0030

File ACT/007/018-89B

SC3 SOLDIER CREEK COAL CO.

Telephone (801) 637-6360

P.O. Box I
Price, Utah 84501

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September 15, 1989

Ms. Susan C. Linner
Permit Supervisor
Division of Oil, Gas & Mining
355 West North Temple
3 Triad Center, Suite 350
Salt Lake City, UT 84180-1203

Re: New Surface Facilities Permit Amendment
Soldier Canyon Mine, ACT/007/018

Dear Ms. Linner:

In response to your conditional approval letter dated September 5, 1989, I have enclosed the necessary information to resolve the remaining permit deficiencies.

Attached please find the bond rider which increases Reclamation Bond No. 8107-37-63 by 4.2 acres to include the proposed facility expansion. Also enclosed are thirteen (13) copies of additional information and modifications to be incorporated into our Mining and Reclamation Plan.

Please contact me as soon as possible should you require any additional information, since we are anticipating final approval by September 25, 1989.

The cooperation of you and your staff concerning this permit amendment has been appreciated.

Sincerely,

SOLDIER CREEK COAL COMPANY

Dave Spillman

David G. Spillman
Mine Engineer

DGS/sm

Enclosures

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Page Replacement Instructions - Volume 8
Deficiency Response
Permit Amendment - Surface Facilities Expansion

Soldier Creek Coal Company
Soldier Canyon Mine
ACT/007/018

September 15, 1989

Section	Pages	Comments	UMC Reference
Illus. 10.2.6-2	10-5	Page Replacement	783.14(a)(i)(iii)-H
10.6 Soils	10-38	Page Replacement	817.23 - HS
Appendix D	Page 29E of 29	Page Replacement	817.44 - MMD
Appendix C	1 thru 4	New Attachment (Attachment C)	817.43 - MMD

ILLUSTRATION 10.2.6-2

Chris

CHEMTECH

CHEMICAL AND BACTERIOLOGICAL ANALYSES

6100 S. STRATLER
MURRAY, UTAH 84107
(801) 262-7299

JUN 19 1989
SC 3

DATE: 6 15 89

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TO: EarthFax Engineering, Inc.
7324 South 1300 East STE 100
Midvale, UT 84047

DATE SUBMITTED: 5-11-89 - SC3 Exploration Cut, 5 8 89

CERTIFICATE OF ANALYSIS

SAMPLE ID:	OVER BURDEN	UNDER BURDEN	EPA METHOD*
LAB #:	U041261	U041262	
PARAMETER			
pH Units	7.6	7.5	9045*
Conductivity, umhos/cm³	911	1,510	9050*
Selenium as Se, mg/Kg	<.05*	<.05*	7740*
Chloride as Cl, mg/Kg	50	101	9252*
Sulfate as SO_4, mg/Kg	3,610	6,840	9038*
Boron as B, mg/Kg (Total)*	< 5*	<5*	3050*
TOC, %	1.26	1.35	9060*
Resistivity, ohms/cm³	1,100	662	9050*
Maximum Acid Potential, Tons $CaCO_3$/1000* Tons Soil	0.95*	0.88*	600-2-78-054*
Neutralization Potential, Tons $CaCO_3$/1000* Tons Soil	0.64	0.71	600-2-28-054*
Texture: % Gravel (Rock)	28.2	21.3	
% Sand	58.1	62.4	
% Silt/Clay	13.7	16.3	
Acid/Base Potential, Tons $CaCO_3$/1000 Tons Soil*	-.31*	-.17*	

*Items added or revised by Soldier Creek Coal Company following 09/15/89 telephone conversation with Chemtech.

Rex Henderson

Revised 09/15/89

10.6 SOILS

The soils portion of this text was prepared by Randolph B. Gainer and Rhett Brooks of EarthFax Engineering, Inc. located in Midvale, Utah. Mr. Gainer is responsible for the general physical and chemical sampling and analysis of laboratory test results associated with the soils. Mr. Brooks is responsible for the detail physical characteristics and stability assessment of the soils. Laboratory analyses were performed at ChemTech (Murray, Utah) an EPA/Utah certified laboratory.

