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Paul Baker
ACT/007/004
#2

State of Utah
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

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355 West North Temple
3 Triad Center, Suite 350
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DATE: October 24, 1994

TO: Sed Ponds Project, Technical File
AMR/007/921/T

FROM: Chris Rohrer, Senior Reclamation Specialist
Abandoned Mine Reclamation Program

RE: Coal refuse sampling and geotechnical analysis

Introduction:

On Tuesday, October 17, 1994, I collected a composite grab sample of coal refuse from the Sed Ponds Project site. The sample was for geotechnical property analysis required by Item 5 of the "Agreement by and between Amax Coal Company and Division of Oil, Gas and Mining." The analysis data will be used to ensure that coal refuse material from the Sed Ponds site disposed as fill at the Schoolhouse Canyon Disposal Site will be handled in a way the maintains the geotechnical stability and integrity of the disposal site.

Sampling Method:

I selected four arbitrary sampling locations. The points consist of two locations in the fine sediments in the middle of the southern sediment pond basin and two on the berms, which tend to have coarser material. See the attached map for the sample point locations. Using a shovel, I obtained coal from the surface to a depth of about a foot. I thoroughly mixed the composite sample in a 5-gallon plastic bucket. I then packed the material into four 1-gallon ziplock plastic bags. The mixing of material from the berms and basins should mimic the mixing that would occur when the coal is excavated and handled during reclamation construction. The final sample appeared to be a fairly typical representation of the material on site.

It had rained or snowed on the site all day and probably on several preceding days. There was standing water in the basins and the coal was saturated.

Analysis:

I delivered the coal to Applied Geotechnical Engineering Consultants, Inc. (7109 South 185 West, Midvale, Utah 84047) on

October 19. The analyses requested were: Atterberg limits, grain size analysis, standard Proctor, modified Proctor, and relative density. The analysis cost an estimated $282.00 and was paid on purchase order number 200055.

Analysis Results:

Copies of the original data sheets provided by Applied Geotechnical Consultants, Inc. are attached.

COALTST2.MEM
Attachments
cc: Lonnie Mills, CPMC
Paul Baker, DOGM

Applied Geotechnical Engineering Consultants, Inc.

October 21, 1994

State of Utah Natural Resources
Division of Oil Gas & Mining
3 Triad Center #350
Salt Lake City, Utah 84180-1203

Attention: Chris Rohrer

Subject: Soils Laboratory Test Results
Coal Refuse Sample
Sediment Ponds Project
Project No. NA05501G
AGEC Project No. 47594

Gentlemen:

Applied Geotechnical Engineering Consultants, Inc. was requested to conduct several laboratory tests on a coal refuse sample received October 19, 1994. The following tests were conducted in general accordance with the listed test method:

Test	Test Method
Gradation	ASTM D 422
Atterberg Limit	ASTM D 4318
Moisture-Density Relation	ASTM D 698
Moisture-Density Relation	ASTM D 1557

Due to the limited amount of sample, the Modified Proctor (ASTM D 1557) was conducted with the same sample and after conducting the Standard Proctor (ASTM D 698). A gradation test was conducted on the sample after conducting the standard proctor which illustrates the amount of degradation that occurred during the test.

The results of the test are shown graphically on Figures 1 and 2.

If you have any questions, or if we can be of further service, please contact us.

Sincerely,

APPLIED GEOTECHNICAL ENGINEERING CONSULTANTS, INC.

G. Wayne Rogers, P.E.
attachment

7109 South 185 West, Suite A • Midvale, Utah 84047 • (801) 566-6399 • FAX (801) 566-6493

Applied Geotechnical Engineering Consultants, Inc.

