U. S. Department of Labor

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

OCT 25 2005

Mr. Wendell Wills, Superintendent
Performance Coal Company
P.O. Box 69
Naoma, WV 25140

Dear Mr. Wills:

Subject: Yearly Update of the Roof-Control Plan, Upper Big Branch Mine-South, I.D. No. 46-08436, Performance Coal Company, Montcoal, Raleigh County, West Virginia, Permit No. 4-RC-11-94-12307-11

Your roof-control plan, received on October 20, 2005, has been reviewed and is approved. This approval is based upon a technical review of the roof conditions and roof-control practices in the mine by representatives of the Mine Safety and Health Administration, and includes any changes made by you at that time.

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

Sincerely,

Jesse P. Cole
District Manager
Coal Mine Safety and Health, District 4

Enclosure

cc: State Inspector-at-Large, Oak Hill Division (1 encl.)
Mount Hope Field Office (3 encl.)
Charlie Cline (1 encl.)
Files/cls

MINIMUM ROOF CONTROL PLAN

Date October 19, 2005 MSHA ID NO. 46-08436

Mine Upper Big Branch Mine South

Company Performance Coal Company

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

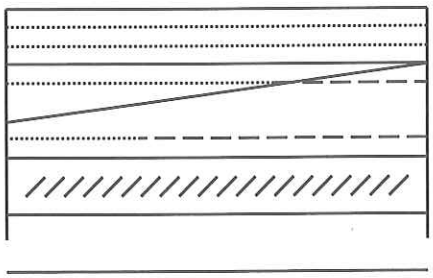
Mine Location Montcoal Raleigh West Virginia
(Town) (County) (State)

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



Reason for Revision- New, revised base plan

Company Official Responsible for Plan: Wendell Wills Superintendent
(Title)

Signature: Wendell Wills
Date: 10/19/05

*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

NOTE: Pillars will be designed using the Bieniawski Formula or equivalent, with a 1.5 safety factor in mains and 1.3 safety factor in rooms and panels with 6 months or less duration. Rooms developed on 50' x 50' centers shall not be second mined.

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, (4) LONG-AIRDOX 630 SHIELD HAULERS, (2) PETITTO MULES 1550, (2) JOY 12-12, (2) JOY 14-15, CONTINUOUS MINERS WITH REMOTE CONTROLS (NO DECKS), (2) JOY 7LS SHEARERS, 352 JOY 750-1280 TON CAPACITY 2 LEGGED LONGWALL SHIELDS, (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, except as stated in statement 10 on page 12.

(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.

SAFTEY PRECAUTIONS TO BE TAKEN

Plan drawings showing sequence of mining including pillar mining where applicable, sequence of installation and spacing of supports including temporary supports and maximum width of entries, rooms, intersections, crosscuts, and pillar lifts are attached. Changes shall not be made in the mining system until the plan has been revised accordingly.

1. Where second mining is being done, management shall show on a mine map the sequence of recovering pillars. Pillaring methods shall maintain uniform pillar line that eliminates pillar points and pillars that project inby the breakline. When conditions dictate that changes be made in the sequence of pillar recovery, such changes shall be authorized by the superintendent or designated mine foreman for the shift involved and shall include additional precautionary measures to be taken to compensate for the abnormal conditions encountered.

2. 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.

3. Where the automated supports consists 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. This distance may be extended to 17.5 inches when using a walk-through type Fletcher bolting machine. NOTE: ATRS Systems other than those shown in the equipment list shall not be used without prior approval.

4. When the ATRS system will not provide adequate roof support due to excessive height, or if the roof is too low for the ATRS to be used, temporary roof supports may be installed and advanced row by row as each row of bolts is installed. When mining under these conditions, corrective action shall be taken to provide an acceptable ATRS system to accommodate these conditions.

5. When the ATRS system will not provide adequate roof support, the depth of cut shall be limited to effectively control the mine roof and not more than two (2) 20 foot cuts shall be taken for a total distance of 40 feet in any entry room or crosscut. When mining under these conditions, corrective action shall be taken to provide an acceptable ATRS system to accommodate these conditions.

6. Where temporary supports are used under conditions described above, a certified canopy shall be provided in accordance with applicable MSHA regulations.

7. 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.

8. Where loose, broken or drummy roof is encountered and not cut down, the depth of cut shall be reduced to a depth sufficient to effectively control the roof. Crosswise bolt spacing shall be reduced to 4 foot maximum. Roof bolts shall be maintained to within 4 feet of the rib.

9. In the event of a continuous miner malfunction or breakdown that requires persons to go inby existing permanent roof supports to correct the malfunction, the unsupported area, where practical, will be supported by roof bolts with the remaining unsupported roof in the working place being supported with temporary supports set on 5 foot centers lengthwise and crosswise where miners are present or working. This work shall be done under the direct supervision of a certified foreman.

10. 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.

11. 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 in 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.

12. 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. When underground workings approach and/or mining is being done within 150 feet of the surface, entries and connecting crosscuts shall be mined 16 feet in width or less and at least a 3 inch by 8 inch header or equivalent shall be installed on 4 foot spacing.

13. 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 than 5 foot centers shall be installed. Temporary supports and permanent supports shall be installed in sound roof. The distance between the permanent supports and the nearest temporary supports shall not exceed 5 feet. 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 installed in a manner that will best protect miners replacing such bolts.

14. All unstable material shall be removed from the highwall above intended mine openings and areas between openings where miners travel or are required to perform work. A substantially constructed canopy shall also 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 coal mine. The canopy shall extend from the highwall for a distance which will provide for adequate protection from falling highwall material. A 10' deep by 20' wide cut may be taken with a remote control continuous miner to install and secure the canopies under the edge of the highwall.

15. A supply of supplementary roof support materials and the tools and equipment necessary to install such materials, consisting of twenty (20) post or equivalent combination of posts and jacks suitable to the mine height or equivalent materials to construct a minimum of five (5) cribs and twenty 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 working section. **Where deep cuts are mined these materials will be doubled.**

16. When the continuous miner is being trammed in the working place or changing places, other when cutting coal, no person shall be allowed along either side of the continuous mining machine.

17. When any continuous mining machine is equipped with remote control operating capacity, whether or not in a deep-cut mode or regular depth, 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.

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

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

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

21. Before any entry or crosscut is holed through, examinations shall be made to ensure that the adjacent entry or crosscut is clear of persons and equipment.

22. Reflective material will be used to indicate the location of the next to last row of permanent roof supports. When a crosscut is holed through reflective devices will be hung on both sides of the unsupported place.

23. A minimum of 4" diameter posts may be used as rib support only.

24. On haulage ways, all crossbars or beams shall be installed with some means of support to prevent them from falling if the supporting legs are dislodged.

25. In areas of sandstone roof where second mining will be done, the minimum roof bolt diameter will be ¾".

26. 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 roof bolts on required centers. The working face may be advanced no more than 50 feet inby the proposed inby corner of the crosscut rib line before the cross cut is completed. On three entry systems, the 50' maximum may be increased to 75' to facilitate ventilation

27. When crosscuts in excess of a normal cut are developed on a working section, no more than two open unsupported adjacent crosscuts in direct line with one another shall be permitted.

28. In intersections where openings are not permanently supported, and the unsupported area exceeds 20 feet in depth, two rows of temporary supports on 4 foot centers (crosswise) shall be installed across the openings prior to work or travel in the intersection. This does not prevent pre-shift and on-shift examinations.

29. When driving a panel planned for partial pillaring or when driving a panel adjacent to a panel that has been partially pillared, the barrier between panels will have a minimum safety factor of 2.0 after the barrier is slabbed or otherwise second mined. When driving a panel adjacent to a panel that has been full pillared or first mined only, the barrier between panels will have a minimum safety factor of 2.0 as the panel is advance mined.

30. To protect the miner operator and other persons against roof falls riding back through roof bolts when extended cut mining is being performed during advance mining, five roof bolts shall be installed in the last row of roof bolts with the extra bolt near the miner operator's side. When the entry width exceeds 20 feet in width for belt/track installation, six bolts will be required in the last row of bolts. Where "Pizza Pans" are installed on all roof bolts along the miner operator's side in entries and crosscuts, the extra bolts above is not required.

31. Crosswise spacing of bolts may be 5', however, the distance from the bolt to the rib shall not exceed 4'.

32. When adverse roof conditions are encountered such as horsebacks, slickensided slip formations, clay veins, kettle bottoms, surface cracks, mud streaks, or similar types of condition in the mine roof, supplemental roof supports shall be installed in addition to the primary roof support, as appropriate in the affected area.

33. When second mining is being done, the intersection accessing the pillar or pillars being mined, will have supplementary support installed in that intersection prior to second mining those pillars. The supplemental support will be five (5) 8' cable bolts installed in a star pattern.

LONGWALL MINING SYSTEMS

Method used to maintain a safe travel way out of the section through the tailgate side of the longwall.

The tailgate entry of the first longwall panel will be supplementally supported by a single row of posts installed on 5 foot spacing or double row of staggered posts on 8 foot centers for its entirety before mining commences. If subsequent longwall panels have areas that will not be mined (no adjacent gob), supplemental tailgate roof support in these areas will be posts as specified above.

The following procedures will be followed if a ground failure prevents travel out of the section through the tailgate side of the longwall:

(a) Should ground failure occur that creates a condition that prohibits travel out of section through the tailgate side, miners in the affected area (longwall section) will be notified immediately.

(b) The affected miners will be informed of the condition on the tailgate side of the longwall and will be re-instructed on the location of designated escapeways off the section by the use of the section escapeway map. In addition to instruction on the location of designed escapeways, the affected miners will be instructed on the location of all methods of exit off the longwall and the proper evacuation procedures to be followed in the event of an emergency. To assure that all affected employees are familiar with the proper escapeway off the section, those affected individuals will be walked to the point where the escape way starts off the section. This is to assure that affected individuals know the exact route to travel should an emergency exit off the section become necessary. This drill will be repeated at intervals not to exceed 30 days as long as the tailgate remains blocked.

(c) Miners affected on the longwall section, by blockages on the tailgate side, will be promptly re-instructed on the location and use, by demonstration, of the self-contained self-rescuer device. All affected miners will be given hands-on training on the SCSR within 24 hours of the initial time of the tailgate blockage.

(d) Should travel out of the section through the tailgate side become impassable, intake air reaching the affected longwall section will be monitored for carbon monoxide at the mouth of the panel in each intake entry and at or near the headgate end where all the intakes become common but before the air starts down the longwall face. This will be accomplished primarily be the use of the approved mine CO monitoring system. Should the monitoring system become inoperative during the tailgate blockage, provisions will be made to monitor the intake air entering the affected longwall section at the locations designated by a qualified person(s) patrolling the area with hand-held CO units with access to the communication system.

(e) The affected longwall section will be provided with the following communication systems:

(f) Two-way communication is installed at locations across the longwall face which allows contact with the headgate attendant.

(g) Two-way pager phone communication will be maintained at or near the headgate and two-way trolley phone communication will be maintained at or near the end of the supply track, both of which permit communication with the surface and out-by-areas. Checks will be made to insure that at least one system of communication is maintained at all times.

(h) Self Rescuer storage stations will be established on the headgate, at mid-face, and on the tailgate. They will visually be inspected weekly to insure proper working condition. Signs will be maintained to clearly indicate these locations. This does not apply when miners wear the SCSR.

(i) As the tailgate nears a blockage, employees will be re-instructed that a safe retreat area on the tailgate side does not exist, until the longwall mines past the blockage, and they must wear or carry a SCSR until a safe retreat area is re-established.

(j) A means of transportation will be provided as close to the longwall face as practicable.

NOTE: These provisions, as stated, will remain in effect until a travel way is re-established on the tailgate side of the affected longwall section.

SAFETY PRECAUTIONS FOR LONGWALL IN-SHIELD MOVEMENT

* Prior to operating longwall shields utilizing in-shield controls, the following precautions shall be taken:

1. The operator shall visually examine the shield to be moved to determine if the shield is suspended.
2. Under no circumstances will any person travel under or operate in-shield a suspended shield when the pontoons are not pressurized against the mine floor.
3. The operator shall notify any person in the immediate area of his intentions to move a shield utilizing in-shield controls.
4. During in-shield movement, the operator shall maintain all body parts within the confines of the shield being moved.
5. The shield operator shall pay close attention during in-shield movement that the shield does not become stuck or fouled and that shield does not become suspended during the lowering and advancing operations.
6. Shield systems have the capability of controlling the hydraulic flow rate during shield advance, and will have the flow rate reduced to slow movement while advancing controls are being used.
7. If any failure occurs to force manual operation, operators must notify a supervisor so repairs can be performed.

8. If any failure occurs to force manual operation, operators will observe any adverse conditions (such as suspended shield, adverse top or bottom conditions). If these conditions exist, an observer will be there to watch or assist.
9. If noise from the conveyor interferes with communication between the operator and observer, the conveyor will be shut down during the manual operation cycle.

