Files

U. S. Department of Labor

Mine Safety and Health Administration
100 Bluestone Road
Mount Hope, WV 25880-1000

FEB 17 2009

Mr. Gregory Raines
Safety Director
Performance Coal Company
P.O. Box 69
Naoma, WV 25140

Dear Mr. Raines:

Subject: Proposed Update of the Roof-Control Plan for, Upper Big Branch Mine-South, I.D. No. 46-08436, Performance Coal Company, Montcoal, Raleigh County, West Virginia.

Your updated roof-control plan received May 19, 2008, has been reviewed and cannot be approved as submitted. The following is a list of deficiencies that must be addressed:

1. Page 4, Item 1 – second sentence should be changed to address the requirements of 75.221(a)(6) which states, "When an ATRS system is used the maximum distance that an ATRS system is to be set beyond the last full row of permanent roof support."
2. Page 5, Item 21 - needs corrected to "temporary supports will be installed on 4-foot centers."
3. Also, it was noted that the approved plan contains several safety precautions that were not included in the plan update and which appear to be site specific changes to the plan. These safety precautions are listed in the approved plan as Items 25, 26 and 30.
4. Item 27, from the approved plan was also left out of the updated plan submittal. Additionally, this item wording needs changed to "At no time will two unsupported openings adjacent to the same intersection be permitted."
5. Page 6, Item 5 - needs to include the statement that "test holes will be drilled 1-foot deeper than the bolts used as primary supports."
6. Page 6, Item 8 - needs to include statement that "Operator shall notify MSHA District Manager one (1) week prior and one (1) week before completion of retreat mining on a new panel."

7. Page 6, Safety Precautions for Pillar Recovery need to add the following safety precaution: Roof evaluations shall be made at the 1st and the 2nd rows of pillars outby the line of pillars being mined. During these evaluations the roof shall be examined for deteriorating conditions and additional stress resulting from abutment loading. If adverse roof is detected, supplemental roof support shall be installed before mining adjacent pillars.
8. Page 6, Safety Precautions for Pillar Recovery need to add the following safety precaution: A pillar plan is only valid for mining pillars in the sequence shown on Page No. ___ of the roof control plan. If panel configuration differs, such that the sequence in this drawing(s) is no longer applicable, then an addendum shall be submitted and approved prior to mining that panel.
9. Page 6, Item 4 - of the Safety Precautions for Mobile Roof Support Systems has a wording error "unit take(s) off" should be "unit(s)".
10. Page 7, of the Safety Precautions for Mobile Roof Support Systems also needs to include the following safety precautions:

    a. All personnel shall be positioned clear of all pinch points when the Mobile Roof Supports (MRS) are being trammed. Under no circumstances shall anyone be permitted beside or within the turning radius of the Mobile Roof Supports when the units are being moved.
    b. Onboard, manually operated controls or manual overrides shall be "locked out" or under a bolted-down cover plate to restrict their usage. These controls are for maintenance and troubleshooting purposes only.
    c. Pressure gages or load indicating lights are to be continually observed to determine if pillaring operations need to be stopped in a specific lift. Pillaring operations shall cease when the MRS yield pressure is reached; (mining shall cease in that cut/lift and the mobile roof supports will be moved/ set-up for the next cut/lift). The mobile roof supports have a yield pressure of _____ psi. If neither the pressure gages nor the load indicating lights are operational, then pillaring shall cease immediately until repairs are made.
    d. Immediately upon the completion of mining a block, the approaches to the gob will be supported according to the approved roof control plan.
    e. When using four MRS units, if one of the units positioned inby the continuous miner becomes inoperative, one of the two (2) MRS units positioned on the outby end of the pillar will be moved inby the continuous miner to provide two (2) MRS units between the continuous miner and the gob area. The remaining MRS unit on the outby side of the pillar will be re-positioned to act as a breaker at a location adjacent to the intersection as indicated in the drawing(s). At this location, a minimum of eight (8) posts or two (2) cribs will be utilized in place of the removed outby unit. The block of coal being mined may be completed in this manner, after which all four units must be operational before mining the next pillar.

f. When utilizing the plan for two (2) MRS units, when one becomes inoperative, mining shall be discontinued until it is made operative, or support procedures shall revert to an approved timber plan.
g. Breaker posts may be pushed out with the MRS units to allow positioning when mining is started on a block. However, before dislodging posts with one MRS unit, its companion unit must be pressurized against the roof.
h. When parking the MRS units for an extended period of time, they should be positioned between solid coal pillars outby the active pillaring area. The units shall remain in contact with the roof to prevent dynamic loading in the event of a roof fall. However, just enough set force to contact the roof should be used. The radio remote control units should be stored in a safe area away from the machines.

11. Page 7, Item 12 - Safety Precautions for Mobile Roof Support Systems, also needs to include the following statements:
Mined heights in excess of the working range of MRS units shall be anticipated and addressed using OEM extensions. However, in isolated (unanticipated) cases, when the MRS units cannot be set firmly against the roof, extensions meeting the following criteria may be used to increase the reach of the MRS units:

a) The extensions shall not exceed 18 inches in height, and shall be constructed from a single layer of wood blocks, placed skin-to-skin.

b) The wood blocks shall either be hickory, white oak or red oak and shall be replaced when damaged.

c) The wood blocks shall be restrained by channel or angle iron tack-welded to three sides of the MRS roof contact plate, and held in place by chains, straps, or other equivalent means.

Wood extensions as a means of extending the reach of the MRS unit shall only be used for a maximum of three rows of pillars, and then a manufacturer approved extension must be used.

12. Page 19, Drawing "Barrier Extraction Plan #1" The turn posts are shown incorrectly turn posts "C" should be in the shape of a "V" for cuts 1, 3, & 5 and turn posts "D" should only complete from the bottom of the "V" to make turn posts for cuts 2, 4, & 6 for left side drawing. The Drawing on Page 20 has the same problem, but for the right side drawing.

This letter provides you with an opportunity to submit a revised update to the approved plan. Since there are five (5) supplements to the approved roof control plan, no additional supplements will be allowed until an updated roof control plan is approved.

Should you have any questions concerning your roof-control plan, please contact Don Winston at this office, (304) 877-3900, Extension 130.

Sincerely,

Robert G. Hardman
District Manager
Coal Mine Safety and Health, District 4

Enclosure

cc: Mount Hope Field Office (1 encl.)
Lee Barker (1 encl.)
Files/cls

MINIMUM ROOF CONTROL PLAN

Date April 16, 2008 MSHA ID NO. 46-08436

Mine Upper Big Branch Mine South

Company Performance Coal Company

Address PO Box 69 (Street, Route or PO Box) Naoma (City) West Virginia (State) 25140 (Zip)

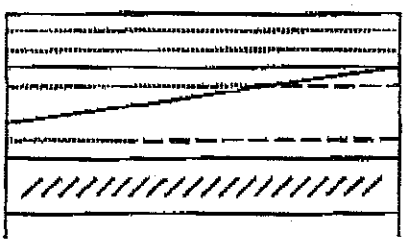
Mine Location Montcoal (Town) Raleigh (County) West Virginia (State)

Type(s) of Roof Control Plan(s) Full Bolting Combination, Longwall Mining, Deep Cuts

Coal Bed being mined Eagle

Coal Bed(s) mined above or below present mining operations: Cedar Grove (Approx. 495'), Coalburg (Approx. 830'), Hernshaw (Approx. 620'), Powellton (Approx. 175'), and Winifrede (Approx. 740'.) (None Below)

Depth of cover over Coal Bed 600 to 1300 feet

Main Roof		Sandstone
Immediate Roof		0-2' Shale
Coalbed		65" Eagle
Bottom		10' Plus Shale

Reason for Revision- New, revised base plan

Company Official Responsible for Plan: Rick Hodge Superintendent (Title)

Signature:

Date: 4-16-08

*Note: This plan stipulates the minimum requirements for roof supports, and where conditions indicate, additional roof supports are to be installed. The plan when approved will supersede all previously approved plans.

ROOF SUPPORT MATERIALS - ROOF BOLTS

RESIN MANUFACTURERS

Manufacturer:	Manufacturers Designation:
E.I. DuPont de Nemours & Co.	Not Available
Celtite, Inc	Not Available
Sandvik	Not Available
Birmingham Bolt Company	Not Available

TYPE OF BOLT SYSTEM

1. Fully Grouted Bolt:

   (a) Minimum Length Bolt 48"
   (b) Grade Steel 40 Minimum
   (c) Bolt Diameter 5/8",3/4", and 7/8"
   (d) Hole Diameter 1", 1-1/8", and 1-3/8"
   (e) Checks for build-up and bleed-off are not required.
   (f) 5/8" bolts may be used provided that they are minimum grade 60 and such bolts are not notched.
   (g) Installed torque checks shall be made in accordance with Section 75.204 (g)

2.) Mechanical Anchor, Resin-Assisted Tension Bolt System

   (a) Min. Length Bolt 4'
   (b) Grade Steel 40
   (c) Bolt Diameter ¾" or 7/8"
   (d) Hole Diameter 1" or 1-3/8"
   (e) Min. Length Grout 2'
   (f) Installed Torque Range 175 to 225 foot-pounds for ¾" or 250 to 300 foot-pounds for 7/8"
   (g) Checks for build-up and bleed-off are not required.
   (h) One each shift a bolt shall be installed without resin, out of the roof bolt pattern to check the installed torque. This bolt shall be identified. If a dual head roof bolting machine is used, then this check will be made on alternate drill heads.

3.) Point Anchor and Tension Rebar Bolt System

   (a) Min. Length Bolt 4'
   (b) Grade Steel 55-75-40
   (c) Bolt Diameter 5/8", ¾" or 7/8"
   (d) Hole Diameter 1" to 1-3/8"
   (e) Min. Length Grout 2'
   (f) 5/8" bolts may be used provided that they are minimum grade 60 and such bolts are not notched.
   (g) Installed Torque Range 175 to 225 foot-pounds for ¾ inch and 250 to 350 foot-pounds or 250 foot-pounds when ¾" grade 75 bolts are being used and 175-225 foot-pounds for 5/8".
   (h) Installed torque checks shall be made in accordance with Section 75.204 (f)(4).
   Checks for build-up and bleed-off are not required.

4.) Full Grout Cable Bolt

   (a) Min. Length Bolt 48"
   (b) Grade Steel 270K, ASTM A-416
(c) Bolt Diameter 0.60 "
(d) Hole Diameter 1" to 1-3/8"
*Note: May be used ONLY in the Longwall Recovery Entry.

ROOF SUPPORT MATERIALS – BEARING PLATES

8" x 8" x ¼" Roof plates, 8" x 8" x 5/32" roof plates, 19" x 19" pizza pans, 22" x 22" pizza pans, hydraulic props, cap wedges and header boards, 48" roof straps, wire mesh (8 gage).

ENTRY WIDTH	20-22* feet	CENTERS	Minimum 50 feet
CROSSCUT WIDTH	20 feet	CENTERS	Minimum 50 feet
ROOM WIDTH	20 feet	CENTERS	Minimum 50 feet
ROOM CROSSCUT WIDTH	20 feet	CENTERS	Minimum 50 feet
LONGWALL TAILGATE CROSSCUT CENTERS			Minimum 100 feet

* 22 feet wide in combination belt and track entry only

Stability Factor for pillars shall be maintained to at least a 1.5 and shall be maintained during all phases of development. During retreat mining, a pillar stability factor of 2.0 shall be maintained in the barrier block and if partial pillar extraction is conducted, a pillar stability factor of 1.0 shall be maintained in shale roof and 1.5 in sandstone roof.

TYPES OF FACE AND HAULAGE EQUIPMENT AND ROOF-BOLT MACHINE:

(14) FAIRCHILD 35-C SCOOPS, (1) 636, (3) S & S 488, SERVICE SCOOPS, (1) EIMCO 580 SCOOP, (9) JOY 10 S-C SHUTTLE CARS, (2) JOY 12-12, (2) JOY 14-15, CONTINUOUS MINERS WITH REMOTE CONTROLS (NO DECKS), (6) FLETCHER DUAL BOOM RR II ROOF BOLTERS WITH FULL T-BAR ATRS, (2) FLETCHER CDR-13-E CAT BOLTERS WITH HORSE SHOE SHAPED ATRS, (3) FLETCHER DDR TRUSS BOLTERS WITH FULL T-BAR ATRS, (1) FLETCHER HDDR TRUSS BOLTER WITH FULL T-BAR ATRS Note: Actual quantities may vary.

SAFETY PRECAUTIONS FOR ALL RESIN GROUTED RODS

The use of resin-grouted rods is approved for roof support at this mine provided the following criteria is compiled with:

The relationship between hole dimension, bolt size, and the size and number of resin cartridges is critical to good performance; therefore, resin-grouted rods shall be installed in accordance with manufacturer's recommendations. Such recommendations shall not be in conflict with the following requirements:

(a) The rods shall be installed in the same sequence as shown in drawings.

(b) All resin bolts shall be installed with approved bearing plates firmly against the roof and roof-bolting machine operators shall wear eye protection while installing the rods.

(c) Resin packages shall be stored in accordance with the manufacturer's recommendations and shall not be used if manufacturer's shelf life is exceeded. Broken or deteriorated cartridges shall not be permitted to accumulate in the mine.

(d) The different types or makes of resin shall not be intermixed.

(e) Test holes are not required for resin grouted rods.

(f) All fully grouted, non-tensioned roof bolts shall be 100% fully grouted. If a return of resin grout cannot be observed by the roof bolting crew, one roof bolt without a plate shall be installed to allow the passage of a device that can touch the resin grout in the drilled hole to determine the amount the resin bolt has been grouted. If not 100% fully grouted, additional resin shall be added during the normal bolting cycle to accomplish a fully grouted installation. This test need only be conducted in each working place where a visible resin grout return cannot be observed and corrective measures apply only to the working places where the condition exists.

Safety Precautions to be Taken

1. The ATRS system, maintained in proper working condition, is acceptable support during roof-bolting operations provided that such supports are placed firmly against the roof before the roof bolt operator proceeds inby permanent supports. Where the automated supports consist of the Fletcher type crossbar, such support may be installed a maximum of 12 inches inby the location of the row of bolts to be installed. Note: ATRS systems other than those shown in the equipment list shall not be used without prior approval.

2. An approved ATRS shall be maintained and used during bolting operations. When the ATRS is inoperative, repairs shall be made before bolting operations are resumed. When the ATRS system will not provide adequate support due to excessive height or the roof is too low for the ATRS to be used, temporary support may be used and advanced row-by-row as each row of bolts is installed. When mining under these conditions, the depth of cut shall be limited so as to control the roof and no more than 2 (two) 20-foot cuts shall be taken. When these conditions continue for more than 40 feet, the ATRS system shall be modified to accommodate such conditions. When temporary supports are used under these conditions, a certified canopy shall be provided in accordance with applicable MSHA regulations.

3. Where loose material is being taken down, a minimum of two temporary supports on centers of not more than 5 feet shall be installed between the miner and the material unless such work can be done from an area supported adequately by permanent supports.

4. When adverse conditions, such as surface cracks, mud streaks, horse-backs, slickensided slip formations, clay veins, kettle bottoms, are encountered, supplemental roof supports shall be installed with the primary support, as appropriate, in the affected area.

5. When loose, broken or drummy roof is encountered and not cut down, the depth of the cut shall be reduced to effectively control the mine roof. When mining under these conditions, crosswise spacing of roof bolts shall be reduced to four feet.

6. Where adverse roof conditions are encountered, the depth of cut shall be reduced to a depth sufficient to effectively control the mine roof.

7. All posts, except breaker posts, shall have a wooden cap block, plank or crossbar between them and the roof unless otherwise stated on the drawings.

8. A row of bolts is to be installed within 48 inches of the rib when continuous miners are used before the first cut is made in a crosscut.

9. Roof bolts shall not be used as the sole means of roof support when underground workings approach and/or mining is being done within 150 feet of the outcrop or highwall. Mining widths shall be reduced to 16' and additional cross sectional supports (3x8 headers or equivalent) shall be installed in conjunction with permanent roof support.

10. Where roof bolts or crossbars are being installed in an area where roof failure is indicated, at least two rows of temporary supports on not more then 5-foot centers shall be installed across the place so that the work in progress is done between the installed temporary supports and permanent supports installed in sound roof. The distance between the permanent supports and the nearest temporary supports shall not exceed 5 feet.

11. Where damaged roof bolts are being replaced in isolated instances without the use of an ATRS system, a minimum of two temporary supports shall be placed a manner that will best protect miners replacing such bolts.

12. All unstable material shall be removed from the highwall above intended mine openings where miners travel or are required to perform work. A substantially constructed canopy shall be provided at all intended drift or slope openings before penetrating the coal seam. Canopies shall also be installed at any other drift or slope opening prior to being used by workers to enter or exit the mine. The canopy shall extend from the highwall for a distance, which will provide for adequate protection from falling highwall material. A 10 ft. cut may be taken with a remote control miner to install the canopy under the highwall.

13. A supply of supplementary roof support materials and tools and equipment necessary to install such materials, consisting of twenty (20) posts or twenty (20) jacks suitable to the mine height or equivalent materials to construct a minimum of five (5) cribs and twenty (20) roof bolts at least one (1) foot longer than those normally

being used, shall be available at a readily accessible location on each working section or within four (4) crosscuts of each section dumping point. These materials will be doubled when taking deep cuts.

14. During advance mining, two reflective signs (one on each side) will be posted on the next to last full row of bolts prior to beginning mining operations in the face to aid miners in determining their position for maximum safety. The reflective material shall be of a construction and positioned to be observed from all directions. In elevated heights, such material shall be positioned at or near eye level and will be a minimum of four inches in length. No person shall go inby these reflective signs other than to install permanent or temporary roof support.

15. Before an entry or cross-cut is holed through, examinations shall be made to assure that the adjacent entry or cross-cut is clear of persons or equipment

16. On haulage ways, all crossbars or beams shall be installed with some means of support that will prevent the crossbar or beam from falling in the event the supporting legs are accidentally dislodged.

17. During pillaring operations, a test hole in the outby intersection of the pillar being pulled shall be checked for roof separation on the shift that the pillar is being pulled. This test hole shall be 2' deeper than the length of bolt being used and may be drilled and marked during advance mining operations.

18. The pump motor shall be de-energized before the continuous mining machine trailing cable is loaded or unloaded from the machine.

19. When the continuous miner is being trammed anywhere in the mine, no person will be allowed along either side of the continuous mining machine. When any continuous mining machine is equipped with remote control operating capacity, whether operating in a deep-cut or regular depth cut, it shall be operated from a sufficient distance and/or location that the operator will not be endangered by the continuous mining machine or shuttle car. Setting the remote control on the continuous mining machine and walking beside it is not permitted at any time.

