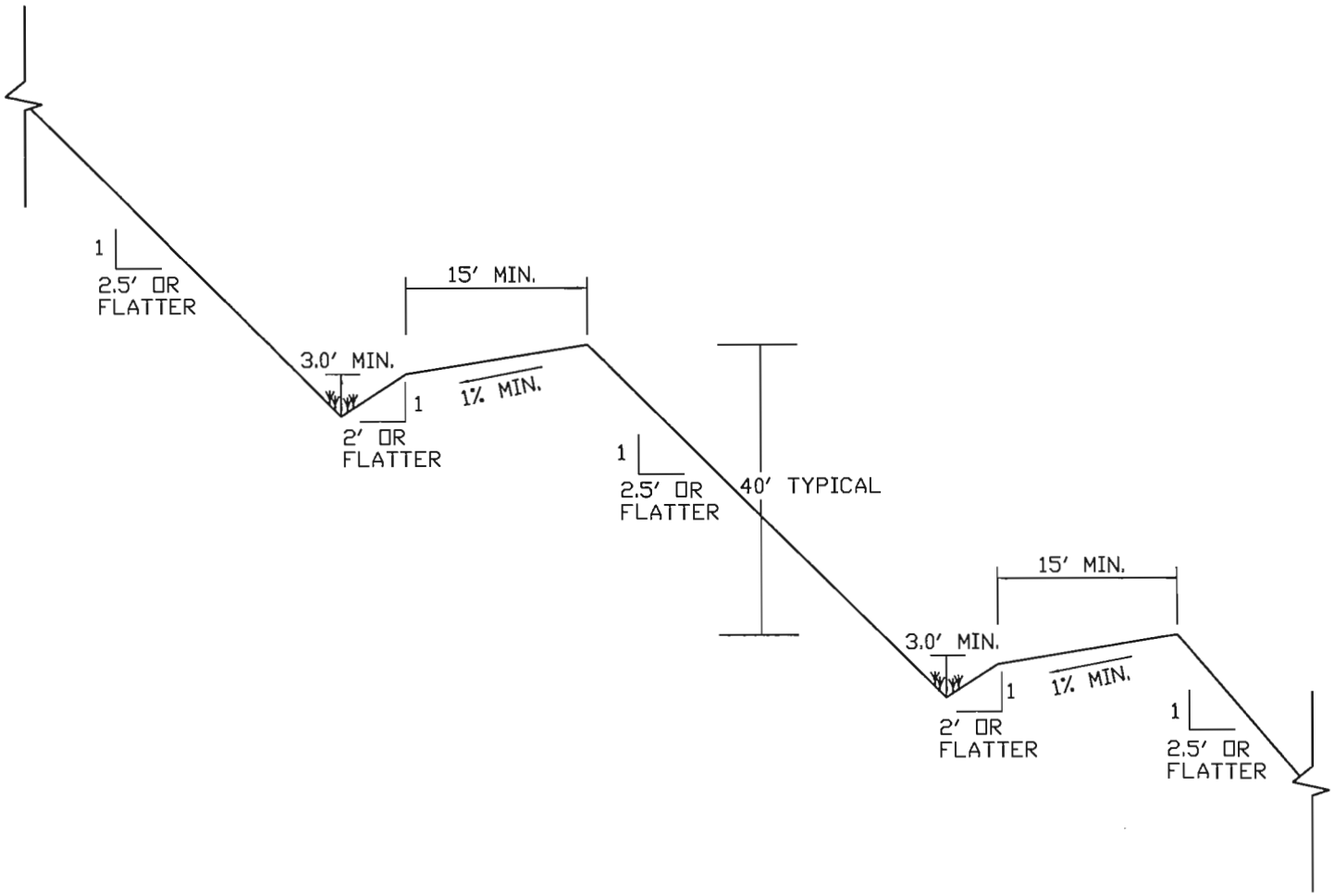
No more than 10% of the stone will have a diameter greater than twenty two (22) inches; no more than 50% of the stone will have a diameter less than sixteen (16) inches; and no more than 10% of the stone will have a diameter of less than eight (8) inches. The thickness of the rip-rap liner will be no less than twenty two (22) inches.

CLASS 4 RIP-RAP

No more than 10% of the stone will have a diameter greater than twenty seven (27) inches; no more than 50% of the stone will have a diameter less than twenty two (22) inches; and no more than 10% of the stone will have a diameter of less than ten (10) inches. The thickness of the rip-rap liner will be no less than twenty seven (27) inches.

CLASS 5 RIP-RAP

No more than 10% of the stone will have a diameter greater than thirty four (34) inches; no more than 50% of the stone will have a diameter less than twenty seven (27) inches; and no more than 10% of the stone will have a diameter of less than sixteen (16) inches. The thickness of the rip-rap liner will be no less than thirty four (34) inches.



PERC
ENGINEERING CO., INC.
1604 Highway 78 West, Jasper, Alabama 35501
P.O. Box 1718 Jasper, Alabama 35502
(205) 384-0883 Office (205) 384-0481 Fax

NORTH PRATT MINING, LLC.
PRATT NO. 1 MINE / P-3972
COARSE REFUSE AREA NO. 1
SLOPE BENCH TYPICAL

DRAWN BY: G.R. DWG. NAME: NPP1SBT1	DATE: 4-18-13
APPROVED BY: W.P.G.	SCALE: NONE

Y:\CMO\WPG\NPP1SBT1.dwg 04/19/13 14:30

CONSTRUCTION NARRATIVE

Construction of the Pratt Mine Coarse Refuse Area No. 1 will occur in three phases. These three phases are listed below:

Phase I - Site Preparation

Step A - Construction of Sediment Ponds

Step B - Removal of Vegetation

Step C - Removal and Segregation of Soil Material

Phase II - Construction

Step A - Placement of Survey Monuments

Step B - Construction of Underdrains

Step C - Placing and Compacting of Fill Material

Step D - Construction of Slope Benches and Diversion Ditches

Phase III - Revegetation

Step A - Final Grading

Step B - Placement of Cover Material

Step C - Revegetation

A construction time schedule for this project is for construction to begin in the summer of 2013. Construction oversight and materials testing for the project will be done by a registered professional engineer or other qualified professional specialist under the direct supervision of a qualified registered professional engineer. As specified within the drainage control, drainage control from the fill area was established through the construction of Basin 004 which was completed and certified under P-3768, Slope Benches 3-4, 5-6 and 8-6 and Diversions 9-10, 10-11, 11-7, 6-7, 7-4,4-2, 2-12, 13-12, 14-13, and 15-14. See the attached Drainage Control Section for the pertinent information.

PHASE I

Sediment Basin 004 and Slurry Impoundment 002 was constructed and certified under P-3768 just below the coarse refuse disposal area.

Preparation of the waste bank site will consist of the removal of all cover material currently in place over the

previous coarse refuse fill and stockpiling for future use The cover material from the existing coarse refuse mound will be removed along with the topsoil and subsoil from the proposed area. Topsoil and subsoil from the site will be stockpiled in order to be replaced on the finished slopes of the proposed waste bank. (See following attached maps.)

PHASE II

Survey monuments will be placed at strategic locations along the fill and around the perimeter of the fill to ensure that the constructed elevations of the fill, diversions, and underdrains conform to the design requirements. A survey monument is located on the southeastern side of the fill. The elevation of the monument is 500.0.

The material to be placed in the waste bank shall consist of coarse & fine refuse produced at Pratt No. 1 Mine. All fill material shall be free from frozen materials, organic matter, combustible material, or other deleterious substances. The fill material shall be placed and spread over the entire fill area in horizontal lifts not to exceed 24 inches in thickness and compacted to 90% of the standard proctor density. Next the reuired lime will be spread and disked into the refuse material Compaction will be accomplished using rubber tired or track equipment that is available onsite. The fill material will be placed to the lines and grades shown on the drawings for the various stages of disposal. The working face of each lift will be sloped away from the outslopes toward established drainage control to prevent discharges across outslopes.

Diversion ditches and slope benches will be constructed in the locations as shown and in accordance to the specifications described earlier. The slope benches and diversions will be rough graded as soon as possible and will be finish graded including the addition of cover material and vegetation upon the completion of outslope grading and rough grading of the subsequent slope bench. Temporary diversion around the work area will be constructed as needed. Grading operations will be conducted to allow runoff and prevent ponding on the work area.

Filter fabric will be used in the construction of diversions, underdrains, or as sediment control. Filter fabric used will consist of Marifi 500X filter fabric or equivalent. Filter fabrics will be used to the lines and grades as specified within the design plans. Prior to the placement, the area on which a filter is to be placed will be cleared and grubbed. The area will be trimmed and dressed to conform to the cross-sections and provide

positive drainage. The work area will be kept dry at all times. Where low areas exist, they will be brought to grade by filling with suitable, well compacted material, to achieve positive drainage. All large rocks and protrusions of the foundation will be removed to prevent damage to the fabric. Fabrics will be placed with the largest dimensions paralleling the longest dimension of the structure. A 1.5 foot minimum overlap will be required between adjacent sheets and at all joints of the fabric. Care will be taken that the overlap be kept free of all soil material to ensure a tight overlap. Should damage occur to the fabric, it will be repaired be replacement or by placing as additional sheet of fabric over the damaged area, ensuring a minimum of 1.5 foot overlap on undamaged fabric. The filter fabric will be anchored securely when placed to prevent damage from wind and to ensure no movement during the covering operation. The fabric can be anchored by piling the appropriate soil or rock cover material along the edges of the cloth; anchor trenches excavated into the foundation material or other methods approved by the engineer. Should an anchor trench be used it shall consist of 18 inches of fabric buried in an 18 inch deep trench excavated into foundation material. The anchor trench is recommended for steep slope anchorage where soil cover would tend to roll or slide. Filter fabric will be stored in a manner that does not permit its exposure to sunlight. During construction, no filter fabric will be exposed more than three days or as specified by the manufacturer before it is covered with soil material. Should exposure occur in excess of this period, the filter fabric will be replaced. Cover material on the filter fabric will be placed in a manner to prevent damage to fabric. Cover material will be spread in the same direction as the fabric overlap for the underdrain filters. At no place will the dimensions of the filter be smaller than those given in the drawings. Equipment crossovers will be limited to not more than two. Each crossover will be cleaned of all contaminating materials placed in the areas.

When silt fencing is used as sediment control, the silt fencing will be secured into place by prefabricated wood or metal posts spaced as necessary. The silt fence will be installed by initially excavating a trench approximately 6" wide by 6" deep along the contour for the entire length of the silt fence. Upon completion of the trench, the silt fence will be stretched along the trench with the prefabricated wood or metal posts being driven into the ground approximately 1.5' deep against the upper wall of the trench. The 6" trench flap will then be placed into the trench and covered with compacted fill material. The silt fence will have an equivalent opening size of 30-50 mesh by U.S. Standard Sieve. The maximum particle size passing the silt fence will be .59 millimeter. The flow rate of the silt fence will be 20 gallon per minute per square foot. The silt fence will have a burst strength of 210 pound per square inch. The grab tensile elongation of the silt

fence will be 15%. The grab tensile strength of the silt fence will be 100 pounds. Inspections of the silt fence will be made bi-monthly and repair or replacement will be made promptly as required. Accumulated sediment will be removed from the silt fencing when necessary to ensure the proper function of the silt fencing. Prior to the removal of the silt fence, any silt or sediment retained by the silt fence will be seeded with a mixture of both annual and perennial grasses, fertilized, and mulched to establish a permanent and diverse vegetative cover.

Each diversion and slope bench channel will be lined with the appropriate channel lining as specified within the design plans. When rip-rap is used, the riprap will consist of a sound durable sandstone or limestone, not subject to disintegration under the action of water and exposure of the elements. Friable, stratified rocks such as shales and rocks which tend to decompose in the water such as clay stones will not be acceptable. Rock gradation will be in accordance with that shown in the designs. Smooth round boulders will not be approved. The material will be free of objectionable amounts of earth, quarry dust, and other foreign material; however, washing will not be required. Slabs and slivers will not be acceptable. Slabs and slivers will be defined as pieces for which the smallest dimension is less than 1/3 the largest dimension of the piece. Riprap need not be hand placed but will be dumped and spread in such a manner as to prevent segregation of sizes, to eliminate voids, and to establish uniformity. Riprap will be roughly graded so that the smaller pieces are adjacent to the earth material and the large pieces near the exposed face. Spalls in the amount not in excess of that required to fill the voids will be permissible. The exposed face will present a reasonable uniform and neat appearance. Grass lined channels will be seeded with grass species in quantities as approved in the reclamation plan and will be fertilized and mulched with the types and rates as specified in the reclamation plan.

Underdrains were constructed and certified under P-3768 in the locations as shown and in accordance to the specifications described earlier.

PHASE III

The final phase of construction of the Pratt No. 1 Mine Coarse Refuse Area No. 1 Reauthorization / Modification will consist of the final grading, the placement of the final cover material upon the surface of the waste bank, and revegetation. Coarse Refuse Area No. 1 will be graded to match the configuration as

specified within the design plans. The surface of the fill will be crowned to ensure positive drainage and to prevent the impounding of water. Diversions, slope benches, and down drains as specified within the design plans will be constructed and stabilized to safely remove surface drainage from the fill. Coarse Refuse Area No. 1 will be covered with a minimum of 4 feet of the best available non-toxic, non-acid forming, and non-combustible material. Soil amendments, including lime and fertilizer, will be added and disced into the cover material in rates as recommended by laboratory analysis performed upon the cover material. These soil amendments will ensure a diverse effective vegetative growth upon the material. Revegetation shall be performed according to the mixtures and application rates given in the following Permanent Cover-Mixtures and Rates Attachment. Seeding will commence during the first normal planting season to establish a diverse, effective and permanent vegetative cover. Seed bed preparation shall include discing or scarifying the soil to permit seed application and to aid in the mixing of the soil amendments. All areas shall be mulched with hay at a rate of 1 ½ - 3 tons per acre to control erosion, to promote seed germination, and to increase the moisture retention of the soil. All areas will be rough graded as soon as possible and will be finish graded including the addition of cover material and vegetation upon the completion of grading of the subsequent outslopes, diversions, and slope benches of the fill.

PERMANENT COVER-MIXTURES AND RATES

Spring Planting

Species	Planting Rate	Planting Methods	Planting Dates	Areas to be Planted
Fescue	25#/acre	Broadcast	Spring	All Disturbance
Millet	10#/acre	Broadcast	Spring	All Disturbance
Sericea	35#/acre	Broadcast	Spring	All Disturbance
Bermuda	15#/acre	Broadcast	Spring	All Disturbance

Fall Planting

Species	Planting Rate	Planting Methods	Planting Dates	Areas to be Planted
Sericea	35#/Acre	Broadcast	Spring	All Disturbance

Fescue	40#/Acre	Broadcast	Spring	All Disturbance
Perennial Ryegrass	20#/Acre	Broadcast	Spring	All Disturbance

OPERATIONAL PROCEDURES

Operational procedures for the Pratt No. 1 Mine Coarse Refuse Area No. 1 will consist of two phases. Phase I will consist of the transporting of the refuse material from the Pratt Mine Preparation Plant to Coarse Refuse Area No. 1 site. Phase II will consist of the inspection and maintenance of the waste bank which is discussed in other sections of this report.

PHASE I

Refuse material produced at the Pratt Mine will be transported to the waste bank area using conveyors and mobile equipment. The refuse material will be spread in 24 inch (maximum) horizontal lifts and compacted to 90% of the standard proctor density. This filling operation will continue until the design height and configuration is reached.

INSPECTION

The waste bank will be inspected by a registered professional engineer or other qualified professional specialist under the direct supervision of the qualified professional engineer. Inspections will be made at least quarterly and during times of grading of the existing refuse area, the removal of organic material and topsoil, installation of underdrains, installation of diversion ditches, placement and compaction of refuse material, and revegetation of the fill. Certification inspection reports will be filed with the Regulatory Authority stating that proper construction and maintenance are occurring in accordance with approved design plans. Inspection reports will be retained at the facility office.

North Pratt Mining L.L.C.
Pratt No. 1 Mine
Coarse Refuse Area No. 1
Underdrain No. 1 Calculations

Inflow Calculations:

Drainage Area = 15 Acres

R_{100} Runoff volume from Curve Number 100 Watershed = 7.5 Ac-Ft. = 326,700 $ft.^3$

R_{81} Runoff volume from Curve Number 81 Watershed = 4.9 Ac-Ft. = 213,444 $ft.^3$

Infiltration Volume = IV = R_{100} - R_{81} = 113,256 $ft.^3$

Permeability of Coarse Refuse = P_{CR} = .00266 cm/sec. = .0000873 ft/sec.

Infiltration Travel Distance = TD =110 ft.

Infiltration Time = T_I TD/P = 110 / .0000873 = 1,260,023 sec.

Infiltration Rate = Q_I = IV/ T_I = 113,256 / 1,260,023 = .09 ft^3 /sec.

Drain Flow Calculations:

Underdrain Permeability = P_{UD} = 10,000,000 ft^3/yr = .317 ft^3/sec. From Table 3-2, attached.

Underdrain Cross Sectional Area = A

Drain Slope = dh/dx = .075

Drain Flow = Q_D = K A dh/dx = .09 ft^3 /sec.

Underdrain Cross Sectional Area = A = Q_D / K dh/dx = 4 ft^2.

Factor of Safety = 2

Modified Underdrain Cross Sectional Area = A = Q_D / K dh/dx = 8 ft^2.

Taken from P-3256

PERC ENGINEERING CO., INC.
ENGINEERS & SURVEYORS

TELEPHONE (205) 384-5553
FACSIMILE (205) 384-9491

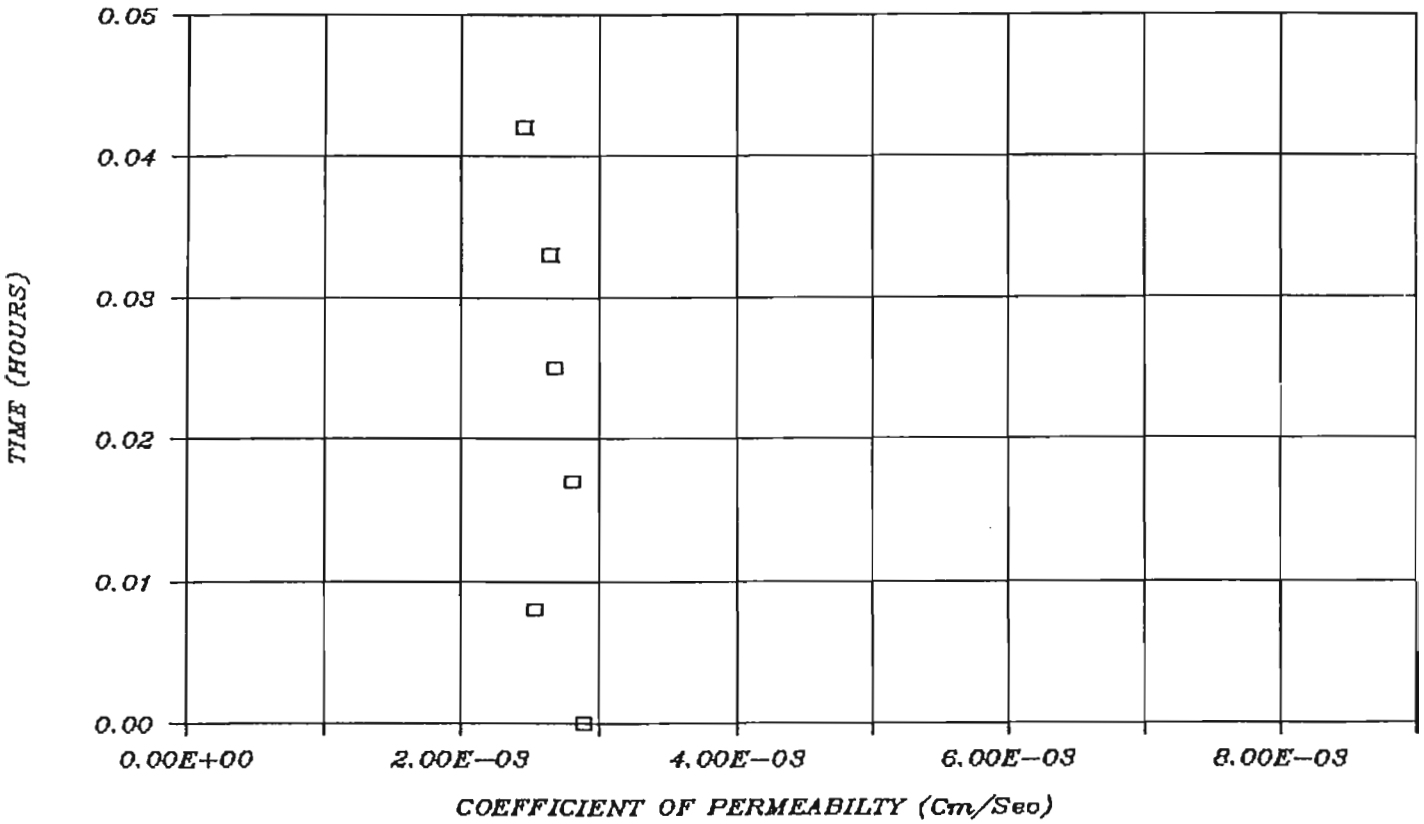
P.O. BOX 1712
JASPER, ALABAMA 35502

PROJECT NAME: JWR - Mine No. 5
SAMPLE ID: Coarse Refuse
DRY DENSITY: 102.4 pcf
SAMPLE SPECS. 90 % Compaction