LONGWALL MOVE AND SHIELD RECOVERY SAFETY PRECAUTIONS

1) Review roof control plan and longwall recovery plan with personnel before move begins.
2) When shields are being pulled, personnel will remain in the clear until shield is completely pulled out.
3) Personnel shall remain under roof support while lowering, raising, or moving shields or moving MRS.
4) Additional roof supports (cribs, timbers, roof bolts, etc.) will be set when and where needed.
5) When cutting or welding is being done, the proper gas checks, rock dusting, and fire checks will be performed. Visually check hoses and regulators before using torches.
6) All lock out procedures will be enforced. They shall be performed by a certified electrician.
7) When working on face removal, stay under shield canopies whenever possible.
8) Be extra cautious of pinch points.
9) Each person will be task trained on equipment with emphasis on the application of that equipment to the longwall move.
10) Before disconnecting hydraulic hoses, make sure the gauge is reading zero, and that the hoses are not hard.
11) When cleaning off the top of shields, visually inspect the roof, use proper tools, and watch for falling materials.
12) Use proper lifting procedures.
13) Use eye protection in all applicable situations.
14) All training must be properly documented. Remember that when weekend work is performed, new workers must be task trained.
15) Special attention shall be given to sheaving and hoisting; use proper size sheaves, ropes, hooks, and chains.
16) Maintain as close of a hook-up between scoop and equipment being moved as is practical.
17) Move trailing shield, where applicable, up as quickly as possible after dropping the shield to be moved.
18) SCSR units will be provided for all persons involved in recovery of shields.
MSHA and West Virginia Office of Miner's Health Safety & Training will be notified by phone prior to start of longwall move.

Performance Coal Company proposes to recover the longwall shields according to the following procedures: (Also see attached sketches)

(1) A recovery room will be established during the last pass of the shearer.
(2) Adequate permanent roof support will then be installed along the face prior to shield removal. NOTE: The recovery room will provide sufficient area to turn the shields and move them along the face.
(3) During normal recovery operations, crib blocks are to be installed as each shield is progressively removed. Shields will be pulled by scoops and/or mule type shield movers.

Performance Coal Company - Upper Big Branch Mine-South
Federal I.D. 46-08436

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.

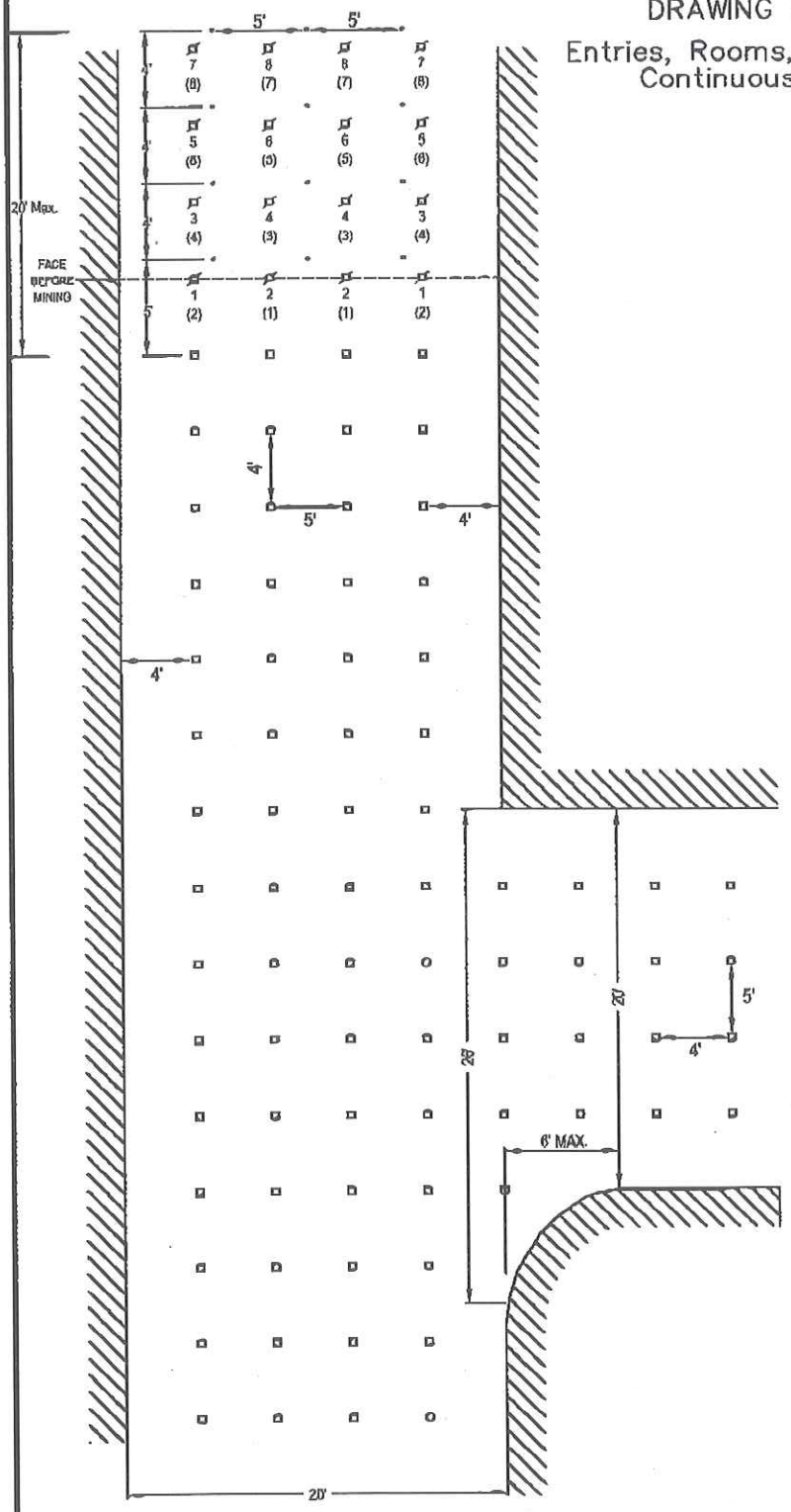
10. Test holes 1' longer than the bolts used shall be maintained in each intersection. Test holes may be drilled on advance or retreat. If test holes are drilled during advance mining, then during retreat mining the test holes will be checked with an appropriate device such as a metal tape measure to 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 **29.**

DRAWING NO. 1

Entries, Rooms, and Crosscuts
Continuous Mining



1. The depth of cut shall not exceed 20 feet.

2. Roof bolts shall be installed in the sequence shown and may be changed where conditions warrant. [see sequence in parenthesis ( ) when using machines with controls located on the inside of the boom.] However, where the distance from the end of the ATRS bar to the coal rib exceeds 6 feet, an additional temporary support (post or metal jack) shall be installed.

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 two corners may be rounded off in each intersection in one entry only.

4. No one is to go inby the second full row of roof bolts outby the face, except to install temporary or permanent roof supports.

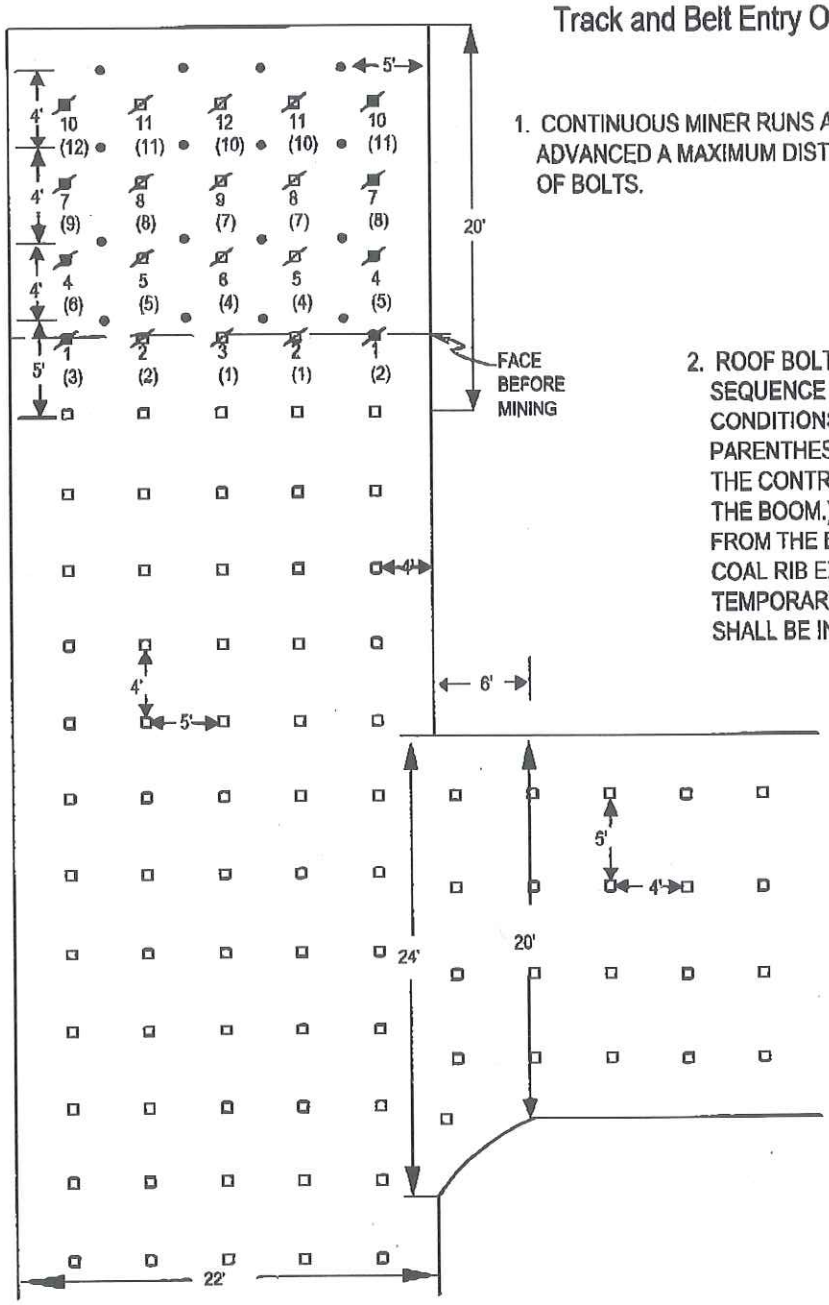
- Sequence of installation
- Roof bolt
- Temporary support

Bolt sequence in parenthesis applies to walk-through bolter.

Scale: 1" = 10'

DRAWING NO. 2

Track and Belt Entry Only



1. CONTINUOUS MINER RUNS ARE MADE UNTIL THE FACE HAS BEEN ADVANCED A MAXIMUM DISTANCE OF 20 FEET INBY THE LAST ROW OF BOLTS.

2. ROOF BOLTS ARE TO BE INSTALLED IN THE SEQUENCE SHOWN AND MAY BE CHANGED IF CONDITIONS WARRANT. (SEE SEQUENCE IN PARENTHESIS () WHEN USING MACHINES WITH THE CONTROLS LOCATED ON THE INSIDE OF THE BOOM.) HOWEVER, WHERE THE DISTANCE FROM THE END OF THE ATRS BAR TO THE COAL RIB EXCEEDS 5 FEET, AN ADDITIONAL TEMPORARY SUPPORT (POST OR METAL JACK) SHALL BE INSTALLED AFTER ATRS IS SET AGAINST ROOF.

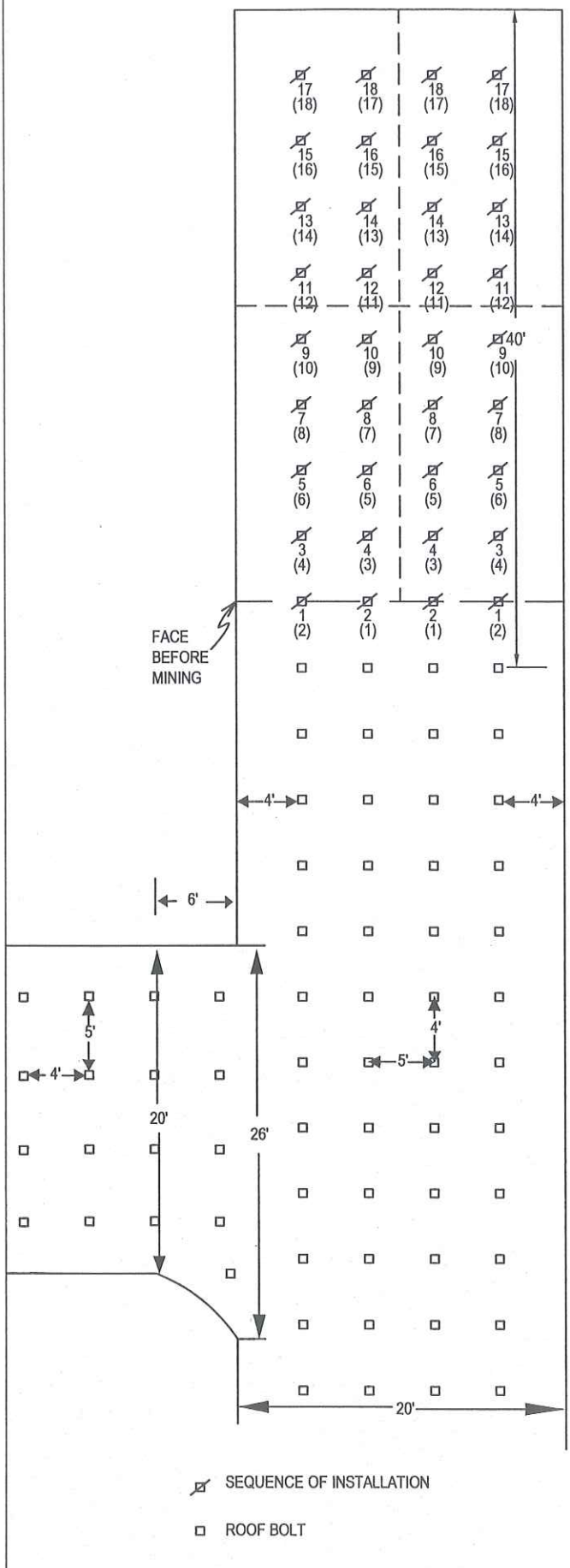
SCALE 1" = 10'

- SEQUENCE OF INSTALLATION
- ROOF BOLT (4' MIN.)
- ROOF BOLT (5' MIN.)
- TEMPORARY SUPPORT

3. FIVE BOLTS PER ROW SHALL BE INSTALLED WHERE ENTRY WIDTHS EXCEED 20 FEET. THREE OF THESE BOLTS SHALL BE A MINIMUM OF 4 FEET IN LENGTH AND THE OUTSIDE BOLTS WOULD BE A MINIMUM OF 1 FOOT LONGER THAN THE BOLT NORMALLY USED. ALL FIVE BOLTS MAY BE THE SAME LENGTH PROVIDED THEY ARE TORQUE/TENSION BOLTS OF A MINIMUM LENGTH OF 6 FEET.