On November 11, 1988 soil samples were collected from two locations on the south side of Soldier Creek in the immediate vicinity of the proposed new portal area (3.37 acres). Visual inspection and both testpits conclusively proved that the soil in the area was previously disturbed by activities associated with the installation of a buried gas line. Therefore, it was not possible to identify or log any distinct soil profiles or horizons. The soil appeared to be well mixed from the surface down to bedrock (0.0 to 3.0'). Thus, only the upper foot of soil was sampled and submitted to ChemTech for analysis of the required physical and chemical parameters.

10.6.1 GENERAL SOILS INFORMATION {783.21}

The soils in the area of the proposed portal expansion area are a sandy loam with up to 20 percent gravel and cobble fragments. They are shallow (0.0' to 3.0') and numerous rock outcrops are present. The soils and hillslopes in the area are generally stable. Natural and re-established stands of native vegetation are present throughout the area.

10.6.1a SOILS NARRATIVE {783.21 & 817.21-25}

The soils associated with the portal are similar to those soils throughout this area of Soldier Creek. Even though the O and A horizons were not segregated by the pipeline company during the construction project and redistributed as topsoil for reclamation purposes, revegetation efforts have been very successful. Based on this observation and the laboratory data, the disturbed soils appear to possess a good suitability for use in reclamation as substitute topsoil.

Immediately prior to the portal development the existing soils will be stripped from the area. An average 1-foot of the disturbed area will be salvaged for use as substitute topsoil. In areas where suitable materials are thicker then greater depths will be salvaged. The salvaged soil will be used as backfill around and over the proposed culvert to be emplaced in Soldier Creek. After placement the soil will be vegetated using the final/permanent reclamation seed mixture (grass and Forb species only) listed in the revegetation section. Also, to provide additional protection, an adequately sized berm and/or straw bale/silt fence combination shall be installed and maintained around the entire perimeter of the stockpile area. The soil will thus remain in this position for the life of the mine.

From HEC-2 calculations (Appendix E of MRP), the flow characteristics in the stream channel immediately downstream from the culvert outlet are as follows:

HEC-2 Section No. → 5

Flow depth → 6.95 ft
Flow width → 33.45 ft
Flow velocity → 20.0 ft/s

} Natural conditions

Since the outlet apron will maintain the same channel side slopes, the same channel bottom slope, the same hydraulic roughness (n = 0.040), and the same bottom width, hydraulic conditions will remain the same. Thus, the constriction will be calculated using the above flow top width.

$$\text{Constriction} = \frac{33.45\text{ ft} - 20.0\text{ ft}}{2} = 6.7\text{ ft}$$

Apron length = (4)(6.7) = 26.8 ft ⇒ Use a length of 28 ft
Outlet velocity → equivalent to natural conditions
• Typical outlet sections → see pp 29F and 29G of this calc.

NOTE: Pursuant to the Division's review (Conditional Approval, New Surface Facilities, September 5, 1989), the constriction value was recalculated to 8.5 ft., resulting in a riprap apron length of 34. Therefore, the riprap apron shall be installed to a minimum length of 34 feet from the culvert inlet.

References

American Iron and Steel Institute. 1983. Handbook of Steel Drainage and Highway Construction Products. 3rd ed. Washington, D.C.

Barfield, B.J., R.C. Warner, and C.T. Haan. 1981. Applied Hydrology and Sedimentology for Disturbed Areas. Oklahoma Technical Press, Stillwater, Oklahoma.

Corry, M.L., P.L. Thompson, F.J. Watts, J.S. Jones, and D.L. Richards. The Hydraulic Design of Energy Dissipators for Culverts and Channels. Hydraulic Engineering Circular No. 14. Federal Highway Administration Washington, D.C.

Searcy, J.K. 1967. Use of Riprap for Bank Protection. Hydraulic Engineering Circular No. 11. Federal Highway Administration, Washington, D.C.

U.S. Army Corps of Engineers. 1982. HEC-2 Water Surface Profiles Users Manual. Hydrologic Engineering Center. Davis, California.

