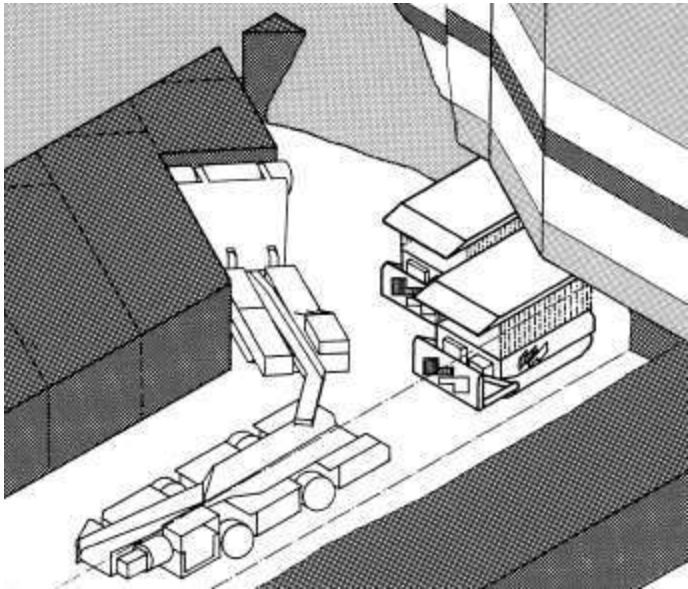
ABEL MINE

Pillar Extraction Management Plan Training
Panel 2

September 2010

Training Plan

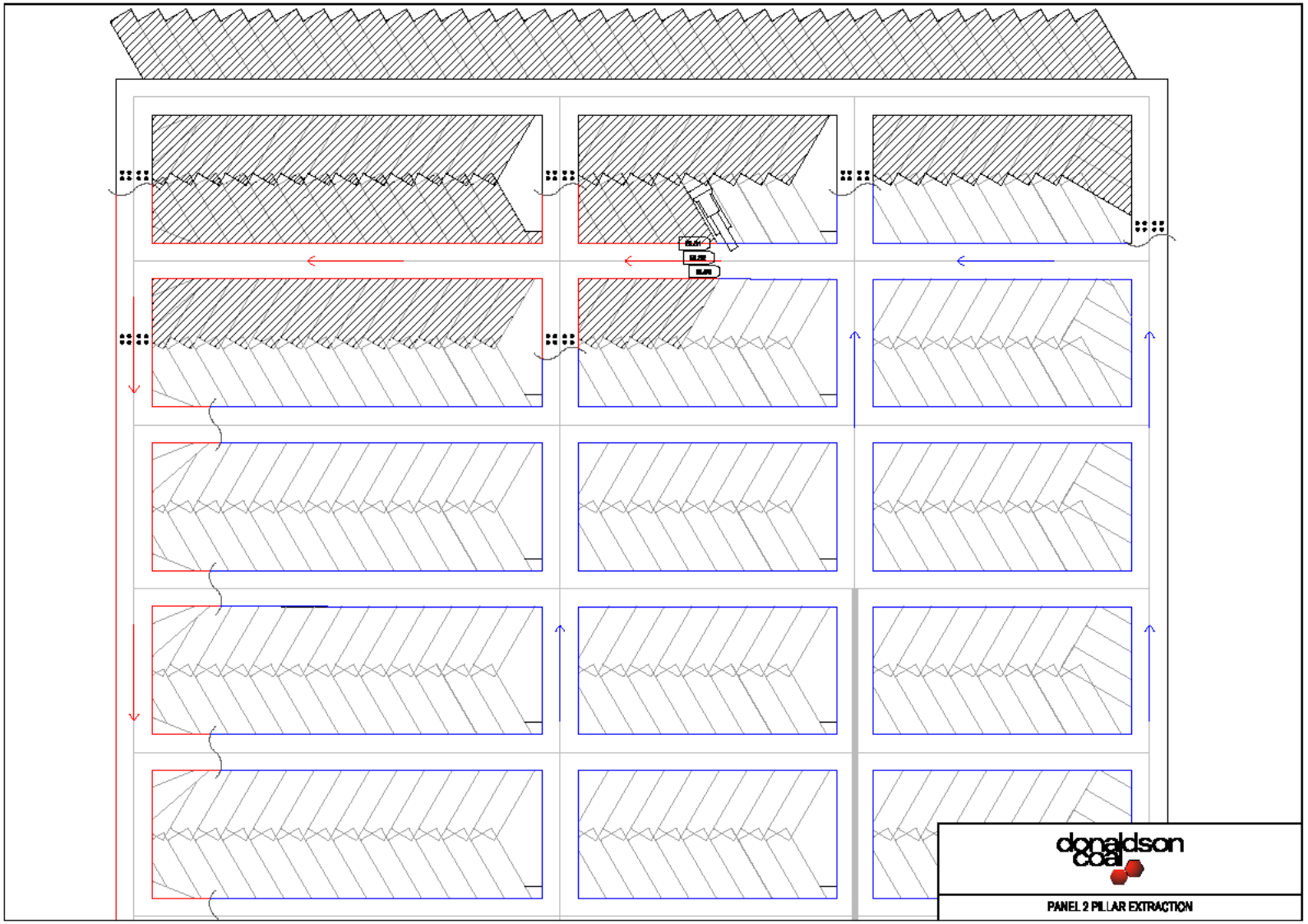
- **Duration: 2.5 Hours including assessment**
- **Presenters:**
  - Tony Sutherland – Technical Services Manager- UG Operations
  - Kent McTyer – Geotechnical Engineer - UG Operations
- **Learning Objective:**
  - To carry out pillar extraction safely at Abel Mine in Panel 2 in accordance with the requirements of the Abel Pillar Extraction Management Plan HSMS 2.11
- **Course Content**
- **Knowledge Assessment at end**



Course Content

- Safety Alerts
- Clause 88 & SMP approvals
- Panel Design
- Geological/Geotech
- Extraction Sequence
- Support Rules
- Safe Standing Zones
- BLS Operations
- Variation to approved plan
- Emergency Equipment
- Process Maps
- Mining through disturbed roof
- Machine recovery procedures
- Halting of lifts
- Ribs
- Procedure after goaf fall
- Ventilation Arrangements
- Windblast potential
- Spon Com propensity
- Inrush
- Pillar AMZ Report

Abel (Full extraction)



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Abel Mine Plan

Panel 2 Design Principles

- Panel 2 Layout Design Principles and Parameters:
  - Full extraction by double-sided lifting and three BLS/MRS
  - No extraction at less than 50m depth of cover (to avoid potentially unpredictable ground conditions)
  - Extraction width greater than depth to seam (to promote rapid completion of full-height caving)
  - Long-term (25+ years) stable barrier pillars between panels and between panels and mains
  - Fenders of suitable strength & stability (9.75m wide, width to height greater than 2)
  - Minimise formation of stooks to minimise their influence on caving
  - Flanking returns for ventilation flexibility during development and subsequent extraction
  - Extraction on retreat to allow time to identify and manage geological anomalies
  - Minimise development metres (hence 4-heading not 5-heading development)
  - Formation of a straight goaf edge perpendicular to the direction of retreat to promote predictable caving and maintain goaf on two or less sides
  - Regular pillar geometry to promote similar goaf edge conditions
  - Routine and repeatable layout to aid safety and productivity
  - Minimise number of intersections for safety and productivity

Panel 2

Depth of Cover

Geological Condition Plan

Panel 2

C155

C262

C102

A Hdg

B Hdg

C Hdg

D Hdg

14 c/t

12 c/t

10 c/t

8 c/t

Rib Spall | Roof Scaling | Joint / Cutter | Condition Green Roof Support | Borehole C120 | Seam Depth (10m intervals)

Roof water | Seam Roll | Tensile Cracking | Condition Orange Roof Support | Telltale

Seam Water | Fault (with throw) | Roof Cavity | Condition Red Roof Support | Borescoped Hole | Elevated Mine Hazard

Floor Heave | Floor Fill | Shear Zone

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Abel Mine - Panel 2
Geological Condition

SCALE : Dimensions as shown | DWG No. : 20130807.06LP2.PE

CHECKED : K. McTyer | REVISION : 1

DRAWN : J. Krick

DATE : 7th September, 2010

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Installed Support

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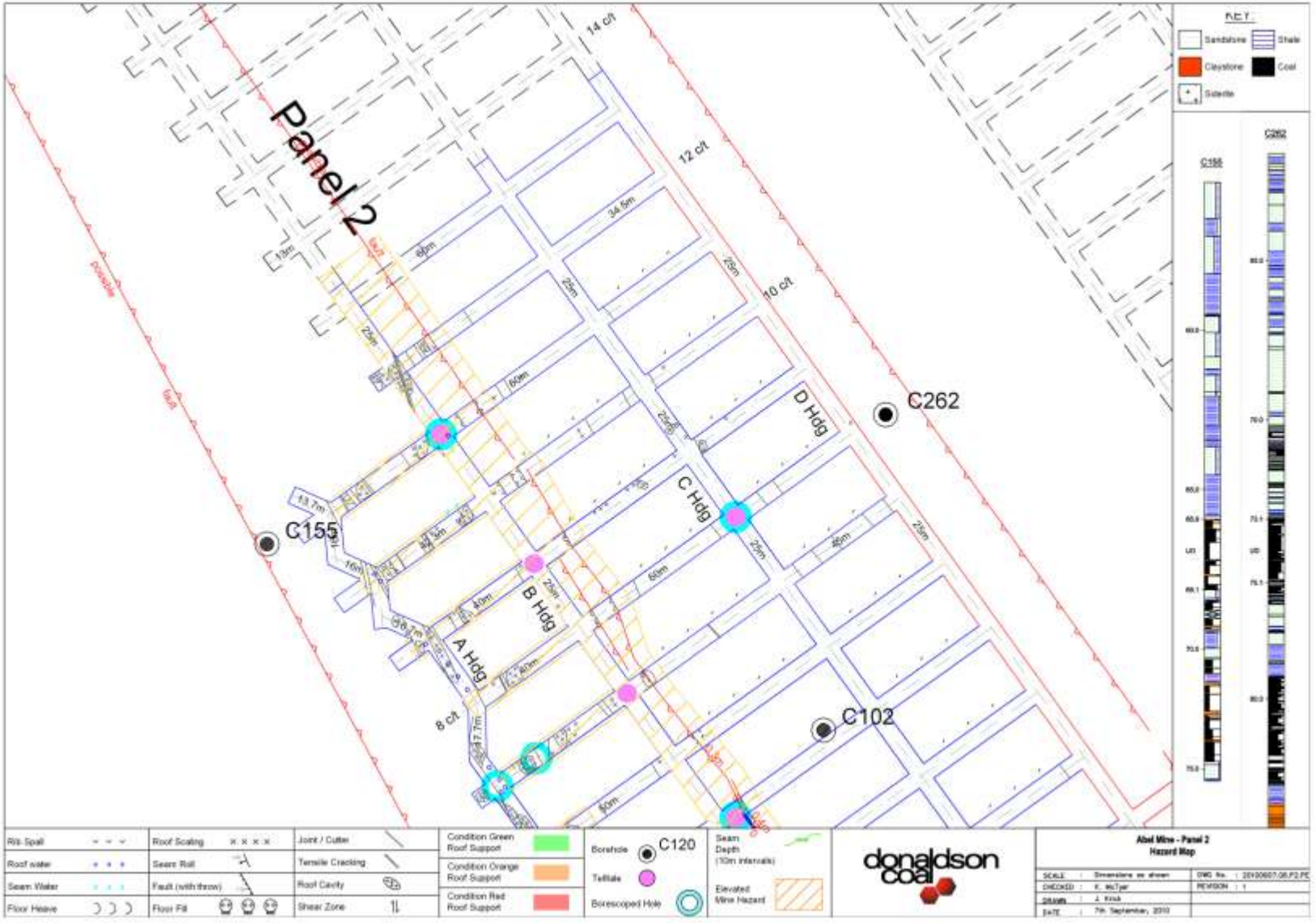
Mine Hazard Plan



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Authority to Mine Panel 2 (14 c/t to 11 c/t)

Authority to Mine Plan - Panel 2 (14 c/t to 11 c/t)

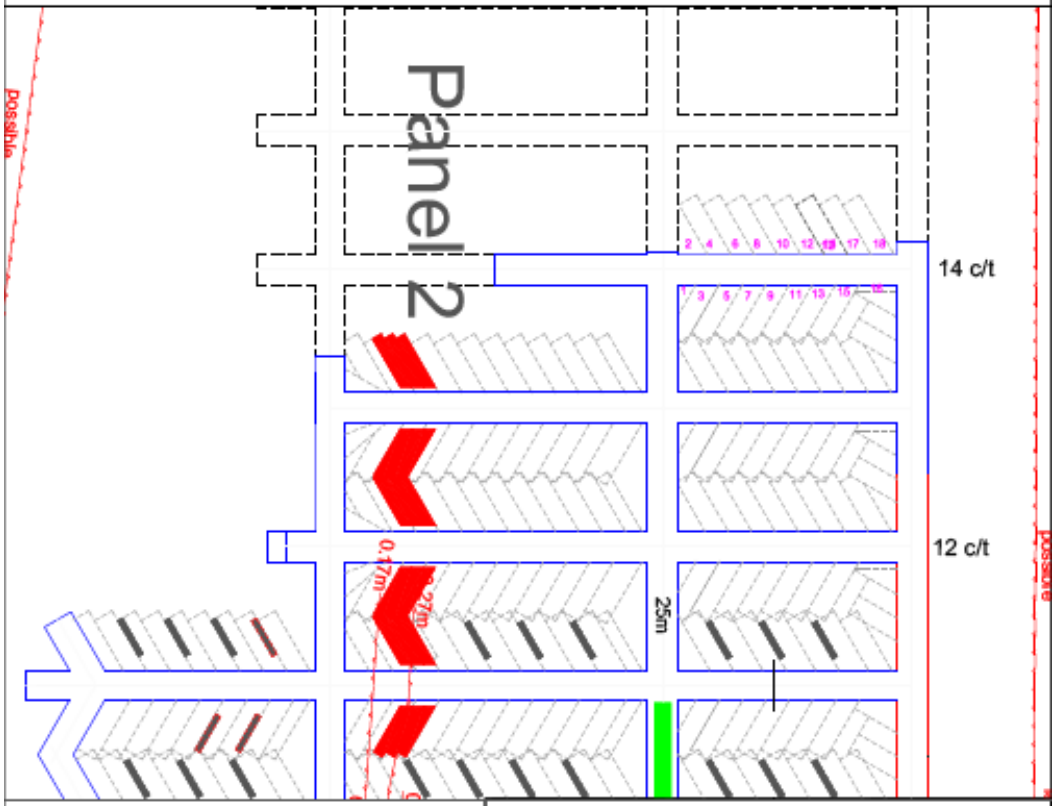
- This **Authority to Mine** should be read in conjunction with the following plans:

- Panel 2 - Lifting Sequence and Support Rules - a6b2003.dwg (plan 2 of 11).

- Panel 2 - Pillar Extraction Supporting Disturbed Roof - a6b2003.dwg (plan 8 of 11).

- "If it is considered that the method or sequence of extraction of a particular pillar as laid down by the Manager of Mining Engineering is inappropriate, an Area Leader may authorise a variation to the Manager's procedures. This can only be undertaken after the particular Area Leader personally inspects the site for the specific purpose and issues a written directive fully detailing the variations to the Manager's procedures. A Team Leader cannot vary the Manager's procedures. The Area Leader issuing the variation shall as soon as practical inform and provide the Manager with a written copy of such variation".

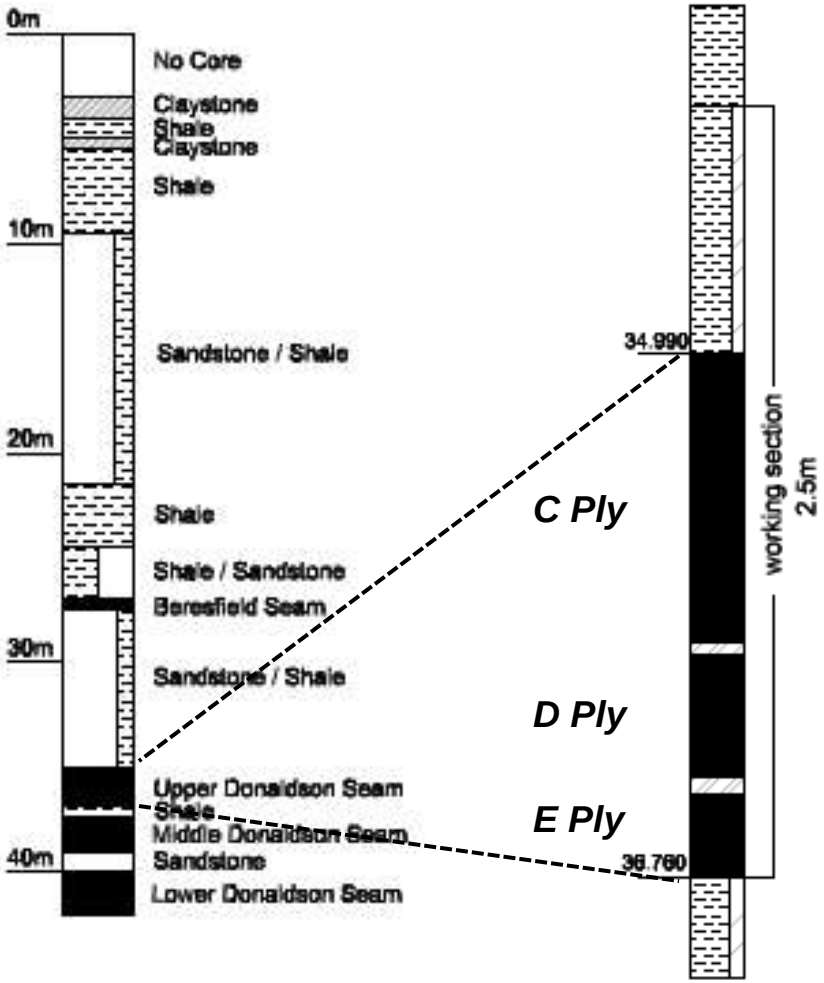
- The Team Leader has the authority to stop an operation or withdraw machinery if, based on his judgement, continued mining would create an unsafe condition. If such a decision leads to the need for a variation to the approved plan then production should not recommence until a more senior mining supervisor has inspected the site.



PANEL 2 - 14 c/t to 11 c/t

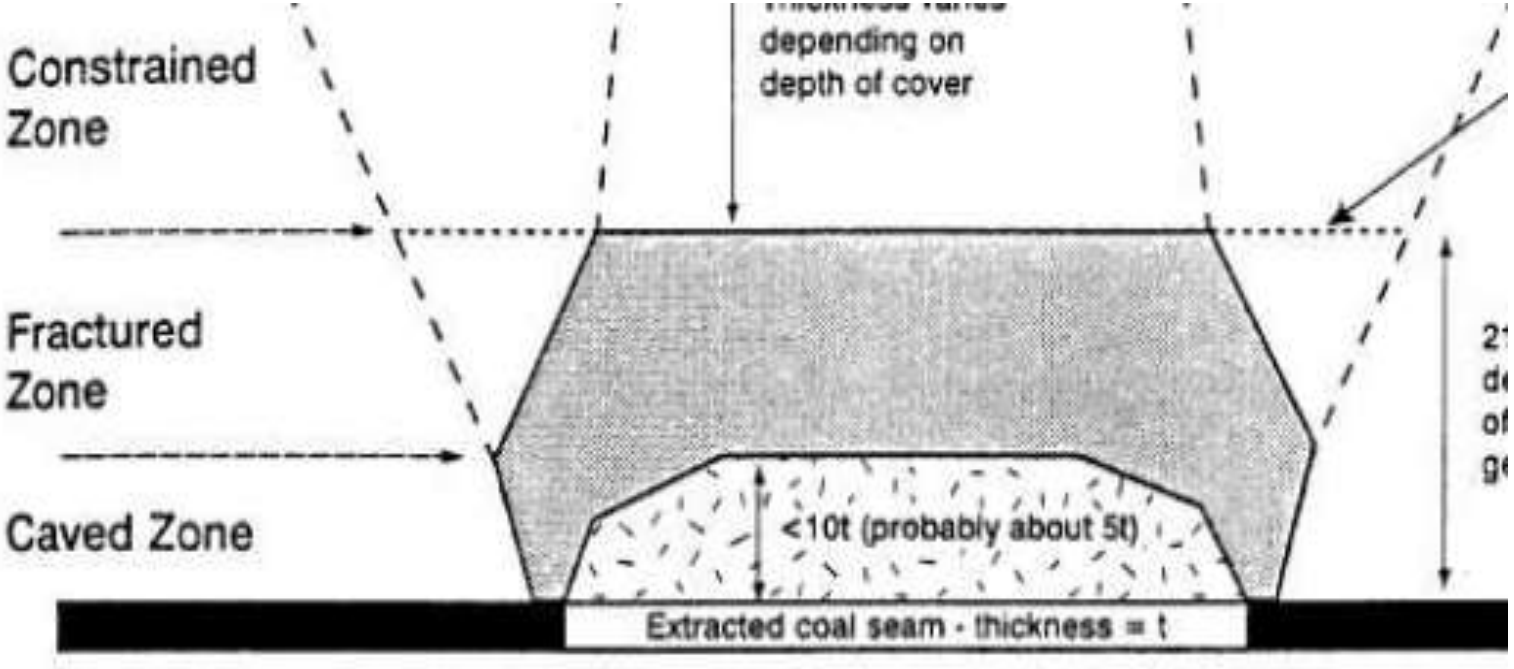
SCALE	: Dimensions as shown	DWG No.	: Authority to Mine
DRAWN	: Kent McTyer	REVISION	:
CHECKED	: Tony Sutherland		
APPROVED	: Matthew Blackham	DATE	: 14th Sep 2010

Typical Stratigraphic Column



Windblast potential

- When a spanning roof unit exists above the immediate roof but within the expected caving height of the face, then in the goaf an air gap can develop between the top of the weak immediate roof rubble pile and the upper spanning strata unit.
- Subsequent failure and caving of the spanning roof unit will cause sheets of stone to fall into the air gap.
- The failure and caving of a large spanning unit displaces the air in the goaf.
- The displaced air is forced out through open roadways into the workplace around and outbye of the goaf edge.



Windblast potential

- Control measures
  - Panel layouts should incorporate as many entries as are possible on both sides of the goaf to dissipate the velocity/pressure effects of a windblast
  - High housekeeping standards to be maintained, no debris (empty oil drums, picks etc) to be stored in the goaf to minimise the potential for a windblast to propel solid objects along roadways
  - The variably laminated to medium bedded roof material encountered at Abel Mine is not expected to act as a beam or span any significant distance. The roof of Panel 1 did not span and the similar roof in Panel 2 indicates there will not be spanning roof strata.
  - **There are no currently known massively bedded units in the immediate roof above Panel 2.**
  - Risk Assessment (based on MDG 1003) was conducted 24/6/10 to develop a Windblast Management Plan.

Upper Donaldson Roof

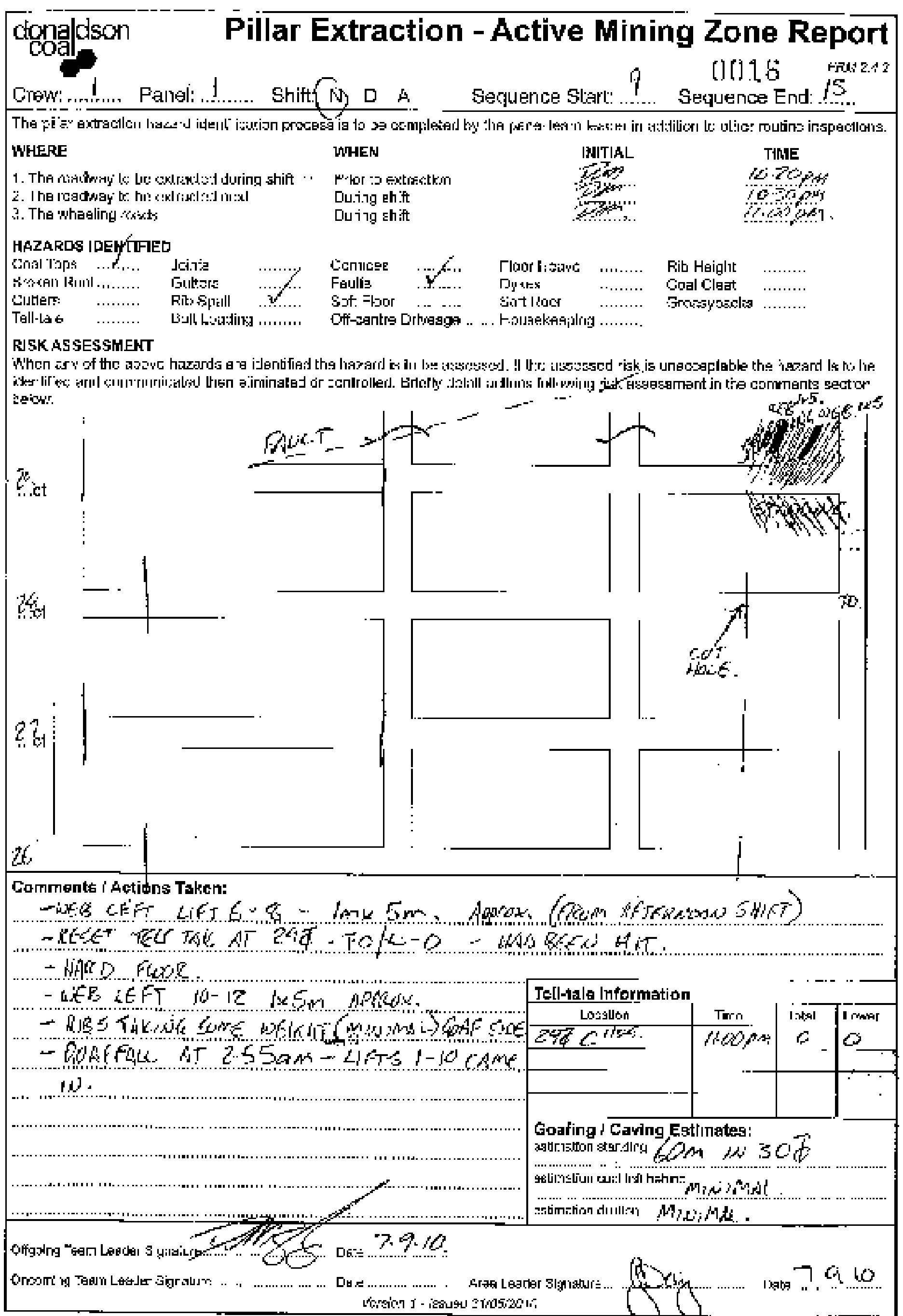
- Typical roof of the Upper Donaldson Seam above Panel 2 consists of;
  - 0.5m - 0.7m of sandy shale (typical UCS 20-50MPa) overlain by;
  - 0.8m - 2.1m of sandstone (typical UCS 30-70MPa) providing anchorage for roof bolts. This units is absent from Borehole 066, however this is anomalous and it is present in surrounding boreholes. The sandstone unit is overlain by;
  - 8.0m – 20.0m of interbedded shale (typical UCS 15–35MPa) and sandstone (typical UCS 35–70MPa) overlain by;
  - approximately 0.70m of Beresfield Seam coal (typical UCS 10-15MPa) overlain by;
  - interbedded shales (typical UCS 20-40Mpa) and sandstones (typical UCS 30-60MPa) to the surface.

donaldson coal

Management of Ribs in the Pillar Extraction Area

- Abel Mine roadways are aligned to minimise occurrence of driveage sub-parallel to coal cleat.
- However, pillar and lift corners are not favourably aligned to coal cleat. Breakaways and lifts that line up parallel to cleat pose the greatest risk. When working near a pillar corner or near a lift take extra care of the rib condition
- All personnel to be aware of the effect that `saw toothing' has on rib conditions in the run outs

AMZ Report



donaldson coal

Pillar Extraction - Active Mining Zone Report

0016 FRM 2.4.2

Crew: 1 Panel: 1 Shift: (N) D A Sequence Start: 9 Sequence End: 15

The pillar extraction hazard identification process is to be completed by the panel team leader in addition to other routine inspections.

WHERE	WHEN	INITIAL	TIME
1. The roadway to be extracted during shift	Prior to extraction	[illegible]	10.20 pm
2. The roadway to be extracted next	During shift	[illegible]	10.30 pm
3. The wheeling roads	During shift	[illegible]	11.00 pm

HAZARDS IDENTIFIED

Coal Taps ✓ · Joints · Cornices ✓ · Floor Heave · Rib Height
Broken Roof · Gutters ✓ · Faults ✓ · Dykes · Coal Cleat
Cutters · Rib Spall ✓ · Soft Floor · Soft Roof · Slickensides
Tell-tale · Bolt Loading · Off-centre Drivage · Housekeeping

RISK ASSESSMENT

When any of the above hazards are identified the hazard is to be assessed. If the assessed risk is unacceptable the hazard is to be identified and communicated then eliminated or controlled. Briefly detail actions following risk assessment in the comments section below.

FAULT · 29 ct · 28 ct · 27 ct · 26 · CUT HOLE · TO · GOAF EDGE

Comments / Actions Taken:

- WEB LEFT LIFT 6-8 - 1m x 5m. APPROX. (FROM AFTERNOON SHIFT)
- RESET TELL TALE AT 29 1/2 - TO/L-O - WAS BEEN HIT.
- HARD FLOOR.
- WEB LEFT 10-12 1x5m APPROX.
- RIBS TAKING SOME WEIGHT (MINIMAL) GOAF SIDE
- GOAF FALL AT 2.55am - LIFTS 1-10 CAME IN.

Tell-tale Information

Location	Time	Upper	Lower
29 1/2 C/[illegible]	11.00 pm	0	0

Goafing / Caving Estimates:

estimation standing 60m IN 30 1/2
estimation coal left behind MINIMAL
estimation dilution MINIMAL.

Offgoing Team Leader Signature [signature] Date 7.9.10.
Oncoming Team Leader Signature .... Date .... Area Leader Signature [signature] Date 7.9.10

Version 1 - Issued 21/05/2010

This is an example of a completed AMZ report from Panel 1 Abel Mine.

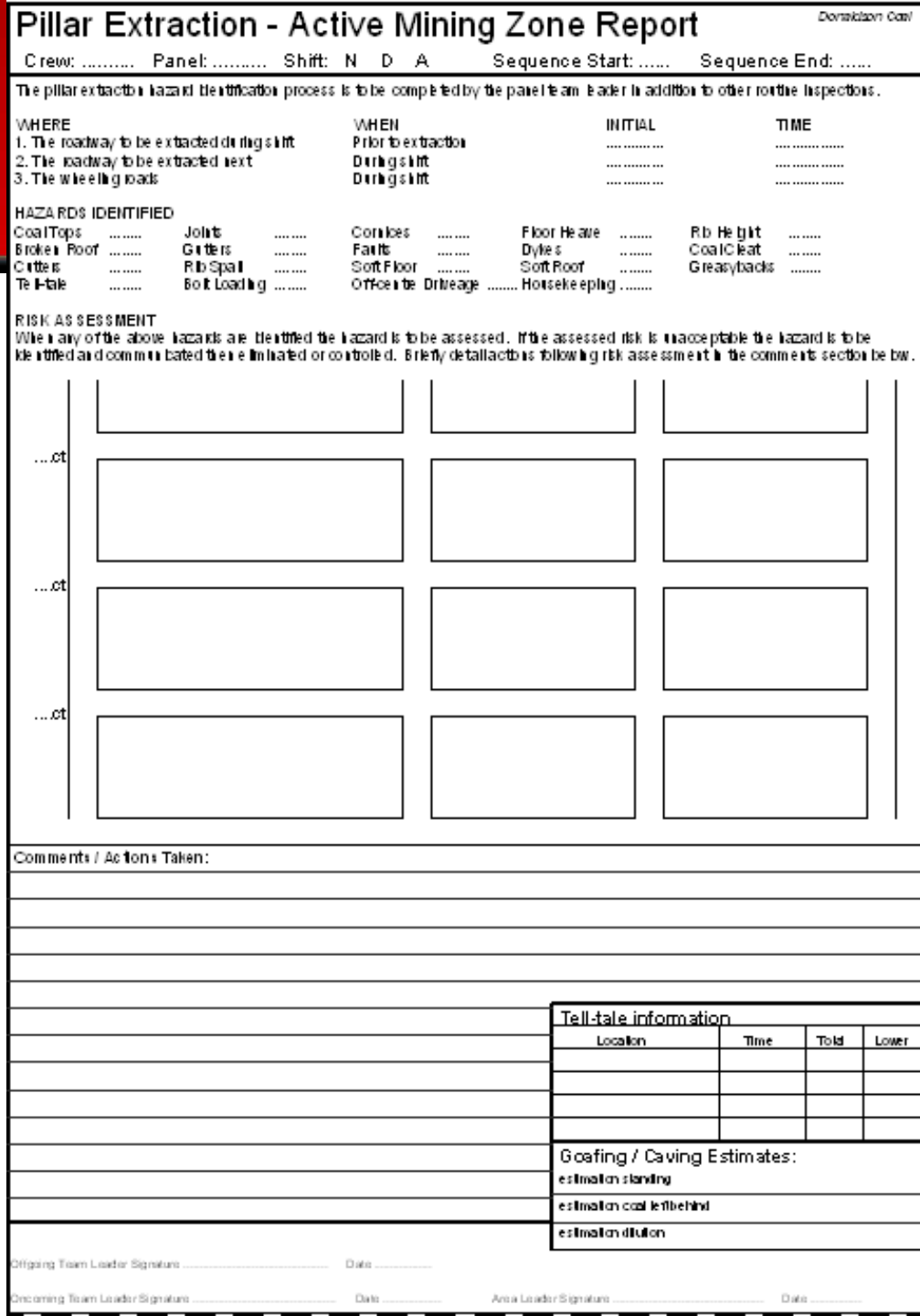
donaldson coal

AMZ Report

This is the AMZ report for Abel Mine.

These will be in carbon-copy books in the crib-rooms.

AMZ books focus on:
- Identifying hazards in the working areas
- actions taken to manage identified hazards
- locations and coal mined according to the sequence
- tell-tale information



Pillar Extraction - Active Mining Zone Report

Dominion Coal

Crew: ..... Panel: ..... Shift: N D A Sequence Start: ..... Sequence End: .....

The pillar extraction hazard identification process is to be completed by the panel team leader in addition to other routine inspections.

WHERE	WHEN	INITIAL	TIME
1. The roadway to be extracted during shift	Prior to extraction	.....	.....
2. The roadway to be extracted next	During shift	.....	.....
3. The wheeling roads	During shift	.....	.....

HAZARDS IDENTIFIED

Coal Tops	.....	Joints	.....	Cornices	.....	Floor Heave	.....	Rib Height	.....
Broken Roof	.....	Gutters	.....	Faults	.....	Dykes	.....	Coal Cleat	.....
Cutters	.....	Rib Spall	.....	Soft Floor	.....	Soft Roof	.....	Greasybacks	.....
Tell-tale	.....	Bolt Loading	.....	Offcentre Driveage	.....	Housekeeping	.....		

RISK ASSESSMENT

When any of the above hazards are identified the hazard is to be assessed. If the assessed risk is unacceptable the hazard is to be identified and communicated then eliminated or controlled. Briefly detail actions following risk assessment in the comments section below.

...ct

...ct

...ct

Comments / Actions Taken:

Tell-tale information

Location	Time	Told	Lower

Goafing / Caving Estimates:

estimation standing

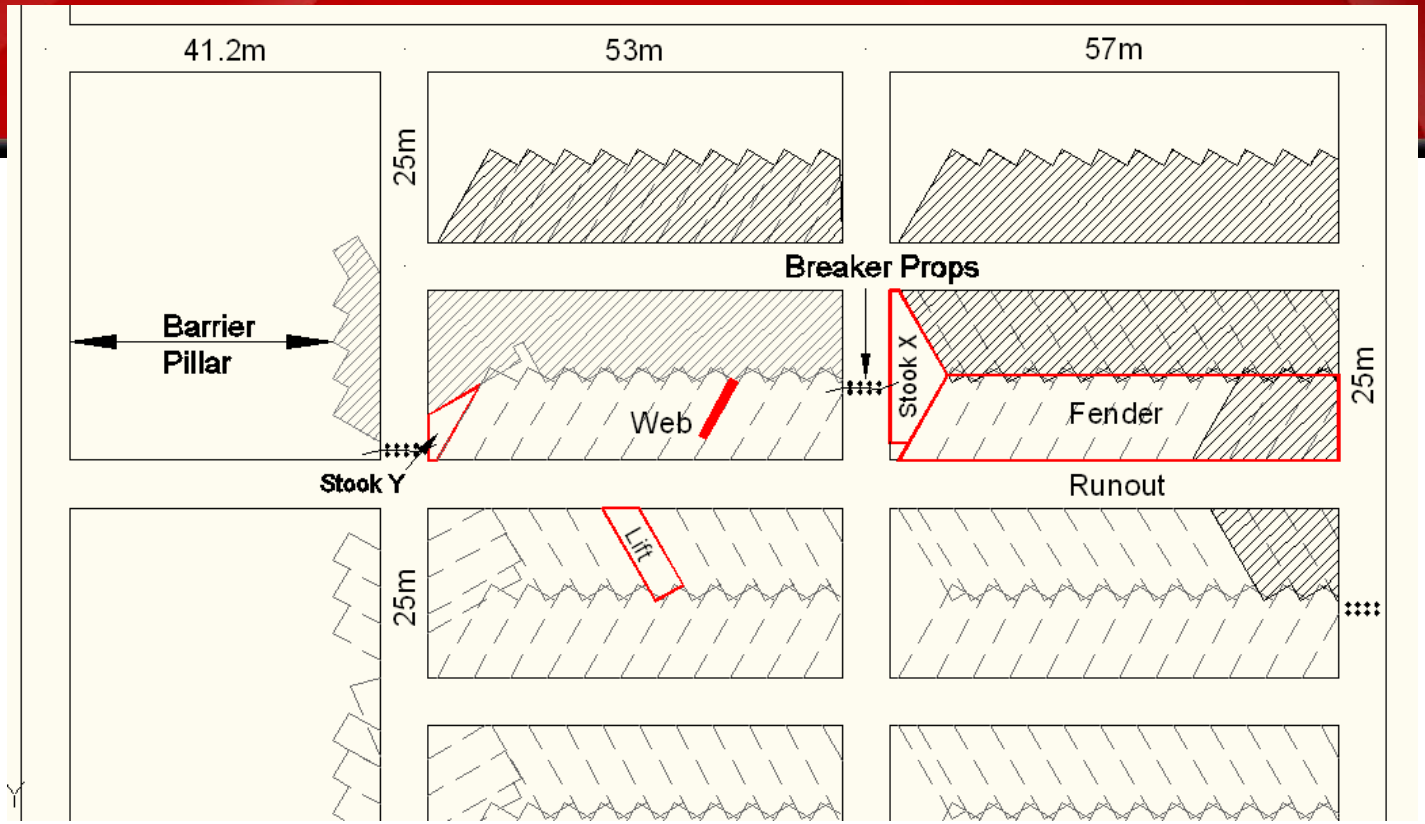
estimation coal left behind

estimation dilution

Offgoing Team Leader Signature ..... Date .....

Oncoming Team Leader Signature ..... Date ..... Area Leader Signature ..... Date .....

Pillar Extraction Definitions



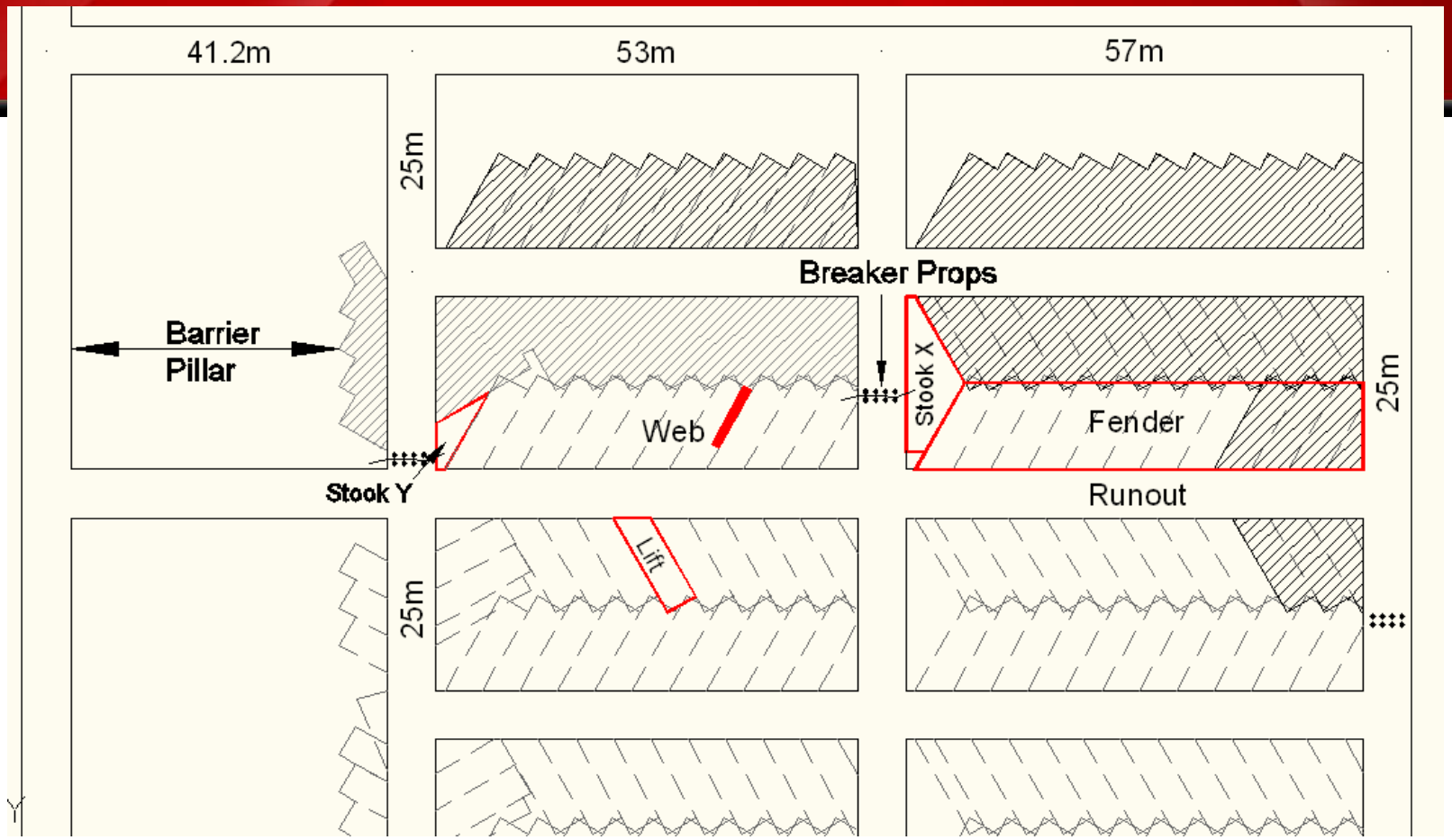
Barrier Pillar – Important component of the extraction system. Must be designed to remain stable for life of mine or life of regional area

Breaker Props- They;

1. control the goaf line, preventing overrun.
2. Prevent goaf debris from fouling work areas.
3. Clearly demarcate boundary between goaf and working panel.