TESTING DATE: 1-6-97
MOISTURE CONTENT: 5.8 %

FALLING HEAD PERMEABILITY

GRAPHIC DISPLAY



COEFFICIENT OF PERMEABILITY (Cm/Sec) = 2.66E-03

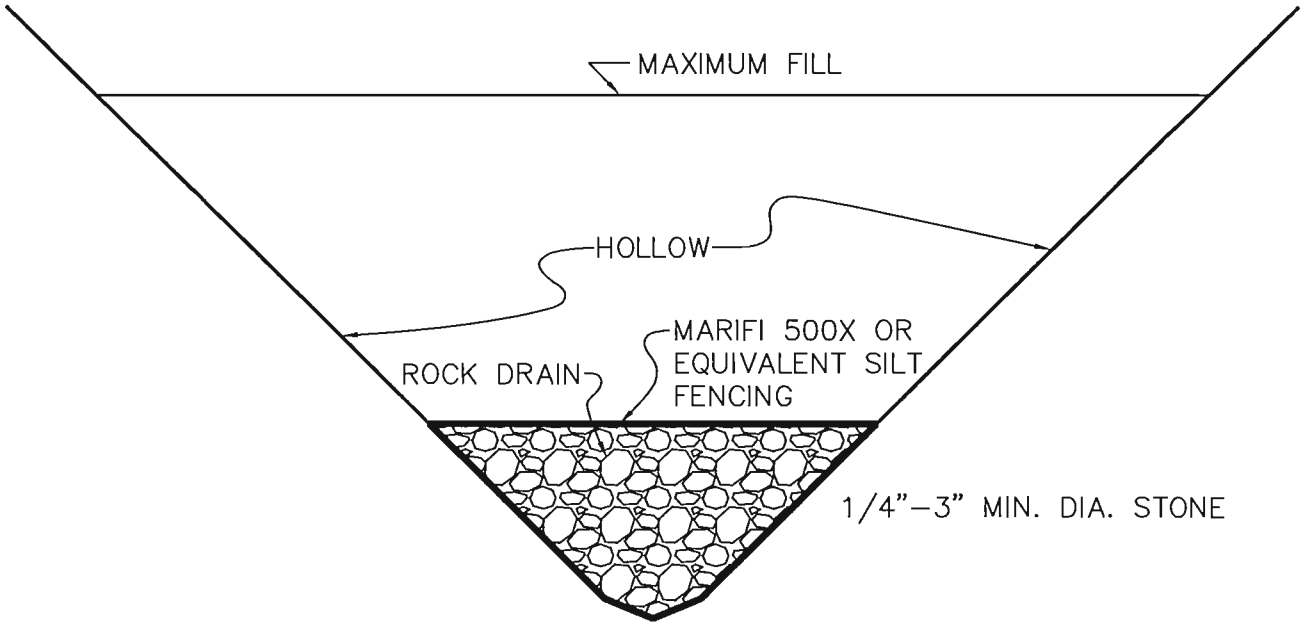
TEST PROCEDURE: CORPS ENGINEERS EM 1110-2-1906 APPENDIX VII OR ASTM D5084 WITH FLEXABLE MEMBRANE & BACK PRESSURE SATURATION

TABLE 3–2
Typical Values of Permeability Coefficients

		PARTICLE SIZE RANGE				"EFFECTIVE" SIZE		PERMEABILITY COEFFICIENT—k		
		Inches		Millimeters						
		$D_{max.}$	D_{min}	D_{max}	D_{min}	D_{20} in.	D_{10} mm.	Ft./yr.	Ft./mo.	Cm./sec.
TURBULENT FLOW	Derrick STONE	120	36	—	—	48	—	100×10^6	100×10^5	100
	One-man STONE	12	4	—	—	6	—	30×10^6	30×10^5	30
	Clean, fine to coarse GRAVEL	3	1/4	80	10	1/2	—	10×10^6	10×10^5	10
	Fine, uniform GRAVEL	3/8	1/16	8	1.5	1/8	—	5×10^6	5×10^5	5
	Very coarse, clean, uniform SAND	1/8	1/32	3	0.8	1/16	—	3×10^6	3×10^5	3
LAMINAR FLOW	Uniform, coarse SAND	1/8	1/61	2	0.5	—	0.6	0.4×10^6	0.4×10^5	0.4
	Uniform, medium SAND	—	—	0.5	0.25	—	0.3	0.1×10^6	0.1×10^5	0.1
	Clean, well-graded SAND & GRAVEL	—	—	10	0.05	—	0.1	0.01×10^6	0.01×10^5	0.01
	Uniform, fine SAND	—	—	0.25	0.05	—	0.06	4000	400	40×10^{-4}
	Well-graded, silty SAND & GRAVEL	—	—	5	0.01	—	0.02	400	40	4×10^{-4}
	Silty SAND	—	—	2	0.005	—	0.01	100	10	10^{-4}
	Uniform SILT	—	—	0.06	0.005	—	0.006	50	5	0.5×10^{-4}
	Sandy CLAY	—	—	1.0	0.001	—	0.002	5	0.5	0.05×10^{-4}
	Silty CLAY	—	—	0.05	0.001	—	0.0015	1	0.1	0.01×10^{-4}
	CLAY (30 to 50% clay sizes)	—	—	0.05	0.0005	—	0.0008	0.1	0.01	0.001×10^{-4}
	Colloidal CLAY ($-2\mu \leq 50\%$)	—	—	0.01	10Å	—	40Å	0.001	10^{-4}	10^{-9}

Table D.1.

NORTH PRATT MINING, LLC.
PRATT NO. 1 MINE / P-3972
COARSE REFUSE AREA NO. 1
UNDERDRAIN SYSTEM NO. 1



UNDERDRAIN AREA
8 SQ. FT. MIN.

NOTE: UNDERDRAIN TO CONSIST OF NON–ERODIBLE, NON–TOXIC, AND NON–ACID FORMING LIMESTONE ROCK ENCLOSED IN MARIFI 500X OR EQUIVALENT SILT FENCING.

Y:\CMO\WPG\NPP1UNDER.dwg 04/19/13 14:31

NORTH PRATT MINING, LLC.
PRATT NO. 1 MINE
P- 3972
SLOPE BENCH 3-4

6.0 INCHES, 100 YEAR - 6 HOUR. NRCS 6 HOUR

WPG

PERC ENGINEERING CO., INC.
P. O. BOX 1712
JASPER, ALABAMA 35502

General Information

Storm Information:

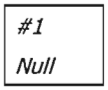
Storm Type:	Rainfall Event

Accumulated Time (hrs)	Accumulated Depth (in)
0.00	0.0000
0.50	0.2100
1.00	0.4800
1.50	0.8100
2.00	1.3800
2.50	3.6000
3.00	4.2000
3.50	4.6800
4.00	5.0100
4.50	5.3100
5.00	5.5500
5.50	5.7900
6.00	6.0000

Peak 30-minute Intensity: 4.44 in/hr

Structure Networking:

Type	Stru #	(flows into)	Stru #	Musk. K (hrs)	Musk. X	Description
Null	#1	==>	End	0.000	0.000	SLOPE BENCH 3-4



Structure Summary:

	Immediate Contributing Area (ac)	Total Contributing Area (ac)	Peak Discharge (cfs)	Total Runoff Volume (ac-ft)
#1	1.000	1.000	3.62	0.32

Structure Detail:

Structure #1 (Null)

SLOPE BENCH 3-4

Subwatershed Hydrology Detail:

Stru #	SWS #	SWS Area (ac)	Time of Conc (hrs)	Musk K (hrs)	Musk X	Curve Number	UHS	Peak Discharge (cfs)	Runoff Volume (ac-ft)
#1	1	1.000	0.019	0.000	0.000	81.000	F	3.62	0.324
	Σ	**1.000**						**3.62**	**0.324**

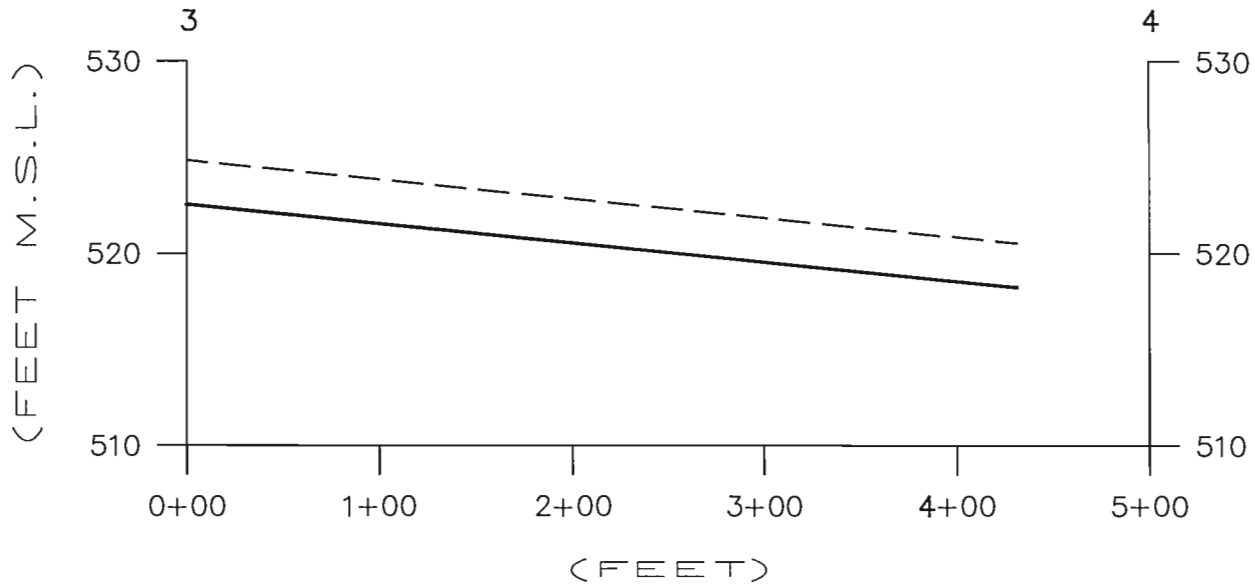
NORTH PRATT MINING, LLC. PRATT NO. 1 MINE SLOPE BENCH 3-4

Material: Grass mixture

Triangular Channel

Left Sideslope Ratio	Right Sideslope Ratio	Slope (%)	Retardance Classes	Freeboard Depth (ft)	Freeboard % of Depth	Freeboard Mult. x (VxD)	Limiting Velocity (fps)
2.5:1	2.0:1	1.0	D, B	0.50			5.0

	Stability Class D w/o Freeboard	Stability Class D w/ Freeboard	Capacity Class B w/o Freeboard	Capacity Class B w/ Freeboard
Design Discharge:	3.60 cfs		3.60 cfs	
Depth:	1.07 ft	1.57 ft	1.73 ft	2.23 ft
Top Width:	4.80 ft	7.05 ft	7.78 ft	10.03 ft
Velocity:	1.41 fps		0.54 fps	
X-Section Area:	2.56 sq ft		6.73 sq ft	
Hydraulic Radius:	0.487		0.790	
Froude Number:	0.34		0.10	
Roughness Coefficient:	0.0654		0.2378	



SCALE: 1" = 100' HORIZONTAL
1" = 10' VERTICAL

— — — EXISTING GRADE

——— BOTTOM OF ROUTING CHANNEL

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1508 Highway 78 West Jasper, Alabama 35501
P.O. Box 1712 Jasper, Alabama 35502
(205) 384-5553 Office (205) 384-9491 Fax

NORTH PRATT MINING, LLC.
PRATT NO. 1 MINE
P-3972
DIVERSION 3-4

DRAWN BY: G.R. DWG. NAME: NPP1DIV3-4	DATE: 4-12-13
APPROVED BY: W.P.G.	SCALE: AS NOTED

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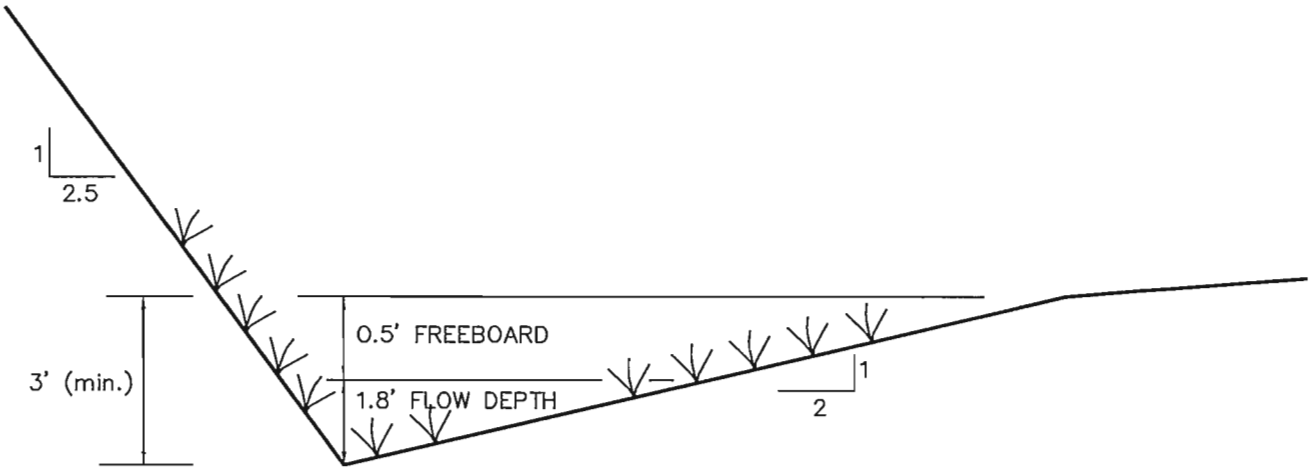


GRASS LINING TO CONSIST OF A MIXTURE OF FESCUE, BERMUDA, AND SERICEA GRASSES.

PERC ENGINEERING CO., INC.
1606 Highway 78 West Jasper, Alabama 35501
P.O. Box 1712 Jasper, Alabama 35502
(205) 384-3533 Office (205) 384-9881 Fax

NORTH PRATT MINING, LLC.
PRATT NO. 1 MINE
P-3972
SLOPE BENCH 3-4
GRASS LINED

DRAWN BY: C.M.O. DWG. NAME: NPP134SB	DATE: 4-11-13
APPROVED BY: W.P.G.	SCALE: NONE

NORTH PRATT MINING, LLC.
PRATT NO. 1 MINE
P- 3972
SLOPE BENCH 5-6

6.0 INCHES, 100 YEAR - 6 HOUR. NRCS 6 HOUR

WPG

PERC ENGINEERING CO., INC.
P. O. BOX 1712
JASPER, ALABAMA 35502

General Information

Storm Information:

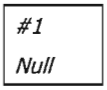
Storm Type:	Rainfall Event

Accumulated Time (hrs)	Accumulated Depth (in)
0.00	0.0000
0.50	0.2100
1.00	0.4800
1.50	0.8100
2.00	1.3800
2.50	3.6000
3.00	4.2000
3.50	4.6800
4.00	5.0100
4.50	5.3100
5.00	5.5500
5.50	5.7900
6.00	6.0000

Peak 30-minute Intensity: 4.44 in/hr

Structure Networking:

Type	Stru #	(flows into)	Stru #	Musk. K (hrs)	Musk. X	Description
Null	#1	==>	End	0.000	0.000	SLOPE BENCH 5-6



Structure Summary:

	Immediate Contributing Area (ac)	Total Contributing Area (ac)	Peak Discharge (cfs)	Total Runoff Volume (ac-ft)
#1	2.000	2.000	7.24	0.65

Structure Detail:

Structure #1 (Null)

SLOPE BENCH 5-6

Subwatershed Hydrology Detail:

Stru #	SWS #	SWS Area (ac)	Time of Conc (hrs)	Musk K (hrs)	Musk X	Curve Number	UHS	Peak Discharge (cfs)	Runoff Volume (ac-ft)
#1	1	2.000	0.020	0.000	0.000	81.000	F	7.24	0.647
	Σ	**2.000**						**7.24**	**0.647**

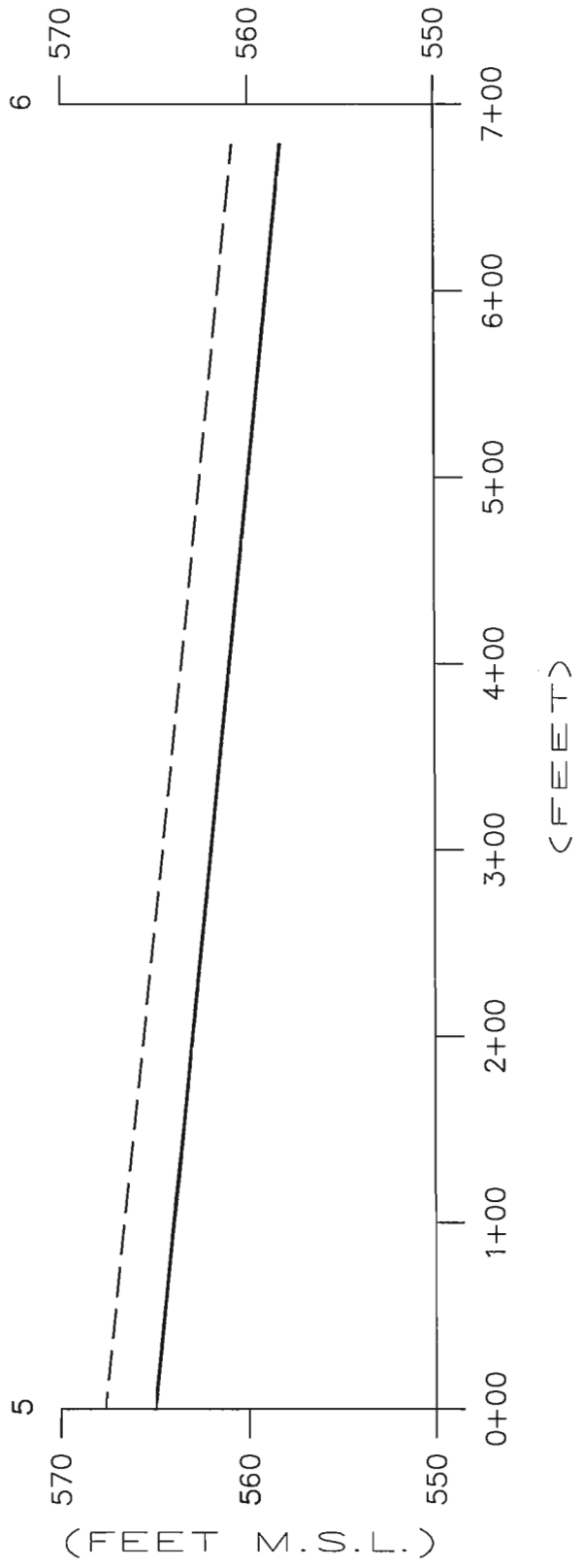
NORTH PRATT MINING, LLC. PRATT NO. 1 MINE SLOPE BENCH 5-6

Material: Grass mixture

Triangular Channel

Left Sideslope Ratio	Right Sideslope Ratio	Slope (%)	Retardance Classes	Freeboard Depth (ft)	Freeboard % of Depth	Freeboard Mult. x (VxD)	Limiting Velocity (fps)
2.5:1	2.0:1	1.0	D, B	0.50			5.0

	Stability Class D w/o Freeboard	Stability Class D w/ Freeboard	Capacity Class B w/o Freeboard	Capacity Class B w/ Freeboard
Design Discharge:	7.20 cfs		7.20 cfs	
Depth:	1.31 ft	1.81 ft	2.02 ft	2.52 ft
Top Width:	5.88 ft	8.13 ft	9.07 ft	11.32 ft
Velocity:	1.87 fps		0.79 fps	
X-Section Area:	3.84 sq ft		9.14 sq ft	
Hydraulic Radius:	0.597		0.921	
Froude Number:	0.41		0.14	
Roughness Coefficient:	0.0563		0.1790	



SCALE: 1" = 100' HORIZONTAL
1" = 10' VERTICAL

— — — EXISTING GRADE

——— BOTTOM OF ROUTING CHANNEL

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1606 Highway 78 West Jasper, Alabama 35501
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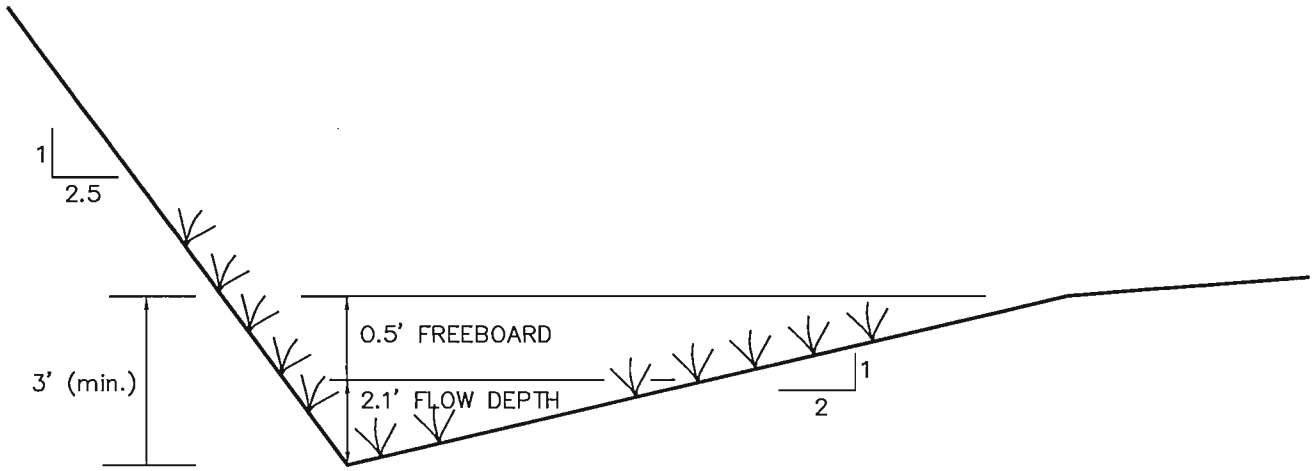
(205) 384-5553 Office (205) 384-9481 Fax

NORTH PRATT MINING, LLC.
PRATT NO. 1 MINE
P-3972
DIVERSION 5-6

DRAWN BY: G.R. DWG. NAME: NPP1DIV5-6	DATE: 4-12-13
APPROVED BY: W.P.G.	SCALE: AS NOTED



GRASS LINING TO CONSIST OF A MIXTURE OF FESCUE, BERMUDA, AND SERICEA GRASSES.

