DONALDSON COAL

ABEL MINE

SMP Area 2

Mine Design SMP Compliance Audit

Panel 22

Document Control

Description

Document No.	
Title	Mine Design SMP Compliance Audit
General Description	Plan for the control of mining to meet the mine design specifications as documented in the approved Abel Mine - Subsidence Management Plan.
Key Support Documents	• Abel Mine - Subsidence Management Plan Application • Abel Mine - Subsidence Management Plan DTIRIS Approval Letter • Abel Mine - Subsidence Management Plan: Surface Subsidence Monitoring Program • Abel Mine - Subsidence Management Plan: Underground Subsidence Monitoring Program

Approvals

ORIGINATOR	Name Daniel Lee	Position Registered Surveyor	Signed	Date 17/10/13
REVIEWED	Name Matthew Wright	Position Registered Mine Surveyor	Signed	Date 17/10/13
APPROVED	Name Tony Sutherland	Position: Technical Services Manager – Underground Operations	Signed	Date 17/10/13

Revisions

					Approved	
Version #	**Date**	**Description**	**By**	**Checked**	**Name**	**Signed**
1	3/07/13	Full review & document control	DL	Grant Lord	Tony Sutherland	

Consultation

Version#	Date	Name	Position

The nominated Coordinators for this document is	Technical Services Manager - Underground Operations

Table of Contents

1. Introduction

This internal compliance audit checklist has been developed to confirm that mining complies with the Department of Trade & Investment, Regional Infrastructure & Services (DTIRIS) approved Subsidence Management Plan (SMP) Variation approval dated 16/4/13 (Ref OUT 13/8527) as per Condition 22 of the Abel Mine Area 2 SMP Variation approval dated 3/9/12 (Ref OUT 12/21626).

The results of the audit are to be reported to the Inspector of Coal Mines and the Principal Subsidence Engineer within three months of completion of each panel.

2. Definitions

Active Mining Zone (AMZ) report - A report completed by the Panel Team Leader (Deputy) and countersigned by the Area Leader (Shift Undermanager) detailing lifts taken, hazards identified, tell-tale information and comments on conditions and actions taken.

Authority to Mine (ATM) Plan - A plan prepared by the Tech Services Dept and approved by the Production Manager showing lifts to be taken, mine hazards, borehole information, lift depths, stooks, remnant pillar sizes and sequence of extraction.

Pillar Extraction Management Plan (PEMP) – Provides a framework for the protection of persons health and safety from pillar extraction activities at Abel and to ensure compliance with relevant legislation and approval conditions.

Pre Extraction Mining Review - A review conducted by the Technical Services team checking that approvals, plans and training are in place prior to extraction commencing.

Risk Assessments - The overall process of risk analysis, evaluation and controls.

Subsidence Control Zones (SCZ) – Areas designated for control of subsidence to protect sensitive surface features.

Tool Box Talk (TBT) – A TBT is a short safety talk delivered to the workforce on a specific subject matter.

Trigger Action Response Plan (TARP) - A TARP is a system under which pre-determined actions are initiated in response to risk triggers. For example, an increase in roof bolting density may occur in response to the presence of a fault being encountered.

Weekly Pillar Extraction Audits – A weekly audit of pillar extraction panels undertaken by the shift Area Leader, Technical staff and other members of the workforce. The audit aims to ensure compliance with the mine's Work Health and Safety Management Systems and to identify and manage hazards in the production area.

3. Checklist

SMP Criteria	Monitoring	Audit	Audit Results
"The Leaseholder must ensure that the proposed mining be controlled to meet the mine design specifications, as documented in the SMP"			
Lift depths to confirm remnant pillar size	Shown on ATM plan Team Leaders sign off on AMZ report showing lifts taken and tell-tale information Surveyor's inspections and goaf surveys WHSMS 7.1 Inspection System Weekly pillar extraction audit checked by Geotechnical representative	Daily review of AMZ reports by Undermanager and Technical Services team members & signed off by Area Leader at end of shift Record of AMZ's, Surveyor inspections and goaf surveys used to update mine plan Folder of all weekly pillar extraction audits kept on file	In Compliance
Approved Surface Subsidence monitoring program	Monitoring of panel subsidence, tilts, strains	Registered Mine Surveyor to: • confirm compliance with approved program • Checking results against predictions • Notification as per TARP and approval conditions	In Compliance

SMP Criteria	Monitoring	Audit	Audit Results
Approved Underground Subsidence Monitoring Program	Monitoring of tell-tale extensometers WHSMS 7.1 Inspection System Weekly pillar extraction audit checked by Geotechnical representative	Daily review of AMZ reports by Area Leader and Technical Services team members & signed off by Area Leader at end of shift Tell-tales recorded on AMZ reports as part of statutory inspections Folder of all weekly pillar extraction audits kept on file	In Compliance
Training	Pre extraction training on importance of design including lift depth, angle, SCZ's, stook and remnant pillar dimensions etc	Training registers Confirm appropriate personnel trained	In Compliance
SCZ's	SCZ, including exclusion zones identified on approved plan are replicated on to ATM plans Displayed in the surface operation room and icentre Underground section plan displayed in crib room	Confirmed by Registered Mine Surveyor	In Compliance Exclusion zones set up around Private Principal Residences

SMP Criteria	Monitoring	Audit	Audit Results
Depth of cover (restriction on mining) No extraction less than 50m No first workings less than 30m	Surface and underground surveys to confirm depth of cover	Confirm surveys conducted Depth of cover greater than 50m for entire panel	In Compliance
Mark up Stook X, Y and roadway centrelines	Stooks marked up prior to extraction Offline roadway centrelines marked	WHSMS 7.1 Inspection System Weekly pillar extraction audit WHSMS 2.11 PEMP WHSMS 2.11 PEMP training	In Compliance
Risk assessments (including SMP and CL88)	Additional controls applicable to panel	Confirm any required controls implemented Review undertaken of risk assessment on pillar extraction	In Compliance

4. Subsidence Results Summary

PANEL 22			
	Predicted	**Measured as of 31/07/2013**	**Comment**
Subsidence	< 0.150m	0.049m	Measured subsidence < prediction

5. Audit Summary

Overall the design and implementation of the internal controls appears to be appropriate and no inappropriate activity was noted.

It can be concluded that mining in Panel 22 at Abel Mine has been undertaken in accordance with the mine design specifications.

6. Appendices

Appendix A: Panel 22 Active Mining Zone (AMZ) Report Examples

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Pillar Extraction - Active Mining Zone Report

FRM 2.4.2

Crew: A/S. Panel: 22 Shift: N D (A) Sequence Start: 94 4715 Sequence End: 97

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

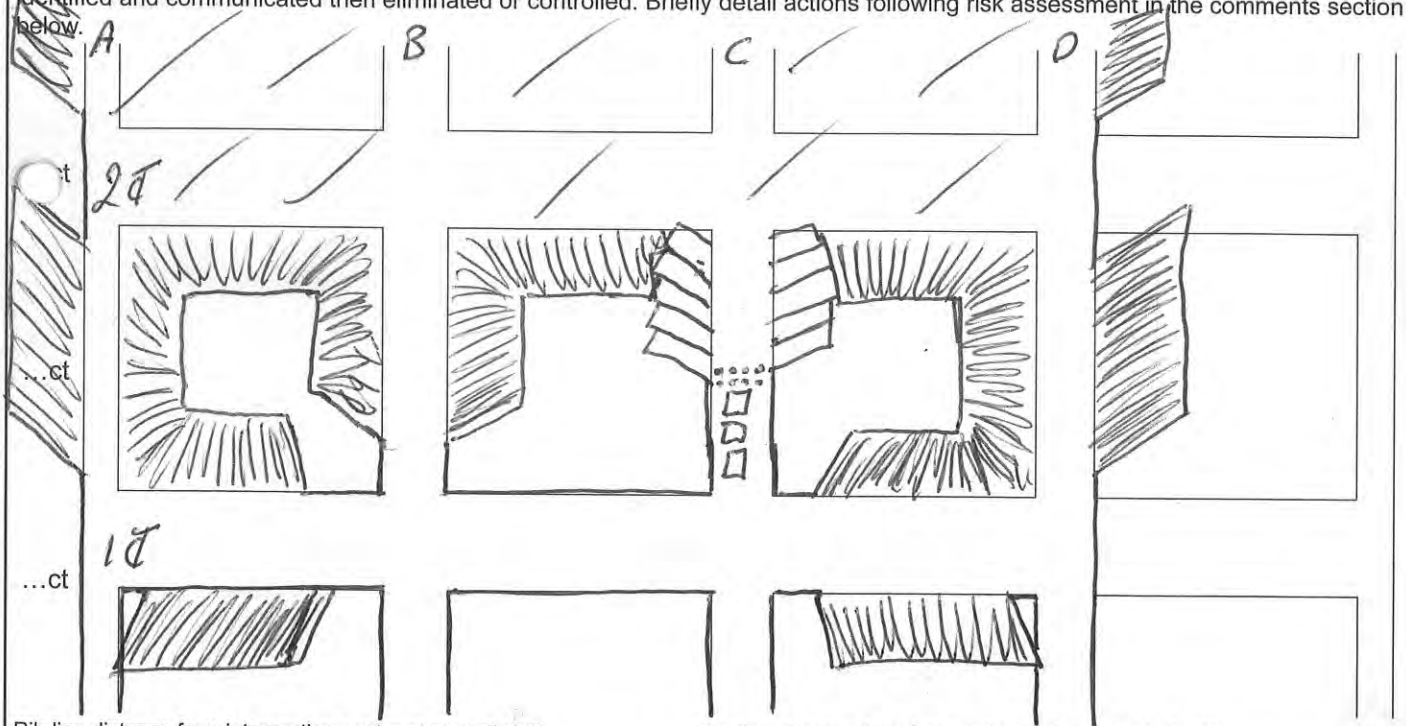
WHERE	WHEN	INITIAL	TIME
1. The roadway to be extracted during shift	Prior to extraction		3:45pm
2. The roadway to be extracted next	During shift		3:40pm
3. The wheeling roads	During shift		3:35pm

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		Off-centre 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.