Double sided lifting- extraction takes place either side of the run out (with 3 BLS's)

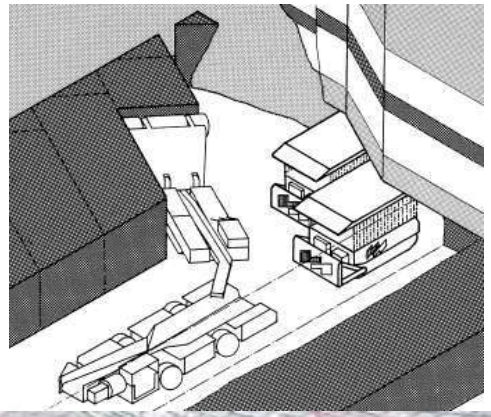
Pillar Extraction Definitions

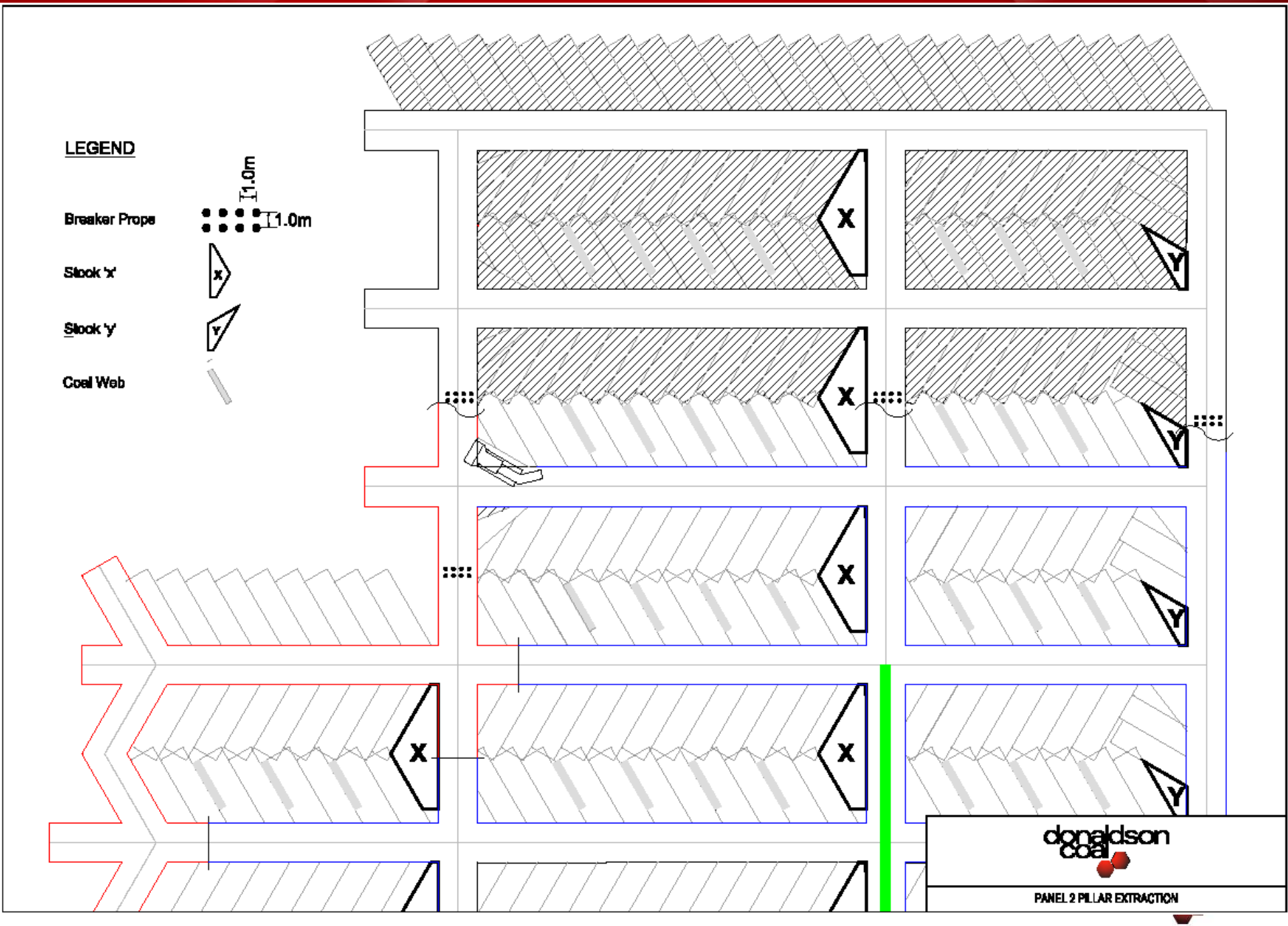


Fender – is a pillar with a short life cycle. As per MDG 1005 design w/h > 2.5 to 3
Lift – a slice of coal 3.6m wide (CM03) taken out of the fender (approx 140-160 tonnes of coal)
Stooks – Provides temporary roof support at intersections. To be sufficiently strong enough to function as an effective roof support until operations have retreated back from the mined area, but weak enough to fail soon thereafter, so as not to hinder caving. ***Not to be taken***.

Pillar Extraction Process

- **Panel 2 General Details**
  - Double sided open end lifts, generally in accordance with the approved plan `*DWG No. a6a1010.dwg signed Mar 2010 and approved by CICM 10/6/10*
- **Extraction of Panel 2 will utilise following equipment:**
  - 12CM12 Joy Continuous Miner CM03 or CM05
  - Shuttle Cars x 3 (or 2)
  - 3 x Breaker Line Supports (BLS/MRS)
    - BLS- 540 tonne capacity- Panel 1
    - MRS – 800 tonne capacity- Panel 2