ATTACHMENT C

Undisturbed Area Drainage Culvert

Undisturbed Area Drainage Culvert

$Q = 1.16$ cfs

From inlet control nomograph (pg 3 of 4) a 12" corrugated metal pipe is adequate.

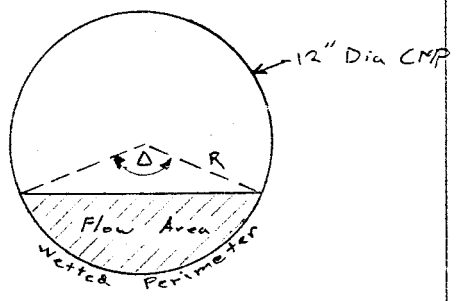
Design culvert outlet riprap for expected velocity.

Use Manning's Equation : $Q = \frac{1.49}{n} A R^{2/3} S^{1/2}$

A = Flow Area $= \frac{\pi R^2 \Delta}{360} - \frac{R^2 \sin \Delta}{2}$

P = Wetted Perimeter $= \frac{\pi R \Delta}{180}$

R = Hydraulic Radius $= \frac{A}{P}$



$n = 0.024$ for corrugated pipe

Δ = Central Angle in Decimal Degrees

S = Slope = 0.5 (max. slope from topography map)

R = culvert radius = 0.5'

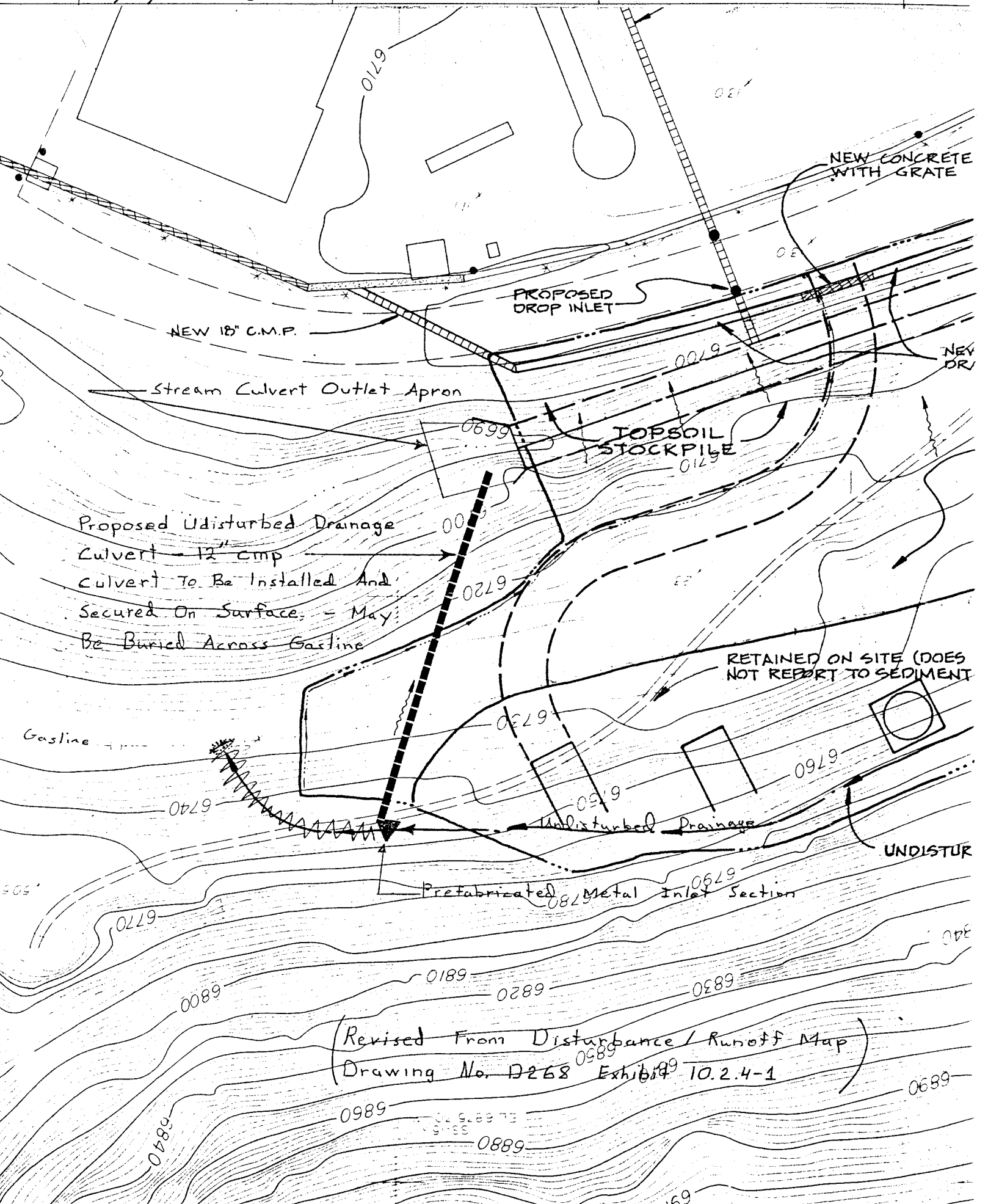
$$1.16 = \frac{1.49}{0.024}\left(\frac{\pi\, 0.5^2 \Delta}{360} - \frac{0.5^2 \sin \Delta}{2}\right)\left(\frac{\frac{\pi\, 0.5^2 \Delta}{360} - \frac{0.5^2 \sin \Delta}{2}}{\frac{\pi\, 0.5 \Delta}{180}}\right)^{2/3}(0.5)^{1/2}$$