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ENGINEERING CO., INC.
1606 Highway 78 West Jasper, Alabama 35501
P.O. Box 1712 Jasper, Alabama 35502
(205) 384-5553 Office (205) 384-5491 Fax

NORTH PRATT MINING, LLC.
PRATT NO. 1 MINE
P-3972
SLOPE BENCH 5-6
GRASS LINED

DRAWN BY: C.M.O. DWG. NAME: NPP156SB	DATE: 4-11-13
APPROVED BY: W.P.G.	SCALE: NONE

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NORTH PRATT MINING, LLC.
PRATT NO. 1 MINE
P- 3972
SLOPE BENCH 8-6

6.0 INCHES, 100 YEAR - 6 HOUR. NRCS 6 HOUR

WPG

PERC ENGINEERING CO., INC.
P. O. BOX 1712
JASPER, ALABAMA 35502

General Information

Storm Information:

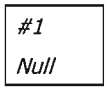
Storm Type:	Rainfall Event

Accumulated Time (hrs)	Accumulated Depth (in)
0.00	0.0000
0.50	0.2100
1.00	0.4800
1.50	0.8100
2.00	1.3800
2.50	3.6000
3.00	4.2000
3.50	4.6800
4.00	5.0100
4.50	5.3100
5.00	5.5500
5.50	5.7900
6.00	6.0000

Peak 30-minute Intensity: 4.44 in/hr

Structure Networking:

Type	Stru #	(flows into)	Stru #	Musk. K (hrs)	Musk. X	Description
Null	#1	==>	End	0.000	0.000	SLOPE BENCH 8-6



Structure Summary:

	Immediate Contributing Area (ac)	Total Contributing Area (ac)	Peak Discharge (cfs)	Total Runoff Volume (ac-ft)
#1	3.000	3.000	10.86	0.97

Structure Detail:

Structure #1 (Null)

SLOPE BENCH 8-6

Subwatershed Hydrology Detail:

Stru #	SWS #	SWS Area (ac)	Time of Conc (hrs)	Musk K (hrs)	Musk X	Curve Number	UHS	Peak Discharge (cfs)	Runoff Volume (ac-ft)
#1	1	3.000	0.020	0.000	0.000	81.000	F	10.86	0.971
	Σ	**3.000**						**10.86**	**0.971**

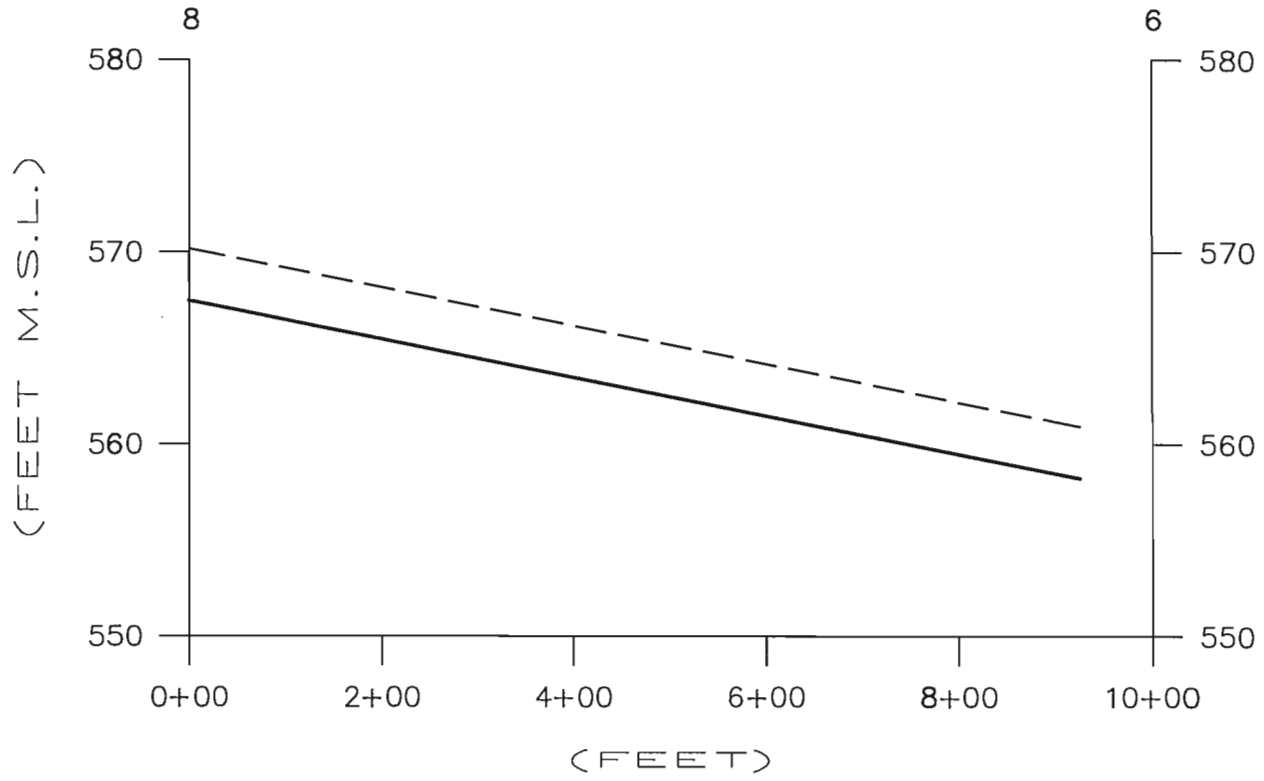
NORTH PRATT MINING, LLC. PRATT NO. 1 MINE SLOPE BENCH 8-6

Material: Grass mixture

Triangular Channel

Left Sideslope Ratio	Right Sideslope Ratio	Slope (%)	Retardance Classes	Freeboard Depth (ft)	Freeboard % of Depth	Freeboard Mult. x (VxD)	Limiting Velocity (fps)
2.5:1	2.0:1	1.0	D, B	0.50			5.0

	Stability Class D w/o Freeboard	Stability Class D w/ Freeboard	Capacity Class B w/o Freeboard	Capacity Class B w/ Freeboard
Design Discharge:	10.90 cfs		10.90 cfs	
Depth:	1.48 ft	1.98 ft	2.21 ft	2.71 ft
Top Width:	6.64 ft	8.89 ft	9.95 ft	12.20 ft
Velocity:	2.22 fps		0.99 fps	
X-Section Area:	4.90 sq ft		10.99 sq ft	
Hydraulic Radius:	0.674		1.010	
Froude Number:	0.46		0.17	
Roughness Coefficient:	0.0515		0.1511	



SCALE: 1" = 200' HORIZONTAL
1" = 10' VERTICAL

— — — EXISTING GRADE

——— BOTTOM OF ROUTING CHANNEL

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(205) 384-5553 Office (205) 384-9491 Fax

NORTH PRATT MINING, LLC.
PRATT NO. 1 MINE
P-3972
DIVERSION 8-6

DRAWN BY: G.R. DWG. NAME: NPP1DIV8-6	DATE: 4-19-13
APPROVED BY: W.P.G.	SCALE: AS NOTED

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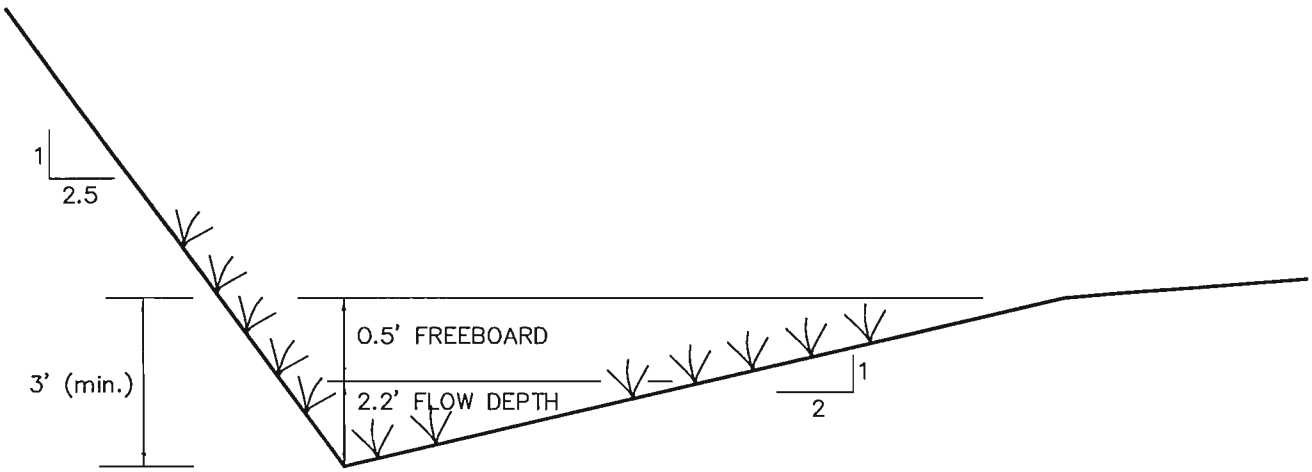

GRASS LINING TO CONSIST OF A MIXTURE OF FESCUE, BERMUDA, AND SERICEA GRASSES.

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(205) 384-5553 Office (205) 384-9491 Fax

NORTH PRATT MINING, LLC.
PRATT NO. 1 MINE
P-3972
SLOPE BENCH 8-6
GRASS LINED

DRAWN BY: C.M.O. DWG. NAME: NPP186SB	DATE: 4-11-13
APPROVED BY: W.P.G.	SCALE: NONE

NORTH PRATT MINING, LLC.
PRATT NO. 1 MINE
P- 3972
DIVERSION 6-7

6.0 INCHES, 100 YEAR - 6 HOUR. NRCS 6 HOUR

WPG

PERC ENGINEERING CO., INC.
P. O. BOX 1712
JASPER, ALABAMA 35502

General Information

Storm Information:

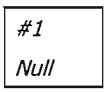
Storm Type:	Rainfall Event

Accumulated Time (hrs)	Accumulated Depth (in)
0.00	0.0000
0.50	0.2100
1.00	0.4800
1.50	0.8100
2.00	1.3800
2.50	3.6000
3.00	4.2000
3.50	4.6800
4.00	5.0100
4.50	5.3100
5.00	5.5500
5.50	5.7900
6.00	6.0000

Peak 30-minute Intensity: 4.44 in/hr

Structure Networking:

Type	Stru #	(flows into)	Stru #	Musk. K (hrs)	Musk. X	Description
Null	#1	==>	End	0.000	0.000	DIVERSION 6-7



Structure Summary:

	Immediate Contributing Area (ac)	Total Contributing Area (ac)	Peak Discharge (cfs)	Total Runoff Volume (ac-ft)
#1	5.000	5.000	18.10	1.62

Structure Detail:

Structure #1 (Null)

DIVERSION 6-7

Subwatershed Hydrology Detail:

Stru #	SWS #	SWS Area (ac)	Time of Conc (hrs)	Musk K (hrs)	Musk X	Curve Number	UHS	Peak Discharge (cfs)	Runoff Volume (ac-ft)
#1	1	5.000	0.020	0.000	0.000	81.000	F	18.10	1.618
	Σ	**5.000**						**18.10**	**1.618**

NORTH PRATT MINING, LLC. PRATT NO. 1 MINE DIVERSION 6-7

Material: Riprap

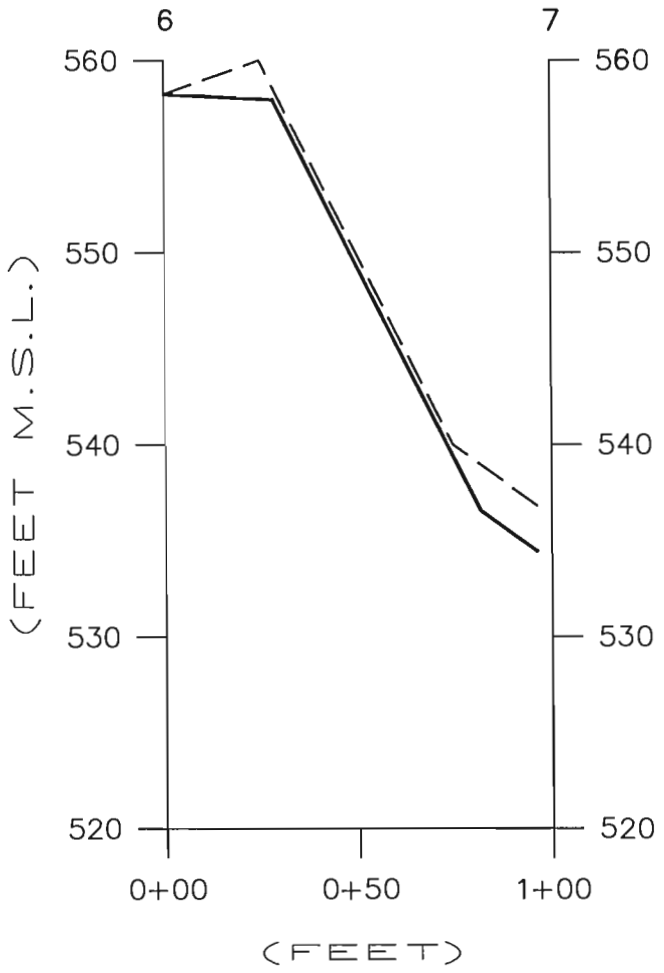
Trapezoidal Channel

Bottom Width (ft)	Left Sideslope Ratio	Right Sideslope Ratio	Slope (%)	Freeboard Depth (ft)	Freeboard % of Depth	Freeboard Mult. x (VxD)
10.00	2.0:1	2.0:1	40.0	0.50		

Simons/OSM Method - Steep Slope Design

	w/o Freeboard	w/ Freeboard
Design Discharge:	18.10 cfs	
Depth:	0.05 ft	0.55 ft
Top Width:	10.21 ft	12.21 ft
Velocity*:		
X-Section Area:	0.53 sq ft	
Hydraulic Radius:	0.052	
Froude Number*:		
Manning's n*:		
Dmin:	4.00 in	
D50:	12.00 in	
Dmax:	15.00 in	

Velocity and Manning's n calculations may not apply for this method.



SCALE: 1" = 50' HORIZONTAL
1" = 10' VERTICAL

— — — EXISTING GRADE

——— BOTTOM OF ROUTING CHANNEL

PERC
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(205) 384-5553 Office (205) 384-5451 fax

NORTH PRATT MINING, LLC.
PRATT NO. 1 MINE
P-3972
DIVERSION 6-7

DRAWN BY: G.R. DWG. NAME: NPP1DIV6-7	DATE: 4-19-13
APPROVED BY: W.P.G.	SCALE: AS NOTED

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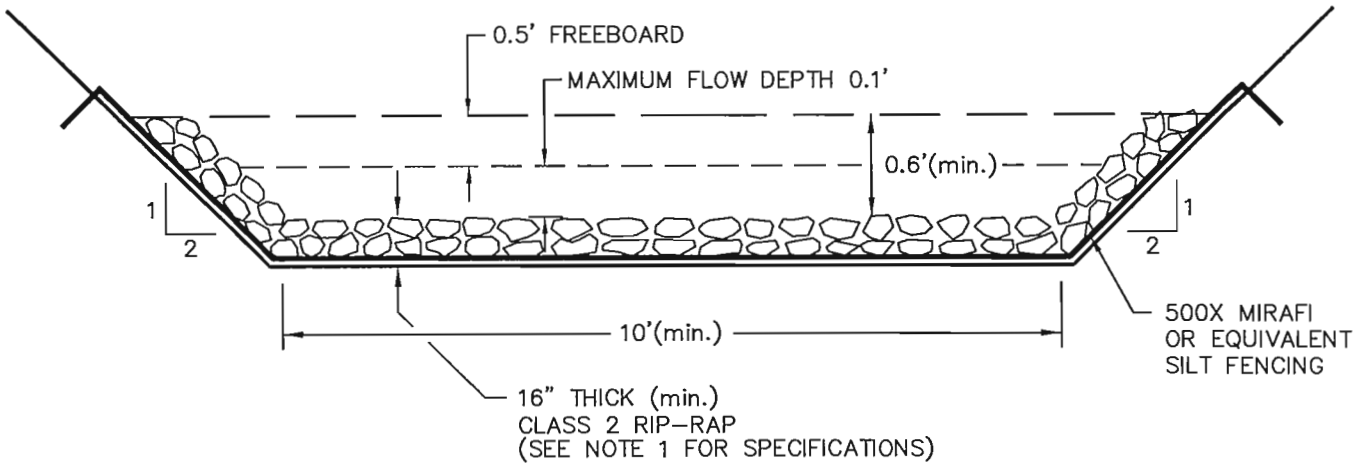

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1606 Highway 78 West Jasper, Alabama 35501
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(205) 384-5053 Office (205) 384-9491 fax

NORTH PRATT MINING, LLC.
PRATT NO. 1 MINE
P-3972
DIVERSION 6-7
RIP-RAP LINED

DRAWN BY: C.M.O. DWG. NAME: NPP167R	DATE: 4-11-13
APPROVED BY: W.P.G.	SCALE: NONE

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NORTH PRATT MINING, LLC.
PRATT NO. 1 MINE
P- 3972
DIVERSION 9-11

6.0 INCHES, 100 YEAR - 6 HOUR. NRCS 6 HOUR

WPG

PERC ENGINEERING CO., INC.
P. O. BOX 1712
JASPER, ALABAMA 35502

General Information

Storm Information:

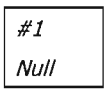
Storm Type:	Rainfall Event

Accumulated Time (hrs)	Accumulated Depth (in)
0.00	0.0000
0.50	0.2100
1.00	0.4800
1.50	0.8100
2.00	1.3800
2.50	3.6000
3.00	4.2000
3.50	4.6800
4.00	5.0100
4.50	5.3100
5.00	5.5500
5.50	5.7900
6.00	6.0000

Peak 30-minute Intensity: 4.44 in/hr

Structure Networking:

Type	Stru #	(flows into)	Stru #	Musk. K (hrs)	Musk. X	Description
Null	#1	==>	End	0.000	0.000	DIVERSION 9-11



Structure Summary:

	Immediate Contributing Area (ac)	Total Contributing Area (ac)	Peak Discharge (cfs)	Total Runoff Volume (ac-ft)
#1	4.000	4.000	14.48	1.29

Structure Detail:

Structure #1 (Null)

DIVERSION 9-11

Subwatershed Hydrology Detail:

Stru #	SWS #	SWS Area (ac)	Time of Conc (hrs)	Musk K (hrs)	Musk X	Curve Number	UHS	Peak Discharge (cfs)	Runoff Volume (ac-ft)
#1	1	4.000	0.040	0.000	0.000	81.000	F	14.48	1.295
	Σ	**4.000**						**14.48**	**1.295**

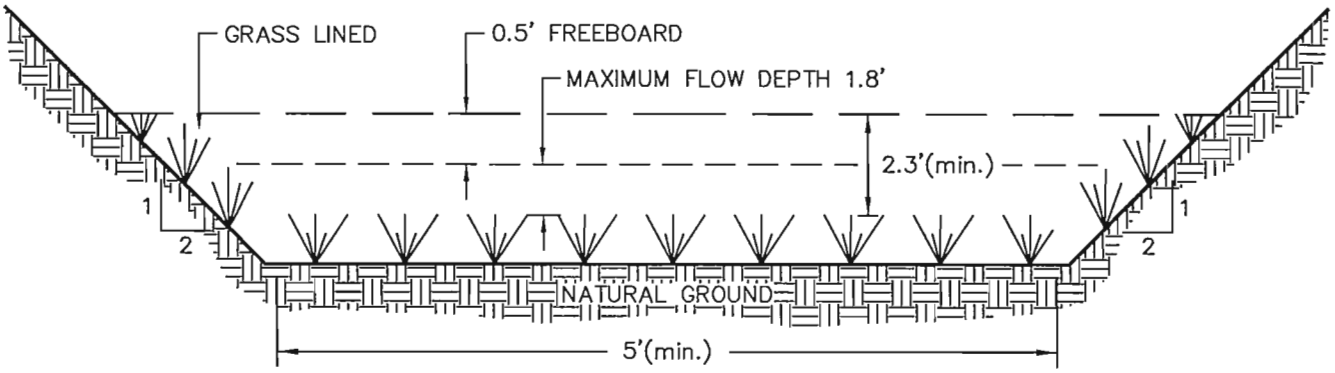
NORTH PRATT MINING, LLC. PRATT NO. 1 MINE DIVERSION 9-10

Material: Grass mixture

Trapezoidal Channel

Bottom Width (ft)	Left Sideslope Ratio	Right Sideslope Ratio	Slope (%)	Retardance Classes	Freeboard Depth (ft)	Freeboard % of Depth	Freeboard Mult. x (VxD)	Limiting Velocity (fps)
5.00	2.0:1	2.0:1	0.7	D, B	0.50			5.0

	Stability Class D w/o Freeboard	Stability Class D w/ Freeboard	Capacity Class B w/o Freeboard	Capacity Class B w/ Freeboard
Design Discharge:	14.50 cfs		14.50 cfs	
Depth:	1.02 ft	1.52 ft	1.76 ft	2.26 ft
Top Width:	9.10 ft	11.10 ft	12.02 ft	14.02 ft
Velocity:	2.01 fps		0.97 fps	
X-Section Area:	7.22 sq ft		14.94 sq ft	
Hydraulic Radius:	0.753		1.162	
Froude Number:	0.40		0.15	
Roughness Coefficient:	0.0514		0.1419	



GRASS LINING TO CONSIST OF A MIXTURE OF FESCUE, BERMUDA, AND SERICEA GRASSES.

PERC
ENGINEERING CO., INC.
1508 Highway 78 West Jasper, Alabama 35501
P.O. Box 1712 Jasper, Alabama 35502
(205) 384-5533 Office (205) 384-9181 Fax

NORTH PRATT MINING, LLC.
PRATT NO. 1 MINE
P-3972
DIVERSION 9-10
GRASSED LINED

DRAWN BY: C.M.O. DWG. NAME: NPP1910G	DATE: 4-11-13
APPROVED BY: W.P.G.	SCALE: NONE

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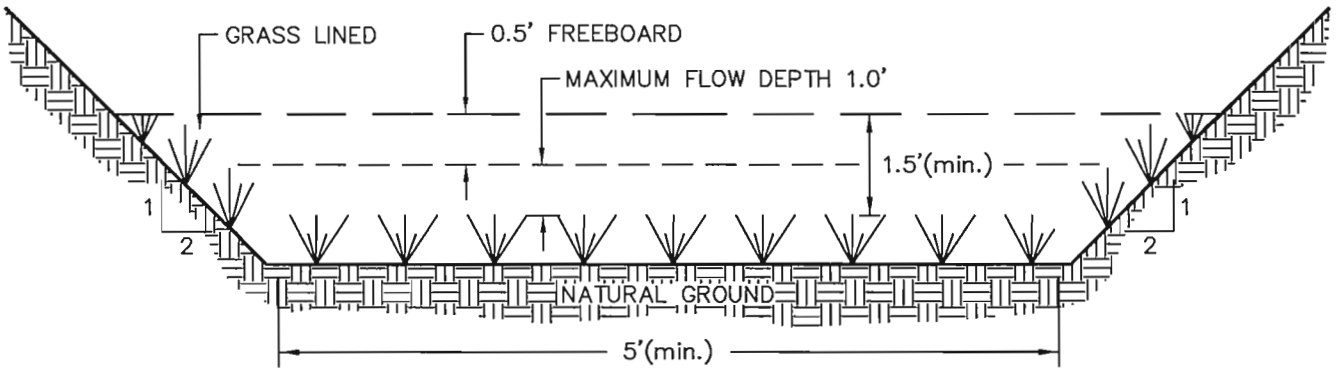
NORTH PRATT MINING, LLC. PRATT NO. 1 MINE DIVERSION 10-11

Material: Grass mixture

Trapezoidal Channel

Bottom Width (ft)	Left Sideslope Ratio	Right Sideslope Ratio	Slope (%)	Retardance Classes	Freeboard Depth (ft)	Freeboard % of Depth	Freeboard Mult. x (VxD)	Limiting Velocity (fps)
5.00	2.0:1	2.0:1	5.0	D, B	0.50			5.0

	Stability Class D w/o Freeboard	Stability Class D w/ Freeboard	Capacity Class B w/o Freeboard	Capacity Class B w/ Freeboard
Design Discharge:	14.50 cfs		14.50 cfs	
Depth:	0.57 ft	1.07 ft	0.95 ft	1.45 ft
Top Width:	7.27 ft	9.27 ft	8.79 ft	10.79 ft
Velocity:	4.16 fps		2.22 fps	
X-Section Area:	3.49 sq ft		6.54 sq ft	
Hydraulic Radius:	0.462		0.708	
Froude Number:	1.06		0.45	
Roughness Coefficient:	0.0477		0.1193	



GRASS LINING TO CONSIST OF A MIXTURE OF FESCUE, BERMUDA, AND SERICEA GRASSES.