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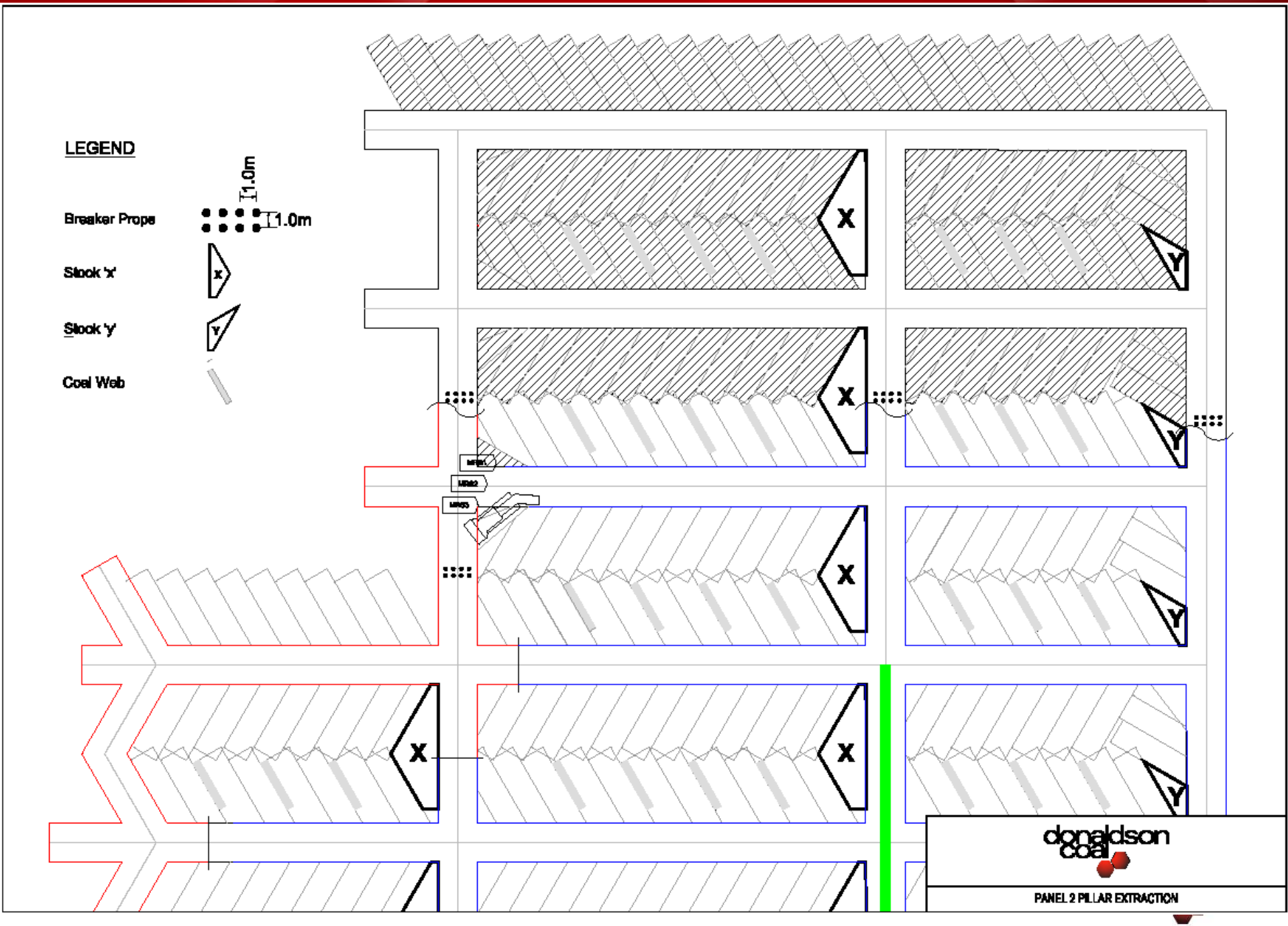
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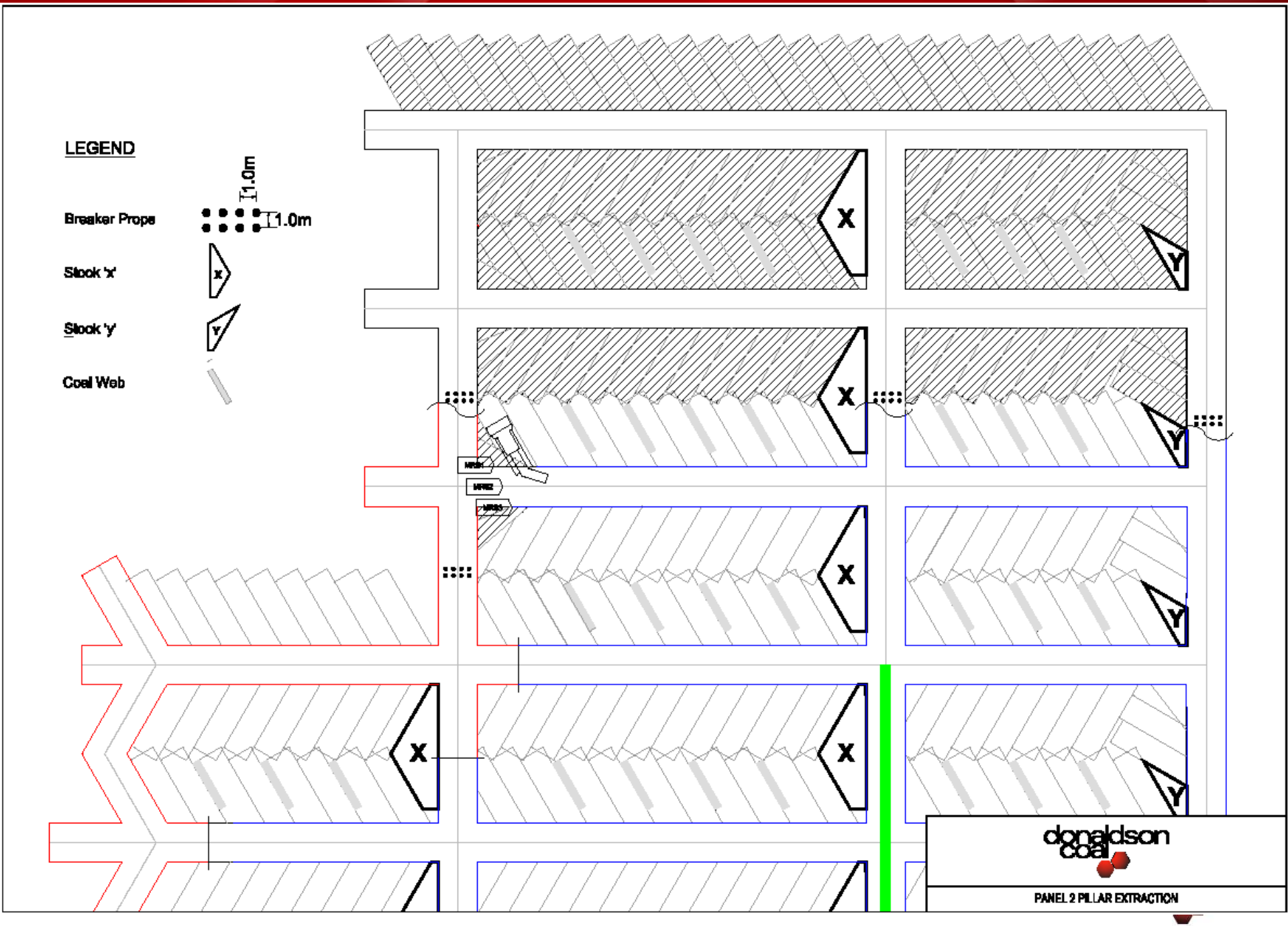
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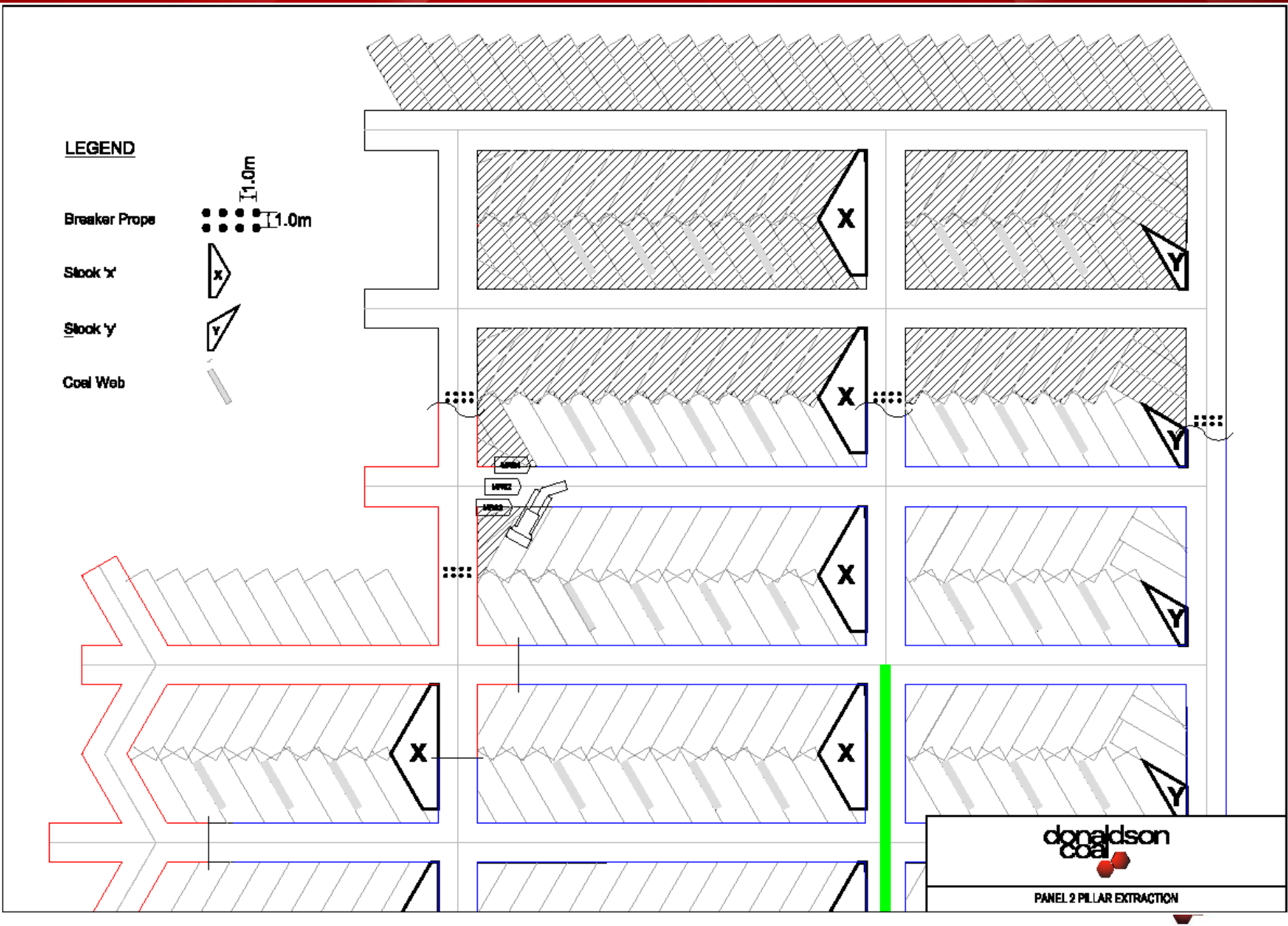
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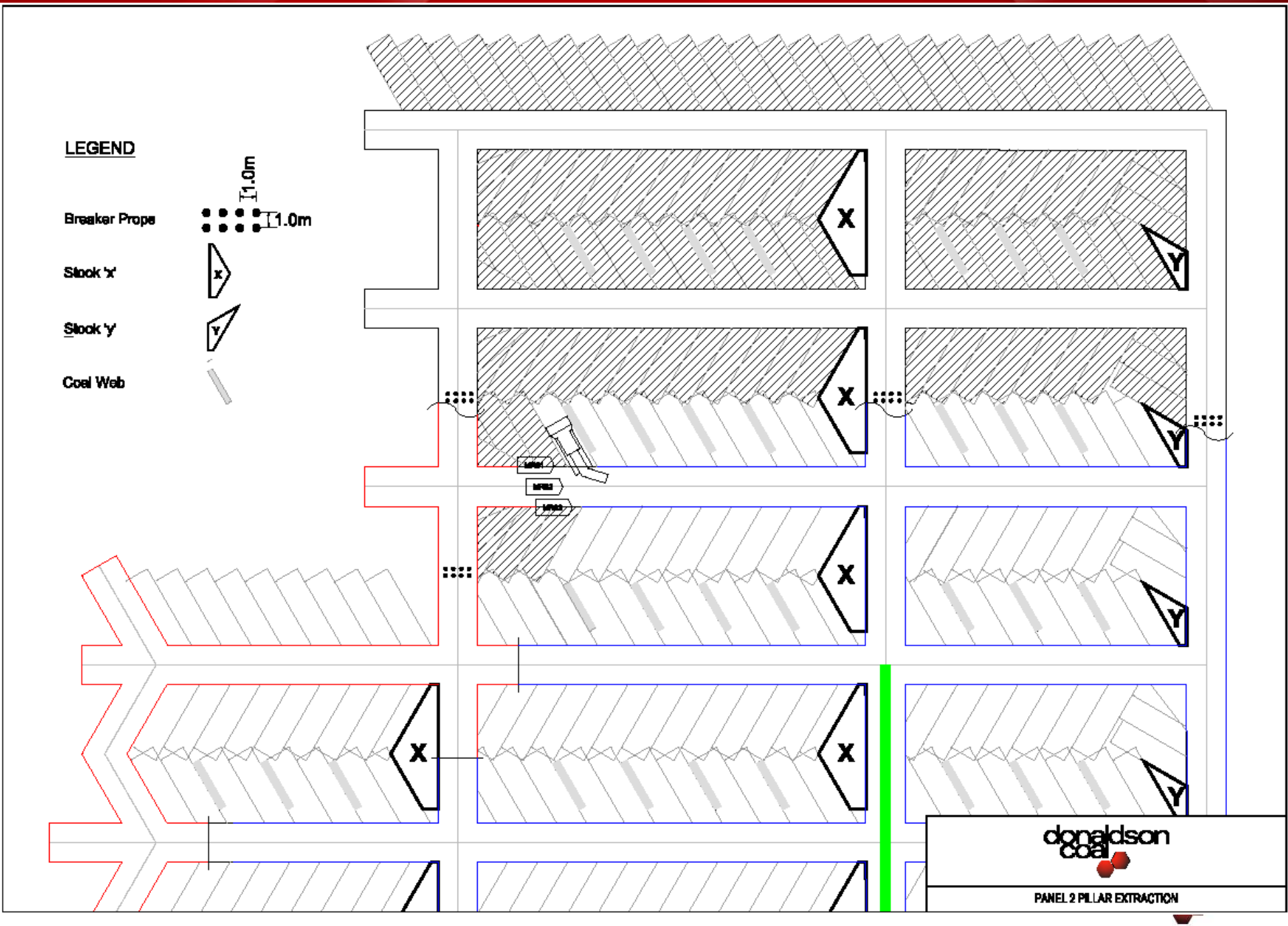
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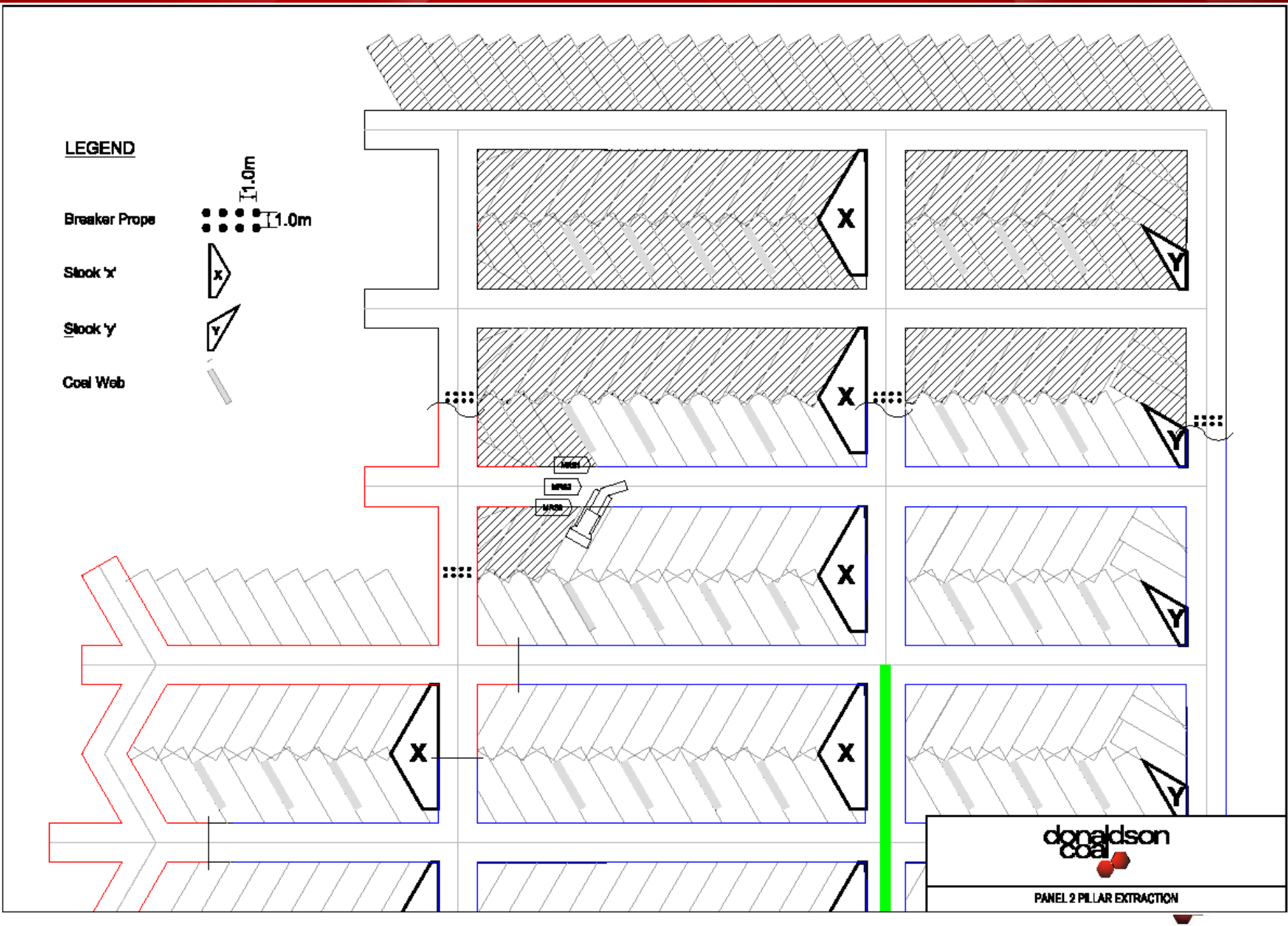
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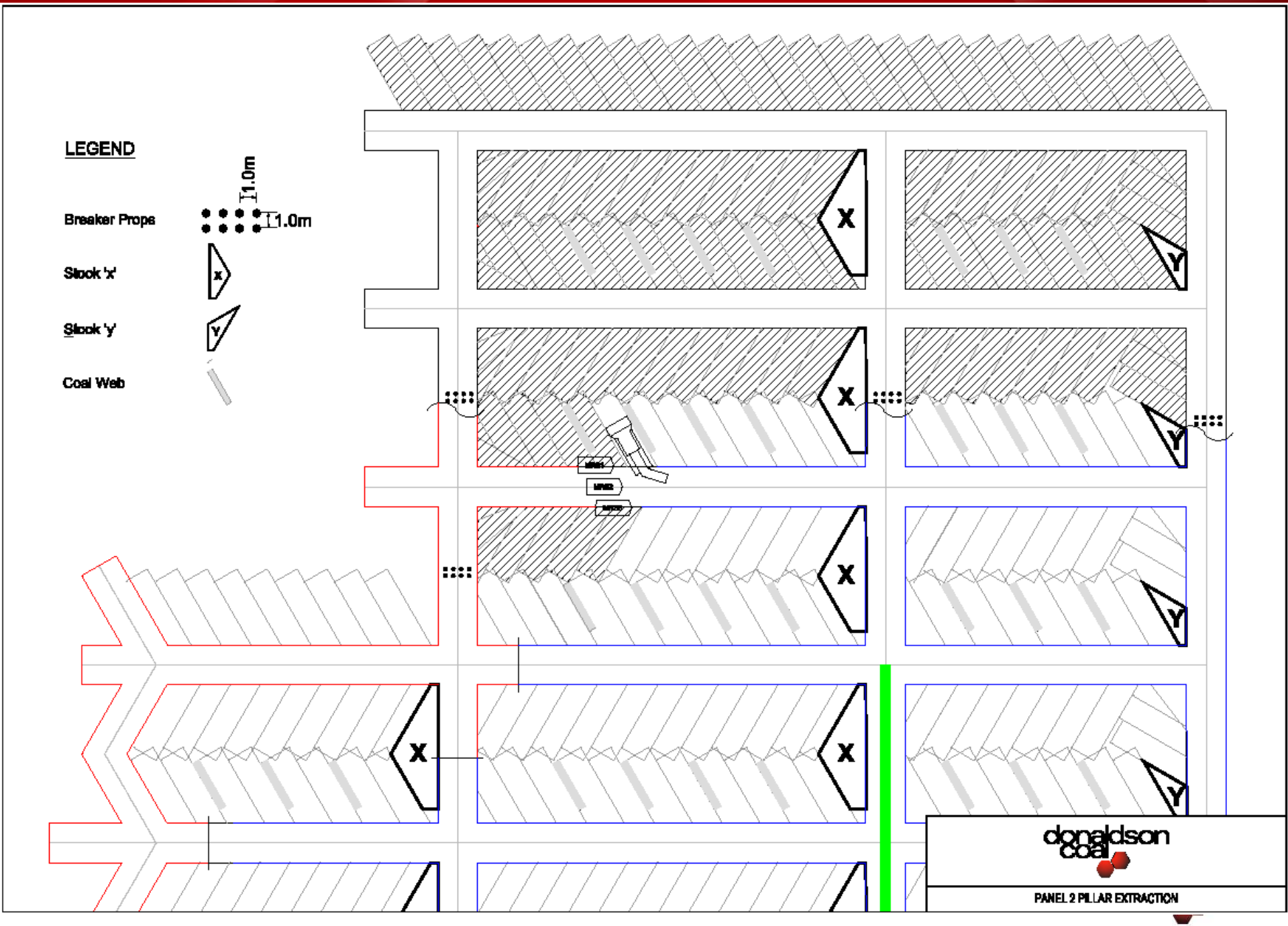
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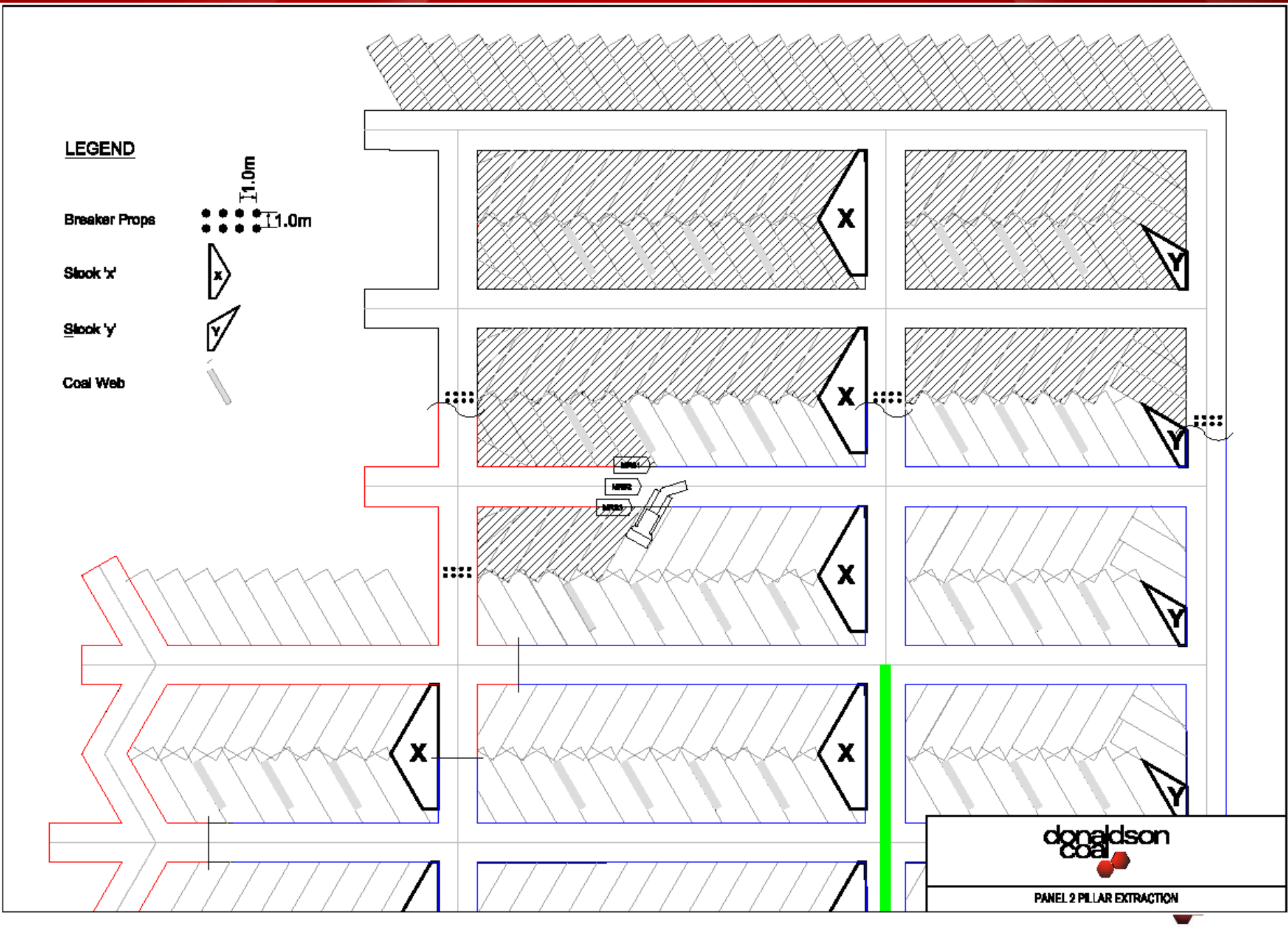
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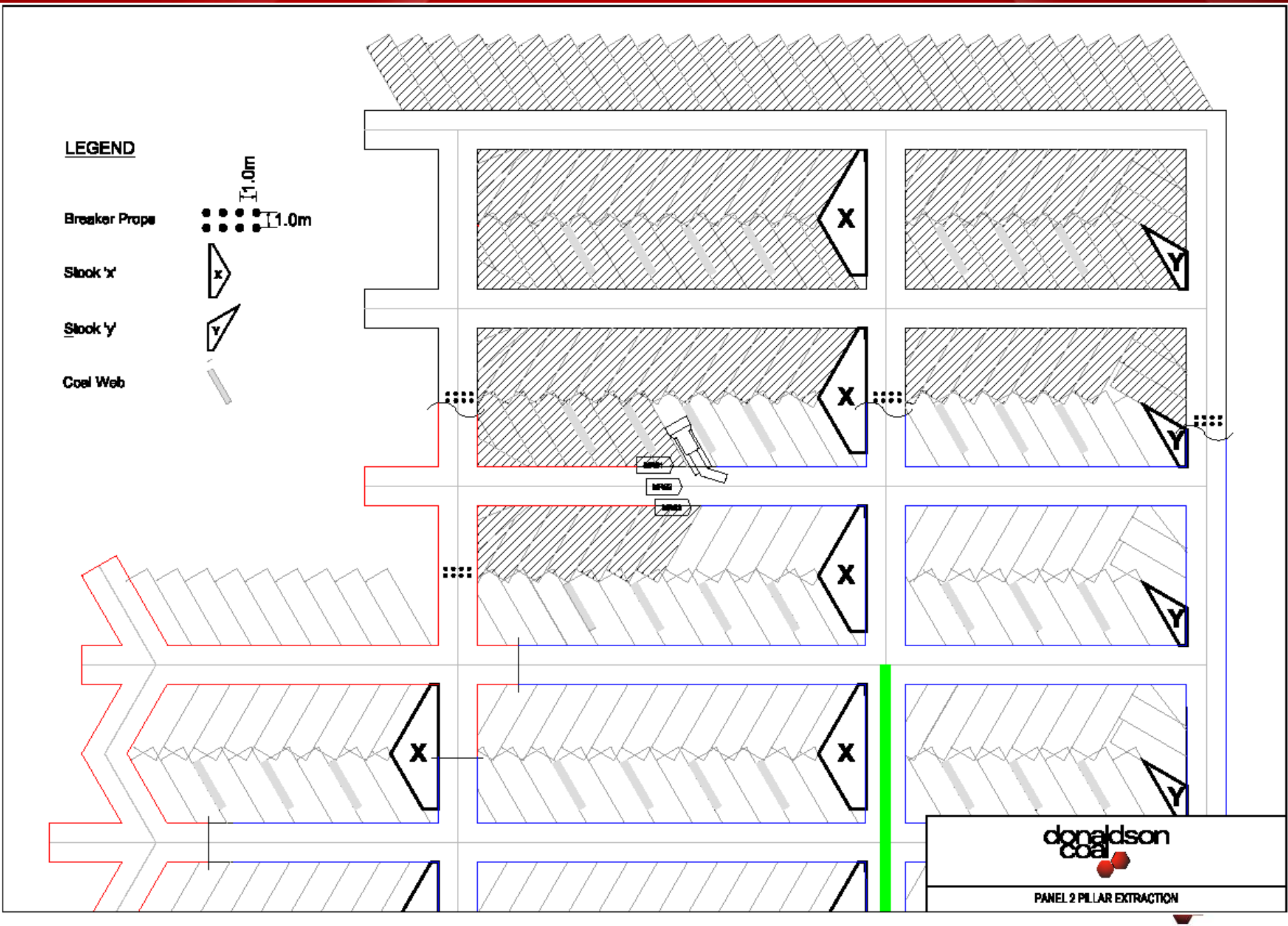
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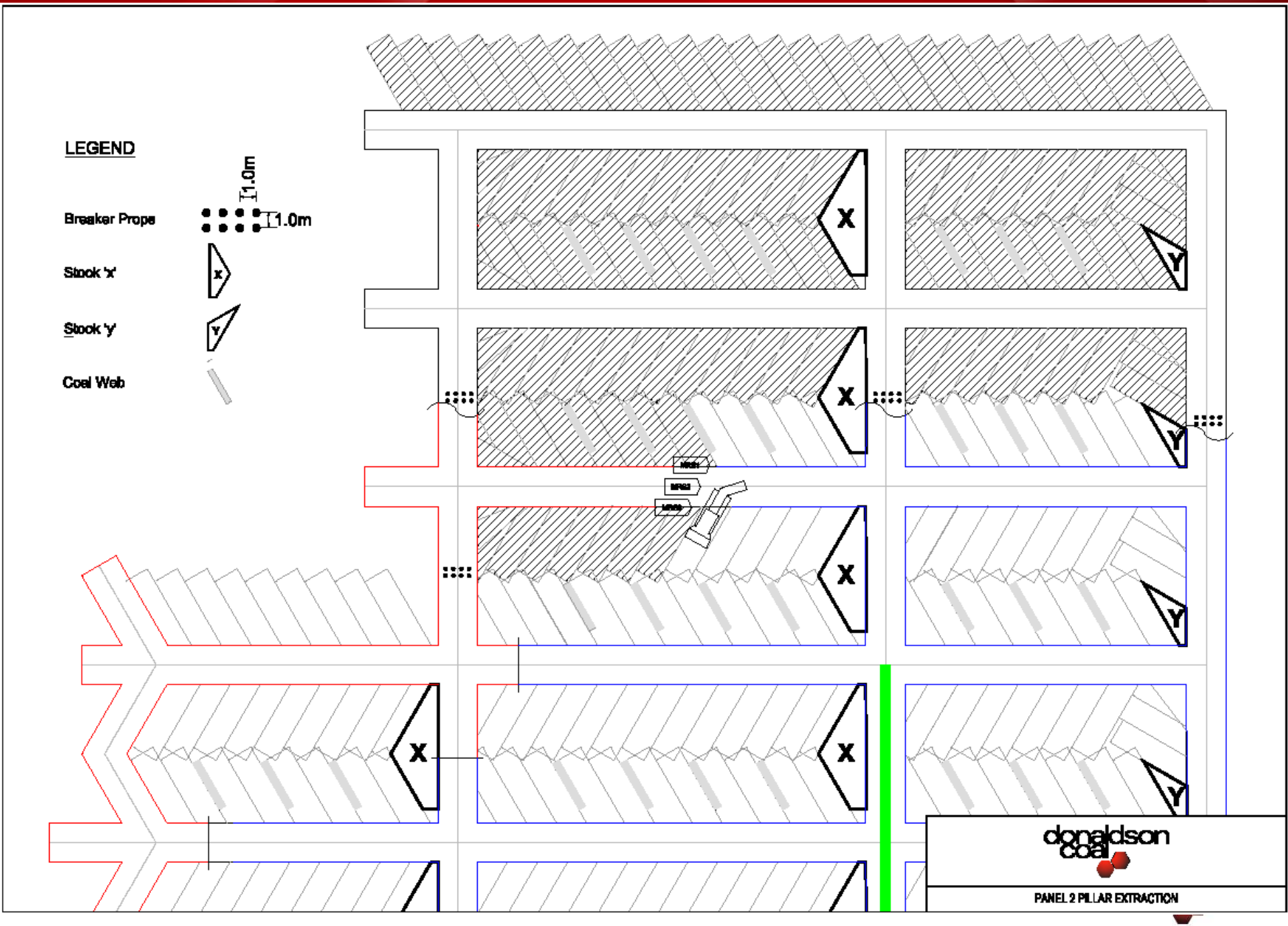
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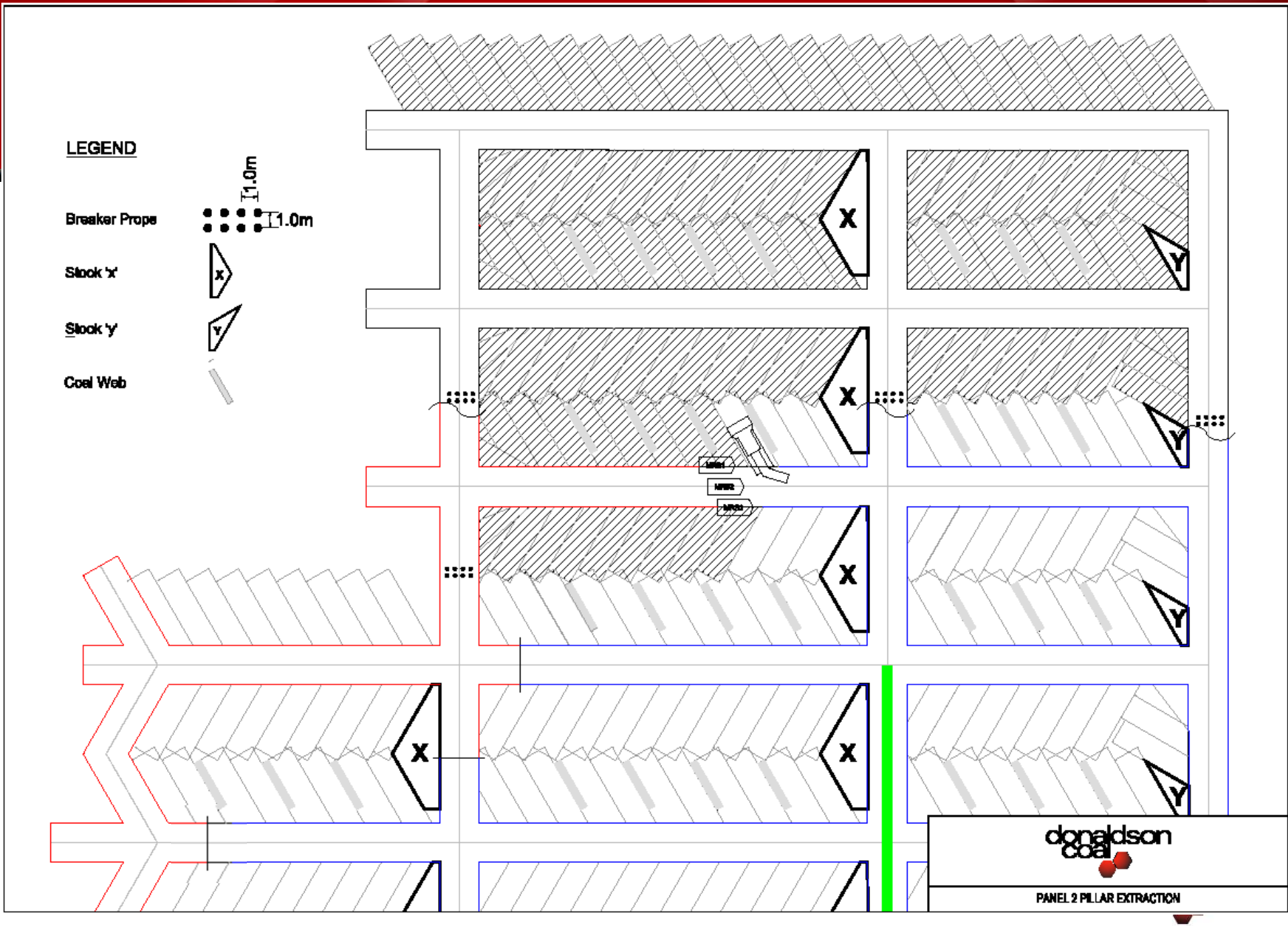
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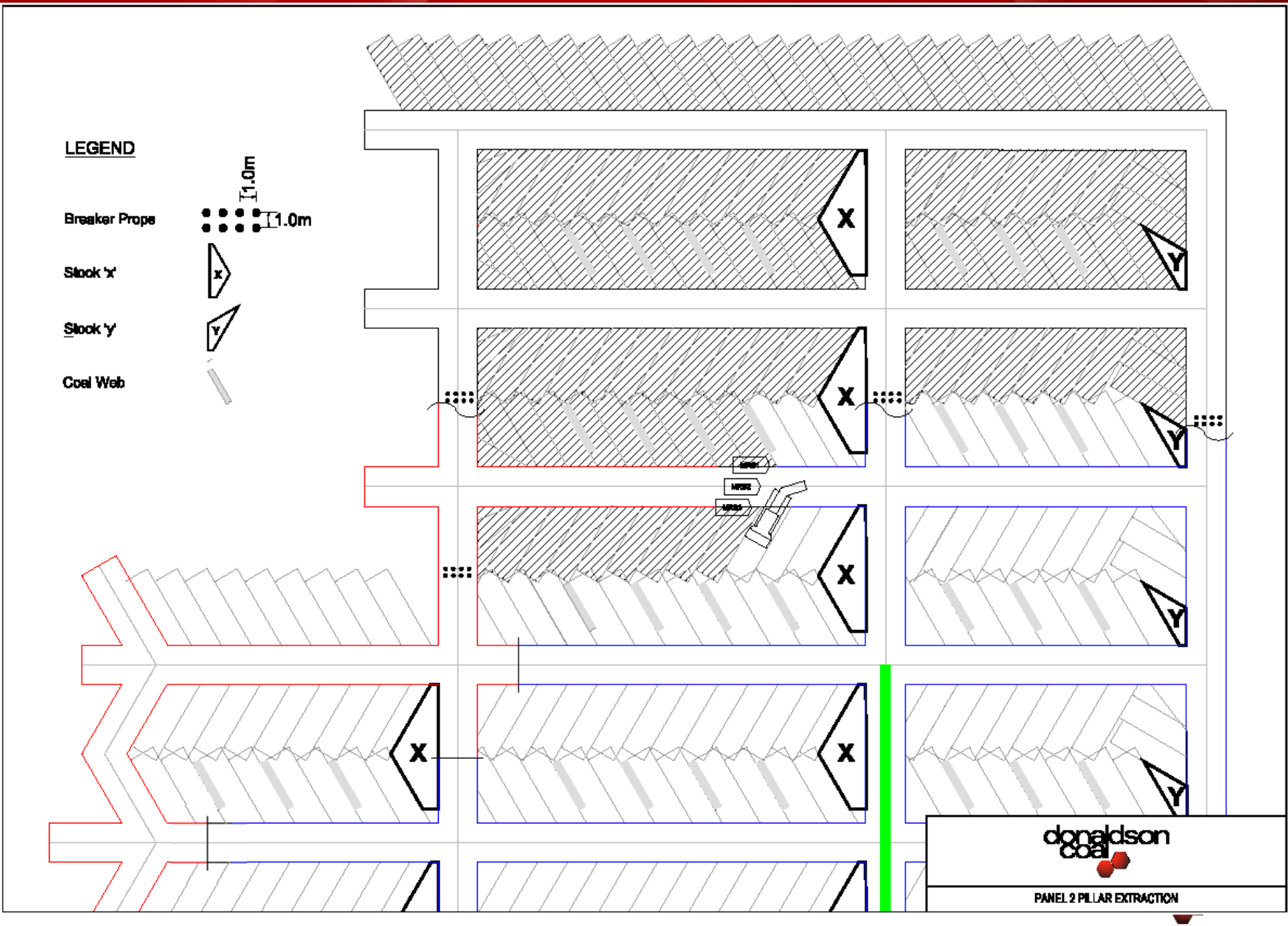
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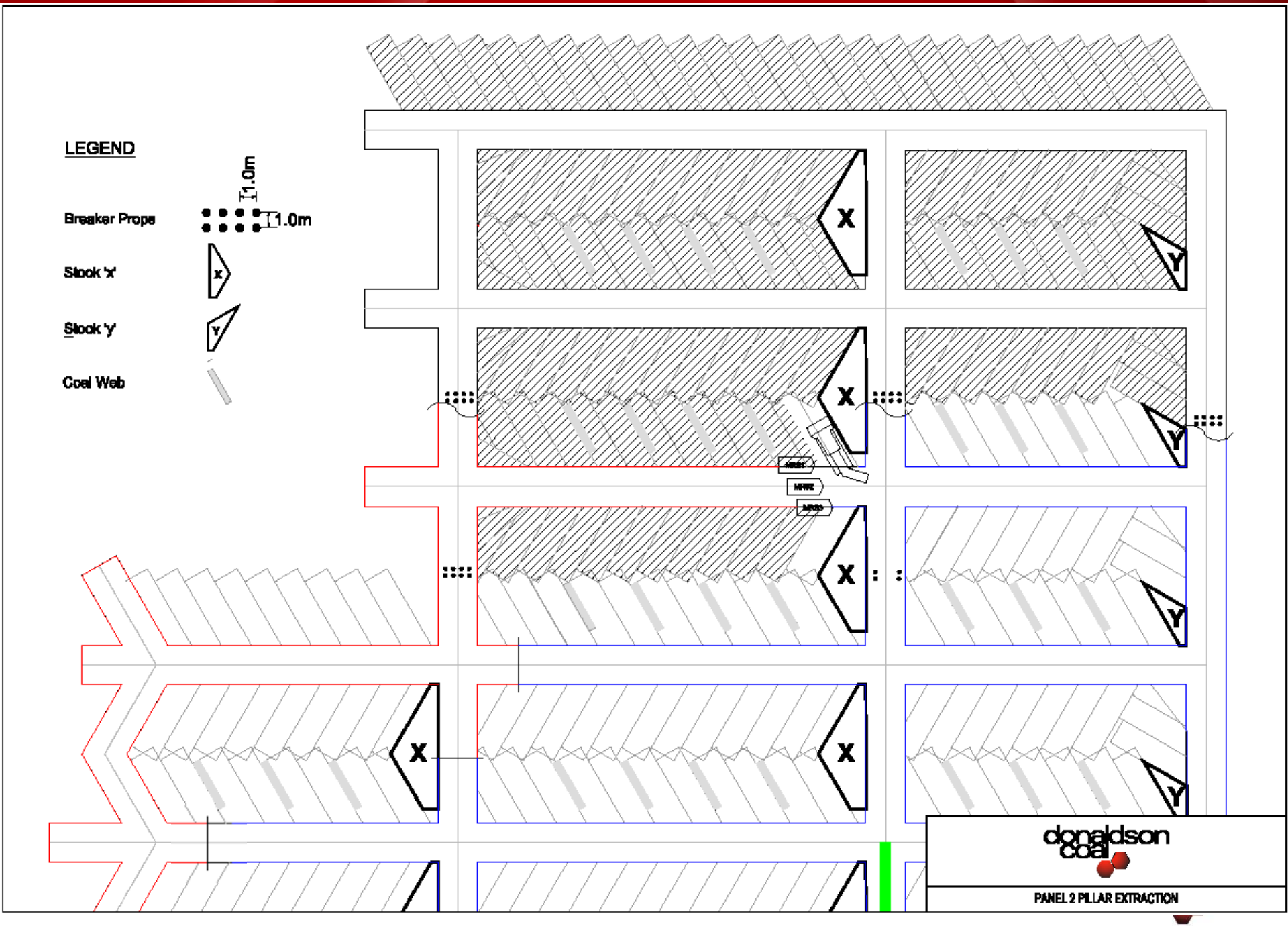
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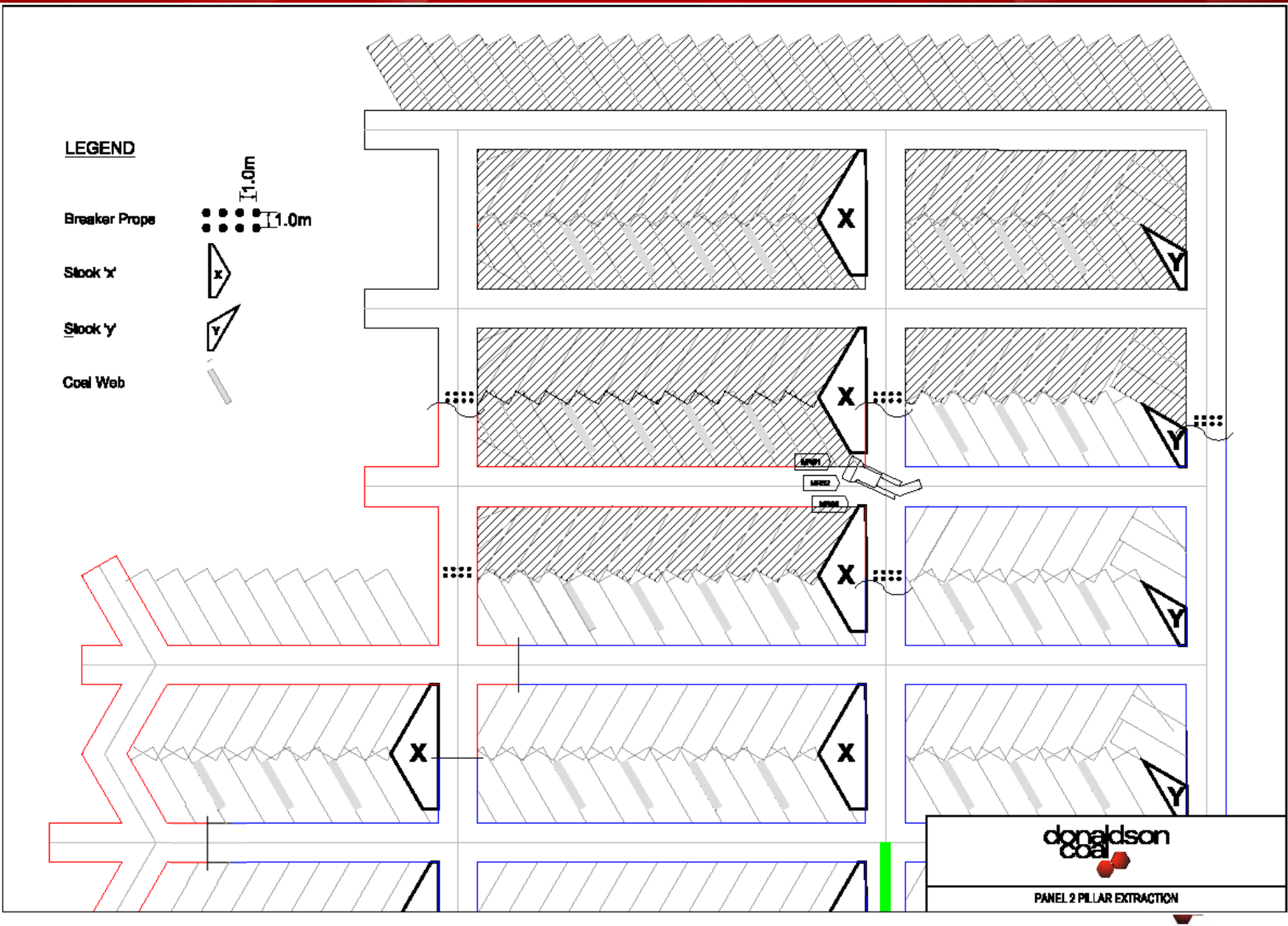
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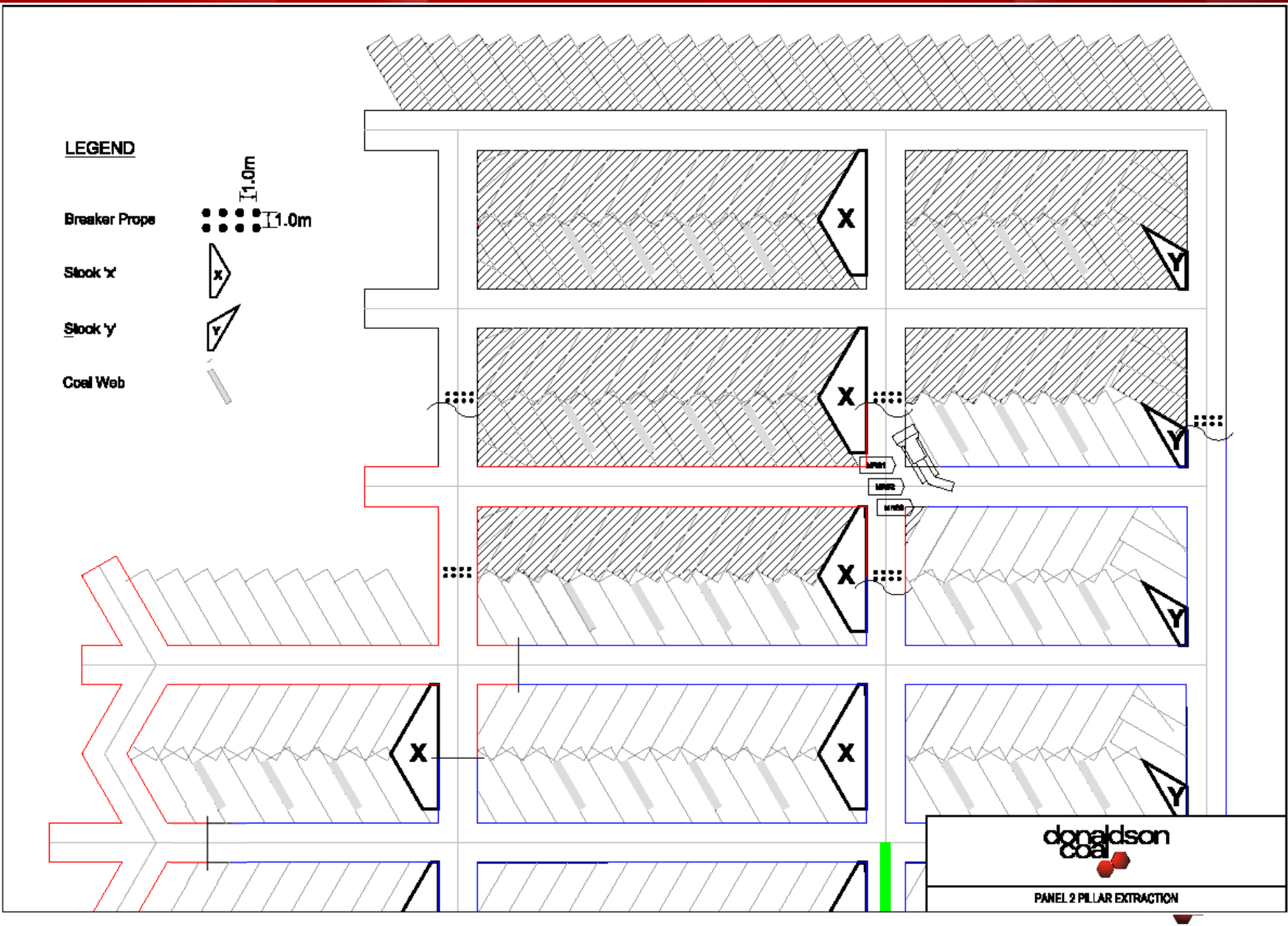
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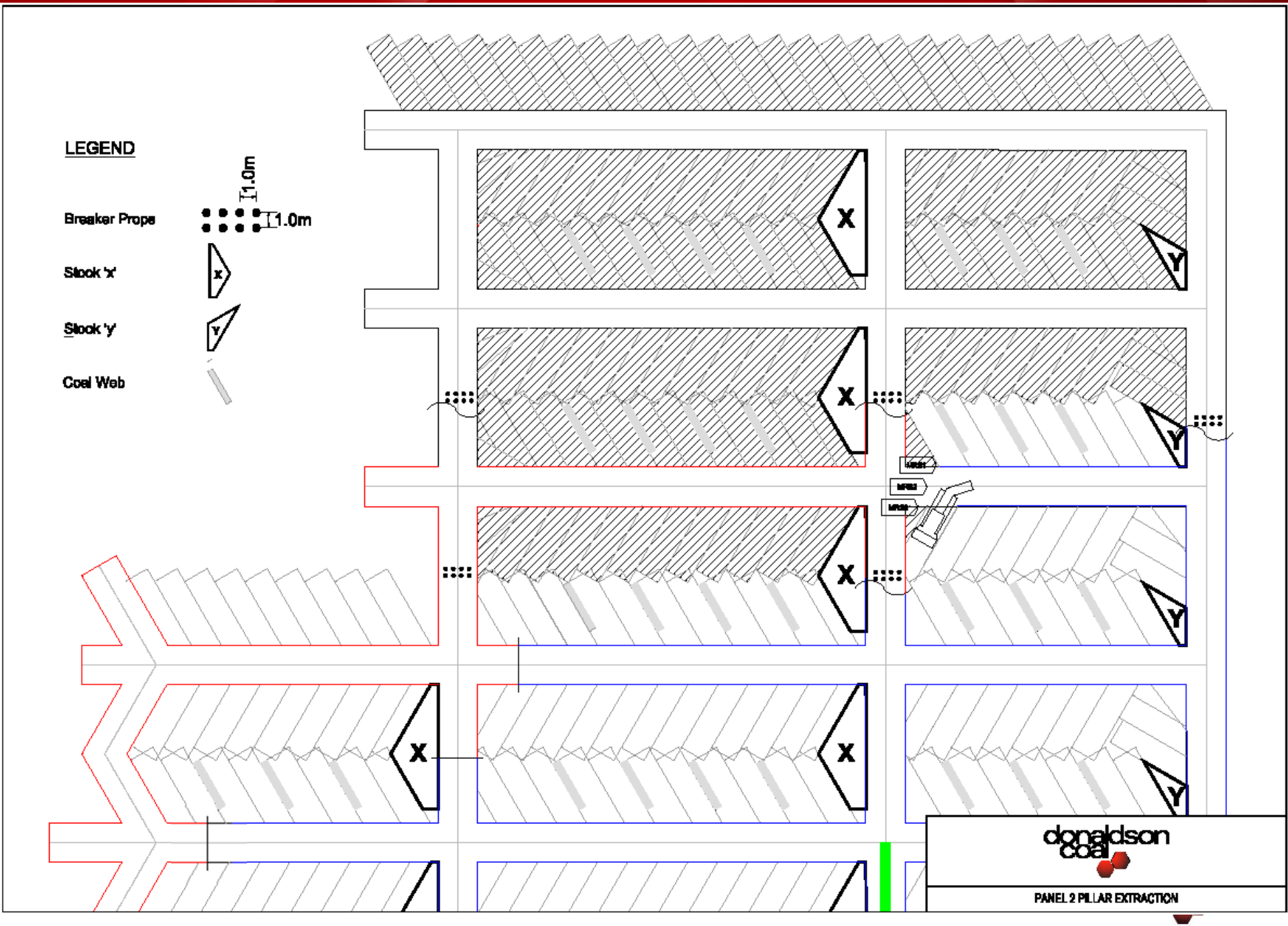
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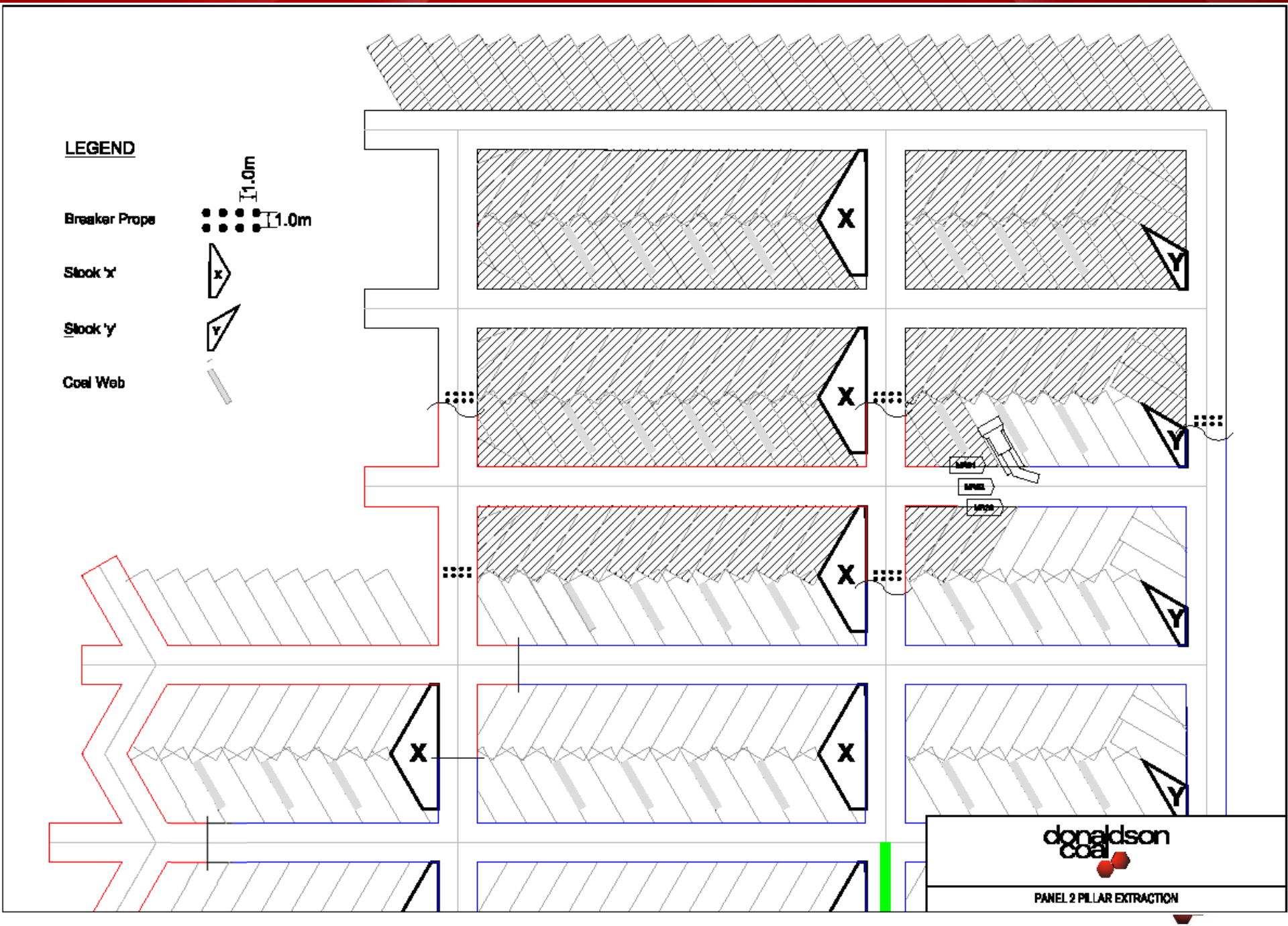
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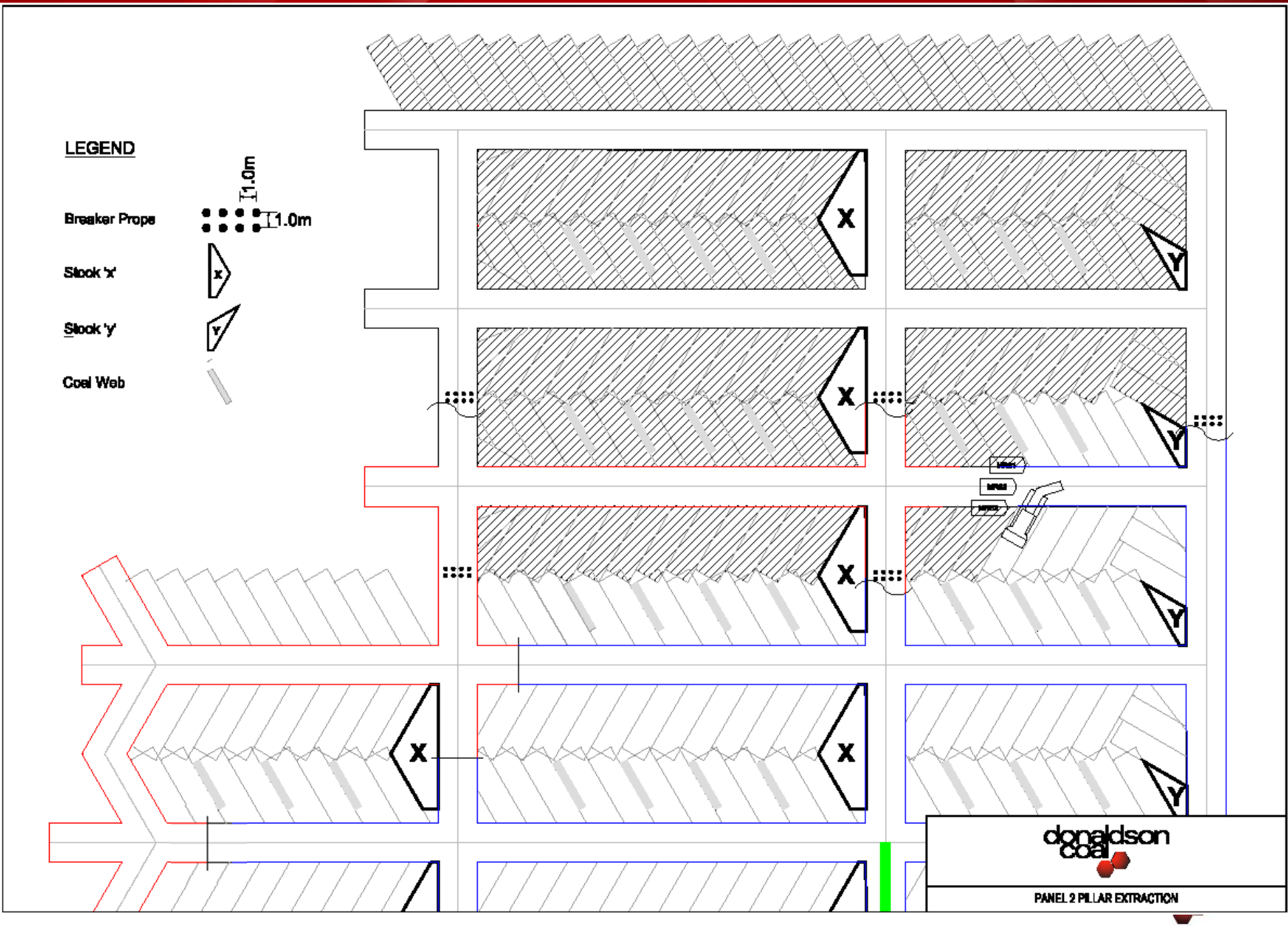
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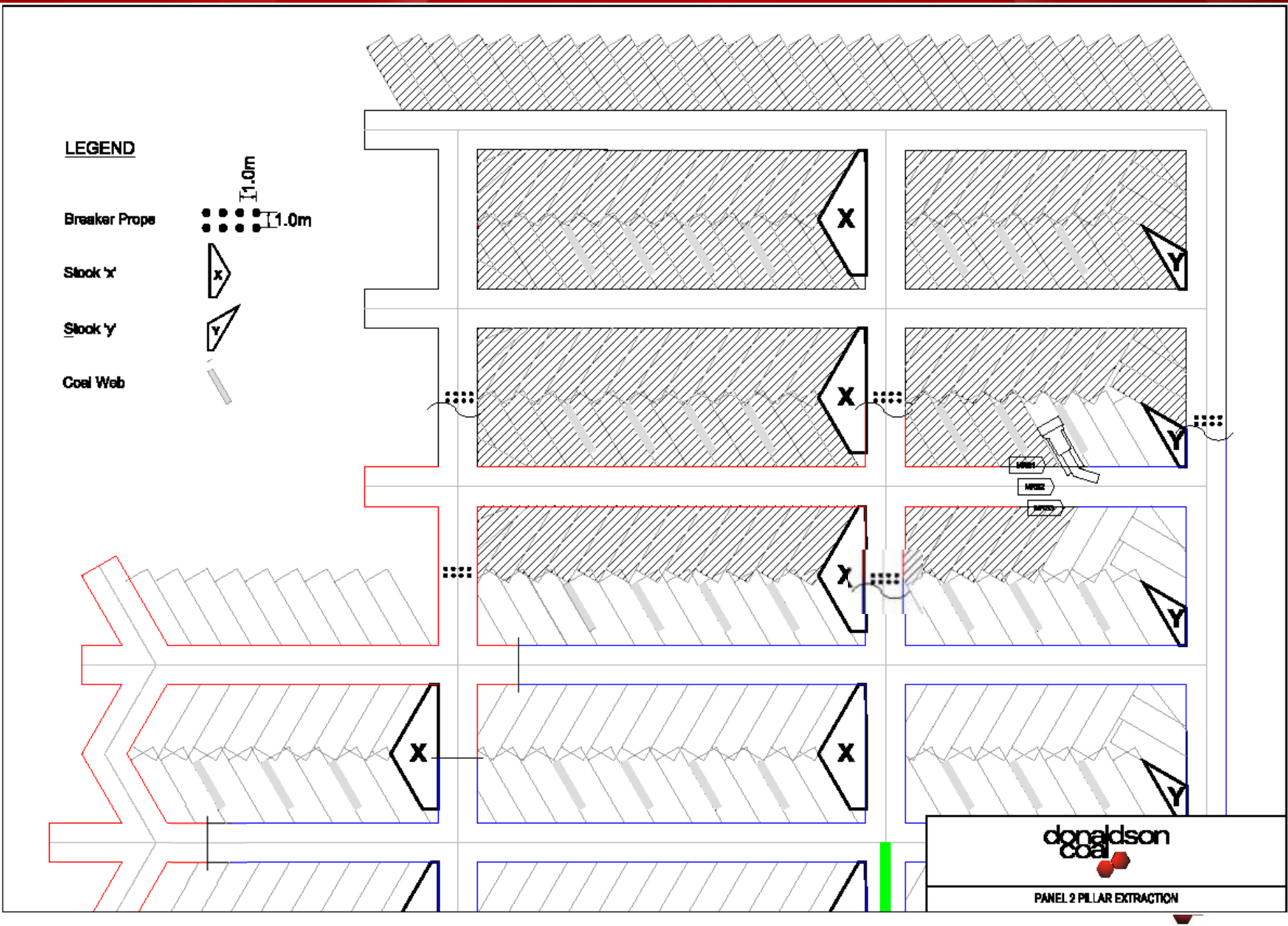
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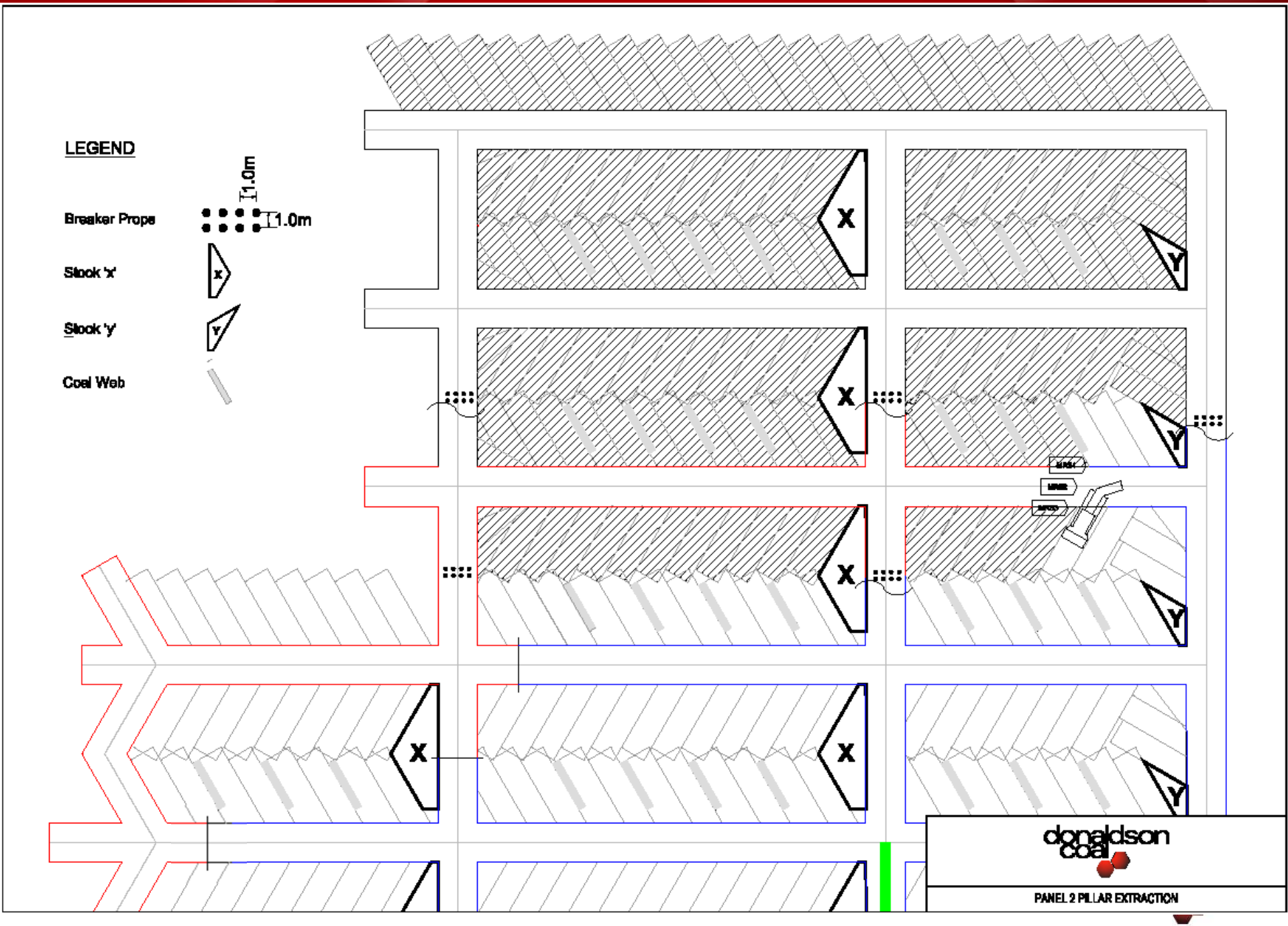
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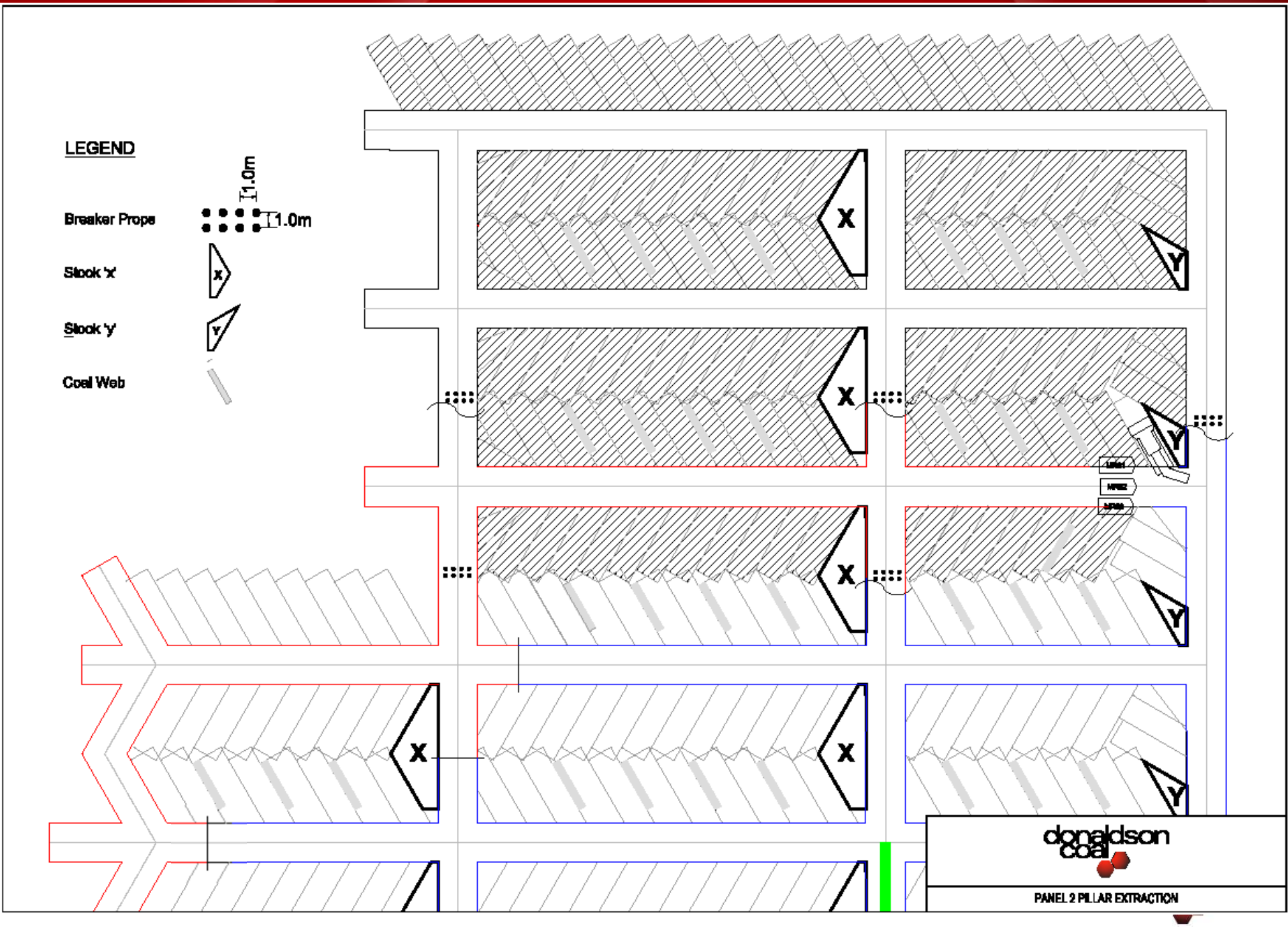
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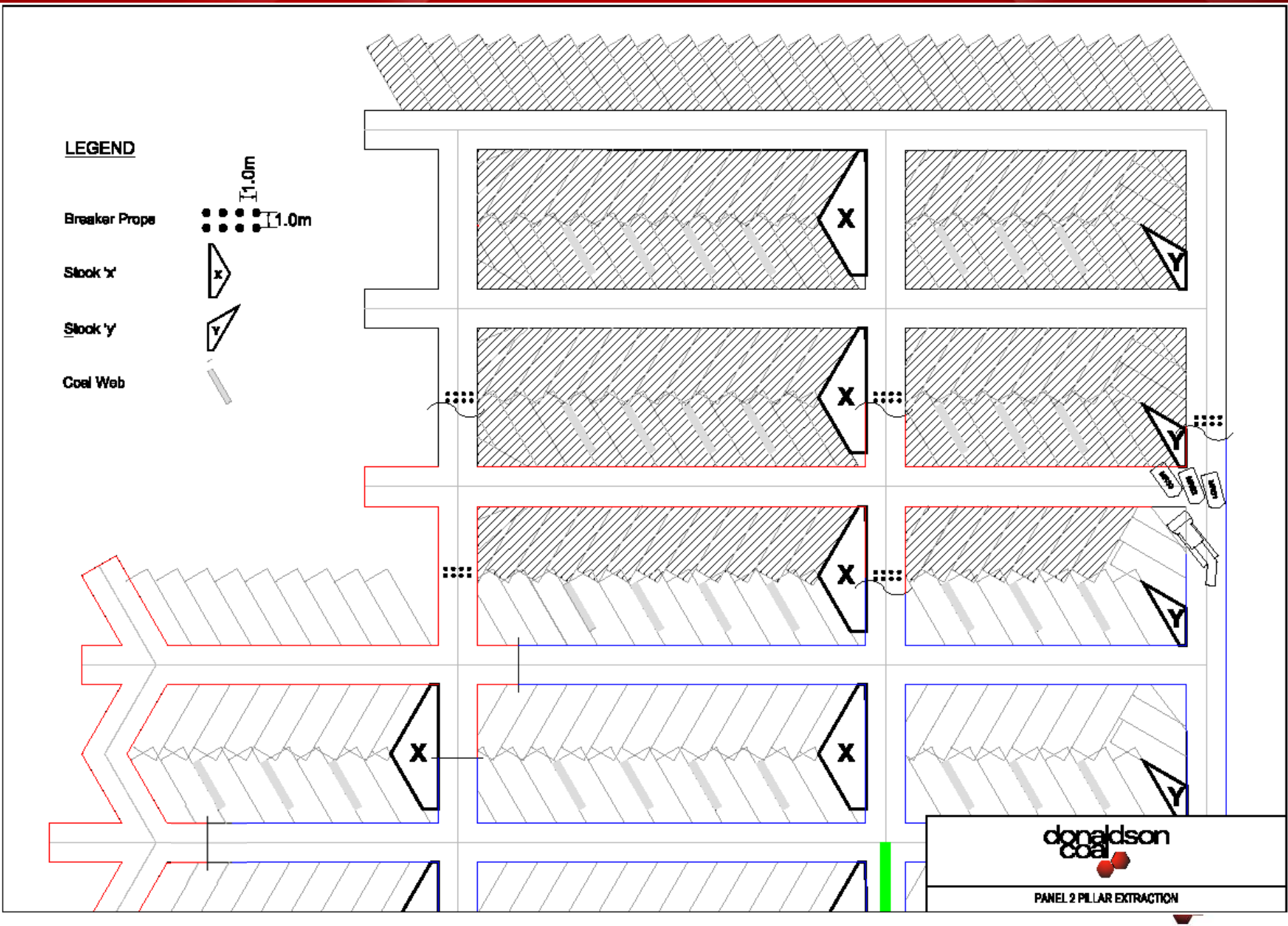
