

APPENDIX 10 (A)

PORTAL SEALING PROCEDURES

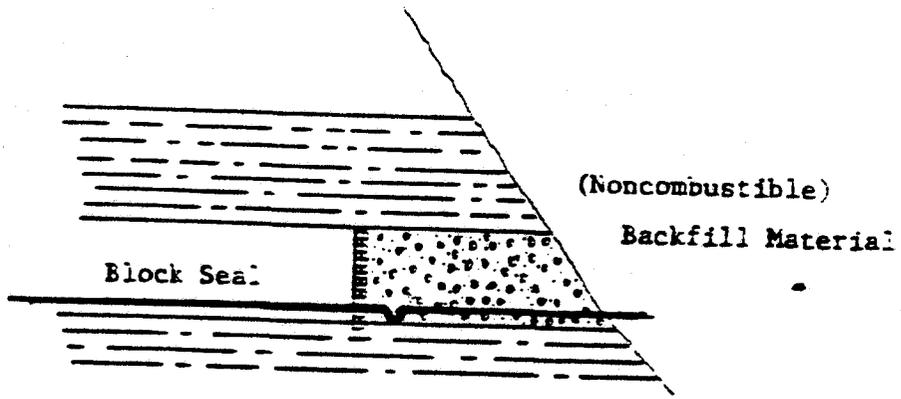
## A- PORTAL SEALING

Upon completion of mining activities, the portals will be sealed in accordance with State and Federal regulations. Typical drawings of portal sealing to be used are shown in Figures 3-10 and 3-11.

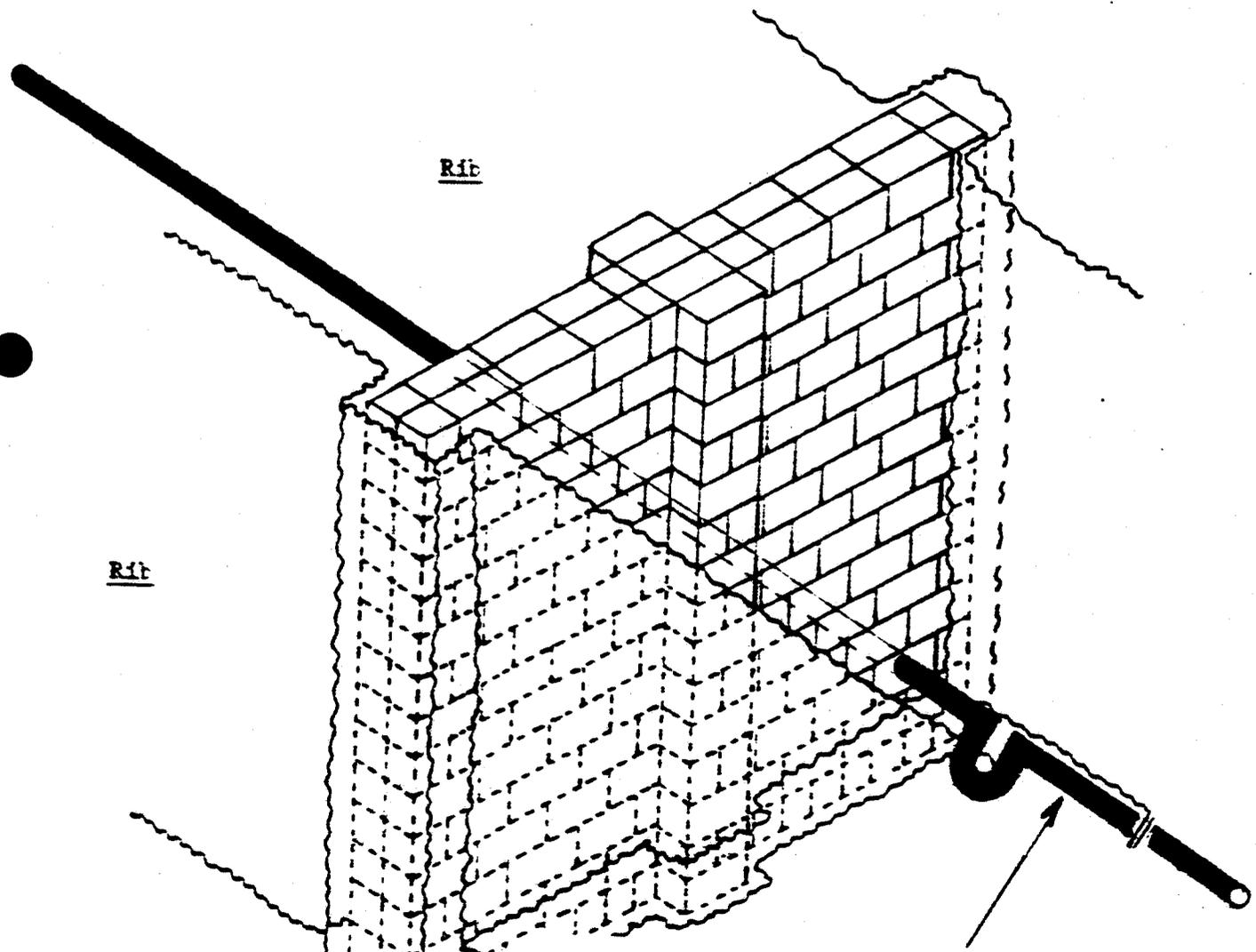
Seals will be located at least 25' inside the portal entry. All loose material around the seal area will be removed from roof, rib and floor prior to installation. The mine entry seals will be made of solid concrete blocks (average minimum compressive strength of 1,800 lb/in<sup>2</sup>) and mortar (1 part cement, 3 parts sand, and no more than 7 gallons of water per sack of cement) to form a wall two blocks thick.

Seals will be installed as follows: The seal will be recessed at least 16 inches deep into the rib and 12 inches deep into the floor. No recess will be made into the roof. The blocks will be at least 6 inches high, except in the top course, and 8 inches wide. The blocks will be laid and mortared in a transverse pattern. In the bottom course, each block will be laid with its long axis parallel to the rib. The long axis in succeeding courses will be perpendicular to the long axis block in the preceding course. An inter-laced pilaster will be constructed in the center. The seals will have a total thickness of 16 inches. The opening in front of the wall will be filled with noncombustible material, and the portal and entire exposed seam on the highwall will be covered with noncombustible material, graded, and seeded.

A 2" To 4" water drainage pipe will be placed at the lowest elevation of the seal. Pipe will be made of corrosion resistant material equal in strength to schedule 40 steel pipe. Pipe will include a U-tube drain for automatic flow of water and the restriction of escaping gases. All vent pipe(s) installed through seals will be closed with perforated caps.



SECTION VIEW

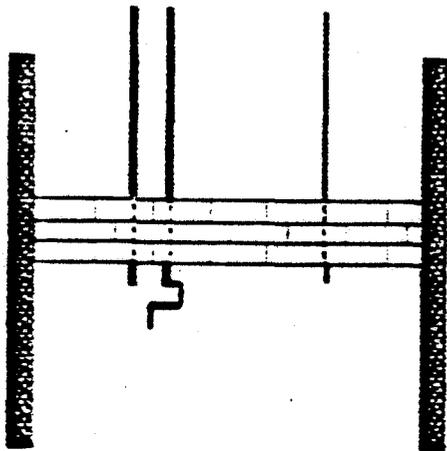


2-4" WATER DRAIN PIPE WITH  
 A U-TUBE - THE U-TUBE WILL ALLOW FOR  
 AUTOMATIC FLOW OF WATER, WHILE PREVENTING  
 THE ESCAPE OF GASES THROUGH THE TUBE.