Rib-line distance from intersection centre at start of shift: ..... Rib-line distance from intersection centre at end of shift: .....

Floor coal taken (Y) N estimated extraction height at back of lift: .....m

Comments / Actions Taken:

NO FALLS ON PREVIOUS SHIFT.

SMALL FALLS IN Chdg 2t DURING SHIFT.

ALL QUIET E.O.S.

Tell-tale information

Location	Time	Total	Lower

Goafing / Caving Estimates:

estimation standing MOST.

estimation coal left behind MIN.

estimation dilution MIN.

Offgoing Team Leader Signature ..... Date 19-7-13

Oncoming Team Leader Signature ..... Date ..... Area Leader Signature ..... Date 17.9.13

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Pillar Extraction - Active Mining Zone Report

4707

FRM 2.4.2

Crew: 3 Panel: 22 Shift: (N) D A Sequence Start: 50 Sequence End: 54

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

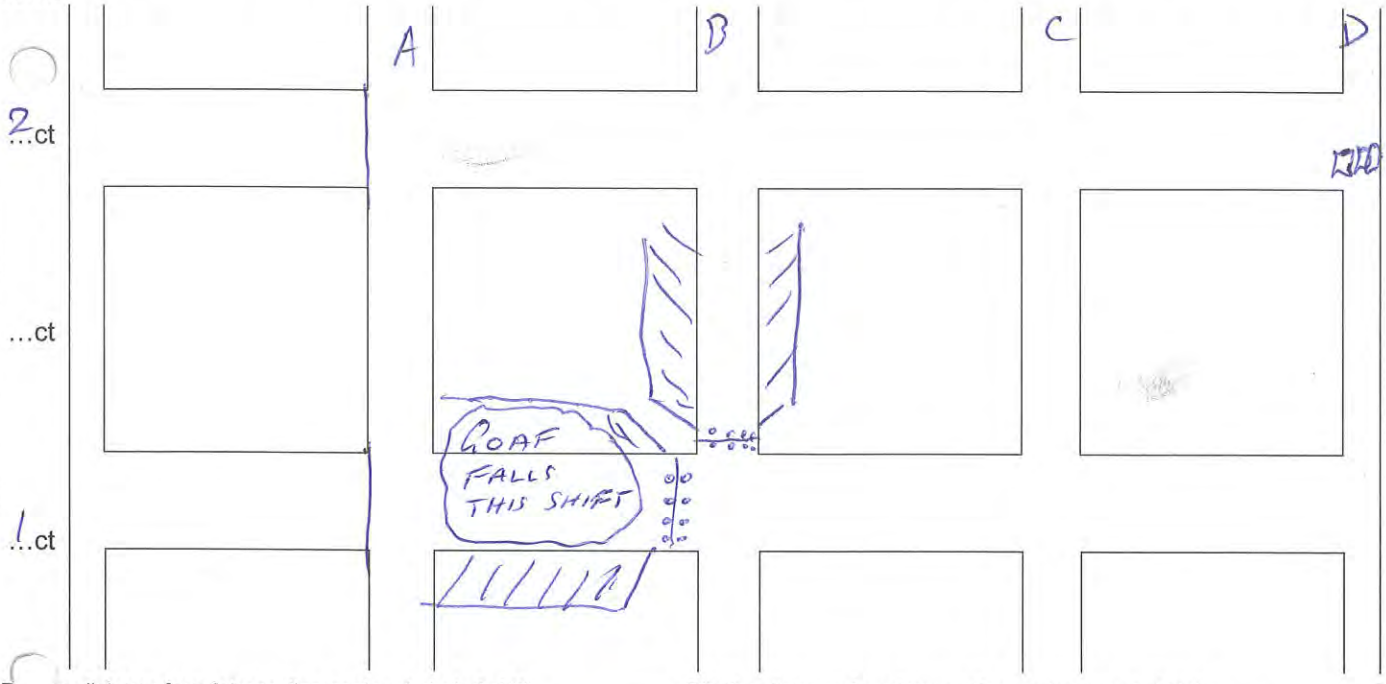
WHERE	WHEN	INITIAL	TIME
1. The roadway to be extracted during shift	Prior to extraction	CP	10-20
2. The roadway to be extracted next	During shift	CP	10-50
3. The wheeling roads	During shift	CP	10-40

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		Off-centre 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.



Rib-line distance from intersection centre at start of shift: ..... Rib-line distance from intersection centre at end of shift: .....

Floor coal taken Y / N estimated extraction height at back of lift: .....m

Comments / Actions Taken:

GOAF FALLS DURING SHIFT 1 ct. A TO B

CUTTERS AND GREASY BACKS IN ROOF.
LEFT WEBS BETWEEN LIFTS ON LEFT AND RIGHT TO STOP BED SEPERATION AT 150mm AND 300mm.

Tell-tale information

Location	Time	Total	Lower

Goafing / Caving Estimates:

estimation standing
A HPA

estimation coal left behind
WEBS 2x1m

estimation dilution

Offgoing Team Leader Signature C. Pay Date 17-8-13

Oncoming Team Leader Signature ..... Date ..... Area Leader Signature D. Merrill Date 17-7-13

Appendix B: Panel 22 Authority to Mine (ATM) Plan Examples

Authority to Mine Plan - Panel 22 (12c/t to 8c/t)

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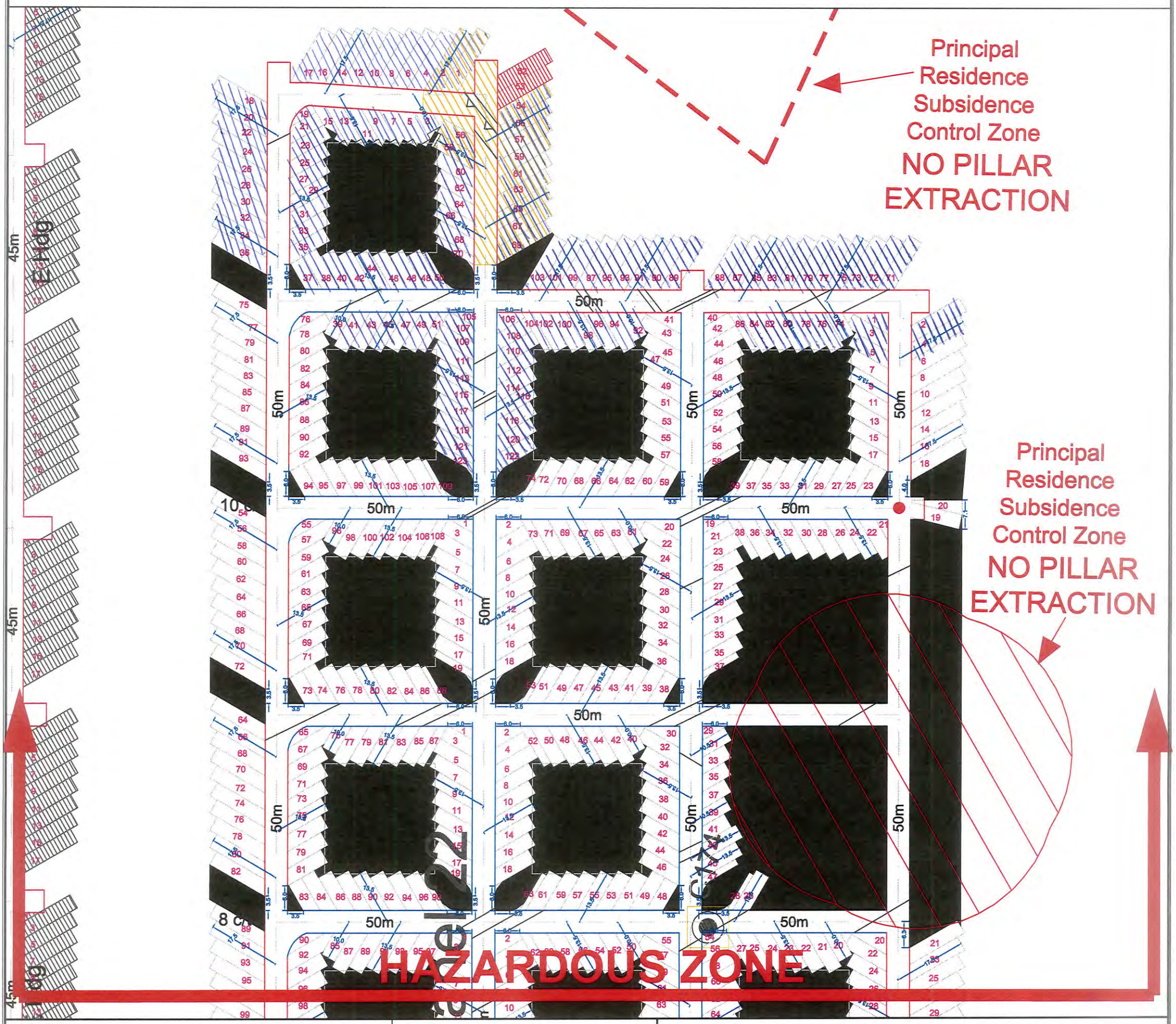
- This **Authority to Mine** should be read in conjunction with the following plans:

- Panel 22 - Lifting Sequence and Support Rules - a6b2016.dwg (plan 2 of 15).