Sample from: Sediment Ponds Project
Description: Coal Refuse Sample
Silty Sand w/Gravel (SM)

Test Method ASTM D-1557/D-698

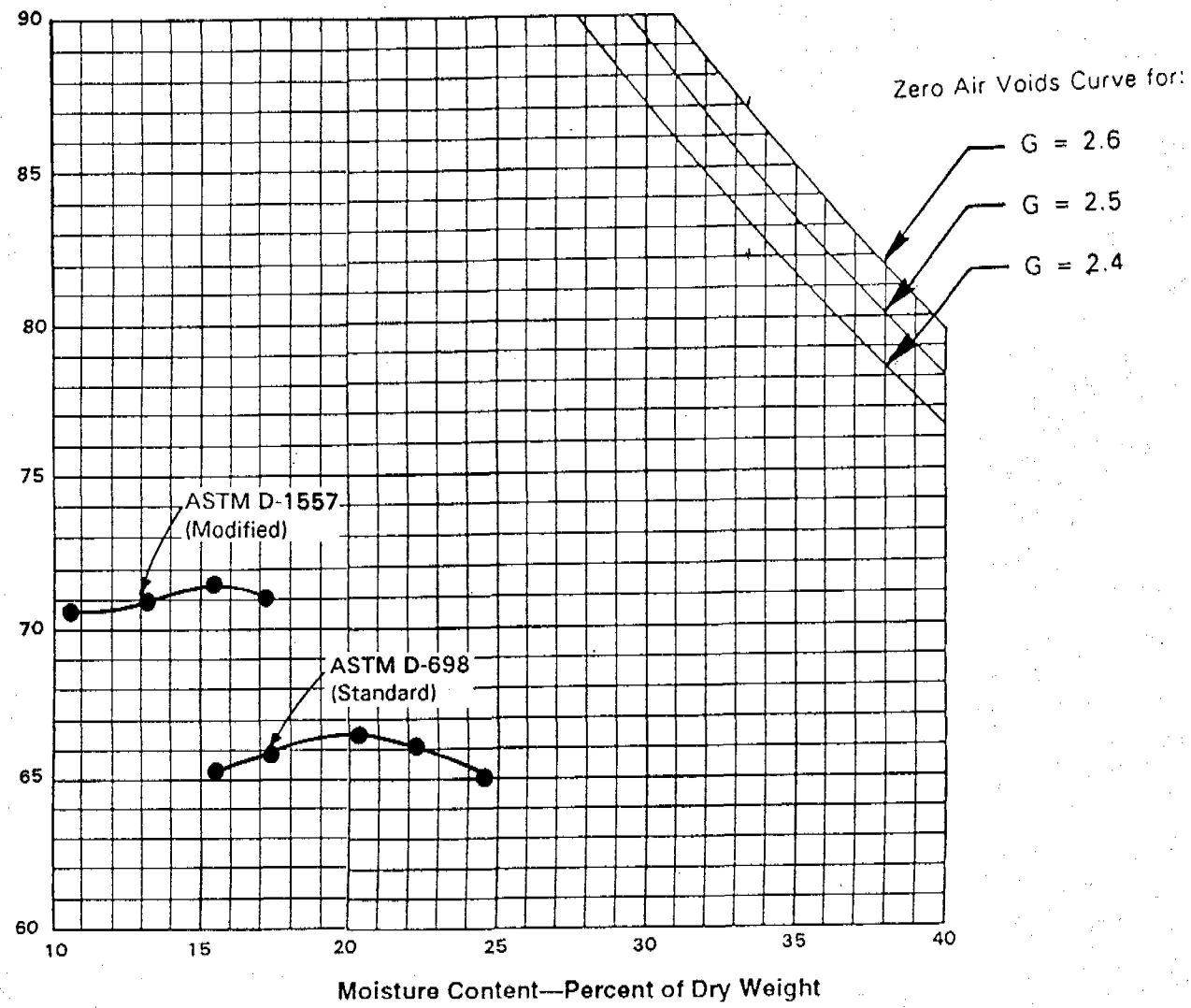
Maximum Dry Density	71.5/66.5	pcf
Optimum Moisture Content	15.5/20.0	%