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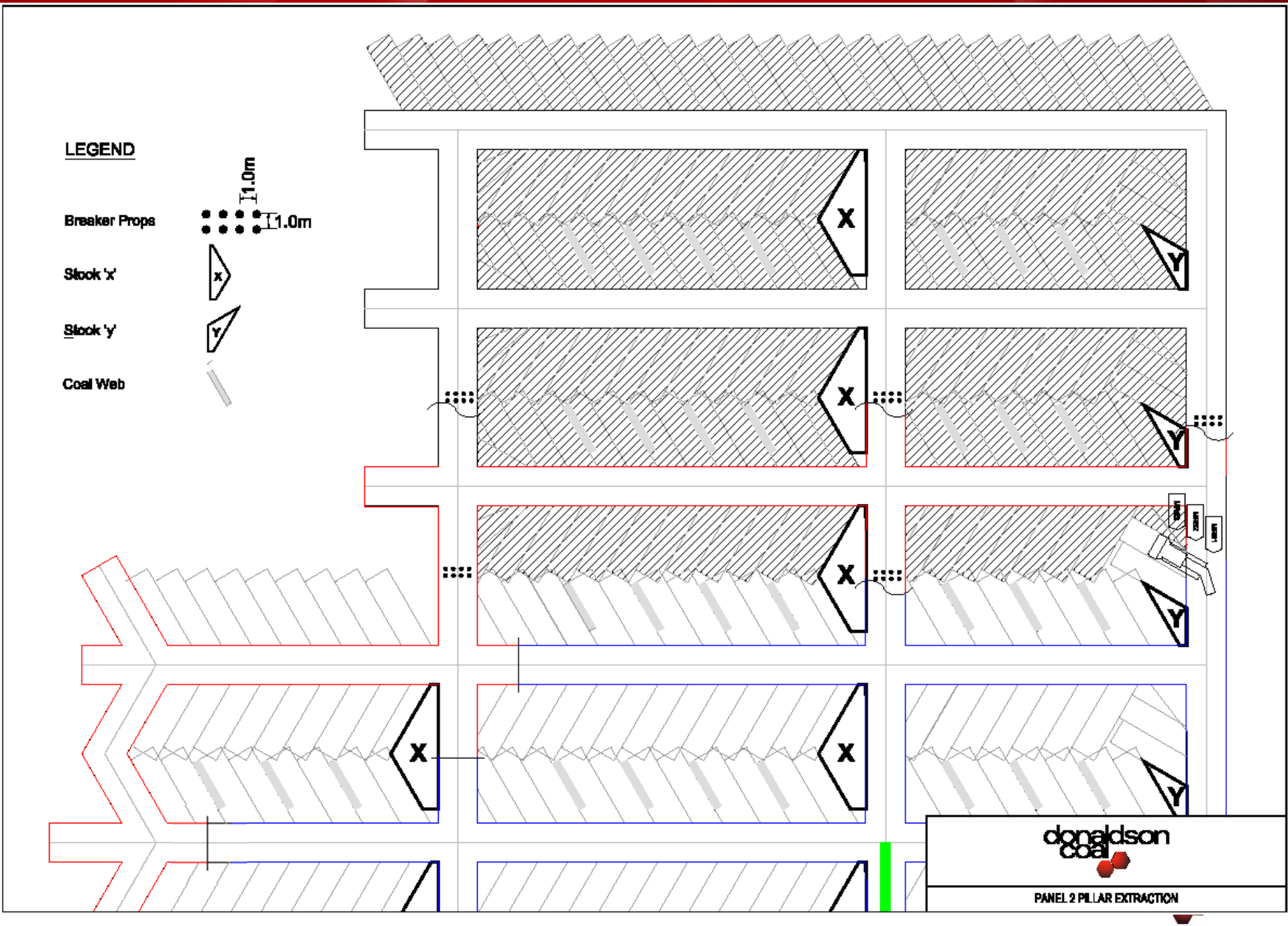
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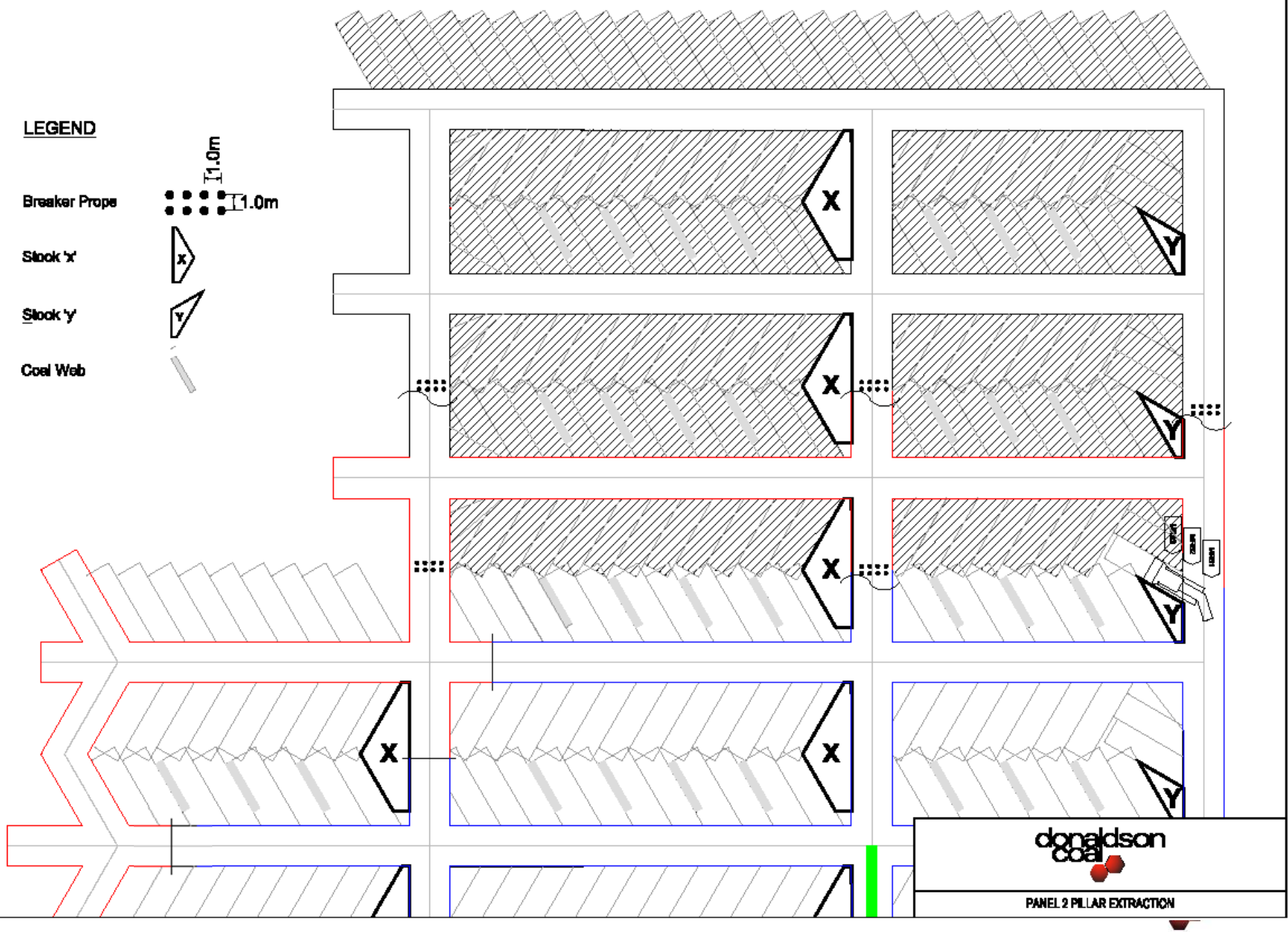
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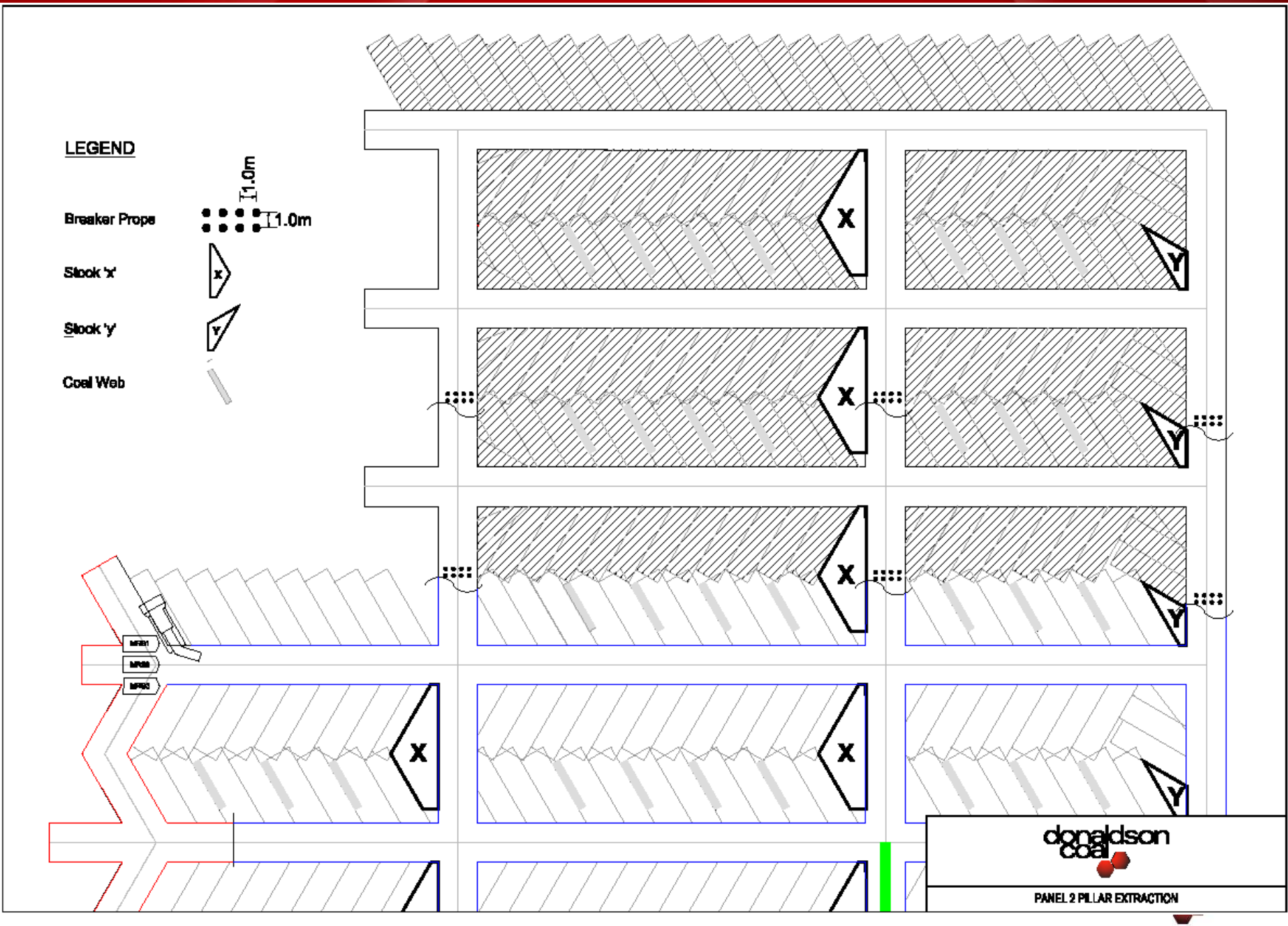
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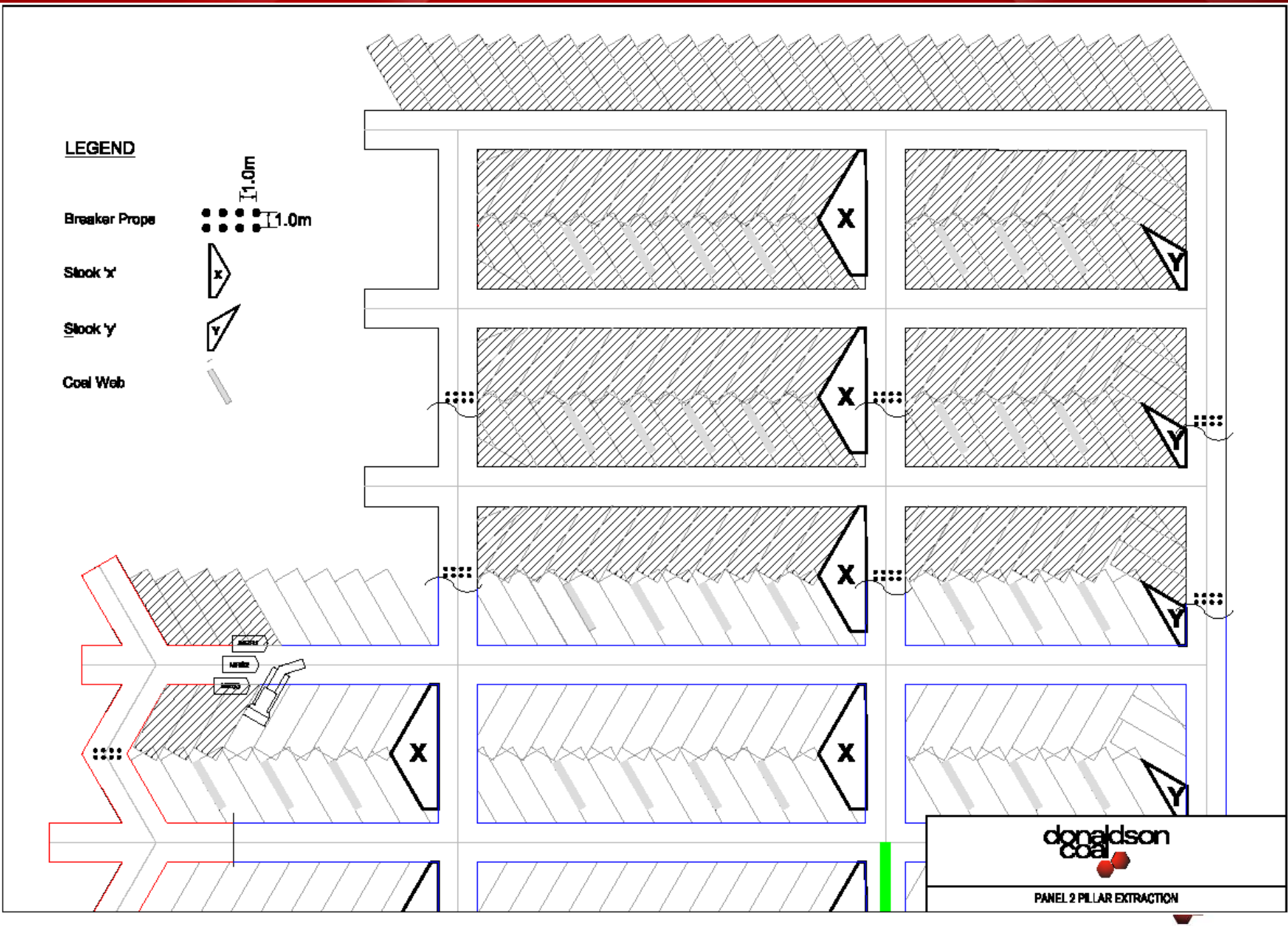
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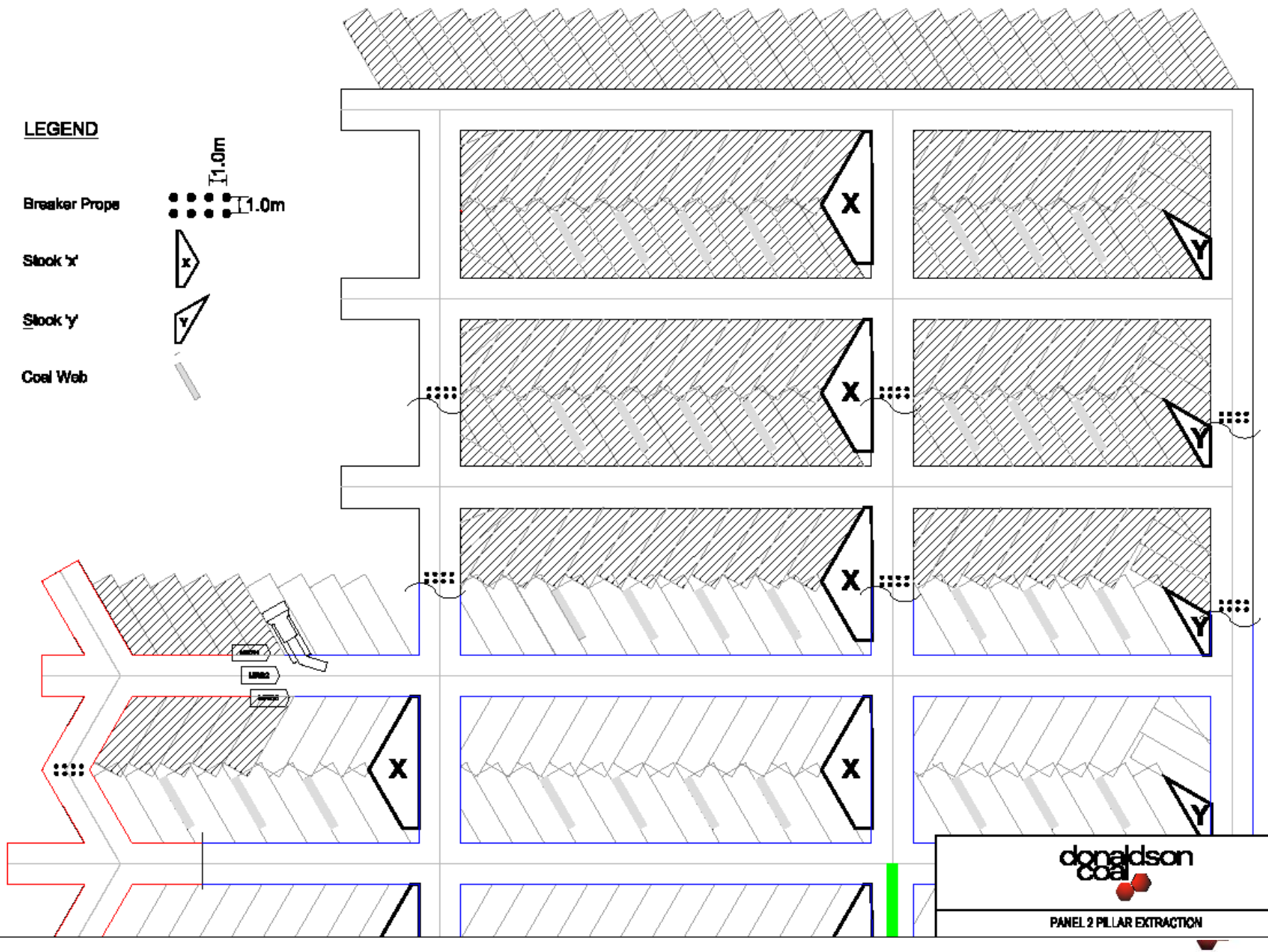
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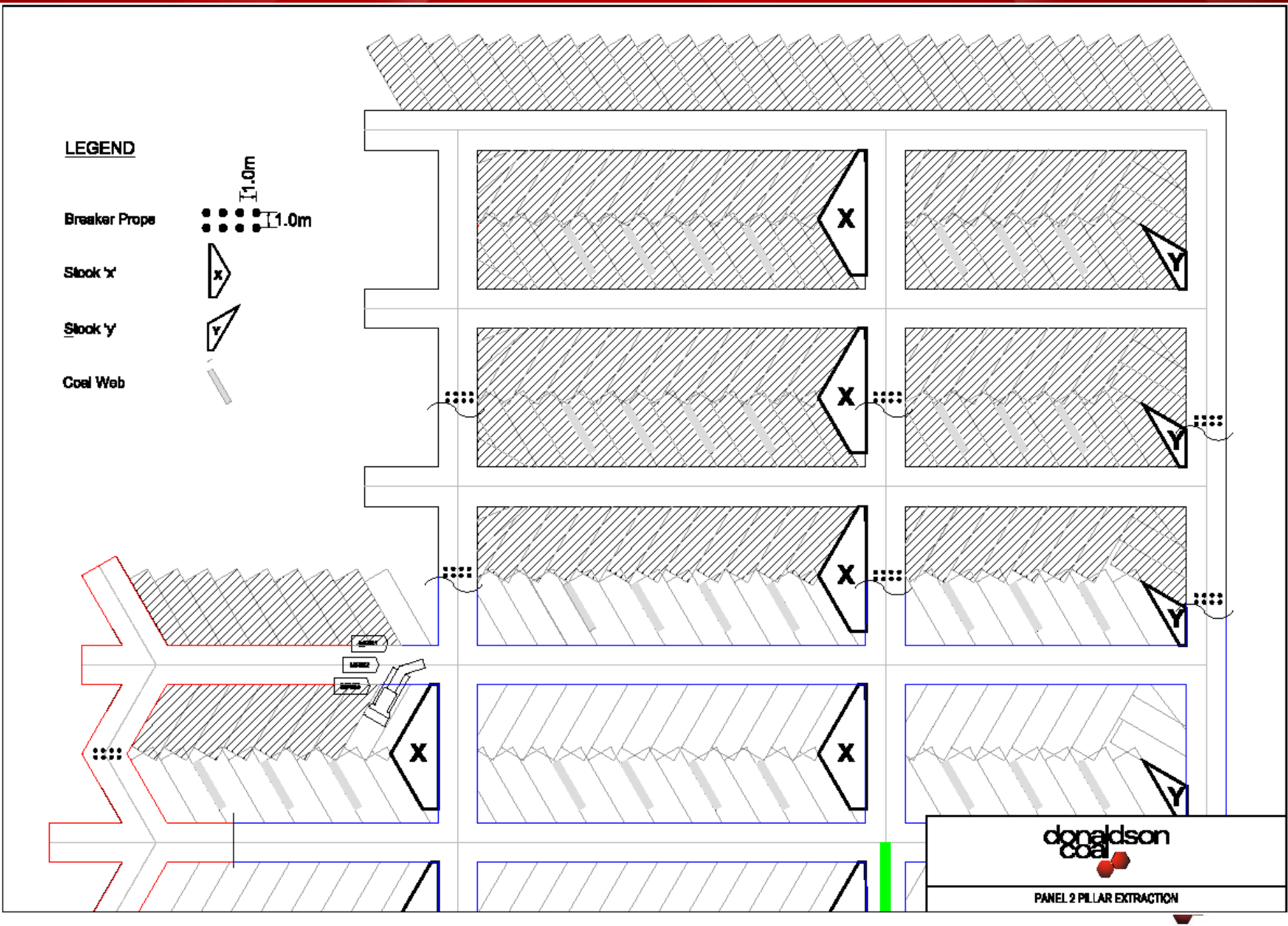
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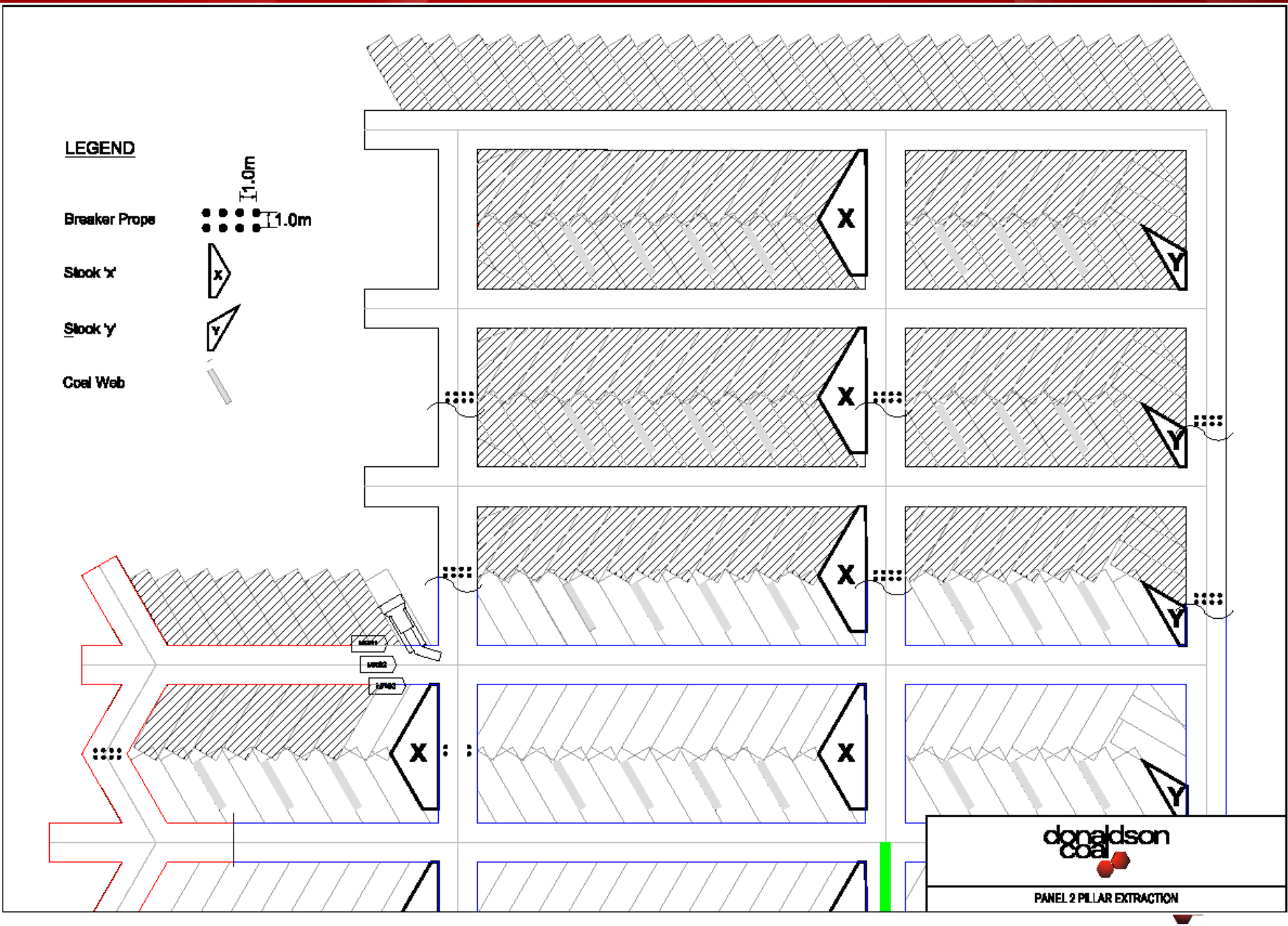
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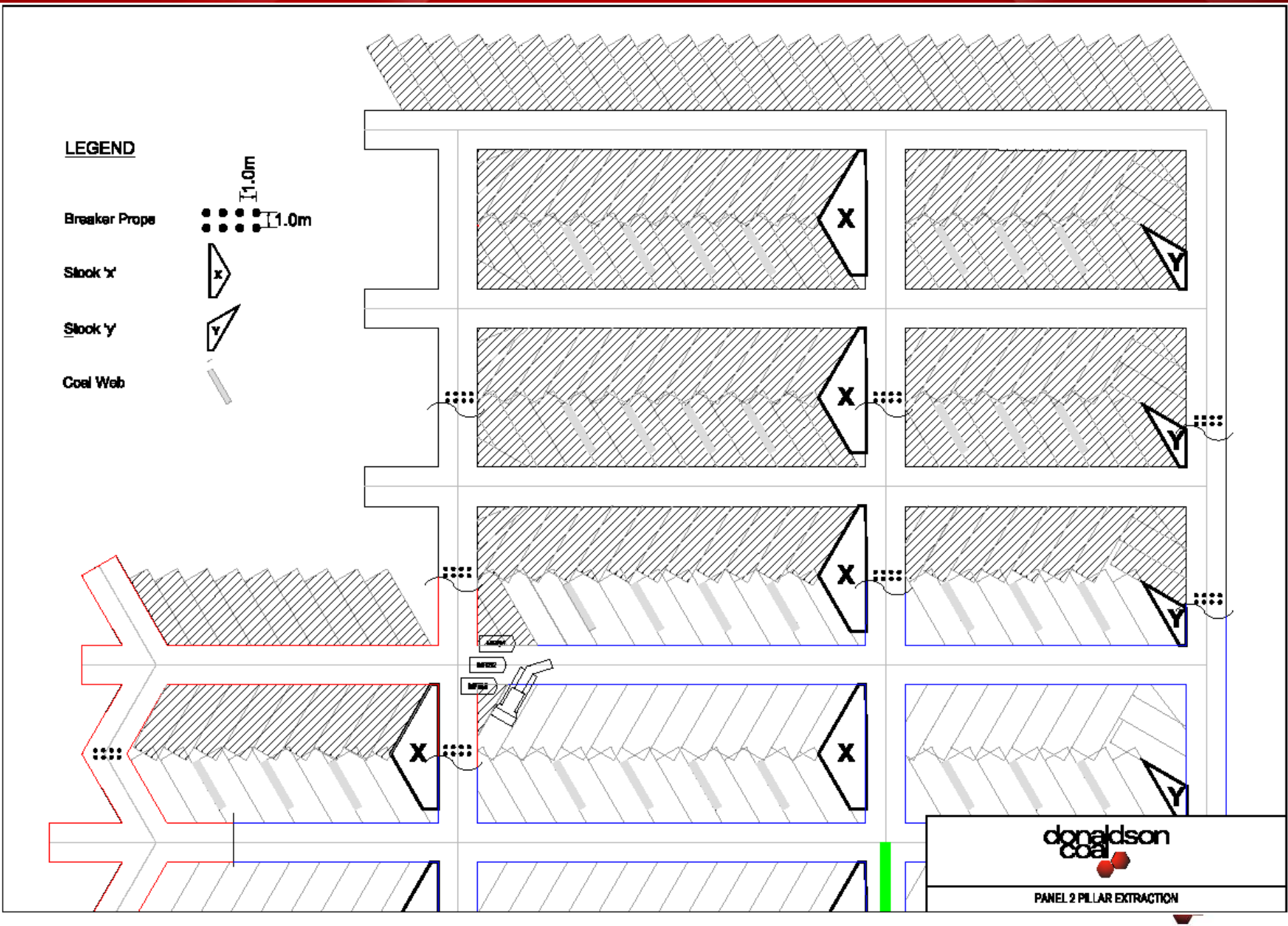
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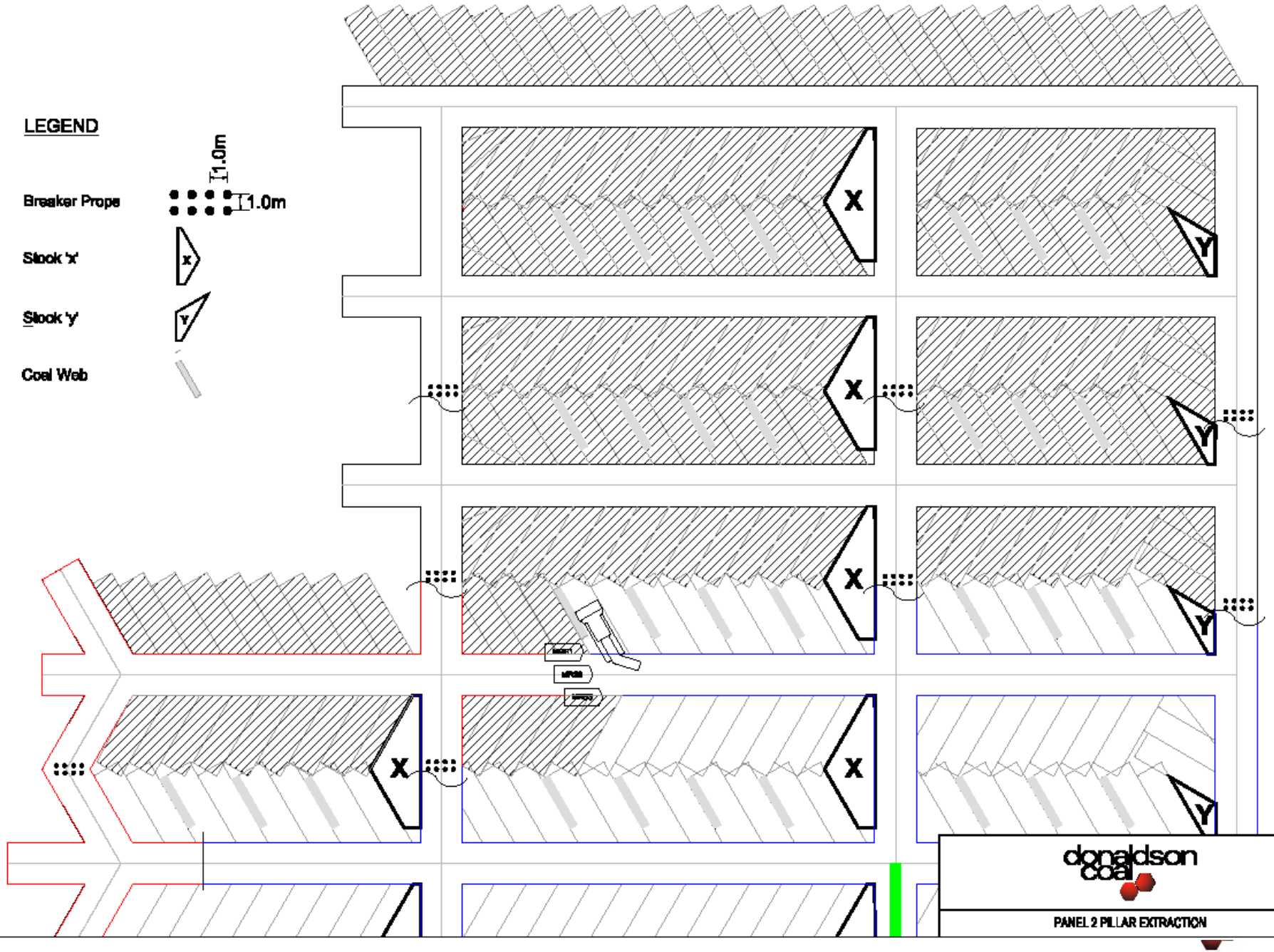
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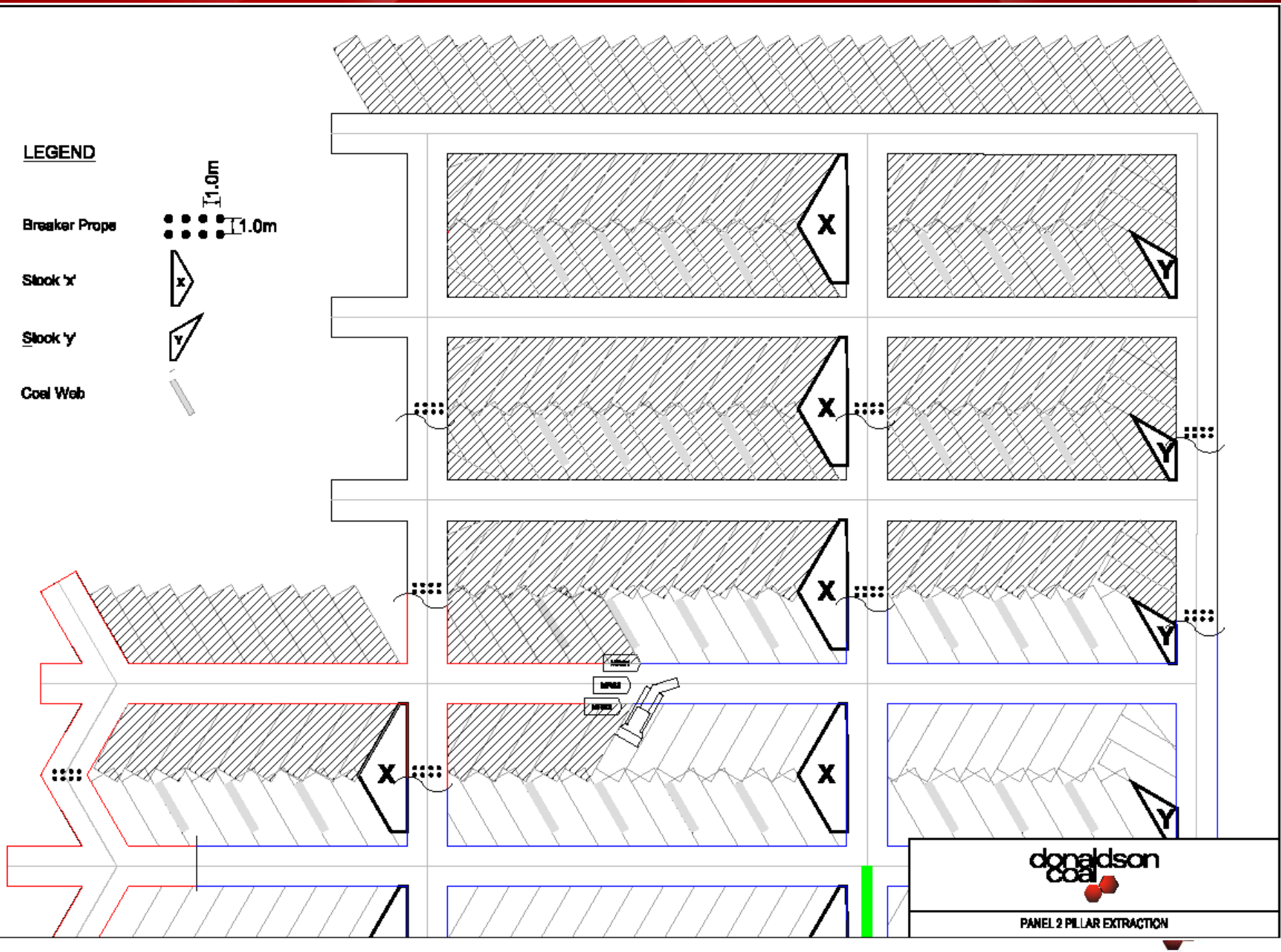
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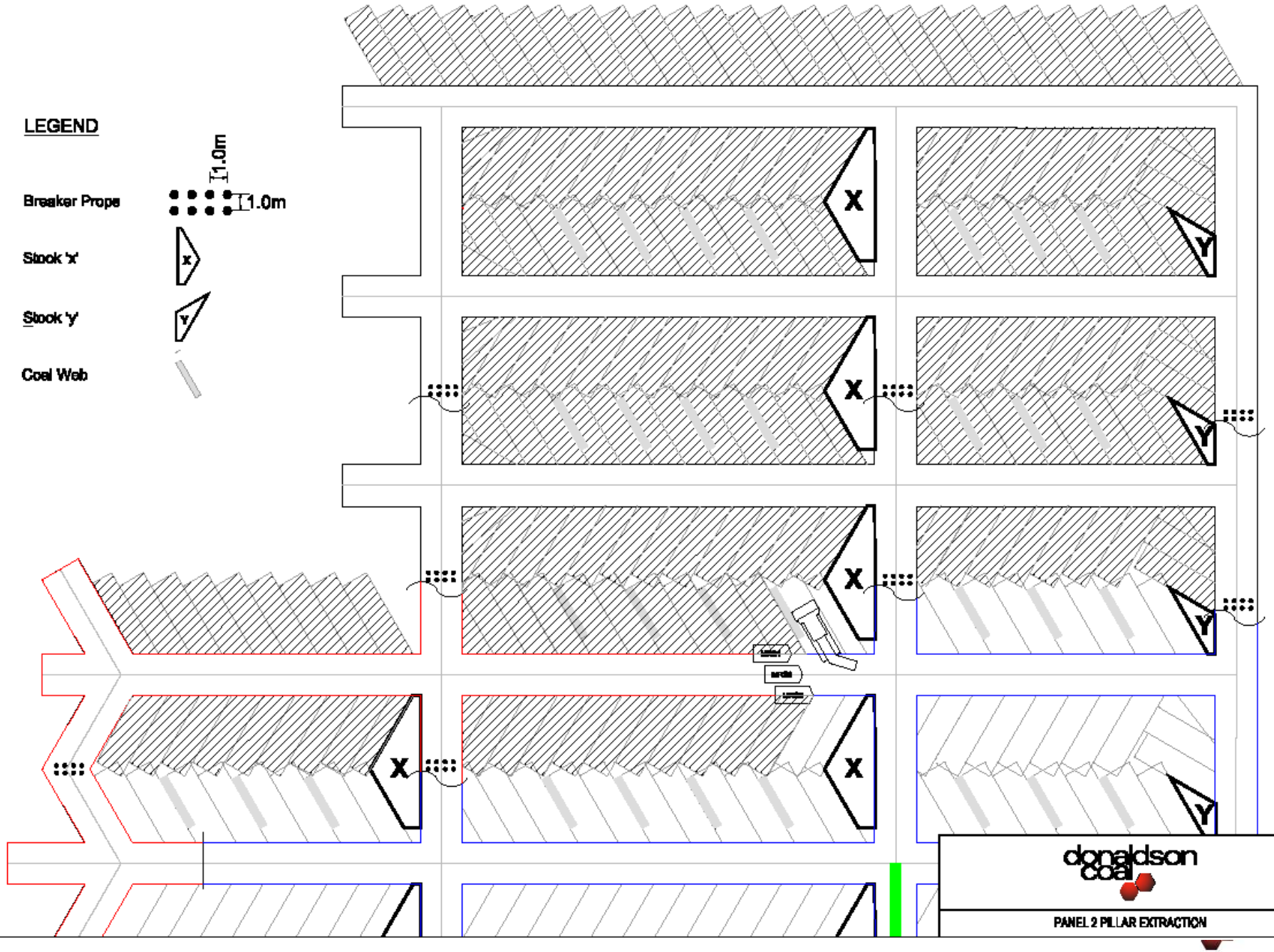
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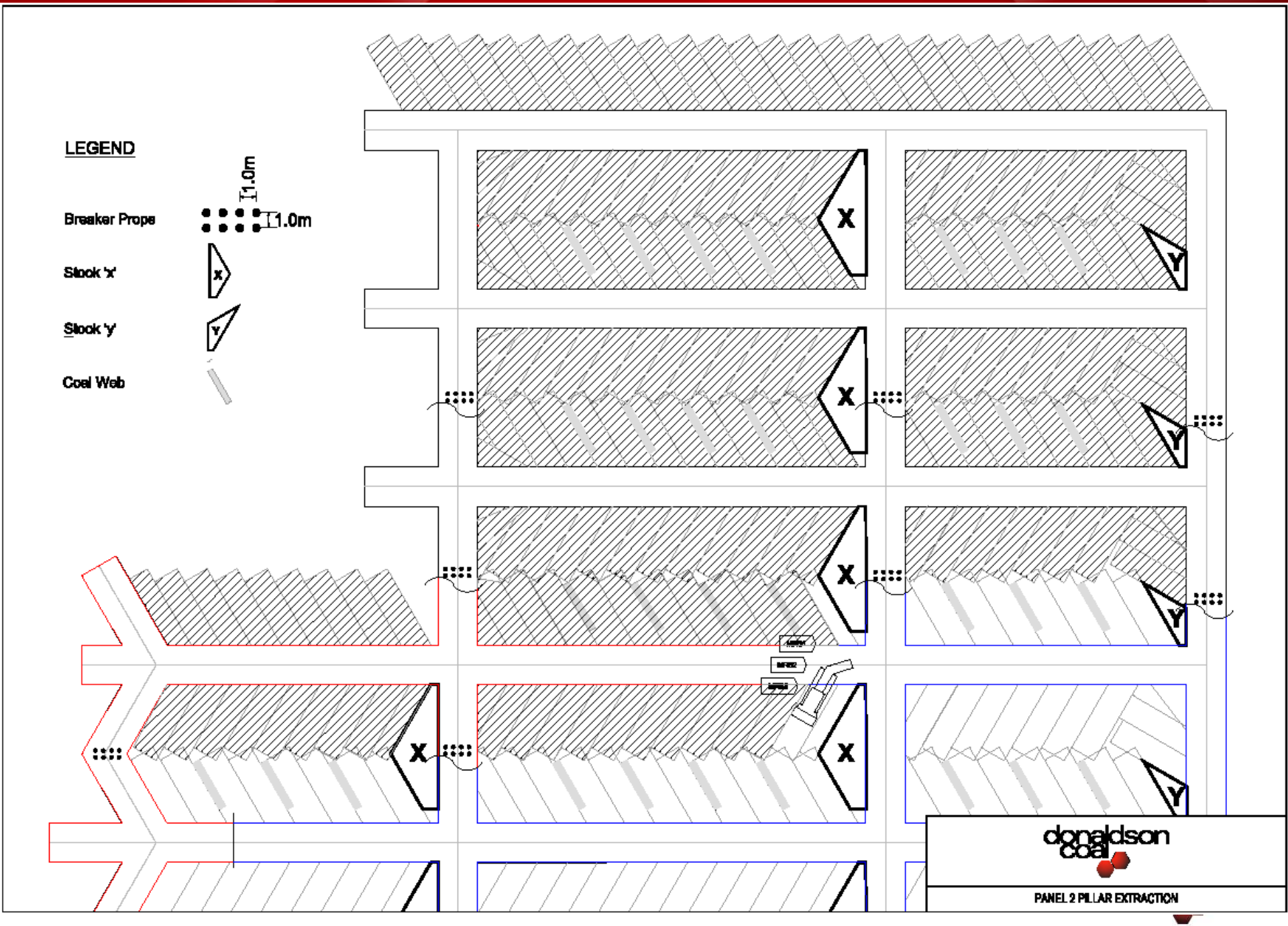
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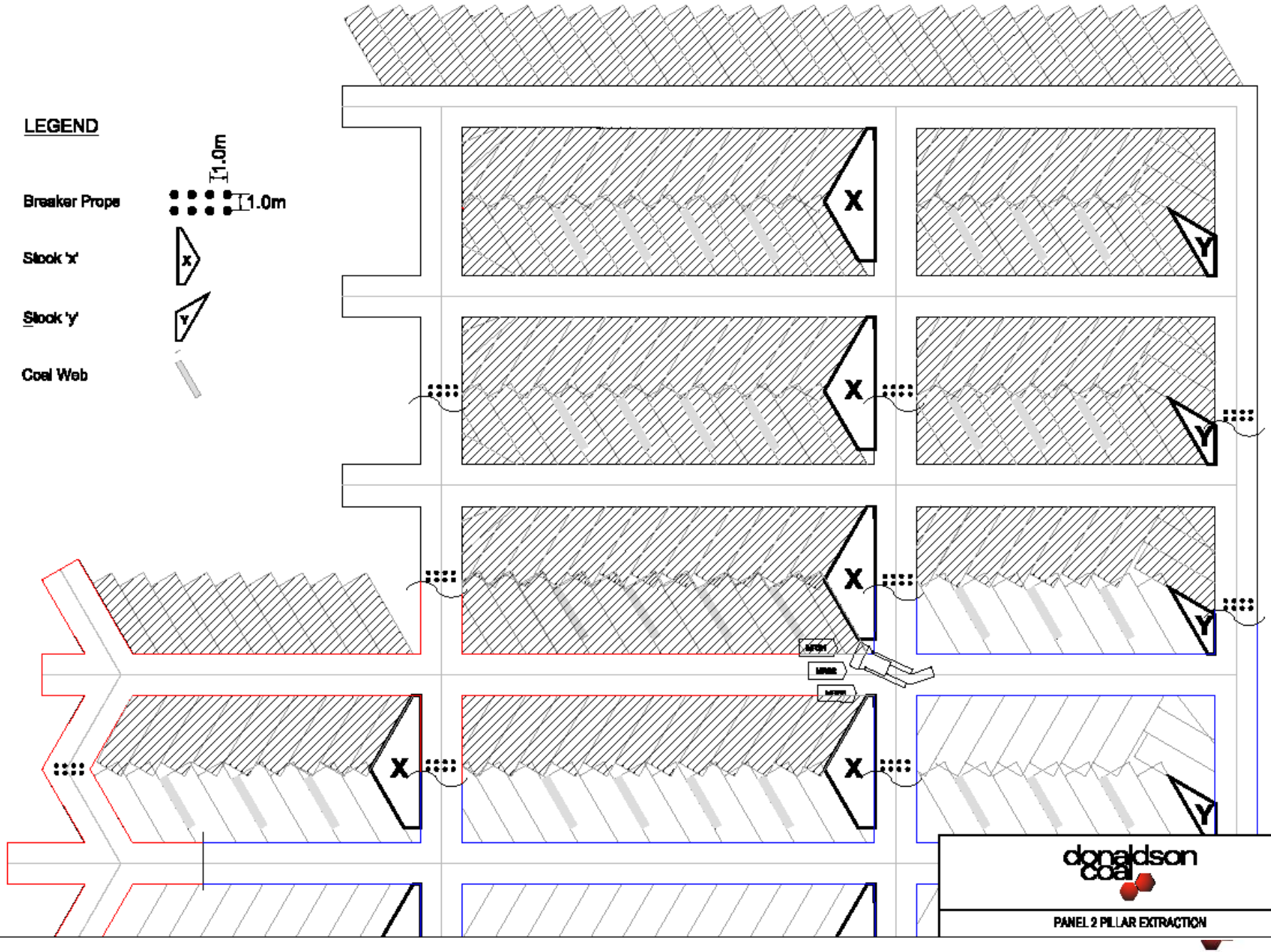
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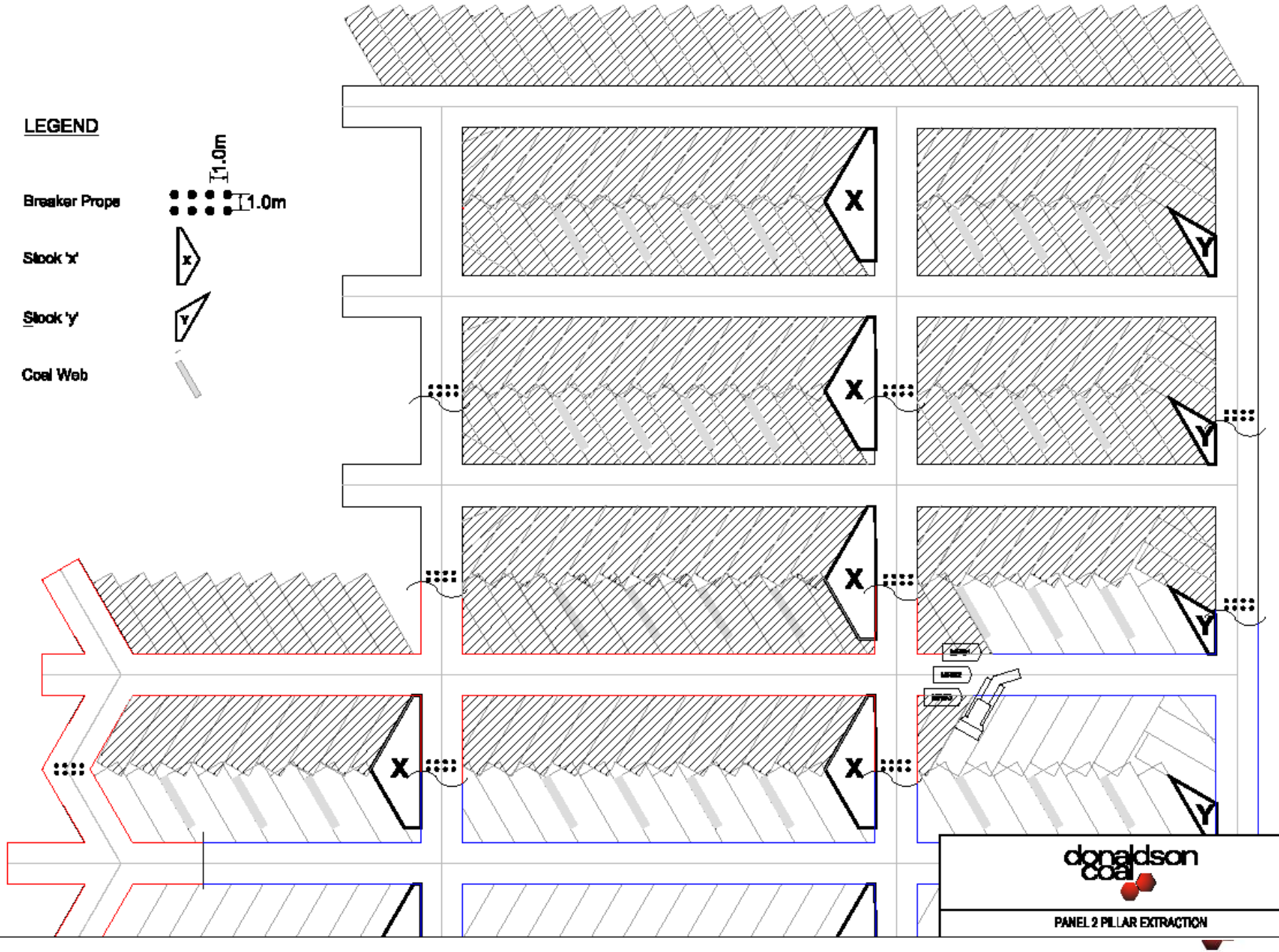
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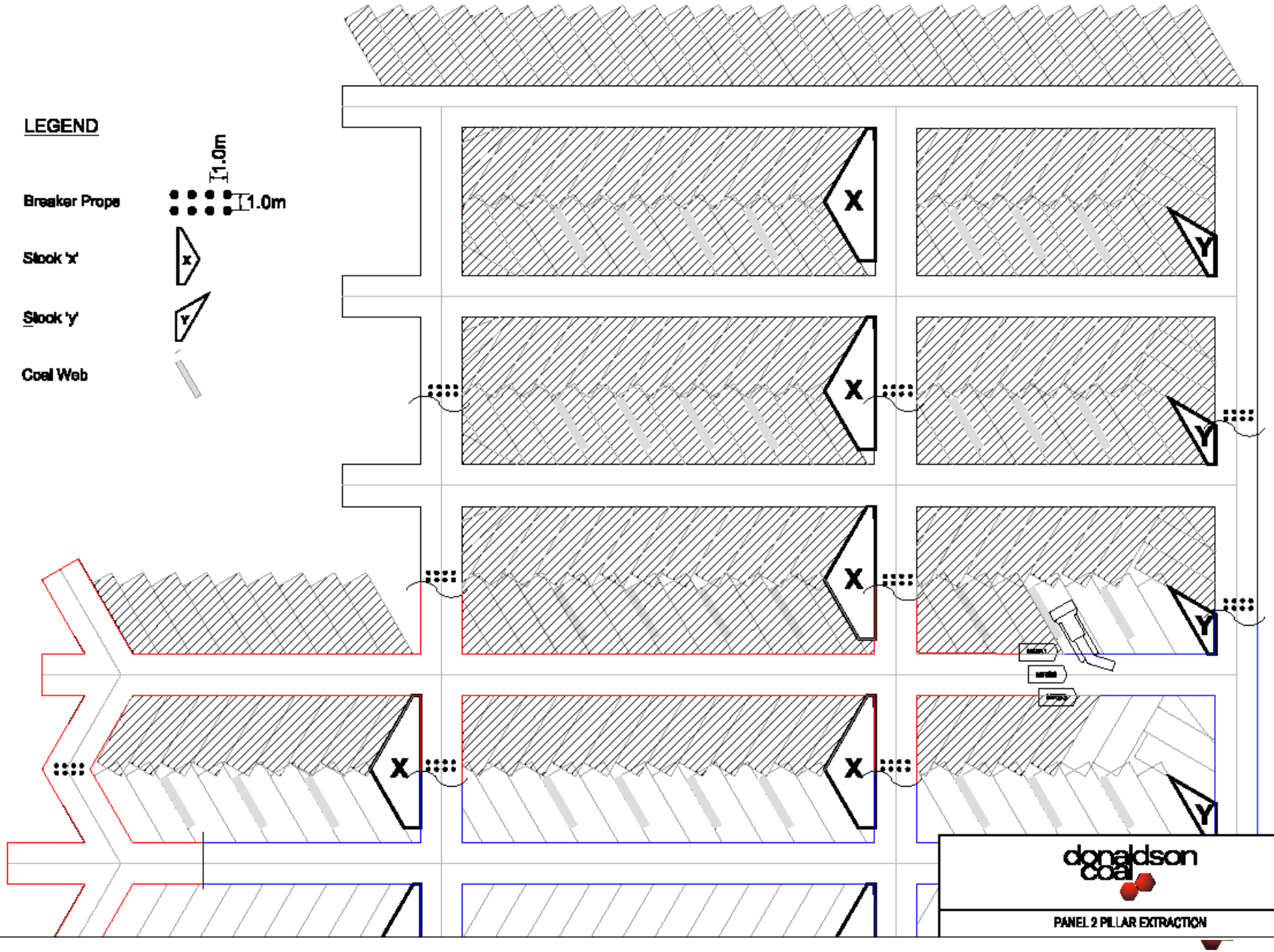
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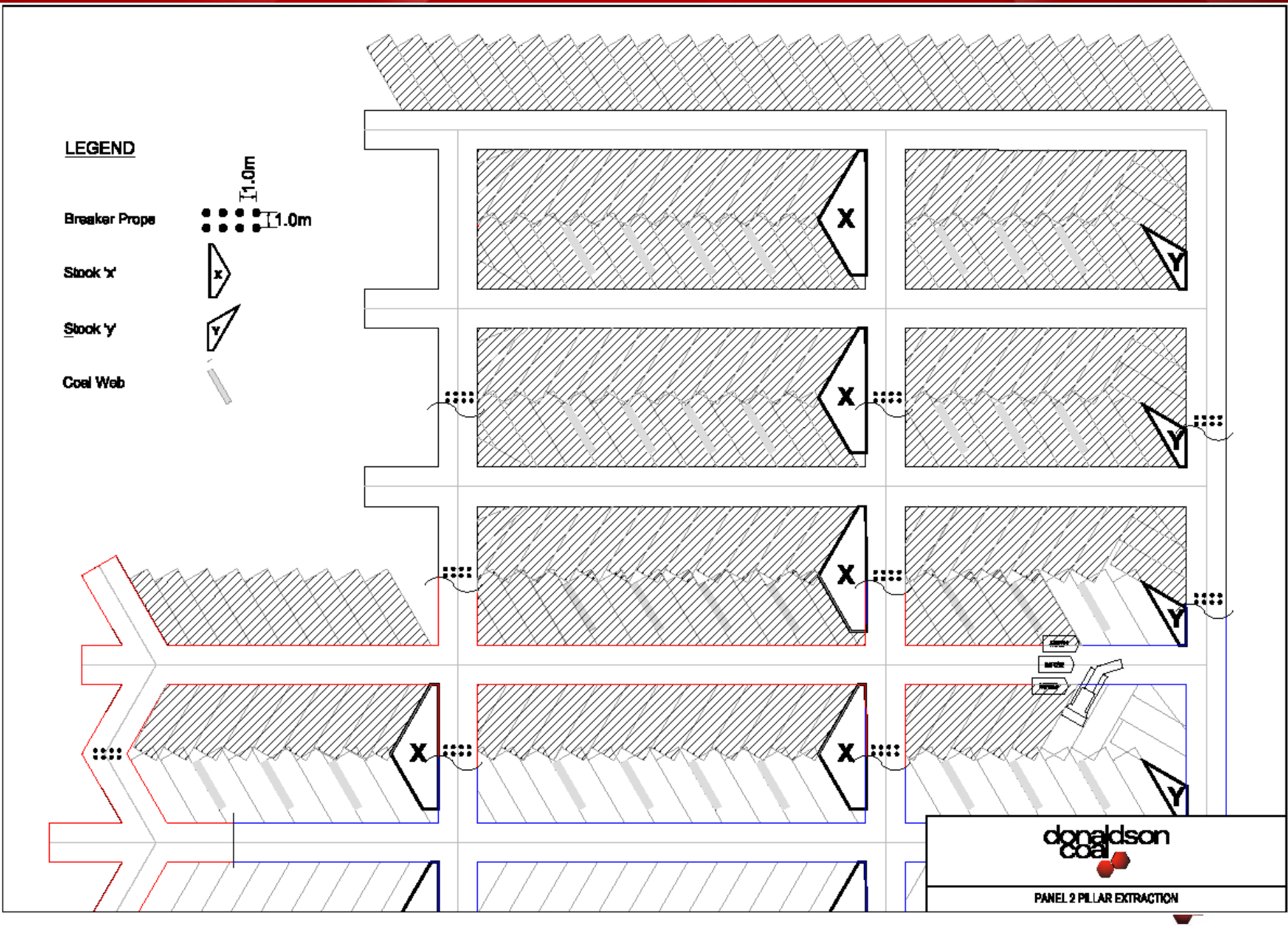
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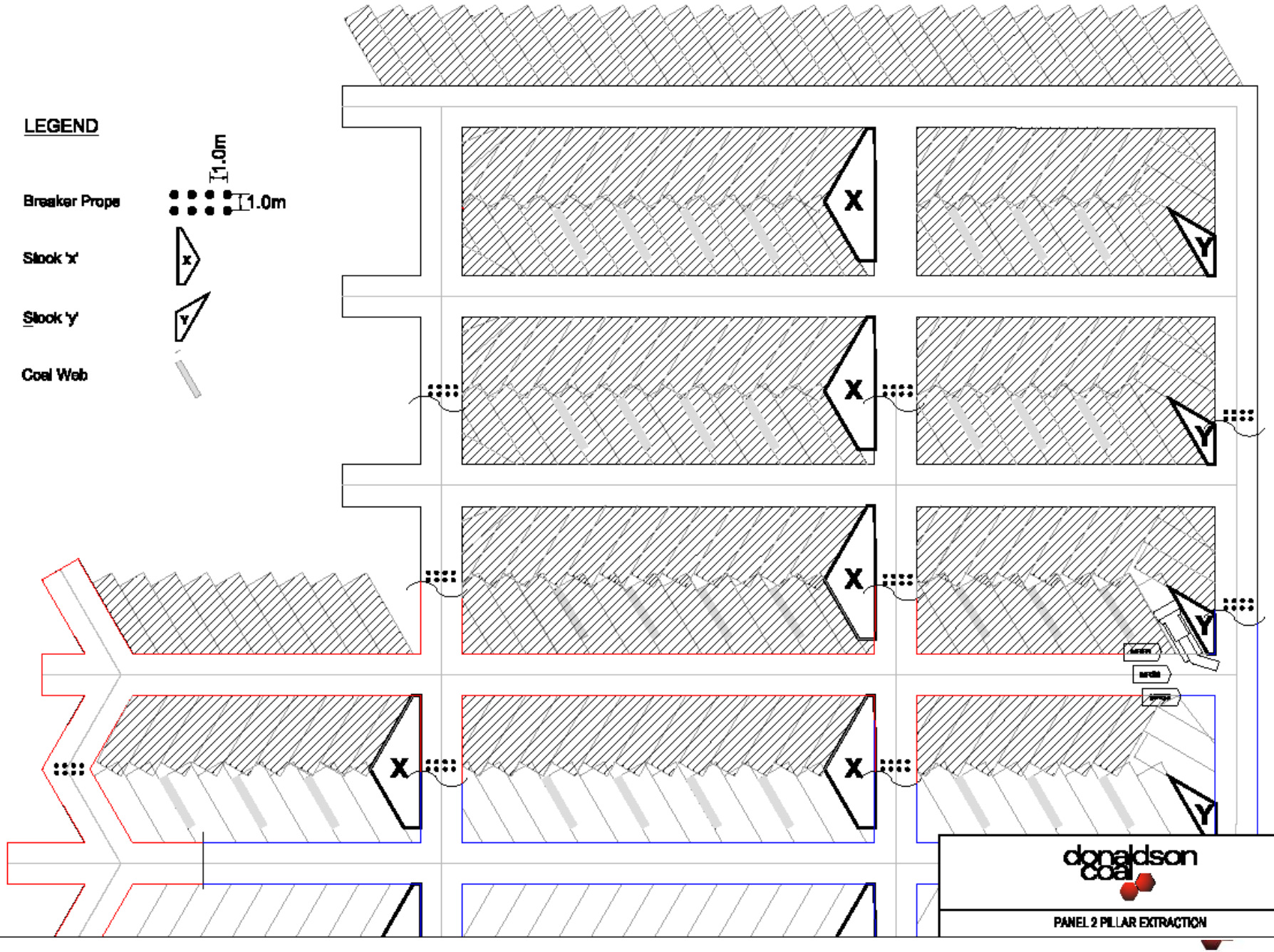
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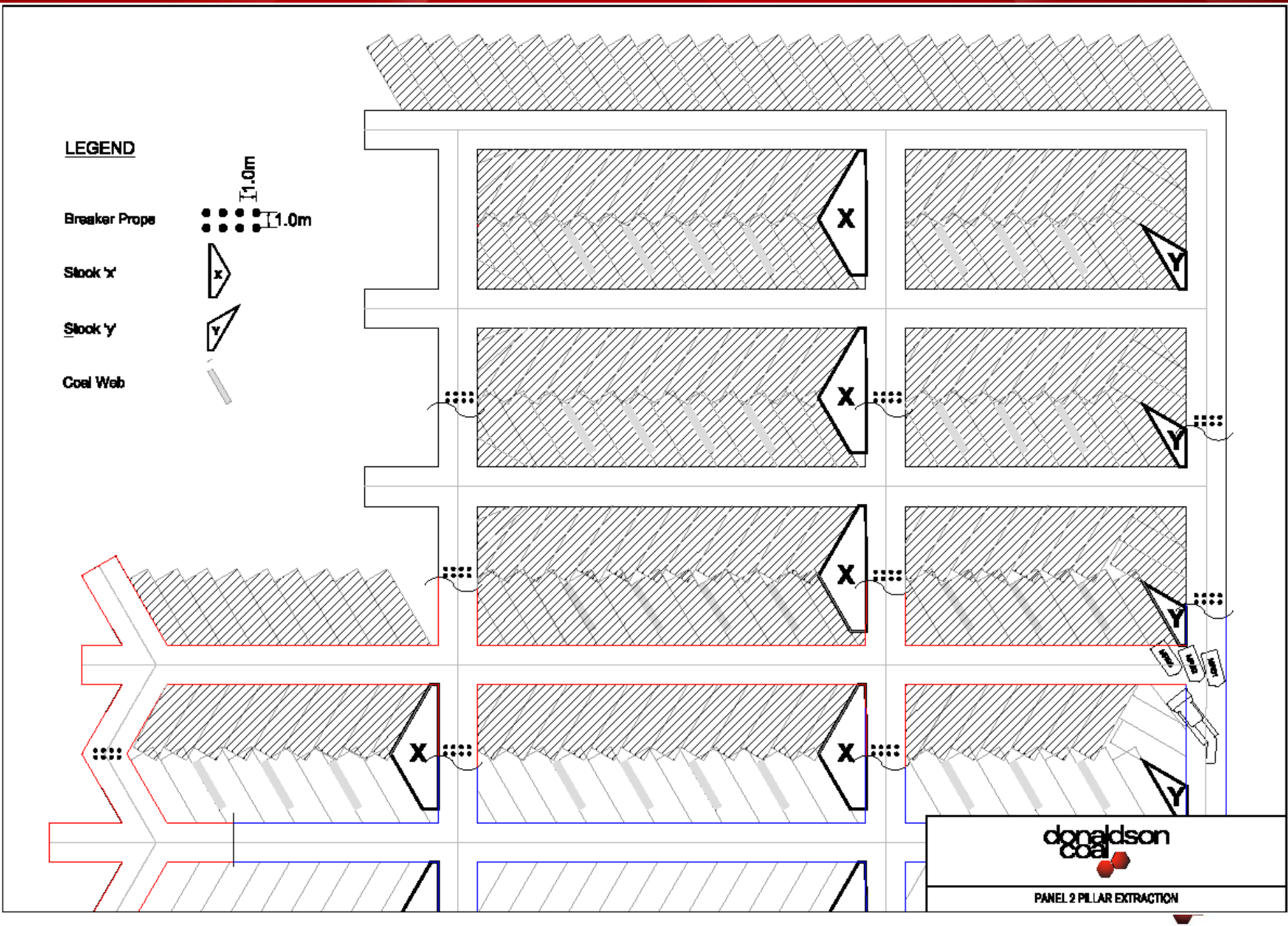
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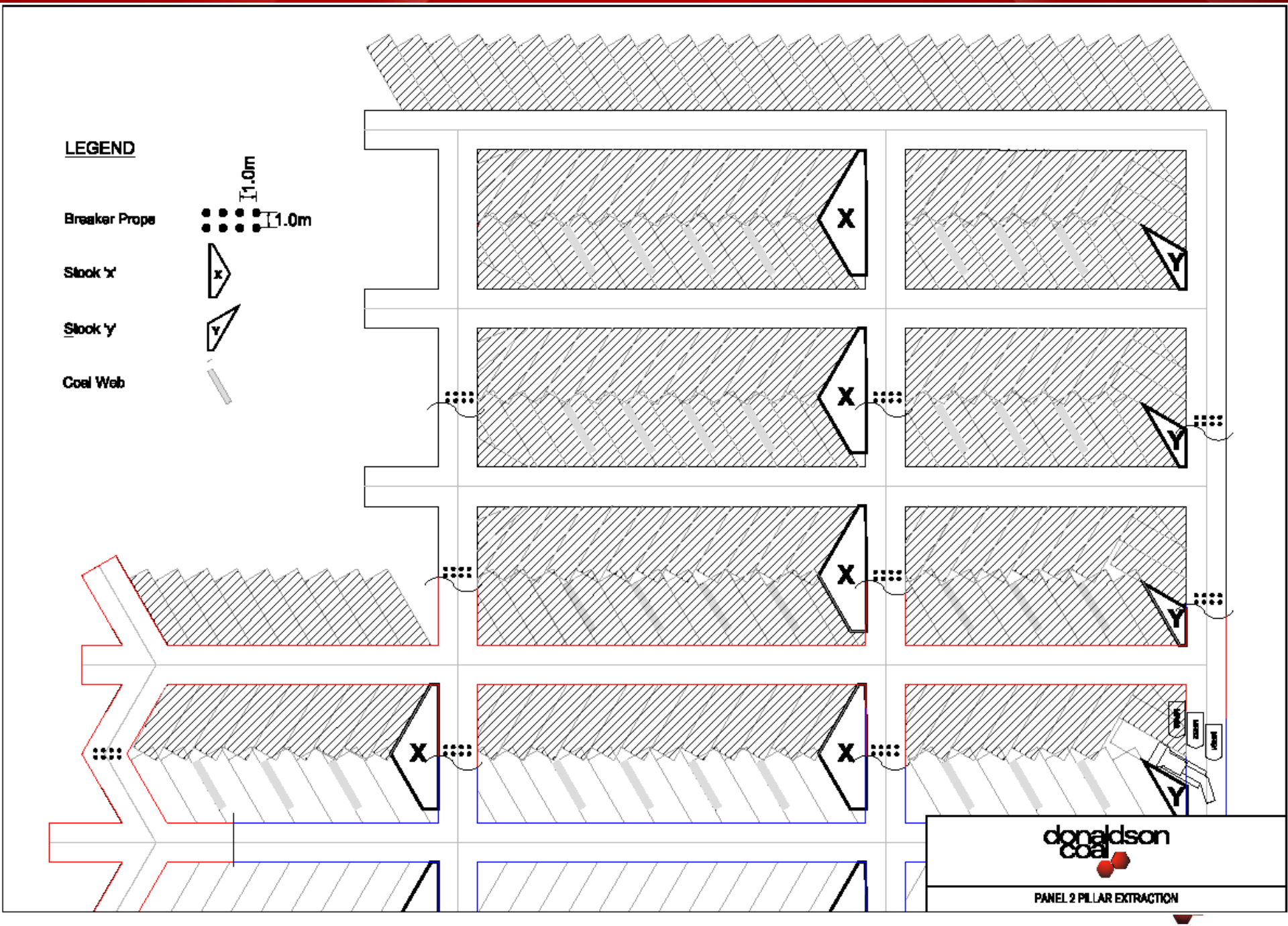
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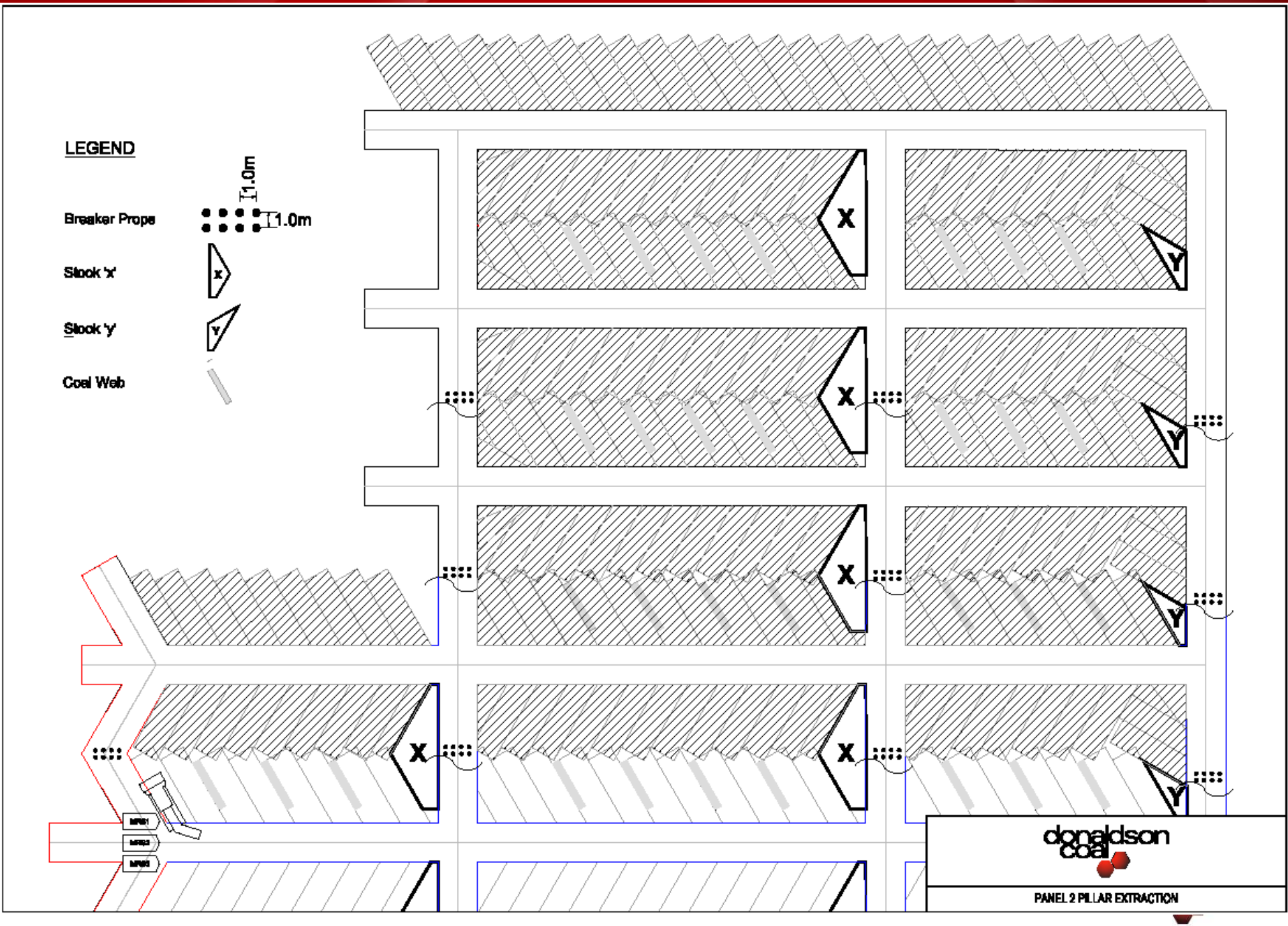
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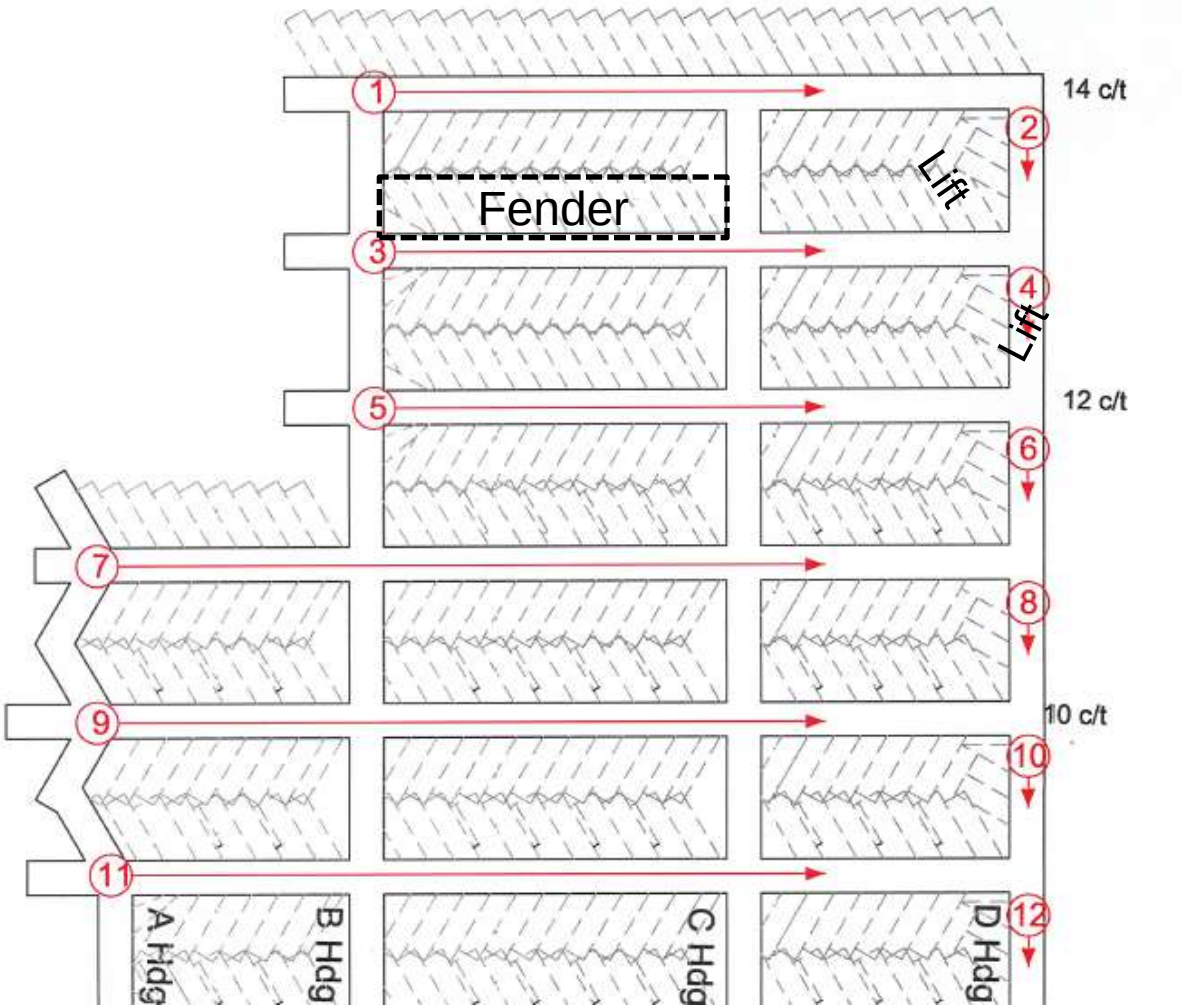
PANEL 2 PILLAR EXTRACTION