PERC
ENGINEERING CO., INC.
1606 Highway 78 West Jasper, Alabama 35501
P.O. Box 1717 Jasper, Alabama 35502
(205) 384-5353 Office (205) 384-9491 Fax

NORTH PRATT MINING, LLC.
PRATT NO. 1 MINE
P-3972
DIVERSION 10-11
GRASSED LINED

DRAWN BY: C.M.O. DWG. NAME: NPP1011G	DATE: 4-11-13
APPROVED BY: W.P.G.	SCALE: NONE

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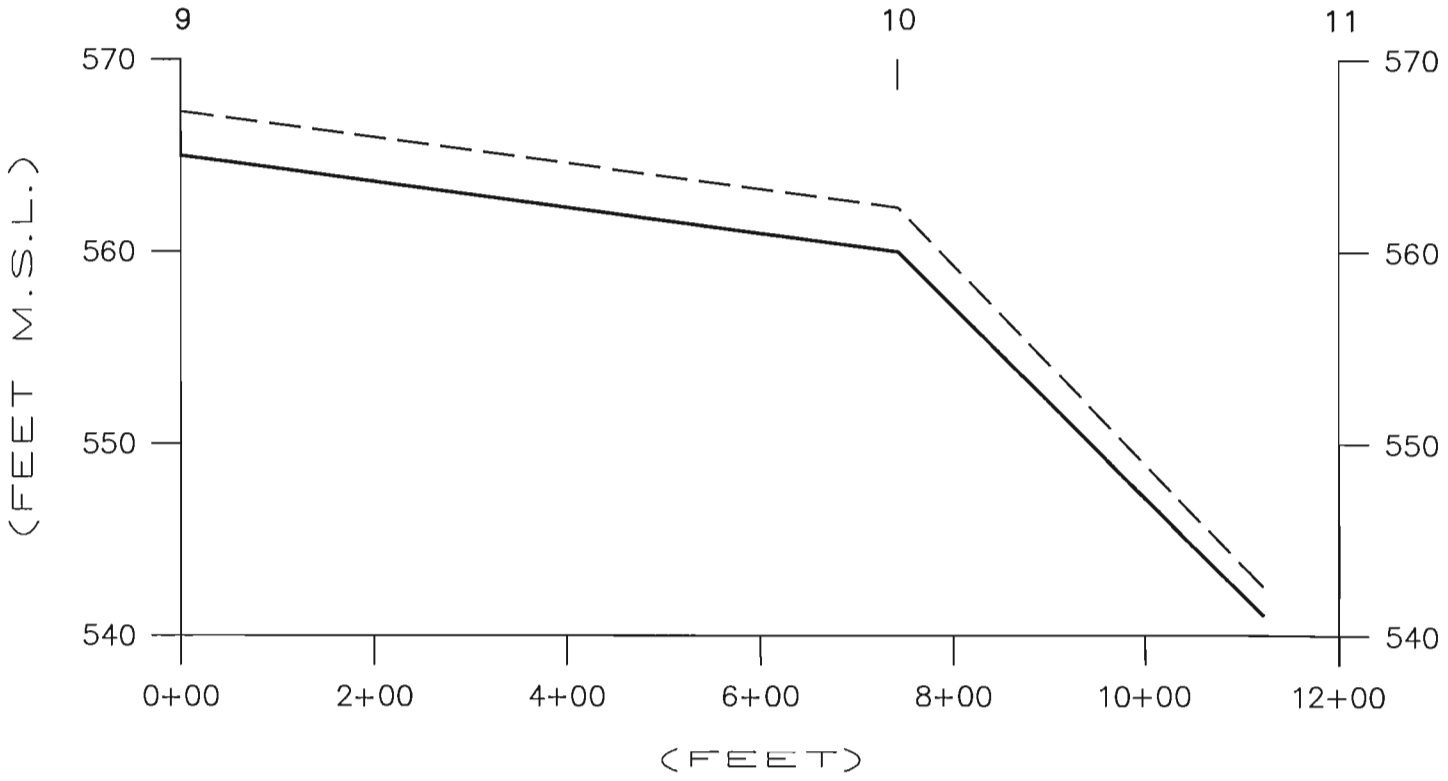

SCALE: 1" = 200' HORIZONTAL
1" = 10' VERTICAL

— — — EXISTING GRADE

——— BOTTOM OF ROUTING CHANNEL

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(205) 384-5553 Office (205) 384-8191 Fax

NORTH PRATT MINING, LLC.
PRATT NO. 1 MINE
P-3972
DIVERSION 9-11

DRAWN BY: G.R. DWG. NAME: NPP1DIV9-11	DATE: 4-19-13
APPROVED BY: W.P.G.	SCALE: AS NOTED

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NORTH PRATT MINING, LLC.
PRATT NO. 1 MINE
P- 3972
DIVERSION 11-7

6.0 INCHES, 100 YEAR - 6 HOUR. NRCS 6 HOUR

WPG

PERC ENGINEERING CO., INC.
P. O. BOX 1712
JASPER, ALABAMA 35502

General Information

Storm Information:

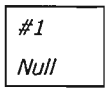
Storm Type:	Rainfall Event

Accumulated Time (hrs)	Accumulated Depth (in)
0.00	0.0000
0.50	0.2100
1.00	0.4800
1.50	0.8100
2.00	1.3800
2.50	3.6000
3.00	4.2000
3.50	4.6800
4.00	5.0100
4.50	5.3100
5.00	5.5500
5.50	5.7900
6.00	6.0000

Peak 30-minute Intensity: 4.44 in/hr

Structure Networking:

Type	Stru #	(flows into)	Stru #	Musk. K (hrs)	Musk. X	Description
Null	#1	==>	End	0.000	0.000	DIVERSION 11-7



Structure Summary:

	Immediate Contributing Area (ac)	Total Contributing Area (ac)	Peak Discharge (cfs)	Total Runoff Volume (ac-ft)
#1	7.000	7.000	25.35	2.27

Structure Detail:

Structure #1 (Null)

DIVERSION 11-7

Subwatershed Hydrology Detail:

Stru #	SWS #	SWS Area (ac)	Time of Conc (hrs)	Musk K (hrs)	Musk X	Curve Number	UHS	Peak Discharge (cfs)	Runoff Volume (ac-ft)
#1	1	7.000	0.070	0.000	0.000	81.000	F	25.35	2.266
	$\sum$	**7.000**						**25.35**	**2.266**

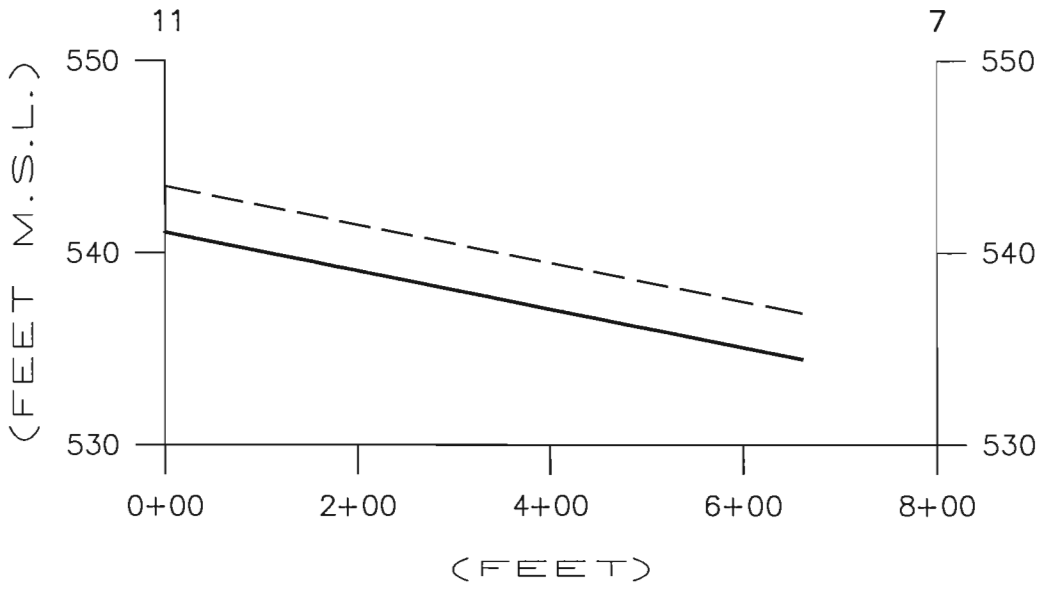
NORTH PRATT MINING, LLC. PRATT NO. 1 MINE DIVERSION 11-7

Material: Grass mixture

Trapezoidal Channel

Bottom Width (ft)	Left Sideslope Ratio	Right Sideslope Ratio	Slope (%)	Retardance Classes	Freeboard Depth (ft)	Freeboard % of Depth	Freeboard Mult. x (VxD)	Limiting Velocity (fps)
5.00	2.0:1	2.0:1	1.0	D, B	0.50			5.0

	Stability Class D w/o Freeboard	Stability Class D w/ Freeboard	Capacity Class B w/o Freeboard	Capacity Class B w/ Freeboard
Design Discharge:	25.40 cfs		25.40 cfs	
Depth:	1.16 ft	1.66 ft	1.85 ft	2.35 ft
Top Width:	9.64 ft	11.64 ft	12.40 ft	14.40 ft
Velocity:	2.99 fps		1.58 fps	
X-Section Area:	8.49 sq ft		16.11 sq ft	
Hydraulic Radius:	0.833		1.213	
Froude Number:	0.56		0.24	
Roughness Coefficient:	0.0441		0.1075	



SCALE: 1" = 200' HORIZONTAL
1" = 10' VERTICAL

— — — EXISTING GRADE

——— BOTTOM OF ROUTING CHANNEL

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NORTH PRATT MINING, LLC.
PRATT NO. 1 MINE
P-3972
DIVERSION 11-7

DRAWN BY: G.R. DWG. NAME: NPP1DIV11-7	DATE: 4-19-13
APPROVED BY: W.P.G.	SCALE: AS NOTED

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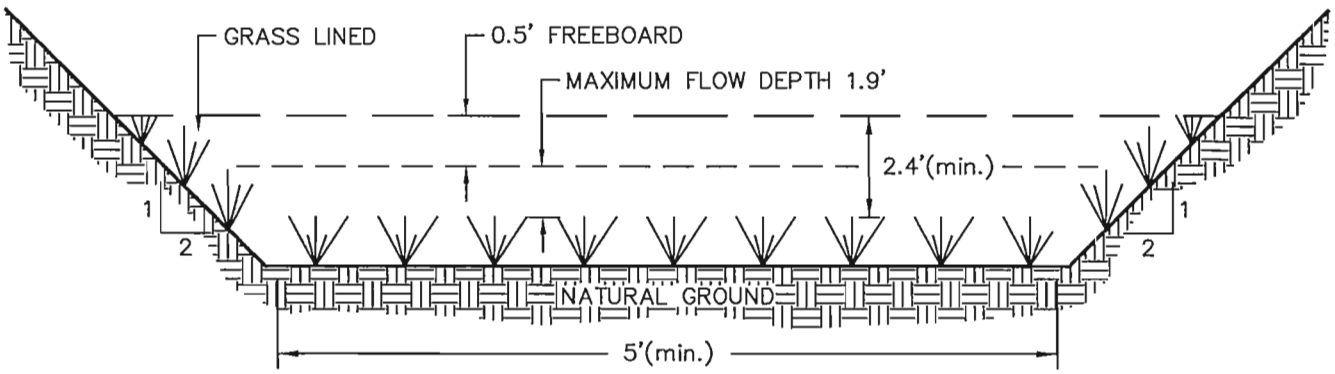

GRASS LINING TO CONSIST OF A MIXTURE OF FESCUE, BERMUDA, AND SERICEA GRASSES.

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NORTH PRATT MINING, LLC.
PRATT NO. 1 MINE
P-3972
DIVERSION 11-7
GRASSED LINED

DRAWN BY: C.M.O. DWG. NAME: NPP1117G	DATE: 4-11-13
APPROVED BY: W.P.G.	SCALE: NONE

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NORTH PRATT MINING, LLC.
PRATT NO. 1 MINE
P- 3972
DIVERSION 7-4

6.0 INCHES, 100 YEAR - 6 HOUR. NRCS 6 HOUR

WPG

PERC ENGINEERING CO., INC.
P. O. BOX 1712
JASPER, ALABAMA 35502

General Information

Storm Information:

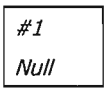
Storm Type:	Rainfall Event

Accumulated Time (hrs)	Accumulated Depth (in)
0.00	0.0000
0.50	0.2100
1.00	0.4800
1.50	0.8100
2.00	1.3800
2.50	3.6000
3.00	4.2000
3.50	4.6800
4.00	5.0100
4.50	5.3100
5.00	5.5500
5.50	5.7900
6.00	6.0000

Peak 30-minute Intensity: 4.44 in/hr

Structure Networking:

Type	Stru #	(flows into)	Stru #	Musk. K (hrs)	Musk. X	Description
Null	#1	==>	End	0.000	0.000	DIVERSION 7-4



Structure Summary:

	Immediate Contributing Area (ac)	Total Contributing Area (ac)	Peak Discharge (cfs)	Total Runoff Volume (ac-ft)
#1	12.000	12.000	43.45	3.88

Structure Detail:

Structure #1 (Null)

DIVERSION 7-4

Subwatershed Hydrology Detail:

Stru #	SWS #	SWS Area (ac)	Time of Conc (hrs)	Musk K (hrs)	Musk X	Curve Number	UHS	Peak Discharge (cfs)	Runoff Volume (ac-ft)
#1	1	12.000	0.075	0.000	0.000	81.000	F	43.45	3.884
	Σ	**12.000**						**43.45**	**3.884**

NORTH PRATT MINING, LLC. PRATT NO. 1 MINE DIVERSION 7-4

Material: Riprap

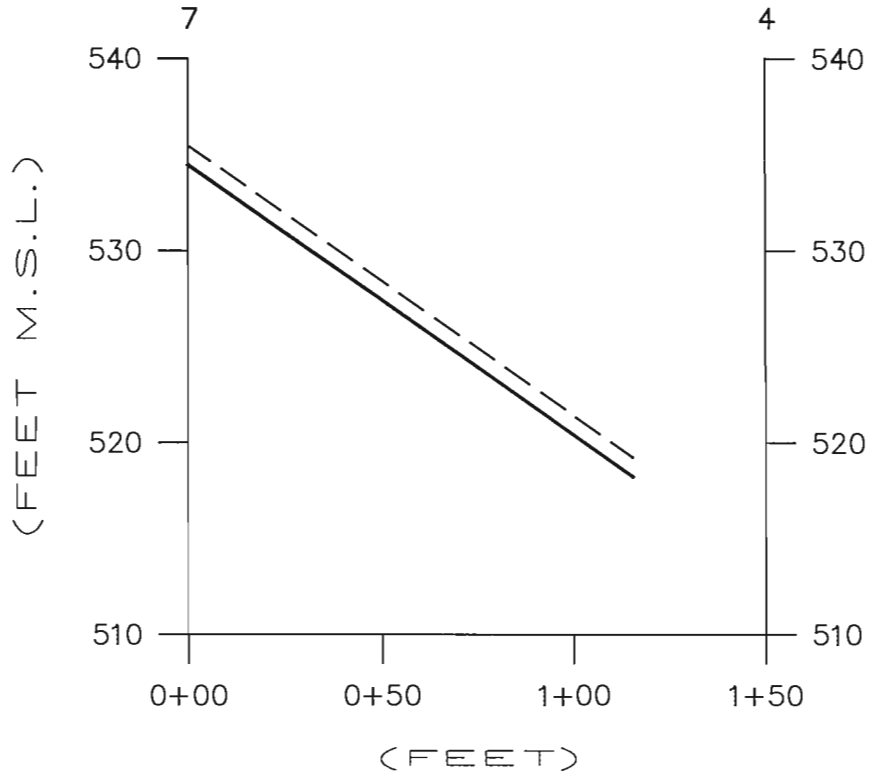
Trapezoidal Channel

Bottom Width (ft)	Left Sideslope Ratio	Right Sideslope Ratio	Slope (%)	Freeboard Depth (ft)	Freeboard % of Depth	Freeboard Mult. x (VxD)
6.00	2.0:1	2.0:1	14.1	0.50		

Simons/OSM Method - Steep Slope Design

	w/o Freeboard	w/ Freeboard
Design Discharge:	43.40 cfs	
Depth:	0.45 ft	0.95 ft
Top Width:	7.81 ft	9.81 ft
Velocity*:		
X-Section Area:	3.12 sq ft	
Hydraulic Radius:	0.389	
Froude Number*:		
Manning's n*:		
Dmin:	4.00 in	
D50:	12.00 in	
Dmax:	15.00 in	

Velocity and Manning's n calculations may not apply for this method.



SCALE: 1" = 50' HORIZONTAL
1" = 10' VERTICAL

— — — EXISTING GRADE

——— BOTTOM OF ROUTING CHANNEL

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(205) 384-3333 Office (205) 384-8181 Fax

NORTH PRATT MINING, LLC.
PRATT NO. 1 MINE
P-3972
DIVERSION 7-4

DRAWN BY: G.R. DWG. NAME: NPP1DIV7-4	DATE: 4-19-13
APPROVED BY: W.P.G.	SCALE: AS NOTED

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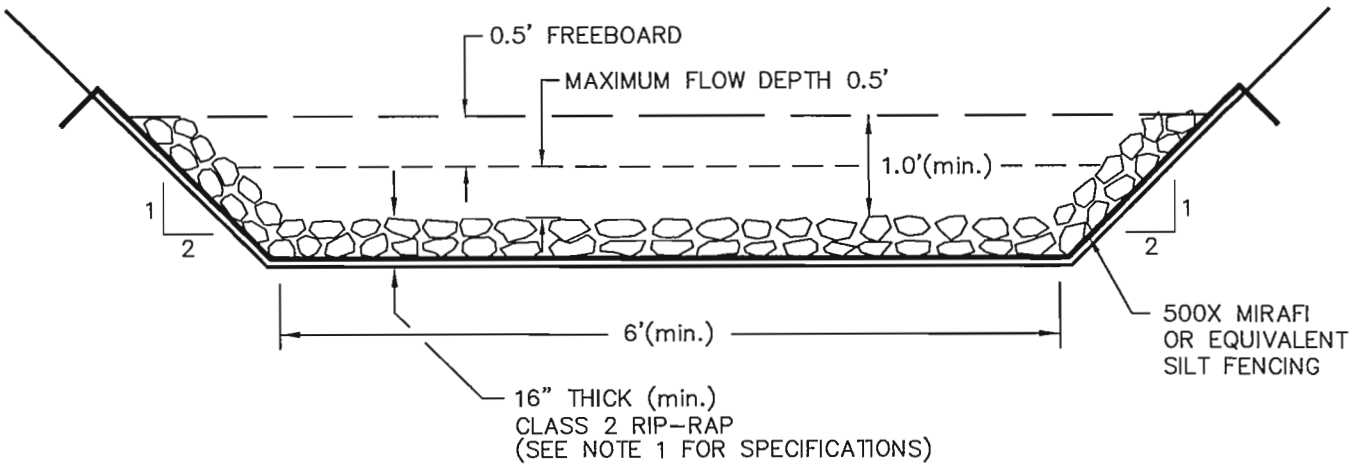

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NORTH PRATT MINING, LLC.
PRATT NO. 1 MINE
P-3972
DIVERSION 7-4
RIP-RAP LINED

DRAWN BY: C.M.O. DWG. NAME: NPP174R	DATE: 4-11-13
APPROVED BY: W.P.G.	SCALE: NONE

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NORTH PRATT MINING, LLC.
PRATT NO. 1 MINE
P- 3972
DIVERSION 4-2

6.0 INCHES, 100 YEAR - 6 HOUR. NRCS 6 HOUR

WPG

PERC ENGINEERING CO., INC.
P. O. BOX 1712
JASPER, ALABAMA 35502

General Information

Storm Information:

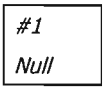
Storm Type:	Rainfall Event

Accumulated Time (hrs)	Accumulated Depth (in)
0.00	0.0000
0.50	0.2100
1.00	0.4800
1.50	0.8100
2.00	1.3800
2.50	3.6000
3.00	4.2000
3.50	4.6800
4.00	5.0100
4.50	5.3100
5.00	5.5500
5.50	5.7900
6.00	6.0000

Peak 30-minute Intensity: 4.44 in/hr

Structure Networking:

Type	Stru #	(flows into)	Stru #	Musk. K (hrs)	Musk. X	Description
Null	#1	==>	End	0.000	0.000	DIVERSION 4-2



Structure Summary:

	Immediate Contributing Area (ac)	Total Contributing Area (ac)	Peak Discharge (cfs)	Total Runoff Volume (ac-ft)
#1	15.000	15.000	54.31	4.85

Structure Detail:

Structure #1 (Null)

DIVERSION 4-2

Subwatershed Hydrology Detail:

Stru #	SWS #	SWS Area (ac)	Time of Conc (hrs)	Musk K (hrs)	Musk X	Curve Number	UHS	Peak Discharge (cfs)	Runoff Volume (ac-ft)
#1	1	15.000	0.080	0.000	0.000	81.000	F	54.31	4.855
	$\sum$	**15.000**						**54.31**	**4.855**

NORTH PRATT MINING, LLC. PRATT NO. 1 MINE DIVERSION 4-2

Material: Riprap

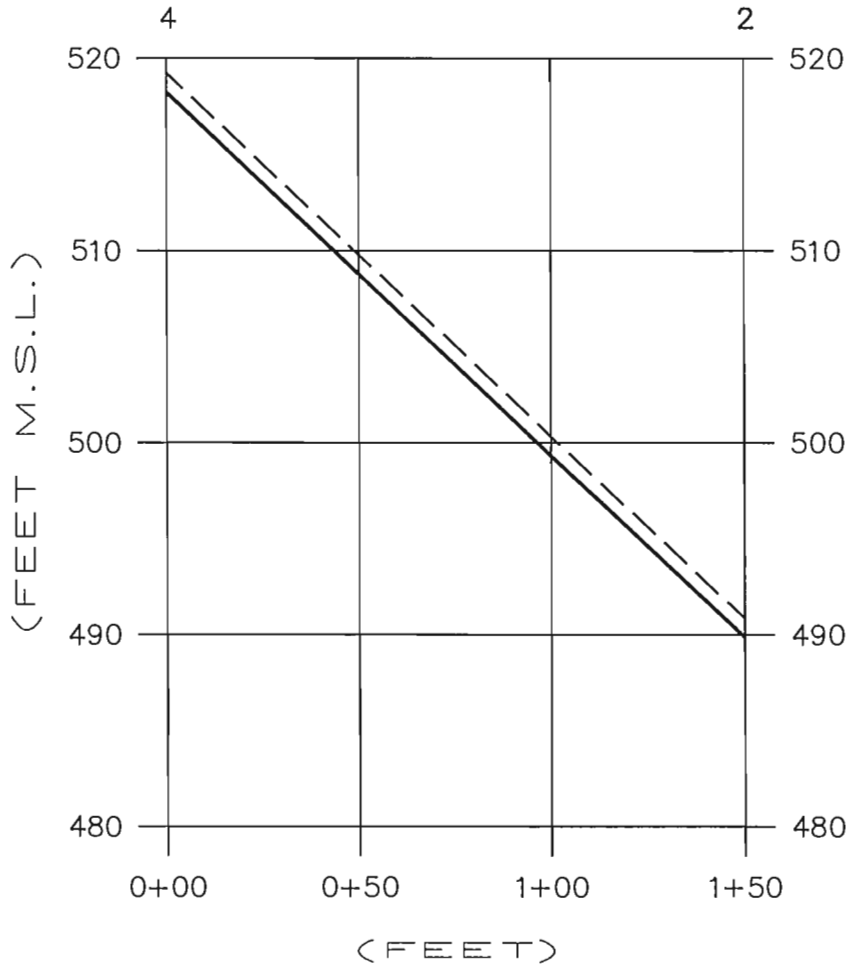
Trapezoidal Channel

Bottom Width (ft)	Left Sideslope Ratio	Right Sideslope Ratio	Slope (%)	Freeboard Depth (ft)	Freeboard % of Depth	Freeboard Mult. x (VxD)
6.00	2.0:1	2.0:1	19.0	0.50		

Simons/OSM Method - Steep Slope Design

	w/o Freeboard	w/ Freeboard
Design Discharge:	54.30 cfs	
Depth:	0.45 ft	0.95 ft
Top Width:	7.79 ft	9.79 ft
Velocity*:		
X-Section Area:	3.08 sq ft	
Hydraulic Radius:	0.386	
Froude Number*:		
Manning's n*:		
Dmin:	5.00 in	
D50:	15.00 in	
Dmax:	18.75 in	

Velocity and Manning's n calculations may not apply for this method.