20. All openings that create an intersection including headings shall be supported with a minimum of two full rows of roof bolts or two rows of timbers across the mouth of the openings prior to any work or travel into the intersection. This shall include starting an additional opening or holing through into an intersection. This does not prevent passing by the opening to conduct the required pre-shift and/or on-shift examinations.

21. In the event of a continuous miner malfunction or breakdown that requires persons to go inby existing permanent roof support to correct the problem, the unsupported area will be supported with roof bolts where practical, with the remaining unsupported roof in the working place supported with temporary supports set on four foot lengthwise by five foot crosswise centers where miners are present.

22. No persons shall proceed inby the continuous miner operator while the machine is in operation.

23. The continuous mining machine operator shall wear readily visible reflective clothing that can be seen from all directions.

24. When the remote systems are being transported or stored in the mine, they shall be secured and/or de-energized.

25. Only one remote control with the same frequency will be allowed on the section.

26. The Fire Suppression system on the continuous mining machine will be operable by remote control or from the machine while under permanently supported roof.

27. At any time the continuous mining machine is being operated using a remote control unit, the unit shall be equipped with an emergency stop switch or panic bar that will de-energize the continuous mining machine quickly in the event of an emergency. The emergency stop switch or panic bar shall be prominent and readily accessible.

28. When the average of five or more dust samples for an individual MMU are obtained by the operator or by MSHA in the same bimonthly sampling period exceeds the applicable standard and results in an excessive dust violation, the following remedial measures shall take effect immediately:

    - The operator shall revert back to a twenty-foot curtain setback and twenty-foot cut on the effected MMU.

- The operator shall achieve compliance on both operator samples (mining with 20 foot plans) and MSHA survey samples (surveyed with curtain set bank and deep cut) on the effected MMU before normal extended cut operations can resume. The operator shall only utilize the line curtain setback and extended cut during the MSHA survey until compliance has been established.

Once compliance has been established, the operator may resume extended cut operations.

SAFETY PRECAUTIONS FOR PILLAR RECOVERY

1. Prior to retreat mining, supplemental support will be installed in each intersection. Supplemental support will consist of a minimum 60 inch, ¾" grade 60 bolt or equivalent installed in a Box-Diamond pattern, as shown on page 32. The supplemental support may be installed either on retreat or advance.

2. During retreat mining, minimum stump sizes will be maintained. At no time will push outs be mined.

3. A visible mark will be placed on the continuous miner to indicate the depth of cut, prior to retreat mining. The cut depth cannot exceed one-half the width of the pillar being mine when mining twin lifts.

4. Prior to taking lifts, the location of each lift will be clearly marked on the coal rib by a certified foreman. The marked coal rib shall clearly indicate the minimum size of the stump not to be mined.

5. Prior to retreat mining, a test hole shall be drilled in each intersection to determine any separation in the strata. If the test holes are drilled during development they must be left open for examination. Such test holes shall be examined by a certified foreman prior to beginning second mining in the pillars(s) immediately inby. The examiner shall place his date/time/initials at the test hole upon completion of examination. If any separations are detected, additional support such as longer bolts anchored above the separation, timbers, cribs, or crossbars shall be installed prior to retreat mining.

6. During retreat mining, a certified person knowledgeable in the retreat mining method being used shall be present on the working section during coal extraction.

7. A copy of the current approved roof control plan, including any supplements, shall be maintained on the section.

8. A minimum of one full row of un-mined pillars shall be left if the angle of retreat changes to the extent that pillars would not be uniform in size or that second mining of the pillars would result in an uneven pillar line or pillars that project inby the break –line.

Prior to any retreat mining, all persons engaged in retreat mining (including new crew members) shall be trained in the provisions of the approved roof control plan relative to retreat mining. Such training shall be documented on a 5000-23 form. Training shall be conducted before retreating of a new panel begins.

SAFETY PRECAUTIONS FOR MOBILE ROOF SUPPORT (MRS) SYSTEMS

1. Manual operations of the MRS units is intended for maintenance purposes only. If the unit is set against the mine roof, adequate temporary roof support shall be installed prior to lowering the unit manually. Manual operations will be by the Manufacturers recommendations.

2. The MRS unit is equipped with an umbilical cord that allows remote tramming. This is not considered a manual operation.

3. When possible, maintenance shall be performed in the next line of pillar blocks outby an active pillar line. If it is necessary to perform maintenance on an active pillar line, temporary supports will be installed to adequately support the roof in the work area.

4. All four support units shall be operational and utilized during extraction of coal pillars. In the event of a failure to the MRS unit take(s) off, mining can continue utilizing the approved timber plan.

5. Never shall more than one (1) unit at a time be lowered and moved when the MRS units are in the active pillaring area.

6. The MRS units shall not be pressured against the roof except where the coal pillars are being actively mines.

7. All personnel shall stay at least 25' from the units when the shields are raised or lowered.

8. Operator shall observe the pressure gauges and cease pillaring operations when the yielding pressure is being reached. Inoperable gauges will be replaced prior to beginning a new block extraction.

9. A break away type hanger shall be used in the pillar line to keep persons from going inby pillar splits to take the MRS power cables down. No hangers shall be retrieved from the blocks being pillared.

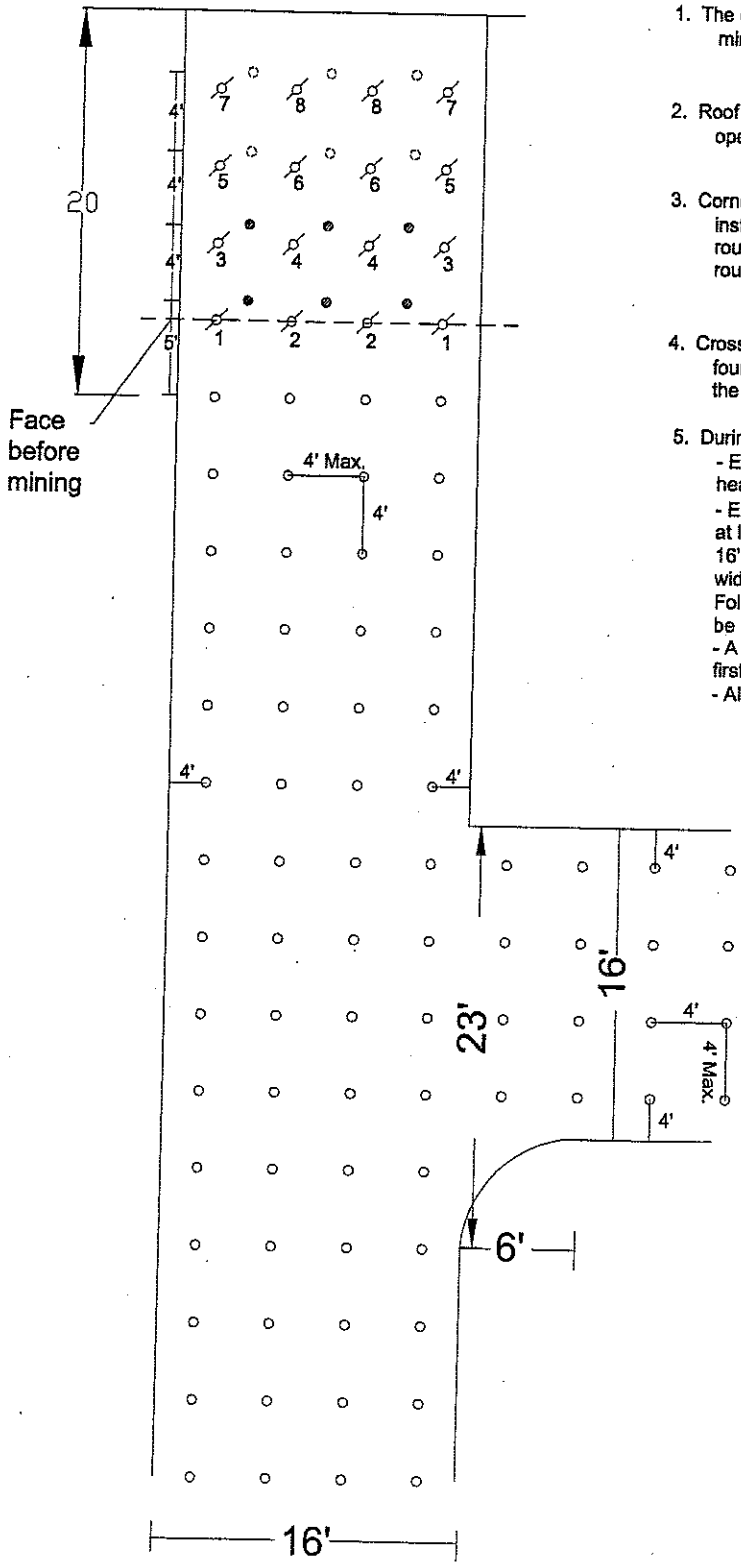
10. Test holes 2' longer than the bolts used shall be maintained in each intersection. Test holes may be drilled on advance or retreat. If test holes are drilled during advance mining, then during retreat mining the test holes will be checked with an appropriate device such as a metal tape measure to test for roof separation.

11. In the event of a MRS breakdown, mining in that block may be completed using one crib or four timbers on the solid side. Continued mining in the adjacent blocks will be done with two operable MRS units in the entry. This plan to be used only to finish the row of blocks where the MRS unit went down.

12. Height extensions may be used and be either a manufacturer's supplied extension or an extension as shown on the sketch on Page 31.

ROOF CONTROL PLAN DIAGRAM NO. 1

ENTRIES, ROOMS, AND CROSSCUTS
CONTINUOUS MINING SECTION
Initial Development Plan - When Driving Underground



(for Initial Development-16' for 1st 150')

1. The operator shall not advance the controls of the continuous miner inby the last full row of bolts during mining.

2. Roof bolts are to be installed in the sequence shown during normal operations and may be changed if conditions warrant.

3. Corners may be rounded off, as shown, provided additional bolts are installed to within 4 feet of the rib. Only one corner may be rounded off in each intersection, except that two corners may be rounded off in the intersection of one entry only.

4. Crosswise spacing of bolts will be a maximum of 4 feet provided four rows are maintained and bolts do not exceed 4 feet from the ribs.

5. During initial development:
   - Entries will be mined 16 feet or less in width and 3" x 8" wooden header (or equivalent) for a distance of 150 feet from the outcrop.
   - Entry widths will be widened as conditions warrant to 18 feet for at least one line of crosscuts following the initial development of 16' wide entries for 150 feet. Management may then widen entry widths to 19 feet, as conditions warrant, for one line of crosscuts. Following the line of crosscuts at 19 feet widths, entry widths may be mined not to exceed 20 feet.
   - A 50' minimum block of coal will be left between entries for the first crosscut while driving underground.
   - All cuts will be bolted using 6' bolts for the first 150 feet.

LEGEND	
•	ROOF BOLT
●	TEMPORARY SUPPORT
3	BOLTING SEQUENCE

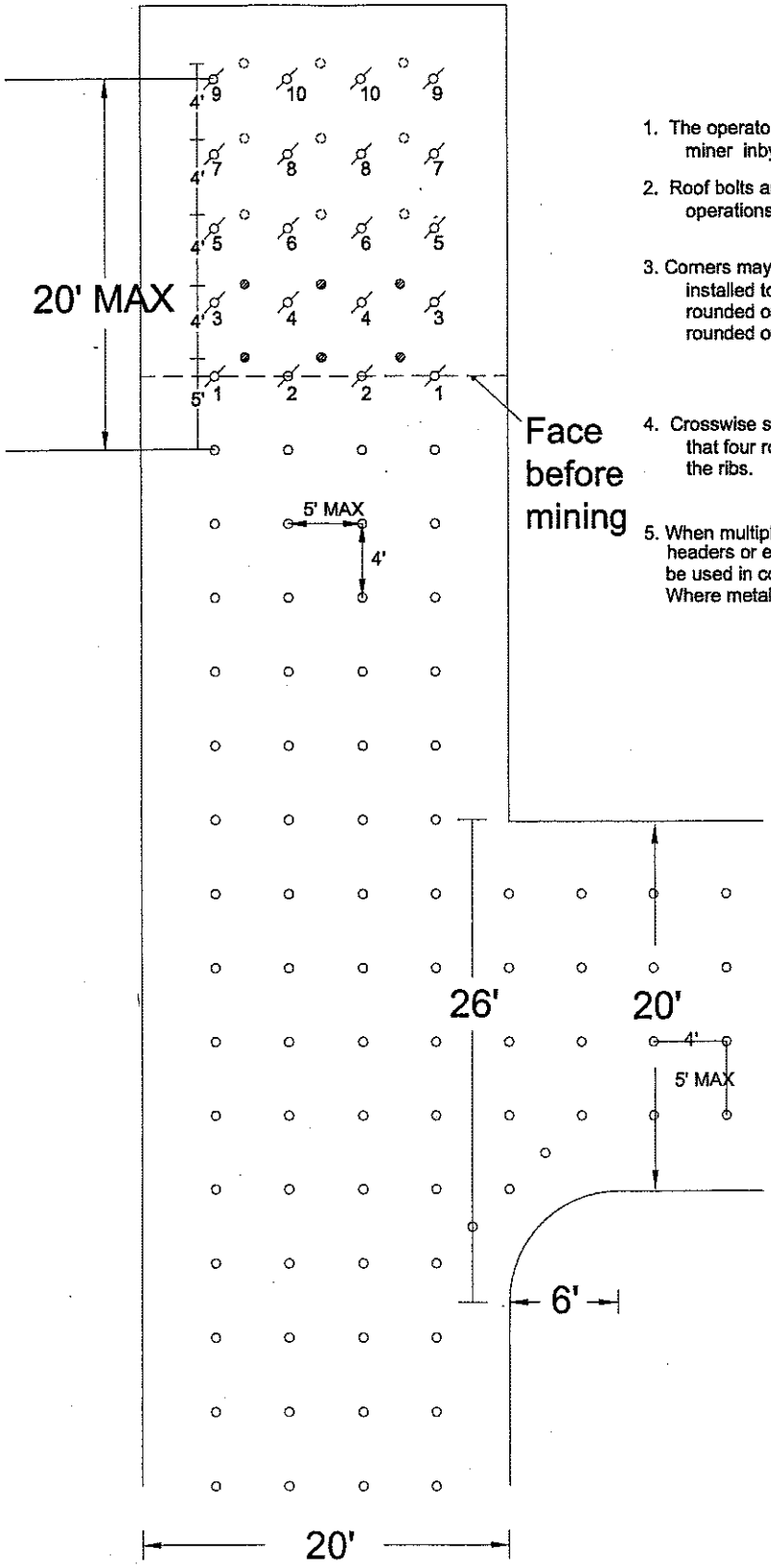
SCALE: 1" = 10'

Initial Plan for 150' from Outcrop

Performance Coal Co. Upper Big Branch Mine MSHA ID NO. 46-08436 WV State # U-3042-92	
ROOF CONTROL PLAN DIAGRAM NO. 1 ENTRIES, ROOMS, AND CROSSCUTS CONTINUOUS MINING SECTION	
DATE: 04-15-08 DWG NAME: HCP Initial RCP.dwg	SCALE: 1" = 10' DRAWN BY: RL 3

ROOF CONTROL PLAN DIAGRAM NO. 2

ENTRIES, ROOMS, AND CROSSCUTS
CONTINUOUS MINING SECTION



1. The operator shall not advance the controls of the continuous miner inby the last row of bolts during mining.
2. Roof bolts are to be installed in the sequence shown during normal operations and may be changed if conditions warrant.
3. Corners may be rounded off as shown, provided additional bolts are installed to within 4 feet of the rib. Only one corner may be rounded off in each intersection, except that two corners may be rounded off in the intersection of one entry only.
4. Crosswise spacing of bolts may vary, but will be a max. 5ft. provided that four rows are maintained and bolts do not exceed 4 feet from the ribs.
5. When multiple surface cracks or mud streaks are encountered, 3 X 8 headers or equivalent (7gauge roof channel minimum) shall be used in conjunction with roof bolts installed during the bolting cycle. Where metal straps are installed, the center bolts in each row may be installed first.

LEGEND	
o	ROOF BOLT
⊗	TEMPORARY SUPPORT
3	BOLTING SEQUENCE

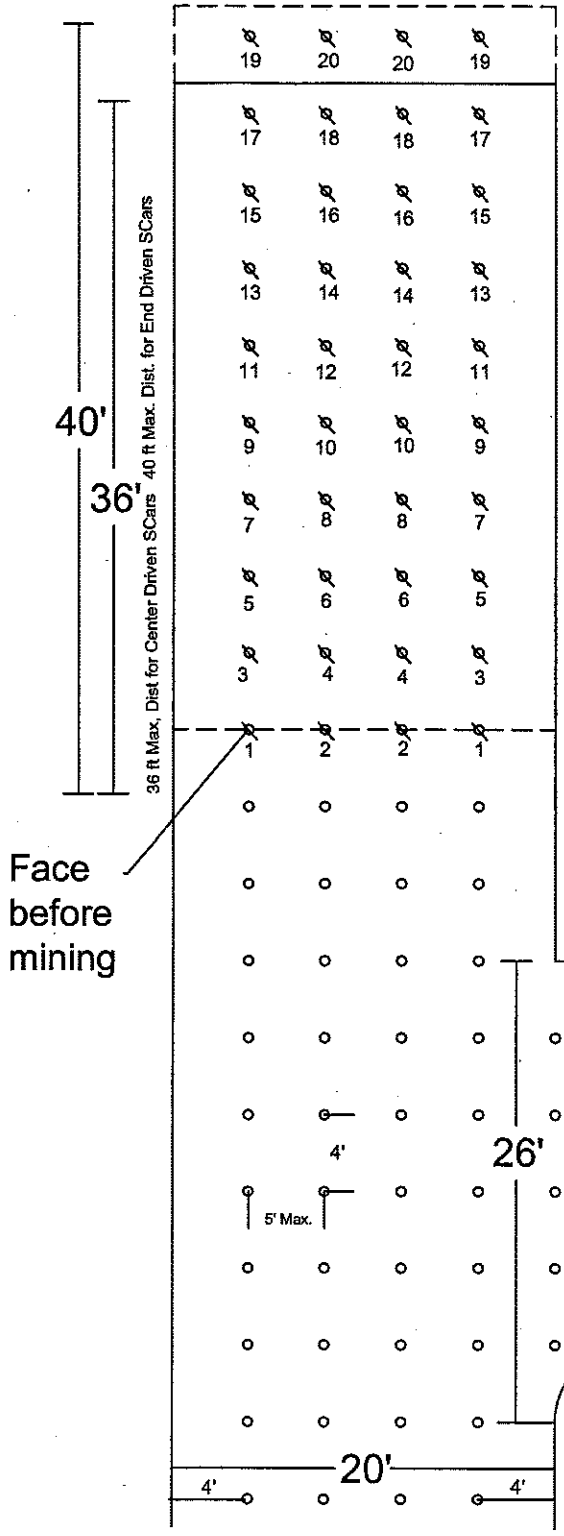
Performance Coal Co. Upper Big Branch Mine MSHA ID NO. 46-08436 WV State # U-3042-92	
ROOF CONTROL PLAN DIAGRAM NO. 3 ENTRIES, ROOMS, AND CROSSCUTS CONTINUOUS MINING SECTION	
DATE: 04-15-08 DWG NAME: UBB Initial RCP.dwg	SCALE: 1" = 10' DRAWN BY: RL 3