Panel 2 Pillar Extraction Sequence

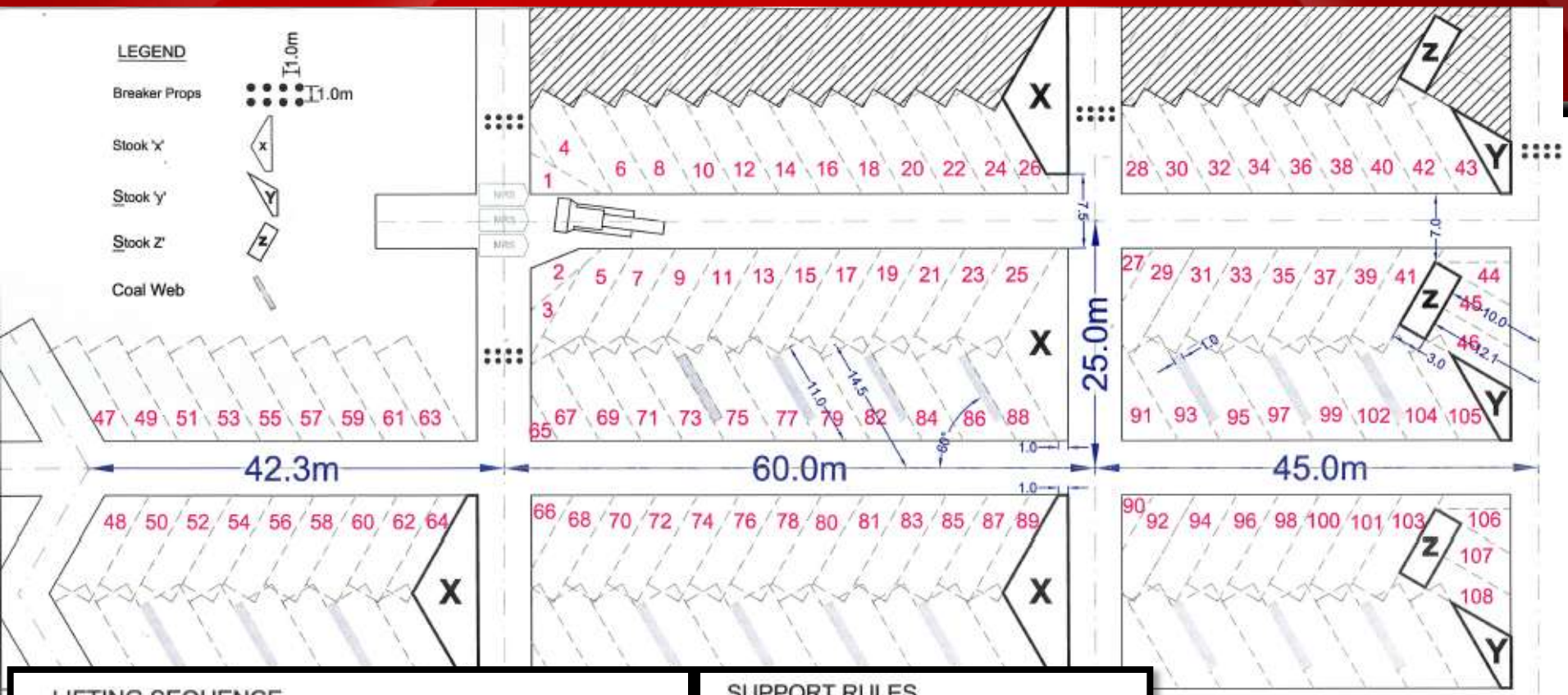


- **Double sided lifting from pre driven run outs using 3 BLS's**
- **Lifting of fenders of approx. 9.75 metres width**
- **Lift angle 60°**
- **Depth of lifts as per approved plan**
- **Team Leader and Miner Driver responsible for ensuring lift depths are as per approved Plan**

Approved: Manager of Mining Engineering

Approved: District Inspector of Coal Mines

Panel 2 Pillar Extraction Sequence



LIFTING SEQUENCE

(1)SET 3 MRS SQUARE TO HEADING OR CUT THROUGH IN INTERSECTION AS SHOWN

(2) EACH LIFT IS TO BE DRIVEN AT AN ANGLE OF APPROX 60° AND NOT TO EXCEED THE REQUIRED DISTANCE FROM THE CENTRE OF THE ROADWAY

(3) ADVANCE MRS TO ANGLE OF SECOND LIFT

(4) DISTANCE BETWEEN EACH MRS NOT TO EXCEED 0.7m DURING EXTRACTION

(5) DISTANCE BETWEEN CM AND ADJACENT MRS NOT TO EXCEED 3m DURING EXTRACTION

(6) COMPLETE SECOND LIFT

(6) STOOK 'Z' TO BE LEFT AS PROTECTION WHEN LIFTING AROUND CORNER

(7) COMPLETE LAST LIFT LEAVING STOOK 'X' AND STOOK 'Y' AS SHOWN

SUPPORT RULES

(1) HEADINGS AND CUT THROUGHS TO BE NO WIDER THAN 5.5m

(2) BREAKER PROPS ARE TO BE SET (APPROX AS SHOWN IN LEGEND)

(3) MINIMUM SUPPORT IN ALL HEADINGS AND CUT THROUGHS WILL BE AS SUPPORT RULES FOR DEVELOPMENT

(4) MRS ARE TO BE SET PRIOR TO THE COMMENCEMENT OF EACH LIFT

(5) NO PERSON IS TO GO BEYOND ANY BREAKER PROP SUPPORT (MRS OR TIMBER) INTO THE GOAF AREA

(6) NOTHING IN THESE SUPPORT RULES SHALL PREVENT ANY PERSON FROM SETTING ADDITIONAL SUPPORT

(7) STOOKS 'X', 'Y' AND 'Z' MINIMUM SIZE IS AS SHOWN

3.9.10

Approved: Manager of Mining Engineering

3.9.10

Approved: District Inspector of Coal Mines

donaldson coal

Extraction Sequence (Continued)

- Minor variations to planned sequence can only be approved in writing by Area Leader after visual examination
- Length of lifts is as per approved sequence plan (all measurements are from centre line of heading/ cut through angled at 60^{o})
- Width of lift 3.7m (CM03) or 4.0m (CM05)
- Team Leader and Miner driver have responsibility to ***ensure*** lift depth is as per approved sequence plan (using length of machine, conduit, tape measure etc)
- For off centre roadways, survey lines will be installed to mark the design centre

Extraction Sequence (Continued)

- Position of last lift & Stook marked on rib as sequence control (*to ensure correct stook size is left*)
- If a BLS unavailable for Double Side Lifting, the operation may revert back to single sided lifting after Change Management Process completed

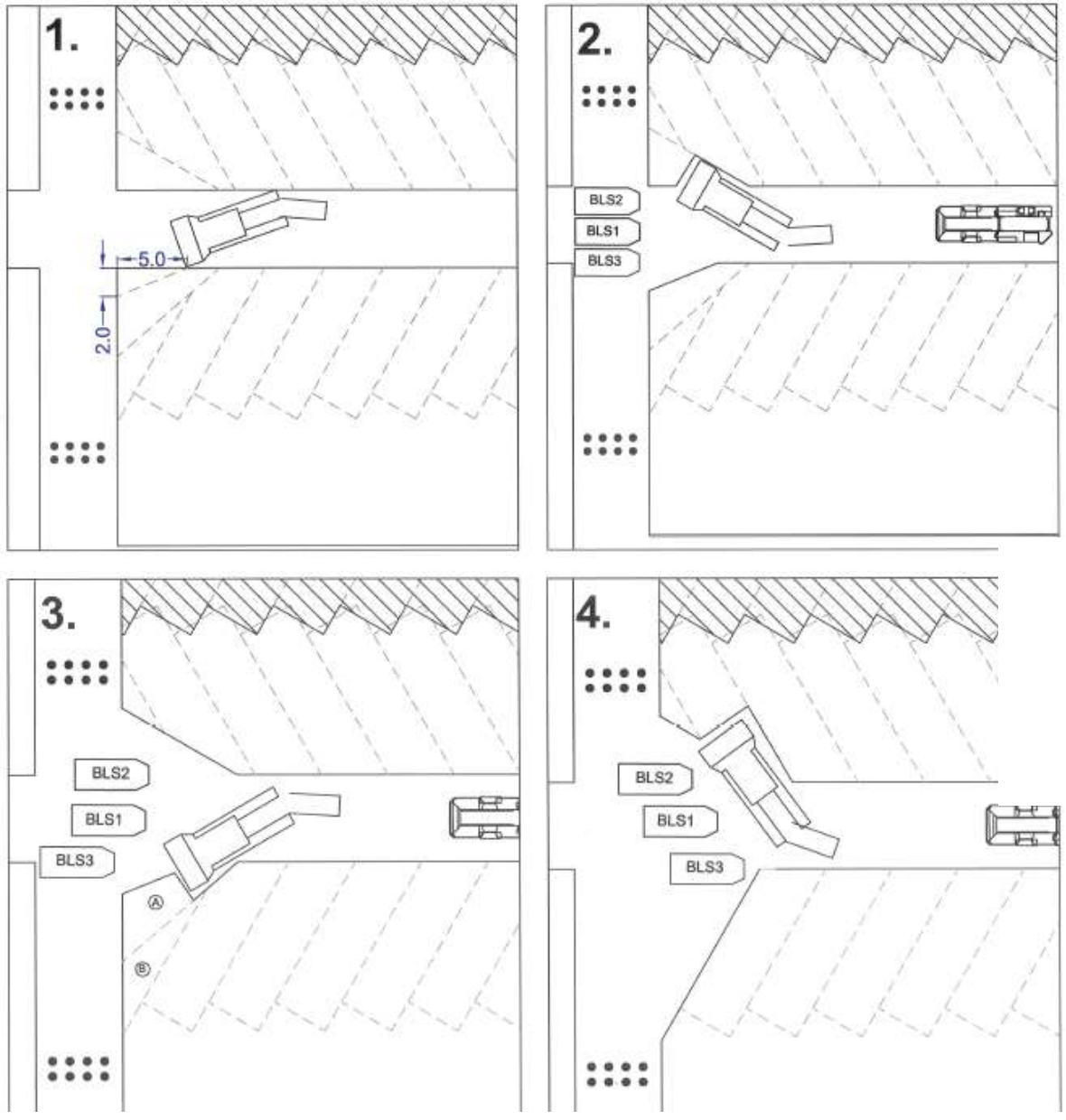
Pillar Extraction Roof Support

- As per support plans for single sided and double sided lifting
- As no pillar splitting, systematic roof bolting in Panel 2 will not be carried out during pillar extraction process
- Set supplementary roof support if conditions require it

Pillar Extraction Roof Support (Continued)

- Breaker props nominal diameter of ~125/150mm and cut to length
- Breaker props set in accordance with Support Rules shown on previous plans
- Breaker props are to be set on the outbye side of the goaf in each access roadway to prevent goaf over run, prevent goaf debris entering heading and to clearly demarcate boundary between goaf and working places.
- Brattice to be installed in between the 2 rows of breakers.
- No timber set in conjunction with BLS's during lifting process.