Atterberg Limits

Liquid Limit	No Value	%
Plasticity Index	Non Plastic	%

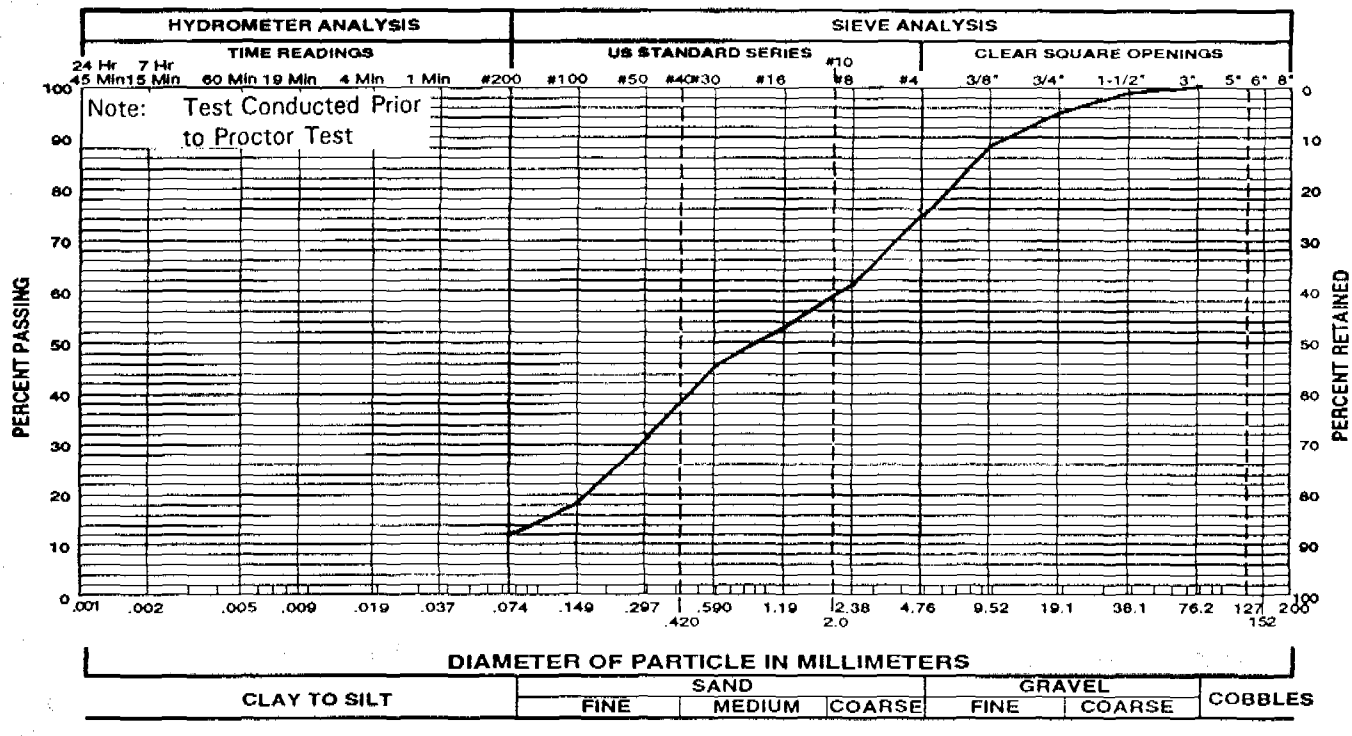
Gradation

Gravel	25/19	%
Sand	63/66	%
Silt & Clay	12/15	%



Project No. 47594 COMPACTION TEST RESULTS Figure 2

Applied Geotechnical Engineering Consultants, Inc.