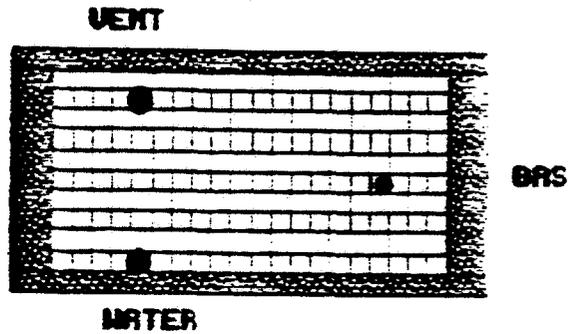
TYPICAL PORTAL SEAL

# SEALS

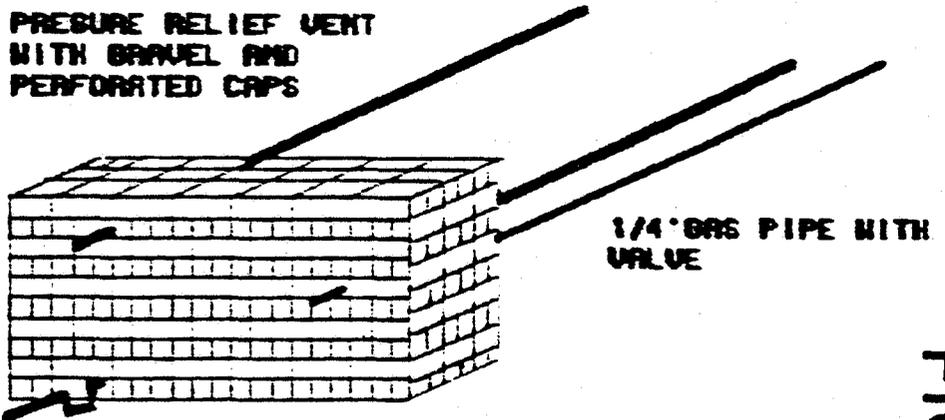
## PLAN VIEW



## FRONT VIEW



## ISOMETRIC VIEW



2-4" WATER DRAIN PIPE WITH A U-TUBE - THE U-TUBE WILL ALLOW FOR AUTOMATIC FLOW OF WATER, WHILE PREVENTING THE ESCAPE OF GASES THROUGH THE TUBE.

SEAL CONSTRUCTION -

FIRE PROOF COATING APPLIED TO THE OUTSIDE

Rev 11-21-86

FIGURE 3-10A

APPENDIX 10 (B)

A DESCRIPTION OF THE SEALING OF BOREHOLES AND EXPLORATION HOLES

## **B DRILLHOLE SEALING**

**Exploration drill holes will typically involve sealing each hole from total depth to the surface with cuttings, cement and/or heavy media. See the following example (figure 3).**

**All drill and boreholes used for monitoring during the life of the mine will be cased, threaded and capped.**

**When a drill or borehole is no longer needed for monitoring, it will typically be sealed from total depth to surface in a like manner to figure 3.<sup>\*\*</sup>**

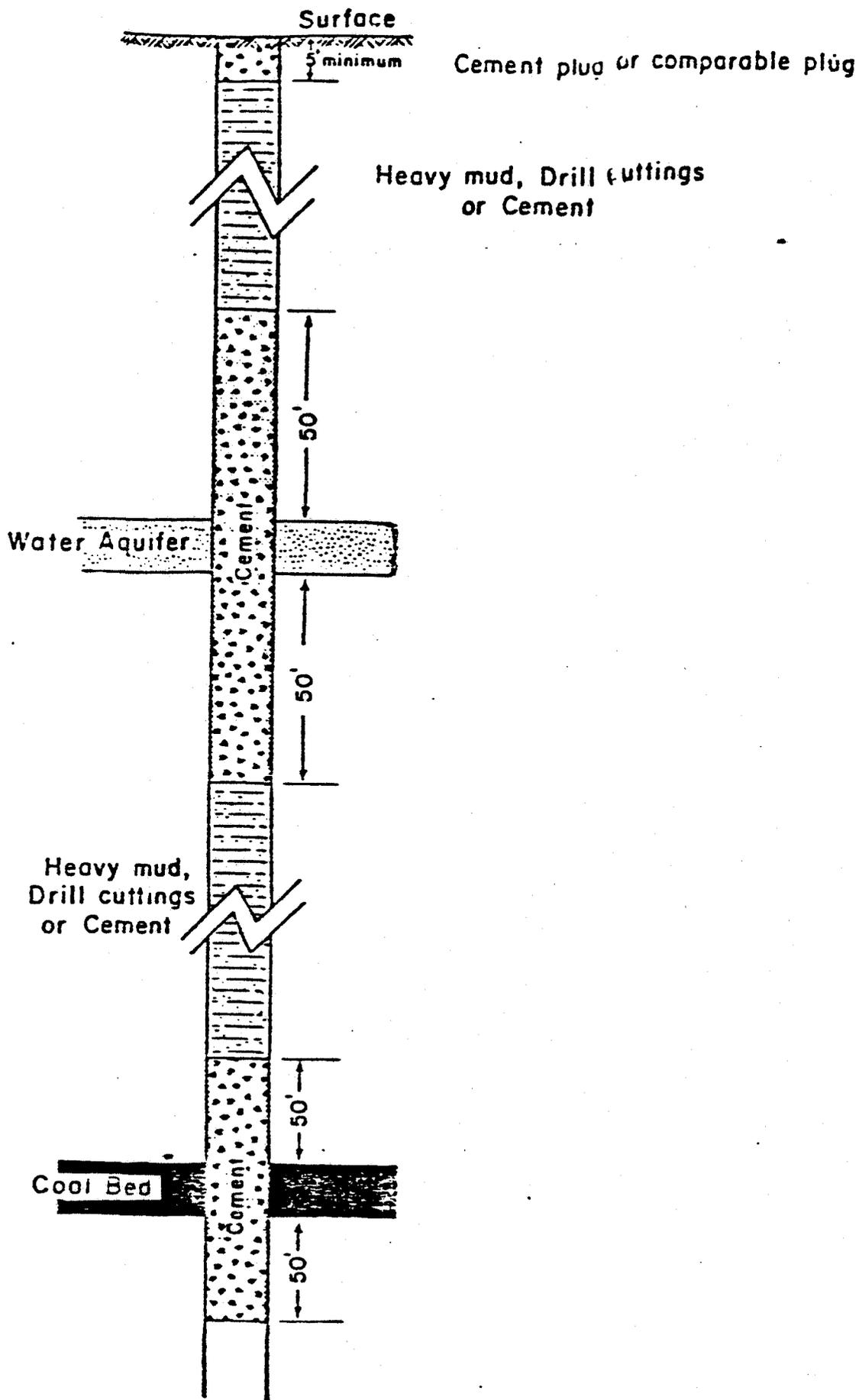


Figure 3. Typical drill hole abandonment (USGS).

Table 3-1. Reserves - Tract 2.

<u>FED. LEASE</u>	<u>U-49332</u>	<u>8'-8.5'</u>	<u>INPLACE</u>	<u>RECOVERABLE</u>	<u>TONS</u>
Area 1		3,880,930	3,880,930	36%	1,397,135
Area 2		3,087,982	3,087,982	65%	2,007,188
Area 3		1,120,776	1,120,776	75%	840,582
Area 4		1,103,742	1,103,742	50%	551,871
Totals		9,193,430	9,193,430	56%	4,796,776
STATE LEASE ML-22603					
FED. LEASE U-08296					1,345,000
TOTAL RECOVERABLE TONS ASSIGNED TO TRAIL MOUNTAIN.					6,141,776

FIGURE 3-2

COAL HANDLING FLOWCHART

TRAIL MOUNTAIN COAL COMPANY

DATE: JAN. 1986

DRAWN:

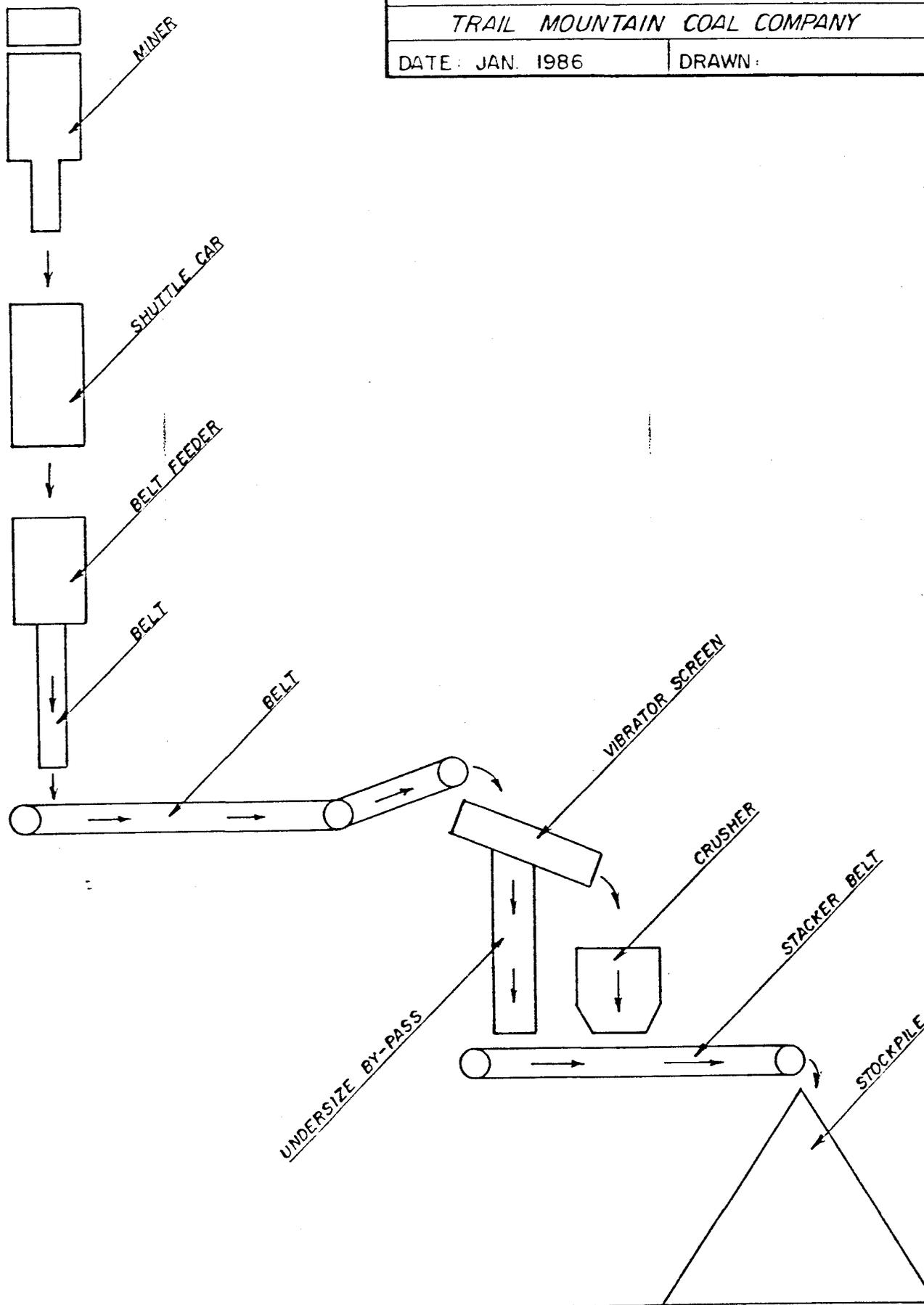
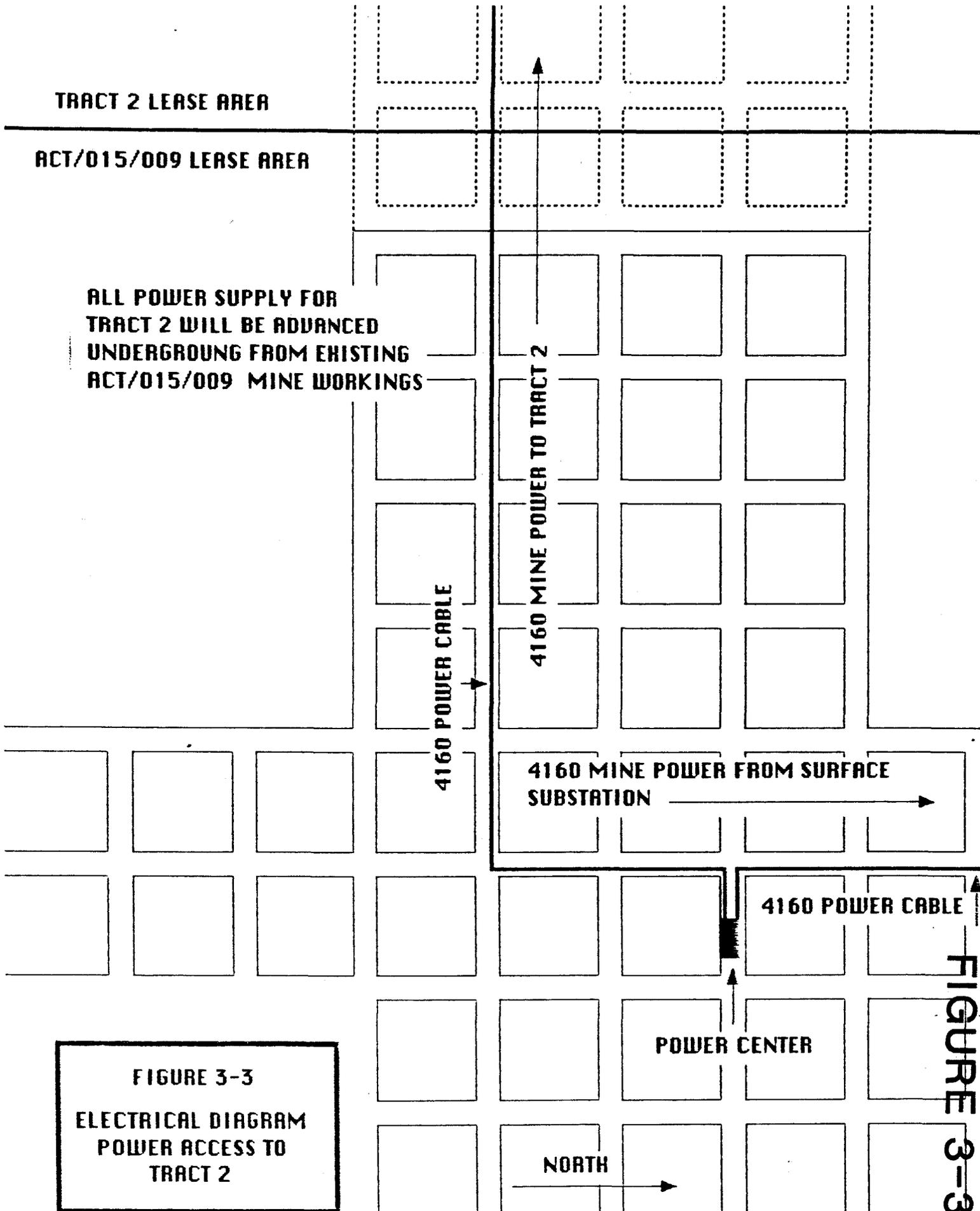
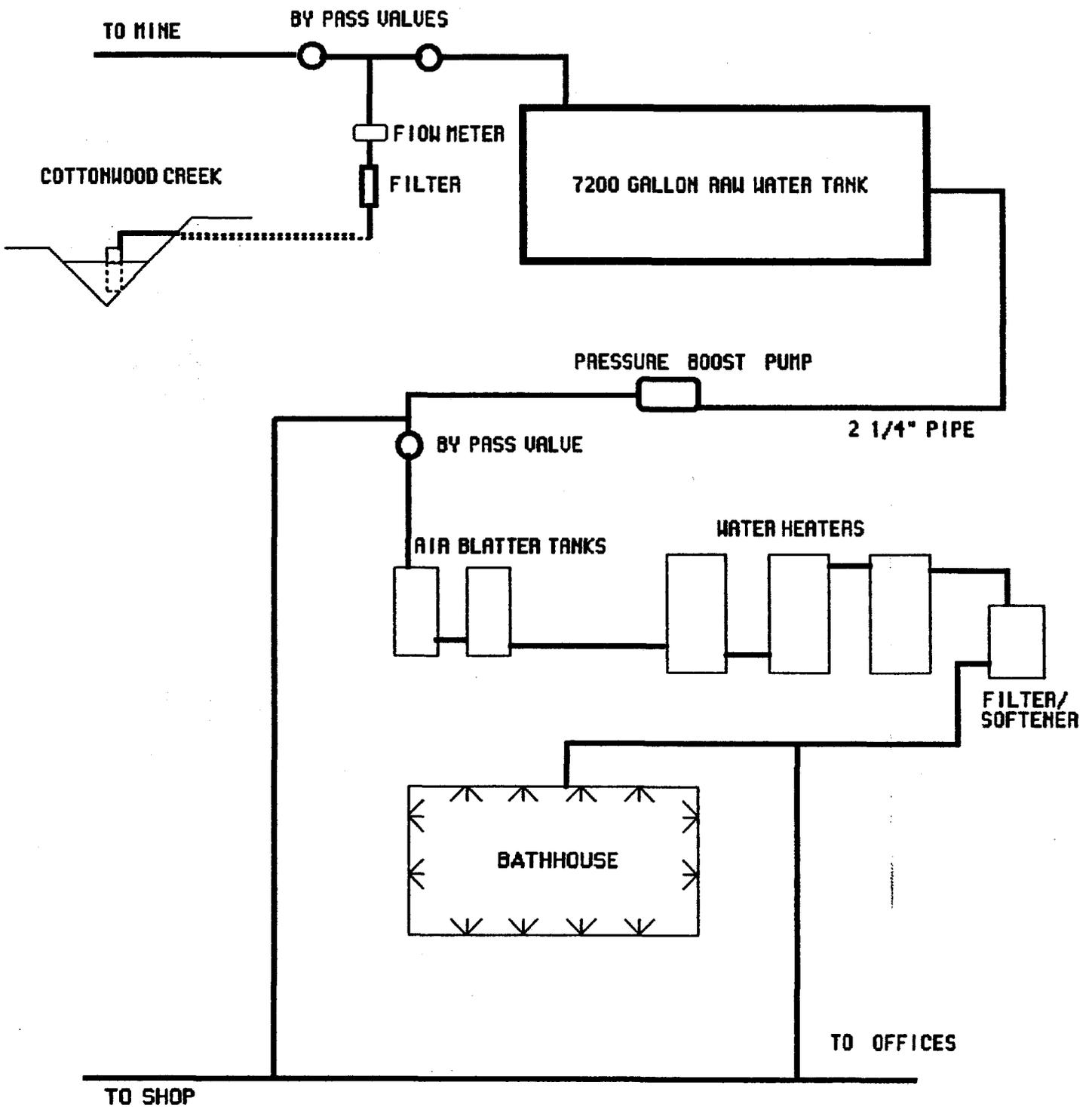