Setting up for 1st lift



3-9-10

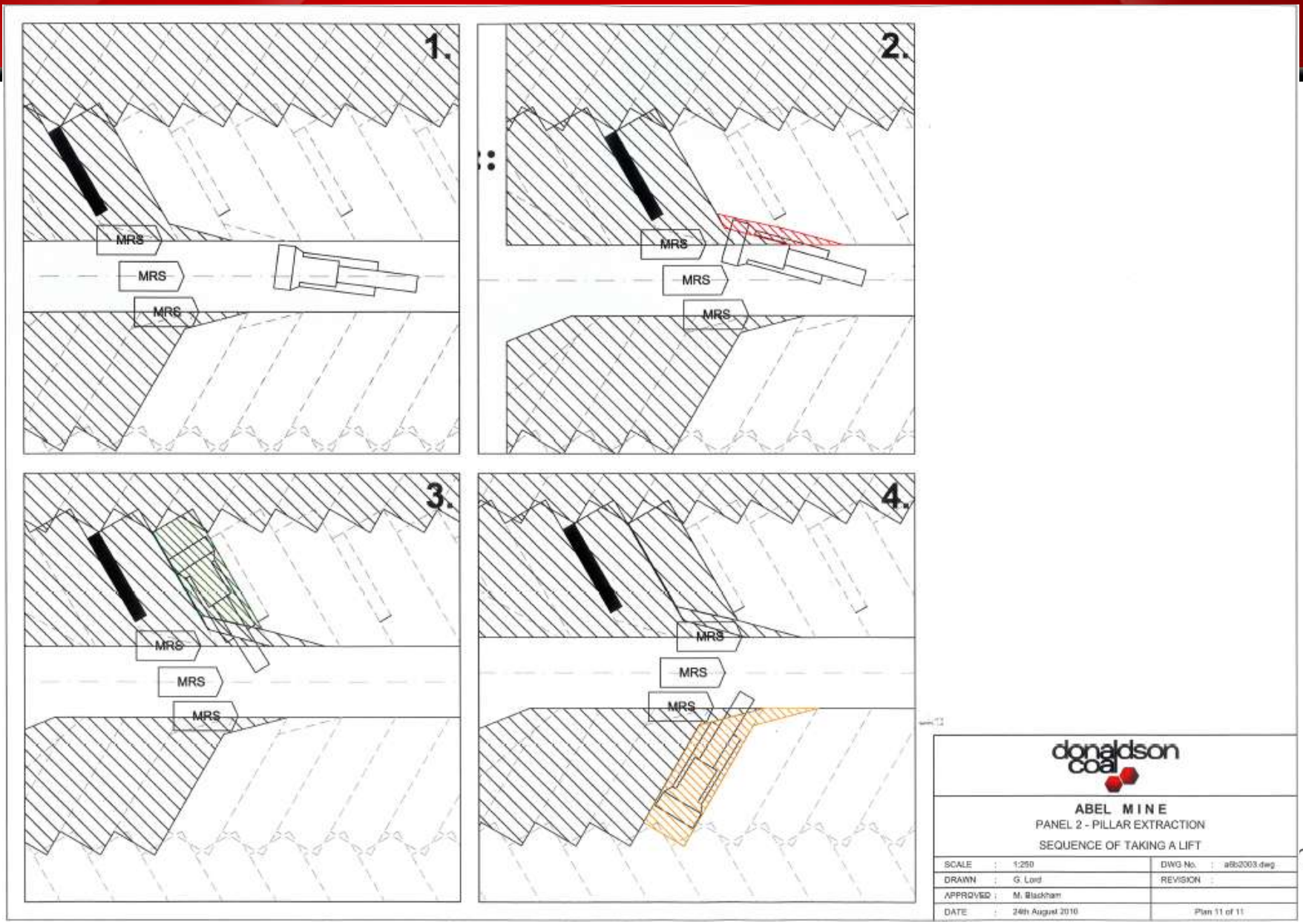
Approved: Manager of Mining Engineering

3-9-10

Approved: District Inspector of Coal Mines

donaldson coal

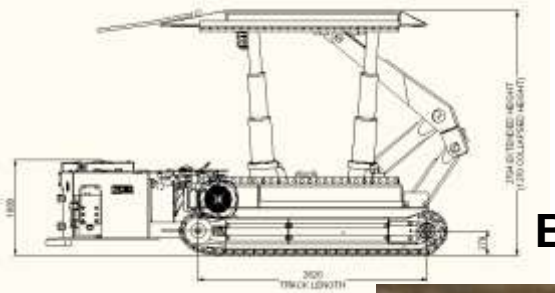
Sequence of taking a lift



BLS / MRS

- The BLS were originally pioneered in the RSA at Middlebult Colliery by Voest- Alpine commencing in 1984 and later trialled in several Australian collieries commencing in 1987. Their subsequent use in pillar extraction panels became widespread with some 60 units in operation by 1991

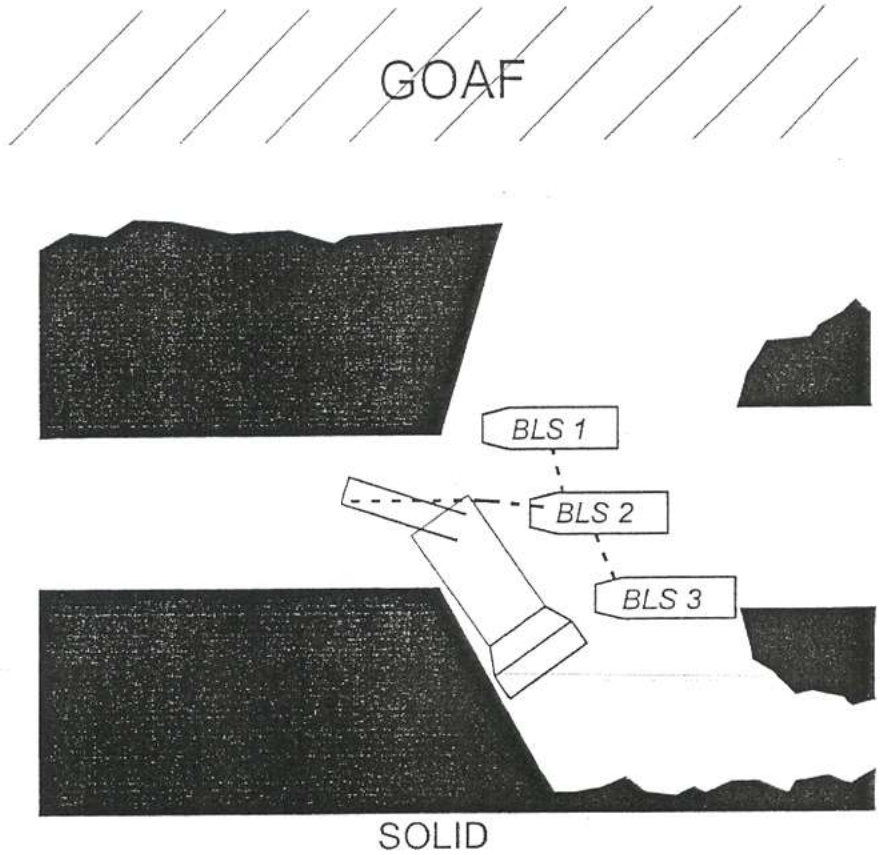
FLETCHER MRS
MOBILE ROOF SUPPORT



VOEST ALPINE BLS
BREAKER LINE SUPPORT

BLS alignment is critical (UNSW Training)

(BLS units must <u>always</u> be operated as a single unit – aligned, overlapped and closely spaced – **<u>NOT</u>** in isolation)



BLS Operations

- All operators are to remain within the safe standing zones
- Operators are to safely position themselves to maximise vision of the operation and to ensure they are clear of the continuous miner and shuttle cars
- Signs will be placed on the side of the outside BLS units (stating “Danger- unsupported roof adjacent to BLS”)
- Tie & stow the jumper cables correctly.
- When double sided lifting have

  BLS cable cross over point 15m

  behind CM

BLS Operations (Continued)

- A maximum of 3 people are permitted to stand between miner and BLS's whilst a lift is being taken, the CM driver, one other mineworker and the Team Leader or other Mining official (for face inspections)
- The BLS units are to be positioned so that the distance between adjacent BLS's will not exceed 0.7 metres (except when flitting).
- No person is to go beyond original roadway support

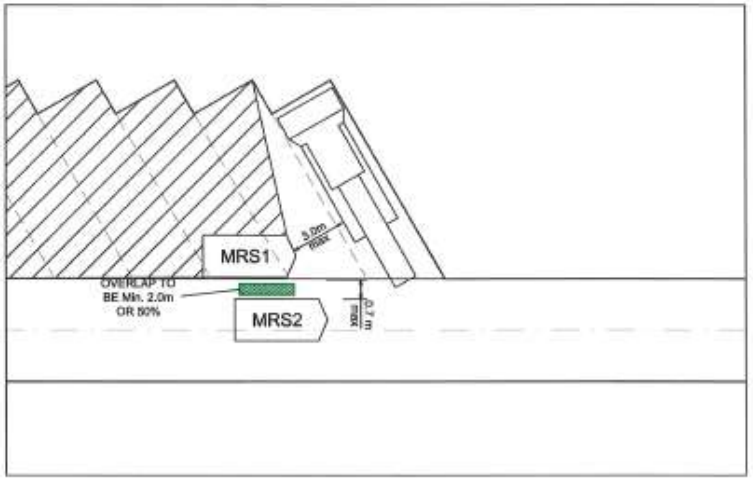
Setting of BLS Units

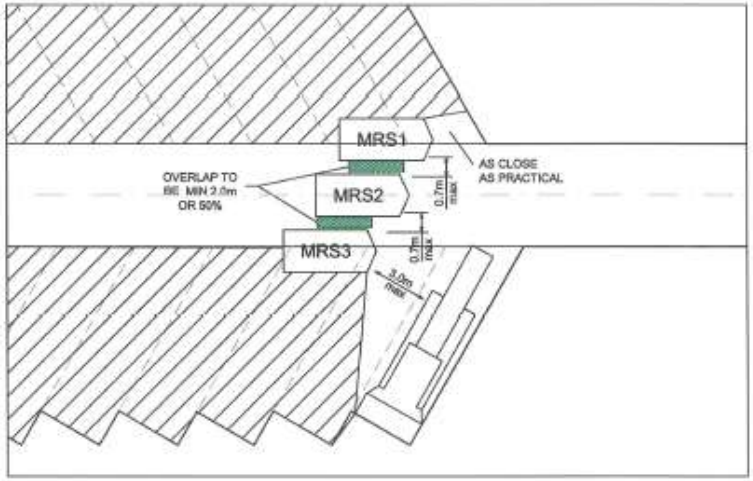
- BLS set pressures in green zone <=280 bar. If setting BLS units to 280 bar damages roof, BLS set pressure may be reduced.
- Team Leader in consultation with the Area Leader will determine BLS set pressure for ground conditions encountered. If BLS set pressure has to be changed, record circumstances of change on Team Leader's shift report
- When setting BLS's to roof, Pressurise FRONT legs against roof then pressurise REAR legs against roof

BLS Operations

RULES & PROCEDURES FOR MRS OPERATION

1. The Mobile Roof Support (MRS) units must always be operated as a *SINGLE* unit, i.e. *ALIGNED, OVERLAPPED* and *CLOSELY SPACED.*
2. A maximum of 3 people are permitted to stand between the Continuous Miner (CM) and MRS's whilst a lift is being taken; the CM driver, one other mine worker and the Team Leader or other official (for face inspections).
3. Always lower the rear legs first to allow any debris to fall back into goaf. When setting the MRS to the roof, set the front legs first so any roof bolts which may snap off are deflected into the goaf.
4. The MRS units are to be moved between lifts such that at any instant, any 2 canopies overlap a minimum of 2.0m or 50% in the direction of retreat.
5. ALWAYS ENSURE that the units are clear of the roof before tramming forward. (Check that the pressure gauge reads zero).
6. Prior to taking a lift, the MRS units are to be set a maximum of 3.0m from the CM as shown.
7. Keep slack floor coal in front of the MRS units to a minimum as this will assist with the movement of the MRS after each lift is taken.
8. The MRS units are to be operated from one feeder cable and jumper cables are to be used to power the second and third MRS.
9. IT IS IMPORTANT THAT ALL CARE IS TAKEN TO ENSURE THAT CABLES ARE NOT DAMAGED.
10. The main feeder cable to the MRS is to be hung from mesh or bolts of the roadway to be lifted.
11. When double sided lifting the MRS cable cross over point is to be maintained 15m outbye of the breakaway point of the next lift.
12. Under heavy roof conditions the MRS units are only to be advanced 1.0m at a time. Contact advance may be required under some extreme circumstances. Pressure on contact advance should register in the green zone on the pressure gauge. (< 280 Bar)
13. The operator is to ensure all persons are in a safe position clear of the MRS units before moving them.
14. The operator is to ensure that the MRS units are set as vertical to the roof as possible, to avoid damage and to ensure that maximum support is maintained.
15. All MRS's are to be operational prior to commencing any lift.
16. Reflective markers are to be hung from the mesh in front of the MRS to designate the unsupported roof edge.
17. The MRS's are not to be used as a refuge area.





Approved: Manager of Mining Engineering

Noted: District Inspector of Coal Mines

donaldson coal

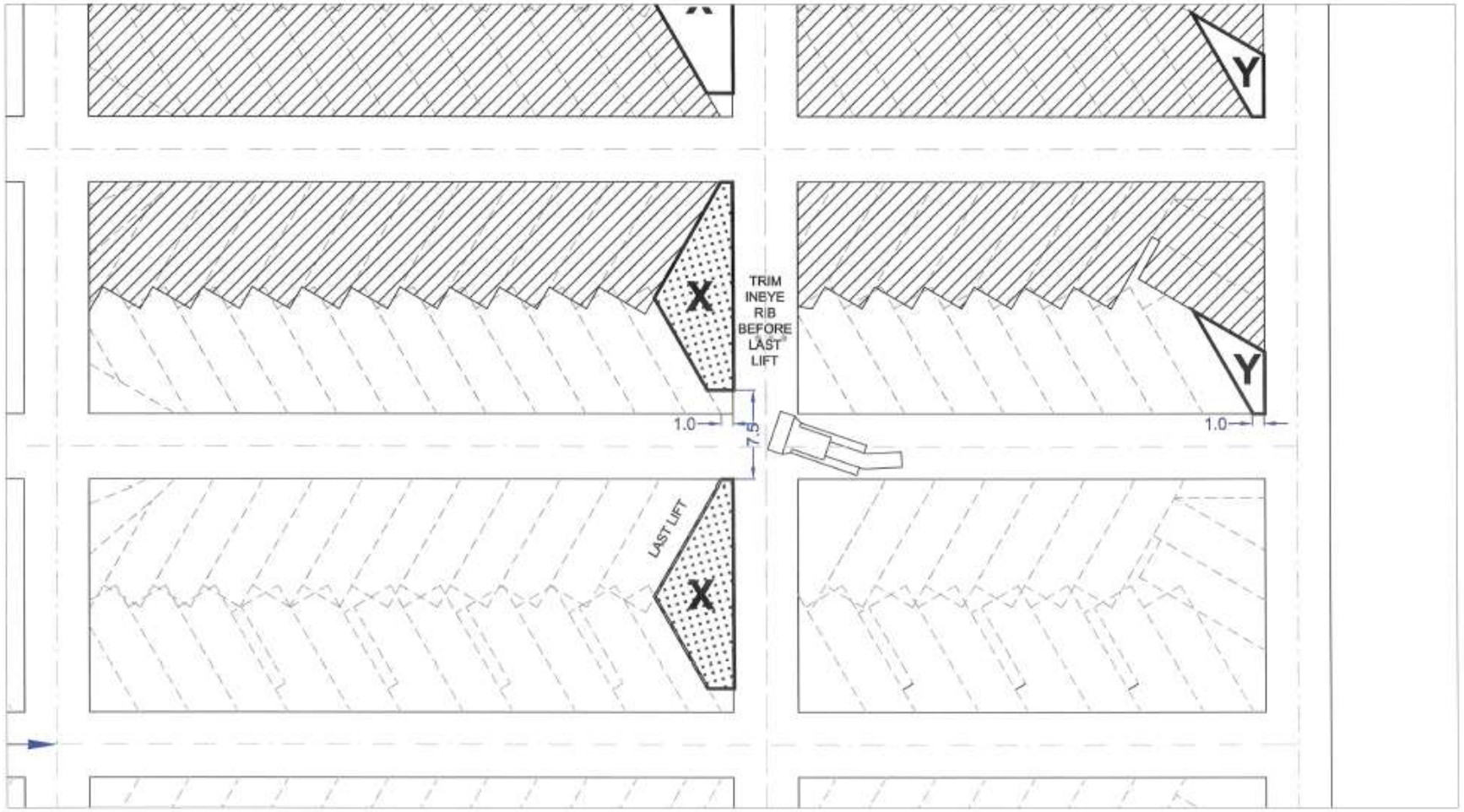
ABEL MINE

PILLAR EXTRACTION

RULES & PROCEDURES FOR MRS OPERATION

SCALE	1:250	DWG No.	a6b2003.dwg
DRAWN	G. Lord	REVISION	
CHECKED	M. Blackham		
DATE	24th August 2010	Plan 6 of 11	

Mining through intersection with 3 MRS



NOTE: Inbye ribline of intersections to be trimmed before commencement of last lift on solid side. This is to allow the 3 MRS's an unobstructed path past stook "X", in their normal operating configuration.

3.9.10
Approved: Manager of Mining Engineering

3-9-10
Approved: District Inspector of Coal Mines

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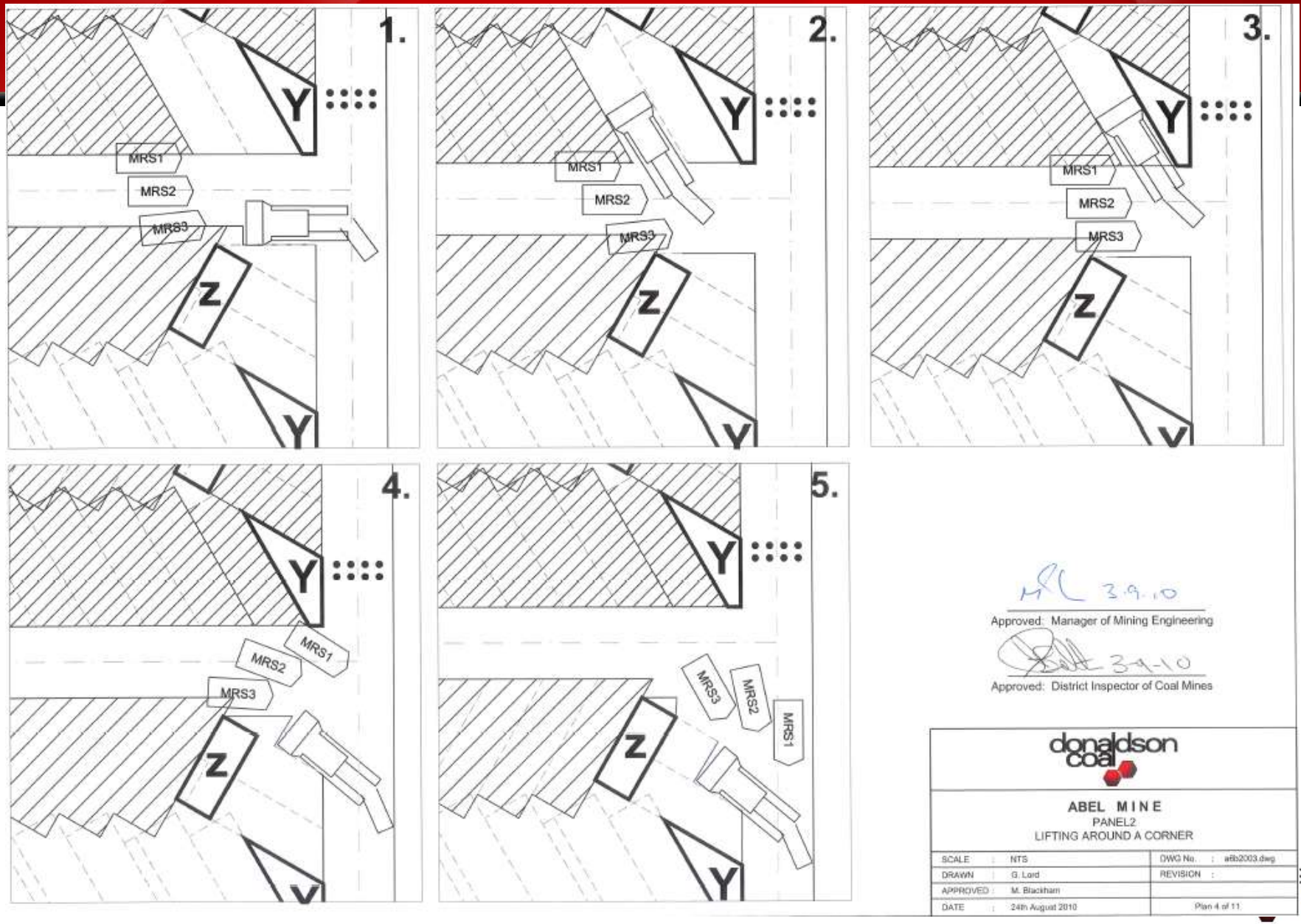
ABEL MINE

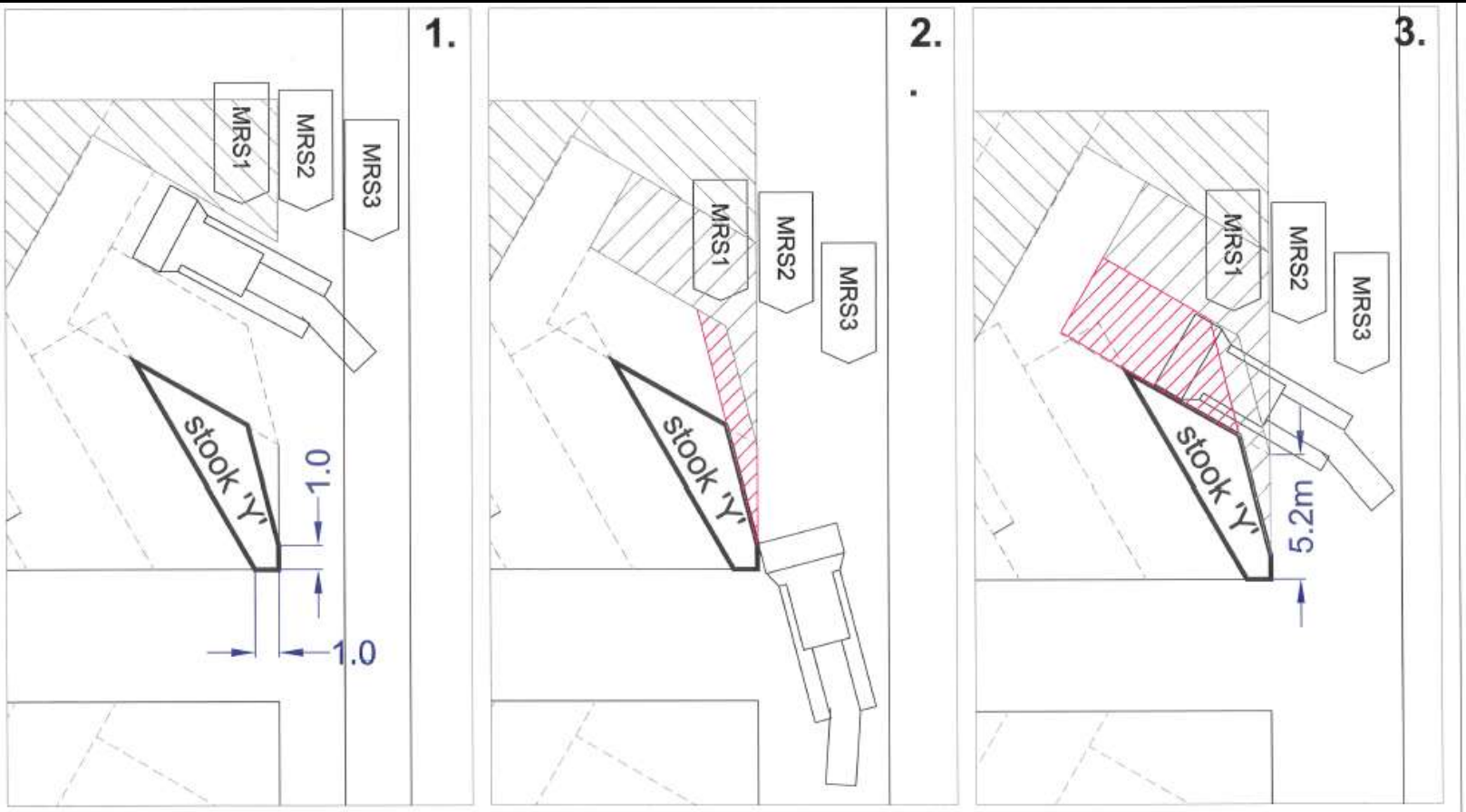
PANEL 2 - PILLAR EXTRACTION
MINING THROUGH INTERSECTION WITH 3 x MRS'S

SCALE	1:250	DWG No.	abb2003.dwg
DRAWN	G. Lord	REVISION	
APPROVED	M. Blackham		
DATE	24th August 2010	Plan 7 of 11	

Mining around into `D' heading



Lifting near Stook Y



3.9.10

Approved: Manager of Mining Engineering

3.9.10

Approved: District Inspector of Coal Mines

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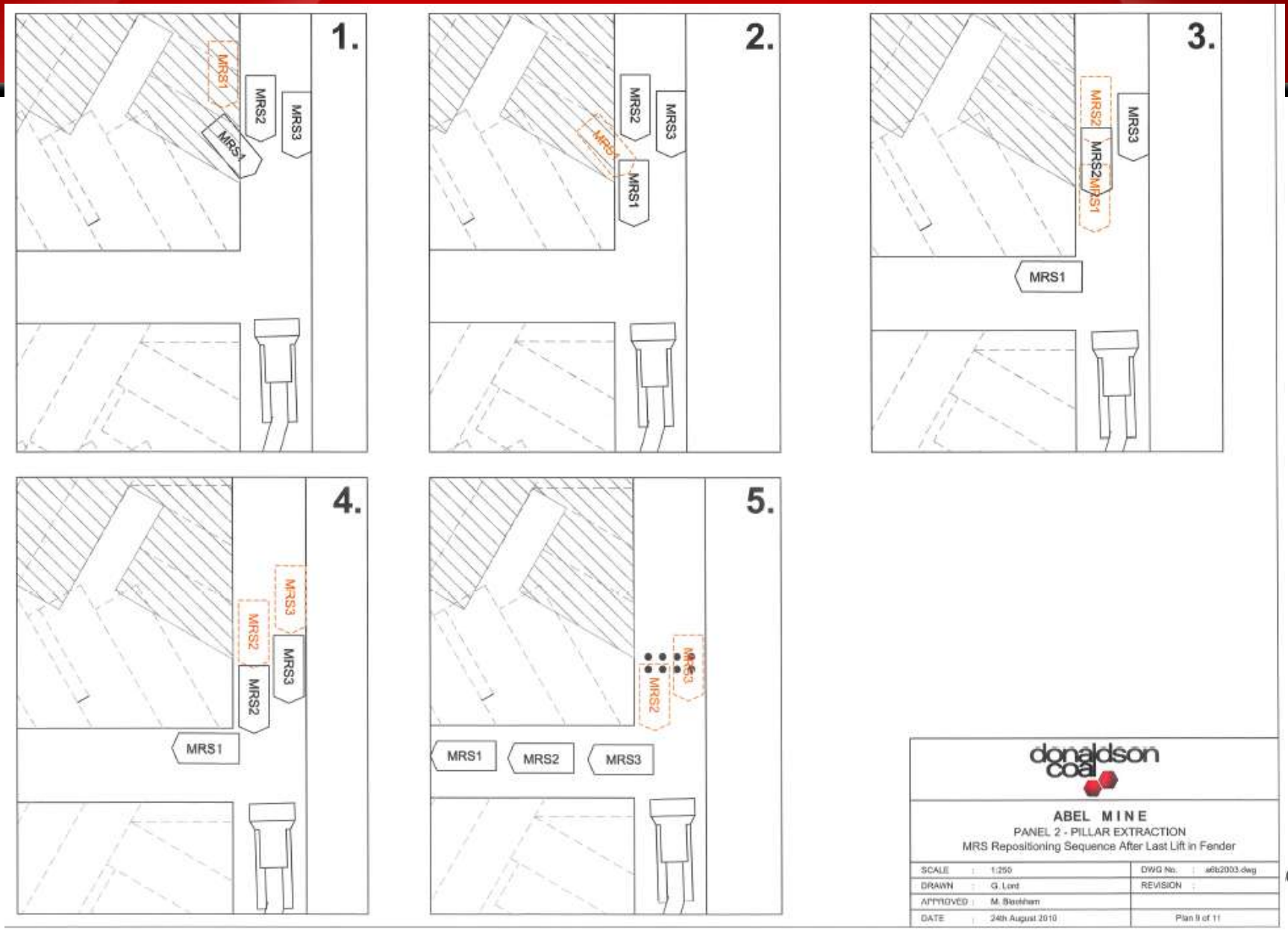
ABEL MINE
PANEL 2
LIFTING NEAR STOOK Y

SCALE	NTS	DWG No.	a6b2003.dwg
DRAWN	G. Lord	REVISION	
APPROVED	M. Blackham		
DATE	1st September 2010	Plan 10 of 11	

BLS repositioning at end of last lift



Flitting of BLS Units

- Flitting BLS units from one side of panel to other;
  - Flitted simultaneously, using pendant controls on BLS1 and BLS3 with BLS #2 operated by radio. Units will be flitted in single file with BLS #2 in centre. ***Maintain line of sight at all times.***
  - Flitted alternately (i.e. one BLS unit at time to length of jumper cable between each unit), using one remote control transmitter only.

Safe Standing Zones (MDG 5002)

- No person shall go into unsupported roof areas at Abel Mine.
- A *Safe standing Zone* is specifically related to continuous miner and BLS operations and is a designated area where people can pass or work when the continuous miner or BLS is operational or energised.
- A *No Standing Zone* also relates to continuous miner and BLS operations and is an area where people are prohibited from entering

Safe standing Zones – CM operational

NOTE: NO PERSON SHALL ENTER UNSUPPORTED ROOF AREAS

NO STANDING ZONE

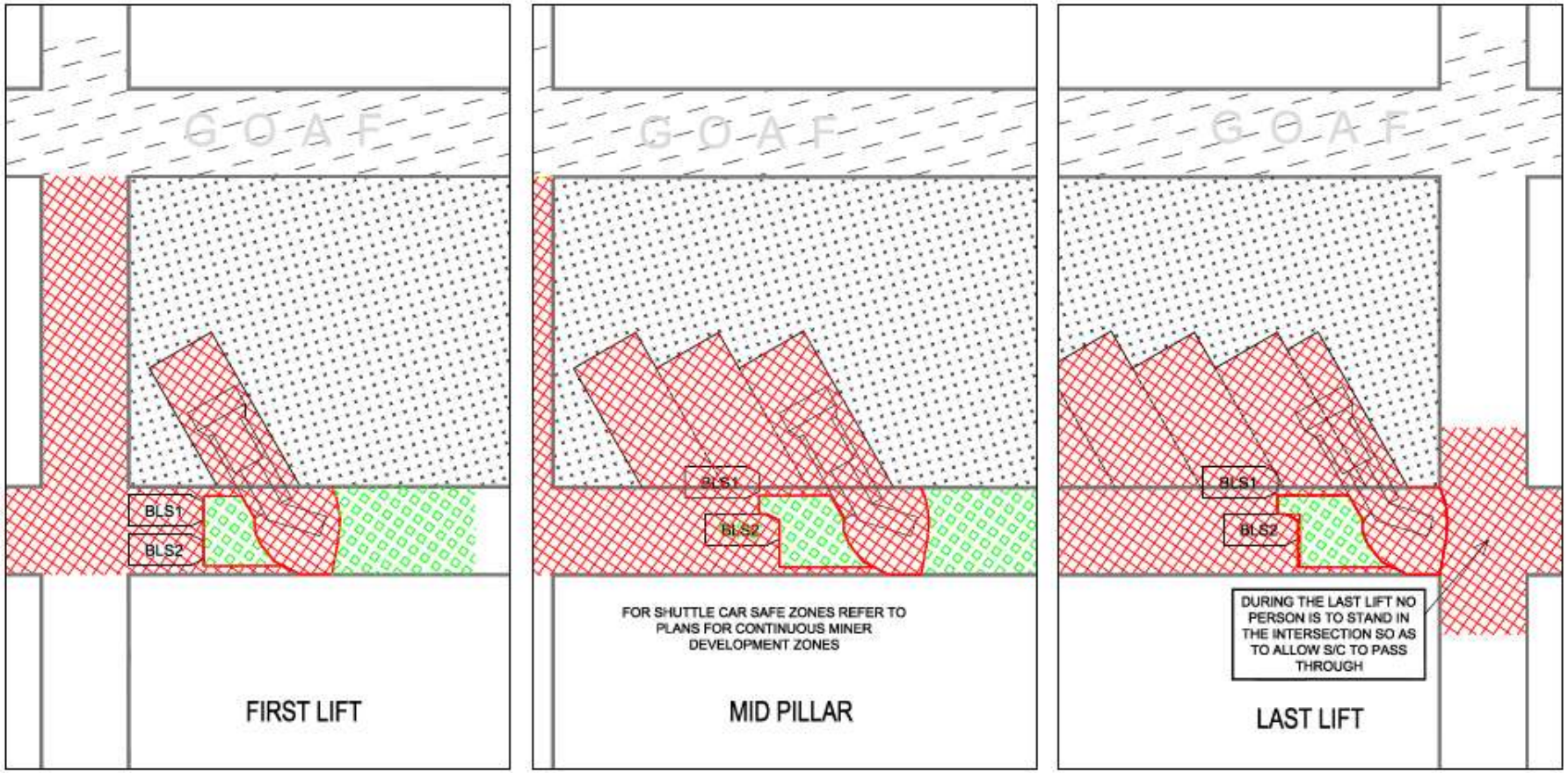
SAFE STANDING AREA
(SUBJECT TO ASSESSMENT OF HAZARDS)

donaldson coal

ABEL MINE
DOUBLE SIDED LIFTING - SAFE STANDING AREAS
WHILE CONTINUOUS MINER IS OPERATIONAL

SCALE	: NTS	DWG No.	: a9b6007.dwg
DRAWN	: G. Lord	REVISION	:
APPROVED	: M. Blackham		
DATE	: 19th May 2010	Plan 4 of 6	

Safe standing zones – Single sided lifting



NOTE: NO PERSON SHALL ENTER UNSUPPORTED ROOF AREAS

NO STANDING ZONE

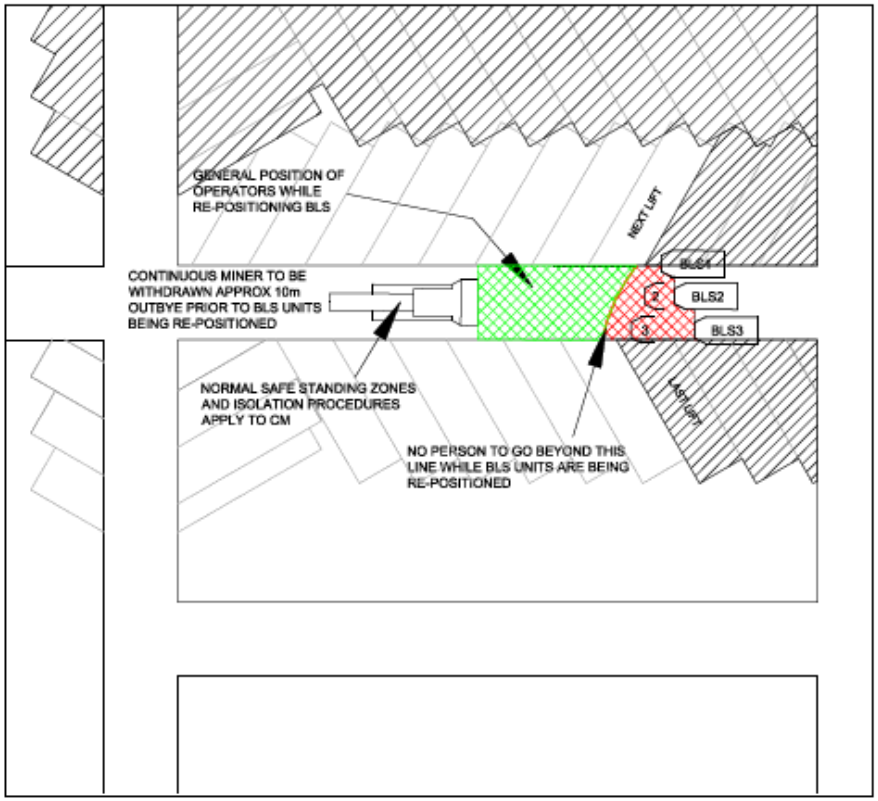
SAFE STANDING AREA
(SUBJECT TO ASSESSMENT OF HAZARDS)

donaldson coal

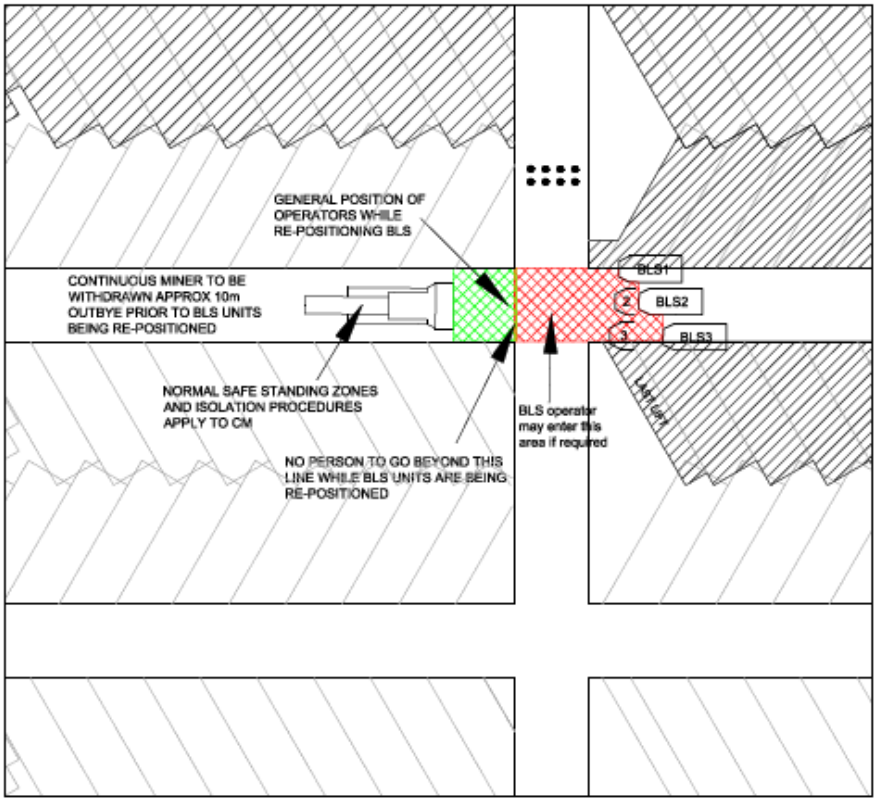
ABEL MINE
SINGLE SIDED LIFTING - SAFE STANDING AREAS
WHILE CONTINUOUS MINER IS OPERATIONAL

SCALE	: NTS	DWG No.	: a0b6007.dwg
DRAWN	: G. Lord	REVISION	:
APPROVED	: M. Blackham		
DATE	: 19th May 2010	Plan 3 of 6	