4. CROSSCUTS NO LONGER USED FOR TRAVEL OR STORAGE SHALL BE SUPPORTED BY A ROW OF POST ON 5 FOOT SPACING.

5. NO ONE IS TO GO INBY THE SECOND FULL ROW OF ROOF BOLTS OUTBY THE FACE EXCEPT TO INSTALL TEMPORARY OR PERMANENT ROOF SUPPORTS.



DRAWING NO. 3

Entries, Rooms, and Crosscuts Continuous Miner

Safety Precautions for 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 feet inby the last full row of permanent roof supports. Should roof bolts be rendered ineffective, the depth of penetration will be measured from the last full row of undisturbed roof bolts. When mining crosscuts in places projected on 56 foot centers, the 40 foot distance may be exceeded; however, the inby edge of the canopy of the shuttle car shall not be advanced inby next to last row of roof bolts. 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, except to install temporary or permanent roof supports.

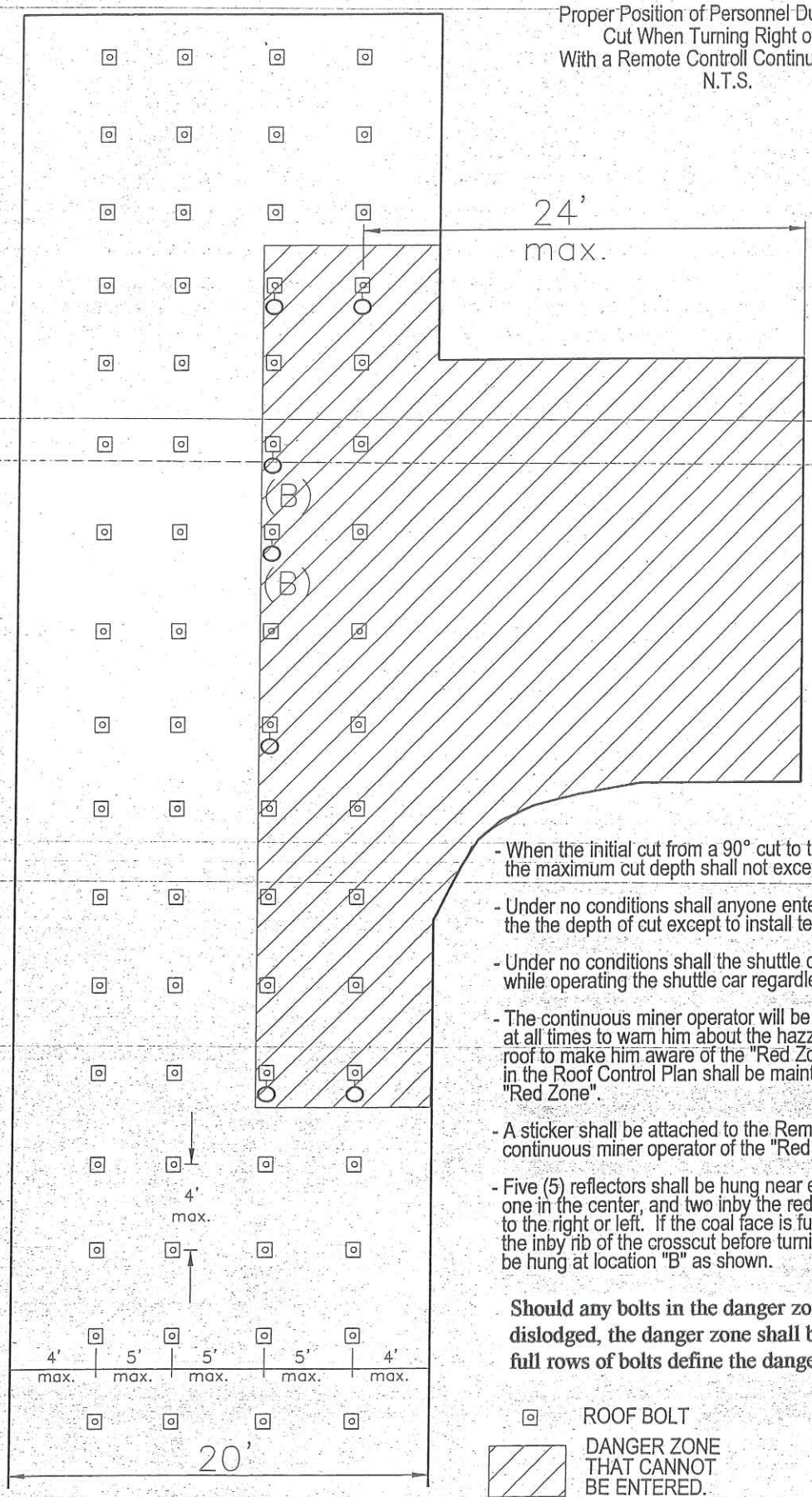
3. Roof bolts shall be installed in the sequence shown and may be changed where conditions warrant. [see sequence in parenthesis ( ) when using machines with controls located on the inside of the boom.]

4. Approved ATRS will be maintained during bolting operations for extended cuts.

SCALE 1" = 10'

Drawing #4

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



- 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 the depth of cut except to install temporay of permanent roof support.
- Under no conditions shall the shuttle car operator enter the shaded area while operating the shuttle car regardless of the depth of cut.
- The continuous miner operator will be provided a card of sticker to carry at all times to warn him about the hazzards of going inby unsupported roof to make him aware of the "Red Zone". Waring devices outlined in the Roof Control Plan shall be maintained to warn persons of the "Red Zone".
- A sticker shall be attached to the Remote Control Box to warn the continuous miner operator of the "Red Zone".
- Five (5) reflectors shall be hung near eye level as shown. Two outby, one in the center, and two inby the red zone when turning crosscuts 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.

Should any bolts in the danger zone be damaged or dislodged, the danger zone shall be moved to insure two full rows of bolts define the danger zone

ROOF BOLT

DANGER ZONE THAT CANNOT BE ENTERED.

REFLECTOR

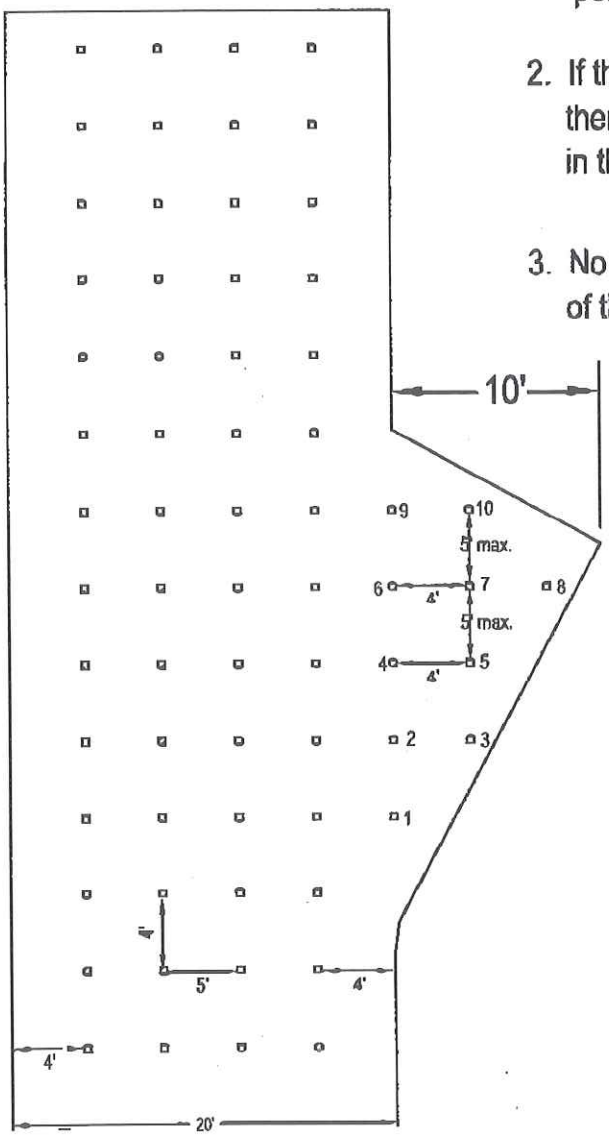
DRAWING NO. 4B

Niche Plan

1. No one is to go inby the second full row of roof bolts outby the face, except to install temporary or permanent roof supports.

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

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



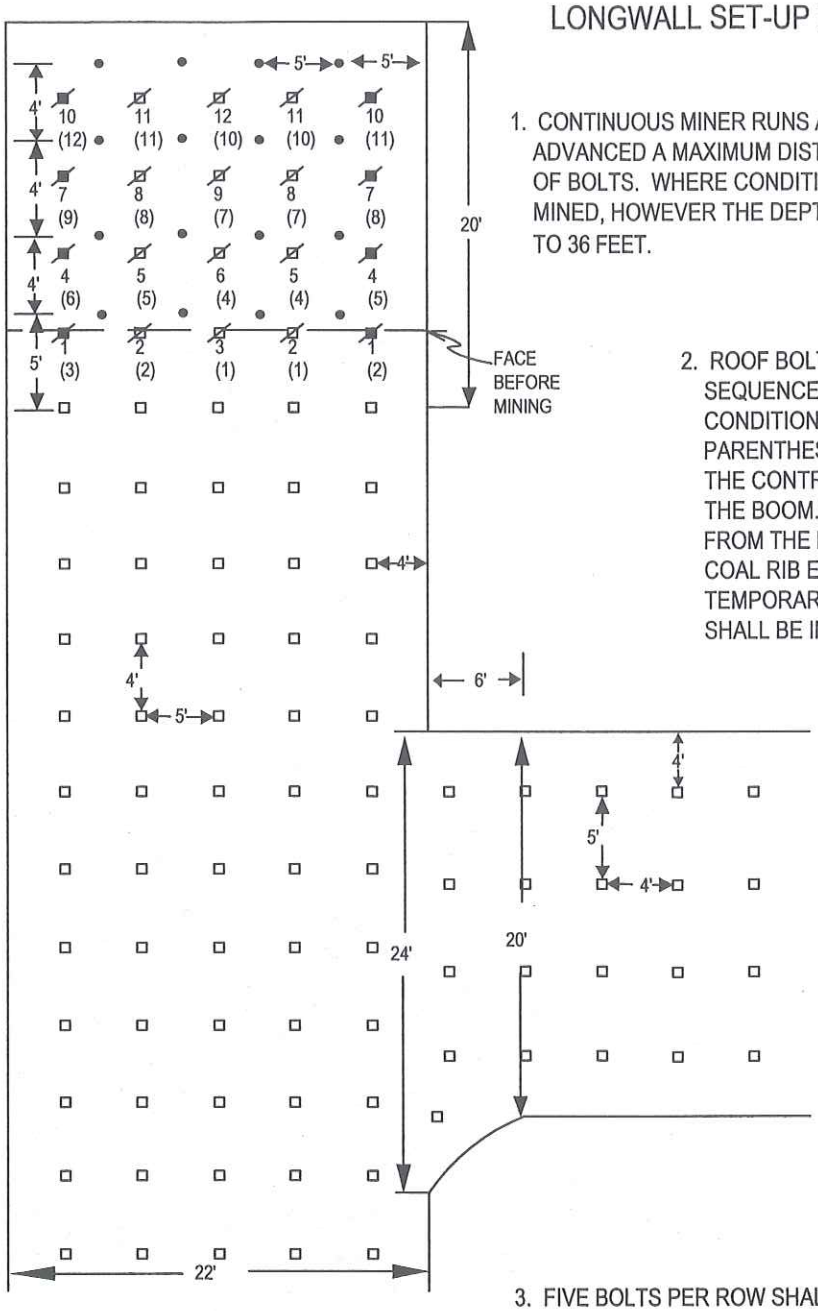
▫ Roof bolt

5 Sequence of installation

Scale: 1" = 10'

DRAWING NO. 5

LONGWALL SET-UP ENTRY ONLY



1. CONTINUOUS MINER RUNS ARE MADE UNTIL THE FACE HAS BEEN ADVANCED A MAXIMUM DISTANCE OF 20 FEET INBY THE LAST ROW OF BOLTS. WHERE CONDITIONS PERMIT, EXTENDED CUTS MAY BE MINED, HOWEVER THE DEPTH OF THE CUT SHALL BE LIMITED TO 36 FEET.

2. ROOF BOLTS ARE TO BE INSTALLED IN THE SEQUENCE SHOWN AND MAY BE CHANGED IF CONDITIONS WARRANT. (SEE SEQUENCE IN PARENTHESIS () WHEN USING MACHINES WITH THE CONTROLS LOCATED ON THE INSIDE OF THE BOOM.) HOWEVER, WHERE THE DISTANCE FROM THE END OF THE ATRS BAR TO THE COAL RIB EXCEEDS 5 FEET, AN ADDITIONAL TEMPORARY SUPPORT (POST OR METAL JACK) SHALL BE INSTALLED AFTER ATRS IS SET AGAINST ROOF.