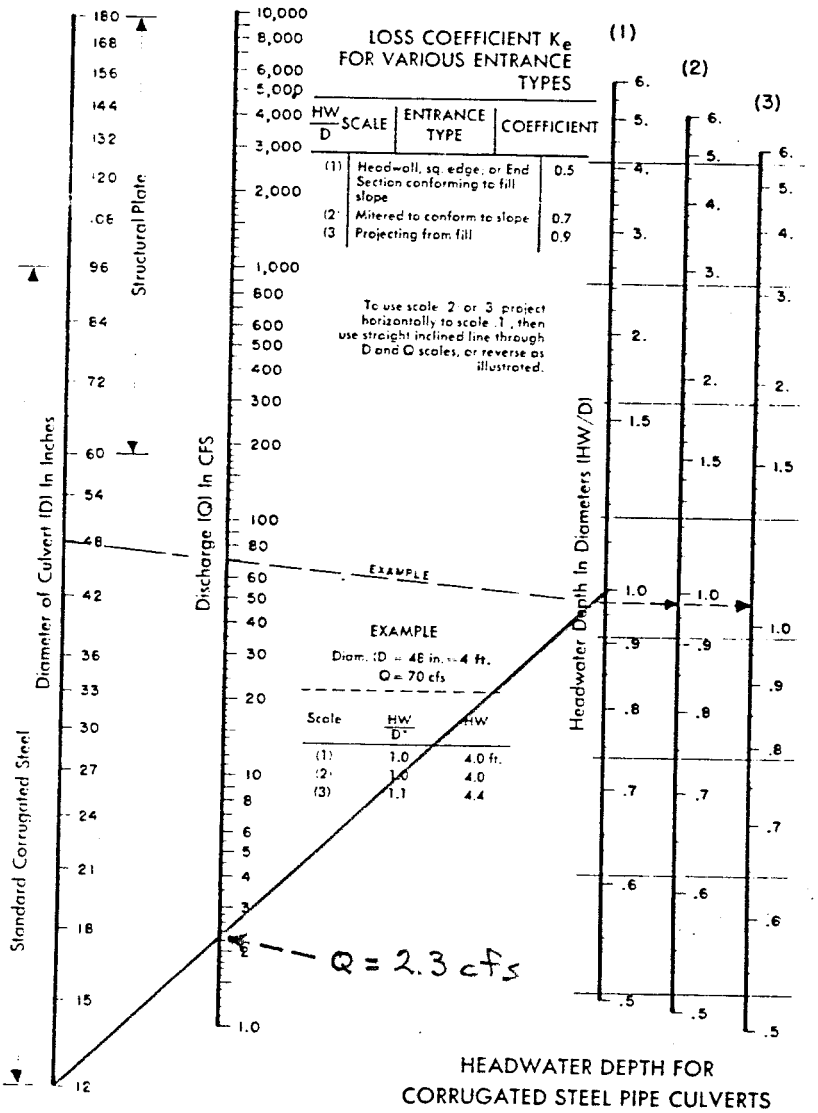
(Solve for Area by trial-and-error for different values of Δ)