- Panel 22 - Pillar Extraction Supporting Disturbed Roof - a6b2016.dwg (plan 5 of 15).

- "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.



KEY:

- Coal lift (width 4.0m - depth of lift is as per Approved Plan - a6b2013.dwg (plan 2 of 10))
- Stooks to be left
- Coal to be left for the purpose of providing additional ground support to geological anomalies
- Coal web to be left for the purpose of providing ground support and to stop goaf flushing into current lifting area (no greater than 1.0m width)

- Additional caution required in area
- Additional 4m Tendons to be installed
- Condition ORANGE support installed
- Condition RED support installed

NOTE: Where no support is shown on plan it is deemed to be Condition GREEN support

a key for these symbols can be found on the geological condition plan

Panel 22 - 12c/t to 8c/t

SCALE : 1:1000 @ A3	DWG No. : ATM_P22.dwg
DRAWN : M. Wright	
CHECKED :	REVISION : 1
APPROVED : D.Wrightson	DATE : 18th April 2013

Authority to Mine Plan - Panel 22 (9c/t to 5c/t)

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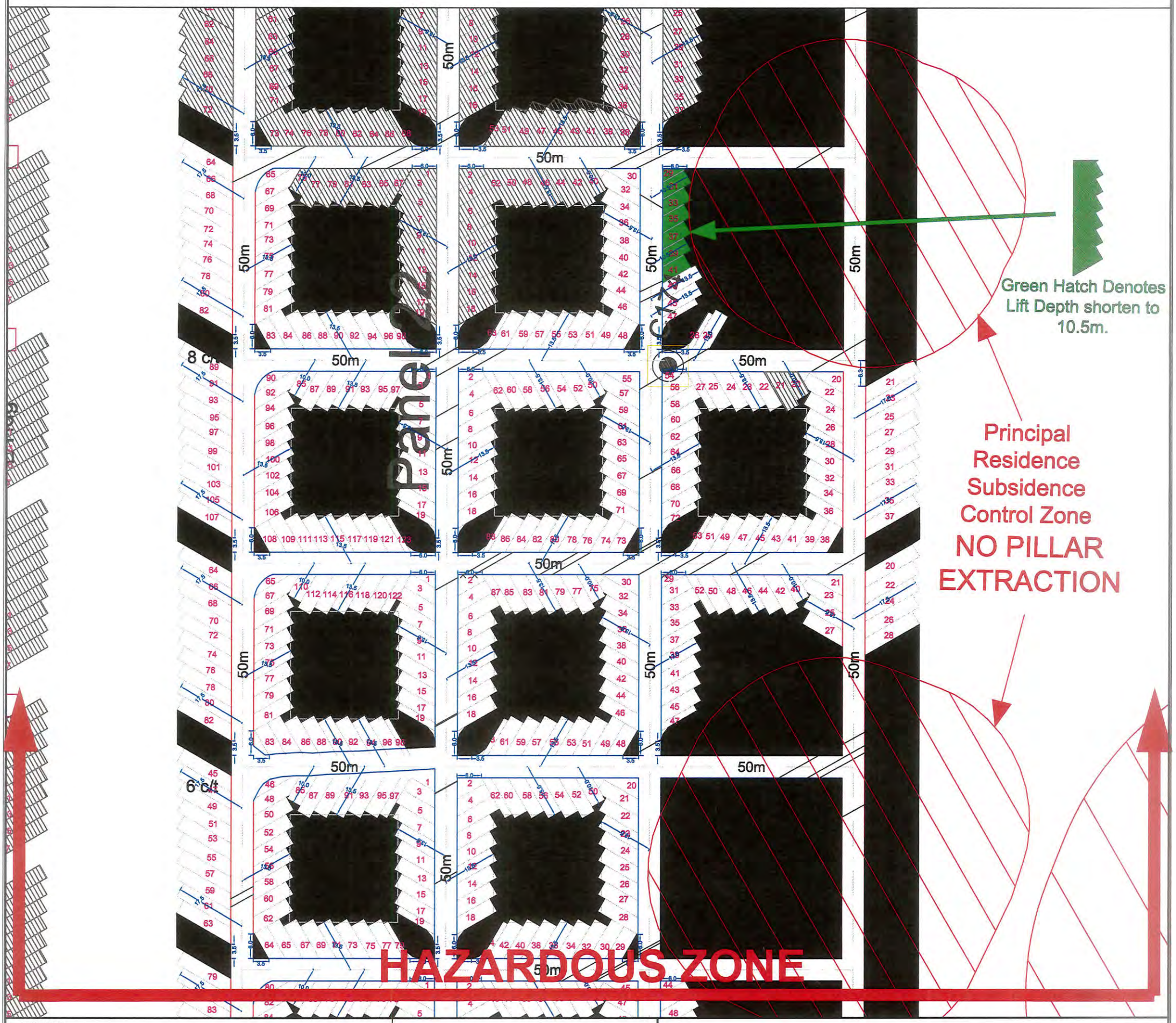
- This **Authority to Mine** should be read in conjunction with the following plans:

- Panel 22 - Lifting Sequence and Support Rules - a6b2016.dwg (plan 2 of 15).

- Panel 22 - Pillar Extraction Supporting Disturbed Roof - a6b2016.dwg (plan 5 of 15).

- "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.



KEY:

- Coal lift (width 4.0m - depth of lift is as per Approved Plan - a6b2016.dwg (plan 2 of 10))
- Stooks to be left
- Coal to be left for the purpose of providing additional ground support to geological anomalies
- Coal web to be left for the purpose of providing ground support and to stop goaf flushing into current lifting area (no greater than 1.0m width)
- Additional caution required in area
- Additional 4m Tendons to be installed
- Condition ORANGE support installed
- Condition RED support installed

NOTE: Where no support is shown on plan it is deemed to be Condition GREEN support

- a key for these symbols can be found on the geological condition plan

Panel 22 - 9c/t to 5c/t

SCALE	: 1:1000 @ A3	DWG No.	: ATM_P22.dwg
DRAWN	: R. Tubridy		
CHECKED	:	REVISION	: 4
APPROVED	: D.Wrightson	DATE	: 21st May 2013

Appendix C: Panel 22 Weekly Pillar Extraction Audit Examples

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Pillar Extraction – Weekly Audit

1357

Name of personnel conducting audit : Area Leader Clayton B Team Leader Mick Jeffries Crew member

Geotechnician Liam Krick Date 4/6/13 Panel 22 Shift N (D) A

The following checks are for the current operations

Have the extents of supported roof in the roadways been delineated with reflective droppers?	(Yes)	No	N/A
Are the ribs being scaled down to remove any loose material?	(Yes)	No	N/A
Is there a need to adjust the rib support TARP?	Yes	(No)	N/A
Where there are geological anomalies, are the ribs adequately	Yes	No	(N/A)
supported?	Yes	No	N/A
Is the goaf readily caving?	Yes	(No)	N/A
Is ventilation in the panel adequate?	(Yes)	No	N/A
Are the BLS units positioned correctly?	(Yes)	No	N/A
Are the BLS units in contact with roof?	(Yes)	No	N/A
Are the BLS Canopies horizontal with less than +/- 15° Tilt?	(Yes)	No	N/A
Are the BLS Legs near vertical?	(Yes)	No	N/A
Are the stooks of the right size?	(Yes)	No	N/A
Is the approved cutting sequence being adhered to?	(Yes)	No	N/A
Are current sequence plans available at the Team Leader's station?	(Yes)	No	N/A
Is the continuous miner being used to clean up the ribs as required during flitting from one place to the next?	(Yes)	No	N/A
Are all face personnel and visitors (if present) complying with the safe standing zones?	(Yes)	No	N/A
Are the housekeeping standards of a high level?	(Yes)	No	N/A
During repair/maintenance is the CM being parked outbye and where appropriate away from the rib where men are working?	Yes	No	(N/A)

Comments/Recommendations

SURVEYORS REQUIRED TO MARK UP CENTRE LINE OUT A-BADG - OFF CENTRE DRIVAGE

SIGNS OF WEIGHT ON RIBS CAUSING RIB SPALL CHOKE INTERSECTION

Complete the following considering 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.