C:\UBB RCP drawings 4-15-08\UBB RCPdwg5 Deep Cut 4-15-2008.dwg, 4/21/2008 11:18:44 AM, glevo

ROOF CONTROL PLAN DIAGRAM NO. 3

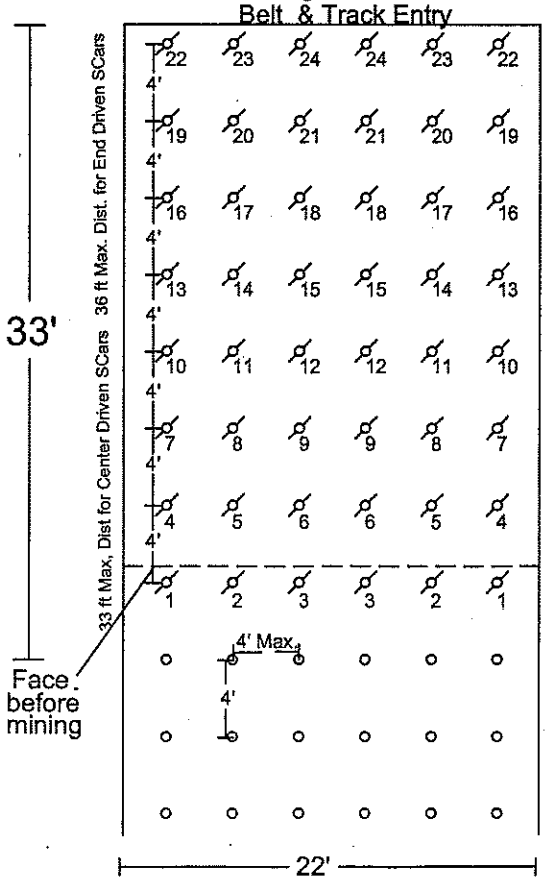
ENTRIES, ROOMS, AND CROSSCUTS

DEEP CUT REMOTE CONTROL CONTINUOUS MINING



1. Continuous miner runs are made on alternate sides until the face has been advanced a maximum distance of 40' inby the last full row of permanent roof support . The continuous miner may be used to push coal into the adjacent entry to permit bolting from that side.
2. No person will proceed beyond the next to last full row of permanent roof supports when deep cuts are mined, except to install temporary or permanent roof support.
3. An approved ATRS system will be maintained and used during bolting operations.
4. Where a face has been advanced beyond the inby corner of a projected crosscut, a minimum of 10 feet of roof will be supported prior to starting the crosscut. If the face has not been advanced a sufficient distance to allow the support of 10 feet of roof, the unsupported area will be supported by the installation of roof bolts on required centers. The working face may be advanced no more than 50 feet inby the inby corner of the crosscut rib line before the crosscut is completed.
5. During extended cut mining no more than two unsupported cross cuts in the same line shall be permitted and no two adjecent unsupported cross cuts shall be permitted.
6. When taking extended cuts, (cuts greater than 20 ft) one extended cut per MMU may be left unsupported for a maximum of 24 hours.
7. Cross-wise spacing of bolts will be a maximum of 5 feet, provided that four rows are maintained and bolts do not exceed 4 feet from the ribs.
8. Corners may be rounded off, as shown, provided additional bolts are installed to within 4 feet of the rib. Only one corner may be rounded off in each intersection, except that two corners may be rounded off in the intersection of one entry only.
9. The belt entry may be driven 22 feet in width provided an additional row of bolts, one foot longer than those used in the support pattern along each ribe of the belt entry is installed *. A row of post (maximum spacing 5 feet shall be installed near the center of the place up to the belt tailpiece or outby end of the low-low belt structure prior to starting the third production shift after the belt has been moved up. At no time will the posts be more than 150 feet outby the belt tailpiece. Fifty five ton props on 10' centers may be used in lieu of timbers.
   * - Longer rib bolts will not be required where six bolts are installed per row
   * - Longer rib bolts will not be required where minimum length 6' torque tension bolts are used
10. Max depth of cut 33 feet when mining entry 22 foot wide. Unless, end drive shuttle cars are used. Max depth of cut for end drive shuttle cars 36 feet.

Diagram of Belt & Track Entry



PERFORMANCE COAL CO.
UPPER BIG BRANCH MINE
MSHA ID NO. 46-08436 WV State # U-3042-92
ROOF CONTROL PLAN DIAGRAM NO. 3
ENTRIES, ROOMS, AND CROSSCUTS
CONTINUOUS MINING SECTION
DATE: 4-15-2008 SCALE: 1" = 10'
DWG NAME: HCP RCP 3 DWG DRAWN BY: Rt. 3 Eng.

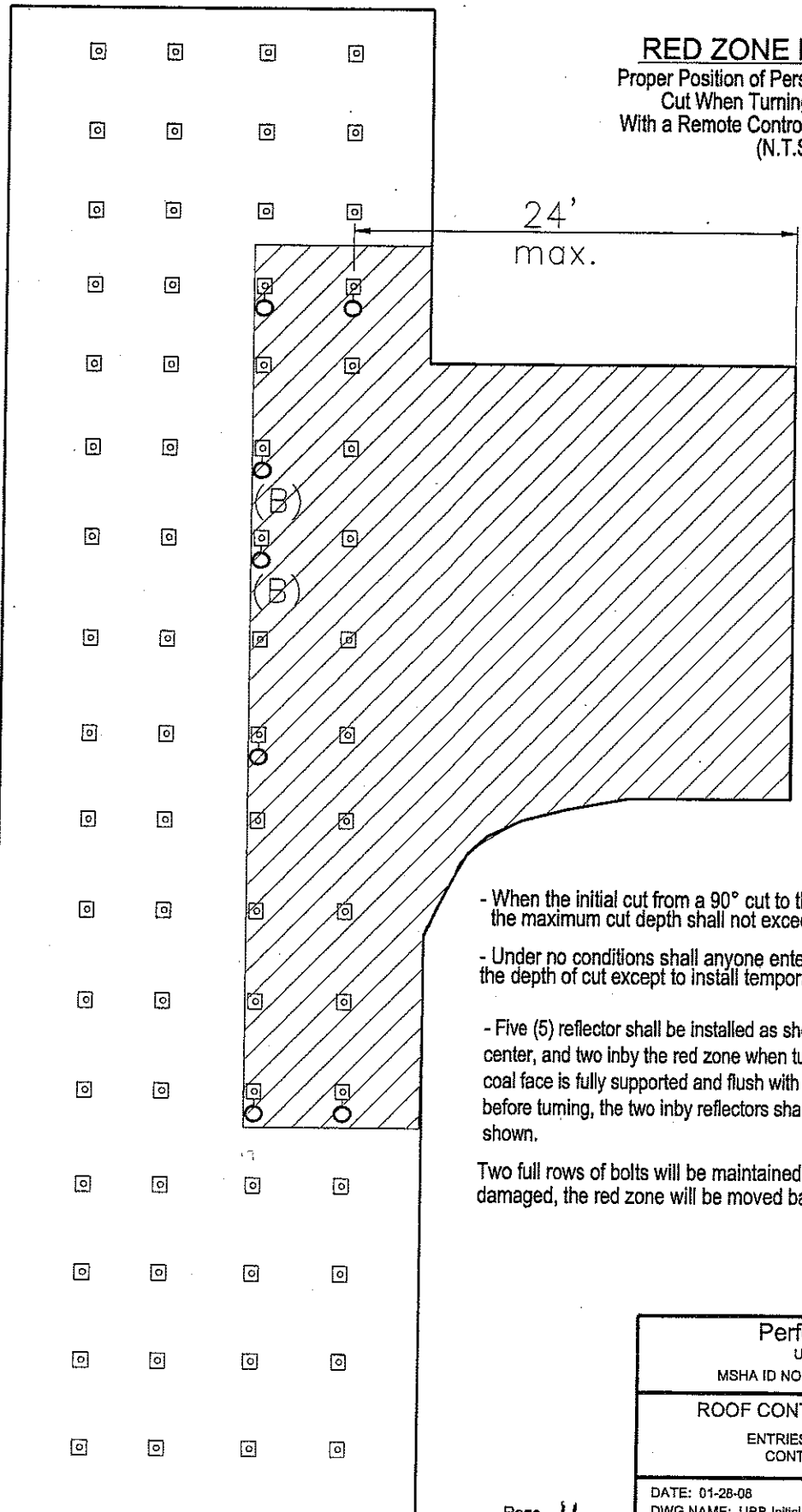
LEGEND

- ROOF BOLT
- 3 BOLT SEQUENCE

C:\UBB RCP drawings 4-15-08\HCP RCPdwg6 Deep Cut 8-27-2007.dwg, 4/21/2008 11:22:09 AM, dlevo

ROOF CONTROL PLAN DIAGRAM NO. 4

ENTRIES, ROOMS, AND CROSSCUTS
CONTINUOUS MINING SECTION



RED ZONE DIAGRAM

Proper Position of Personnel During Initial Cut When Turning Right of Left With a Remote Control Continuous Miner (N.T.S.)

ROOF BOLT

DANGER ZONE THAT CANNOT BE ENTERED. (RED ZONE)

REFLECTOR

- When the initial cut from a 90° cut to the right or left is turned the maximum cut depth shall not exceed 24' from the last row of roof bolts.

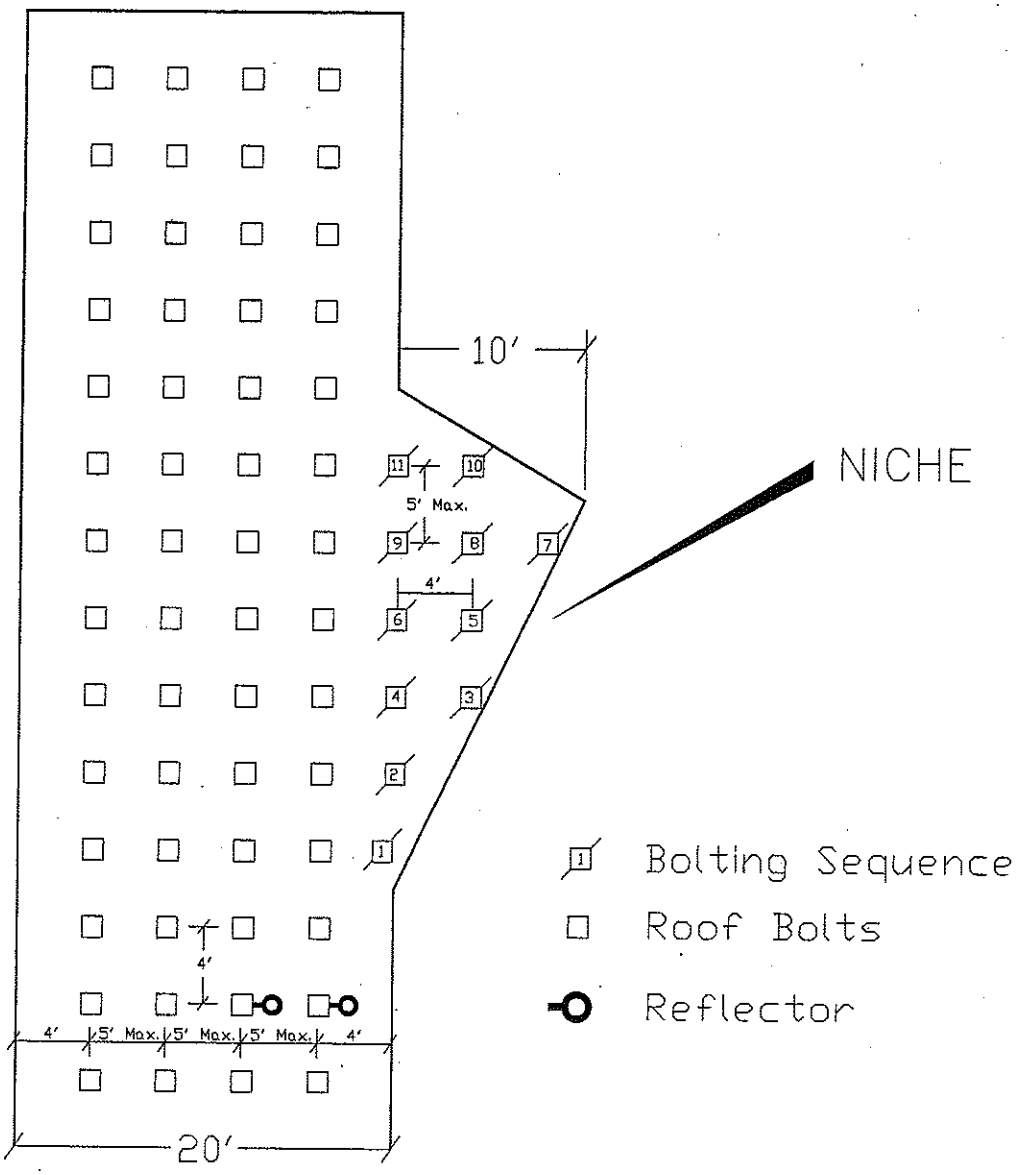
- Under no conditions shall anyone enter the shaded area regardless of the depth of cut except to install temporay of permanent roof support.

- Five (5) reflector shall be installed as shown. Two outby, one in the center, and two inby the red zone when turning to the right or left. If the coal face is fully supported and flush with the inby rib of the crosscut before turning, the two inby reflectors shall be hung at location "B" as shown.

Two full rows of bolts will be maintained in the red zone. If any bolts are damaged, the red zone will be moved back to include two full rows of bolts.

Performance Coal Co.	
Upper Big Branch Mine	
MSHA ID NO. 46-09092	WV State # U-3002-04
ROOF CONTROL PLAN DIAGRAM NO. 4	
ENTRIES, ROOMS, AND CROSSCUTS CONTINUOUS MINING SECTION	
DATE: 01-28-08	SCALE: 1" = 10'
DWG NAME: UBB Initial RCP.dwg	DRAWN BY: RL 3

ROOF CONTROL PLAN DIAGRAM NO. 5
NICHE PLAN



1.) If the entry is advanced inby the proposed niche, then at least 2 rows of roof bolts shall be installed in the entry inby the niche before the niche is cut.

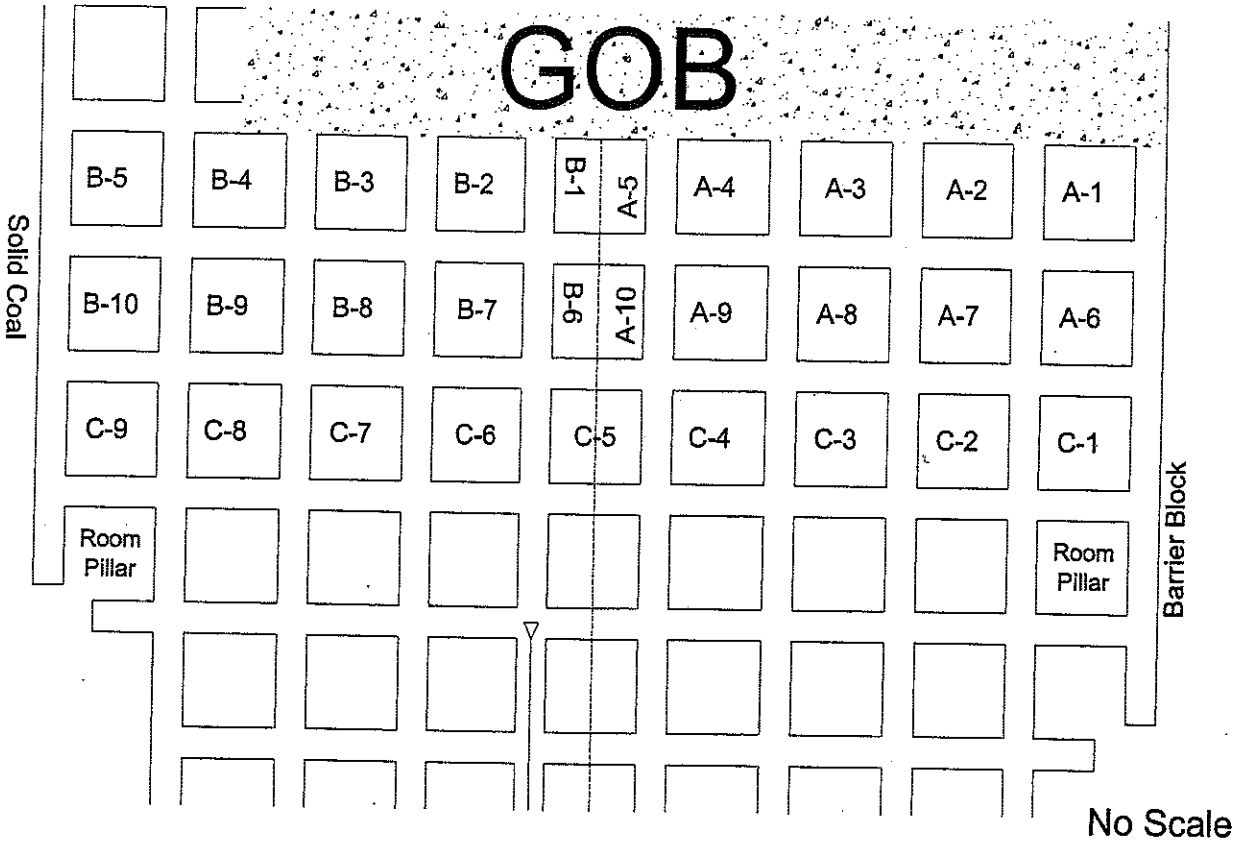
2.) No mining shall take place inby the niche until the roof of the niche has been permanently supported.

3.) Two (2) reflectors shall be installed as shown once the niche has been cut. Under no condition shall anyone enter the niche except to install temporay or permanent roof support.

Performance Coal Co. Upper Big Branch Mine MSHA ID NO. 46-08436 WV State # U-3042-91
ROOF CONTROL PLAN DIAGRAM NO. 5 ENTRIES, ROOMS, AND CROSSCUTS CONTINUOUS MINING SECTION
DATE: 04-15-08 SCALE: 1" = 10' DWG NAME: UBB Initial RCP.dwg DRAWN BY: Rt. 3

Scale: 1" = 10'

Sequence of Pillar Recovery Sketch for Two MIners



Typical pillaring sequence sketch when using (2) continuous mining machines with one or both developing barrier rooms. When using split-type ventilation, both continuous miners may mine coal at the same time. The right side miner may mine in the right barrier and to near the midpoint of the section. The left side miner may mine from near the midpoint to the left and in the left barrier. Mining will not necessarily end with miner (A) and start with miner (B) at the midpoint of the section. Conditions or circumstances may dictate stopping and/ or starting right or left of the midpoint. Miner (B) will not start pillaring until Miner (A) has completed mining in a row near the midpoint of the section and has moved to the next row.