FIGURE 3-2



**FIGURE 3-3**  
**ELECTRICAL DIAGRAM**  
**POWER ACCESS TO**  
**TRACT 2**

**FIGURE 3-3**



<b>FIGURE 3-4</b>		
OUTSIDE WATER SYSTEM	TRACT 1 AND TRACT 2	
TRAIL MOUNTAIN COAL CO.	2/86	APC

FIGURE 3-7

TYPICAL UNDERGROUND WATER SYSTEM

TRAIL MOUNTAIN COAL COMPANY

DATE: JAN. 1986

DRAWN:

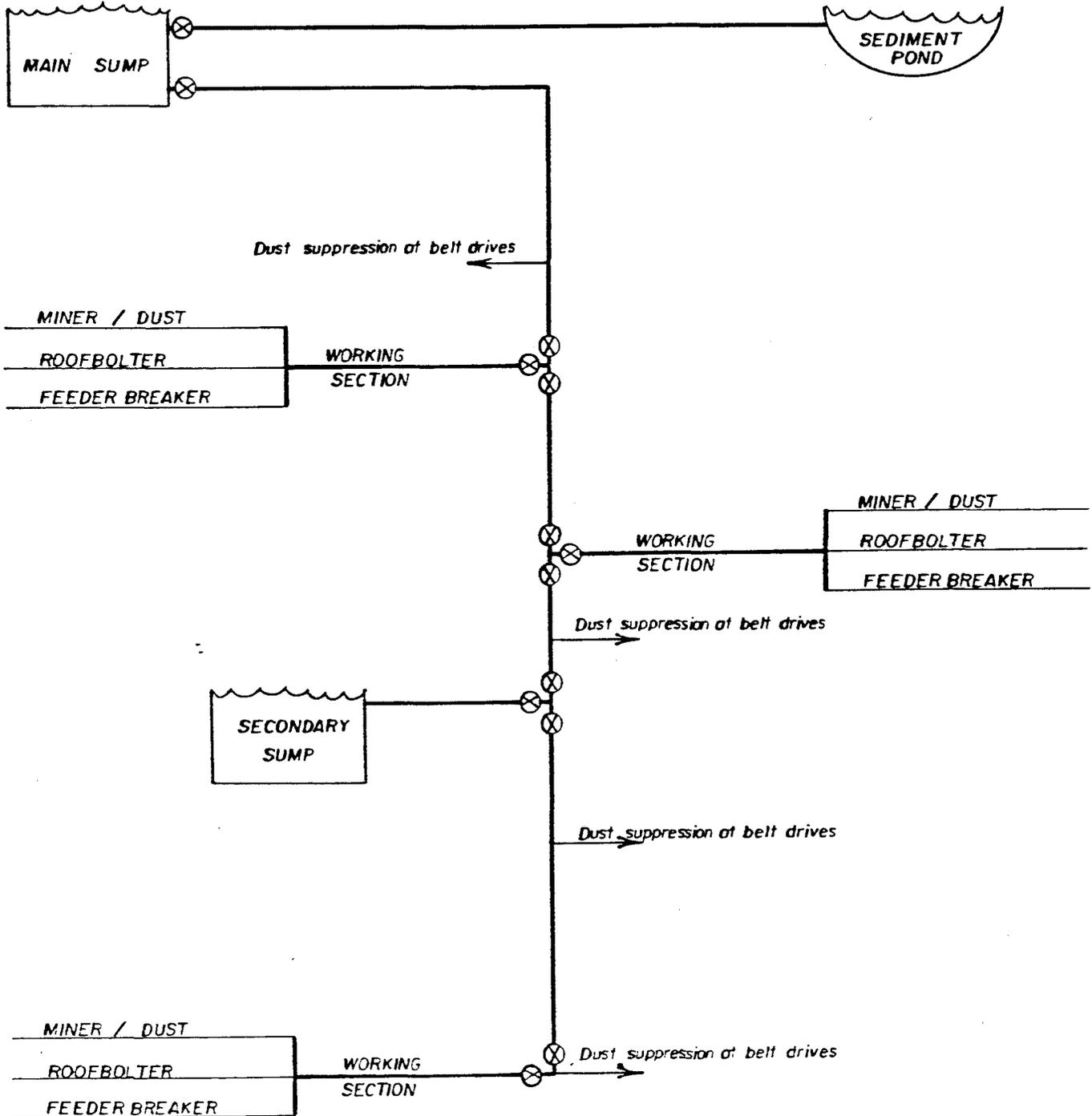
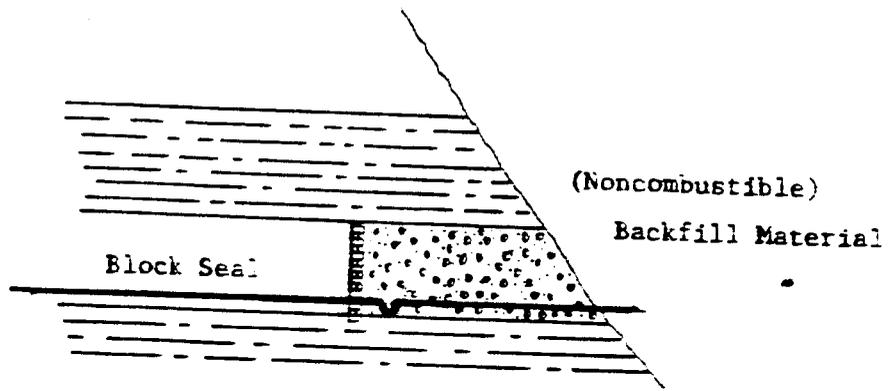
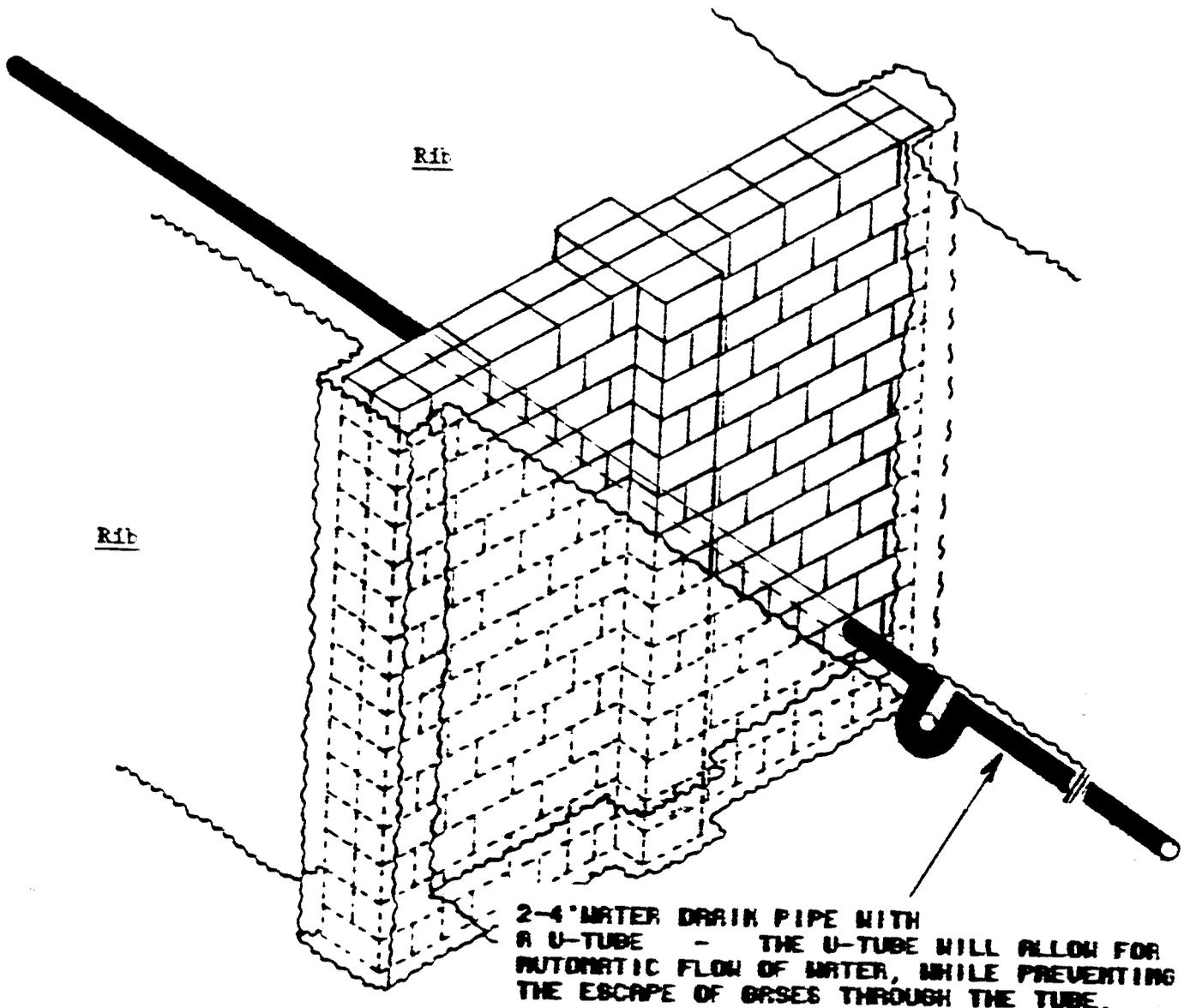