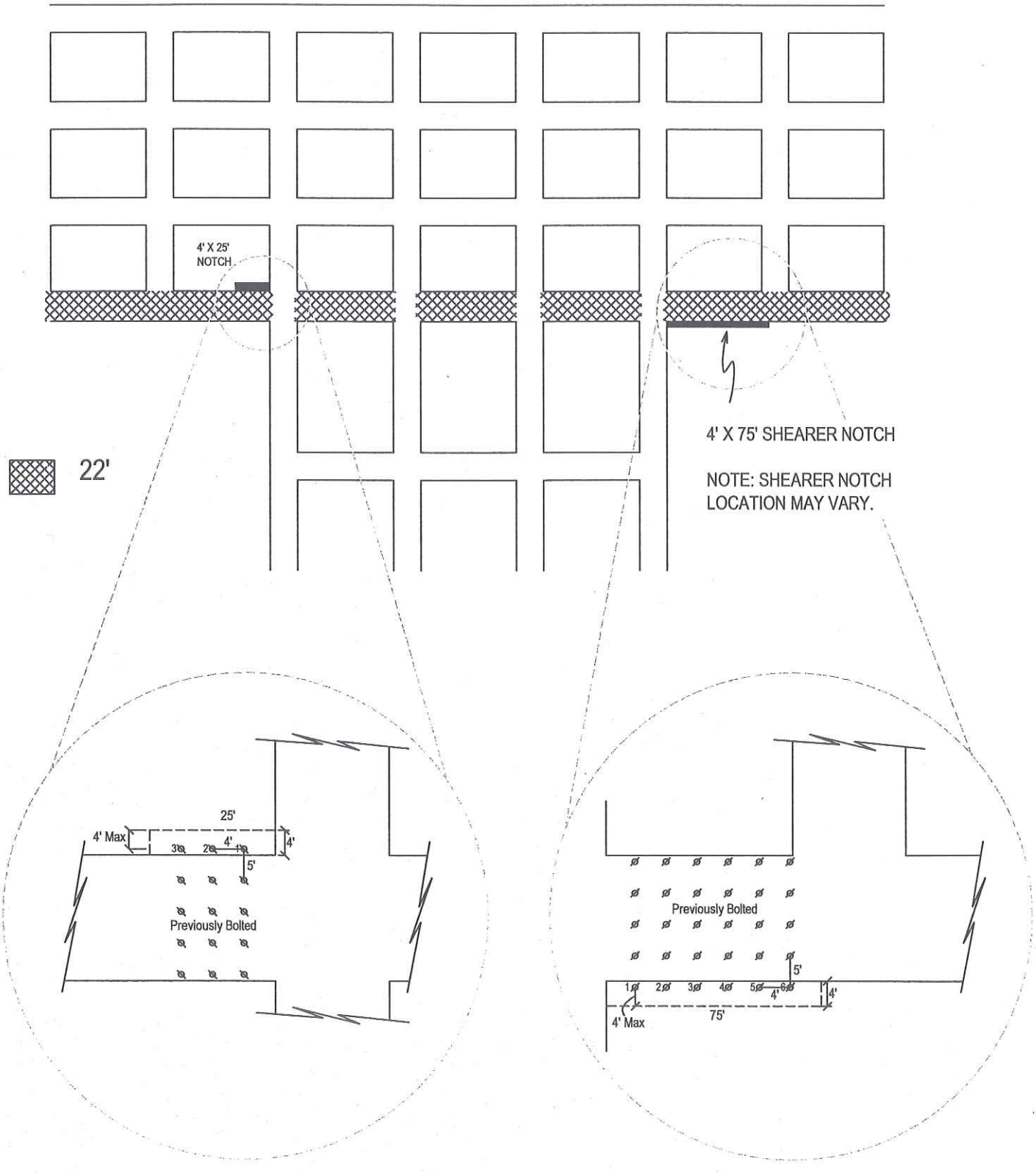
3. FIVE BOLTS PER ROW SHALL BE INSTALLED WHERE ENTRY WIDTHS EXCEED 20 FEET. THREE OF THESE BOLTS SHALL BE A MINIMUM OF 4 FEET IN LENGTH AND THE OUTSIDE BOLTS WOULD BE A MINIMUM OF 12" LONGER THAN THE CENTER BOLTS.
ALL BOLTS MAY BE THE SAME LENGTH IF THEY ARE A MINIMUM OF 6 FEET IN LENGTH AND ARE TORQUE/TENSION BOLTS.

SCALE 1" = 10'

- SEQUENCE OF INSTALLATION
- ROOF BOLT (4' MIN.)
- ROOF BOLT (5' MIN.)
- TEMPORARY SUPPORT

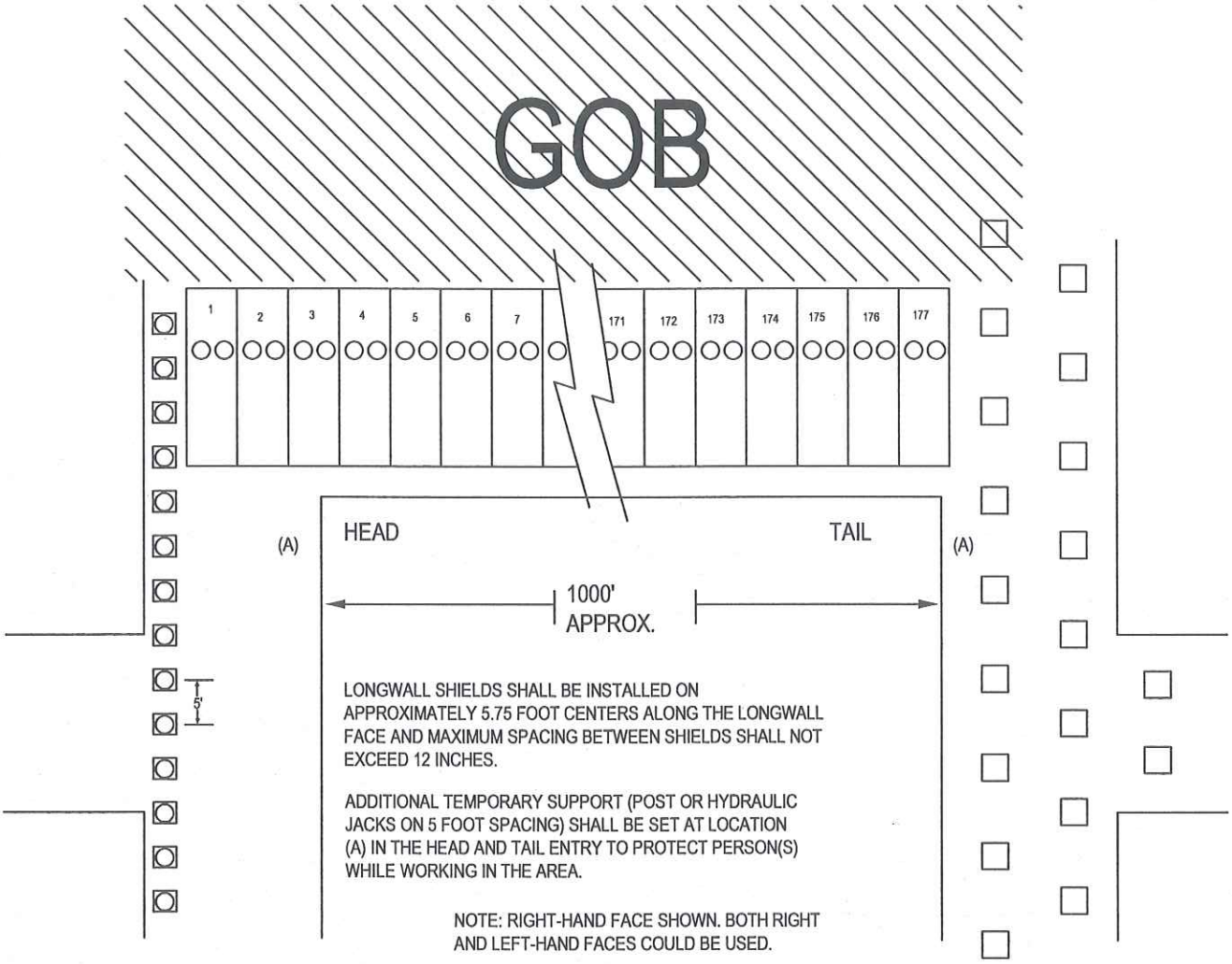
4. CROSSCUTS NO LONGER USED FOR TRAVEL OR STORAGE SHALL BE SUPPORTED BY A ROW OF POST ON 5 FOOT SPACING.

DRAWING 6
LONGWALL SET-UP
ENTRY WIDTHS



DRAWING NO. 7

LONGWALL FACE,HEAD, AND TAIL ENTRY SUPPORT



LONGWALL SHIELDS SHALL BE INSTALLED ON APPROXIMATELY 5.75 FOOT CENTERS ALONG THE LONGWALL FACE AND MAXIMUM SPACING BETWEEN SHIELDS SHALL NOT EXCEED 12 INCHES.

ADDITIONAL TEMPORARY SUPPORT (POST OR HYDRAULIC JACKS ON 5 FOOT SPACING) SHALL BE SET AT LOCATION (A) IN THE HEAD AND TAIL ENTRY TO PROTECT PERSON(S) WHILE WORKING IN THE AREA.

NOTE: RIGHT-HAND FACE SHOWN. BOTH RIGHT AND LEFT-HAND FACES COULD BE USED.

FACE WIDTH MAY VARY.

NOT DRAWN TO SCALE

CRIB OR EQUIVALENT *

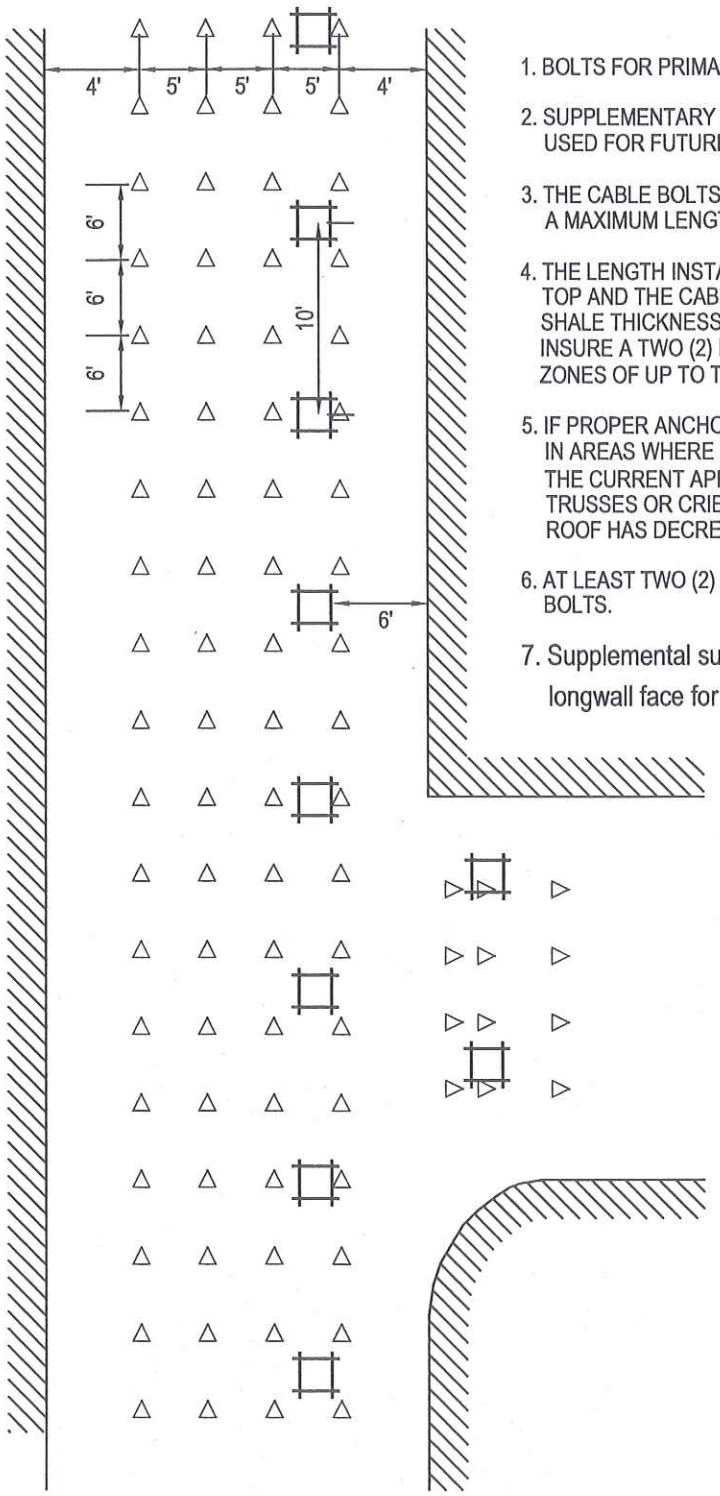
POST WITH CAP BLOCK

* 10" PROPSETTERS WITH HEADBOARDS AND FOOTBOARDS MAY BE USED IN LIEU OF WOOD CRIBS

DRAWING NO. 8

TYPICAL PLAN
SUPPLEMENTAL SUPPORT IN TAILGATE ENTRY

ONE ROW OF CRIBS @ 10' SPACING



1. BOLTS FOR PRIMARY SUPPORT NOT SHOWN.
2. SUPPLEMENTARY SUPPORT OF FOUR (4) CABLE BOLTS PER ROW MAY BE USED FOR FUTURE TAILGATES.
3. THE CABLE BOLTS WILL BE OF A MINIMUM LENGTH OF SIX (6) FEET AND A MAXIMUM LENGTH OF 12 FEET.
4. THE LENGTH INSTALLED WILL DEPEND ON THE THICKNESS OF THE SHALE TOP AND THE CABLE BOLT LENGTH WILL BE TWO (2) FEET LONGER THAN SHALE THICKNESS, UP TO THE MAXIMUM LENGTH OF 12 FEET, WHICH WILL INSURE A TWO (2) FEET ANCHORAGE INTO SANDSTONE ROOF ABOVE SHALE ZONES OF UP TO TEN (10) FEET THICK.
5. IF PROPER ANCHORAGE INTO SANDSTONE ROOF CANNOT BE ACCOMPLISHED IN AREAS WHERE SHALE THICKNESS IN THE ROOF IS GREATER THAN 10 FEET, THE CURRENT APPROVED METHODS OF SUPPORT OF USING EITHER CABLE TRUSSES OR CRIBS WILL BE IMPLEMENTED UNTIL SHALE THICKNESS IN THE ROOF HAS DECREASED TO 10 FEET.
6. AT LEAST TWO (2) FEET OF RESIN SHALL BE USED WHEN INSTALLING CABLE BOLTS.
7. Supplemental supports will be maintained 50 feet outby the retreating longwall face for the future adjacent tailgate entry.