Are there any known geological anomalies in the upcoming production area?	Yes	(No)	N/A
Is there evidence of roof support taking weight in the upcoming production area?	Yes	(No)	N/A
Are there any roadways that require additional support in the roof or ribs prior to pillar extraction commencing from that roadway?	Yes	(No)	N/A
Are there any roadways that need cleaning to allow passage of BLS's?	(Yes)	(No)	N/A
Are there any off centre roadways that need survey lines installed to mark the design centre of the roadway?	(Yes)	No	N/A
Are there any areas of the next pillar extraction roadway that is too high for the BLS units?	Yes	(No)	N/A
Is there any need for a change to the Approved Manner & Sequence in the next row of pillars?	Yes	(No)	N/A
Do any stoppings need repairing?	Yes	(No)	N/A
Are all wheeling corners suitable?	(Yes)	No	N/A
If not - Do they require trimming?	Yes	No	(N/A)

Requirements for the next Belt Retraction & Flit:

Suggested Changes to Manner & Sequence

Signature of Area Leader: _____ Date: 4 / 6 / 13

Production Manager: _____ Date: 4 / 6 / 13

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Pillar Extraction – Weekly Audit

1356

Name of personnel conducting audit : Area Leader Brad Merchant Team Leader Steve Stonie/prior col ~~Campbell~~. Crew member

Geotechnician John Knide (Ops manager present Dean Wightson.) Date 30/4/13 Panel 22 Shift N (D) A

The following checks are for the current operations

Have the extents of supported roof in the roadways been delineated with reflective droppers?	(Yes)	No	N/A
Are the ribs being scaled down to remove any loose material?	Yes	No	(N/A)
Is there a need to adjust the rib support TARP?	Yes	(No)	N/A
Where there are geological anomalies, are the ribs adequately	(Yes)	No	N/A
supported?	~~Yes~~	~~No~~	~~N/A~~
Is the goaf readily caving? Duncan method	Yes	(No)	(N/A)
Is ventilation in the panel adequate?	(Yes)	No	N/A
Are the BLS units positioned correctly?	(Yes)	No	N/A
Are the BLS units in contact with roof?	(Yes)	No	N/A
Are the BLS Canopies horizontal with less than +/- 15° Tilt?	(Yes)	No	N/A
Are the BLS Legs near vertical?	(Yes)	No	N/A
Are the stooks of the right size?	(Yes)	No	N/A
Is the approved cutting sequence being adhered to?	(Yes)	No	N/A
Are current sequence plans available at the Team Leader's station?	(Yes)	No	N/A
Is the continuous miner being used to clean up the ribs as required during flitting from one place to the next?	Yes	No	(N/A)
Are all face personnel and visitors (if present) complying with the safe standing zones?	(Yes)	No	N/A
Are the housekeeping standards of a high level?	(Yes)	No	N/A
During repair/maintenance is the CM being parked outbye and where appropriate away from the rib where men are working?	Yes	No	(N/A)

Comments/Recommendations

Secondary rib support has occurred in many cuts.

Complete the following considering 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.

Are there any known geological anomalies in the upcoming production area?	Yes	(No)	N/A
Is there evidence of roof support taking weight in the upcoming production area?	Yes	(No)	N/A
Are there any roadways that require additional support in the roof or ribs prior to pillar extraction commencing from that roadway?	Yes	(No)	N/A
Are there any roadways that need cleaning to allow passage of BLS's?	Yes	(No)	N/A
Are there any off centre roadways that need survey lines installed to mark the design centre of the roadway?	Yes	(No)	N/A
Are there any areas of the next pillar extraction roadway that is too high for the BLS units?	Yes	(No)	N/A
Is there any need for a change to the Approved Manner & Sequence in the next row of pillars?	Yes	(No)	N/A
Do any stoppings need repairing?	Yes	(No)	N/A
Are all wheeling corners suitable?	(Yes)	No	N/A
If not - Do they require trimming?	~~Yes~~	~~No~~	~~N/A~~

Requirements for the next Belt Retraction & Flit:

Suggested Changes to Manner & Sequence

Signature of Area Leader: B-ML Date: 30/4/13

Production Manager: [signature] Date: 4/6/13

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Pillar Extraction – Weekly Audit

1478

Name of personnel conducting audit : Area Leader Clayton Team Leader Mick Jefferies Crew member

Geotechnician Liam Krick Date 23/4/13 Panel 22 Shift N (D) A

The following checks are for the current operations

Have the extents of supported roof in the roadways been delineated with reflective droppers?	(Yes)	No	N/A
Are the ribs being scaled down to remove any loose material?	(Yes)	No	N/A
Is there a need to adjust the rib support TARP?	Yes	(No)	N/A
Where there are geological anomalies, are the ribs adequately	(Yes)	No	N/A
supported?	Yes	No	N/A
Is the goaf readily caving?	Yes	No	(N/A)
Is ventilation in the panel adequate?	(Yes)	No	N/A
Are the BLS units positioned correctly?	(Yes)	No	N/A
Are the BLS units in contact with roof?	(Yes)	No	N/A
Are the BLS Canopies horizontal with less than +/- 15° Tilt?	(Yes)	No	N/A
Are the BLS Legs near vertical?	(Yes)	No	N/A
Are the stooks of the right size?	(Yes)	No	N/A
Is the approved cutting sequence being adhered to?	(Yes)	No	N/A
Are current sequence plans available at the Team Leader's station?	(Yes)	No	N/A
Is the continuous miner being used to clean up the ribs as required during flitting from one place to the next?	(Yes)	No	N/A
Are all face personnel and visitors (if present) complying with the safe standing zones?	(Yes)	No	N/A
Are the housekeeping standards of a high level?	(Yes)	No	N/A
During repair/maintenance is the CM being parked outbye and where appropriate away from the rib where men are working?	Yes	No	(N/A)

Comments/Recommendations

1. Minor Normal fault - refer ATM P22
   b Sprayed orange.

Complete the following considering 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.

Are there any known geological anomalies in the upcoming production area?	(Yes)	No	N/A
Is there evidence of roof support taking weight in the upcoming production area?	Yes	(No)	N/A
Are there any roadways that require additional support in the roof or ribs prior to pillar extraction commencing from that roadway?	Yes	(No)	N/A
Are there any roadways that need cleaning to allow passage of BLS's?	Yes	(No)	N/A
Are there any off centre roadways that need survey lines installed to mark the design centre of the roadway?	Yes	(No)	N/A
Are there any areas of the next pillar extraction roadway that is too high for the BLS units?	Yes	(No)	N/A
Is there any need for a change to the Approved Manner & Sequence in the next row of pillars?	Yes	(No)	N/A
Do any stoppings need repairing?	Yes	(No)	N/A
Are all wheeling corners suitable?	(Yes)	No	N/A
If not - Do they require trimming?	Yes	(No)	N/A