$\Delta = 105.4^\circ \Rightarrow$ Flow Area $= 0.109$ ft^2

$$V = \frac{Q}{A} = \frac{1.16}{0.109} = \underline{\underline{10.6 \text{ ft/sec}}} \text{ @ culvert outlet}$$

The curve shown on pg 4 of 4 of this attachment indicates that the d_{50} of riprap, required for a 2h : 1v slope is just less than 1.0' diameter. Since the design riprap for the stream culvert outlet apron has been designed at $d_{50} = 1.0'$, it is also adequate for erosion control at the outlet of the proposed undisturbed area drainage culvert (see Appendix D, page 29 G of 29 for details on the stream culvert outlet apron).


NEW CONCRETE WITH GRATE
PROPOSED DROP INLET
NEW 18" C.M.P.
Stream Culvert Outlet Apron
TOPSOIL STOCKPILE
Proposed Udisturbed Drainage Culvert - 12" cmp Culvert To Be Installed And Secured On Surface - May Be Buried Across Gasline
RETAINED ON SITE (DOES NOT REPORT TO SEDIMENT
Gasline
Undisturbed Drainage
UNDISTUR
Prefabricated Metal Inlet Section
(Revised From Disturbance / Runoff Map Drawing No. D268 Exhibit 10.2.4-1)



HEADWATER DEPTH FOR CORRUGATED STEEL PIPE CULVERTS WITH **INLET CONTROL**

Undisturbed Area Drainage Culvert
Required Flow 1.16 cfs
12" Dia. Culvert Adequate

Fig. 4-18. *Inlet control* nomograph for corrugated steel *pipe* culverts. The manufacturers recommend keeping *HW/D* to a maximum of 1.5 and preferably to no more than 1.0.

Riprap size vs. velocity (from Searcy, 1967):