LEGEND

△ CABLE BOLT 6' MIN.

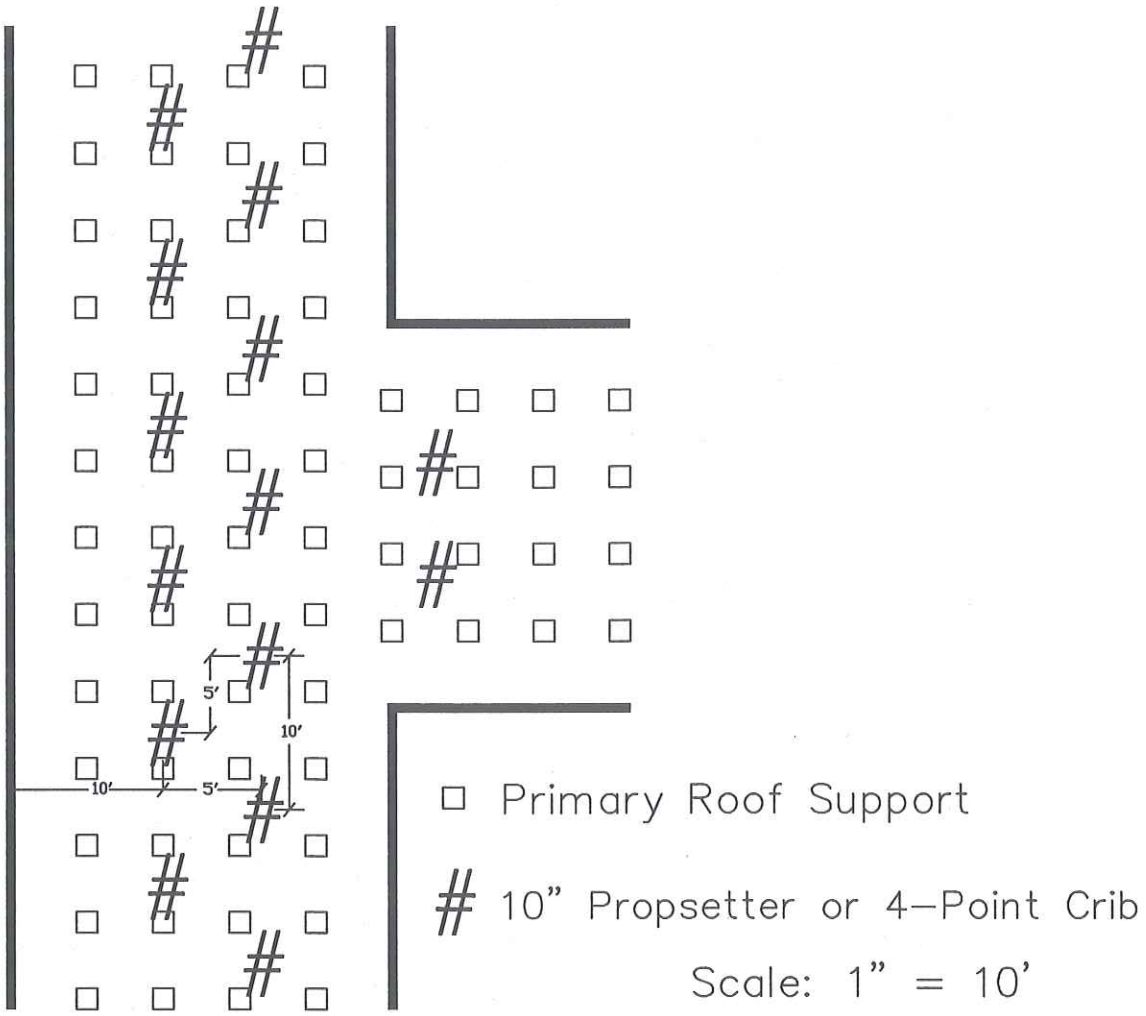
⌗ CRIB

MIRROR IMAGE APPL.

Scale: 1" = 10'

DRAWING No. 8B

SUPPLEMENTAL SUPPORT IN ADJACENT TAILGATE ENTRIES (IN AREAS LESS THAN 1000' COVER)



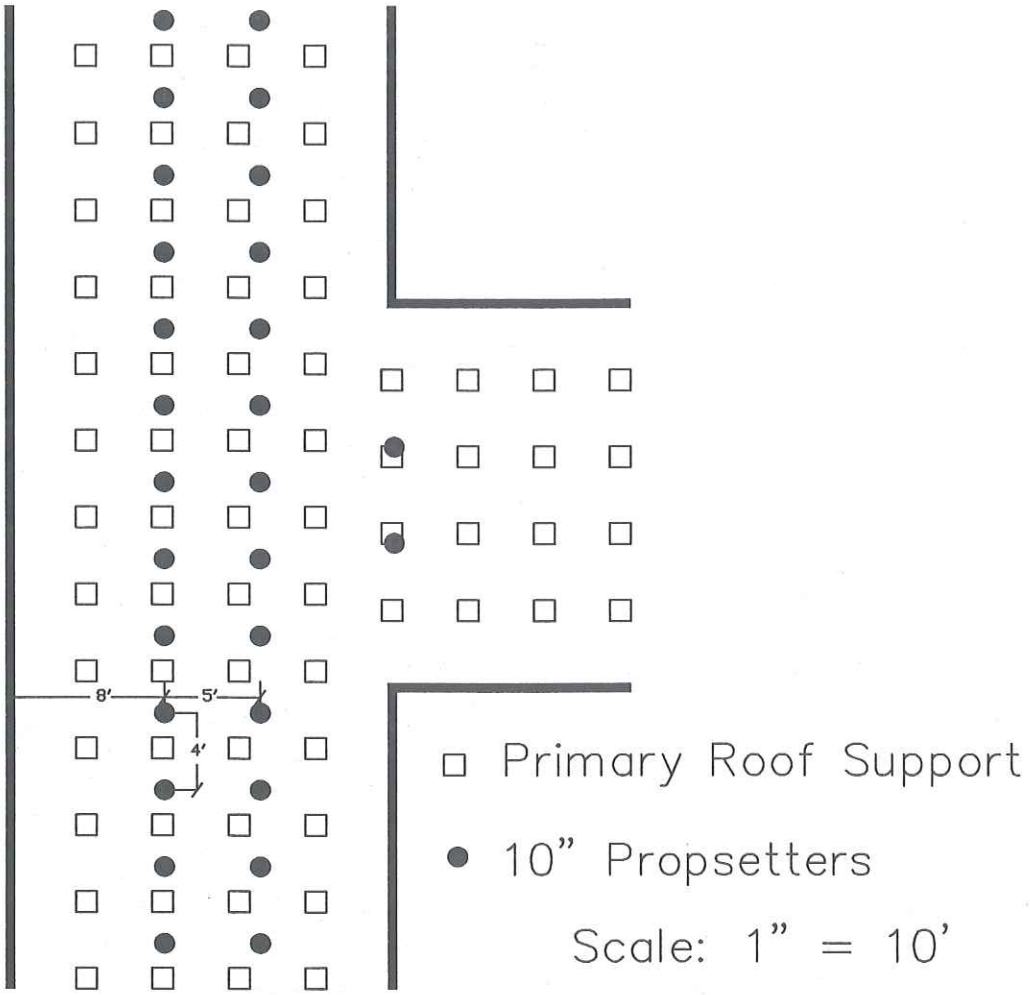
In Longwall development entries with longwall gob on one side and less than 1000 feet of cover, the tailgate entry shall be supported as follows:

a) Adjacent tailgate entry shall be supported with either two rows of 10" Propsetters (with headboards and footboards) or two rows of 4 point cribs The two rows of 10" Propsetters or the two rows of 4 point cribs shall be set on ten foot lengthwise centers and five foot crosswise centers with a five foot lengthwise stagger between rows. Also, two 10" Propsetters or two cribs shall be set in the intersection.

b) Supports will be maintained 50 feet outby the retreating longwall face for the future adjacent tailgate entry.

DRAWING No. 8C

SUPPLEMENTAL SUPPORT IN ADJACENT TAILGATE ENTRIES (IN AREAS HAVING 1000' COVER OR GREATER)



In Longwall development entries with longwall gob on one side and greater than 1000 feet of cover, the tailgate entry shall be supported as follows:

a) Adjacent tailgate entry shall be supported with either two rows of 4 point cribs on ten foot centers and five foot crosswise centers with a five foot lengthwise stagger between rows OR two rows of 10" Propsetters.

The 10" Propsetters (with headboards and footboards) shall be installed on four-foot lengthwise centers (no stagger) and five-foot crosswise centers. Also, two 10" Propsetters shall be set in each intersection. Supports of this capacity shall be installed one break inby and outby of the 1000 feet cover areas.

b) Supports will be maintained 50 feet outby the retreating longwall face for the future adjacent tailgate entry.

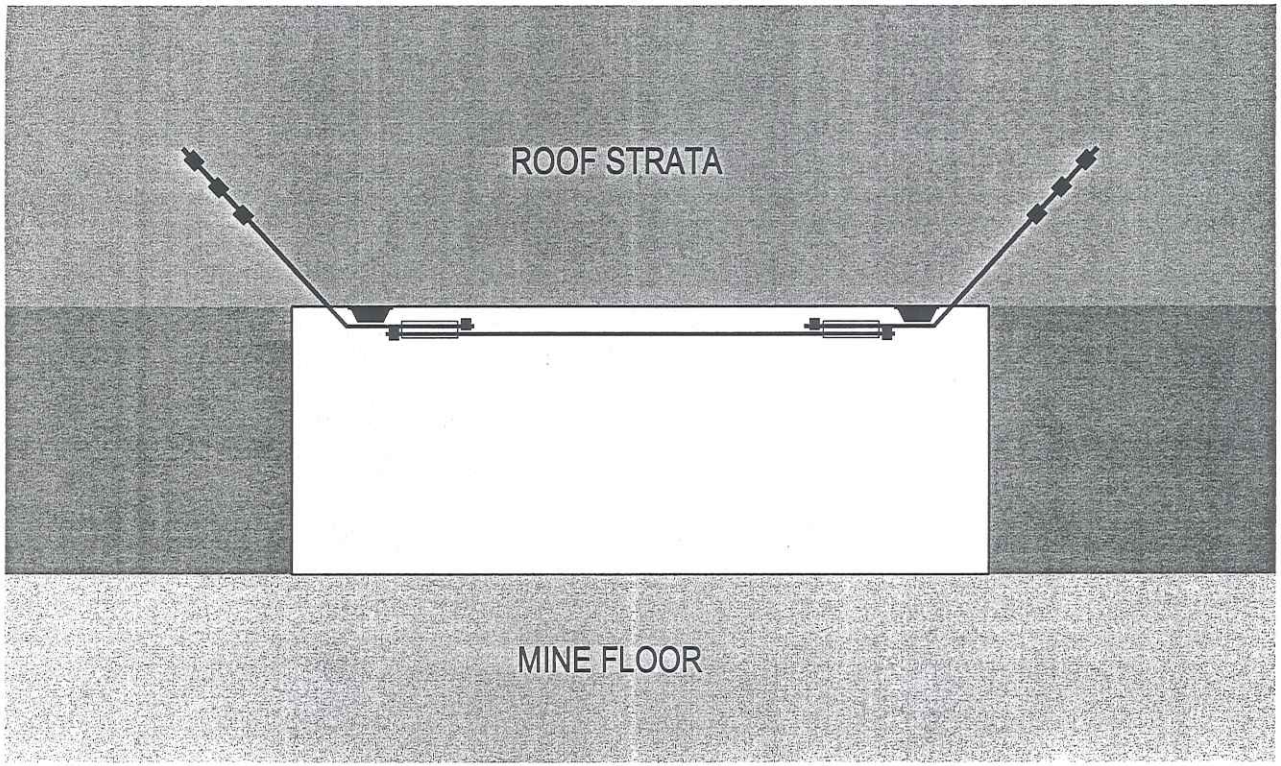
DRAWING NO. 9
CABLE TRUSS

0.6" CABLE

TRUSS PLATE
(INSTALLATION OPTIONAL)