SCALE: 1" = 50' HORIZONTAL
1" = 10' VERTICAL

— — — EXISTING GRADE

——— BOTTOM OF ROUTING CHANNEL

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NORTH PRATT MINING, LLC.
PRATT NO. 1 MINE
P-3972
DIVERSION 4-2

DRAWN BY: G.R. DWG. NAME: NPP1DIV4-2	DATE: 4-19-13
APPROVED BY: W.P.G.	SCALE: AS NOTED

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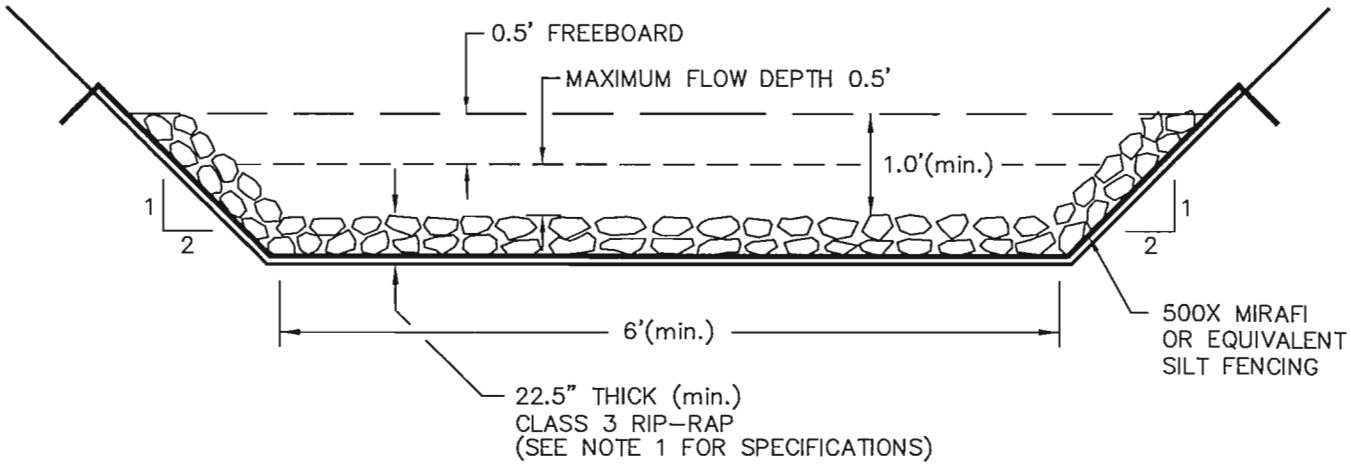

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(205) 384-3353 Office (205) 384-9491 Fax

NORTH PRATT MINING, LLC.
PRATT NO. 1 MINE
P-3972
DIVERSION 4-2
RIP-RAP LINED

DRAWN BY: C.M.O. DWG. NAME: NPP142R	DATE: 4-11-13
APPROVED BY: W.P.G.	SCALE: NONE

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NORTH PRATT MINING, LLC.
PRATT NO. 1 MINE
P- 3972
DIVERSION 2-12

6.0 INCHES, 100 YEAR - 6 HOUR. NRCS 6 HOUR

WPG

PERC ENGINEERING CO., INC.
P. O. BOX 1712
JASPER, ALABAMA 35502

General Information

Storm Information:

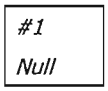
Storm Type:	Rainfall Event

Accumulated Time (hrs)	Accumulated Depth (in)
0.00	0.0000
0.50	0.2100
1.00	0.4800
1.50	0.8100
2.00	1.3800
2.50	3.6000
3.00	4.2000
3.50	4.6800
4.00	5.0100
4.50	5.3100
5.00	5.5500
5.50	5.7900
6.00	6.0000

Peak 30-minute Intensity: 4.44 in/hr

Structure Networking:

Type	Stru #	(flows into)	Stru #	Musk. K (hrs)	Musk. X	Description
Null	#1	==>	End	0.000	0.000	DIVERSION 2-12



Structure Summary:

	Immediate Contributing Area (ac)	Total Contributing Area (ac)	Peak Discharge (cfs)	Total Runoff Volume (ac-ft)
#1	16.000	16.000	57.94	5.18

Structure Detail:

Structure #1 (Null)

DIVERSION 2-12

Subwatershed Hydrology Detail:

Stru #	SWS #	SWS Area (ac)	Time of Conc (hrs)	Musk K (hrs)	Musk X	Curve Number	UHS	Peak Discharge (cfs)	Runoff Volume (ac-ft)
#1	1	16.000	0.085	0.000	0.000	81.000	F	57.94	5.178
	Σ	**16.000**						**57.94**	**5.178**

NORTH PRATT MINING, LLC. PRATT NO. 1 MINE DIVERSION 2-12

Material: Riprap

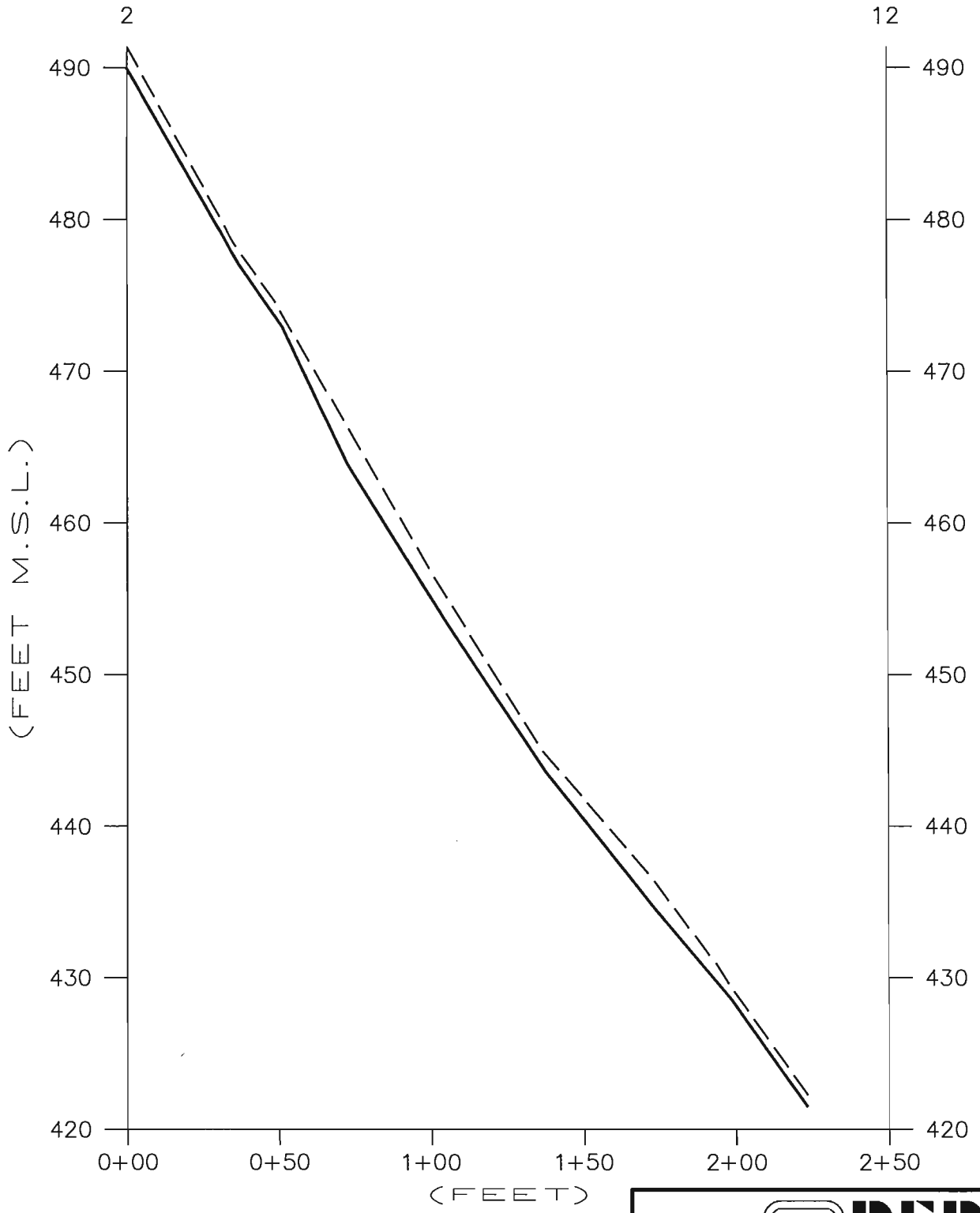
Trapezoidal Channel

Bottom Width (ft)	Left Sideslope Ratio	Right Sideslope Ratio	Slope (%)	Freeboard Depth (ft)	Freeboard % of Depth	Freeboard Mult. x (VxD)
6.00	2.0:1	2.0:1	41.7	0.50		

Simons/OSM Method - Steep Slope Design

	w/o Freeboard	w/ Freeboard
Design Discharge:	57.90 cfs	
Depth:	0.07 ft	0.57 ft
Top Width:	6.26 ft	8.26 ft
Velocity*:		
X-Section Area:	0.41 sq ft	
Hydraulic Radius:	0.064	
Froude Number*:		
Manning's n*:		
Dmin:	9.00 in	
D50:	27.00 in	
Dmax:	33.75 in	

Velocity and Manning's n calculations may not apply for this method.



SCALE: 1" = 50' HORIZONTAL
1" = 10' VERTICAL

— — — EXISTING GRADE

——— BOTTOM OF ROUTING CHANNEL

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(205) 384-5533 Office (205) 384-5451 Fax

NORTH PRATT MINING, LLC.
PRATT NO. 1 MINE
P-3972
DIVERSION 2-12

DRAWN BY: G.R. DWG. NAME: NPP1DIV2-12	DATE: 4-19-13
APPROVED BY: W.P.G.	SCALE: AS NOTED

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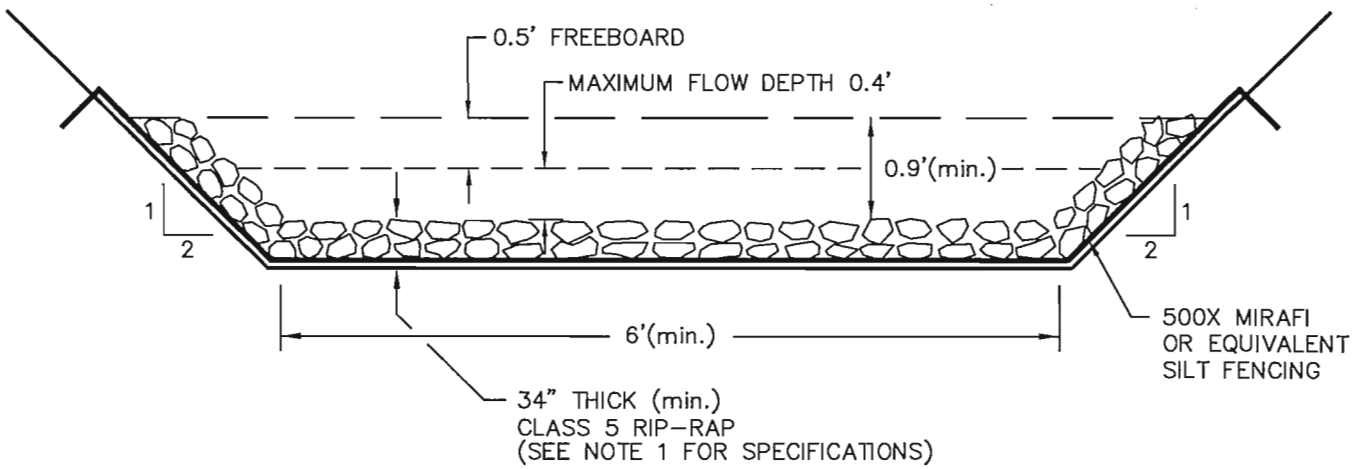

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(205) 384-3333 Office (205) 384-9191 Fax

NORTH PRATT MINING, LLC.
PRATT NO. 1 MINE
P-3972
DIVERSION 2-12
RIP-RAP LINED

DRAWN BY: C.M.O. DWG. NAME: NPP1212R	DATE: 4-11-13
APPROVED BY: W.P.G.	SCALE: NONE

NORTH PRATT MINING, LLC.
PRATT NO. 1 MINE
P- 3972
DIVERSION 15-14

6.0 INCHES, 100 YEAR - 6 HOUR. NRCS 6 HOUR

WPG

PERC ENGINEERING CO., INC.
P. O. BOX 1712
JASPER, ALABAMA 35502

General Information

Storm Information:

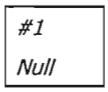
Storm Type:	Rainfall Event

Accumulated Time (hrs)	Accumulated Depth (in)
0.00	0.0000
0.50	0.2100
1.00	0.4800
1.50	0.8100
2.00	1.3800
2.50	3.6000
3.00	4.2000
3.50	4.6800
4.00	5.0100
4.50	5.3100
5.00	5.5500
5.50	5.7900
6.00	6.0000

Peak 30-minute Intensity: 4.44 in/hr

Structure Networking:

Type	Stru #	(flows into)	Stru #	Musk. K (hrs)	Musk. X	Description
Null	#1	==>	End	0.000	0.000	DIVERSION 15-14



Structure Summary:

	Immediate Contributing Area (ac)	Total Contributing Area (ac)	Peak Discharge (cfs)	Total Runoff Volume (ac-ft)
#1	1.000	1.000	3.62	0.32

Structure Detail:

Structure #1 (Null)

DIVERSION 15-14

Subwatershed Hydrology Detail:

Stru #	SWS #	SWS Area (ac)	Time of Conc (hrs)	Musk K (hrs)	Musk X	Curve Number	UHS	Peak Discharge (cfs)	Runoff Volume (ac-ft)
#1	1	1.000	0.015	0.000	0.000	81.000	F	3.62	0.324
	Σ	**1.000**						**3.62**	**0.324**

NORTH PRATT MINING, LLC. PRATT NO. 1 MINE DIVERSION 15-14

Material: Riprap

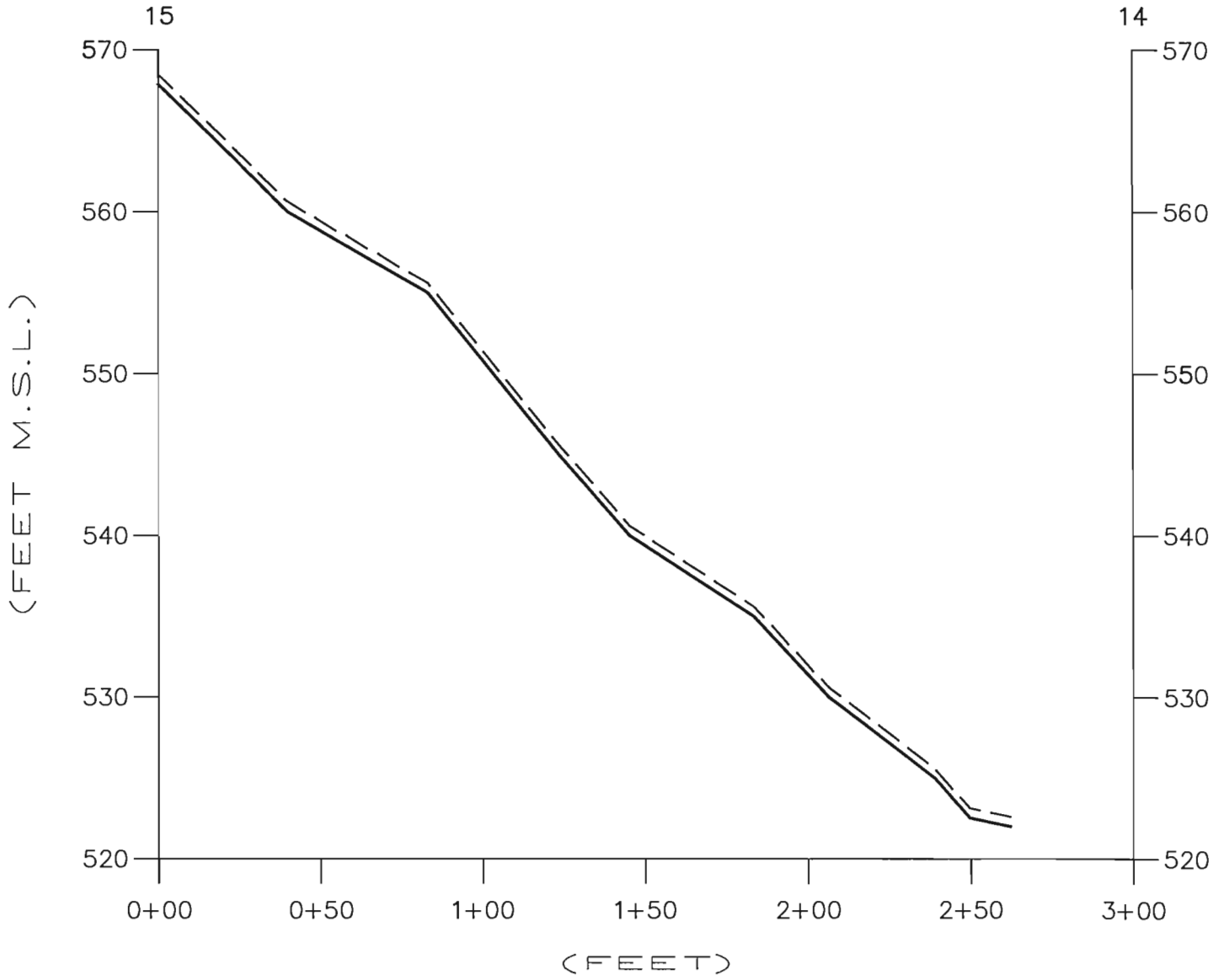
Trapezoidal Channel

Bottom Width (ft)	Left Sideslope Ratio	Right Sideslope Ratio	Slope (%)	Freeboard Depth (ft)	Freeboard % of Depth	Freeboard Mult. x (VxD)
10.00	2.0:1	2.0:1	25.0	0.50		

Simons/OSM Method - Steep Slope Design

	w/o Freeboard	w/ Freeboard
Design Discharge:	3.60 cfs	
Depth:	0.03 ft	0.53 ft
Top Width:	10.11 ft	12.11 ft
Velocity*:		
X-Section Area:	0.27 sq ft	
Hydraulic Radius:	0.026	
Froude Number*:		
Manning's n*:		
Dmin:	2.00 in	
D50:	6.00 in	
Dmax:	7.50 in	

Velocity and Manning's n calculations may not apply for this method.