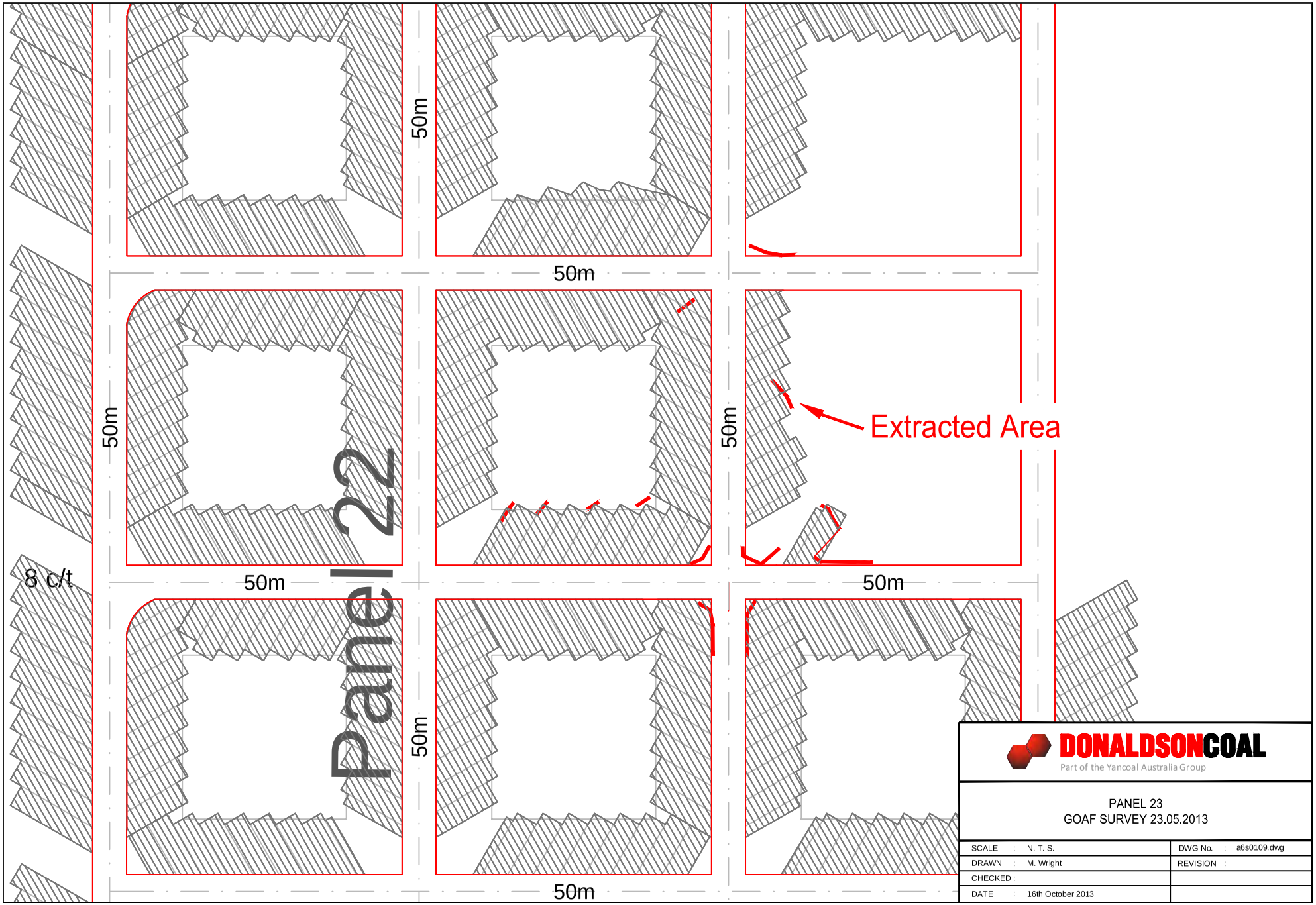
Requirements for the next Belt Retraction & Flit:

Suggested Changes to Manner & Sequence

Signature of Area Leader: Date: / /

Production Manager: Date: 23 / 4 / 13

Appendix D: P22 Goaf Survey Example



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PANEL 23
GOAF SURVEY 23.05.2013

SCALE : N. T. S.	DWG No. : a6s0109.dwg
DRAWN : M. Wright	REVISION :
CHECKED :	
DATE : 16th October 2013	

Appendix E: Toolbox Talk Example

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Tool Box Talk
FRM 7.2.3

Topic: Panel 22 Subsidence Control Zone

TBT No: 673

Date: 21 5 . 13 Crew: 1 Presenter: S. LIMOND Signature:

Discussion:

Panel 22 is lifting in the vicinity of a Principal Residence Subsidence Control Zone. These control zones are to protect the resident's house as we mine beneath their property. No lifting can take place within these control zones.
To avoid entering the control zone, lift depths in **Sequence 22** have been reduced to **10.5m from centre of roadway**.
These lifts are shown by green shading on the Panel 22 Authority to Mine Plan.

Print Name	Signature	Print Name	Signature
MICHAEL QUINN		Shaun Olsen	
Greg Sheehan			
JOSH MADDOX			
Steve Eagleton			
David Mcgrade			
Dean O'Neill			
R. Gregory			
C Harris			
D. Reesman			

Prepared by:	Grant Lord	Source:	
Approved by:	Dean Wrightson	Position:	PRODUCTION MANAGER
Responsible:		Position:	

Further system integration required? ☐No ☐Yes

Notification to other Donaldson sites required? ☐No ☐Yes(if so where) ☐UG ops ☐Surface Ops

Comments:

ENTERED

Appendix E: Pillar Extraction Training Records

ABEL MINE

Pillar Extraction Management Plan
Panel 22 Update

April 2013

Tony Sutherland & John Krick
Technical Services Manager & Geotechnical Engineer

YANCOAL
兖煤澳大利亚有限公司

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Panel 22

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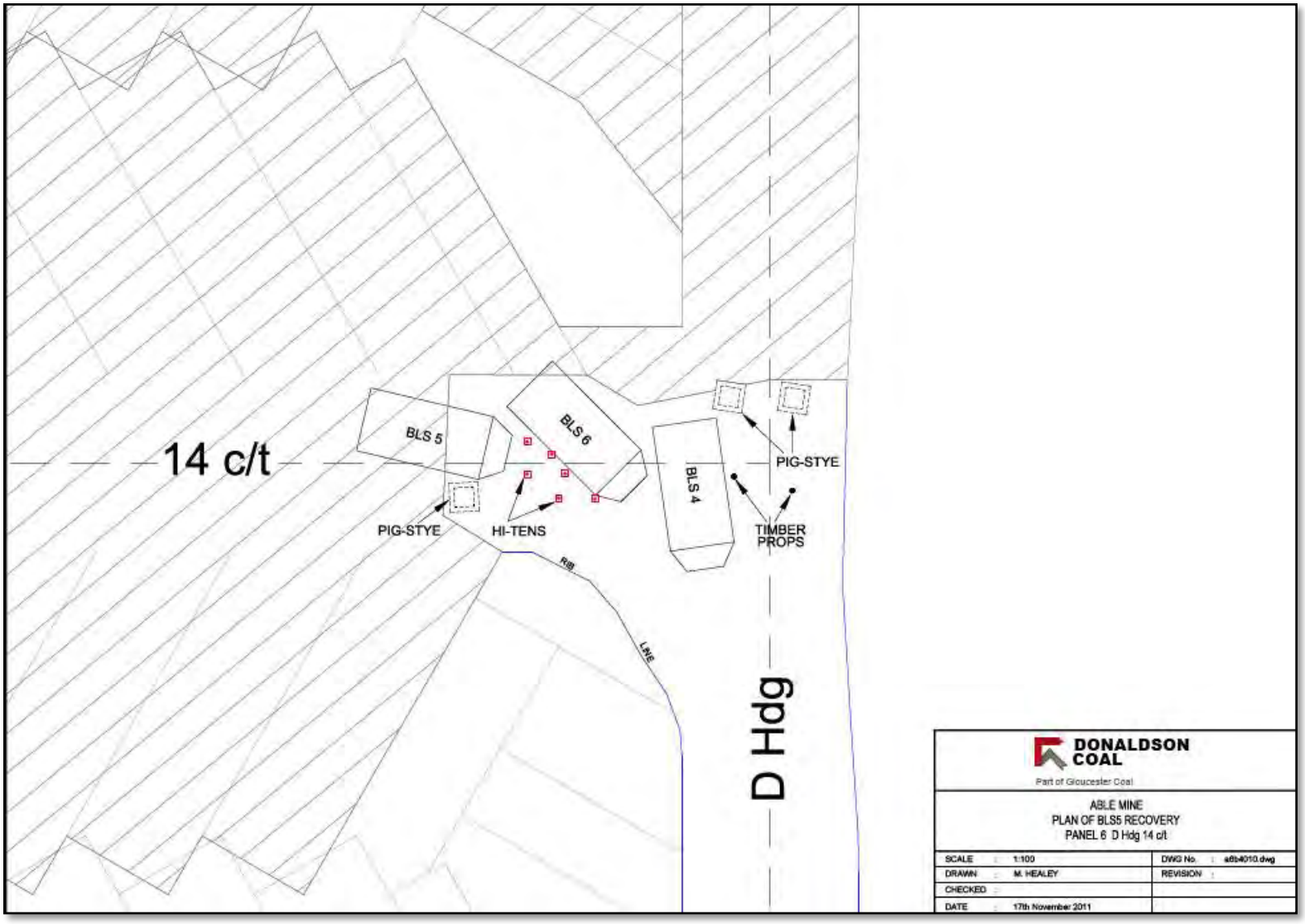
BLO3

Panel 6 BLS Recovery November 2011



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Panel 6 BLS Recovery November 2011

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Panel Layout Design Principles and Parameters

- Partial extraction by double-sided lifting and three BLS's
- Long-term (25+ years) stable barrier pillars between panels and between panels and mains
- Extraction on retreat to allow time to identify and manage geological anomalies
- Minimise development metres
- Stooks supporting adjacent intersections

Approximate Support Strength

- BLS – 540 tonnes capacity
- Typical Stook X – approx 86,000t
- Typical Stook Y – approx 22,000t

- Geometry is an important factor in the strength of a pillar or stook
- Height
- Minimum Width
- Length

Panel Layout Design Principles and Parameters

- Formation of goaf edge perpendicular to the direction of retreat
- 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
- Formation of long term stable remnant pillars for subsidence control