SPLICE TUBE

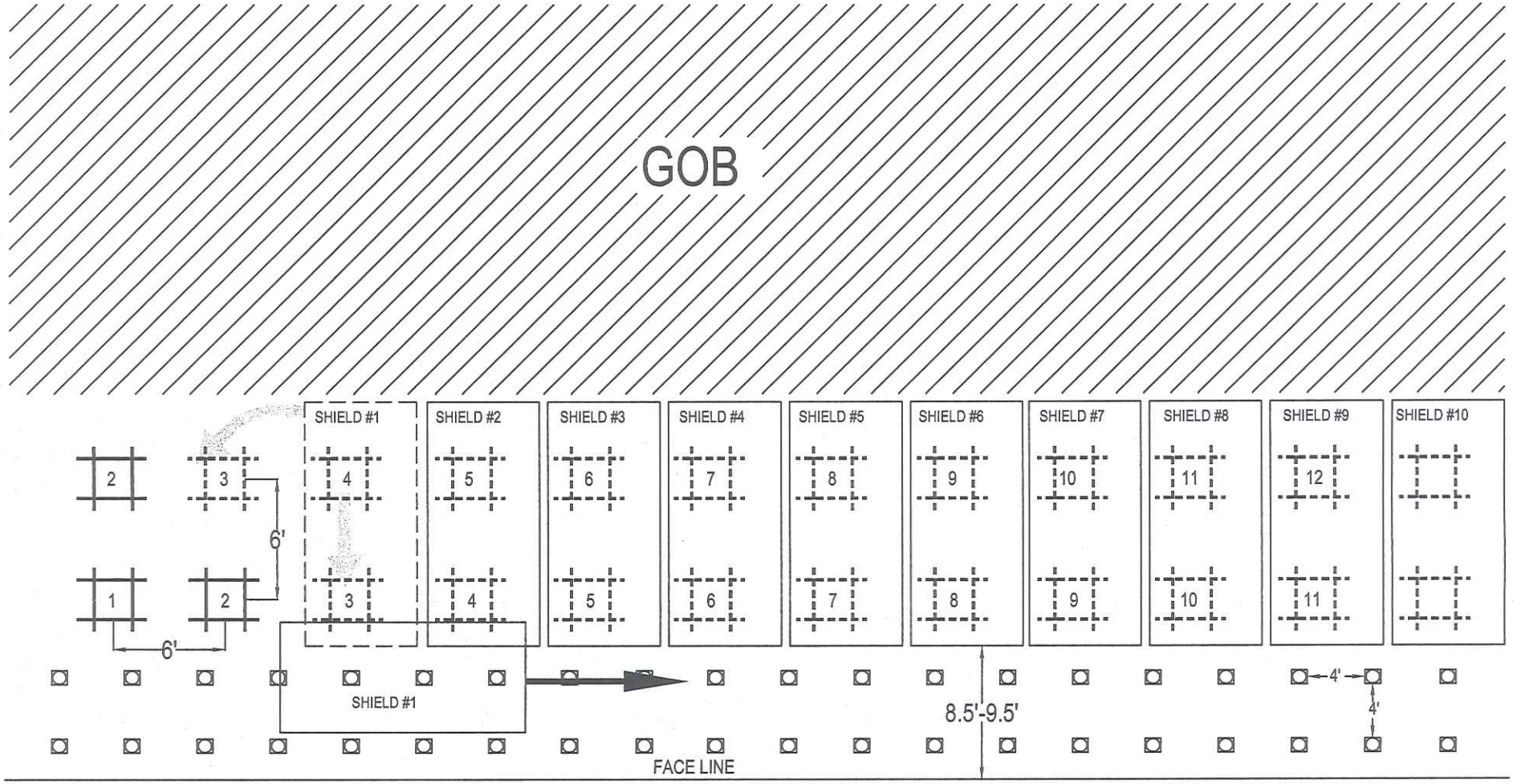
HOUSING WITH WEDGE



ROOF BOLTS INSTALLED AS PRIMARY SUPPORT NOT SHOWN.
CABLE TRUSS TO BE INSTALLED BETWEEN EACH ROW OF PRIMARY SUPPORT

Drawing No. 10

LONGWALL SHIELD RECOVERY
PLAN NO. 1



1. SHIELD NO. 1 IS LOWERED, MOVED FORWARD, TURNED, AND MOVED ALONG FACE IN THE DIRECTION INDICATED. WORKERS SHALL REMAIN UNDER SUPPORTED ROOF AT ALL TIMES.

2. DURING THE MOVING CYCLE TEMPORARY SUPPORTS SHALL BE INSTALLED FOR PROTECTION WHILE THE CRIBS ARE BEING CONSTRUCTED OR PERMANENT SUPPORTS WILL BE INSTALLED.

3. TWO (2) CRIBS, OR EQUIVALENT SUPPORT, SHALL BE INSTALLED, PROGRESSIVELY, AS EACH SHIELD IS REMOVED. CRIBS ARE TO BE INSTALLED IN THE SEQUENCE SHOWN DURING NORMAL SHIELD REMOVAL OPERATIONS AND MAY BE CHANGED IF CONDITIONS WARRANT.

4. PLAN INDICATES THE MINIMUM SUPPORT. ADDITIONAL SUPPORT WILL BE INSTALLED IF NECESSARY.

LEGEND

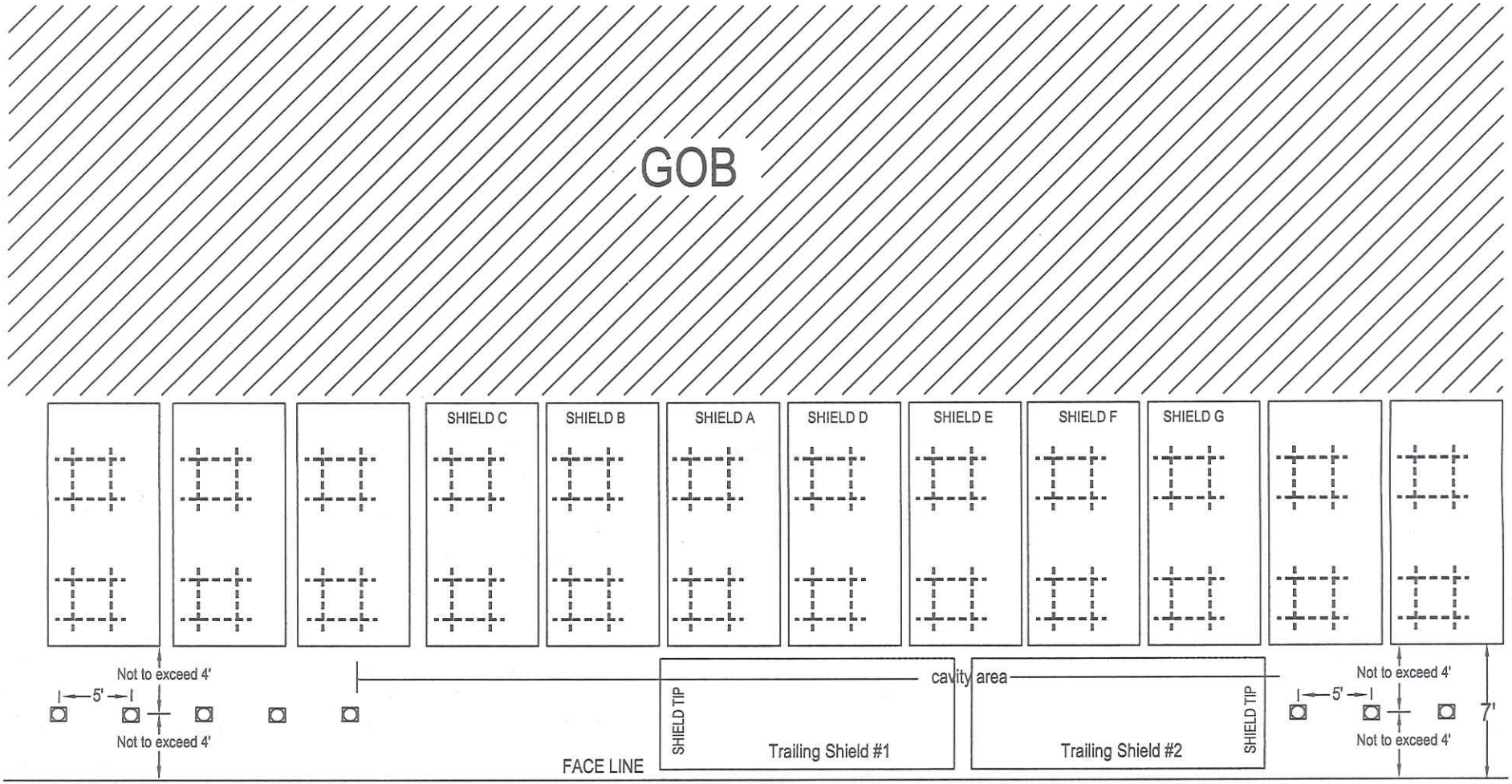
INSTALLED CRIB

PROPOSED CRIB

RESIN ROOF BOLTS

Drawing No. 10A

LONGWALL SHIELD RECOVERY IN ROOF CAVITY AREA



1. TRAILING SHIELDS WILL BE SET BACK TO BACK AS SHOWN.
2. SHIELD A WILL BE REMOVED WITH AN OFF-STANDARD MULE WITH THE OPERATOR'S DECK UNDER THE SHIELD TIPS.
3. TRAILING SHIELD #1 WILL BE ADVANCED TO SHILED B. SHIELD B WILL BE PULLED.
4. TRAILING SHIELD #1 WILL BE ADVANCED TO SHIELD C. SHIELD c WILL BE PULLED.
5. TRAILING SHIELD #2 WILL BE MOVED TO THE LEFT TO TRAILING SHIELD #1 IF ROOF CONDITIONS WARRANT.
6. SHIELD D WILL BE PULLED USING A MULE WITH A STANDARD OPERATOR'S DECK WITH THE DECK REMAINING UNDER THE SHIELD TIPS.
7. TRAILING SHIELD #2 WILL BE MOVED UP TO SHIELD E. SHIELD E WILL PULLED.
8. IF ROOF CONDITIONS DO NOT ALLOW TRAILING SHILED #2 TO BE ADVANCED TO TRAILING SHIELD #1 AS STATED IN #5 ABOVE, SHIELDS D AND E WILL NOT BE PULLED AND SHIELD REMOVAL WILL CONTINUE WITH SHIELD F.
9. DURING REMOVAL OF THE SHIELDS IN THE CAVITY AREA, A PERSON WILL BE DESIGNATED TO MONITOR ROOF CONDITIONS.