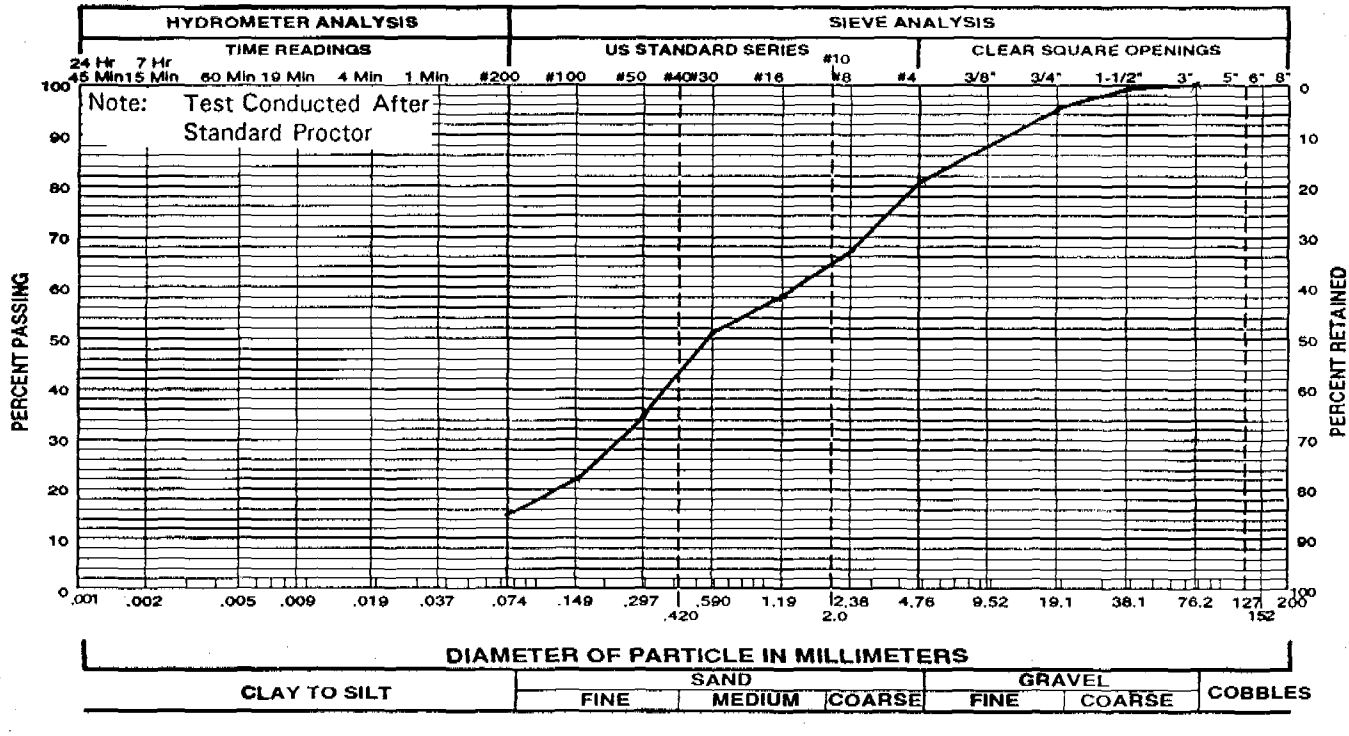


Gravel 25 % Sand 63 % Silt and Clay 12 %

Liquid Limit No Value % Plasticity Index Non Plastic %

Sample of Coal Refuse From Sediment Ponds Project

Silty Sand w/Gravel (SM)