At least two full pillar blocks shall be maintained between the Left and Right continuous mining machines at all times (regardless of row). No more than (2) rows of blocks may be mined on pillaring at any one time.

The sequence of pillaring for both the Left and Right continuous mining machines shall be from the barrier side of the section toward the solid side.

Pillar sequence (C) is typical when using one continuous mining machine for pillaring.

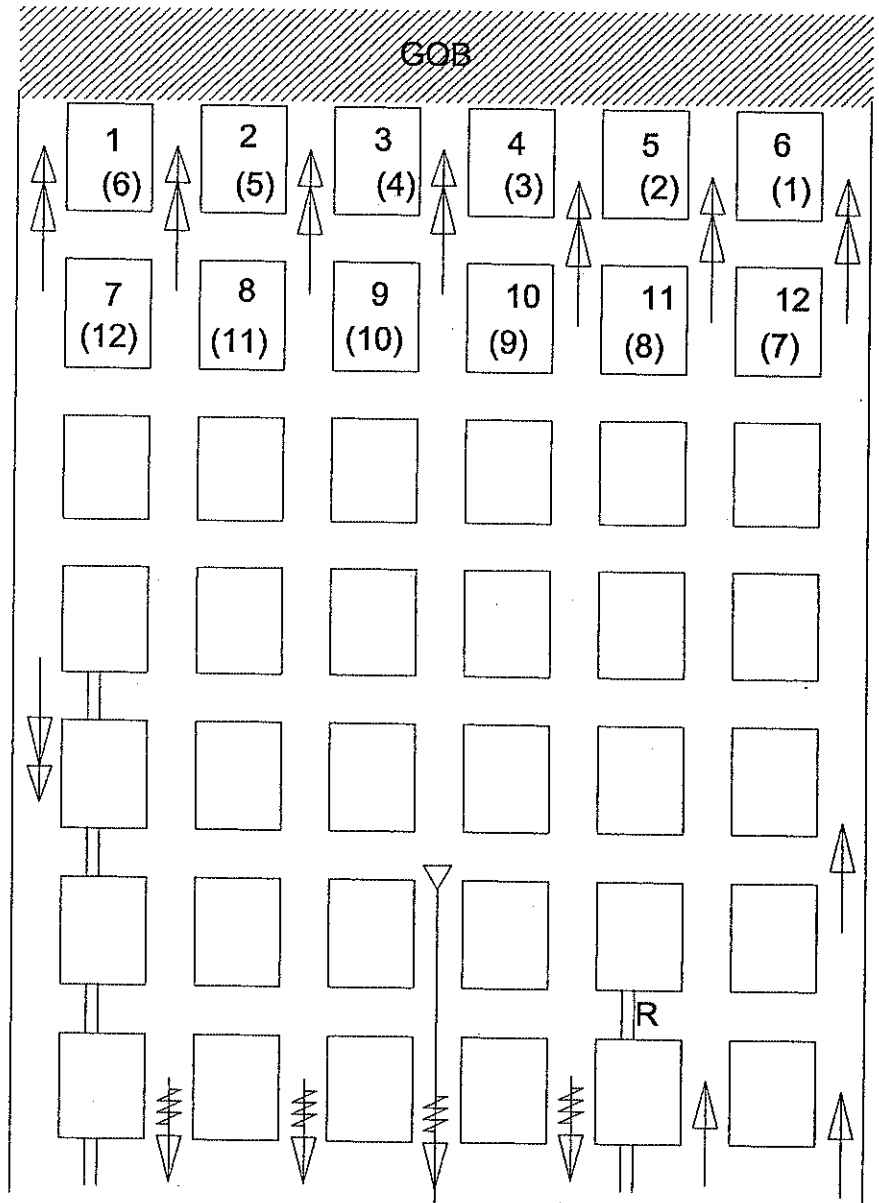
The number of entries may vary.

Note: Mining left to right applies. Shown mining right to left.

Sequence of Pillar Recovery

Typical Ventilation Sketch

NO SCALE



Barrier Block
(Solid Coal)

Solid Coal
(Barrier Block)

All items in parenthesis will become applicable should the method of mining place the barrier block to the right of the pillar section being mined.

Blocks on the bleeder side of the section will be mined from one side only for ventilation purposes.

Intake Air

Return Air

Secondary Intake Air

Permanent Stopping

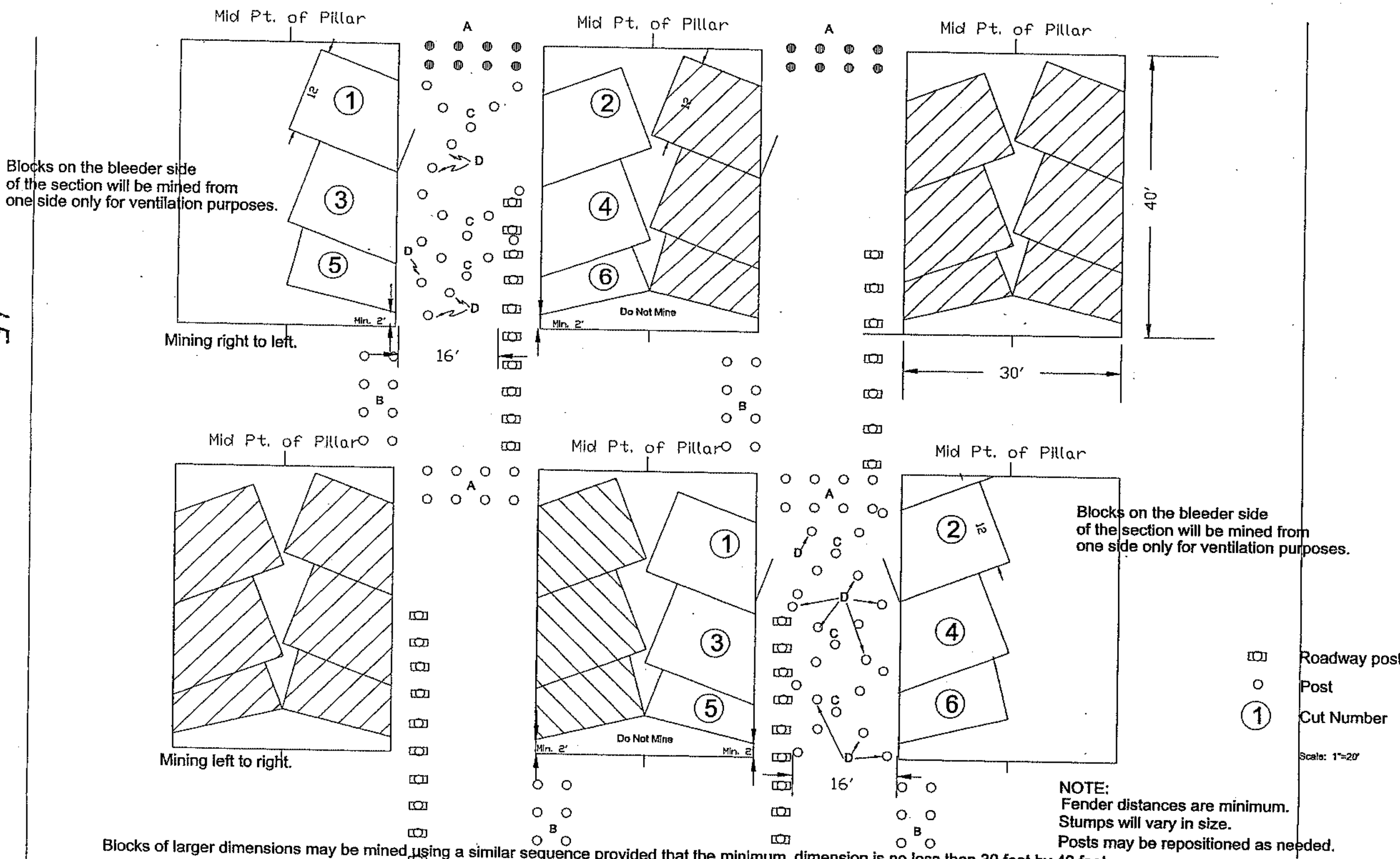
Belt Tailpiece

R Regulator

PAGE

Full Pillar Extraction Plan #1

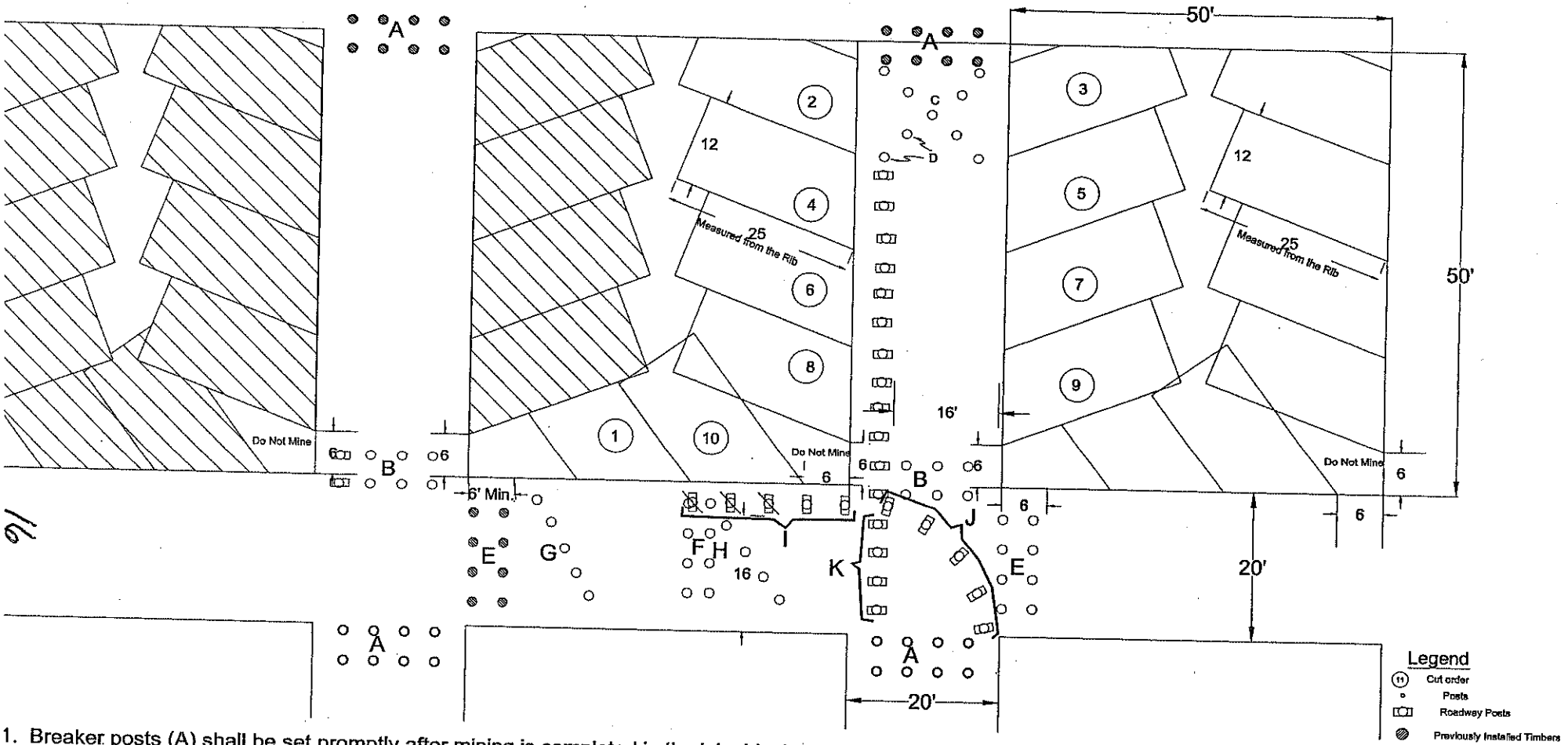
1. Breaker Posts (A) are to be installed promptly upon completion of mining inby.
2. Prior to Lift No. 1, Breaker Post B and roadway posts will be installed to limit the roadway to 16' wide from the entrance of Split No. 1 through the intersection outby the pillar in which the split or lift is being mined.
3. Turn Posts C will be installed prior to mining Lifts No. 1, 3 and 5.
4. Turn Posts D will be installed prior to mining Lifts No. 2, 4 and 6.
5. When a pillar block is mined by using twin lifts, the lift shall be 12' wide and the depth shall be limited to half of the pillar width, or 25ft. measured from the ribline, which ever is less.
6. Gluts in pairs may be used in lieu of capblocks.
7. All posts shown except roadway posts are to be set on 4 foot max. spacing. Roadway posts may be set on 5 foot max. spacing.
8. While taking the first left handed lift, the miner operator may be position inby the continous mining machine at a safe location. No persons shall be permitted inby the continous mining machine while taking the remaining lifts.



Blocks of larger dimensions may be mined using a similar sequence provided that the minimum dimension is no less than 30 feet by 40 feet.

NOTE:
Fender distances are minimum.
Stumps will vary in size.
Posts may be repositioned as needed.

Pillar Recovery for Large Pillars - Mining Left to Right



1. Breaker posts (A) shall be set promptly after mining is completed in the inby blocks.
2. Breaker Posts (E) shall be set immediately after mining is completed inby.
3. Prior to Lift No. 1, Roadway Posts I will be installed to limit the roadway to 16' wide from the intersection to Lift No. 1 and turn posts G and Breaker Posts E will be set. After Lift No. 1 is taken turn posts H will be installed.
4. Upon completion of lift #1, two rows of breaker post, (Breaker Post F) shall be installed.
5. Turn posts D will be set for lifts 3,5,7 and 9.
6. Turn posts C will be set for lifts 2,4,6 and 8.
7. After the completion of Lift #9, Required Breaker Posts B will be Promptly installed.
8. Prior to Lift No. 10, Roadway Posts J will be installed to limit the roadway to 16' wide from the intersection to Lift No. 10. Once installed, the Roadway Posts K and I (⊠) can be removed.
9. All posts shown except roadway posts are to be set on 4 foot max. spacing. Roadway posts may be set on 5 foot max. spacing.

NOTES:

All timbers except breakers shall have half headers or gluts in pairs set between the posts and the mine roof.

Upon completion of a lift, roadway posts infront of the next sequential lift shall be removed.

When a pillar block is mined using twin lifts, the lift depth shall be limited to half of the pillar width, but not to exceed 25 ft deep measured from the rib. All lifts will be 12 ft wide.

Push-outs will not be mined.

Drawing shows 50' x 50' block (70' x 70' c-c), Similar procedures allowed for larger blocks.

Full Pillar Extraction Plan - With Center Cut #1

1. Breaker Posts (A) are to be installed promptly upon completion of mining inby.
2. Prior to Lift No. 1, Breaker Post B are to be installed promptly upon completion of mining inby and roadway posts will be installed to limit the roadway to 16' wide from the entrance of Split No. 1 through the intersection outby the pillar in which the split or lift is being mined.
3. Turn Posts C will be installed prior to mining Lifts No. 1 and 3.
4. Turn Posts D will be installed prior to mining Lifts No. 2 and 4.
5. Breaker Post E shall be installed upon completion of mining inby. Prior to lift No. 5 Roadway Posts F1 will be set prior to removing Roadway Post F. Turn Post G will be installed to limit the Roadway to 16' wide from the entrance of split No. 5 through the intersection.
6. When a pillar block is mined by using twin lifts, the lift depth shall be limited to half of the pillar width or 25 ft. max depth measured from the rib, whichever is less.
7. Pillar lifts will be 12 ft. wide, measured prior to lift being taken. A mark (in paint) will be placed on the coal rib to show width of each lift.

Gluts in pairs may be used in lieu of capblocks.

Fender distances are minimum. Stumps will vary in size.

All posts shown except roadway posts are to be set on 4 foot max. spacing. Roadway posts may be set on 5 foot max. spacing.

While taking the first left handed lift, the miner operator may be position inby the continous mining machine at a safe location. No persons shall be permitted inby the continous mining machine while taking the remaining lifts.

Blocks on the bleeder side of the section will be mined from one side only for ventilation purposes.

Posts may be repositioned as needed.

Blocks of larger dimension may be mined using similar sequence, provided that the minimum dimension is no less than 30 feet x 40 feet.