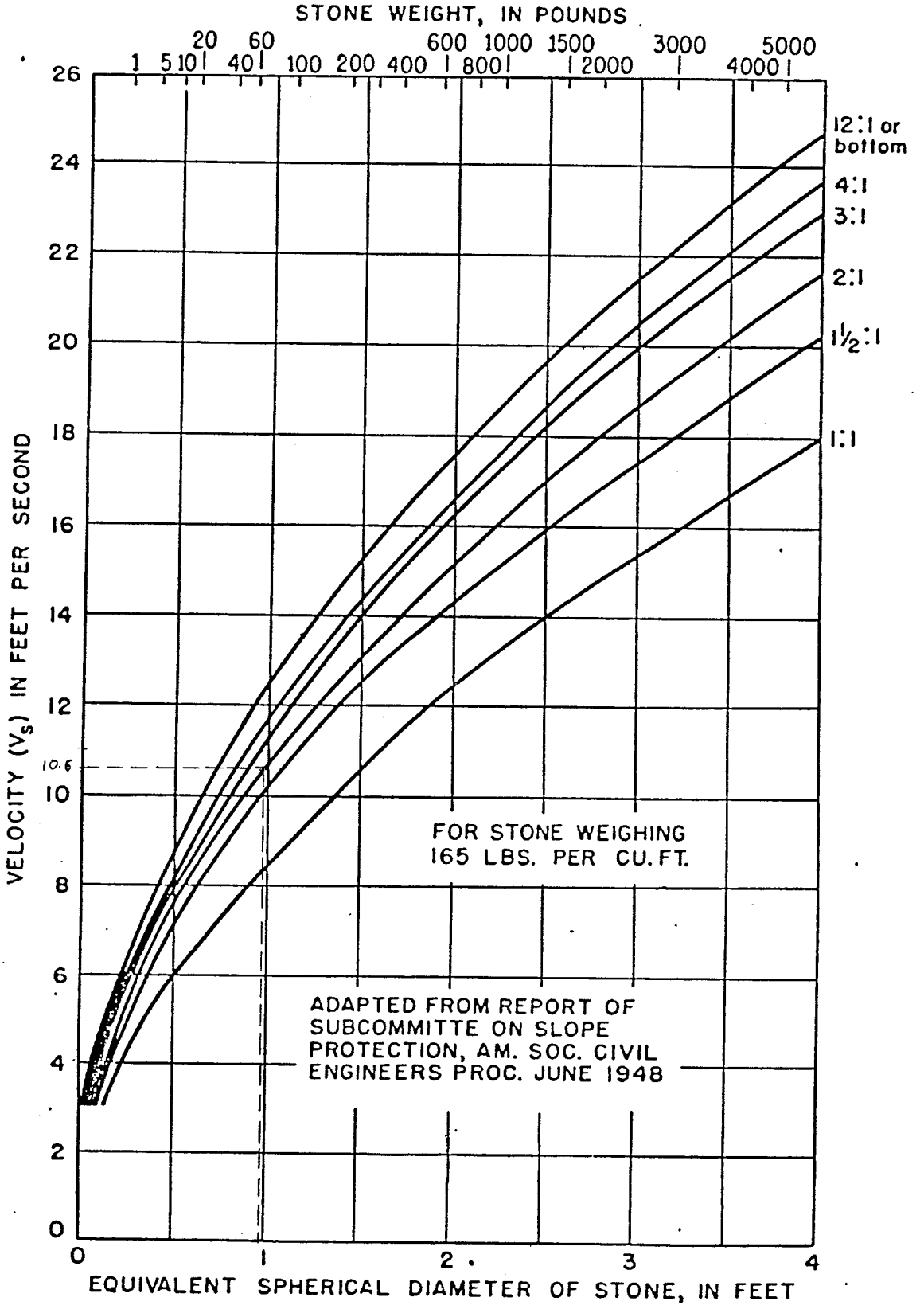


FIG. 2-SIZE OF STONE THAT WILL RESIST DISPLACEMENT FOR VARIOUS VELOCITIES AND SIDE SLOPES

File ACT/007/018 #2

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RECEIVED
SEP 18 1989
DIVISION OF
OIL, GAS & MINING

September 15, 1989

Mr. Lynn Kunzler
Reclamation Specialist
Division of Oil, Gas & Mining
355 West North Temple
3 Triad Center, Suite 350
Salt Lake City, UT 84180-1203

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SEP 18 1989
DIVISION OF
OIL, GAS & MINING

Re: BLM Stipulation #13
New Portal Facilities
Soldier Canyon Mine, ACT/007/018

Dear Mr. Kunzler:

For your information, I have enclosed a copy of the clearance report for Hedysarm occidentals van canone. This clearance was required by the BLM prior to commencement of construction activities related to our surface facility expansion.

Please contact me if you have any questions.

Sincerely,

SOLDIER CREEK COAL COMPANY

Dave Spillman

David G. Spillman
Mine Engineer

DGS/sm

Enclosure

David Spillman
Soldier Creek Coal Mining Co
Box 1.
Price Utah.

Sept. 9, 1989

Dear Mr. Spillman.

On 9/9/89. I made a Survey of the proposed New Facilities Sites at the Soldier Creek mine in Soldier Creek Canyon for Clearance of Threatened, Endangered or Sensitive plant species. No Listed Threatened, Endangered or Sensitive plant species or Suitable Habitat was found within or near the proposed Facilities Sites.

Sweet Canyon vetch Hedysarum occidentale var. Canone, was looked for. No plants, populations, suitable or potential Habitat was found within or near the proposed Facilities Sites.

The proposed Site is Clear of Threatened, Endangered or Sensitive plant species.

Also No presently Listed Noxious weeds were observed within the proposed Site. It is clear of noxious weeds at this time.

Robert M. Thompson