Safe standing zones – BLS Repositioning



MID FENDER



LAST LIFT

RE-POSITIONING OF BLS UNITS
DURING EXTRACTION

SAFE STANDING AREA
(SUBJECT TO ASSESSMENT OF HAZARDS)

NO STANDING ZONE

NOTE: ❑ NO PERSON SHALL ENTER UNSUPPORTED ROOF AREAS

❑ WHENEVER THE BLS OPERATORS NEED TO BE LOCATED INBYE OF THE CONTINUOUS MINER TO RE-POSITION THE BLS UNITS, THE CONTINUOUS MINER SHALL BE ISOLATED IN ACCORDANCE WITH ABEL'S ISOLATION ARRANGEMENTS

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ABEL MINE
SAFE STANDING AREAS WHILE REPOSITIONING OF BLS's

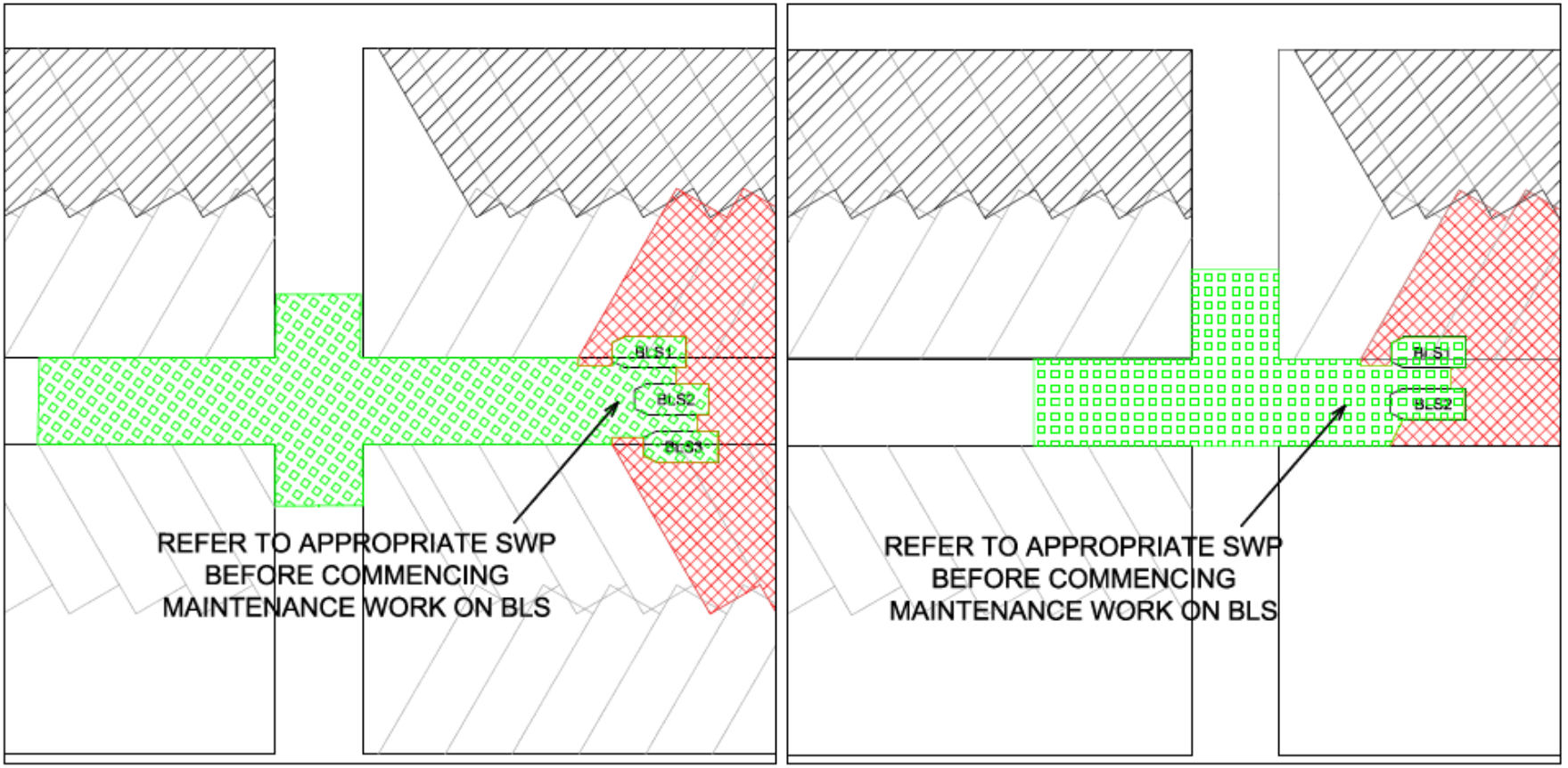
SCALE	1:250	DWG No.	a9b8007.dwg
DRAWN	G. Lord	REVISION	
APPROVED	M. Blackham		
DATE	19th May 2010	Plan 2 of 6	

Isolation Standard for BLS re-positioning

- Whenever BLS operators needs to be located inbye of continuous miner to re-position BLS units, the Continuous Miner shall be isolated in accordance with Abel's Isolation Arrangements

  - Level 2
    - Isolation using Isolation devices that are not visual, e.g circuit breaker on CM, isolation valve in air line

Safe Standing Zones – BLS Maintenance



NOTE: NO PERSON SHALL ENTER UNSUPPORTED ROOF AREAS

NO STANDING ZONE

SAFE STANDING AREA

(SUBJECT TO ASSESSMENT OF HAZARDS)

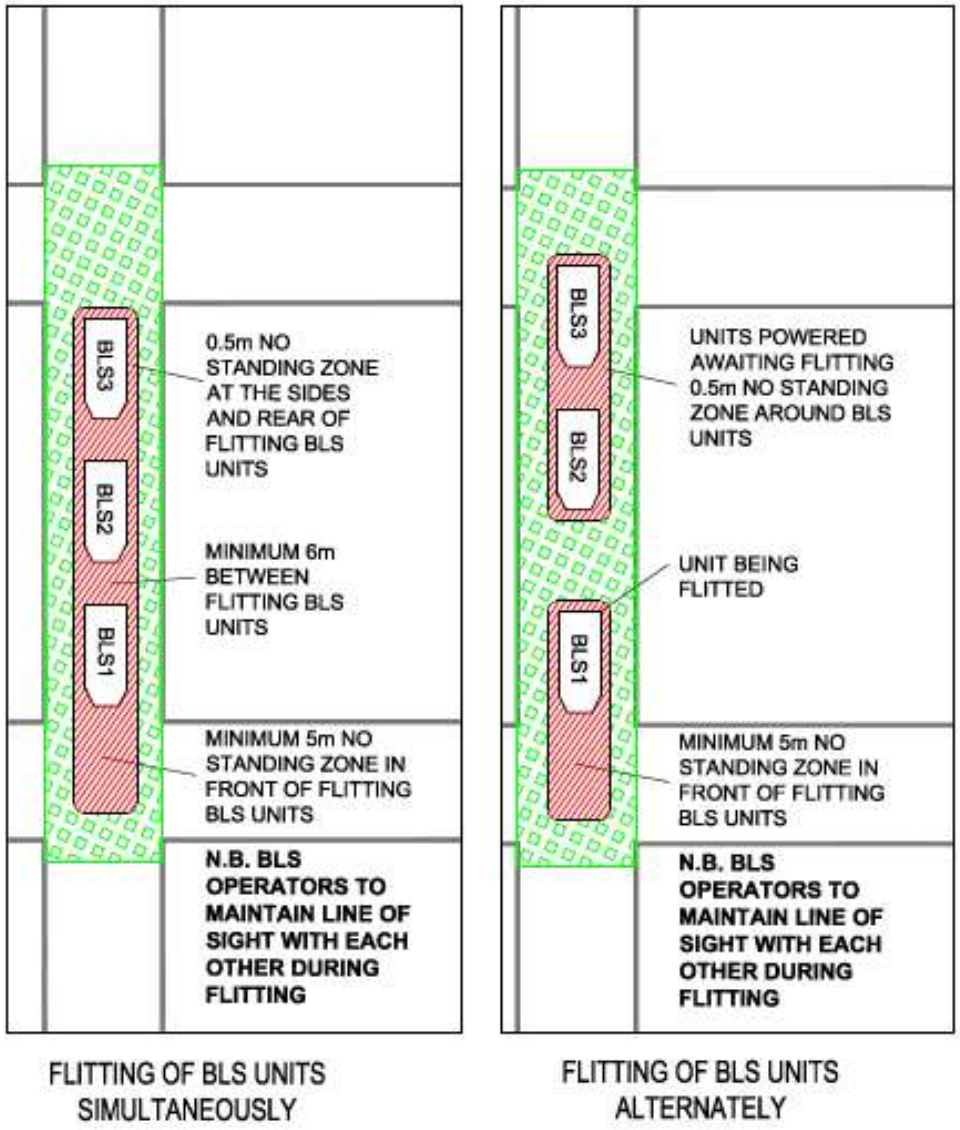
donaldson coal

ABEL MINE

SAFE STANDING AREAS FOR BLS MAINTENANCE

SCALE	: 1:250	DWG No.	: a9b8007.dwg
DRAWN	: G. Lord	REVISION	:
APROVED	: M. Blackham		
DATE	: 19th May 2010	Plan 6 of 6	

Safe standing Zones – Flitting BLS's



NO STANDING ZONE

SAFE STANDING AREA

(SUBJECT TO ASSESSMENT OF HAZARDS)

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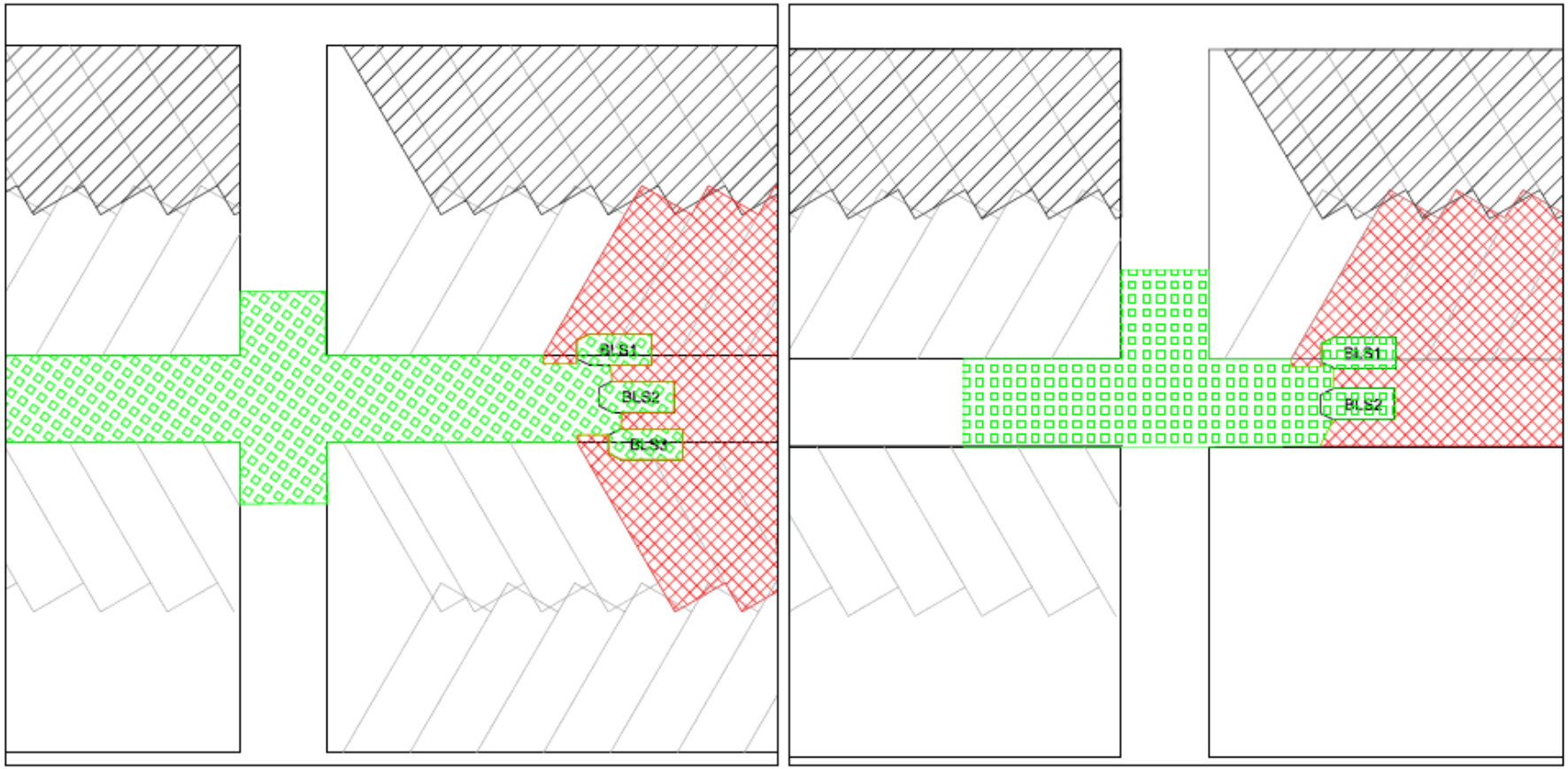
Safe Standing Zones – No Coal cutting



NOTE: NO PERSON SHALL ENTER UNSUPPORTED ROOF AREAS

NO STANDING ZONE

SAFE STANDING AREA

(SUBJECT TO ASSESSMENT OF HAZARDS)

donaldson coal

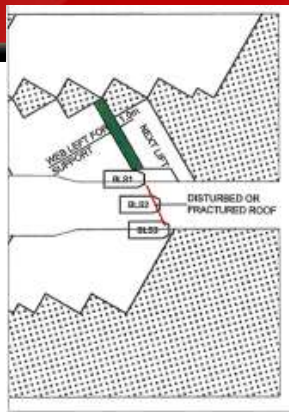
ABEL MINE

SAFE STANDING AREAS FOR WHEN NO COAL CUTTING & FACE MACHINERY NOT OPERATIONAL

SCALE	: 1:250	DWG No.	: a9b6007.dwg
DRAWN	: G. Lord	REVISION	:
APROVED	: M. Blackham		
DATE	: 19th May 2010	Plan 1 of 6	

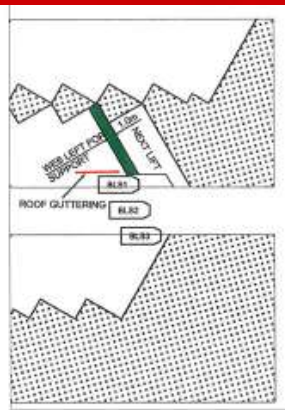

DANGER
NO ENTRY
UNSUPPORTED ROOF
ADJACENT TO BLS
DANGER
NO ENTRY
UNSUPPORTED ROOF
ADJACENT TO BLS

Mining through disturbed/fractured Strata



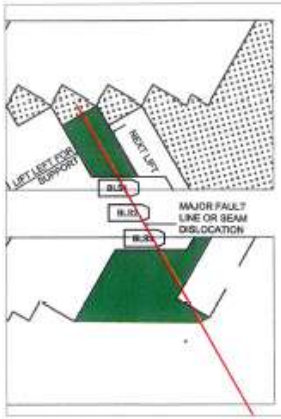
EXAMPLE (A) - FRACTURED ROOF IN EXISTING HEADING OR CUT-THROUGH

IT IS IMPORTANT TO SUPPORT DISTURBED OR FRACTURED ROOF ZONES.
- FOR DOUBLE SIDED LIFTING CUT LIFT ONLY AS FAR AS NECESSARY TO ADVANCE BLS
- ADVANCE BLS AS CLOSE AS POSSIBLE TO THE NEXT LIFT
- TAKE NEXT LIFT LEAVING 1.0m WEB (WIDTH DEPENDS ON CONDITION OF DISTURBED GROUND AND ADJACENT STRATA CONDITIONS)
- THE WEB WILL PROVIDE TEMPORARY SUPPORT TO THE ROOF
- RESUME NORMAL LIFTING SEQUENCE AS SOON AS POSSIBLE



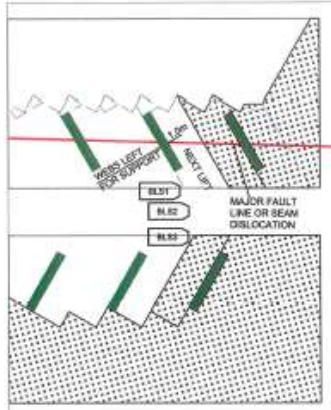
EXAMPLE (B) - ROOF GUTTERING IN GOAF

IT IS IMPORTANT TO SUPPORT DISTURBED OR FRACTURED ROOF ZONES.
- FOR DOUBLE SIDED LIFTING CUT LIFT ONLY AS FAR AS NECESSARY TO ADVANCE BLS
- ADVANCE BLS AS CLOSE AS POSSIBLE TO THE NEXT LIFT
- TAKE NEXT LIFT LEAVING 1.0m WEB (WIDTH DEPENDS ON CONDITION OF DISTURBED GROUND AND ADJACENT STRATA CONDITIONS)
- THE WEB WILL PROVIDE TEMPORARY SUPPORT TO THE ROOF
- RESUME NORMAL LIFTING SEQUENCE AS SOON AS POSSIBLE
- GOAF FLUSH TO THE BACK OF BLS



EXAMPLE (C) - MAJOR FAULT LINE OR SEAM DISLOCATION IN LIFT

IT IS IMPORTANT TO SUPPORT DISTURBED OR FRACTURED ROOF ZONES.
- FOR DOUBLE SIDED LIFTING CUT LIFT ONLY AS FAR AS NECESSARY TO ADVANCE BLS
- ADVANCE BLS AS CLOSE AS POSSIBLE TO THE NEXT LIFT
- TAKE NEXT LIFT LEAVING A STOOK 1.0m EACH SIDE OF THE FAULT OR DISLOCATION (WIDTH DEPENDS ON CONDITION OF DISTURBED GROUND AND ADJACENT STRATA CONDITIONS)
- THE STOOK WILL PROVIDE TEMPORARY SUPPORT TO THE ROOF
- RESUME NORMAL LIFTING SEQUENCE AS SOON AS POSSIBLE



EXAMPLE (D) - MAJOR FAULT LINE OR SEAM DISLOCATION RUNNING SUB-PARALLEL

IT IS IMPORTANT TO SUPPORT DISTURBED OR FRACTURED ROOF ZONES.
- WHEN SUPPORTING SUB-PARALLEL FAULTS WEBS (MINIMUM 1M) NEED TO BE LEFT AT LEAST EVERY 2ND LIFT , BOTH SIDES OF ROADWAY
-IF CONDITIONS REQUIRE GREATER SUPPORT WEBS MAY BE NEEDED GREATER THEN 1M AND/OR LEFT EVERY LIFT
- RESUME NORMAL LIFTING SEQUENCE AS SOON AS POSSIBLE

NOTE: TO BE USED AS A GUIDE ONLY. GEOLOGICAL STRUCTURES TO BE MAPPED ON DEVELOPMENT AND HAZARD PLAN PREPARED WHICH WILL SHOW AREAS OF COAL TO BE LEFT

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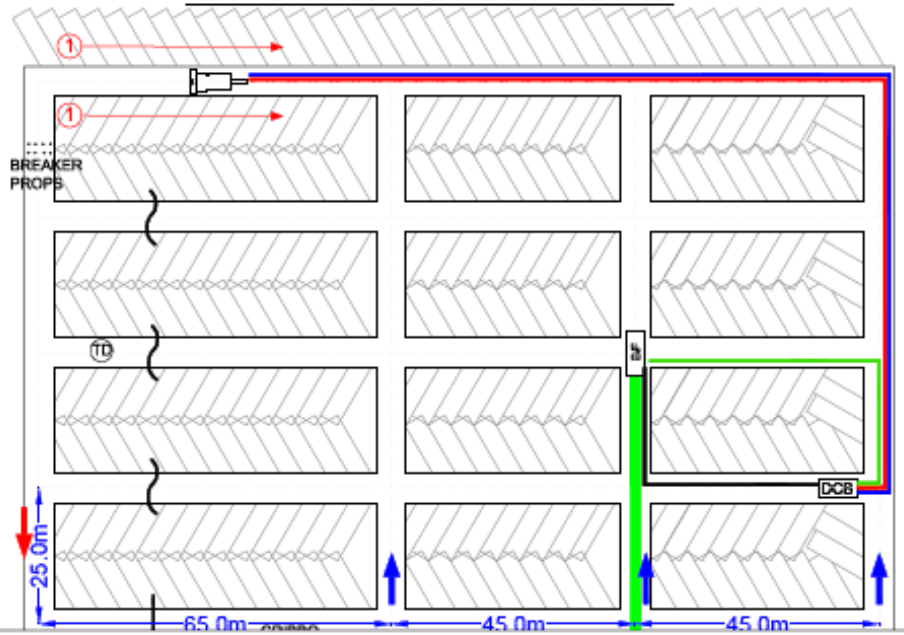
ABEL MINE
PILLAR EXTRACTION
SUPPORTING DISTURBED ROOF

SCALE	NTS	DWG No.	a6b2303.dwg
DRAWN	Sam Drinkwater	REVISION	
APPROVED	M. Blackham		
DATE	24th August 2010	Plan 8 of 11	

Process Maps

- Have been developed by Process working group for Pillar extraction processes, including
  - SC wheeling roads and anchor points
  - Boot, DCB location
  - Timing of Belt/Box/services retraction
  - Trickle dusters
  - Ventilation structures
  - Breaker props etc

EXTRACTION PANEL STANDARD



Panel 2

Cable lengths:

CM - 100m from DCB, 150m to CM, spare 150m in panel
All 3 Shuttle cars - 75m ext from DCB, SC cable(1x100m ext cable spare in panel)
BLS - 100m ext from DCB, SC cable to BLS 2(at least 1 spare SC cable in panel)
Breaker - 100m ext from DCB
When SC 'B' is swung to RHS it can plug straight into DCB
Note: 20m backspool to enable reach extremities
Anchors - on roof, no ventwork to narrow roads
Cablehooks - x100's for CM cable, water hose + BLS cable. From DCB to faceline, DCB to Breaker feeder
Trickle Duster - Positioned in return roadway in line with bootend
Cribroom - in CT at last permanent stopping, fitters pod opposite
Timber Pod - in CT at most inbye bag stopping, props, wedges, lids. 2x7lb hammers, roll bratice, 2x brattice gun, staples, 2x measuring stick, 2x short handle round mouth shovels, 2x bushmans saws, airsaw
Emergency Pod - in CT at start of district
Air Pipes:
- 50m from bootend, can be retracted in maintenance shift after belt retraction
- 100m airhose for trickle duster
- 100m airhose for airsaw
Waste water - not required
Water pipes - At bootend for seq 1, can be retracted 25m anytime in seq 2 or 3 on maintenance
Waterhose - 260m at start of seq 1, at least 2 spare hoses in panel 1
Belt move triggers - any time in seq 5 on maintenance shift.
- must happen by completion of seq 5
Oxygen Cache - located in cribroom
Lifeline / 2nd Egress

Cable Legend

Miner	
BLS	
S/cars	
Breaker	

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PILLAR EXTRACTION PANEL STANDARD

PLs 7.0.46
DRAWN : S. Drinkwater
DWG No. : dtp0038.dwg
DATE : 19th May 2010

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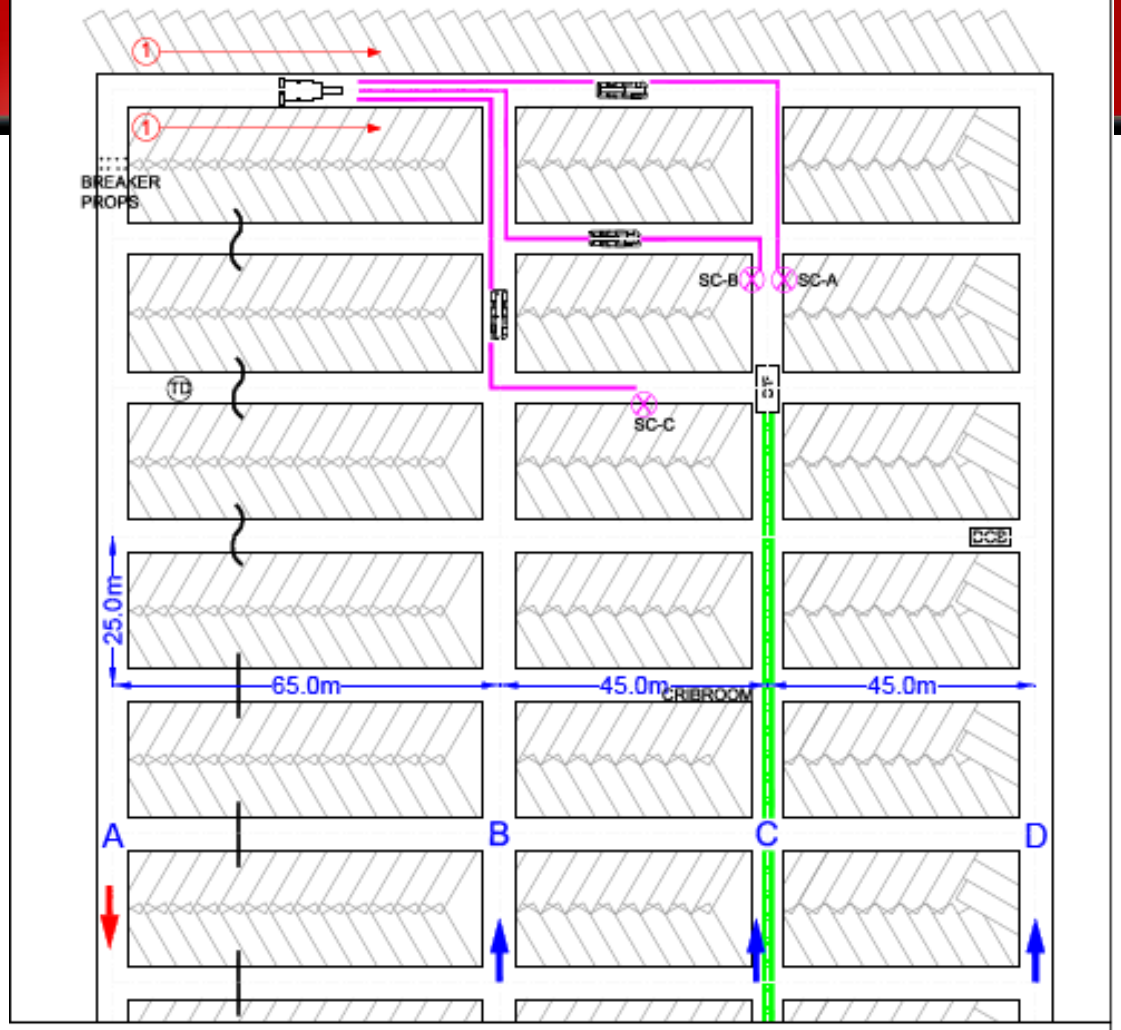
PANEL 2
SEQUENCE 1



NOTES

- Retraction will be in 25m intervals (belt to be prepared accordingly during development)
- All back spooling will be under 20m
- SC-'C' to have extended cable reel (220m)
- Breaker Props in A Hdg Prior to sequence 1

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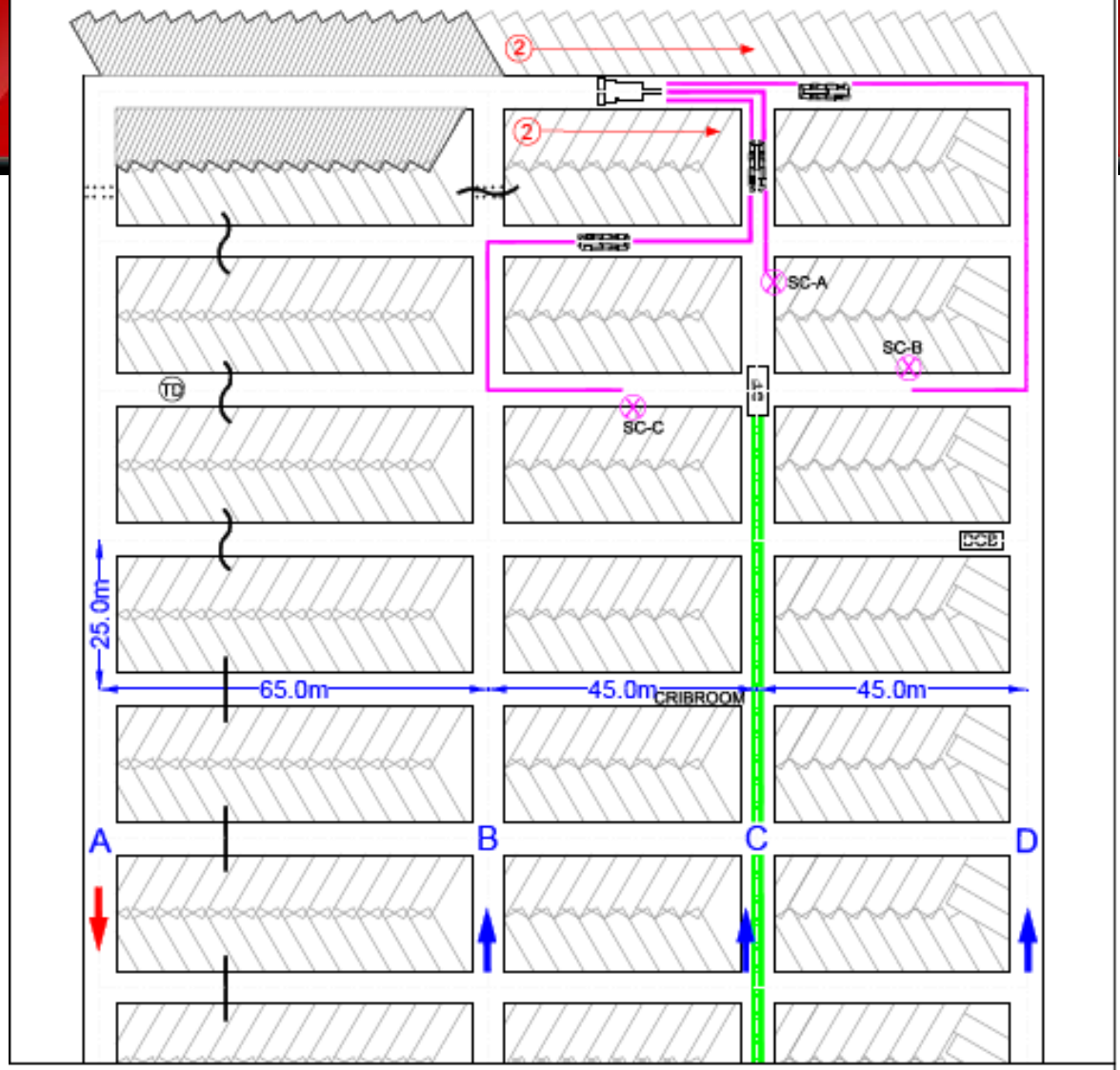
PANEL 2
SEQUENCE 2



NOTES

- Swing SC-B to RHS of bootend in the early stages of sequence 2 during BLS move.
- Breaker Props + Stopping B Hdg prior to Sequence 2

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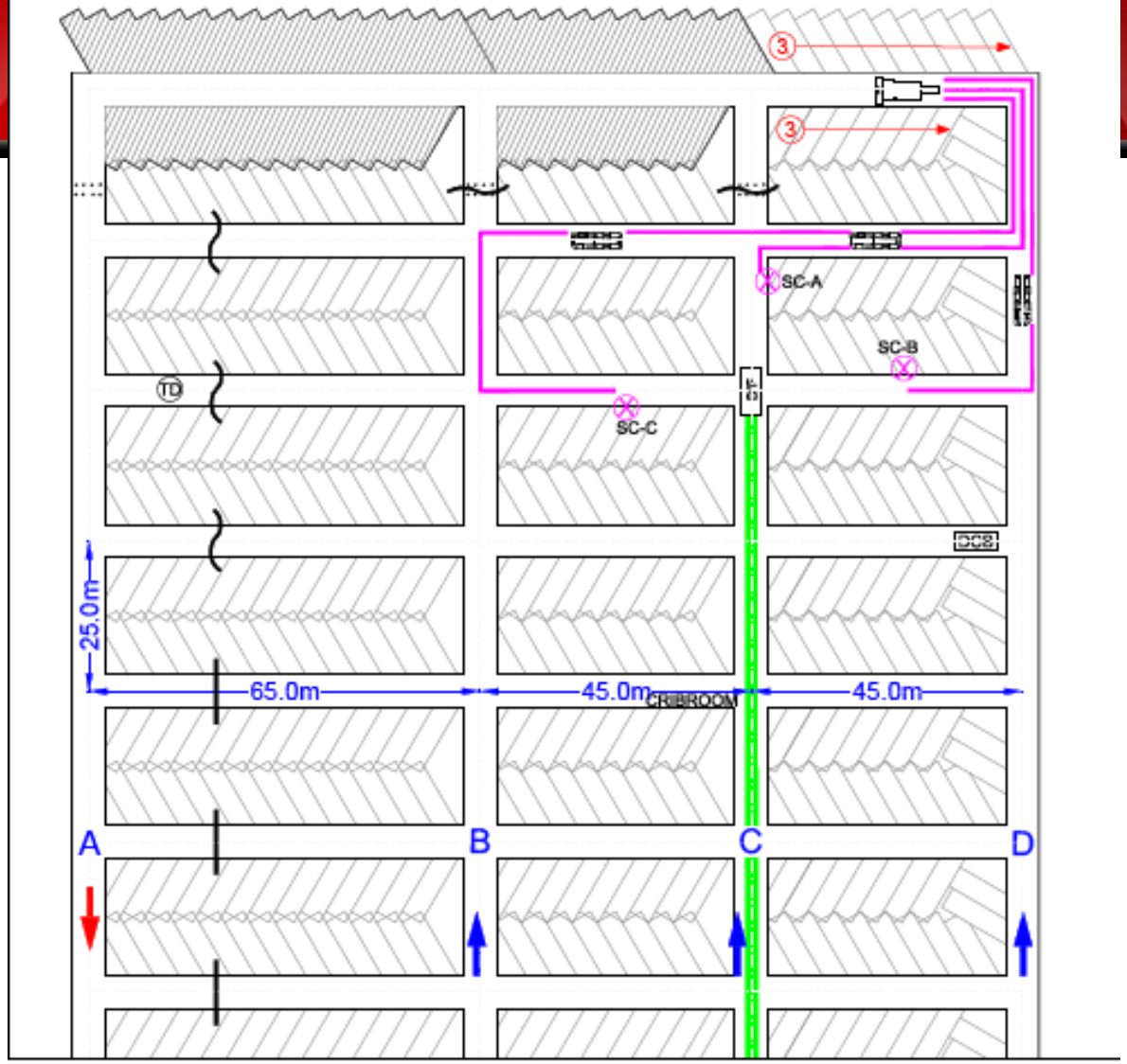
PANEL 2
SEQUENCE 3



NOTES

- Breaker Props + Stopping in C Hdg prior to Starting Sequence 3

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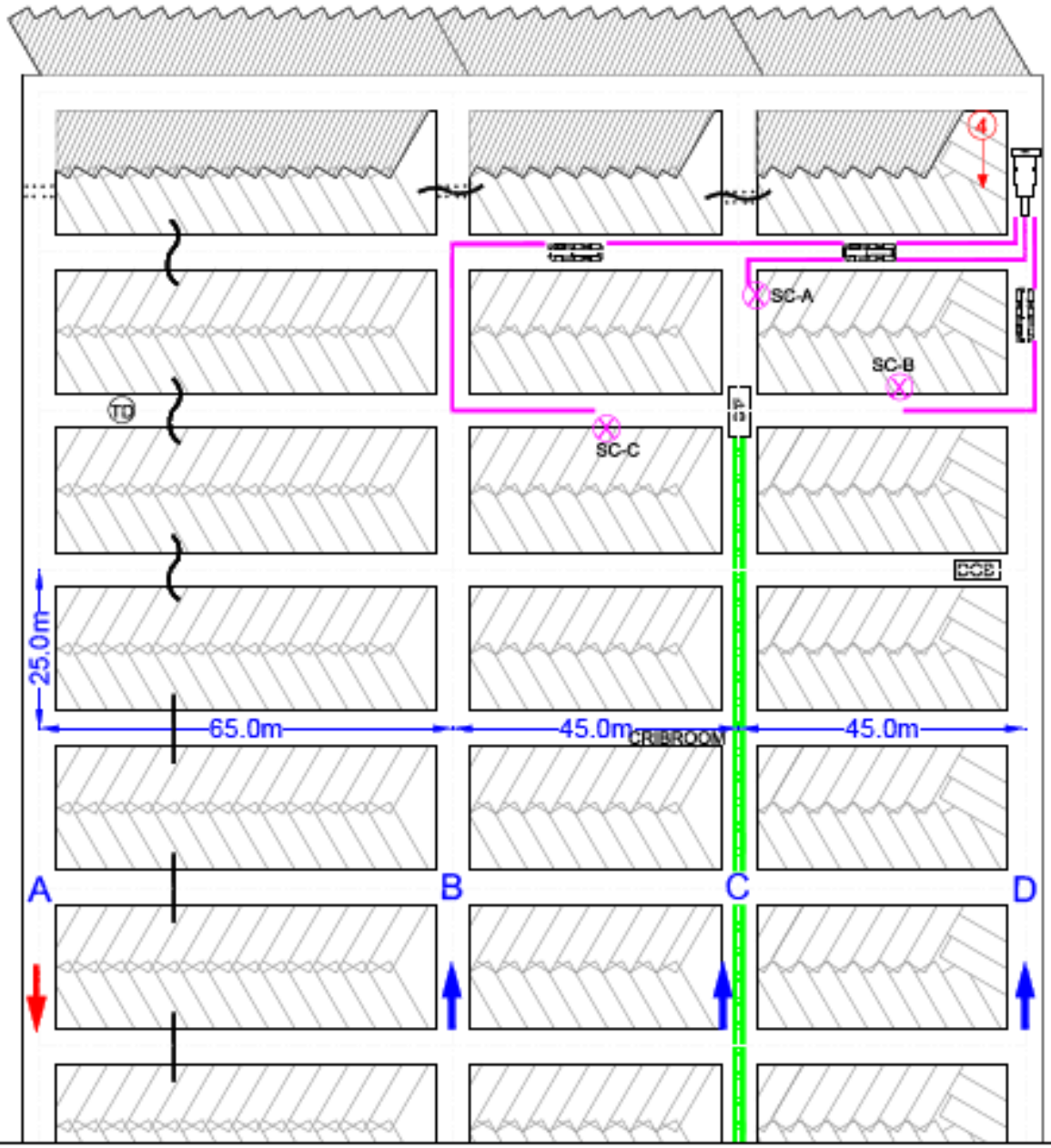
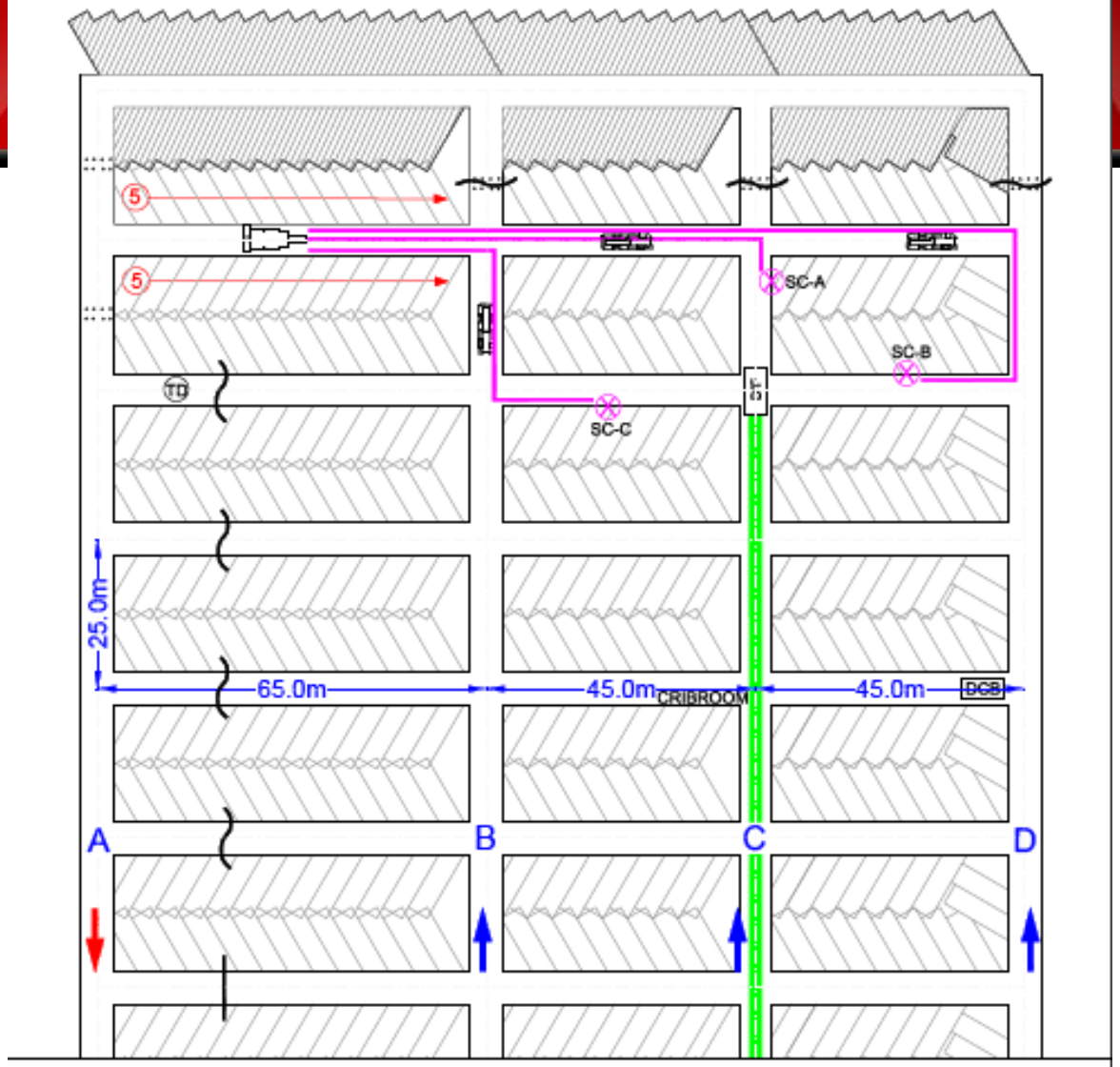
PANEL 2
SEQUENCE 4



PANEL 2
SEQUENCE 5 (A)



NOTES

- When setting up sequence 5, swing RHS SC back to endload position
- Retract Boot End & Box on next maintenance shift available