SMP Approval

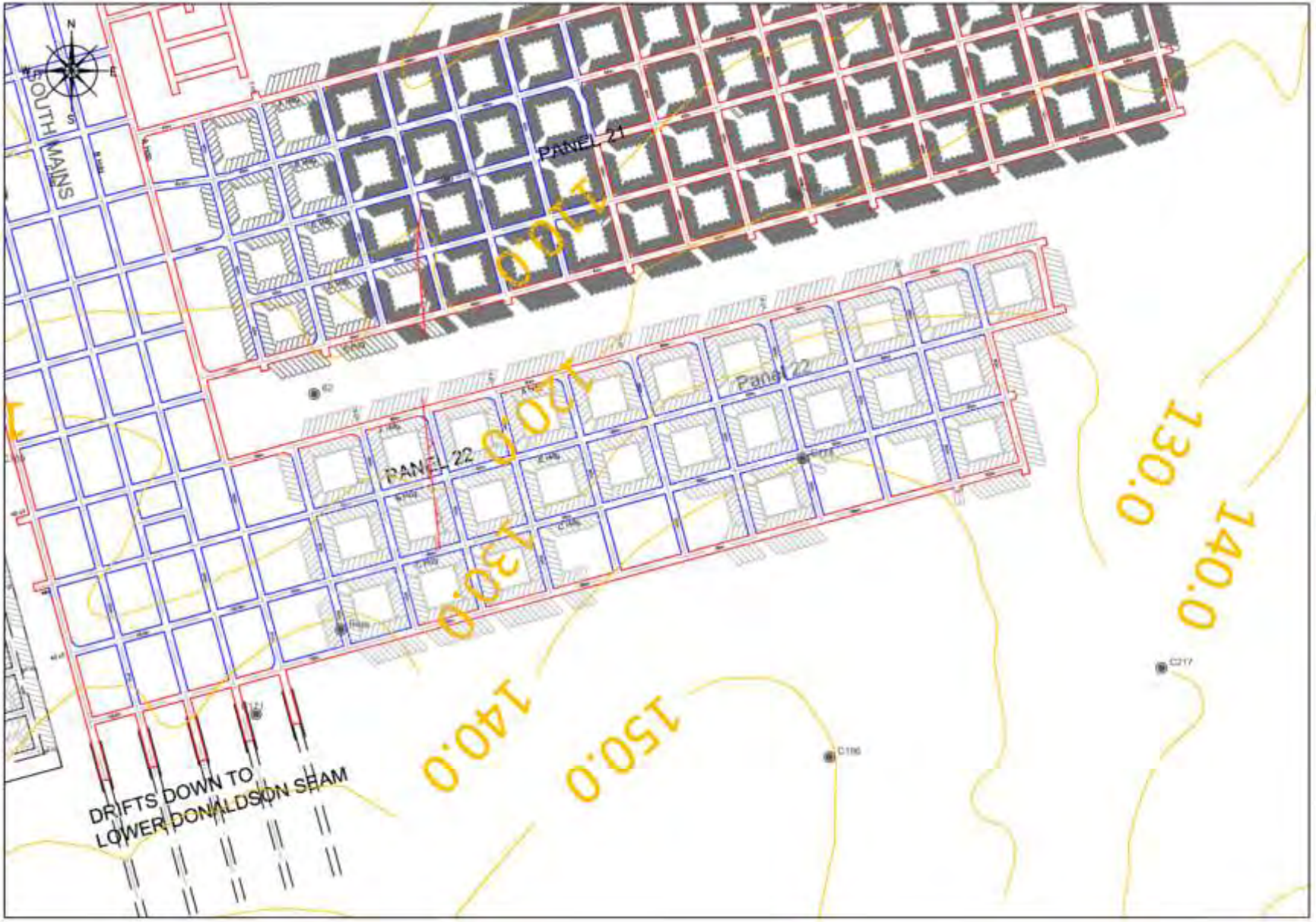
- SMP approval for Area 2 which includes Panels 20 - 22 has been obtained from DTIRIS subject to **23 conditions.**

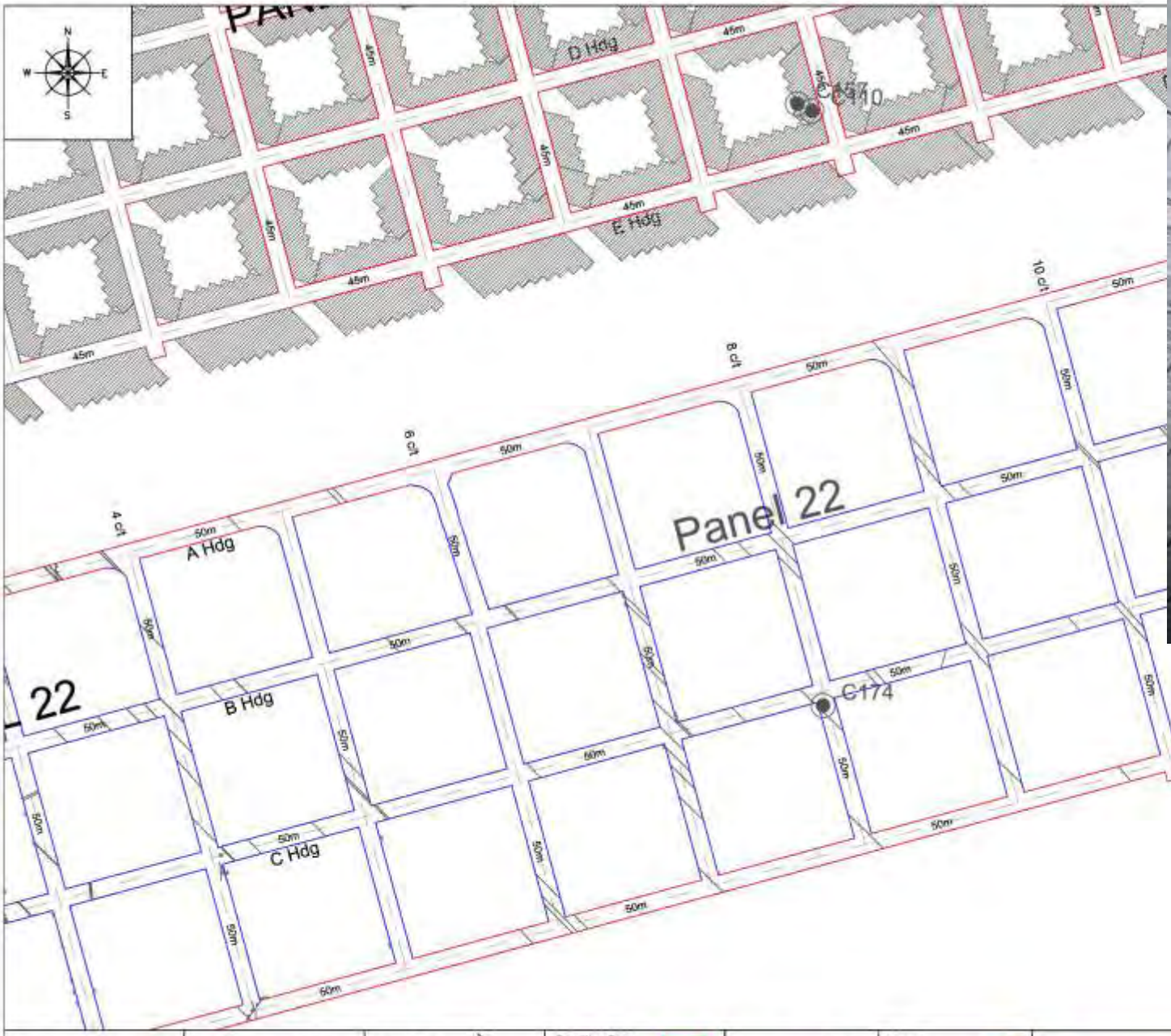
- **Condition 1** states , `*The Leaseholder **MUST** carry out the activity **STRICTLY** in accordance with the SMP approved plan*'.

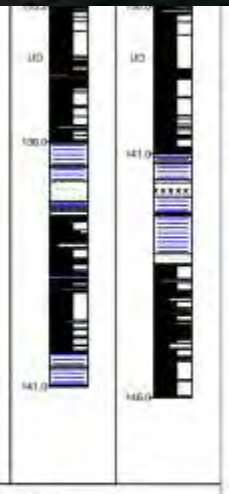
Current Procedure

- Current procedure for check measuring Lift Depths in Partial Extraction involve using a Theodolite to take measurements in the goaf.