FIGURE 3-7



SECTION VIEW



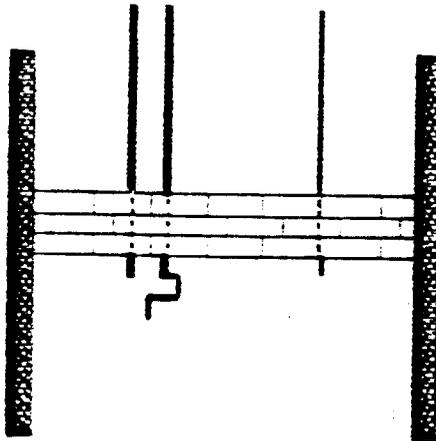
2-4" WATER DRAIN PIPE WITH  
A U-TUBE - THE U-TUBE WILL ALLOW FOR  
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TYPICAL PORTAL SEAL

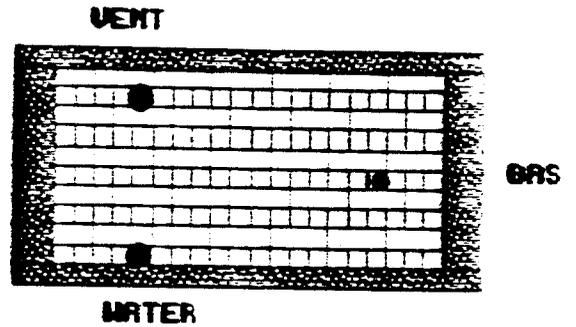
FIGURE 3-10

# SEALS

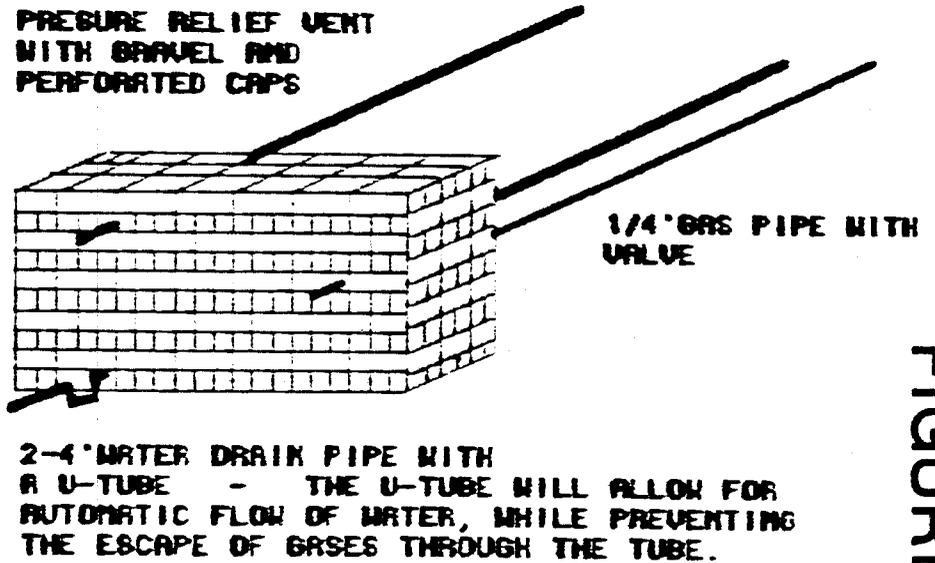
## PLAN VIEW



## FRONT VIEW



## ISOMETRIC VIEW

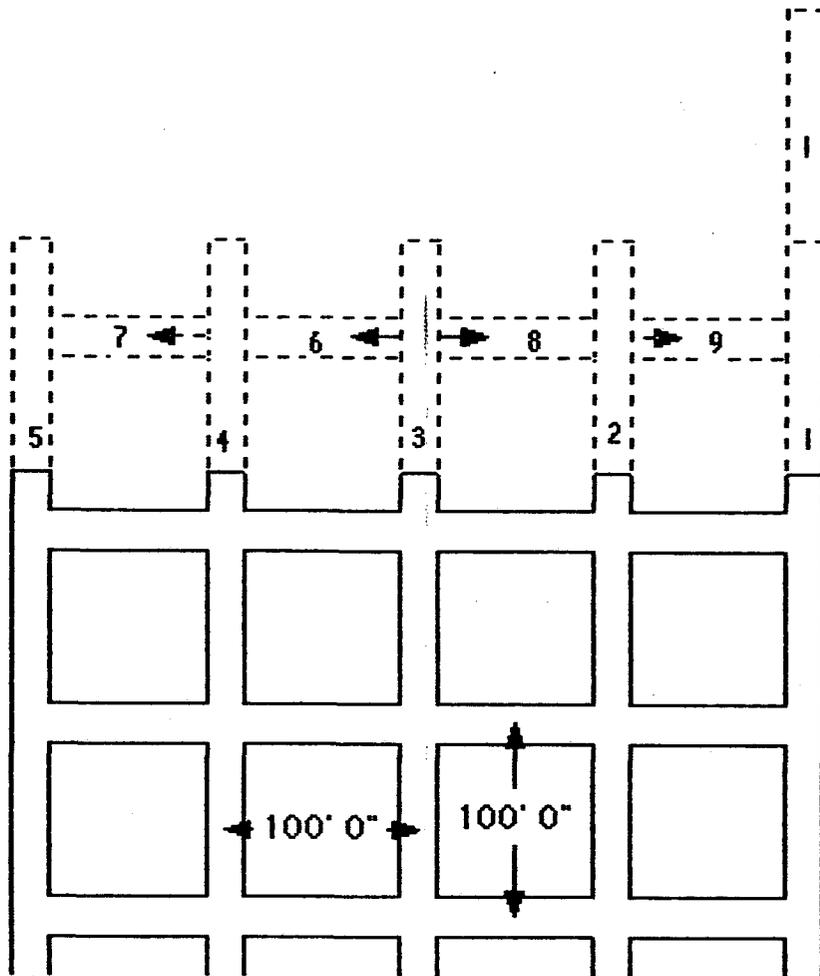


SEAL CONSTRUCTION -

FIRE PROOF COATING APPLIED TO THE OUTSIDE

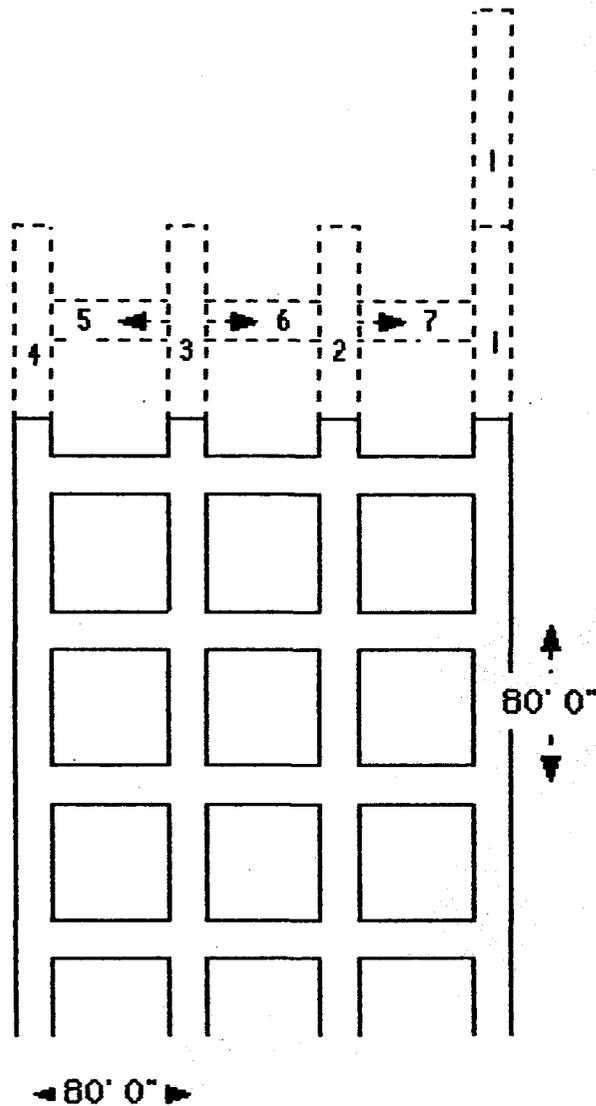
Rev. 11-21-86

FIGURE 3-10A



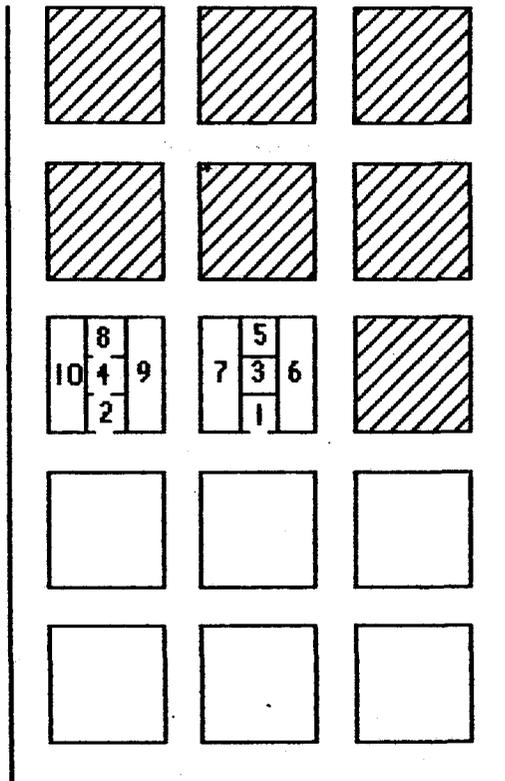
<b>FIGURE 3-11</b>		
TYPICAL ENTRY SYSTEM FOR MAIN DEVELOPMENT		
TRAIL MOUNTAIN COAL COMPANY		
SCALE 1" = 100'	2-86	APC

**FIGURE 3-11**



<b>Figure 3-12</b>		
TYPICAL SYSTEM FOR PANEL DEVELOPMENT		
TRAIL MOUNTAIN COAL COMPANY		
SCALE 1"=100'	2-86	BPC

**FIGURE 3-12**



<b>Figure 3-13</b>		
TYPICAL PANEL RECOVERY		
TRAIL MOUNTAIN COAL COMPANY		
SCALE 1"=100'	2-86	APC

**FIGURE 3-13**

CHAPTER IV

LAND USE

Prepared for

TRAIL MOUNTAIN COAL COMPANY

BY

ENGINEERING DEPARTMENT

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#### 4.1 Scope

This chapter of the mine and and reclamation plan, Trail Mountain Tract 2, describes the land status of lands in and adjacent to the Tract 2 mine plan area. Present and post mine land use will also be discussed with emphasis on how mining can be integrated in the multiple land use of the area.

#### 4.2 Methodology

Information used in the preparing this chapter of the mine and reclamation plan has been gathered from published sources and from discussions with the relevant land management agencies.