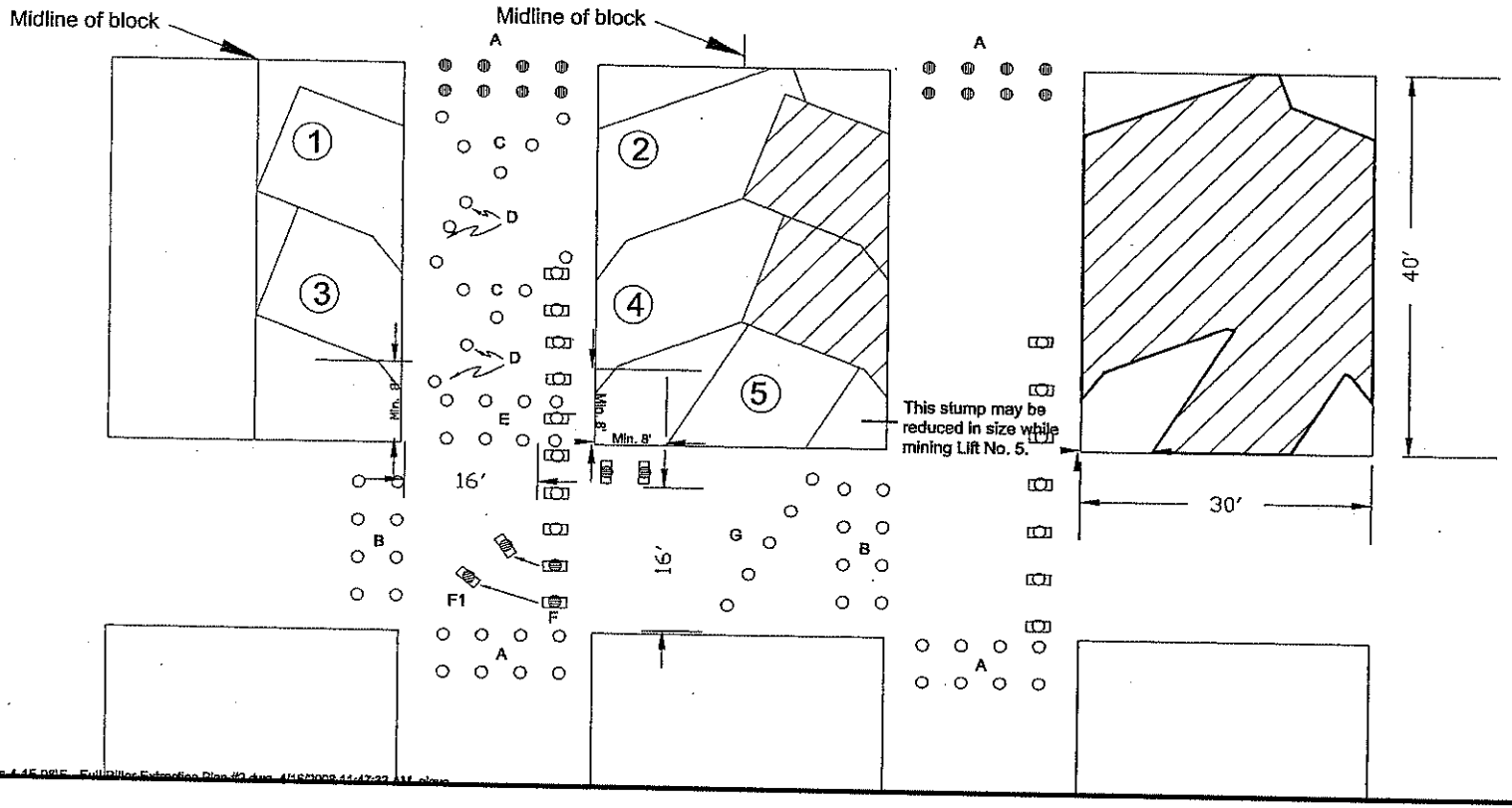
Previous Lift

Roadway post

Post

(1) Cut Number

Scale: 1"=20'



Full Pillar Extraction Plan - With Center Cut #2

1. Breaker Posts (A) are to be installed promptly upon completion of mining inby.
2. Prior to Lift No. 1, Breaker Post B are to be installed promptly upon completion of mining inby and roadway posts will be installed to limit the roadway to 16' wide from the entrance of Split No. 1 through the intersection outby the pillar in which the split or lift is being mined.
3. Turn Posts C will be installed prior to mining Lifts No. 1 and 3.
4. Turn Posts D will be installed prior to mining Lifts No. 2 and 4.
5. Breaker Post E shall be installed upon completion of mining inby. Prior to lift No. 5 Roadway Posts F1 will be set prior to removing Roadway Post F. Turn Post G will be installed to limit the Roadway to 16' wide from the entrance of split No. 5 through the intersection.
6. When a pillar block is mined by using twin lifts, the lift depth shall be limited to half of the pillar width or 25 ft. max depth measured from the rib, whichever is less.
7. Pillar lifts will be 12 ft. wide, measured prior to lift being taken. A mark (in paint) will be placed on the coal rib to show width of each lift.

Gluts in pairs may be used in lieu of capblocks.

Fender distances are minimum. Stumps will vary in size.

All posts shown except roadway posts are to be set on 4 foot max. spacing. Roadway posts may be set on 5 foot max. spacing.

While taking the first left handed lift, the miner operator may be position inby the continous mining machine at a safe location. No persons shall be permitted inby the continous mining machine while taking the remaining lifts.

Blocks on the bleeder side of the section will be mined from one side only for ventilation purposes.

Posts may be repositioned as needed.

Blocks of larger dimension may be mined using similar sequence, provided that the minimum dimension is no less than 30 feet x 40 feet.

Previous Lift

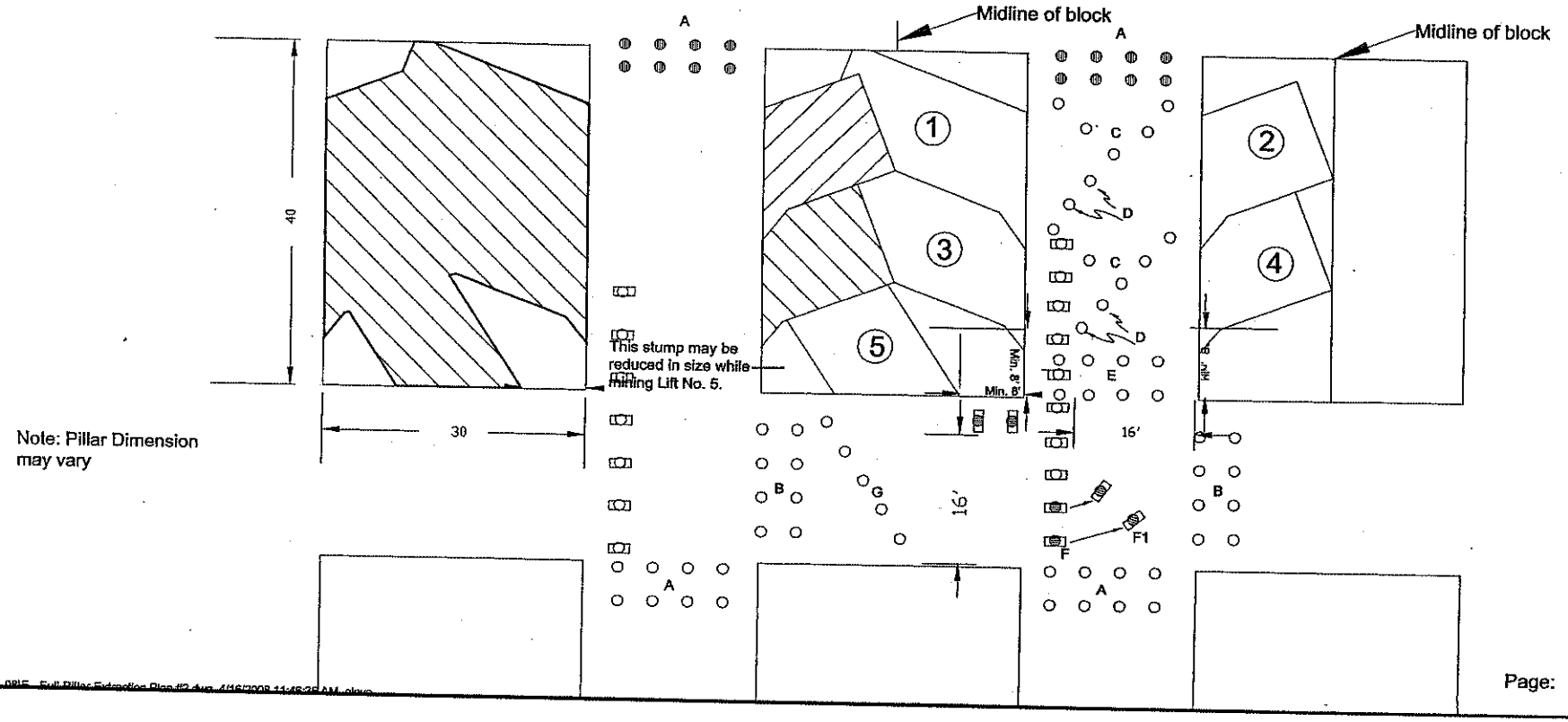
Roadway post

Post

(1) Cut Number

Scale: 1"=20'

81



Note: Pillar Dimension may vary

Barrier Extraction Plan #1

Gluts in pairs may be used in lieu of capblocks.

Fender distances are minimum. Stumps will vary in size.

When a pillar block is mined by using twin lifts, the lift shall be 12' wide and the depth shall be limited to half of the pillar width, or 25 ft. form rib line whichever is less.

All posts shown except roadway posts are to be set on 4 foot max. spacing. Roadway posts may be set on 5 foot max. spacing.

Lifting off barrier blocks may be permitted provided the depth of cut does not exceed 25 feet.

While taking the first left handed lift, the miner operator may be position inby the continous mining machine at a safe location.

No persons shall be permitted inby the continous mining machine while taking the remaining lifts.

Blocks on the bleeder side of the section will be mined from one side only for ventilation purposes.

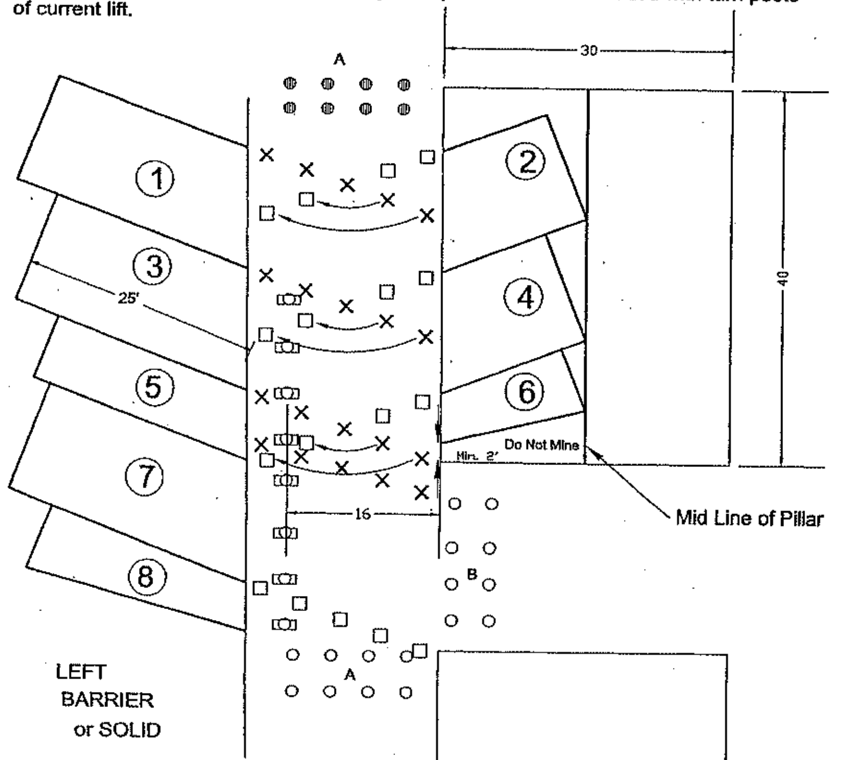
Turn Posts may be repositioned, from previous lift alignments for current lift alignment.

Blocks of larger dimension may be mined using similar sequence, provided that the minimum dimension is no less than 30 feet x 40 feet.

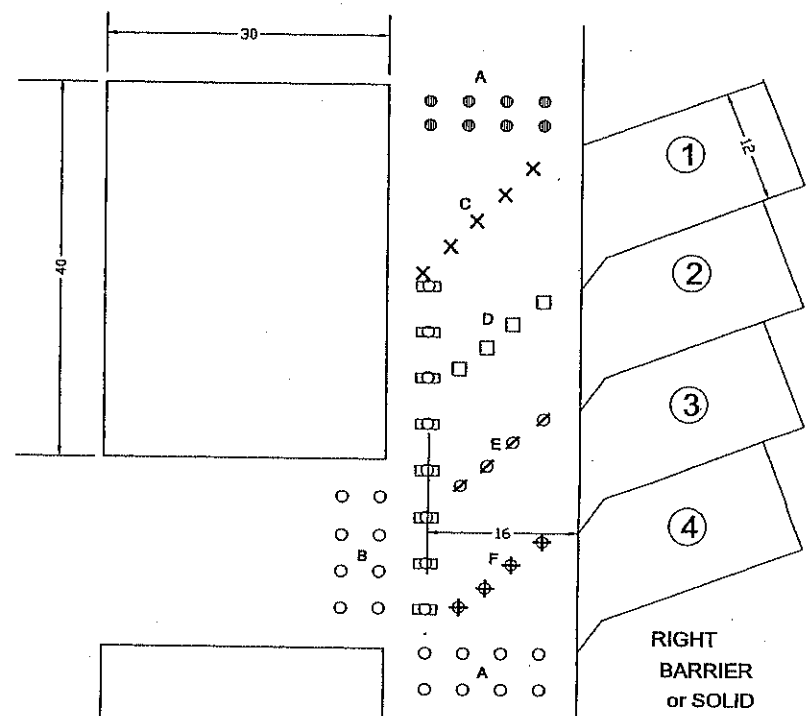
Symbol	Meaning
▭	Roadway Post
Ø	Post E
(1)	Cut Number
X	Post C
□	Post D
⌒X	Post to be Repositioned
●	Breaker Post
⊕	Post F

Scale: 1"=20'

1. Breaker Posts (A) are to be installed upon completion of mining inby.
2. Prior to Lift No. 1, Breaker Post B and roadway posts will be installed to limit the roadway to 16' wide from the entrance of Lift No. 1 through the intersection outby the pillar in which the split or lift is being mined.
3. Turn Posts C will be set prior to mining Lift No. 1, Lift No. 3, Lift No. 5 and Lift No. 7.
4. Turn Posts D will be set prior to mining Lift No. 2, Lift No. 4, Lift No. 6 and Lift No. 8.
5. Turn Post leading to previous lift may be repositioned to be utilized with turn posts of current lift.



1. Breaker Posts (A) are to be installed upon completion of mining inby.
2. Prior to Lift No. 1, Breaker Post B and roadway posts will be installed to limit the roadway to 16' wide from the entrance of Lift No. 1 through the intersection outby the pillar in which the split or lift is being mined.
3. Turn Posts C will be set prior to mining Lift No.1
4. Turn Posts D will be set prior to mining Lift No. 2
5. Turn Posts E will be set prior to mining Lift No. 3
6. Turn Posts F will be set prior to mining Lift No. 4



Barrier Extraction Plan #2

Gluts in pairs may be used in lieu of capblocks.

Fender distances are minimum. Stumps will vary in size.

When a pillar block is mined by using twin lifts, the lift shall be 12' wide and the depth shall be limited to half of the pillar width, or 25 ft. form rib line whichever is less.

All posts shown except roadway posts are to be set on 4 foot max. spacing. Roadway posts may be set on 5 foot max. spacing.

Lifting off barrier blocks may be permitted provided the depth of cut does not exceed 25 feet.

While taking the first left handed lift, the miner operator may be position inby the continous mining machine at a safe location.

No persons shall be permitted inby the continous mining machine while taking the remaining lifts.

Blocks on the bleeder side of the section will be mined from one side only for ventilation purposes.

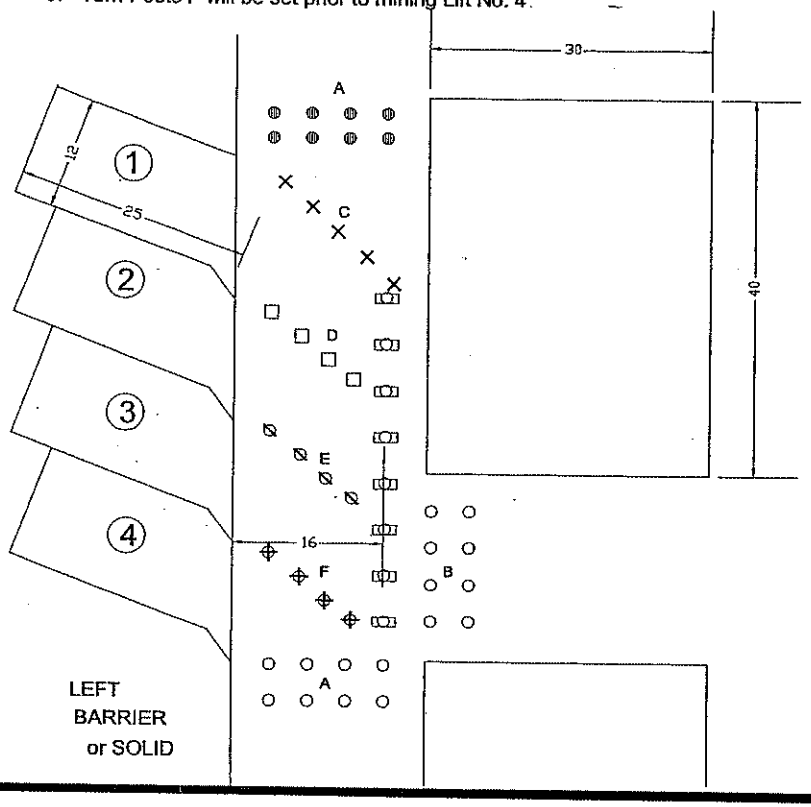
Turn Posts may be repositioned, from previous lift alignments for current lift alignment.

Blocks of larger dimension may be mined using similar sequence, provided that the minimum dimension is no less than 30 feet x 40 feet.

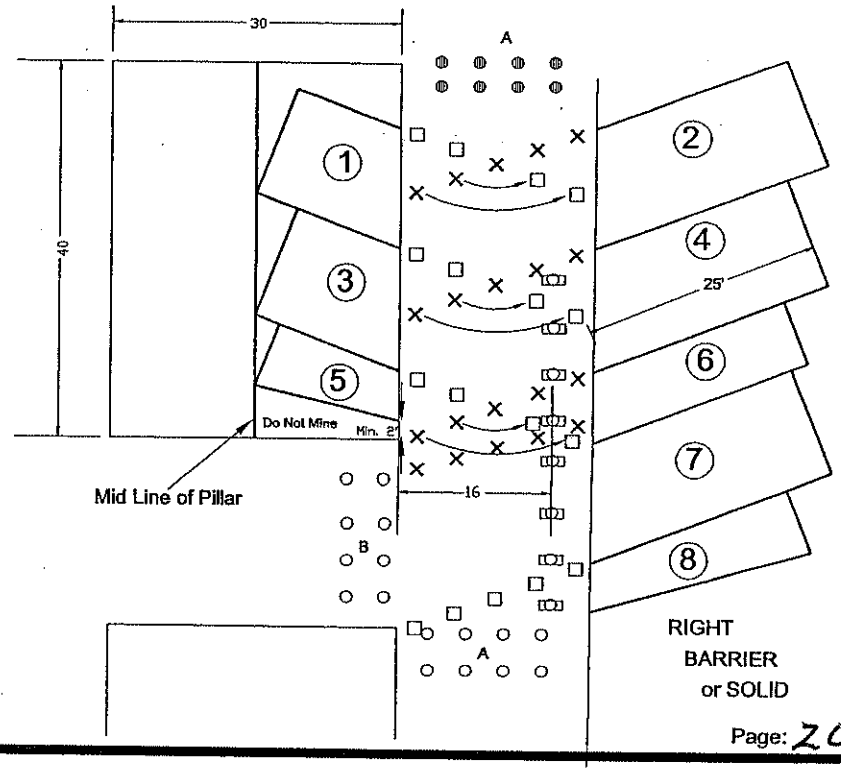
- Roadway Post
- Post E
- (1) Cut Number
- Post C
- Post D
- Post to be Repositioned
- Breaker Post
- Post F

Scale: 1"=20'

1. Breaker Posts (A) are to be installed upon completion of mining inby.
2. Prior to Lift No. 1, Breaker Post B and roadway posts will be installed to limit the roadway to 16' wide from the entrance of Lift No. 1 through the intersection outby the pillar in which the split or lift is being mined.
3. Turn Posts C will be set prior to mining Lift No.1
4. Turn Posts D will be set prior to mining Lift No. 2
5. Turn Posts E will be set prior to mining Lift No. 3
6. Turn Posts F will be set prior to mining Lift No. 4.