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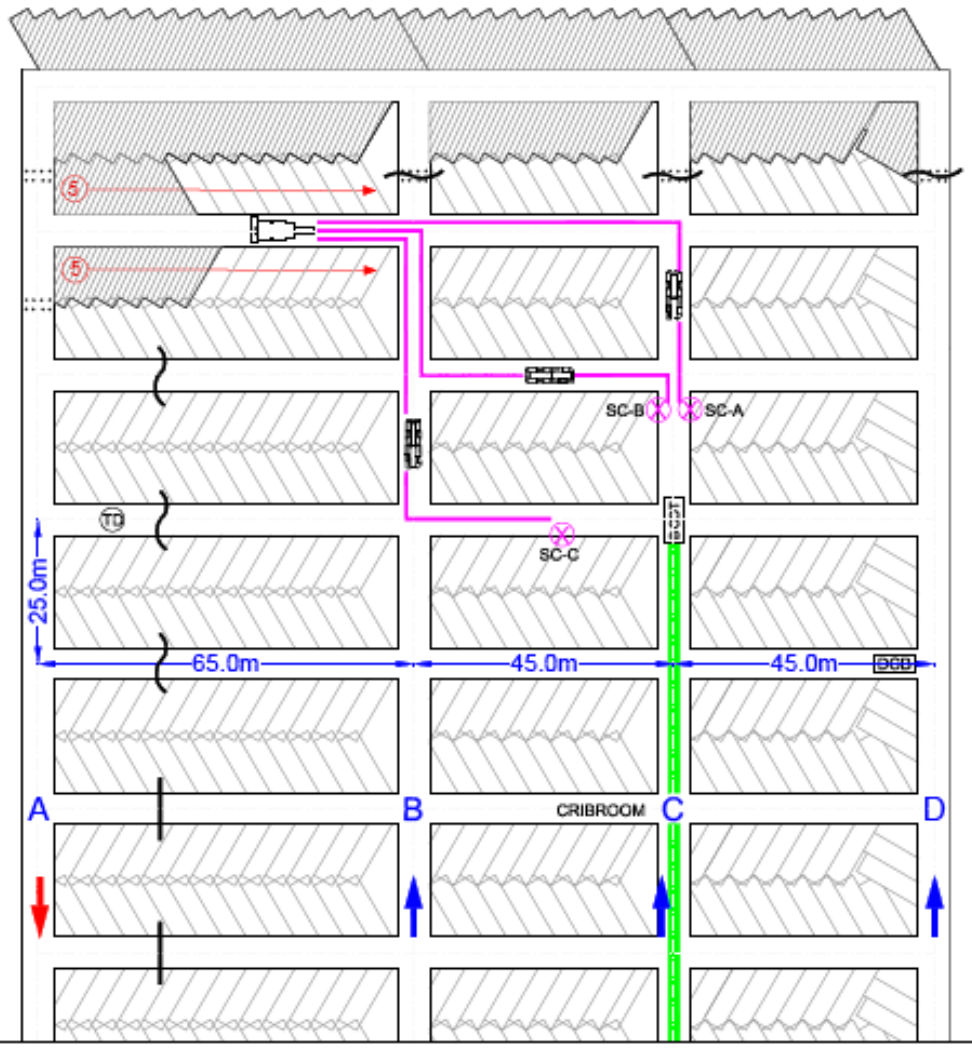
PANEL 2
SEQUENCE 5 (B)



NOTES

- Air and water pipes retracted
- When Setting up sequence 5, swing RHS SC back to endload Position
- Breaker Props + Stopping D Hdg Prior to sequence 5
- Breaker Props A Hdg Prior to sequence 5
- Most inbye Permanent Stopping replaced by brattice during sequence 5
- Trickle Duster + Cribbo retracted 1 pillar During Sequence 5

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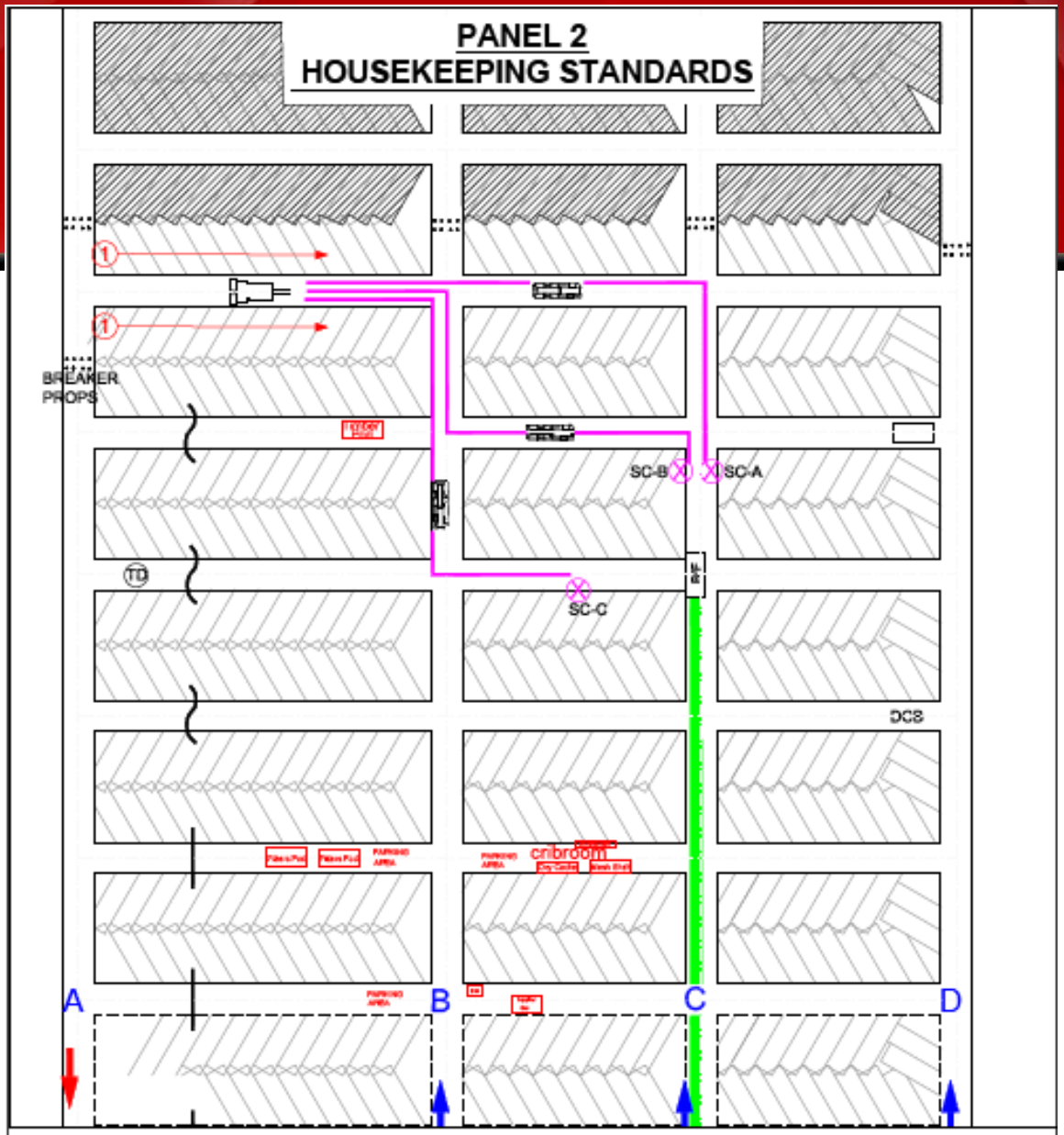
PANEL 2
HOUSEKEEPING STANDARDS



NOTES

- No loose items to be left behind in goaf (windblast danger)
- All rubbish is to be removed to bins prior to EOS
- All timber off-cuts to be taken back to timber pods

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Variation to the Approved Extraction Plan Condition 6.1.8 Clause 88 approval

- `If it is considered that the method or sequence of extraction of a particular pillar as laid down by the Manager of Mining Engineering is inappropriate, an Area Leader may authorise a variation to the Manager's procedures. This can only be undertaken after the particular Area Leader personally inspects the site for the specific purpose and issues a written directive fully detailing the variations to the Manager's procedures. A Team Leader cannot vary the Manager's procedures. The Area Leader issuing the variation shall as soon as practical inform and provide the Manager with a written copy of such variation'.
- The Team Leader has the right to stop an operation or withdraw machinery if, based on his judgement, continued mining would create an unsafe condition. If such a decision leads to the need for a variation to the approved plan then production should not re-commence until a more Senior Mining Supervisor has inspected the site.

Emergency Equipment

- The following items to be checked weekly as per weekly audit.
  - The Beltor Extraction Device and its associated controls and hoses

Emergency Equipment

In addition to the Beltor puller additional Emergency equipment to be stored on ducks bill with the following items:

- 2 sledge hammers, 2 shovels
- 2 miners picks, 2 pelican picks
- 2 saws + spare saw blades
- 2 crow bars, 2 measuring sticks
- A compressed air roof bolter with drill steels, bits and hoses
- A supply of bolts, chemicals and plates
- A supply of props, lids and wedges

Beltor Puller- SWP developed


WARNING!


BLO3

Pillar Extraction – BLS Audit of Compliance

Name of person conducting audit : Team Leader..... Date..... Panel..... Shift N D A

	Production and Flitting Operations		
1.	During the shift were remote functions tested (lower, advance, set)?	Yes	No
2.	Prior to commencing operations after a breakdown which may have affected the remote control operation, did the BLS operator test all remote functions?	Yes	No
3.	When the BLS operator selects a position to operate the BLS units did they-		
3.1	Position himself for maximum vision of operations	Yes	No
3.2	Remain under supported roof at all times	Yes	No
3.3	Stay clear of airborne dust generated by cutting operations	Yes	No
3.4	Remain alert of changing roof conditions when BLS units are lowered from the roof prior to re-positioning	Yes	No
3.5	Communicate with crew members when re-positioning or flitting BLS units.	Yes	No
4	When BLS units are being re-positioned during a production cycle, are all personnel and visitors other than BLS operator and cable hand positioned outbye of the continuous miner?	Yes	No
5	Whenever the BLS operator needs to be located inbye of the continuous miner to position the BLS units, is the power to the cutter heads on the continuous miner being isolated as per Abel's Isolation Arrangements.	Yes	No
6	Does the BLS unit operator comply with the continuous miner remote control procedures at all times?	Yes	No
7	When BLS units are being flitted-		
7.1	Are all crew members under the control of the remote control operator	Yes	No
7.2	When flitting concurrently, does pendant operators stay in full view of remote control operator	Yes	No
7.3	Does the BLS operator give directions to the crew	Yes	No
8	When work was completed, did the BLS operator ensure that all personnel were outside the "**no standing zone**" before flitting operations commenced?	Yes	No
9	Is the transmitter being turned off when not in use?	Yes	No
10	Whenever it is necessary for the BLS operator to remove the transmitter from his person, did he ensure that it was switched off and placed in a position free from hazards, moisture and dust?	Yes	No
11	Whenever the BLS operator is using the transmitter for any reason, does he place the straps around his neck and the unit clearly in front of him on his chest?	Yes	No
12	Are any personnel taking possession of the transmitter without the express permission of the BLS operator?	Yes	No
13	Whenever the operator needs to carry out another task during operations, did he turn the transmitter off and place it in a safe place off his person	Yes	No
	Maintenance		
14	Is the BLS units positioned where possible in a safe suitable location, with dry and level floor and sufficient work area around them to carry out maintenance?	Yes	No
15	Should repair work be required on a unit, is it being set to the roof in position and the other two BLS units remaining in position and set against the roof ?	Yes	No
16	Is the mineworker carrying out maintenance taking charge of the transmitter?	Yes	No
17	Is the mineworker carrying out maintenance, switching the transmitter off and placing it in a safe place off his person?	Yes	No
18	Is the mineworker carrying out maintenance, switching the main circuit breaker off and applying Abel's Isolation Procedure?	Yes	No

Comments:

_____

_____

_____

_____

Signed:_____ Date:_____

Area Leader:_____Date:_____

Pillar Extraction Weekly Audit

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Pillar Extraction – Weekly Audit

The weekly audit is to consider the face conditions and the roadways for the next two weeks production, specifically roof, rib and floor conditions, to identify the hazards and implement controls to reduce any risk

Name of personnel conducting audit: Area Leader.....Team Leader.....Crew member.....

Date..... Panel..... Shift N D A

Is the support density on the rib support plan supporting the rib adequately?	Yes	No
Is there a need to adjust the rib support TARP?	Yes	No
Where there are geological anomalies, are the ribs adequately supported?	Yes	No
Are the BLS units positioned correctly?	Yes	No
Are the BLS units in contact with roof?	Yes	No
Are the BLS Canopies horizontal with less than +/- 15°Tilt?	Yes	No
Are the BLS Legs near vertical	Yes	No
Are the stooks of the right size?	Yes	No
Are the ribs being scaled down to remove any loose material?	Yes	No
Is the continuous miner being used to clean up the ribs as required during flitting from one place to the next?	Yes	No
Are all face personnel and visitors (if present) complying with the safe standing zones?	Yes	No
Are the housekeeping standards of a high level?	Yes	No
During repair/maintenance is the CM being parked outbye and where appropriate away from the rib where men are working?	Yes	No
Is there any areas of the next pillar extraction roadway that is too high for the BLS units	Yes	No
Is there any need for a change to the Approved Manner & Sequence in the next row of pillars?	Yes	No

Requirements for the next Belt Retraction & Flit:

.....

.....

.....

Suggested Changes to Manner & Sequence

.....

.....

Checklist of Emergency Equipment

Equipment	Status	Equipment	Status
The Beltor Extraction Device and its associated controls and hoses.		2 saws+ spare blades	
4 x 32mm Hammer Locks (WLL 32T)		2 crow bars	
5 m Kevlar strop		2 measuring sticks	
4 x 32mm Safety hooks (WLL32T)		A compressed air roof bolter with steels, bits and hoses	
3.5m sling		A supply of bolts, chemicals and plates	
2 sledge hammers		A supply of props, lids and wedges	
2 shovels		Spare supply cable (250m extension cable	
2 miners picks		200m extension cable	
2 pelican picks		One spare BLS jumper cable	

Comments/Recommendations

.....

.....

.....

Signature of Auditor: _____Date:____/____/____

Production Manager:_____Date:____/____/____

Pillar Extraction – BLS Leg Pressure Test

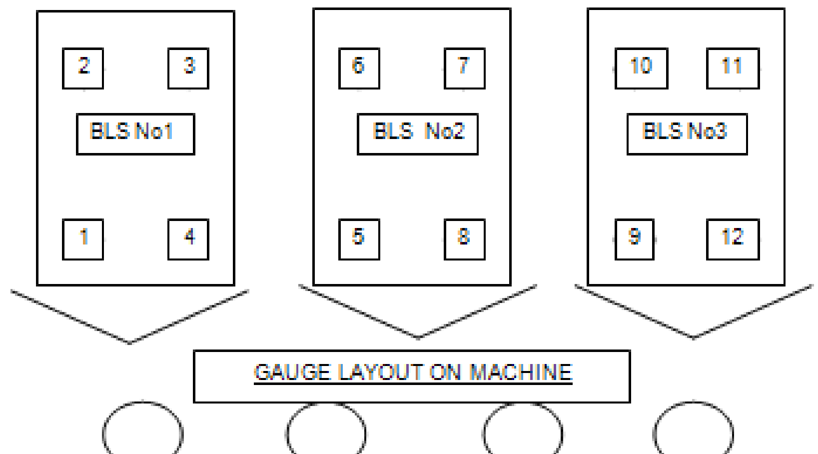
(To be carried out on Production Shifts)

Name.. Crew.......................................

Time ....to.............. Date.................. Panel ....Shift N D A

- First reading to be taken after BLS 's are set to the roof.
- Second reading to be taken within 30 minutes of setting the BLS 's to the roof.
- These reading are to be taken at least once per shift.

	Pressure	Pressure
BLS No1	Leg 1 ________	Leg 1 ________
	Leg 2 ________	Leg 2 ________
	Leg 3 ________	Leg 3 ________
	Leg 4 ________	Leg 4 ________
BLS No2	Leg 5 ________	Leg 5 ________
	Leg 6 ________	Leg 6 ________
	Leg 7 ________	Leg 7 ________
	Leg 8 ________	Leg 8 ________
BLS No3	Leg 9 ________	Leg 9 ________
	Leg 10 ________	Leg 10 ________
	Leg 11 ________	Leg 11 ________
	Leg 12 ________	Leg 12 ________



BLS No 1	Leg 1	Leg 2	Leg 3	Leg 4
BLS No 2	Leg 5	Leg 6	Leg 7	Leg 8
BLS No 3	Leg 9	Leg 10	Leg 11	Leg 12

Machinery Recovery procedures

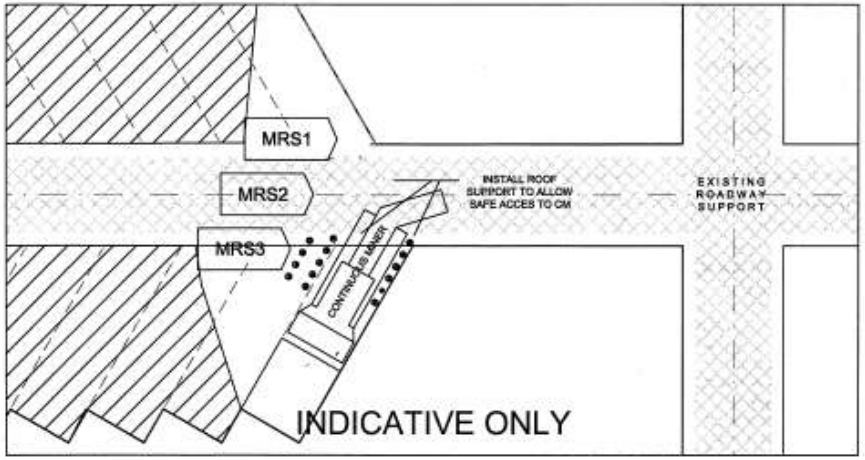
- Continuous miner broken down under unsupported roof, refer CM *Recovery Plan*
- BLS is broken down/bogged, recover BLS as per SWP 2.11.2 BLS Recovery Procedure
- Equipment buried- Notifiable under CMHSR 2006 56 (j) (burial of machinery such that it cannot be recovered under its own tractive effort) – refer SWP 2.11.1 Buried equipment Recovery Procedure

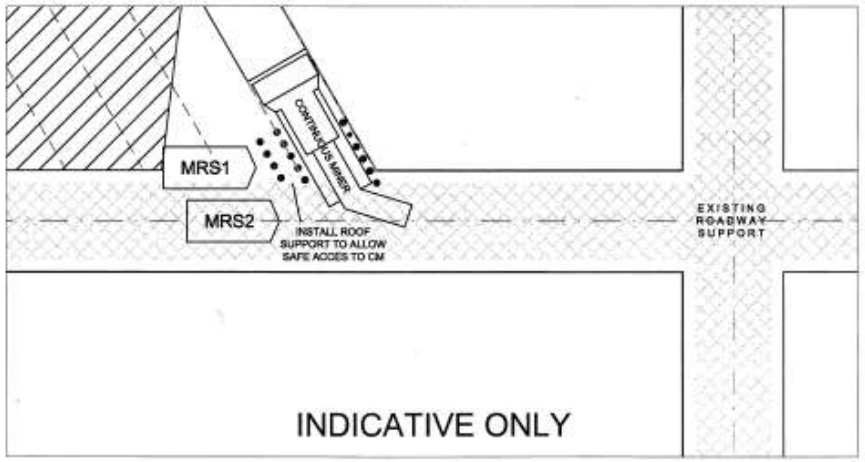
Continuous Miner Recovery Plan

CONTINUOUS MINER RECOVERY PLAN

In the event of a continuous miner breaking down beneath unsupported roof follow the procedure outlined:

1. An attempt is to be made to recover the continuous miner (CM) using the "recovery mode" &/or "emergency stop overide mode" functions on the CM.
2. No person is to stand under unsupported roof at any time.
3. Prior to commencing support installation notify the Team Leader and Area Leader.
4. The Team Leader and the crew will complete a Safe Work Method Statement (SWMS) before any work commences. The SWMS will reference safe standing and no standing zones, the Strata Management TARP, information from AMZ report (roof/ rib conditions, geological structures, caving conditions, abutment loading and MRS leg pressures).
5. Support shall be installed from areas of supported roof. Sound the roof and visually inspect roof area before commencing to install the support. The type of support (bolts or timber props) will be determined by the SWMS that is developed.
6. To gain access to the continuous miner (CM) , the support will be installed commencing from the existing rib line row of support.
7. The support is to be installed as determined by SWMS.
8. Install sufficient support to allow safe access to the continuous miner on-board controls from under supported roof.
9. Nothing will prevent a mineworker from setting an increased amount of support if necessary for safety.





3.9.10
Approved: Manager of Mining Engineering

3.9.10
Approved: District Inspector of Coal Mines

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ABEL MINE
PILLAR EXTRACTION
CONTINUOUS MINER RECOVERY PROCEDURE

SCALE	: 1:250	DWG No.	: abb2003.dwg
DRAWN	: G.Lord	REVISION	:
APPROVED	: M. Rackham		
DATE	: 24th August 2010	Plan 5 of 11	

Recovery Mode & Emergency Stop Overide

Recovery Mode

Recovery mode is available when the machine hydraulic pump or hydraulic circuit has failed. The operation allows the operator to bring the machine back to a safe location without the pump running.

This mode is only to be used in an emergency as the machine will be tramming through the brakes.

Recovery Mode bypasses the following faults-

*Motor Over-Temperature Trips

*Motor Thermal Overloads

*Stuck Spool Monitoring Faults

*Motormate Faults

*Pendant Dummy Plug not detected

N.B. Requirements at Abel will be based on a Risk Assessment process

Recovery Mode & Emergency Stop Overide

Machine Emergency Stop Overide

Machine Stop Override mode allows the safe extraction of the machine when a Machine Stop has been activated. The control system overrides the Machine Stops during this period so the machine can be trammed to a position where the Machine Stop can be reset. While in this mode an audible alarm will sound. In this mode, the pump is still able to run, traction is possible, but cutting operations of the miner will not work.

N.B. Requirements at Abel will be based on a Risk Assessment process

Appendix 7 Breaker Line Support Recovery Procedure

Breaker Line Support Recovery
PROCEDURE

1. Purpose

This procedure is to provide instruction for the method/methods to be used to free a Breaker Line Support (BLS) should it become bogged during normal coal winning operations.

2. Scope

This procedure describes the method, manning and equipment to be employed to free a bogged BLS. It should be used in conjunction with the Safe Operating Procedure for the Remote Control JOY 12CM12 and BLS's.

3. General Requirement

3.1 The mining official in charge of the panel shall direct operations.

3.2 The mining official in charge of the panel shall nominate personnel to carry out the procedure and direct them in their tasks. He shall ensure that each individual is aware of his particular task and the overall task at hand.

3.3 Only operators trained and appointed by the Manager shall operate the remote control equipment.

3.4 All operations are to be carried out under supported roof; additional support is to be by means of roof bolts and set as and where required.

3.5 Only personnel employed in the task at hand are to be in the immediate face area during the operation.

4. Preparation

4.1 Clean approach to BLS with the miner (CM) or an LHD.

4.2 Position the CM for a direct "in line" pull.

4.3 When the CM is in position to attach the towing chains, it must:

a) Isolated in accordance with Tasman's Isolation Arrangements

4.4 The towing chain hooks are to be secured to the towing lugs which are fitted to the CM for this purpose.

5. Towing Procedure

5.1 The CM operator is in charge of the immediate face area, subject to instructions from the mining official in charge of the panel, during the recovery operation.

5.2 All personnel not directly involved in the towing operation are to be directed to a place of safety selected by the mining official in charge.

5.3 The CM operator and the BLS operator are to co-ordinate their operations, with the CM operator in control.

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Appendix 6 Buried Equipment Recovery

Buried Equipment Recovery PROCEDURE

1. Purpose

This procedure is to provide instruction to personnel for the standard procedures to be followed in the event of a fall of roof burying equipment which cannot be freed under its own power. As each scenario cannot be predicted, the extraction procedure will be formulated by the incident team at the time following an onsite risk assessment.

2. Scope

This procedure covers the steps to be taken in the event of a fall of roof burying equipment, and covers:

a) Reporting the nature of the incident, and injuries to personnel, if any
b) The procedure for nomination of the person to be in charge of the recovery team/process
c) Preparation for the recovery process
d) Standard procedures for a general recovery of buried equipment
e) The means by which the individual recovery procedure will be decided

3. General Requirement

3.1 The mining official in charge of the panel shall immediately check for the location and safety of all personnel.

3.2 The mining official in charge of the panel, or a nominated employee, is to notify the Undermanager in Charge and/or the Manager as soon as possible after the fall. He shall pass on the following information:

a) Nature of occurrence
b) Any injuries to personnel and what assistance is required to deal with them
c) Location of fall
d) Time of fall
e) Extent of fall and what machinery is involved
f) Equipment or stores required to secure lip
g) Extraction equipment required
h) Consideration of a reportable incident
i) Whether or not the surveyor is required

3.3 Restore ventilation if applicable

4. Preparation

4.1 The senior mining official on site shall nominate who is to be in charge of the recovery procedure.

4.2 The senior mining official on site shall nominate an incident team who shall:

a) Carry out an onsite risk assessment
b) Develop a recovery procedure from the recommendations from the risk assessment

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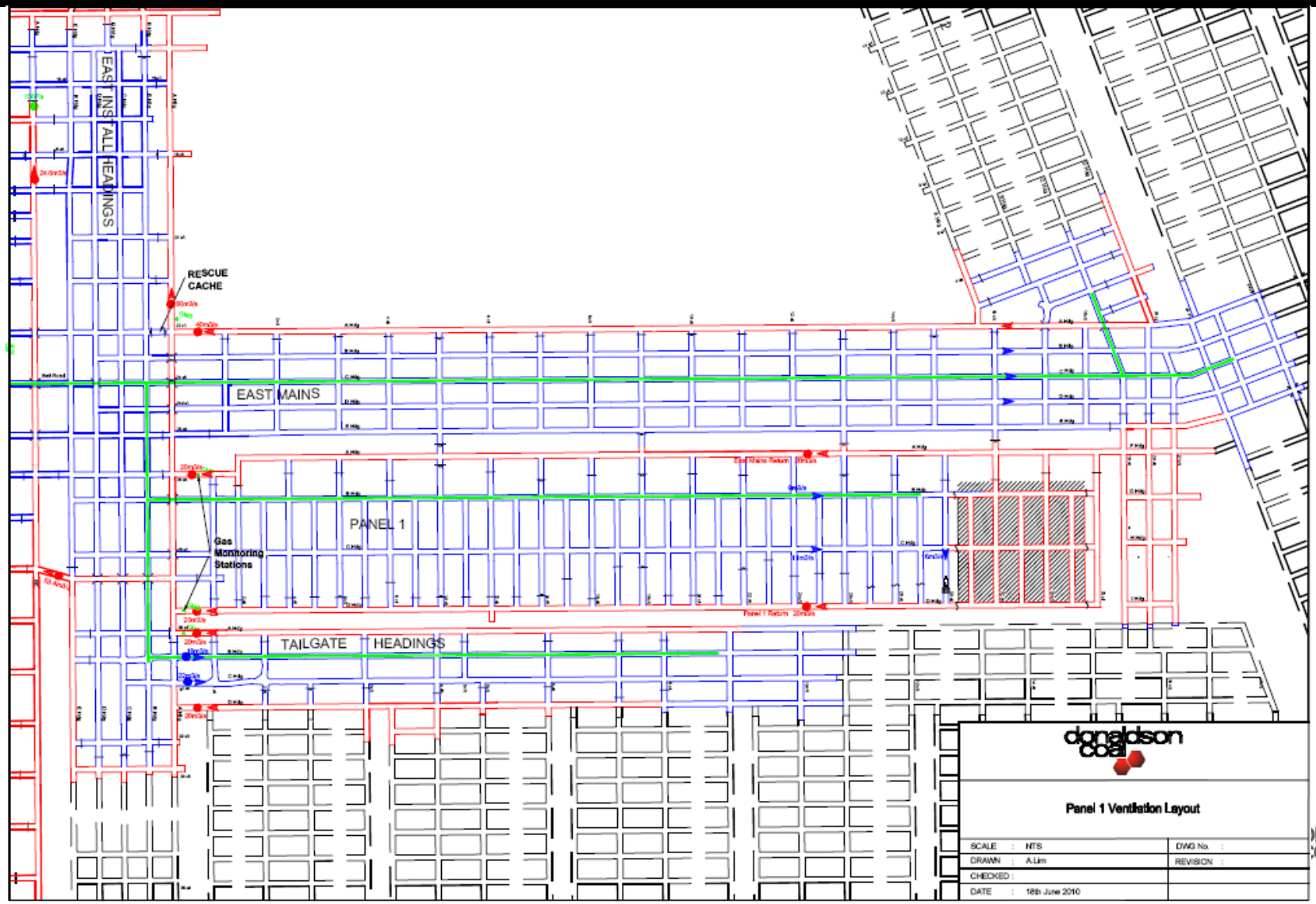
Management of Ribs in the Pillar Extraction Area

- An assessment of the rib conditions shall be made prior to fenders being extracted in any run out (see AMZ).
- All loose ribs to be scaled down in run outs prior to lifting commencing.
- Should any deterioration occur in ribs of run out then rib support may be installed as per TARP.
- Team Leader & crew - regular inspection of face area zone, to determine state of ribs.

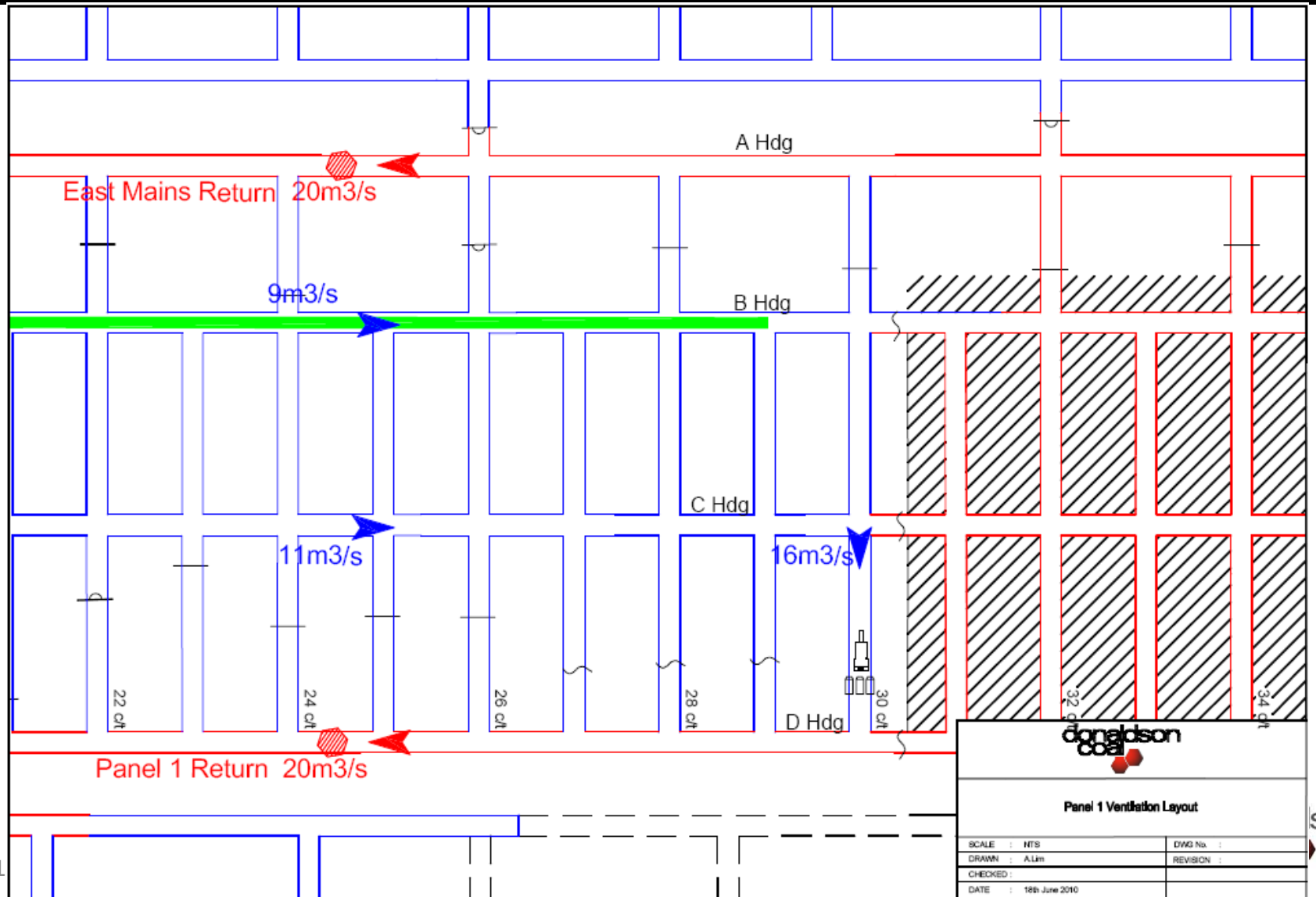
Ventilation Arrangements

- Methane and other gas levels will be monitored in the return side at the start of the panel by the AmpControl real time monitoring system
- CM03 is equipped with an approved automatic methane monitor as required by Clause 18 (1) (f) of the Coal Mine Health and Safety Regulation 2006.

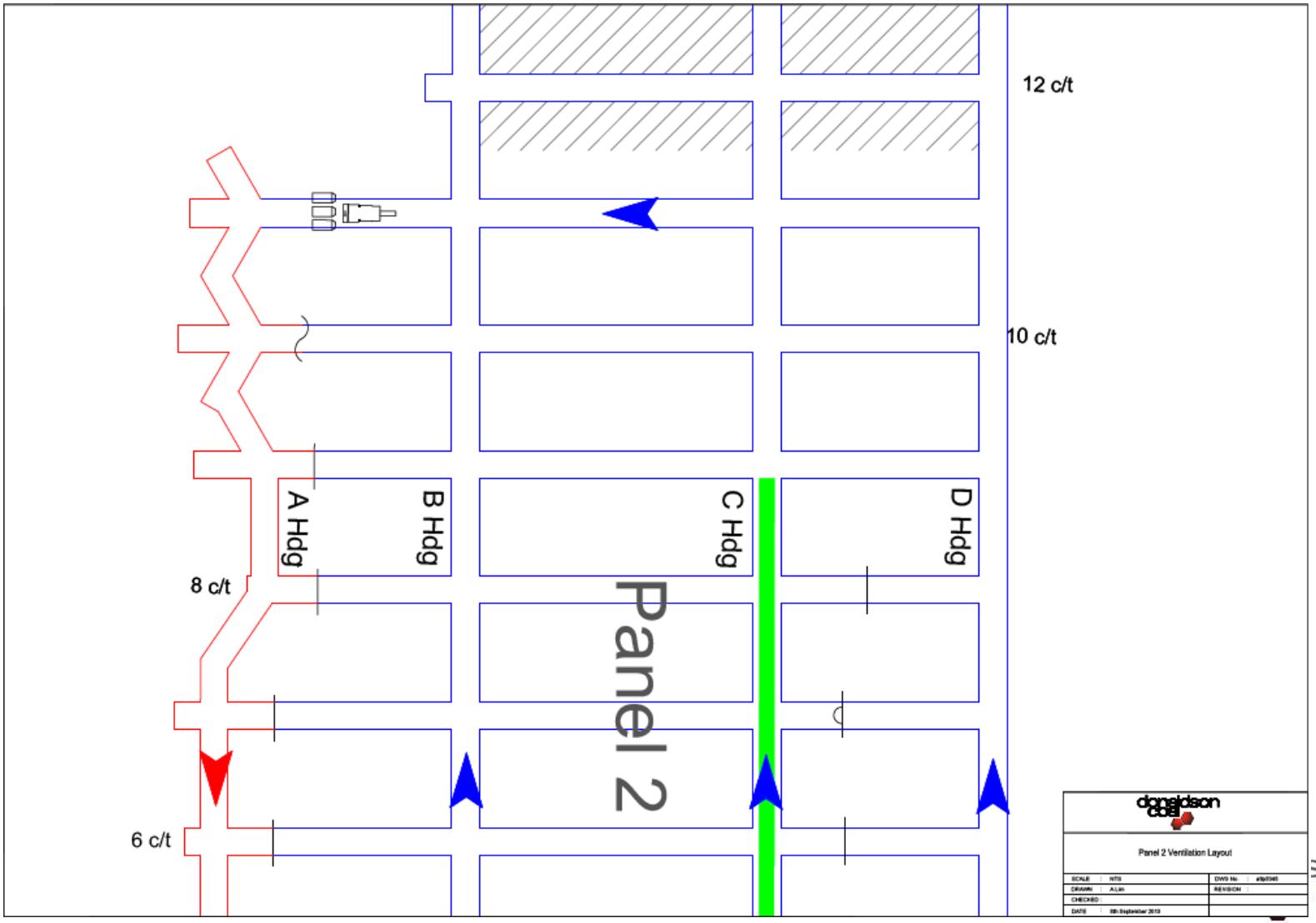
Ventilation Arrangements – Panel 1



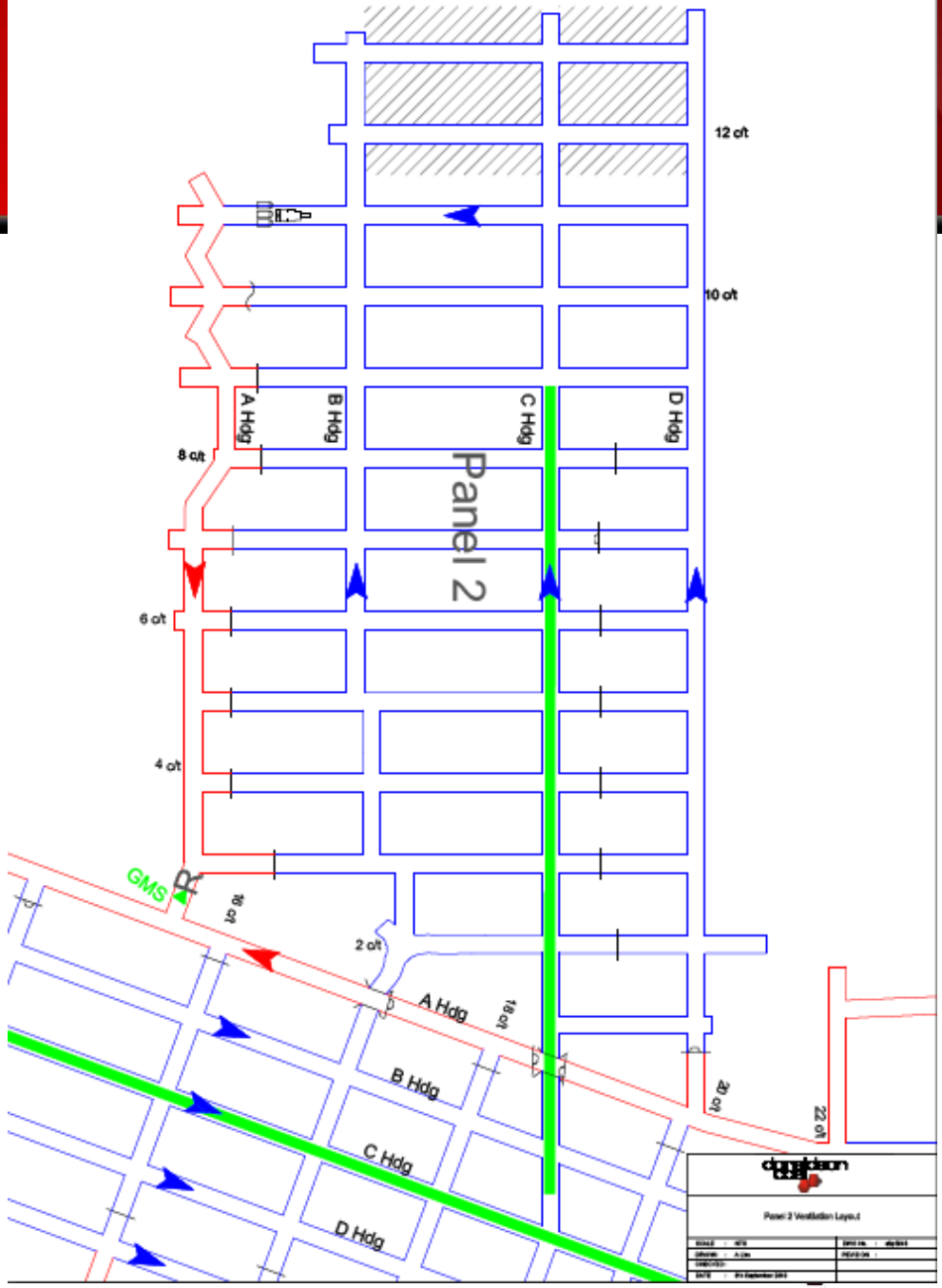
Ventilation Arrangements – Panel 1



Panel 2 Ventilation



Panel 2 Ventilation



Procedure after a Goaf Fall

- When a goaf fall occurs, gases from the goaf may be forced out into the workings adjacent to goaf edges. If ventilation is disrupted the concentration of gases could be high.
- If a secondary goaf fall (likely to cause disruption to ventilation) is imminent, all workers should withdraw from face area to fresh air into a roadway not in direct line with the direction of goaf fall & isolate power to face machinery.
- If a goaf fall has occurred which has disrupted ventilation in panel, the following will take place:
  - Power isolated to CM, SC's & BLS's at DCB.
  - Notify Team Leader & an inspection carried out to determine extent of damage to ventilation system & level of gases present.

Procedure after a Goaf Fall (Continued)

- Team Leader will then report occurrence to Area Leader or most senior mining official present at mine.
- Restoration of ventilation to proceed under Team Leader's direction.
- Stoppings to be built from outbye towards face.
- Report must be filled out with action taken to restore ventilation to panel with gas readings present
- Under NO circumstances are mineworkers to build stoppings at or near goaf edges until ventilation outbye has been re-established.

Halting of Lifting Partially Extracted Fenders

- Safety of men and machinery in pillar extraction panel is PRIORITY
- Prior to halting operations (e.g. maintenance/Saturday shutdown, Xmas shutdown) Area Leader and Team Leader must assess conditions in panel.
- Criteria for halting or continuing operations will be based on following factors:
  - Conditions encountered in previous fender
  - Conditions in current fender
  - The number of remaining lifts
  - Caving (regular, uncaved)
  - Weight in area (low, heavy, rib spall, floor heave)
  - Geology (faults, dykes, joints)
  - Recovery (complete, stooks, webs, partial fenders left)

Halting of Lifting Partially Extracted Fenders

- Extraction shall not be halted if:
  - The Manager Mining Engineering, Area Leader or Team Leader deems that in interests of safety that extraction must continue
  - A lift remains uncompleted
  - There is insufficient coal left in the fenders to ensure the stability of the mining area
- At completion of a production shift in a cycle Team Leader must report distance left remaining in fenders and locations of BLS's on his AMZ report

Halting of Lifting Partially Extracted Fenders

- When operations are halted BLS units are to remain in position & set to roof in green zone (up to 280 bar)
- Continuous miner must be parked in safe & secure area after operations are halted
- Where extraction has been halted area should be inspected by a Team Leader to ensure that BLS units are secure & that they are not being subjected to any excessive loading.

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Pillar Extraction Management Plan Training
Panel 2

September 2010