#### 4.3 Land Status

##### 4.3.1 Surface Land Status Mine Plan Area

The United States Forest Service, Manti LaSal National Forest, is the responsible agency for the management of the surface resource on land encompassed in the Trail Mountain Coal Tract 2 mine plan area.

##### 4.3.1.1 Ownership

Figures 4-1 and 4-2 shows the ownership of property within and contiguous to the Trail Mountain Tract 2 permit boundaries.

##### 4.3.1.2 Surface Managing Authorities

The United States Forest Service, Manti LaSal National Forest, is responsible for the management of the surface resources on lands contained within the Tract 2 permit area.

#### 4.3.1.3 Special Use Permits and Leases

The Tract 2 mine plan area is in the Trail Mountain cattle and horse allotment which includes 918 head of cattle. Because the lease area is mostly steep escarpments, grazing is limited. The lease area is used for access to the allotment. There is no special land withdrawals on the lease.

#### 4.3.2 Mineral Ownership

##### 4.3.2.1 Coal Ownership in Mines (Permit and contiguous areas)

Figure 4-2 shows ownership of the area surrounding the Trail Mountain Tract 2 permit area. Those areas not outlined are unleased federal coal areas. The only operating mine in the area of the Tract 2 mine plan area is the Trail Mountain Mine. Coal in the Tract 2 permit area and contiguous areas are owned by the United States Government and administered by the BLM, with the exception of a small parcel of 53.3 acres of fee land held by Trail Mountain Coal Company.

##### 4.3.2.2 Coal Leases

Trail Mountain Coal Company has been granted Federal Lease U-49332 for 641.47 acres in the Tract 2 permit area. See Figures 4-2, 4-1, and Appendix 1, Chapter 2.