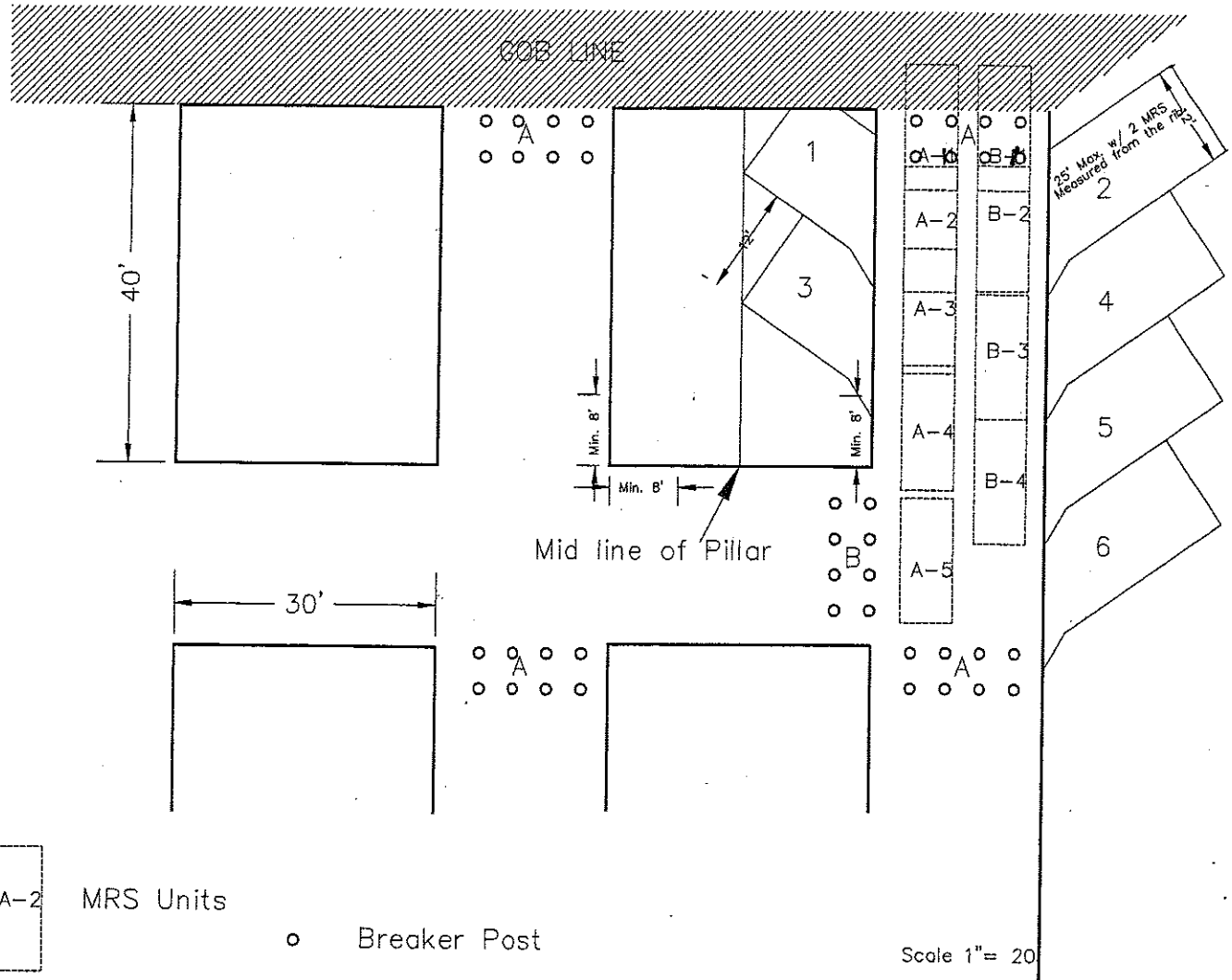


1. Breaker Posts (A) are to be installed upon completion of mining inby.
2. Prior to Lift No. 1, Breaker Post B and roadway posts will be installed to limit the roadway to 16' wide from the entrance of Lift No. 1 through the intersection outby the pillar in which the split or lift is being mined.
3. Turn Posts D will be set prior to mining Lift No. 1, Lift No. 3, Lift No. 5 and Lift No. 7.
4. Turn Posts C will be set prior to mining Lift No. 2, Lift No. 4, Lift No. 6 and Lift No. 8.
5. Turn Post leading to previous lift may be repositioned to be utilized with turn posts of current lift.



Full Pillar Plan Using Posts and 2 Mobile Roof Support for Barriers

Drawing 1 of 4



1. If Lift No. 1 is being mined with MRS units, then MRS Units A–1 and B–1 shall be installed prior to mining Lift No. 1
2. MRS unit will be set at locations (A–2) and (B–1) prior to mining cut No.2
3. MRS unit will be set at locations (A–2) and (B–2) prior to mining cut No.3.
4. MRS unit will be set at locations (A–3) and (B–2) prior to mining cut No.4.
5. MRS unit will be set at locations (A–4) and (B–3) prior to mining cut No.5.
6. MRS unit will be set at locations (A–5) and (B–4) prior to mining cut No.6.
7. Breaker Posts (A) are to be installed after mining is completed inby.
8. The last open cross cut shall not be used as a haulageway during and after mining Cut No. 3.
9. When a pillar block is mined by using twin lifts; the lift depth shall be limited to half the pillar width or 25ft. which ever is less.
10. Breaker Posts (B) shall be installed upon the completion of mining inby.

Note: Blocks of larger dimensions may be mined in a similar manner, provided the minimum dimension on the block is no smaller than 30 feet by 40 feet.

Note: All timbers except breakers shall have half headers or gluts in pairs set between them and the mine roof.

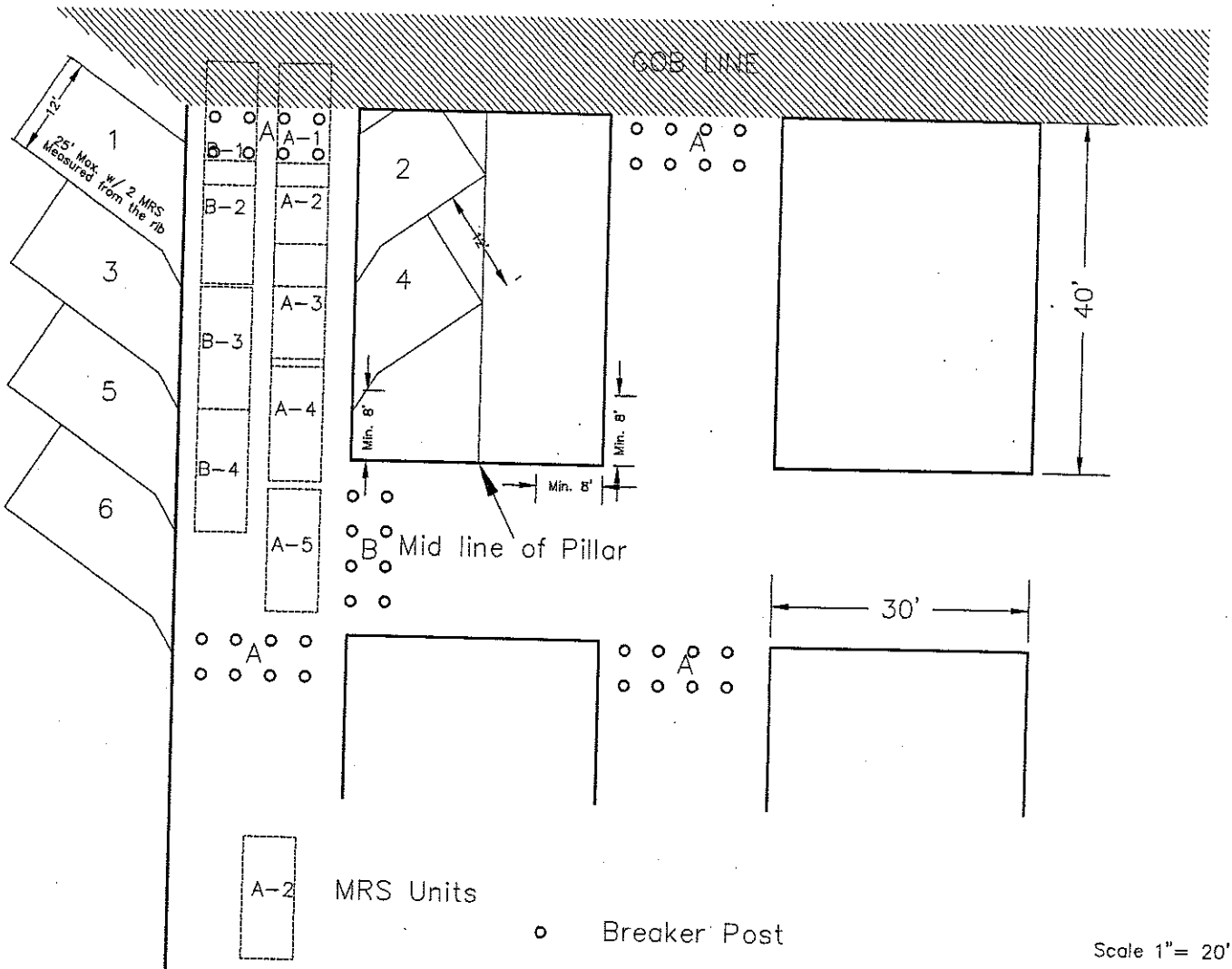
While taking the first left handed lift, the miner operator may be position inby the continous mining machine at a safe location. No persons shall be permitted inby the continous mining machine while taking the remaining lifts.

Note: Stumps will vary in size, fender dimensions are minimum.

Note: Mining shown right to left.

Full Pillar Plan Using Posts and 2 Mobile Roof Support for Barriers

Drawing 2 of 4



1. If Lift No. 1 is being mined with MRS units, then MRS Units A–1 and B–1 shall be installed prior to mining Lift No. 1
2. MRS unit will be set at locations (A–2) and (B–1) prior to mining cut No.2
3. MRS unit will be set at locations (A–2) and (B–2) prior to mining cut No.3.
4. MRS unit will be set at locations (A–3) and (B–2) prior to mining cut No.4.
5. MRS unit will be set at locations (A–4) and (B–3) prior to mining cut No.5.
6. MRS unit will be set at locations (A–5) and (B–4) prior to mining cut No.6.
7. Breaker Posts (A) are to be installed after mining is completed inby.
8. The last open cross cut shall not be used as a haulageway during and after mining Cut No. 3.
9. When a pillar block is mined by using twin lifts, the lift depth shall be limited to half the pillar width or 25ft. which ever is less.
10. Breaker Posts (B) shall be installed upon the completion of mining inby.

Note: Blocks of larger dimensions may be mined in a similar manner, provided the minimum dimension on the block is no smaller than 30 feet by 40 feet.

Note: All timbers except breakers shall have half headers or gluts in pairs set between them and the mine roof.

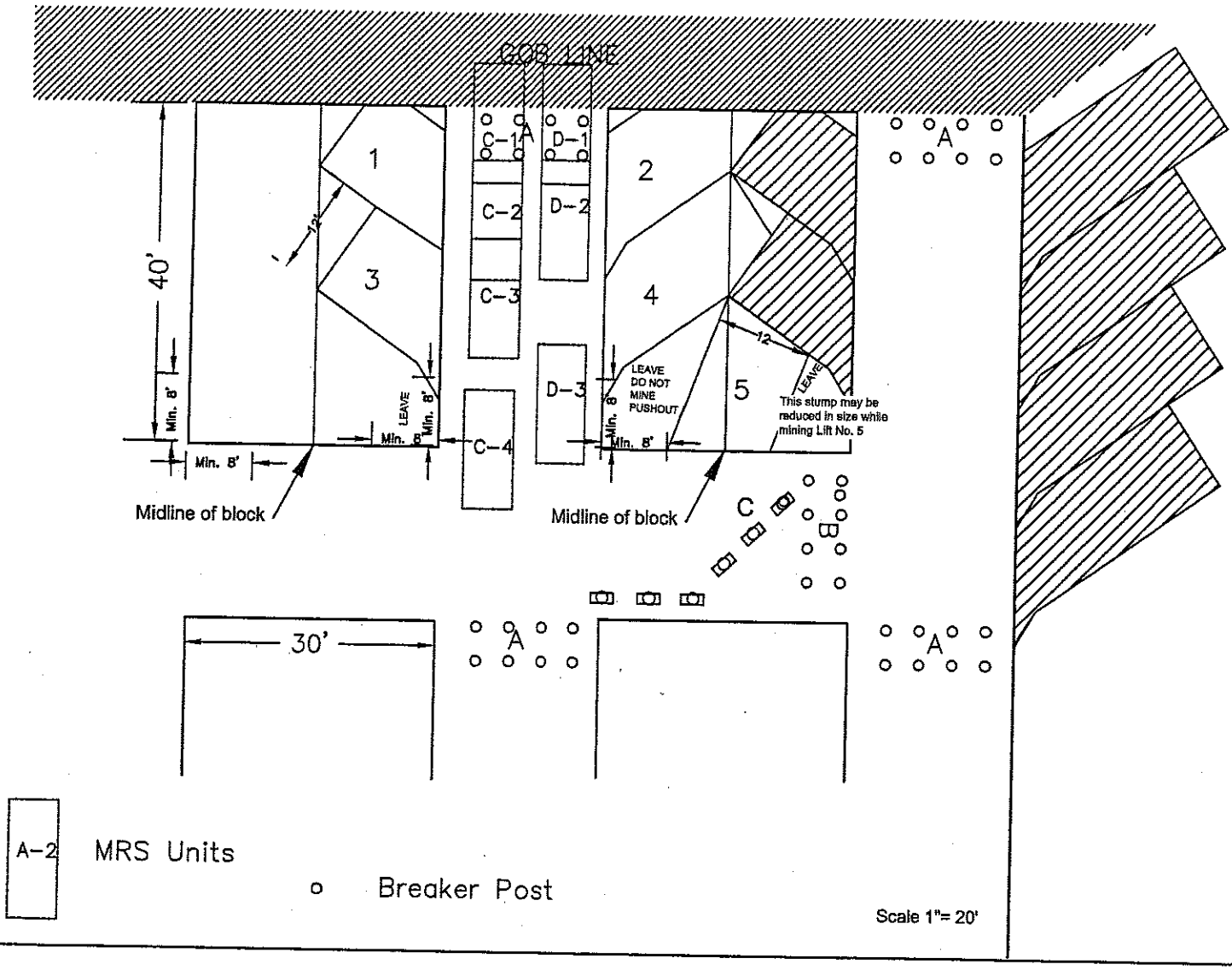
While taking the first left handed lift, the miner operator may be position inby the continous mining machine at a safe location. No persons shall be permitted inby the continous mining machine while taking the remaining lifts.

Note: Stumps will vary in size, fender dimensions are minimum.

Note: Mining shown left to right.

Full Pillar Plan Using Posts and 2 Mobile Roof Support

Drawing 3 of 4



1. Breaker posts (A) and (B) are to be installed after mining is completed inby.
2. MRS Units will be set at locations (C-1) and (D-1) and prior to mining Cut #1.
3. MRS Units will be set at locations (C-2) and (D-1) will be set prior to mining Cut #2.
4. MRS Units will be set at locations (C-2) and (D-2) prior to mining Cut #3.
5. MRS Units will be set at locations (C-3) and (D-2) prior to mining Cut #4.
6. MRS Units will be set at locations C-4 and D-3 and Roadway and Turn post C will be set prior to mining Lift #5.
7. The last open cross cut shall not be used as a haulageway during and after mining Cut No. 3.
8. The pushout will be a minimum of 8ft. x 8ft. Measured from the corner. The pushout will not be mined. The stump can be reduced from 8ft. x 8ft. when taking lift No. 5.

Note: Blocks of larger dimensions may be mined in a similar manner, provided the minimum dimension on the block is no smaller than 30 feet by 40 feet.

Note: All timbers except breakers shall have half headers or gluts in pairs set between them and the mine roof.

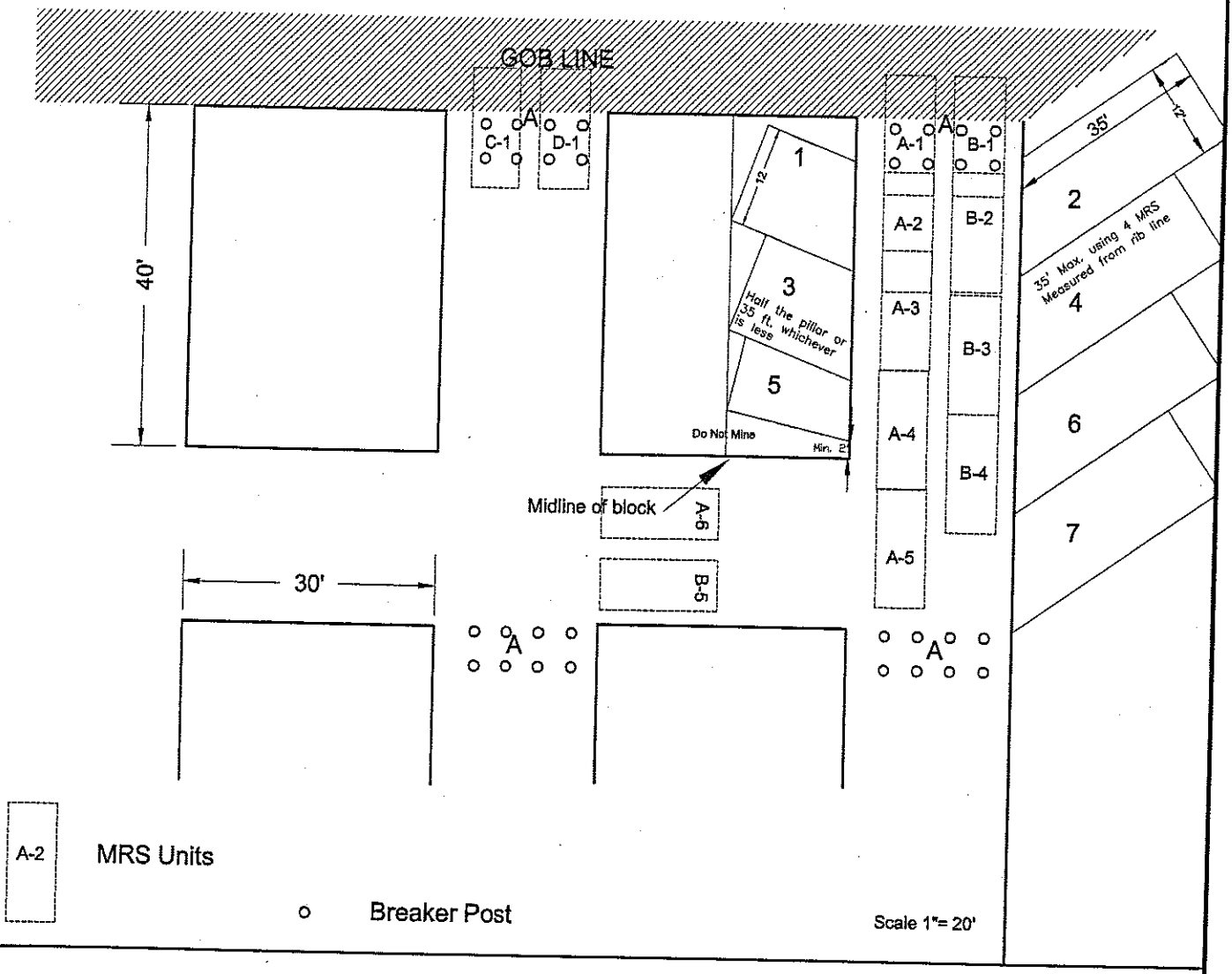
Note: Stumps will vary in size, fender dimensions are minimum.