LEGEND

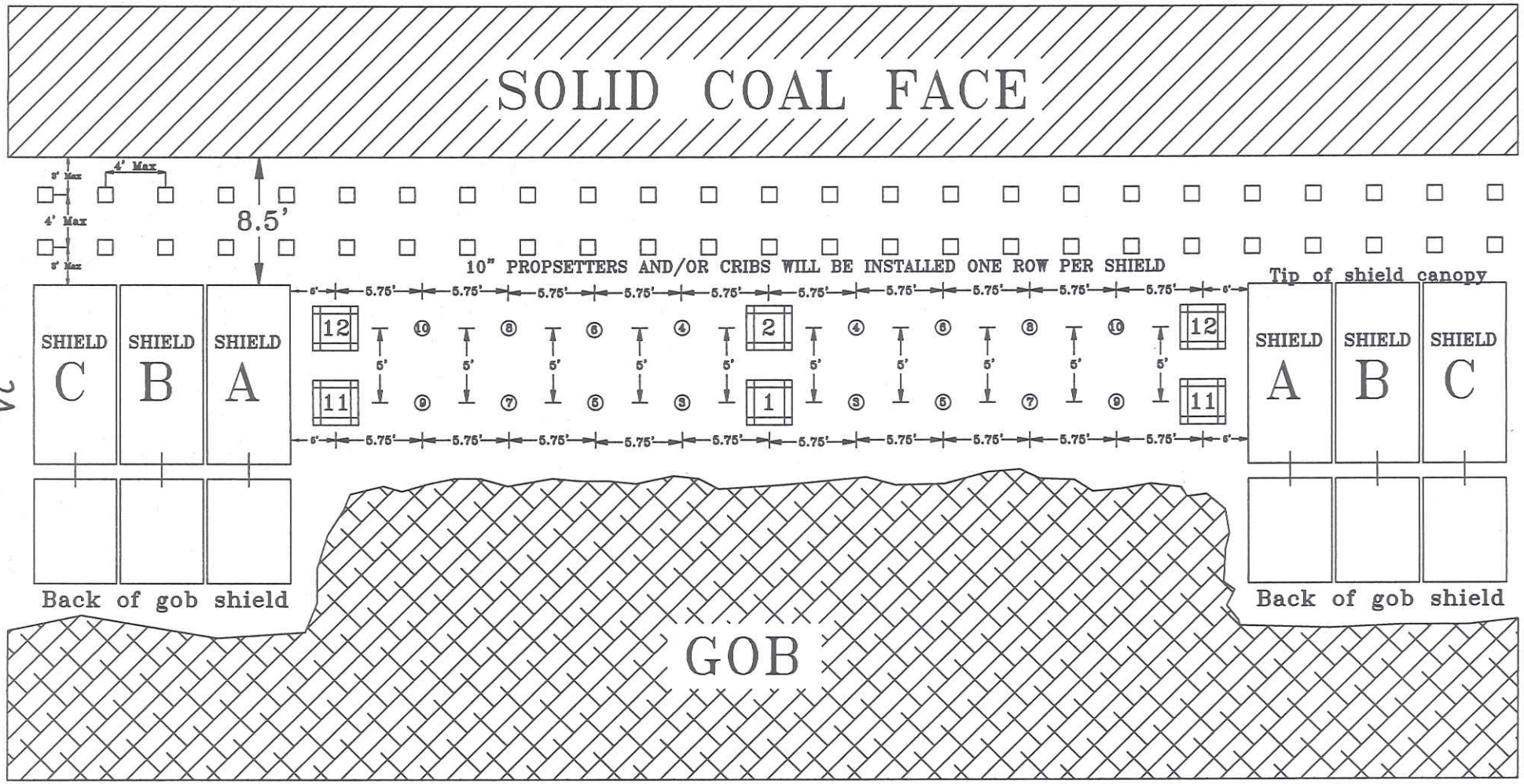
INSTALLED CRIB

PROPOSED CRIB

ROOF BOLTS

SHIELD RECOVERY SKETCH 10B

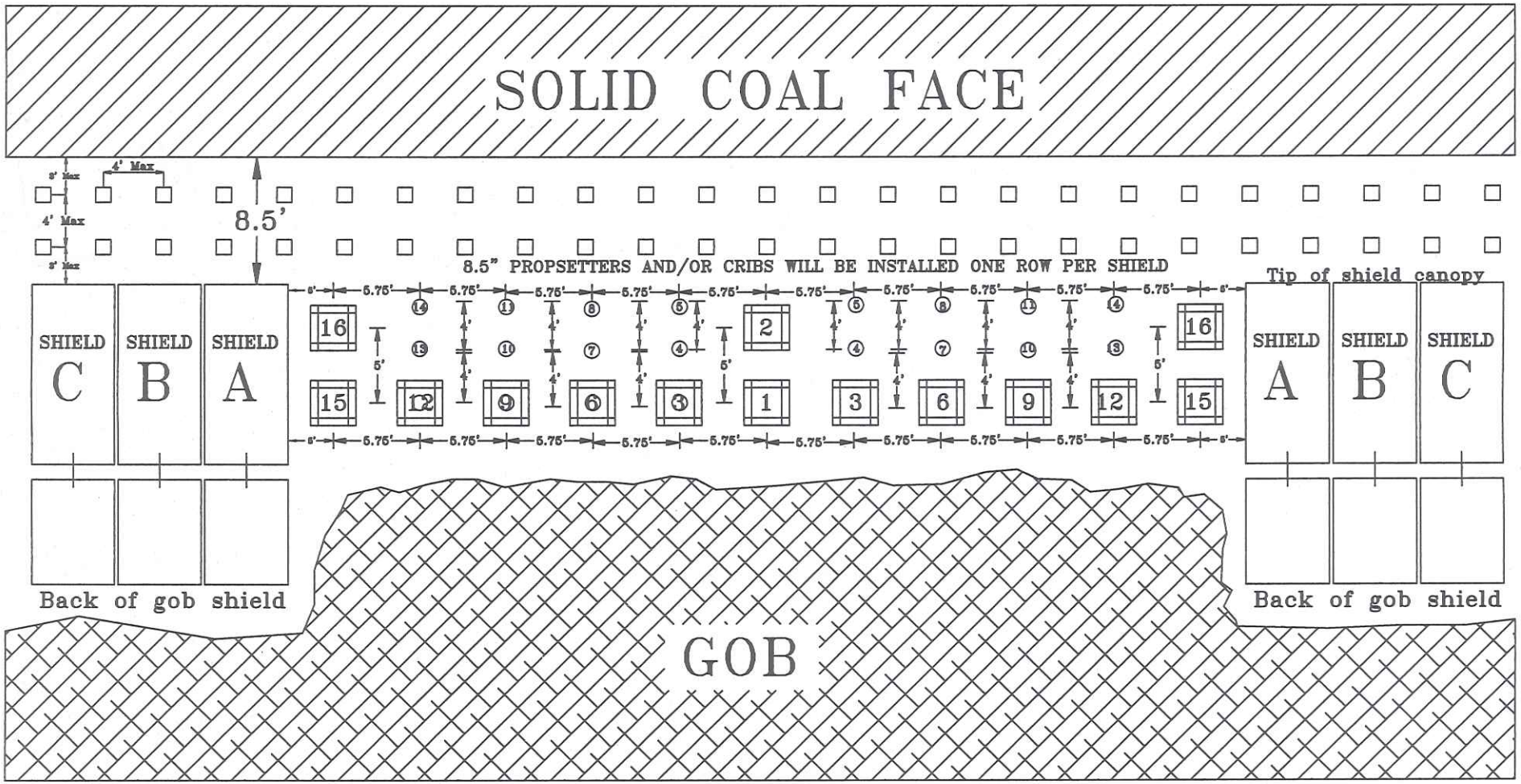
PLAN USING 10" PROPSETTERS (Double Row of Bolts)



This plan may be used for pulling shields from head-to-tail, tail-to-head, or both. The typical sequence of shield removal will start from the approximate midpoint area, advancing both directions. A minimum of two wedged 10" Propsetters with headboards and footboards shall be installed as each shield is removed. A third 10" Propsetter will be installed as conditions dictate. Every fifth shield, cribs will be installed in place of Propsetters. Shield recovery will be A, B, C, ... If adverse conditions are encountered, crib spacing shall be reduced allowing crib installation to proceed with personnel under the shield canopy at all times.

SHIELD RECOVERY SKETCH 10C

PLAN USING 8.5" PROPSETTERS (Double Row of Bolts)



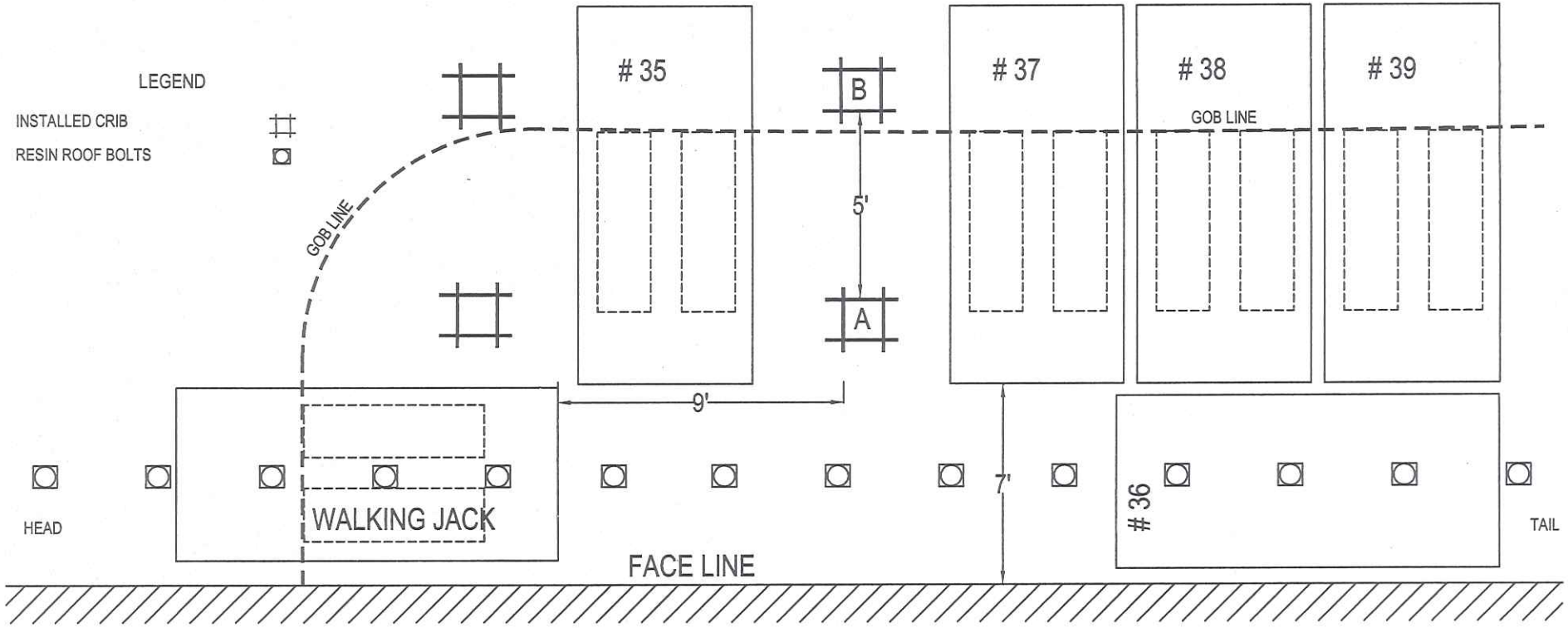
This plan may be used for pulling shields from head-to-tail, tail-to-head, or both. The typical sequence of shield removal will start from the approximate midpoint area, advancing both directions. A minimum of two wedged 8.5" Propsetters without headboards and footboards shall be installed along with one crib as each shield is removed. A third 8.5" Propsetter will be installed as conditions dictate. Every fifth shield, cribs will be installed in place of Propsetters. Shield recovery will be A, B, C, ... If adverse conditions are encountered, crib spacing shall be reduced allowing crib installation to proceed with personnel under the shield canopy at all times.
If soft floor conditons are encountered, a footboard will be used with the Propsetter installation.

Drawing No. 11

LONGWALL SHIELD RECOVERY

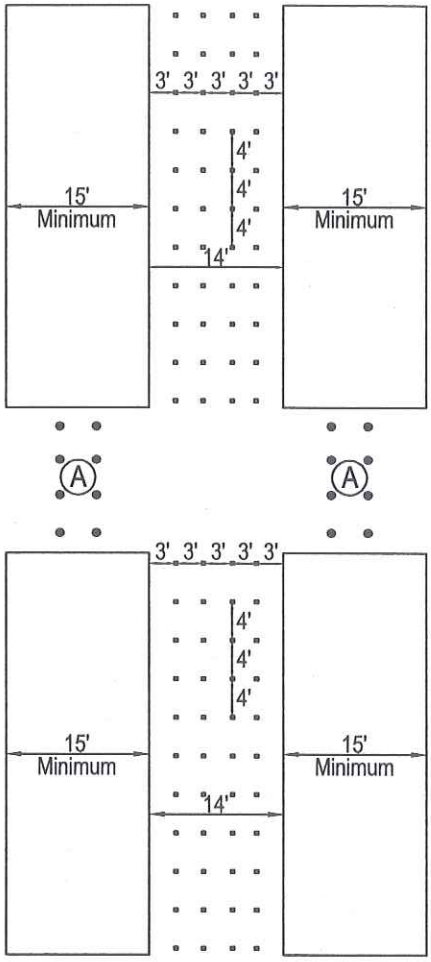
OPTION B LONGWALL ROOF SUPPORT WITHDRAWAL

1. DISTANCE FROM THE CANOPY TIPS TO THE COAL FACE ARE NOT TO EXCEED 7 FEET UNLESS SUPPORTED BY ANOTHER ROW OF BOLTS..
2. SHIELDS TO BE PULLED TOWARD THE FACE, TURNED, AND PULLED OFF THE FACE.
3. EXPOSED ROOF IS TO BE TEMPORARILY SUPPORTED WITH CRIBS AND /OR A WALKING SHIELD FOR A MAXIMUM DISTANCE OF 9 FEET FROM THE SHIELD TIP TO A CRIB.
4. THE PROCEDURE MAY BE RIGHT TO LEFT, LEFT TO RIGHT, OR BOTH.
5. A MINIMUM OF ONE ROW OF BOLTS ON 5 FOOT CENTERS TO BE PLACED BETWEEN THE CANOPY TIPS AND THE FACE.
6. THE REMOVAL OF ROOF SUPPORT UNITS TO BE DONE UNDER THE SUPERVISION OF A CERTIFIED AND QUALIFIED PERSON.
7. THIS PROCEDURE TO BE USED ONLY WHEN ALLOWED BY ROOF CONDITIONS.