SCALE: 1" = 50' HORIZONTAL
1" = 10' VERTICAL

— — — EXISTING GRADE

——— BOTTOM OF ROUTING CHANNEL

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NORTH PRATT MINING, LLC.
PRATT NO. 1 MINE
P-3972
DIVERSION 15-14

DRAWN BY: G.R. DWG. NAME: NPP1DIV15-14	DATE: 4-19-13
APPROVED BY: W.P.G.	SCALE: AS NOTED

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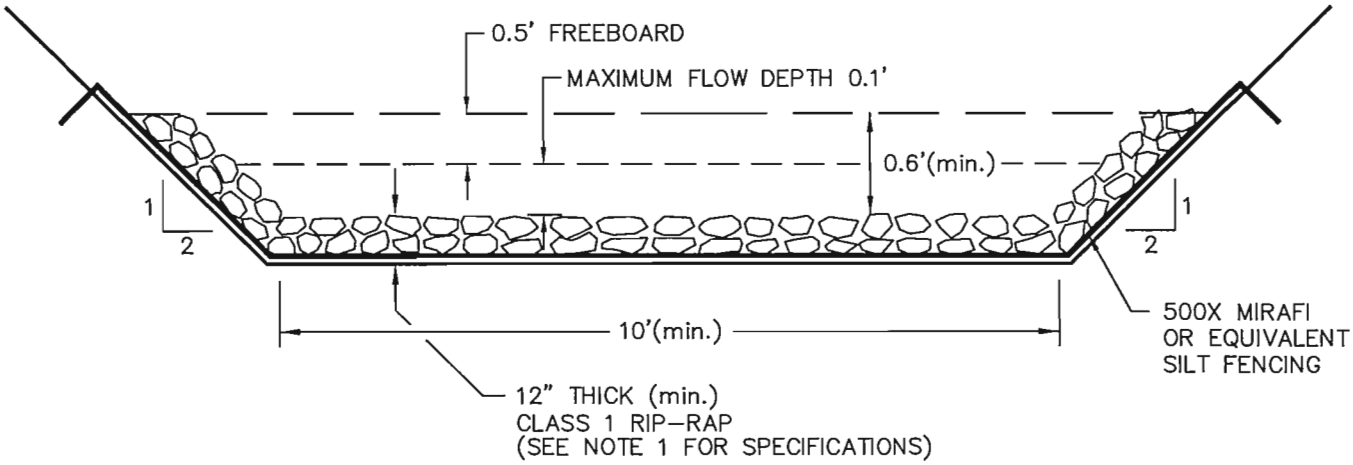

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NORTH PRATT MINING, LLC.
PRATT NO. 1 MINE
P-3972
DIVERSION 15-14
RIP-RAP LINED

DRAWN BY: C.M.O. DWG. NAME: NPP1154R	DATE: 4-11-13
APPROVED BY: W.P.G.	SCALE: NONE

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NORTH PRATT MINING, LLC.
PRATT NO. 1 MINE
P- 3972
DIVERSION 14-13

6.0 INCHES, 100 YEAR - 6 HOUR. NRCS 6 HOUR

WPG

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P. O. BOX 1712
JASPER, ALABAMA 35502

General Information

Storm Information:

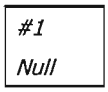
Storm Type:	Rainfall Event

Accumulated Time (hrs)	Accumulated Depth (in)
0.00	0.0000
0.50	0.2100
1.00	0.4800
1.50	0.8100
2.00	1.3800
2.50	3.6000
3.00	4.2000
3.50	4.6800
4.00	5.0100
4.50	5.3100
5.00	5.5500
5.50	5.7900
6.00	6.0000

Peak 30-minute Intensity: 4.44 in/hr

Structure Networking:

Type	Stru #	(flows into)	Stru #	Musk. K (hrs)	Musk. X	Description
Null	#1	==>	End	0.000	0.000	DIVERSION 14-13



Structure Summary:

	Immediate Contributing Area (ac)	Total Contributing Area (ac)	Peak Discharge (cfs)	Total Runoff Volume (ac-ft)
#1	2.000	2.000	7.24	0.65

Structure Detail:

Structure #1 (Null)

DIVERSION 14-13

Subwatershed Hydrology Detail:

Stru #	SWS #	SWS Area (ac)	Time of Conc (hrs)	Musk K (hrs)	Musk X	Curve Number	UHS	Peak Discharge (cfs)	Runoff Volume (ac-ft)
#1	1	2.000	0.017	0.000	0.000	81.000	F	7.24	0.647
	Σ	**2.000**						**7.24**	**0.647**

NORTH PRATT MINING. LLC. PRATT NO. 1 MINE DIVERSION 14-13

Material: Riprap

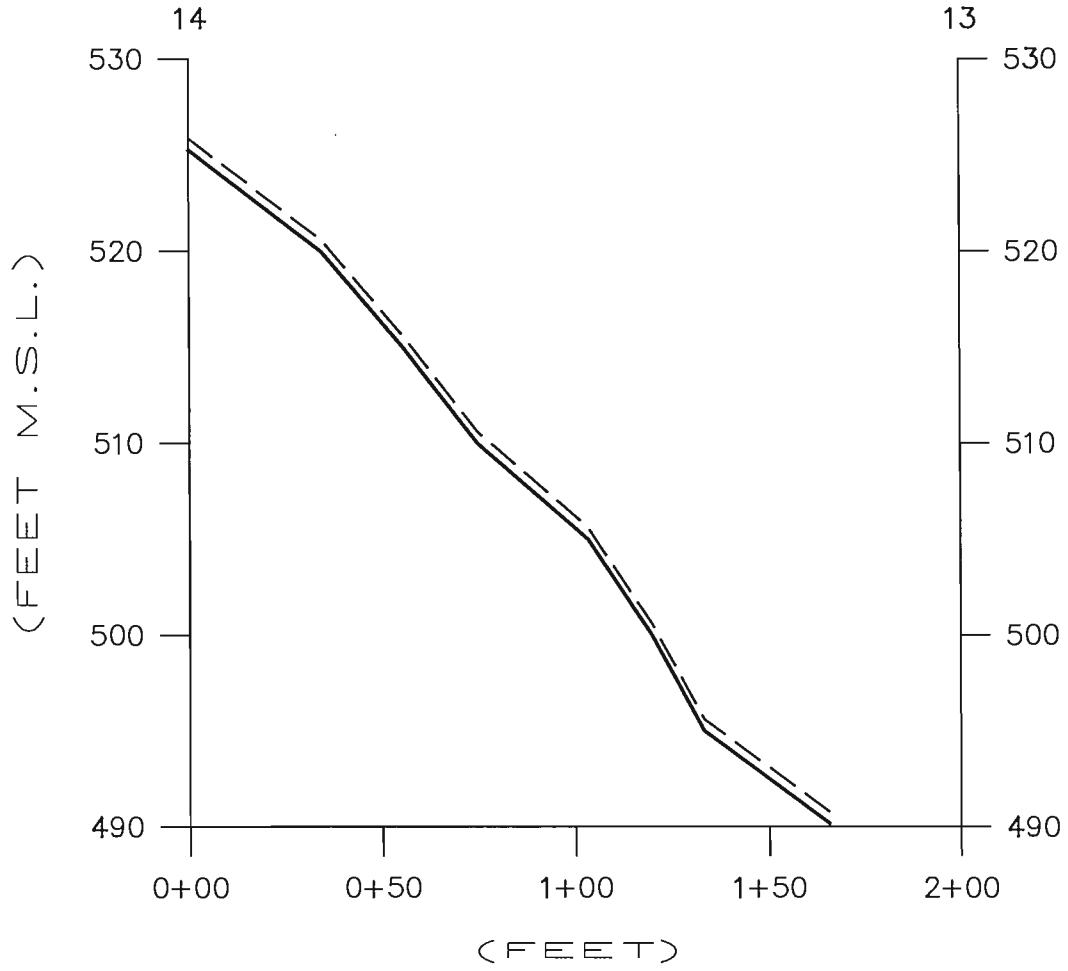
Trapezoidal Channel

Bottom Width (ft)	Left Sideslope Ratio	Right Sideslope Ratio	Slope (%)	Freeboard Depth (ft)	Freeboard % of Depth	Freeboard Mult. x (VxD)
10.00	2.0:1	2.0:1	37.0	0.50		

Simons/OSM Method - Steep Slope Design

	w/o Freeboard	w/ Freeboard
Design Discharge:	7.20 cfs	
Depth:	0.03 ft	0.53 ft
Top Width:	10.11 ft	12.11 ft
Velocity*:		
X-Section Area:	0.27 sq ft	
Hydraulic Radius:	0.027	
Froude Number*:		
Manning's n*:		
Dmin:	3.00 in	
D50:	9.00 in	
Dmax:	11.25 in	

Velocity and Manning's n calculations may not apply for this method.



SCALE: 1" = 50' HORIZONTAL
1" = 10' VERTICAL

— — — EXISTING GRADE

——— BOTTOM OF ROUTING CHANNEL

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PRATT NO. 1 MINE
P-3972
DIVERSION 14-13

DRAWN BY: G.R. DWG. NAME: NPP1DIV14-13	DATE: 4-19-13
APPROVED BY: W.P.G.	SCALE: AS NOTED

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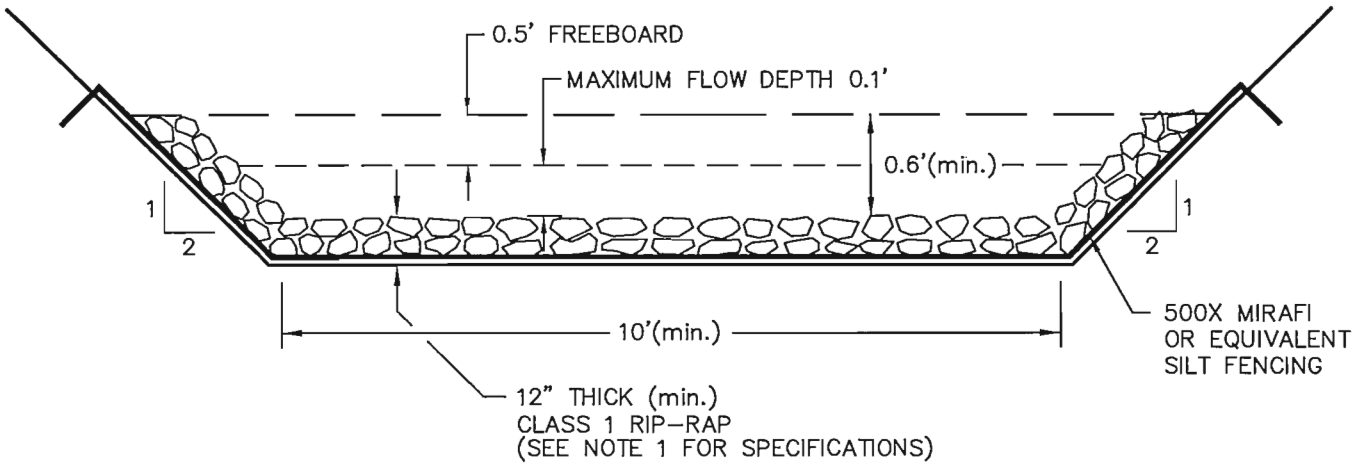

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NORTH PRATT MINING, LLC.
PRATT NO. 1 MINE
P-3972
DIVERSION 14-13
RIP-RAP LINED

DRAWN BY: C.M.O. DWG. NAME: NPP142RR	DATE: 4-11-13
APPROVED BY: W.P.G.	SCALE: NONE

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NORTH PRATT MINING, LLC.
PRATT NO. 1 MINE
P- 3972
DIVERSION 13-12

6.0 INCHES, 100 YEAR - 6 HOUR. NRCS 6 HOUR

WPG

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JASPER, ALABAMA 35502

General Information

Storm Information:

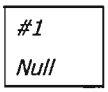
Storm Type:	Rainfall Event

Accumulated Time (hrs)	Accumulated Depth (in)
0.00	0.0000
0.50	0.2100
1.00	0.4800
1.50	0.8100
2.00	1.3800
2.50	3.6000
3.00	4.2000
3.50	4.6800
4.00	5.0100
4.50	5.3100
5.00	5.5500
5.50	5.7900
6.00	6.0000

Peak 30-minute Intensity: 4.44 in/hr

Structure Networking:

Type	Stru #	(flows into)	Stru #	Musk. K (hrs)	Musk. X	Description
Null	#1	==>	End	0.000	0.000	DIVERSION 13-12



Structure Summary:

	Immediate Contributing Area (ac)	Total Contributing Area (ac)	Peak Discharge (cfs)	Total Runoff Volume (ac-ft)
#1	4.000	4.000	14.48	1.29

Structure Detail:

Structure #1 (Null)

DIVERSION 13-12

Subwatershed Hydrology Detail:

Stru #	SWS #	SWS Area (ac)	Time of Conc (hrs)	Musk K (hrs)	Musk X	Curve Number	UHS	Peak Discharge (cfs)	Runoff Volume (ac-ft)
#1	1	4.000	0.025	0.000	0.000	81.000	F	14.48	1.295
	Σ	**4.000**						**14.48**	**1.295**

NORTH PRATT MINING. LLC. PRATT NO. 1 MINE DIVERSION 13-12

Material: Riprap

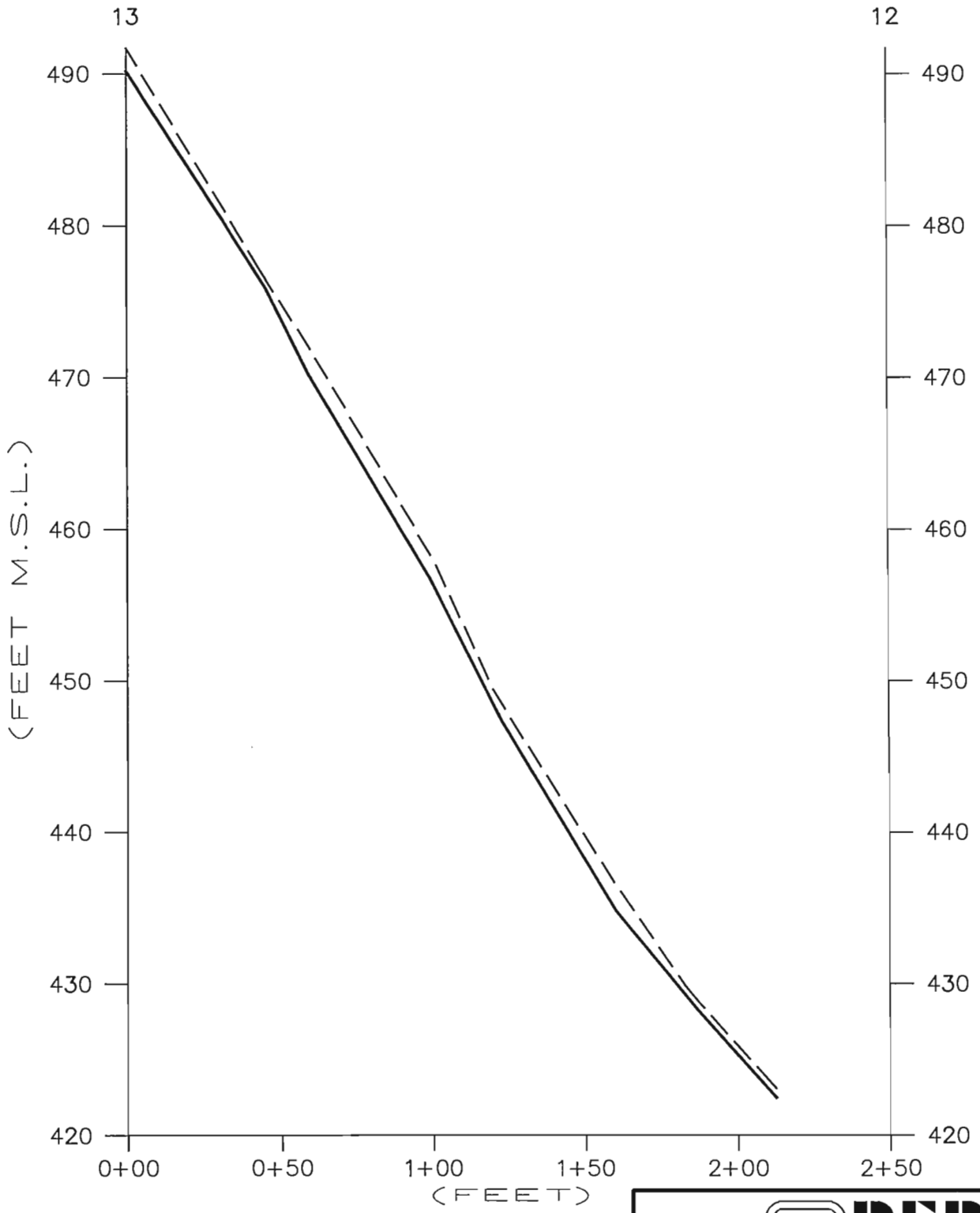
Trapezoidal Channel

Bottom Width (ft)	Left Sideslope Ratio	Right Sideslope Ratio	Slope (%)	Freeboard Depth (ft)	Freeboard % of Depth	Freeboard Mult. x (VxD)
10.00	2.0:1	2.0:1	40.0	0.50		

Simons/OSM Method - Steep Slope Design

	w/o Freeboard	w/ Freeboard
Design Discharge:	14.50 cfs	
Depth:	0.04 ft	0.54 ft
Top Width:	10.17 ft	12.17 ft
Velocity*:		
X-Section Area:	0.43 sq ft	
Hydraulic Radius:	0.042	
Froude Number*:		
Manning's n*:		
Dmin:	4.00 in	
D50:	12.00 in	
Dmax:	15.00 in	

Velocity and Manning's n calculations may not apply for this method.



SCALE: 1" = 50' HORIZONTAL
1" = 10' VERTICAL

— — — EXISTING GRADE

——— BOTTOM OF ROUTING CHANNEL

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PRATT NO. 1 MINE
P-3972
DIVERSION 13-12

DRAWN BY: G.R. DWG. NAME: NPP1DIV13-12	DATE: 4-19-13
APPROVED BY: W.P.G.	SCALE: AS NOTED

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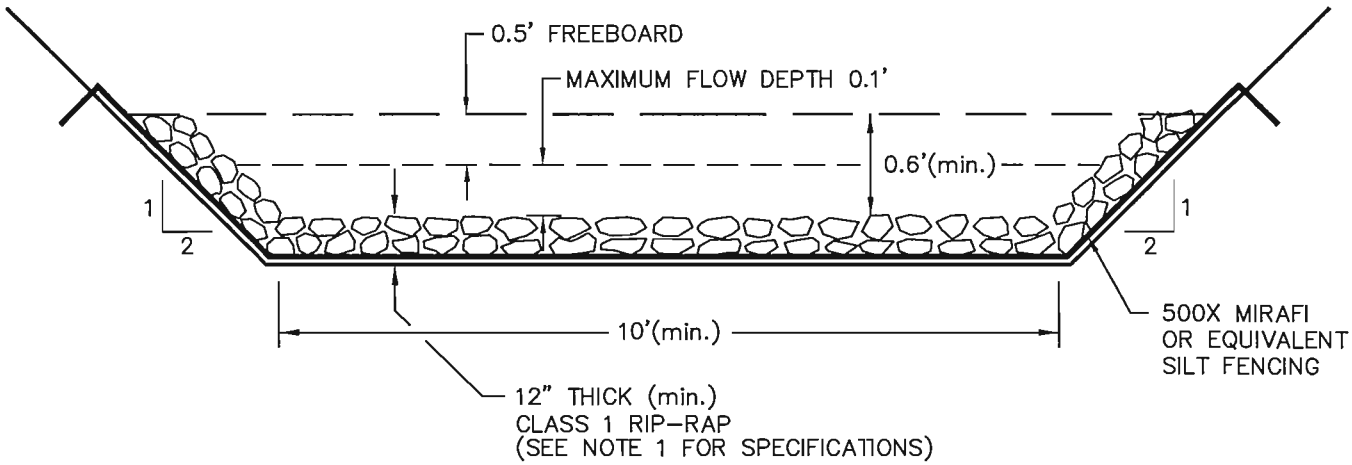

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NORTH PRATT MINING, LLC.
PRATT NO. 1 MINE
P-3972
DIVERSION 13-12
RIP-RAP LINED

DRAWN BY: C.M.O. DWG. NAME: NPP1132R	DATE: 4-11-13
APPROVED BY: W.P.G.	SCALE: NONE

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ABANDONMENT PLAN

Upon reaching the final waste bank configuration the following steps shall be implemented for abandonment:

1. Reporting to MSHA's district manager of the intention to abandon the waste bank.

2. The waste bank will be covered with a minimum of 4 feet of the best available non-toxic, non-combustible and non-acid forming material, and graded to the final design configuration. (See map 6 of 6).

3. The neutralization potential and pH of the coarse refuse material is as follows:

SUBJECT	FIZZ TEST	%SULFUR	MAXIMUM POTENTIAL ACIDITY	NEUTRALIZATION POTENTIAL (Tons of CaCo3 eq per tons soil)	A - B ACCOUNT	PASTE pH
Coal Sink	None	2.81	87.813	-6.25	-94.063	2.81
Cover Material 1	None	.004	0.125	-2.00	-2.125	4.30
Cover Material 2	None	.005	0.156	-1.25	-1.406	4.51

Methods according to Field and Laboratory Methods Applicable to Overburdens and Mine Spoils.

Note: A-B Account is an expression to illustrate the potential for acid production in a material. The above test results of the spoil material does not show the potential for acid production. Because it does not show the potential for acid production, the pH of the material should be considered the lowest produced by this material. As stated in item No. 2, the cover material will be sampled and analyzed to determine the correct amount of soil amendments, including lime, to be added to the cover material. These soil amendments will ensure a diverse effective vegetative growth upon the material.

4. Diversions and down drains as specified within the design plans will be constructed and stabilized to safely remove surface drainage from the fill.

5. Revegetation shall be performed according to the mixtures and application rates given in the following Permanent Cover-Mixtures and Rates Attachment. Seeding will commence during the first normal planting season to establish a diverse, effective, and permanent vegetative cover. Topsoil, subsoil, and overburden material will be systematically sampled at a rate of 1 sample per 10 acres and sent to a qualified soil testing laboratory, for analysis to determine type and amount of soil amendments necessary to maintain vegetative growth and applied as recommended. Seed bed preparation shall include discing or scarifying the soil to permit seed application and to aid in the mixing of the soil amendments. All areas shall be mulched with hay at a rate of 1 ½ - 3 ton per acre to control erosion, to promote seed germination, and to increase the moisture retention of the soil.