Note: When a pillar block is mined using twin lifts, the lift depth shall be limited to half of the pillar width. Lifts will be limited to 25 ft in depth, measured from the rib and 12 ft wide.

Note: Mining shown right to left.

Full Pillar Plan with Mobile Roof Support for Barriers

Drawing 1 of 4



1. If Lift No. 1 is being mined with MRS units, then MRS Units A-1, B-1, C-1 and D-1 shall be installed prior to mining Lift No. 1
2. MRS unit will be set at locations (A-2) and (B-1) prior to mining cut No.2
3. MRS unit will be set at locations (A-2) and (B-2) prior to mining cut No.3.
4. MRS unit will be set at locations (A-3) and (B-2) prior to mining cut No.4.
5. MRS unit will be set at locations (A-3) and (B-3) prior to mining cut No.5.
6. MRS unit will be set at locations (A-4) and (B-3) prior to mining cut No.6.
7. MRS unit will be set at locations (A-5) and (B-4) prior to mining cut No.7.
8. Breaker Posts (A) are to be installed after mining is completed inby.
9. The last open cross cut shall not be used as a haulageway during and after mining Cut No. 5.
10. MRS units will be moved immediately upon completion of mining Lift No. 7 to (A-6) and (B-5).
11. When a pillar is mined by using twin lifts, the lift shall be 12 ft. wide and the depth shall be limited to half the pillar width or 35 ft., whichever is less.

Note: Blocks of larger dimensions may be mined in a similar manner, provided the minimum dimension on the block is no smaller than 30 feet by 40 feet. Pillar Lifts will be to the mid point of block or 35 feet, which ever is less.

Note: All timbers except breakers shall have half headers or gluts in pairs set between them and the mine roof.

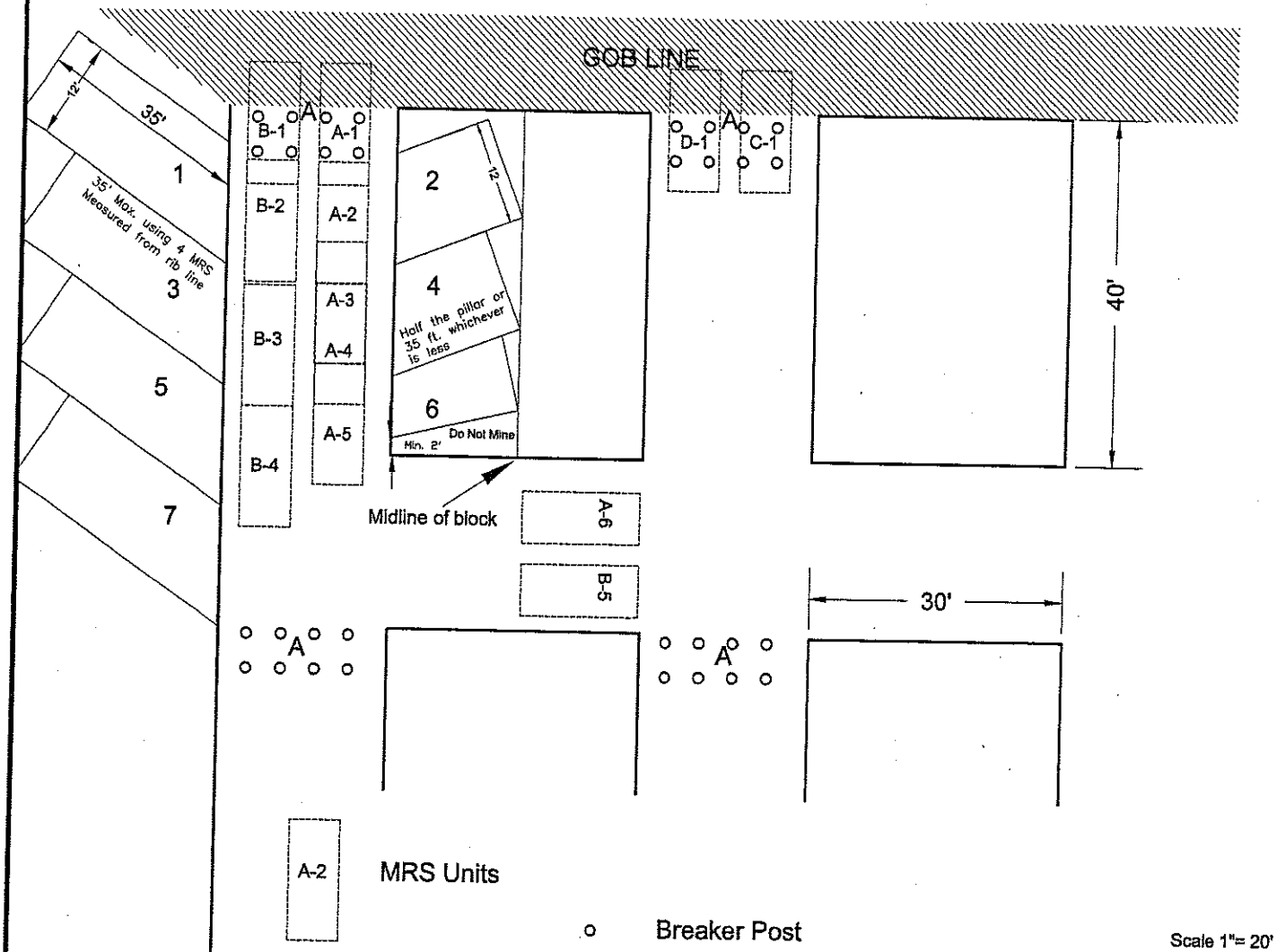
Note: Stumps will vary in size, fender dimensions are minimum.

Note: When a pillar block is mined using twin lifts, the lift depth shall be limited to half of the pillar width.

Note: Mining shown right to left.

Full Pillar Plan with Mobile Roof Support for Barriers

Drawing 2 of 4



1. If Lift No. 1 is being mined with MRS units, then MRS Units A-1, B-1, C-1 and D-1 shall be installed prior to mining Lift No. 1
2. MRS unit will be set at locations (A-2) and (B-1) prior to mining cut No.2
3. MRS unit will be set at locations (A-2) and (B-2) prior to mining cut No.3.
4. MRS unit will be set at locations (A-3) and (B-2) prior to mining cut No.4.
5. MRS unit will be set at locations (A-3) and (B-3) prior to mining cut No.5.
6. MRS unit will be set at locations (A-4) and (B-3) prior to mining cut No.6.
7. MRS unit will be set at locations (A-5) and (B-4) prior to mining cut No.7.
8. Breaker Posts (A) are to be installed after mining is completed inby.
9. The last open cross cut shall not be used as a haulageway during and after mining Cut No. 5.
10. MRS units will be moved immediately upon completion of mining Lift No. 7 to (A-6) and (B-5).
11. When a pillar is mined by using twin lifts, the lift shall be 12 ft. wide and the depth shall be limited to half the pillar width or 35 ft., whichever is less.

Note: Blocks of larger dimensions may be mined in a similar manner, provided the minimum dimension on the block is no smaller than 30 feet by 40 feet. Pillar Lifts will be to the mid point of block or 35 feet, which ever is less.

Note: All timbers except breakers shall have half headers or gluts in pairs set between them and the mine roof.

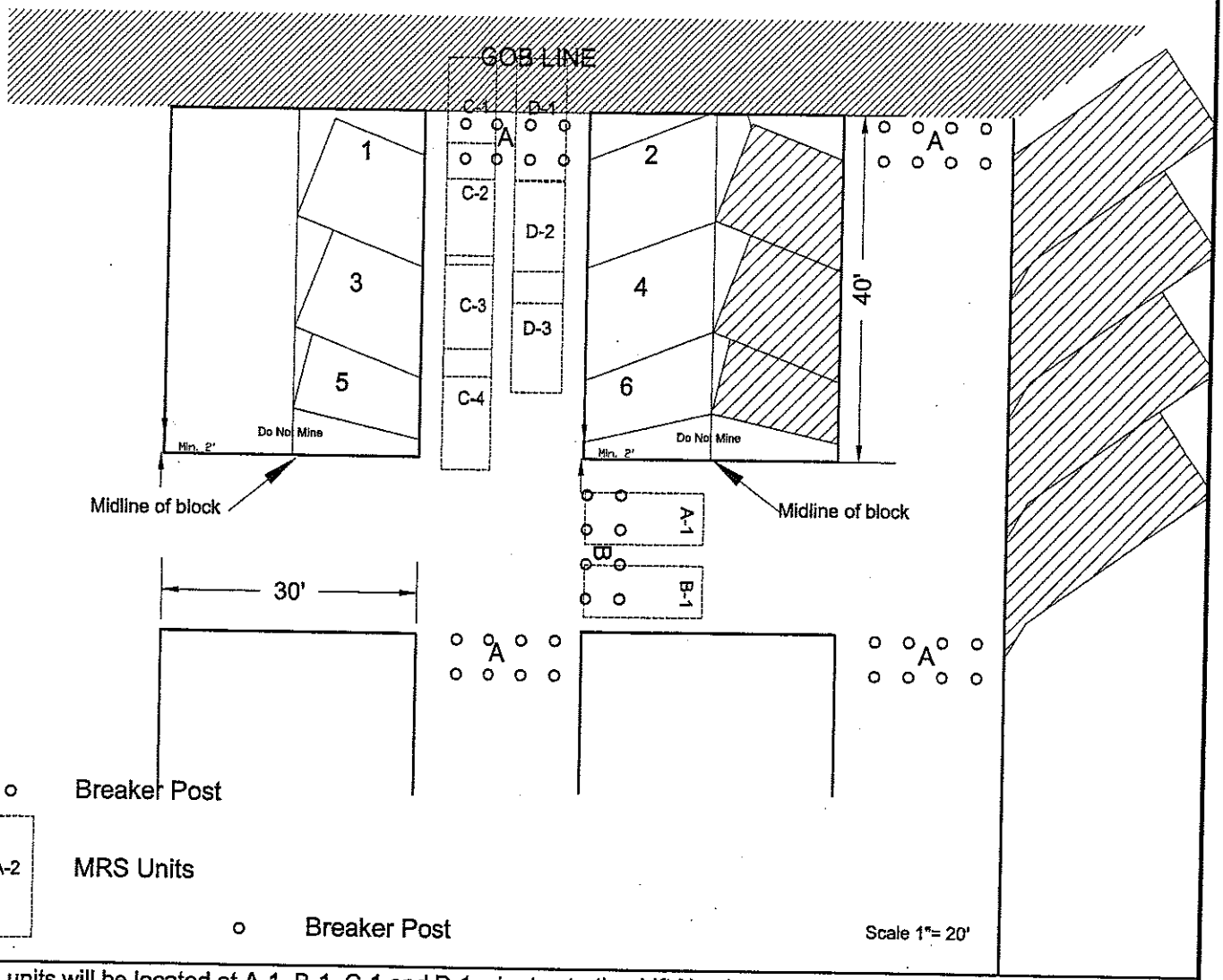
Note: Stumps will vary in size, fender dimensions are minimum.

Note: When a pillar block is mined using twin lifts, the lift depth shall be limited to half of the pillar width.

Note: Mining shown left to right.

Full Pillar Plan with Mobile Roof Support For Mining Blocks

Drawing 3 of 4



1. MRS units will be located at A-1, B-1, C-1 and D-1 prior to starting Lift No. 1
2. MRS unit will be set at locations (C-2) and (D-1) prior to mining cut No.2
3. MRS unit will be set at locations (C-2) and (D-2) prior to mining cut No.3.
4. MRS unit will be set at locations (C-3) and (D-2) prior to mining cut No.4.
5. MRS unit will be set at locations (C-3) and (D-3) prior to mining cut No.5.
6. MRS unit will be set at locations (C-4) and (D-3) prior to mining cut No.6.
7. Breaker Posts (A) are to be installed after mining is completed inby.
8. The last open cross cut shall not be used as a haulageway during and after mining Cut No. 5.
9. When pillaring with two MRS units, Breaker Posts (B) may be set in lieu of the MRS units located at A-1 and B-1 and the depth of cut limited to half the pillar width or 25 ft., whichever comes first.
10. MRS units A-1 and B-1 (or Breaker Posts (B) used in lieu of the MRS units)will be set immediately upon completion of mining inby. MRS units located in the entry can not be replaced with Breaker Post, MRS units must be in the entry when taking twin lifts.
11. When a pillar block is mined by using twin lifts, and all four MRS units are operational, the lift shall be 12 ft. wide and the depth shall be limited to half the pillar width or 35 ft. whichever is less.

Note: Blocks of larger dimensions may be mined in a similar manner, provided the minimum dimension on the block is no smaller than 30 feet by 40 feet.

Note: All timbers except breakers shall have half headers or gluts in pairs set between them and the mine roof.

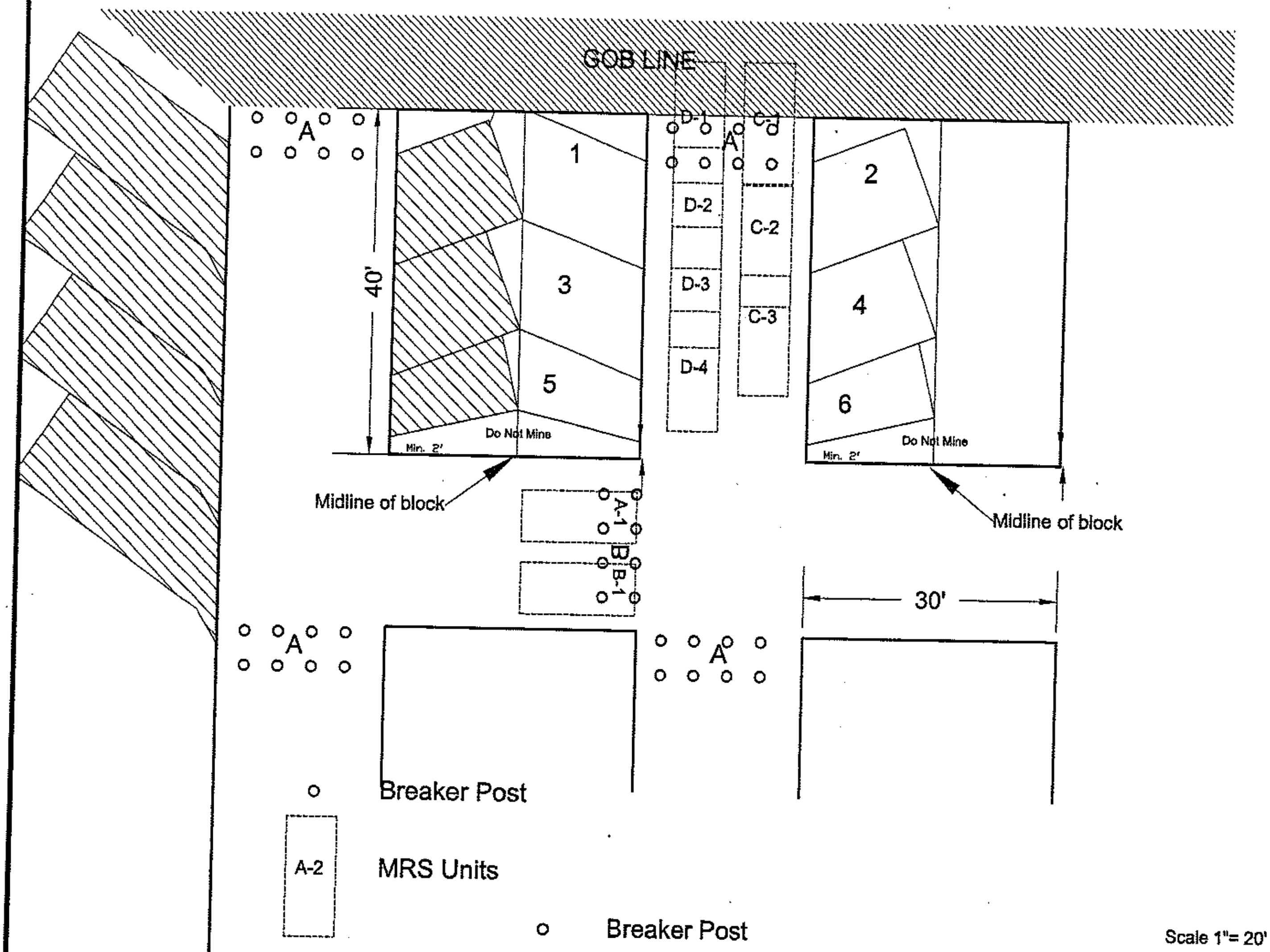
Note: Stumps will vary in size, Fender dimensions are minimum.

Note: Mining shown right to left.

Note: When Breaker Posts "B" are used, the posts shall be installed as close to the intended breakline as possible.

Full Pillar Plan with Mobile Roof Support
For Mining Blocks

Drawing 4 of 4



1. MRS units will be located at A-1, B-1, C-1 and D-1 prior to starting Lift No. 1
2. MRS unit will be set at locations (C-2) and (D-1) prior to mining cut No.2
3. MRS unit will be set at locations (C-2) and (D-2) prior to mining cut No.3.
4. MRS unit will be set at locations (C-3) and (D-2) prior to mining cut No.4.
5. MRS unit will be set at locations (C-3) and (D-3) prior to mining cut No.5.
6. MRS unit will be set at locations (C-4) and (D-3) prior to mining cut No.6.
7. Breaker Posts (A) are to be installed after mining is completed inby.
8. The last open cross cut shall not be used as a haulageway during and after mining Cut No. 5.
9. When pillaring with two MRS units, Breaker Posts (B) may be set in lieu of the MRS units located at A-1 and B-1 and the depth of cut limited to half the pillar width or 25 ft., whichever comes first.
10. MRS units A-1 and B-1 (or Breaker Posts (B) used in lieu of the MRS units)will be set immediately upon completion of mining inby. MRS units located in the entry can not be replaced with Breaker Post, MRS units must be in the entry when taking twin lifts.
11. When a pillar block is mined by using twin lifts, and all four MRS units are operational, the lift shall be 12 ft. wide and the depth shall be limited to half the pillar width or 35 ft. whichever is less.