Panel 22 Depth of Cover (120m – 145m)

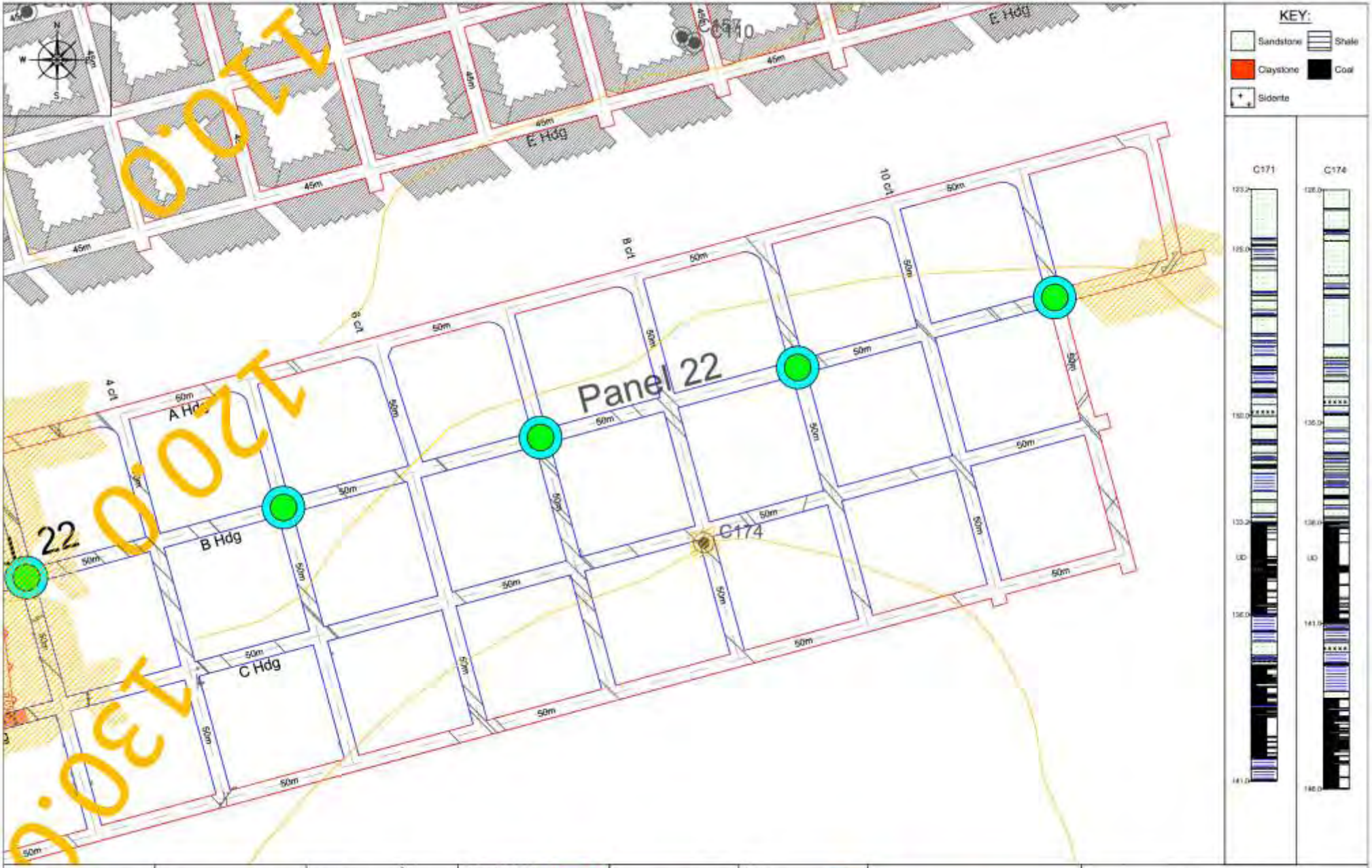






Rib Spall	Roof Scaling	Joint / Cutter	Condition Green Roof Support	Borehole C120	Seam Depth (10m intervals)	DONALDSONCOAL	Abel Mine - Panel 22 Geological Condition
Roof water	Seam Roll	Tensile Cracking	Condition Orange Roof Support	Tellsale	Elevated Mine Hazard		SCALE : 1:1250 / DRAWN : L. Krick / CHECKED : J. Krick / DATE : 8th April, 2013
Seam Water	Fault (with throw)	Roof Cavity	Condition Red Roof Support	Borescoped Hole			DWG No. : 2013.04.08.P22 / REVISION : 1
Floor Heave	Floor Fill	Shear Zone					

Rib Spall	Roof Scaling	Joint / Cutter	Condition Green Roof Support	Borehole C120	Seam Depth (10m intervals)	DONALDSONCOAL	Abel Mine - Panel 22 Installed Support	
Roof water	Seam Roll	Tensile Cracking	Condition Orange Roof Support	Telltale	Elevated Mine Hazard		SCALE : 1:1250	DWG No. : 2013.04.08.P22
Seam Water	Fault (with throw)	Roof Cavity	Condition Red Roof Support	Borescoped Hole			DRAWN : L. Krick	REVISION : 1
Floor Heave	Floor Fill	Shear Zone					CHECKED : J. Krick	
							DATE : 8th April, 2013	

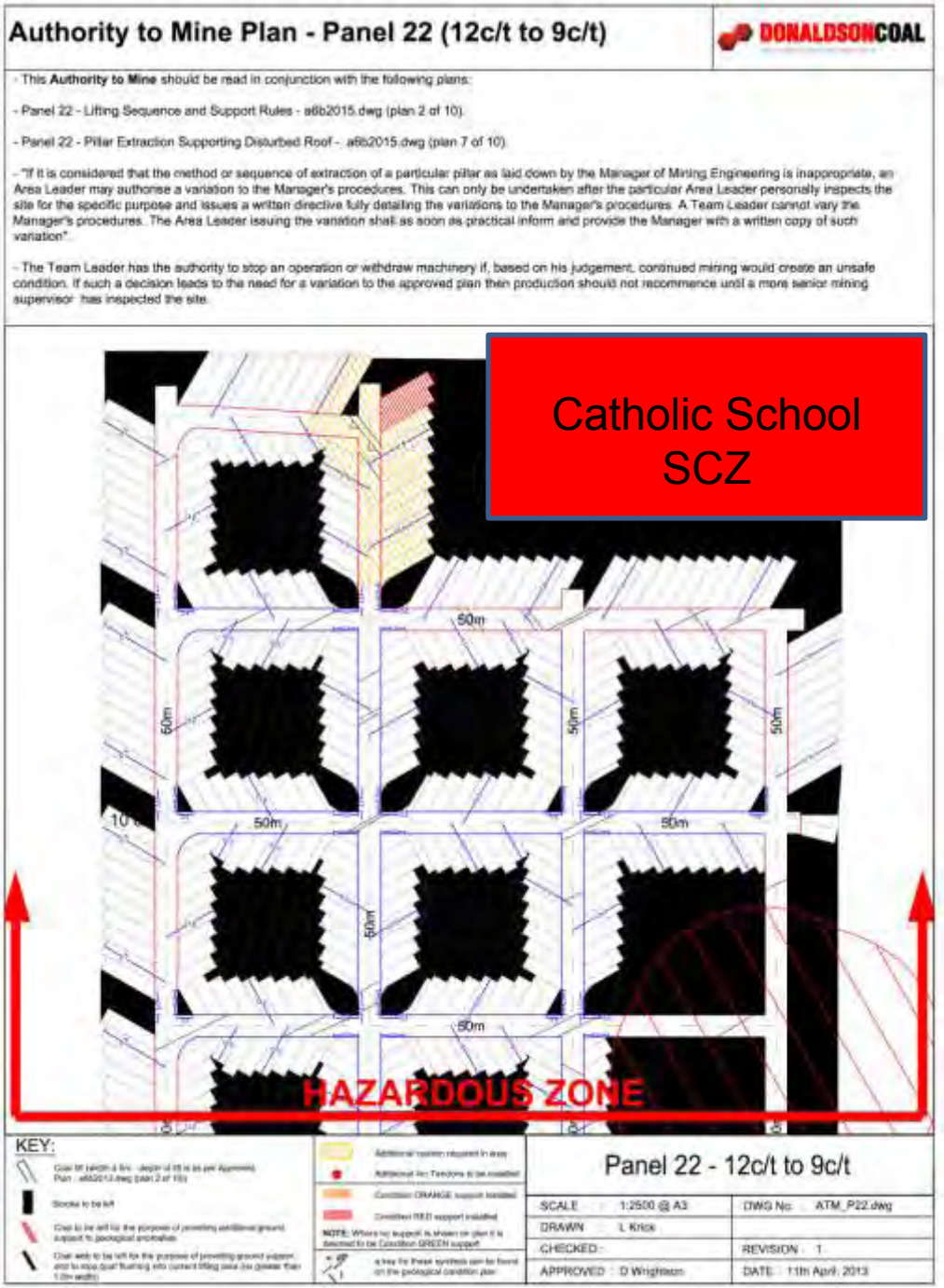


Rib Spall	Roof Scaling	Joint / Cutter	Condition Green Roof Support	Borehole C120	Seam Depth (10m intervals)	DONALDSONCOAL	Abel Mine - Panel 22 Hazard Map
Roof water	Seam Roll	Tensile Cracking	Condition Orange Roof Support	Telltale	Elevated Mine Hazard		SCALE : 1:1250 DWG No. : 2013.04.08.P22
Seam Water	Fault (with throw)	Roof Cavity	Condition Red Roof Support	Borescoped Hole			DRAWN : L. Krick REVISION : 1
Floor Heave	Floor Fill	Shear Zone					CHECKED : J. Krick
							DATE : 8th April, 2013

Authority to Mine (ATM)

- Example of the Panel 19A Authority to Mine Plan.
- **Contains:**

- Geological anomalies
- Areas of condition orange and red installed support
- Webs to be left
- Dimensions for stooks
- Areas where additional caution is required
- References the signed and approved extraction plans.