##### 4.3.2.3 Mineral Ownership/Mine Plan Area

Figure 4-1 shows the mineral ownership of land parcels within the permit boundaries and contiguous areas.

##### 4.3.2.4 Mineral Leases

There are no other mineral leases within the Tract 2 permit area.

#### 4.3.2.5 Oil and Gas Wells

No oil or gas wells have been, or are presently, being drilled on or adjacent to the Tract 2 mine plan area.

#### 4.3.2.6 Oil and Gas Leases

The Tract 2 permit area is entirely blanketed by two oil/gas leases, U-24355 and U-15197. Leases held on federal and state land contiguous to the Tract 2 mine plan area shown in Table 4-1.

### 4.4 Land Use

See Figure 4-3.

#### 4.4.1 Regional Land Use

Traditionally, land use in the vicinity of Tract 2 mine plan area has been mining, grazing, recreation, wildlife habitat, and timber harvesting. Generally, land management of this area has been controlled by the Manti LaSal National Forest, due to a large portion of the Wasatch Plateau area within the Forest Service boundaries. No developed or inventory recreation sites are in the Tract 2 lease area. Extensive big game hunting and special hunts for control purposes occurs in and around the Tract 2 area. Cottonwood Canyon road is heavily used by recreationists to gain access to more suitable recreation areas within the Forest Service. Coal mining has been an integral part of the region's economy. Mining and related construction activities is a predominant employment in Emery county.

#### 4.4.2 Mine Plan Area Land Use

#### 4.4.2.1 Existing Use

Existing land uses on the Trail Mountain Tract 2 mine plan areas and adjacent areas consist of grazing, wild life habitat, mineral (oil, gas and coal), watershed, timber lands, recreational lands, and extensive big game hunting. No commercial forest uses have existed on the National Forest lands within the mine plan area. No farming has or is being done on the Tract 2 mine plan area or adjacent areas. The predominant existing use of the Tract 2 mine plan area is wildlife habitat and grazing.

#### Grazing

The Tract 2 lease area is in the Trail Mountain cattle and horse allotment which includes 918 head of cattle. A large portion of the Tract 2 area (that area containing steep escarpments) is considered as unsuitable range and grazing is limited in that area. The southern portion of Tract 2 is considered suitable range and more grazing is allotted in that area.

The availability of water, adequate vegetation and accessibility are factors used to determine suitable and unsuitable range. A map showing the U. S. Forest Service grazing allotments is shown in Figure 4-4. (It should be noted that the stock ponds and water troughs shown in Figure 4-4 are not to scale and that Figure 7-1 shown ponds and developed springs at a more reasonable scale.)

#### Recreation

No developed or inventoried recreation sites are in the lease area. Limited big game hunting does occur. Most of the area is characterized by steep and extremely rugged cliffs which are not conducive to recreational uses. There is no fishing.

### Farming

Farming is not practical on or adjacent to the Tract 2 mine plan area. Farming is impractical due to the steep and rocky terrain and therefore no future farm use is expected in or adjacent to the Tract 2 mine plan area.

### 4.4.2.2 Previous Mining

The Johnson mines, located a short distance up the canyon from the Trail Mountain Mine (in the southwest quarter of the southwest quarter of the northeast quarter of section 25 of T 17S and R 6 E), were active from 1909 to 1948. The Cottonwood Portal area, in Cottonwood Canyon, (owned by Utah Power and Light) is now into contemporaneous reclamation. No other known minerals of value have been mined within or adjacent to the mine plan area.

Production of the earlier mines was from the Hiawatha seam by room and pillar mining. An established production of 96,000 tons is reported by Doelling (1972) for all mining in the area. Of this, Cottonwood Canyon mines produced approximately 54,000 tons. There have been no previous mines located within the mine plan or adjacent areas.

### 4.4.3 Land Use During Operations

Land use in the Tract 2 mine plan area has not changed greatly in the past 20 to 50 years. The applicant has no plans for any surface disturbance during the mining permit term with the exception of the possibility of subsidence.

#### 4.4.3.1 Effect of Operations on Land Use

The Tract 2 mine plan area is an area that will have no surface disturbance involved in the mine operations. The Tract 2 area will be accessed from underground; therefore, there is no anticipated significant impacts on the land uses of the Tract 2 mine plan area.

#### 4.4.3.2 Mitigation of the Effects of Operation

The Tract 2 mine plan area, due to its totally underground nature, will have no adverse impacts other than those which may result through subsidence. Should subsidence occur and alter springs and seeps, Trail Mountain Coal Company will commit to making the loss of seeps and springs with the installation of 2000 gallon guzzlers. These guzzlers will be fenced with pole fencing to a maximum height of 42 inches with 14 inch spacings between poles to keep out cattle and allow wildlife in. Guzzlers will provide a water supply for wildlife. These guzzlers are fenced to keep cattle out because cattle would dewater guzzlers in a very short time. Man made and natural stock ponds are provided on the Trail Mountain area as a source of water for grazing cattle. These ponds are supplied by snow runoff or springs. There are several developed springs in the allotment area that have watering troughs. If subsidence affects any ponds, ponds will be rebuilt with equipment and bentonite liner will be placed in the affected pond. Water could be diverted due to subsidence. Should subsidence alter a seep or spring that is supplying a water source to livestock, Trail Mountain Coal Company will, after consulting with the Forest Service, commit to replace or relocate the trough or pond to a suitable range area. Trail Mountain Coal Company has implemented a subsidence and hydrologic monitoring program whereby, the extent and the effects of subsidence to water resources can be studied, identified, and the appropriate mitigating action taken.

These studies of subsidence and hydrological monitoring are reviewed annually and reports will follow to the appropriate regulatory agencies for consultation.

#### 4.5 Post Mining Land Use

Land use following mining will remain essentially the same. A combination of coal mining, grazing, wildlife habitat, and recreation will tend to be the typical uses. These uses will be, as previously described, strongly influenced if not controlled by the Manti LaSal National Forest. The post mining use of the Tract 2 mine plan area is proposed as a multiple use of grazing, wildlife habitat, and recreation. All of these uses are compatible with the surrounding area.

#### 4.5.2 Mine Sites

There is no surface disturbance associated with the Tract 2 mine plan area: See approved mine plan ACT/015/009, Volume 1, Chapter 4, page 4-9, also Volume 2, Chapter 9, Appendix Chapter 9.

#### 4.5.3 Final Surface Configuration

The final surface configuration, assuming there is no impact from subsidence, should not be altered. If subsidence should occur, the land will maintain approximately the same topographic contour. From our historical documentation of subsidence in the previous approved ACT/015/009 mine plan area, it is not anticipated that subsidence will be a major factor in the Tract 2 mine plan area.

#### 4.6. Bibliography

Forest Service, 1982 Land Management Plan, Ferron-Price Planning Unit, Manti LaSal National Forest, Price, Utah.

PRIME FARMLAND DETERMINATION



United States  
Department of  
Agriculture

Soil  
Conservation P. O. Box 11350  
Service Salt Lake City, UT 84147

February 4, 1986

Allen P. Childs  
Chief Engineer  
Trail Mountain Coal Company  
P.O. Box 370  
Orangeville, Utah 84537-0370

Dear Mr. Childs:

We have completed our review of the data furnished by Keith Beardall, District Conservationist, Soil Conservation Service, Price, Utah concerning the area of your request January 14, 1986.

According to his investigation report and information in this office, soils located in T. 17 S., R. 6 E., Sec. 25, Sec. 26 and Sec. 35 do not qualify as Important Farmlands because soil temperatures are too cold or slopes are too steep.

If we can be of further assistance, please call on us.