DRAWING NO. 12

TO BE USED WHEN ESTABLISHING ROADWAYS THRU PREVIOUSLY DEVELOPED BLOCKS



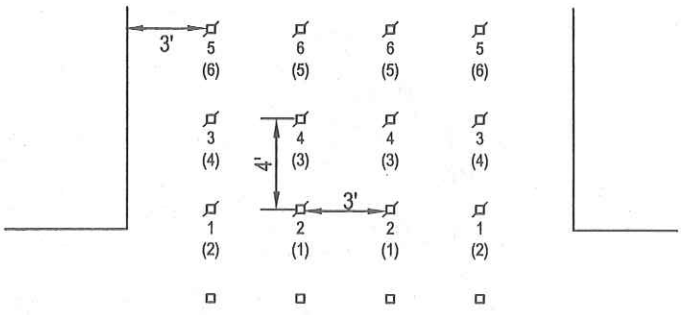
LEGEND

□ Roof bolt

• Timbers or Cribs

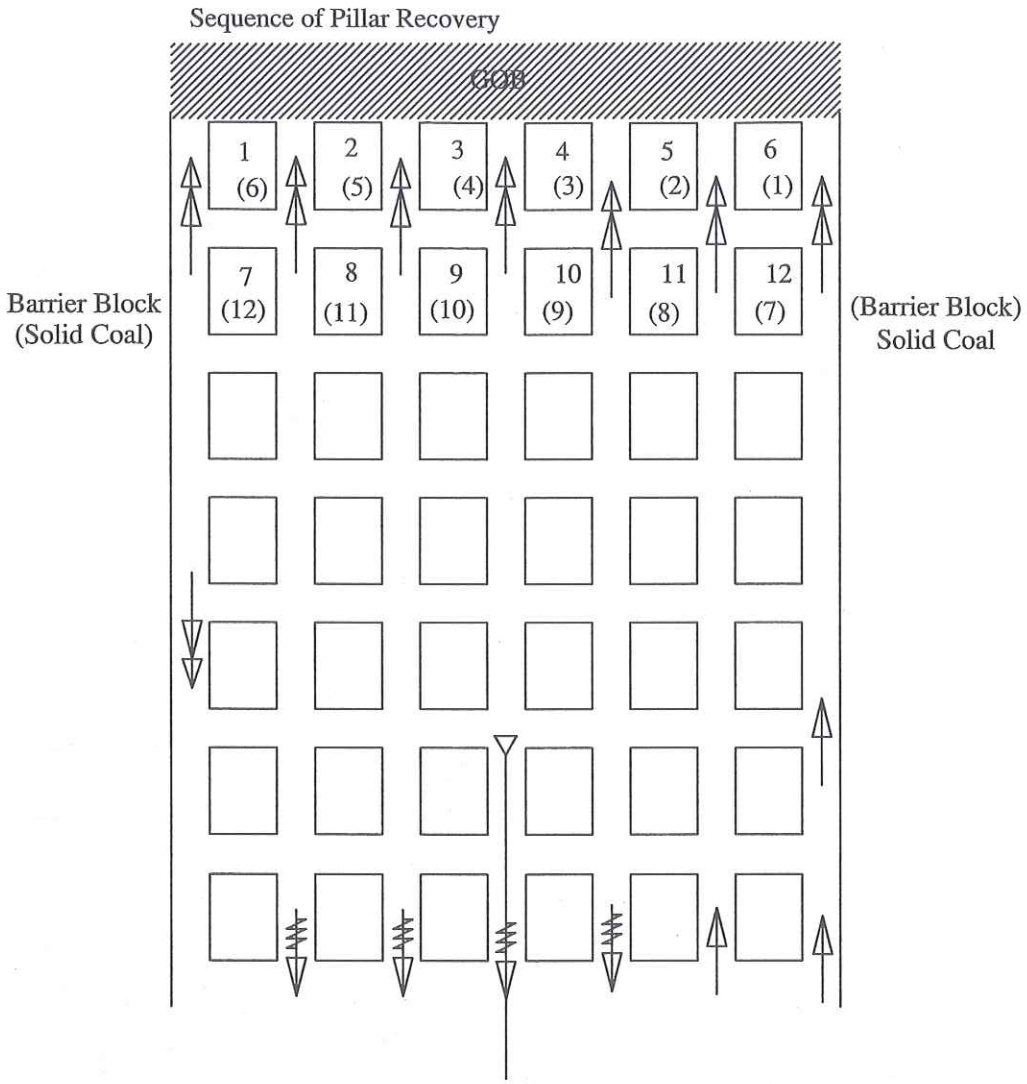
1. This plan is to be used only when it is necessary to develop roadways through previously developed blocks. (Belt entry only.)
2. The split shall be supported as shown in blow up. (bottom page)
3. When active works cross or intersect with previously developed entries, the area shall be bolted as outlined in the drawing and eight posts or two cribs shall be installed in location (A).
4. Wings shall not be less than 15 feet wide or have an area less than 600 square feet. Blocks may be split diagonally provided 600 square feet of supporting pillar is maintained in each wing. When a minimum 15 foot and 600 square foot pillar cannot be maintained because of necessary belt centers, the wing/supporting pillar shall be supplemented with cribs on 5 foot maximum spacing along the entire outer perimeter of the affected pillar that is less than 600 square feet.
5. In reference to where belt and tracks are installed in the same entry pillars may be sheared or split to provide a 20 foot wide roadway. Where a pillar is sheared, cribs on 4 foot by 4 foot centers shall be installed in the wide side of the projected 20 foot roadway prior to mining or as space permits. Where a pillar is split 20 foot wide wings a minimum of 600 square feet shall be left and a row of cribs on 4 foot centers shall be installed along the outer perimeter of the wings. If the minimum size wing cannot be left, a double row of cribs on 4 foot centers shall be installed along the outer permeter of the wings.

BLOW–UP OF PILLAR SPLIT



Scale: 1" = 20'

Sequence of Pillar Recovery



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.

During development, a minimum 50' barrier will be left between panels.

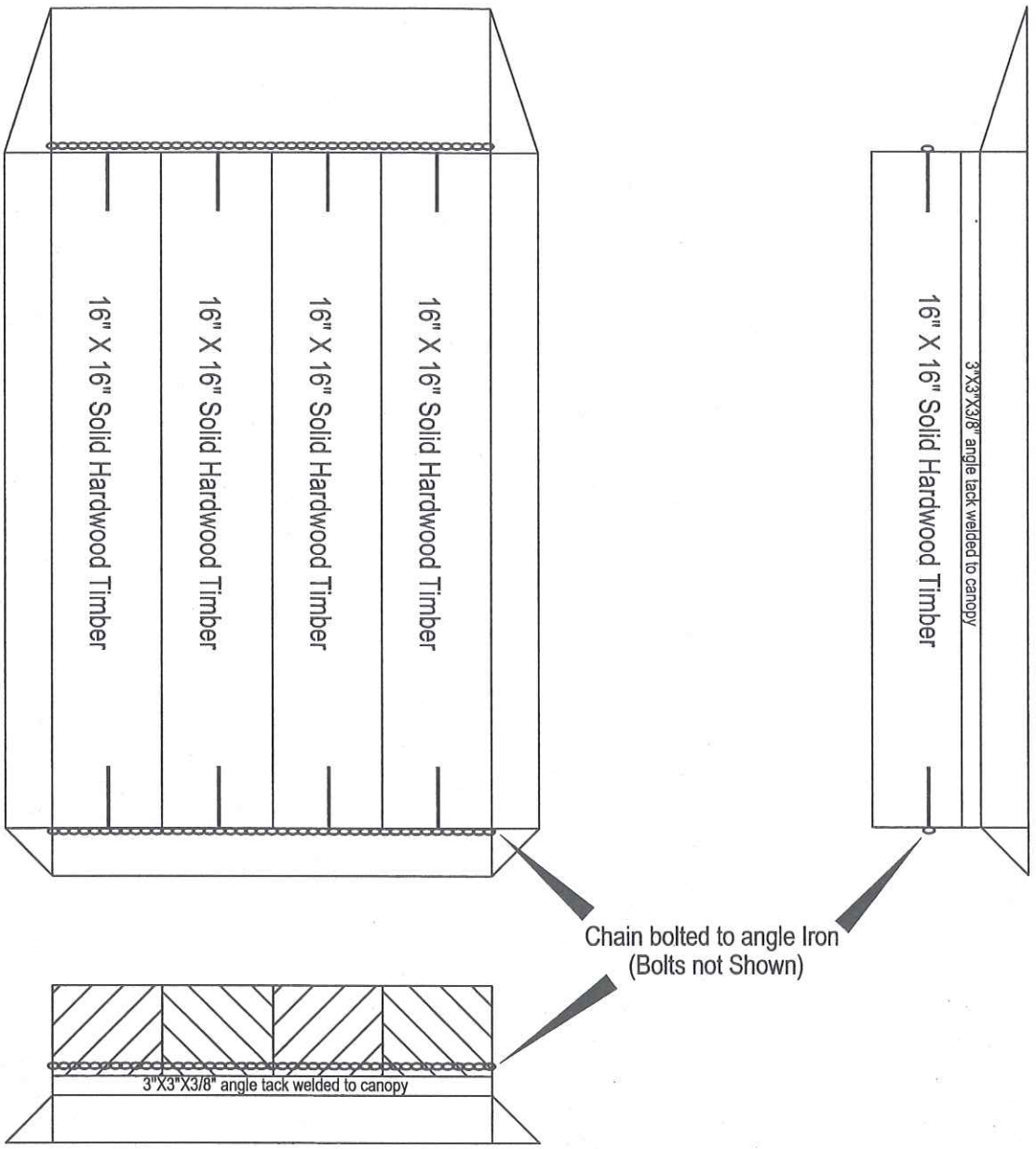
During retreat mining, a minimum 25' barrier will be left between panels, excluding the two entries that will tie in across the back end of the panel for bleeder purposes.

Intake Air
Return Air
Secondary Intake Air
Check Curtain
Permanent Stopping
Belt Tailpiece
Regulator

Sequence of Pillar Recovery

M.S.H.A. ID No. 46-08436 SCALE: 1" = 20'

Drawing No. 13



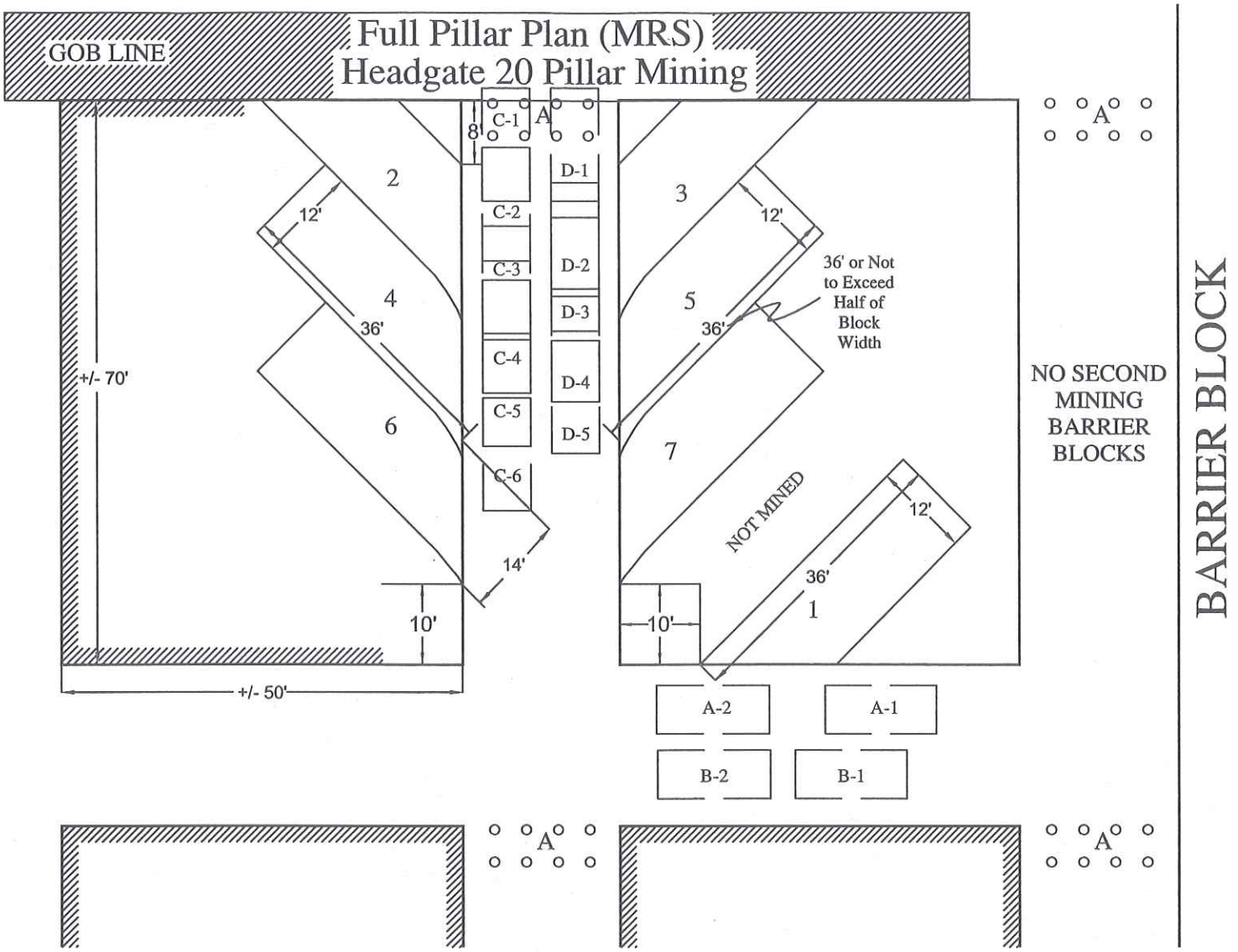
NOTE: Angle iron tack welded to sides and back of canopy only.
Chain fastened to wooden members and bolted to angle iron.

TYPICAL PLAN
MRS CANOPY EXTENSION
USING M.R.S. SYSTEM

M.S.H.A. ID No. 46-08436

NO SCALE

Full Pillar Plan (MRS)
Headgate 20 Pillar Mining



1. Breaker Posts (A) are to be installed after mining is completed inby.
2. MRS Units will be set at locations (A-1) and (B-1), and also at (C-1) and (D-1) prior to mining Cut #1.
3. MRS Units will be set at locations (D-1) and (C-1), and also at (A-2) and (B-2) prior to mining Cut #2.
4. MRS Units will be set at locations (C-2) and (D-1) 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) prior to mining Cut # 5.
7. MRS Units will be set at locations (C-5) and (D-4) prior to mining Cut #6.
8. MRS Units will be set at locations (C-6) and (D-5) prior to mining Cut #7.
9. (8) Breaker Posts will be set at location (A) immediately after completion of mining in block.

Note: Blocks of larger dimensions may be pillared in a similar sequence provided that the minimum pillar dimension is 70 feet by 50 feet (typical).

Note: All posts on 4-foot spacing.

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

Note: Dimension of the stump not mined will be a minimum of 10'.

Note: Mirror Image Applies.

When mining twins lifts from the same opening, cut depths will not exceed half the block width or 36 feet, whichever is less.

o Breaker Post

A-2 MRS Units

Drawing No. 19B

Full Pillar Plan (MRS)

M.S.H.A. ID No. 46-08436

SCALE: 1" = 20'

No one is allowed to proceed beyond the second full row of roof bolts outby the face.

Performance Coal Company
P.O. Box 69 Naoma, WV 25140

October 19, 2005

Mr. Jesse P. Cole
District Manager
Mine Safety and Health Administration
100 Bluestone Road
Mount Hope, West Virginia 25880

RE: Performance Coal Company
Upper Big Branch
ID # 46-08436
Roof Control Plan Update

Dear Mr. Cole:

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

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

Sincerely,

Performance Coal Company
George T. Levo
Senior Mining Engineer