PERMANENT COVER-MIXTURES AND RATES

Spring Planting

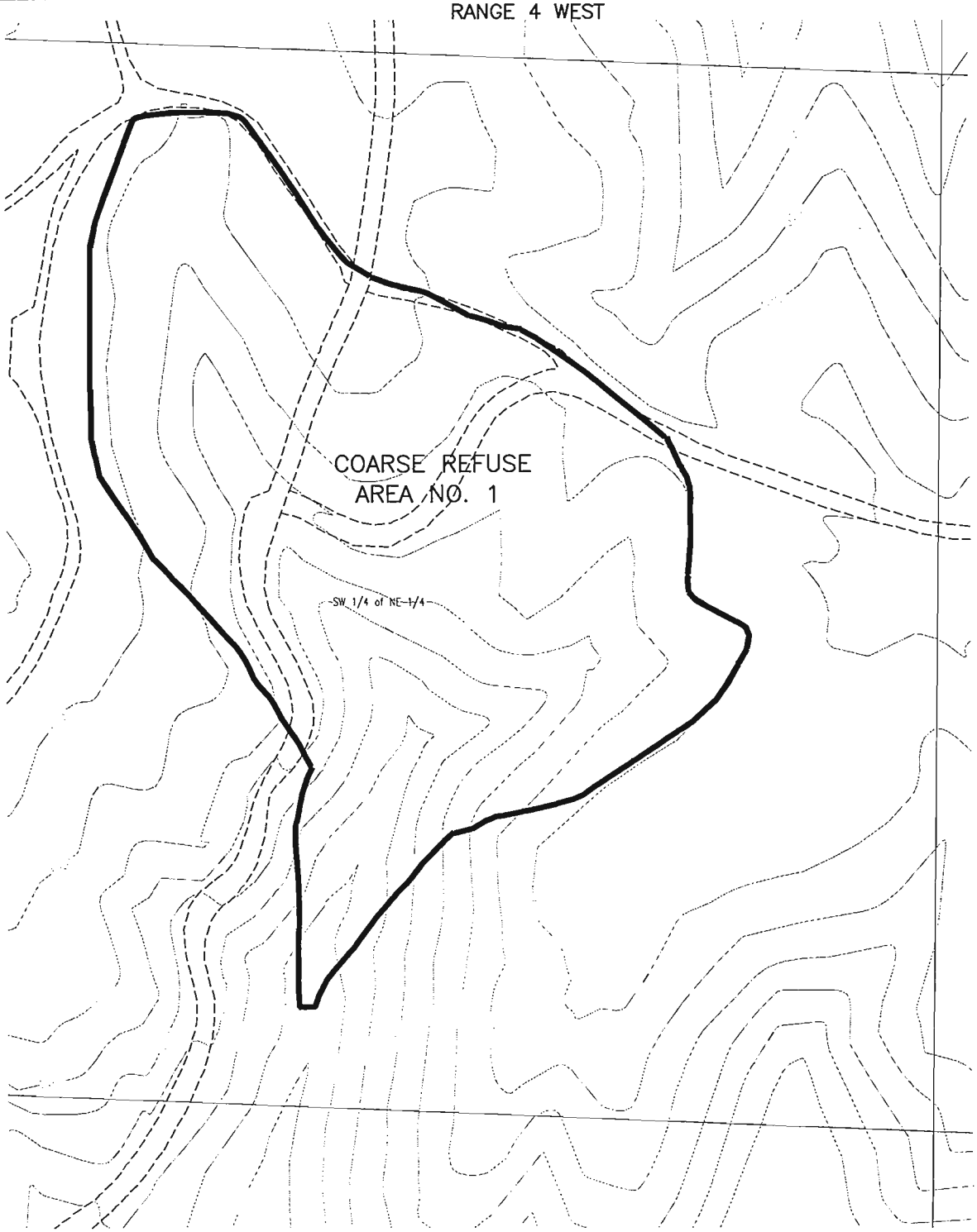
Species	Planting Rate	Planting Methods	Planting Dates	Areas to be Planted
Fescue	25#/acre	Broadcast	Spring	All Disturbance
Millet	10#/acre	Broadcast	Spring	All Disturbance
Sericea	35#/acre	Broadcast	Spring	All Disturbance
Bermuda	15#/acre	Broadcast	Spring	All Disturbance

Fall Planting

Species	Planting Rate	Planting Methods	Planting Dates	Areas to be Planted
Sericea	35#/Acre	Broadcast	Spring	All Disturbance
Fescue	40#/Acre	Broadcast	Spring	All Disturbance
Perennial Ryegrass	20#/Acre	Broadcast	Spring	All Disturbance

DRAWING LIST

Drawing Title	Sheet No.
Vicinity Map	1 of 7
Underground Mine Map	2 of 7
Underground Mine Map	3 of 7
Geotechnical Investigation Map	4 of 7
Current Conditions Map	5 of 7
Grading Plan	6 of 7
Abandonment Grading and Drainage Control Plan	7 of 7



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NORTH PRATT MINING, LLC.
PRATT NO. 1 MINE / P-3972
COARSE REFUSE AREA NO. 1
LINDBERGH UNDERGROUND MINE
VICINITY MAP
MAP 1 OF 7

DRAWN BY: G.R. DWG. NAME: NPP1CRLUMV	DATE: 4-18-13
APPROVED BY: W.P.G.	SCALE: 1" = 200'

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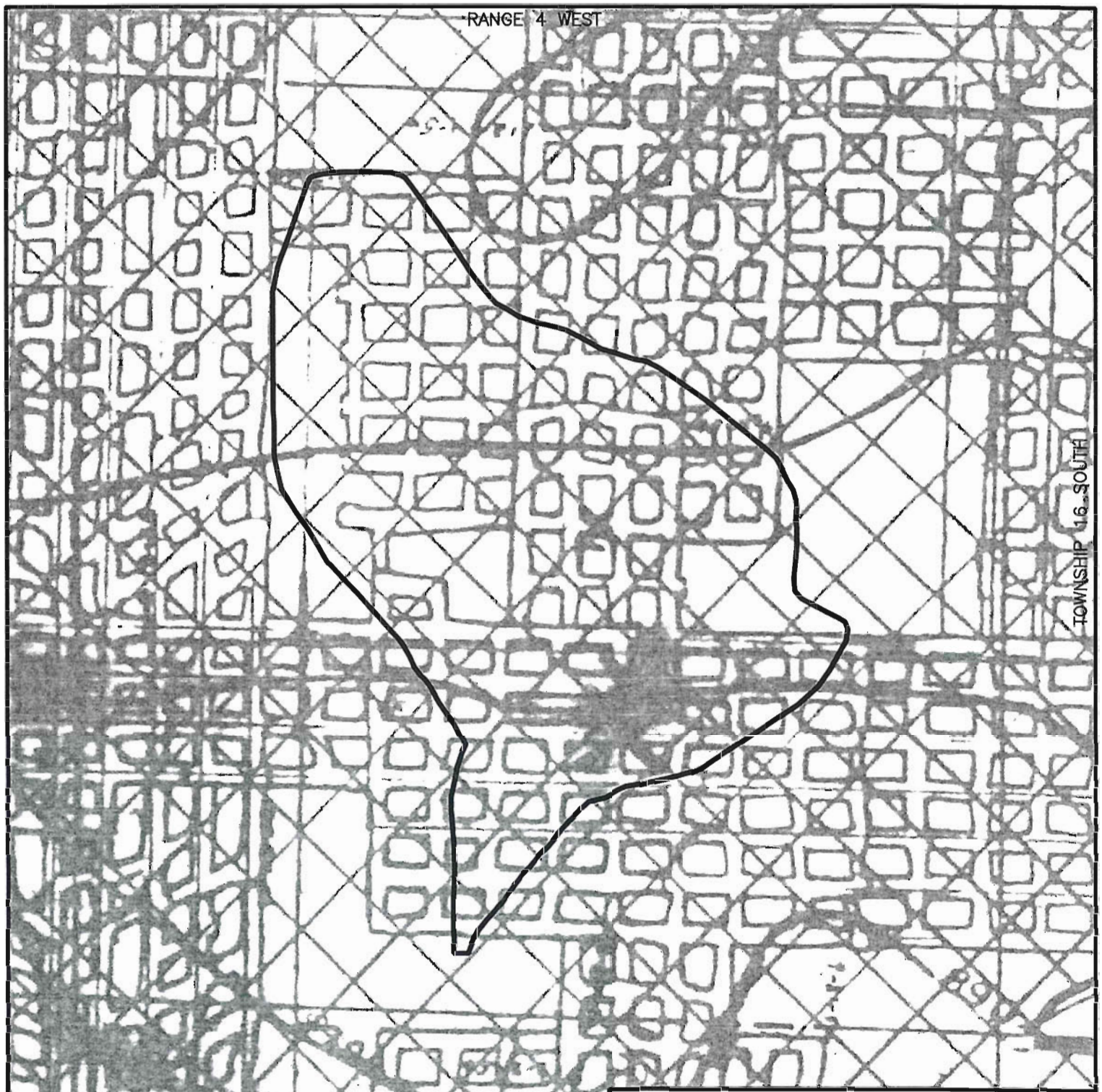

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NORTH PRATT MINING, LLC.
PRATT NO. 1 MINE / P-3972
COARSE REFUSE AREA NO. 1
BESSIE UNDERGROUND MINE
LOCATION MAP
MAP 2 OF 7

DRAWN BY: G.R. DWG. NAME: NPP1CRBUML	DATE: 4-18-13
APPROVED BY: W.P.G.	SCALE: 1" = 200'

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PERC ENGINEERING CO., INC.

NORTH PRATT MINING, LLC.
PRATT NO. 1 MINE / P-3972
COARSE REFUSE AREA NO. 1
LINDBERGH UNDERGROUND MINE
LOCATION MAP
MAP 3 OF 7

DRAWN BY: G.R. DWG. NAME: NPP1CRLUML	DATE: 4-18-13
APPROVED BY: W.P.G.	SCALE: 1" = 200'

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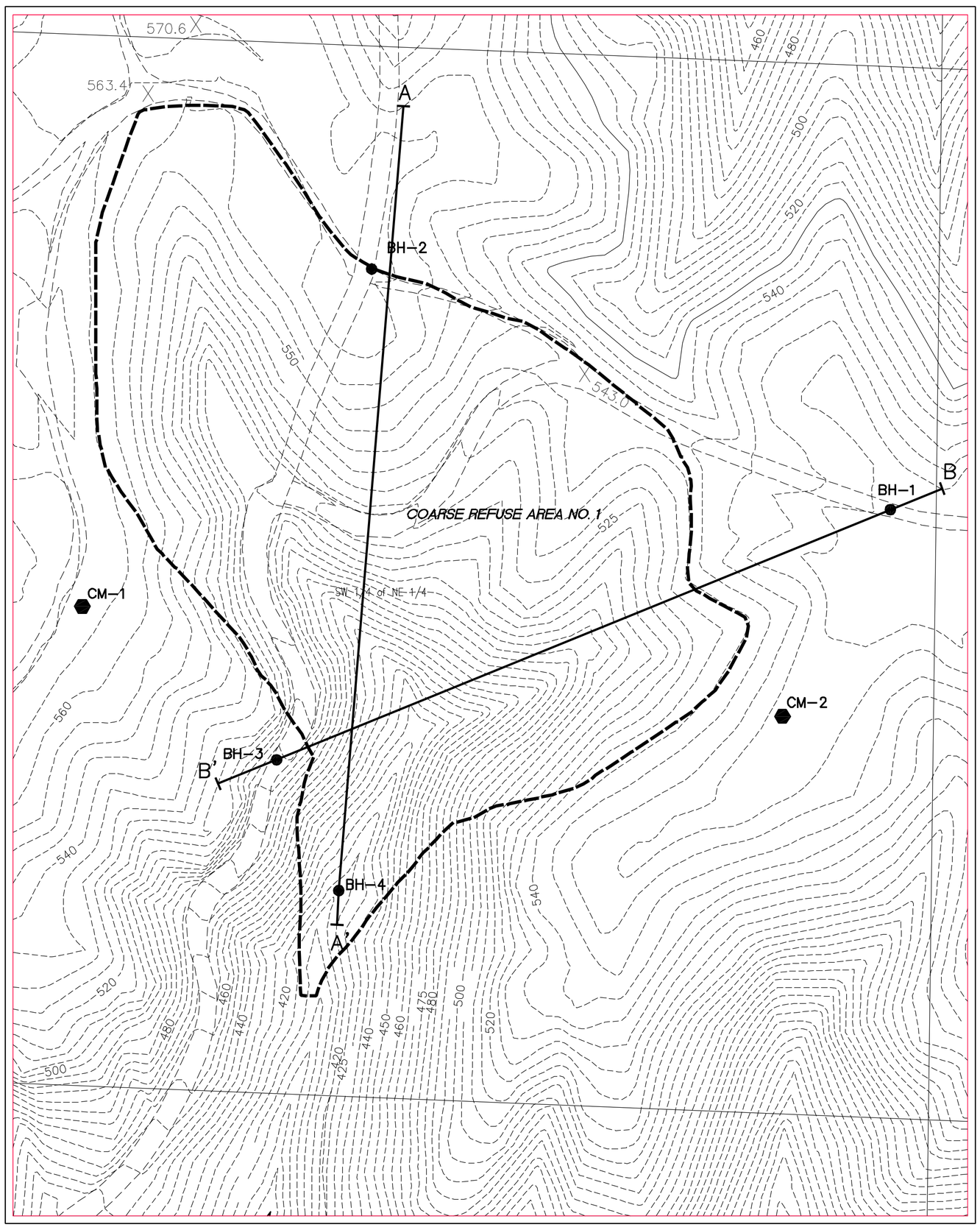
DRILL HOLE BH-1

ELEVATION:	INTERVAL:	DESCRIPTION:
563.4		
	0′ – 7′	SURFACE MATERIAL SILT & CLAY
556.4		
	7′ – 32′	SANDSTONE
531.4		
	32′ – 35′	SHALE
528.4		
	35′ – 48′	SANDSTONE
515.4		
	48′ – 162′	SHALE
401.4		



NOTE: – TOPOGRAPHY TAKEN FROM AERIAL MAPPING PROVIDED BY JIM WALTER RESOURCES, INC.
– DRILL HOLE ELEVATIONS OBTAIN BY ALTIMETER SURVEY.

LEGEND

---600---	EXISTING CONTOUR
=====	EXISTING ROAD
BH–2	BORE HOLE SITE
CM–1	COVER MATERIAL TEST SITE
– – – –	COARSE REFUSE AREA NO. 1 PERIMETER

DRILL HOLE BH-2

ELEVATION:	INTERVAL:	DESCRIPTION:
566.2		
	0′ – 8′	SURFACE MATERIAL SILT & CLAY
558.2		
	8′ – 22′	SANDSTONE
544.2		
	22′ – 27′	CLAY
539.2		
	27′ – 30′	SANDSTONE
536.2		
	30′ – 33′	SHALE
533.2	33′ – 34′	SANDSTONE
532.2	34′ – 35′	SHALE
531.2		
	35′ – 47′	SANDSTONE
519.2		
	47′ – 146′	SHALE
420.2		
419.2	146′ – 147′	SANDSTONE
	147′ – 165′	SHALE
401.2		

DRILL HOLE BH-3

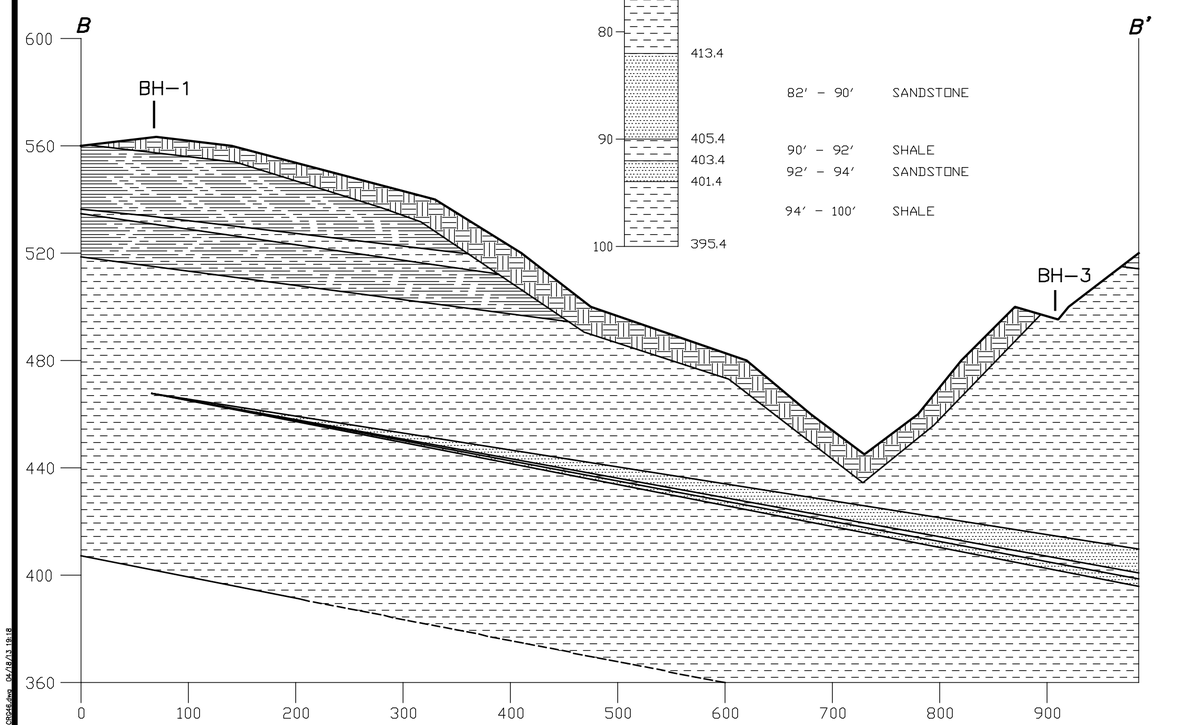
ELEVATION:	INTERVAL:	DESCRIPTION:
495.4		
	0′ – 13′	SHALE
482.4		
	13′ – 17′	SANDSTONE
478.4		
477.4	17′ – 18′	SHALE
	18′ – 26′	SANDSTONE
469.4		
	26′ – 29′	SHALE
466.4		
465.9	29′ – 29.5′	SANDSTONE
	29.5′ – 82′	SHALE
	82′ – 90′	SANDSTONE
413.4		
	90′ – 92′	SHALE
405.4		
403.4	92′ – 94′	SANDSTONE
401.4		
	94′ – 100′	SHALE
395.4		

HATCH LEGEND

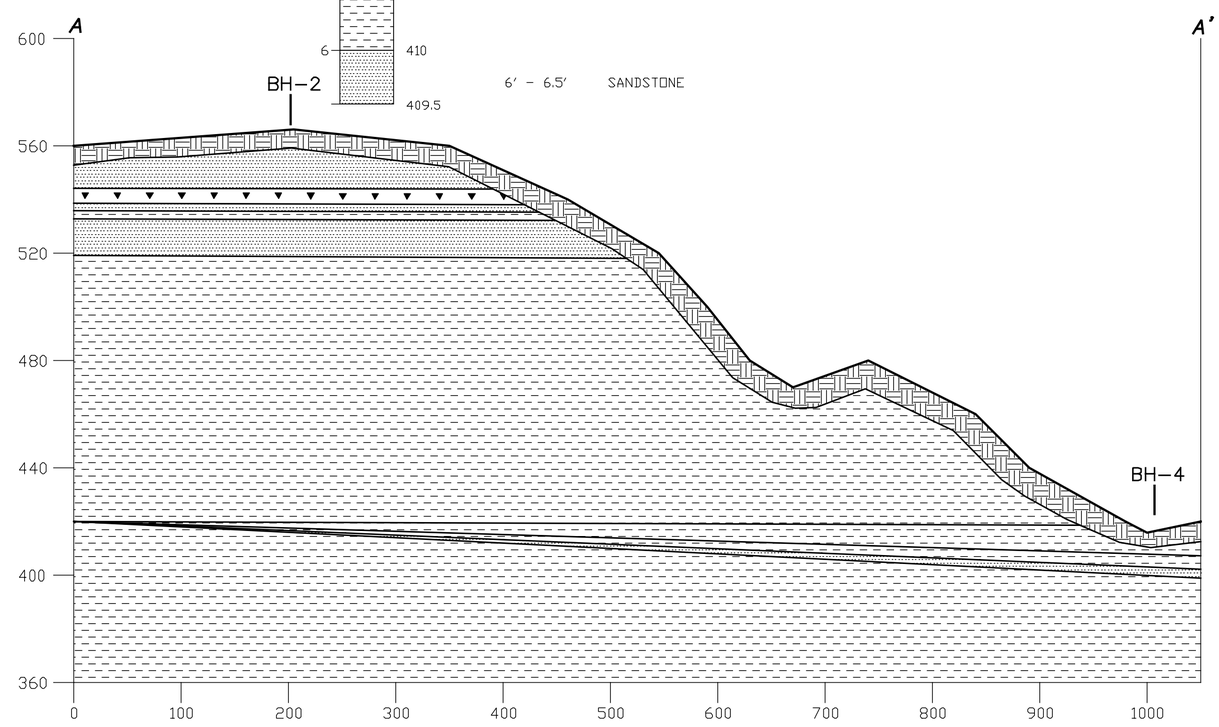
- COARSE REFUSE
- SHALE
- SANDSTONE
- CLAY
- SURFACE MATERIAL

DRILL HOLE BH-4

ELEVATION:	INTERVAL:	DESCRIPTION:
416		
	0′ – 5′	SURFACE MATERIAL SILT & CLAY
411		
	5′ – 6′	WEATHERED SHALE
410		
	6′ – 6.5′	SANDSTONE
409.5		