Note: Blocks of larger dimensions may be mined in a similar manner, provided the minimum dimension on the block is no smaller than 30 feet by 40 feet.

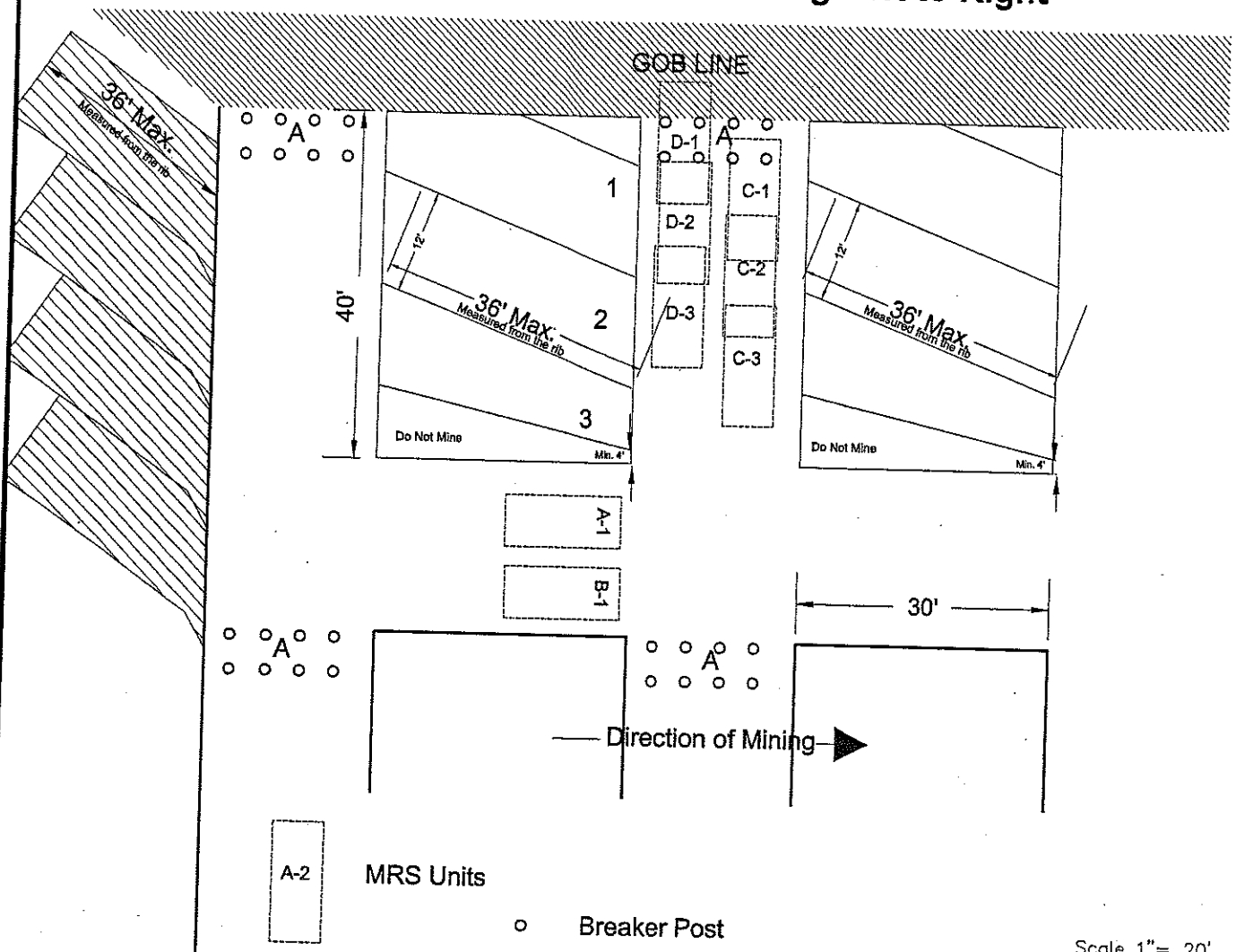
Note: All timbers except breakers shall have half headers or gluts in pairs set between them and the mine roof.

Note: Stumps will vary in size, Fender dimensions are minimum.

Note: Mining shown left to right.

Note: When Breaker Posts "B" are used, the posts shall be installed as close to the intended breakline as possible.

Full Pillar Plan with Mobile Roof Support
(Using 4 MRS Units)
Pillaring from One Side - Mining Left to Right



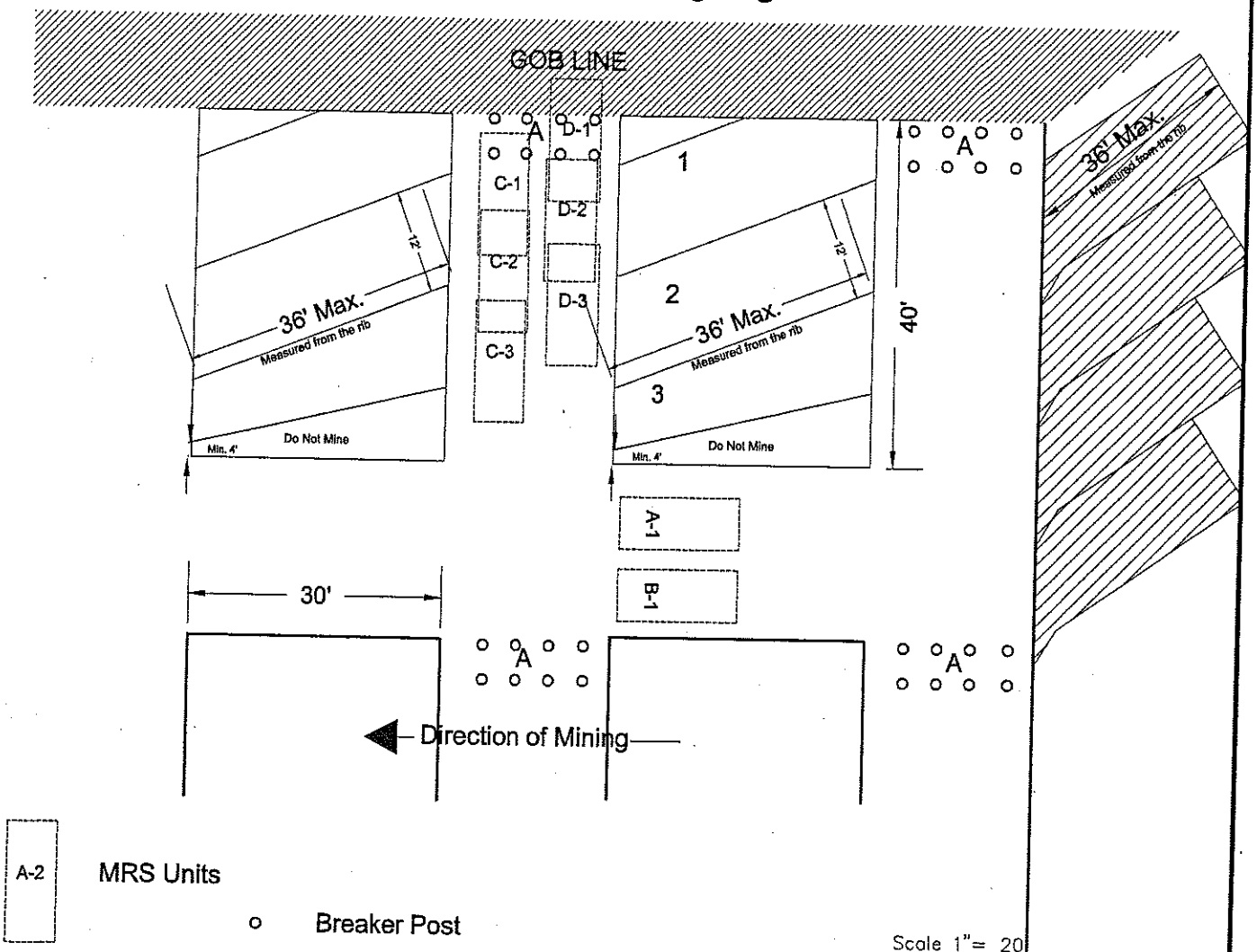
1. MRS units will be located at A–1, B–1, C–1 and D–1 immediately upon completion of mining inby.
2. MRS unit will be set at locations (C–2) and (D–2) prior to mining cut No.2
3. MRS unit will be set at locations (C–3) and (D–3) prior to mining cut No.3.
4. Breaker Posts (A) are to be installed after mining is completed inby.
5. When pillars & barrier mining occurs from one side, each lift will be limited to 12 ft. wide & 36 ft. in depth, measured from the rib.

Note: Blocks of larger dimensions may be mined in a similar manner, provided the minimum dimension on the block is no smaller than 30 feet by 40 feet.

All timbers except breakers shall have half headers or gluts in pairs set between them and the mine roof.

Stumps will vary in size, fender dimensions are minimum.

Full Pillar Plan with Mobile Roof Support
(Using 4 MRS Units)
Pillaring from One Side - Mining Right to Left



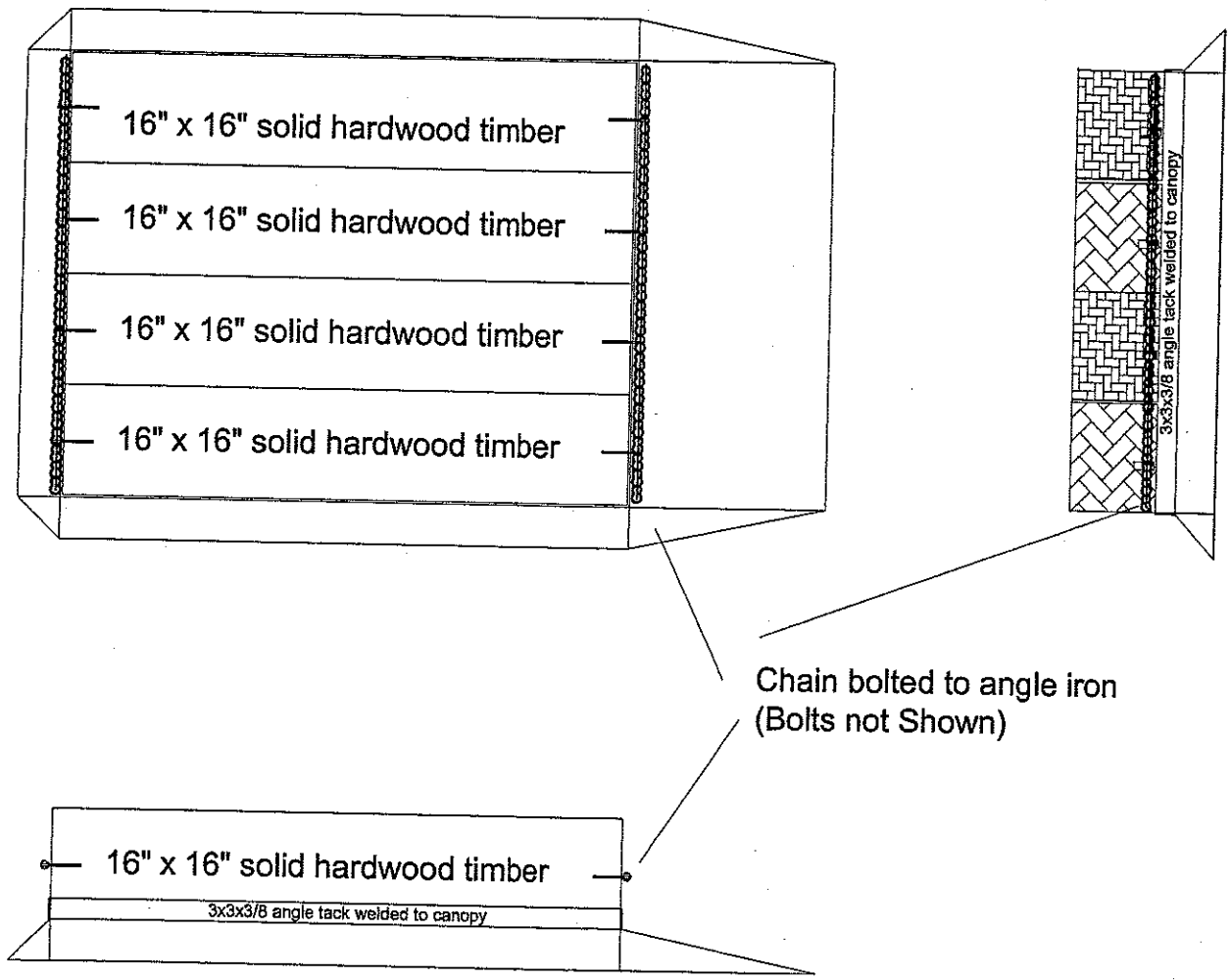
1. MRS units will be located at A–1, B–1, C–1 and D–1 immediately upon completion of mining inby.
2. MRS unit will be set at locations (C–2) and (D–2) prior to mining cut No.2
3. MRS unit will be set at locations (C–3) and (D–3) prior to mining cut No.3.
4. Breaker Posts (A) are to be installed after mining is completed inby.
5. When pillars & barrier mining occurs from one side, each lift will be limited to 12 ft. wide & 36 ft. in depth, measured from the rib.

Note: Blocks of larger dimensions may be mined in a similar manner, provided the minimum dimension on the block is no smaller than 30 feet by 40 feet.

All timbers except breakers shall have half headers or gluts in pairs set between them and the mine roof.

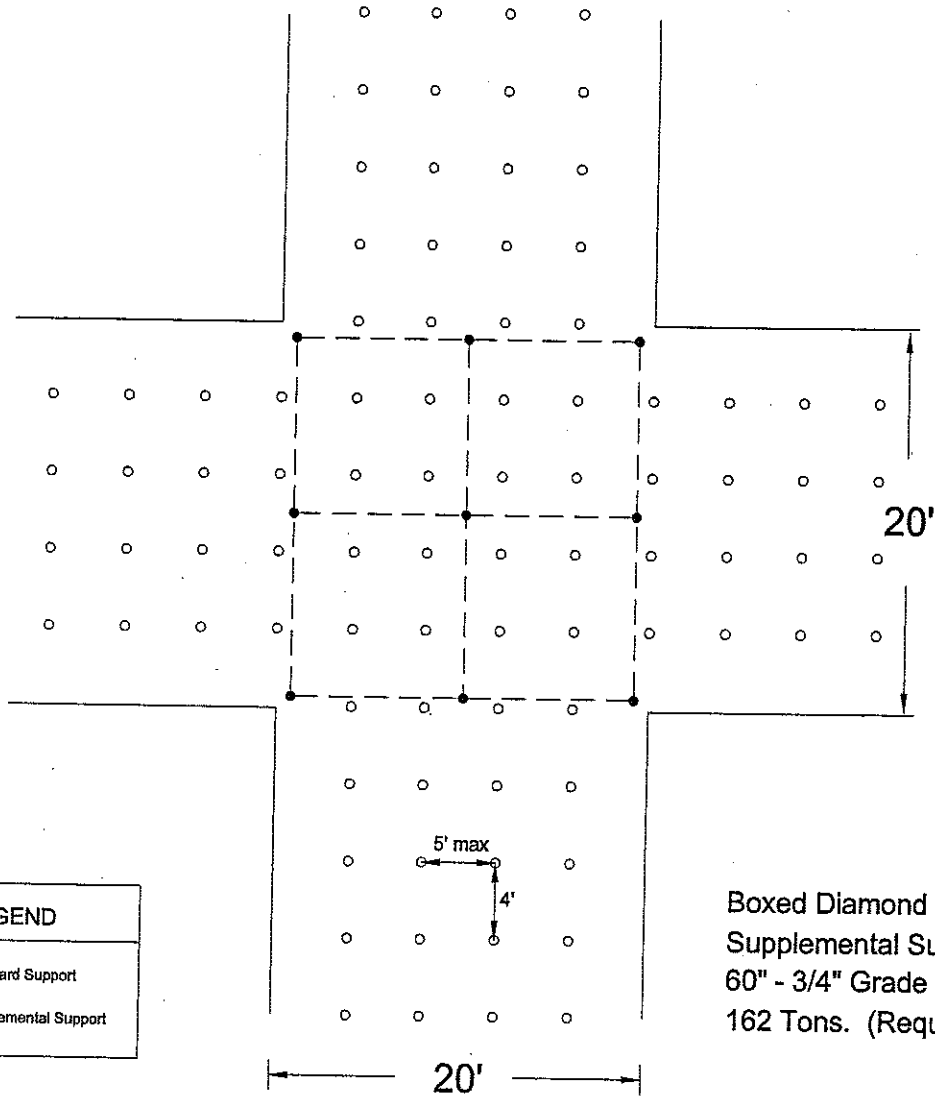
Stumps will vary in size, fender dimensions are minimum.

MRS Canopy Extension
No Scale



NOTE: Angle iron tack welded to sides and back of canopy only.
Chain fastened to wooden members and bolted to angle iron.

SUPPLEMENTAL SUPPORT FOR INTERSECTIONS OF PILLAR PANELS (TYPICAL)



LEGEND	
○	Standard Support
●	Supplemental Support

Boxed Diamond Pattern
Supplemental Support
60" - 3/4" Grade 60 Bolt =
162 Tons. (Required 150 Tons)

1. Prior to retreat mining, supplemental support will be installed in each intersection.
2. Supplemental support will consist of 60 inch, 3/4" grade 60 bolt or equivalent installed in a Box Diamond pattern.
3. The supplemental support may be installed either on retreat or advance mining.

Performance Coal co.
Upper Big Branch Mine
MSHA ID NO. 46-08436 WV State # U-3042-92
ROOF CONTROL PLAN
SUPPLEMENTAL SUPPORT FOR INTERSECTIONS OF PILLAR PANELS
DATE: 04-15-08 SCALE: 1" = 10'
DWG NAME: UBB -RCP Drawing Support for Intersections of Pillar Panels.dwg DRAWN BY: MAM

Performance Coal Company

April 16, 2008

Mr. Robert G. Hardman
District Manager
Mine Safety and Health Administration
100 Bluestone Road
Mount Hope, West Virginia 25880

Mr. Steve Snyder
WVOMHS&T
142 Industrial Drive
Oak Hill, WV 25901

RE: Performance Coal Company
Upper Big Branch
ID # 46-08436 – State ID U-3042-92
Roof Control Plan – New Base Plan

Dear Sirs:

Attached is a new base Minimum Roof Control Plan (annual update) being submitted by Performance Coal Company, Upper Big Branch Mine.

If you have any questions, or require further information, please call Rick Hodge, Superintendent at (304) 854-1456.

Sincerely,

George T. Levo

Performance Coal Company
George T. Levo
Senior Mining Engineer