Sincerely,

FERRIS P. ALLGOOD  
State Soil Scientist

cc: Keith Beardall, DC, SCS, Price, UT



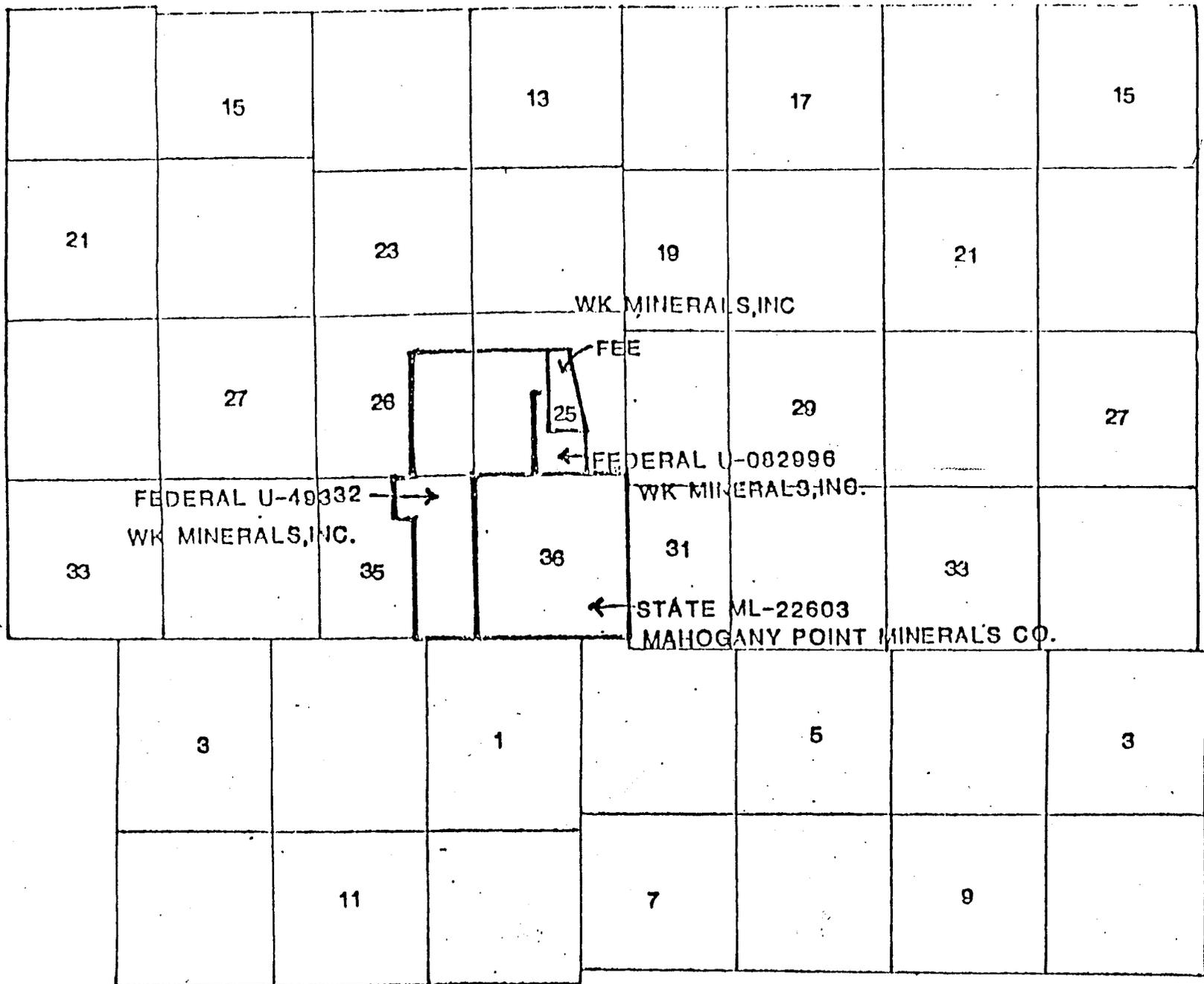
The Soil Conservation Service  
is an agency of the  
United States Department of Agriculture



TABLE 4-1

<u>Location</u>	<u>Ownership</u>	<u>Lease #</u>
T175S, R6E, Sec. 24	Southland Royalty Co.	25%
	Enterprise Gas Co.	37 ½%
	El Paso Exploration Co.	37 ½%
Sec. 25	Hawthorn Oil Co.	U-24355
Sec. 26 & 35	Southland Royalty Co.	25%
	Enterprise Gas Co.	37 ½%
	El Paso Exploration Co.	37 ½%
T18S, R6E, Sec. 1	Edward Mike Davis	U-23208
	Sec. 2	El Paso Exploration
Southland Royalty Co.		25%
Enterprise Gas Co.		37 ½%

(See figure 4-2)



T.17 S.

T.18 S.

R.6 E. R.7 E.  
 FIGURE 4-1 PROPERTY CONTROLLED BY TRAIL MNT. COAL COMPANY

FIGURE 4-1

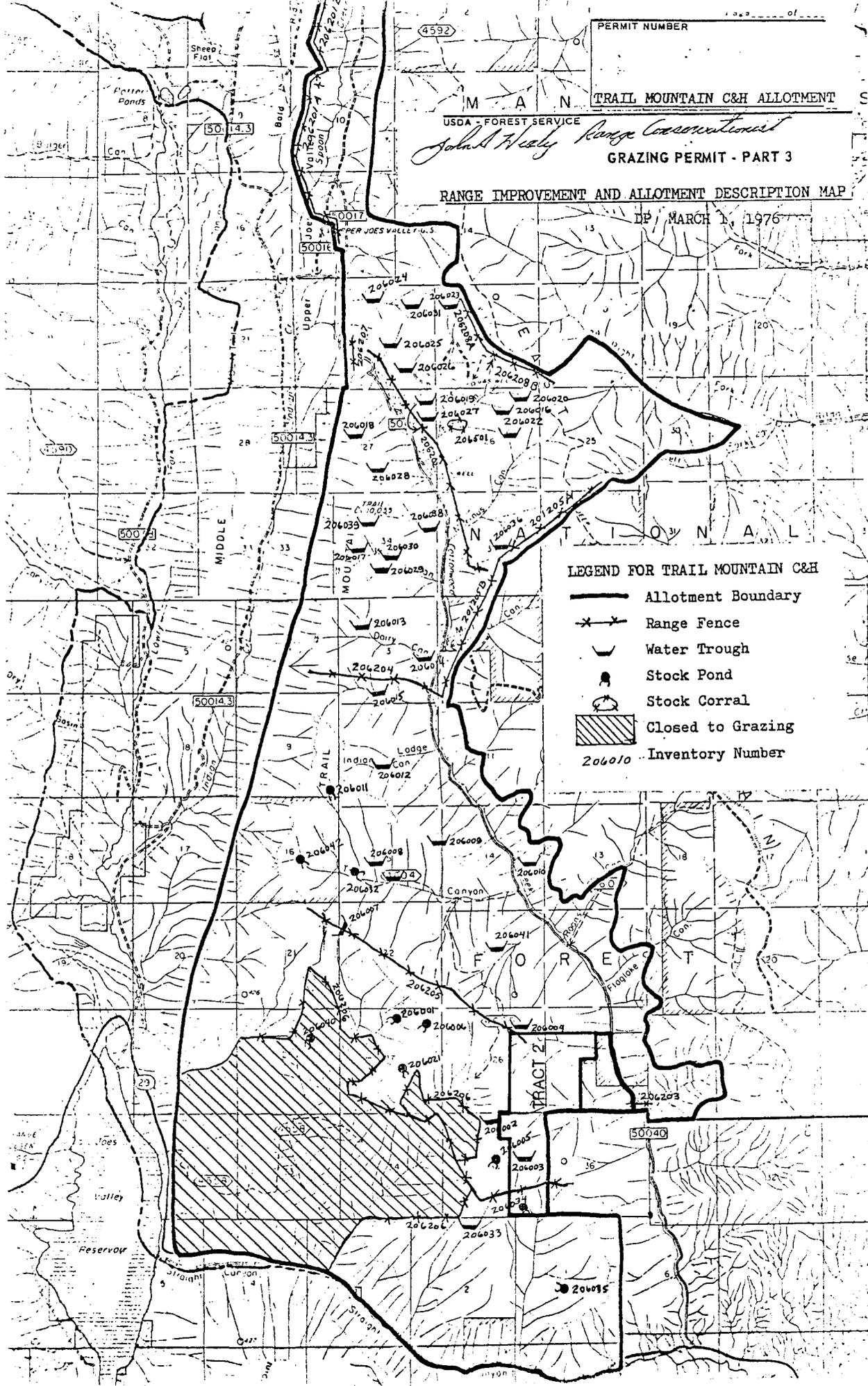


FIGURE 4-4