SECTION B–B'
SCALE: AS NOTED



SECTION A–A'
SCALE: AS NOTED

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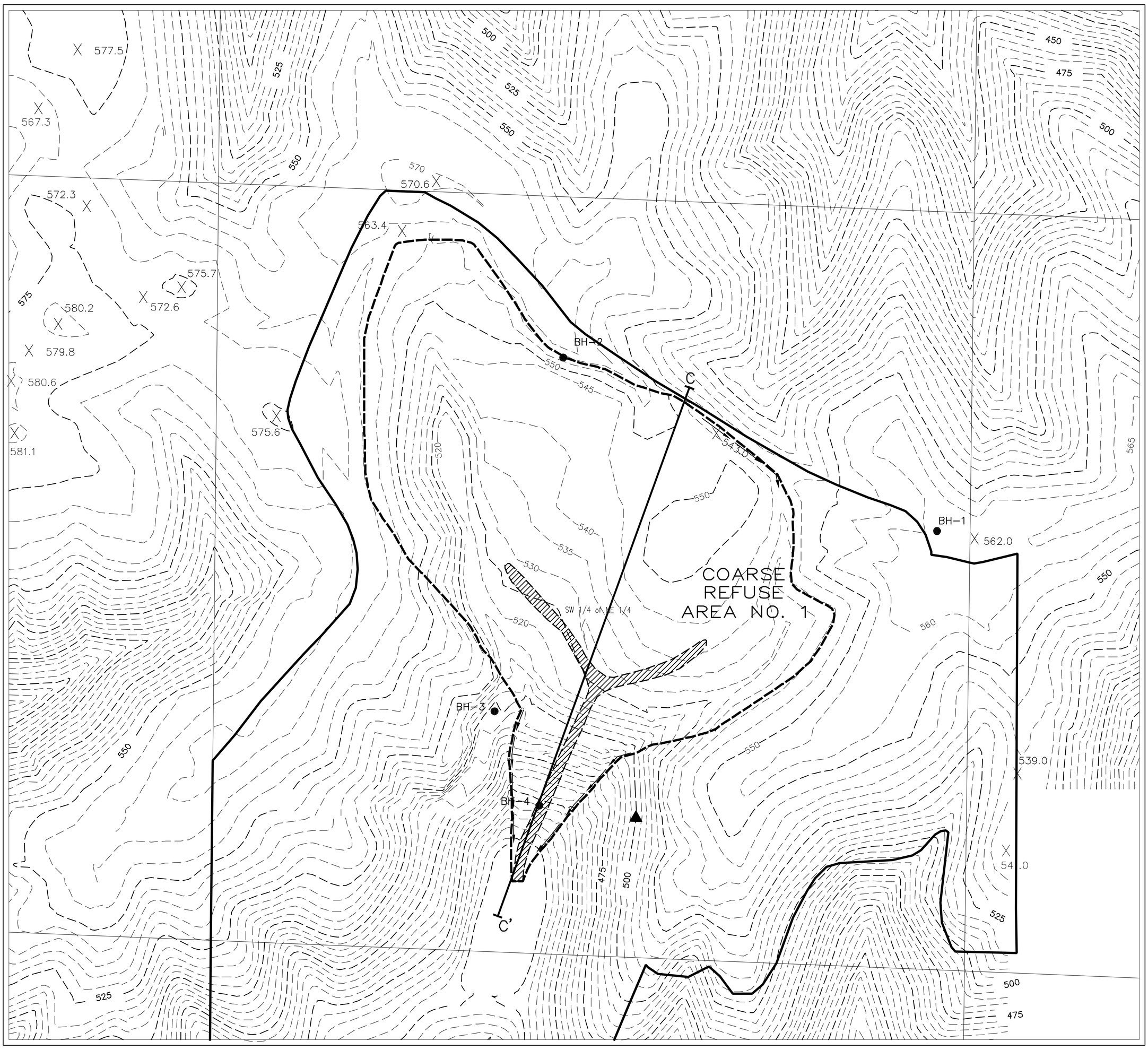
drawn by: G.R.
checked by: W.P.G.
scale: 1" = 100'
diskette no:
rev no./date:

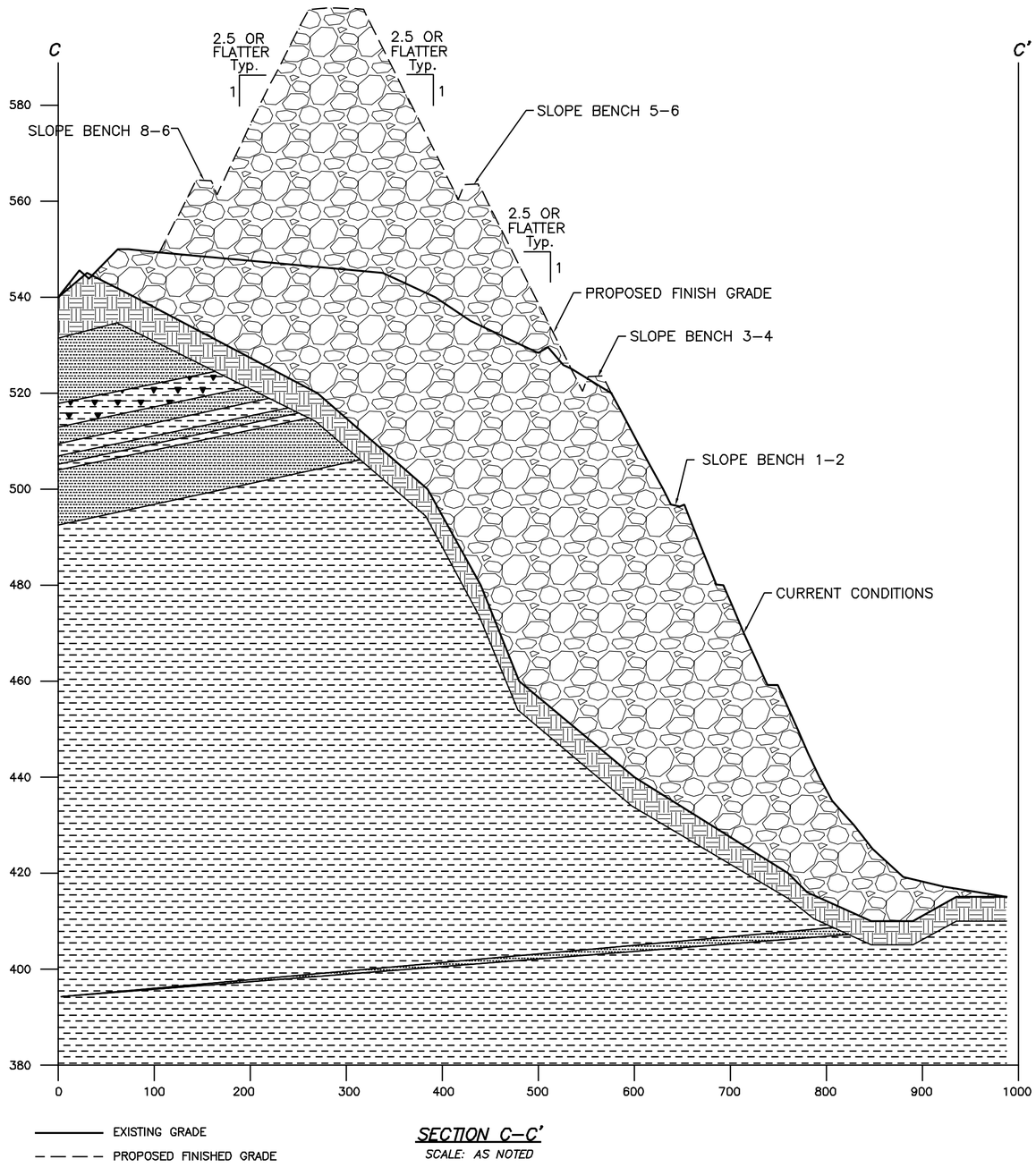
job number:
initial date:
f.b./page:
dwg name: NPP1CRG46
rev no./date:

NORTH PRATT MINING, LLC.
PRATT NO. 1 MINE
COARSE REFUSE AREA NO. 1
GEOTECHNICAL MAP
MAP 4 OF 7



LEGEND

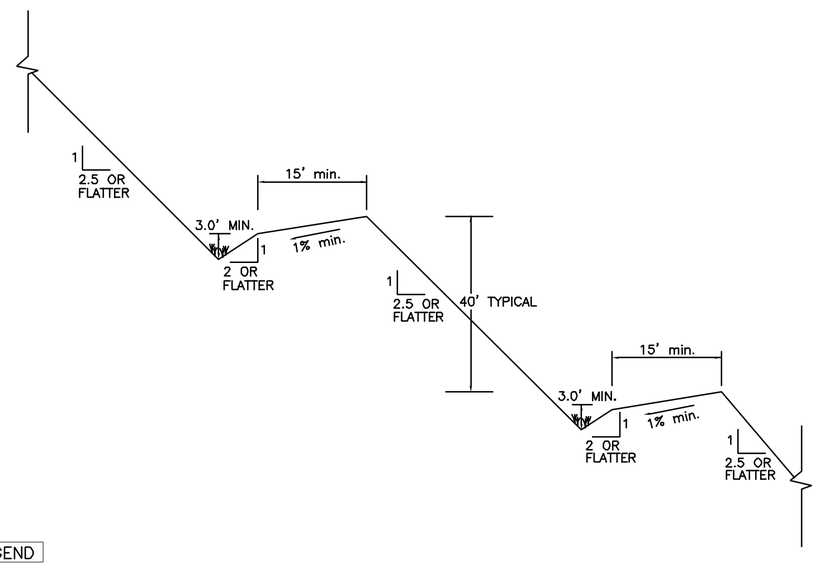
- PERMIT BOUNDARY
- 600 EXISTING CONTOUR
- EXISTING ROAD
- UNDERDRAIN
- BH-2 BORE HOLE SITE
- SURVEY MONUMENT ELEV. 500
- COARSE REFUSE AREA NO. 1 PERIMETER



SECTION C-C'
SCALE: AS NOTED

HATCH LEGEND

- COARSE REFUSE
- SHALE
- SANDSTONE
- CLAY
- SURFACE MATERIAL



SLOPE BENCH TYPICAL CROSS-SECTION
N.T.S.

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(205) 384-5553 Office (205) 384-9491 Fax

drawn by: C.M.O.
checked by: W.P.G.
scale: 1" = 100'
diskette no:
rev no./date:

job number:
initial date: 4-17-13
f.b./page:
dwg name: NPMNP1CCC
rev no./date:

NORTH PRATT MINING, LLC.
PRATT NO. 1 MINE
P-3972
COARSE REFUSE AREA NO. 1
CURRENT CONDITIONS MAP
MAP 5 OF 7

Scale: 1" = 100'

N

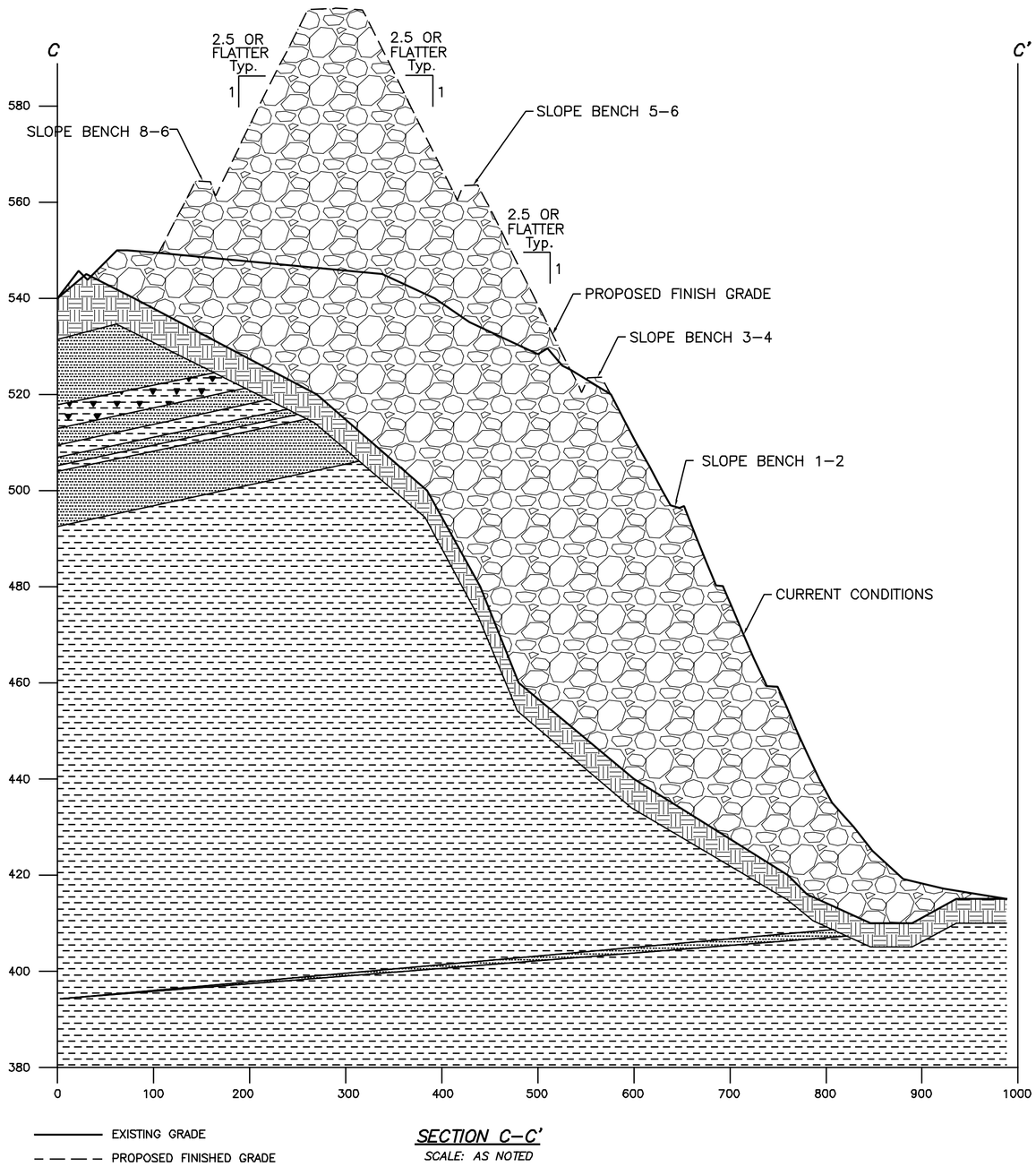
BH-1
BH-2
BH-3
BH-4

COARSE REFUSE AREA NO. 1

C
C'

LEGEND

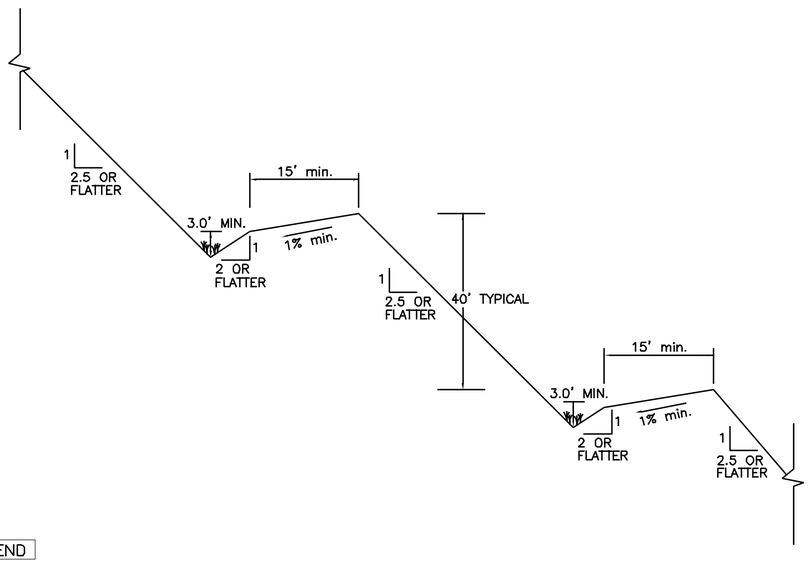
- PERMIT BOUNDARY
- 600 PROPOSED FINAL CONTOUR
- 600 EXISTING CONTOUR
- 600 PRE-MINING CONTOUR
- UNDERDRAIN DRAINAGE DIVIDE
- ROUTING DIVERSION DRAINAGE DIVIDE
- 1 → 2 PROPOSED DIVERSION
- SLOPE BENCH (SEE BENCH TYPICAL) NOTE: MAXIMUM BENCH LONGITUDINAL SLOPE IS 1%.
- EXISTING ROAD
- UNDERDRAIN
- BH-2 BORE HOLE SITE
- SURVEY MONUMENT ELEV. 500
- COARSE REFUSE AREA NO. 1 PERIMETER



SECTION C-C'
SCALE: AS NOTED

HATCH LEGEND

- COARSE REFUSE
- SHALE
- SANDSTONE
- CLAY
- SURFACE MATERIAL



SLOPE BENCH TYPICAL CROSS-SECTION
N.T.S.

PERC
ENGINEERING CO., INC.
1606 Hwy. 78 West Jasper, AL 35501/P.O. Box 1712-35502
(205) 384-5553 Office (205) 384-9491 Fax

drawn by: C.M.O.
checked by: W.P.G.
scale: 1" = 100'
diskette no:
rev no./date:

job number:
initial date: 4-17-13
f.b./page:
dwg name: NPMNP1CRG
rev no./date:

NORTH PRATT MINING, LLC.
PRATT NO. 1 MINE
P-3972
COARSE REFUSE AREA NO. 1
GRADING PLAN
MAP 6 OF 7

Scale: 1" = 100'

N

COARSE REFUSE AREA NO. 1

SW 1/4 of SE 1/4

BH-1

BH-2

BH-3

BH-4

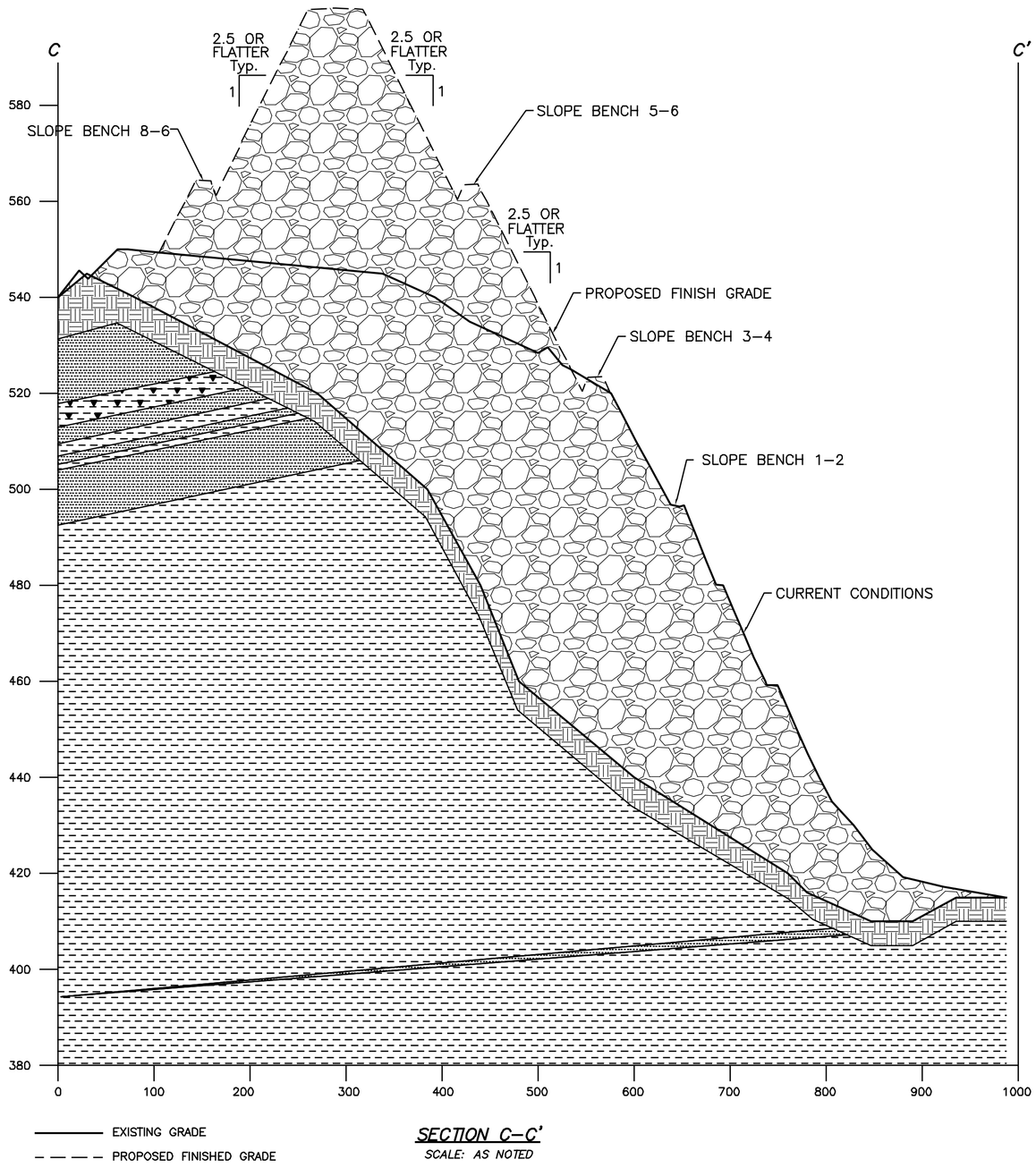
C

C'

577.5 567.3 572.3 575.7 572.6 580.2 579.8 581.1 575.6 570.6 563.4 601 562.0 539.0

LEGEND

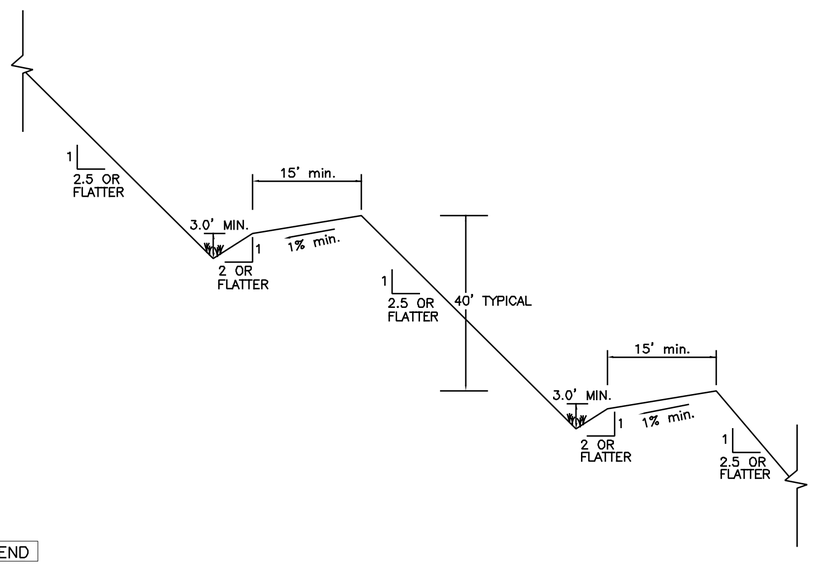
- PERMIT BOUNDARY
- 600 PROPOSED FINAL CONTOUR
- 600 EXISTING CONTOUR
- UNDERDRAIN DRAINAGE DIVIDE
- ROUTING DIVERSION DRAINAGE DIVIDE
- 1 → 2 PROPOSED DIVERSION
- SLOPE BENCH (SEE BENCH TYPICAL) NOTE: MAXIMUM BENCH LONGITUDINAL SLOPE IS 1%.
- EXISTING ROAD
- UNDERDRAIN
- BH-2 BORE HOLE SITE
- SURVEY MONUMENT ELEV. 500
- COARSE REFUSE AREA NO. 1 PERIMETER



SECTION C-C'
SCALE: AS NOTED

HATCH LEGEND

- COARSE REFUSE
- SHALE
- SANDSTONE
- CLAY
- SURFACE MATERIAL



SLOPE BENCH TYPICAL CROSS-SECTION
N.T.S.

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NORTH PRATT MINING, LLC.
PRATT NO. 1 MINE
P-3972
COARSE REFUSE AREA NO. 1
ABANDONMENT - DRAINAGE CONTROL PLAN
MAP 7 OF 7