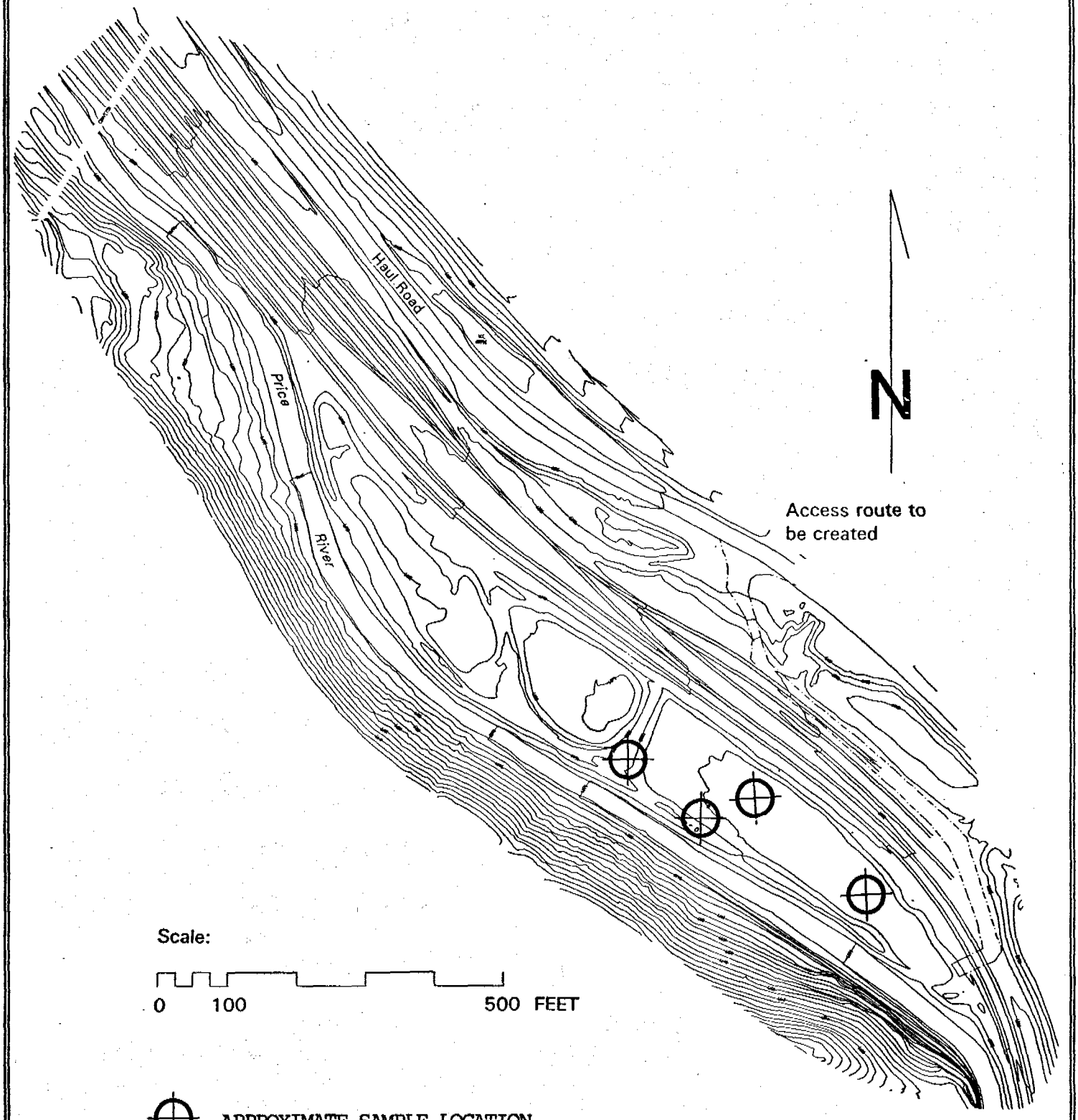
Gravel 19 % Sand 66 % Silt and Clay 15 %

Liquid Limit ____ % Plasticity Index ____ %

Sample of Coal Refuse From Sediment Ponds Project

Silty Sand w/Gravel (SM)

Project No. 47594 **GRADATION TEST RESULTS** Figure 1



SED PONDS PROJECT	
Sed Ponds Site Layout Map	
UTAH NATURAL RESOURCES Oil, Gas & Mining	Drawn by: JCR
	Scale: 1" = 200'
	Sheet 2 of 11