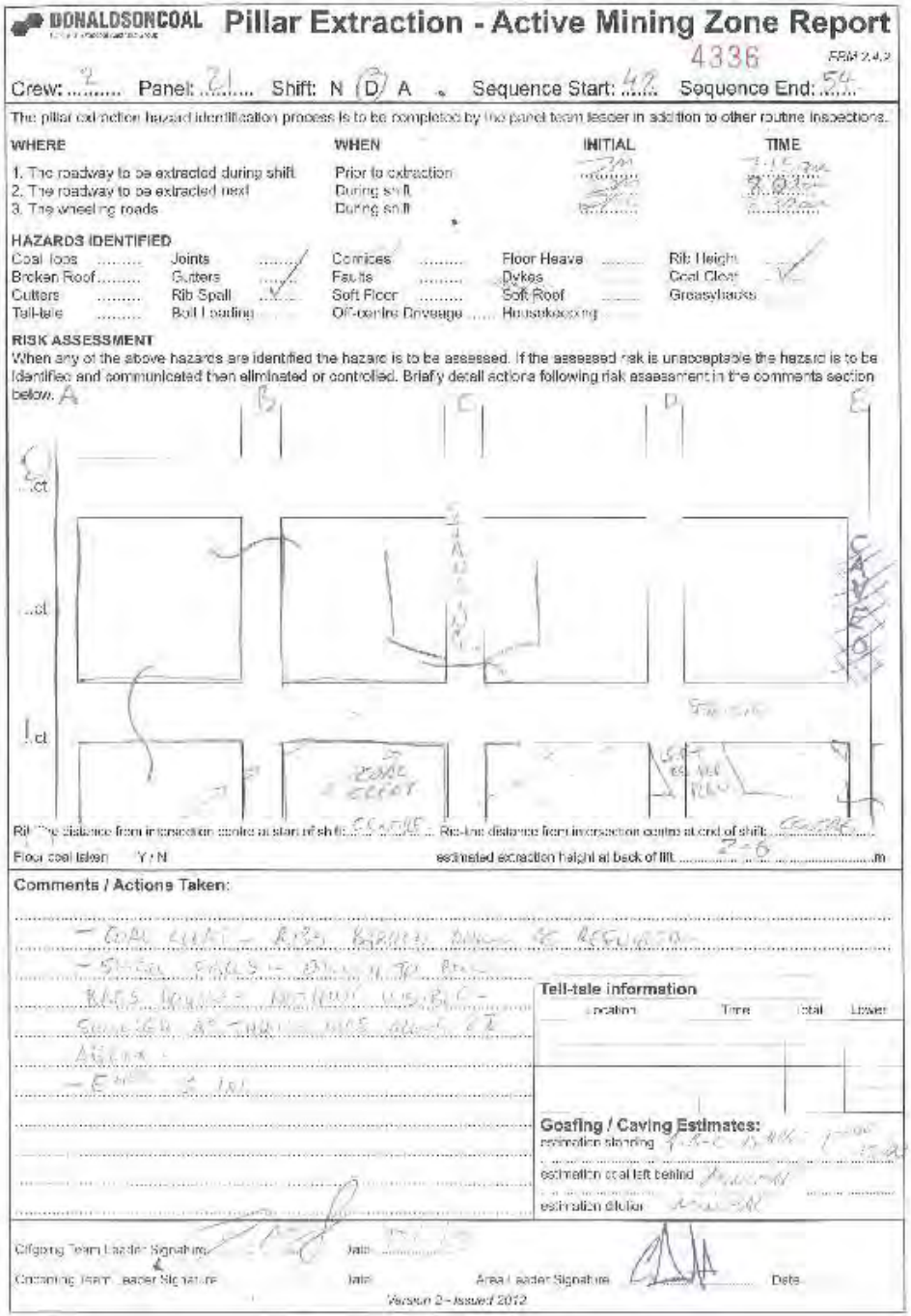
Active Mining Zone (AMZ) Report

This is the AMZ report for Abel Mine.

They are 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



DONALDSONCOAL **Pillar Extraction - Active Mining Zone Report**

4336 FRM 2.4.2

Crew: 2 Panel: 21 Shift: N (D) A Sequence Start: 47 Sequence End: 54

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 loss	Joints	Cornices	Floor Heave	Rib Height
Broken Roof	Gutters	Faults	Dykes	Coal Clear
Cutters	Rib Spall	Soft Floor	Soft Roof	Greasy backs
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.

Rib line distance from intersection centre at start of shift: CENTRE Rib line distance from intersection centre at end of shift: CENTRE

Floor coal taken Y / N estimated extraction height at back of lift 2-6 m

Comments / Actions Taken:

Tell-tale information

Location	Time	Crib	Lower

Goafing / Caving Estimates:

estimation stooping

estimation coal left behind

estimation dilution

Offgoing Team Leader Signature Date

Oncoming Team Leader Signature Date Area Leader Signature Date

Version 2 - Issued 2012

Management of Ribs

- An assessment of the rib conditions shall be made prior to fenders being extracted in any run out (see AMZ).

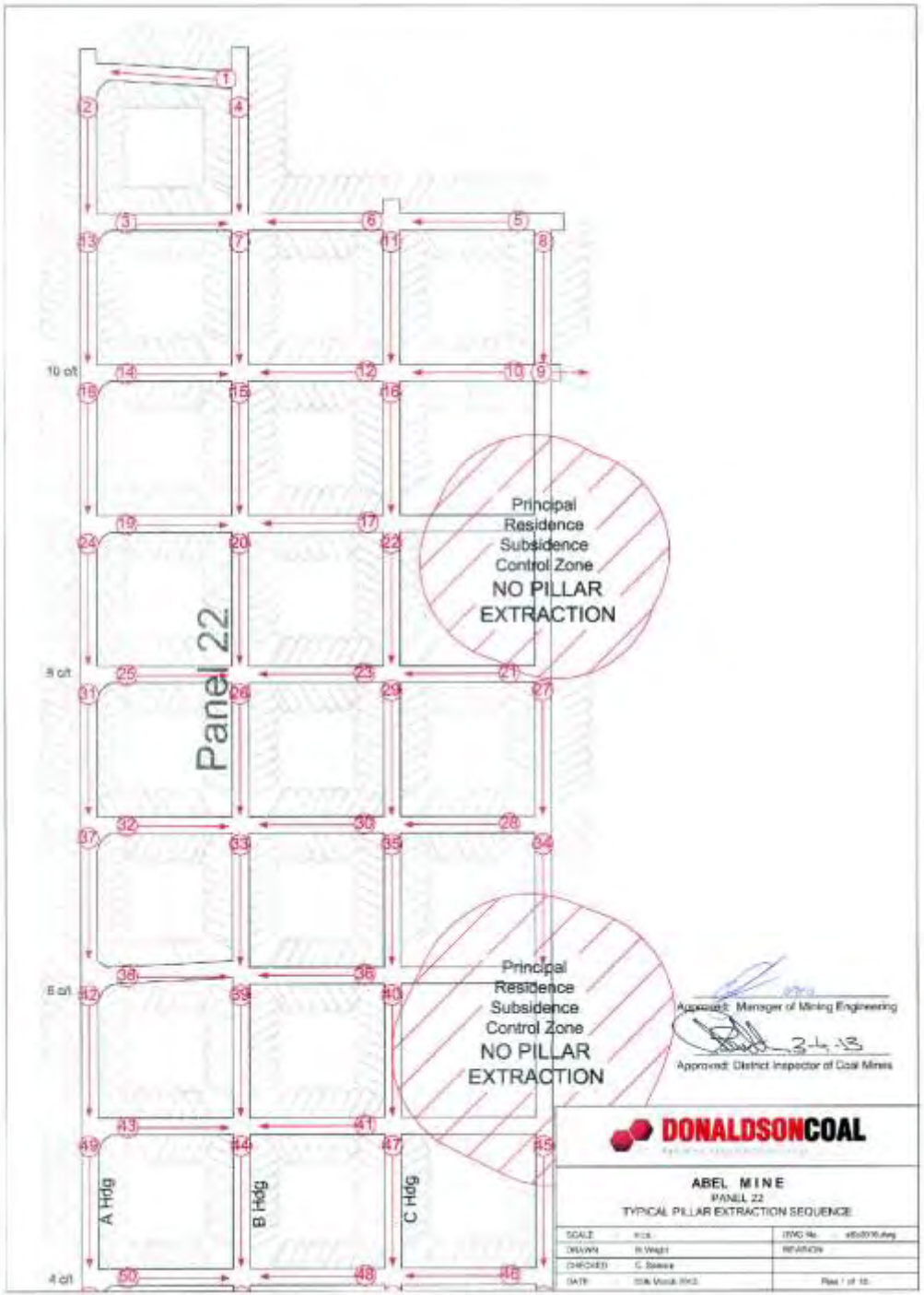
- All loose ribs to be scaled down in run outs prior to lifting commencing.

- 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.

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



60° Lifts

- Lifts are driven at 60 degrees for a number of reasons.

1) For ease and quickness of extraction and flitting miner out of lift

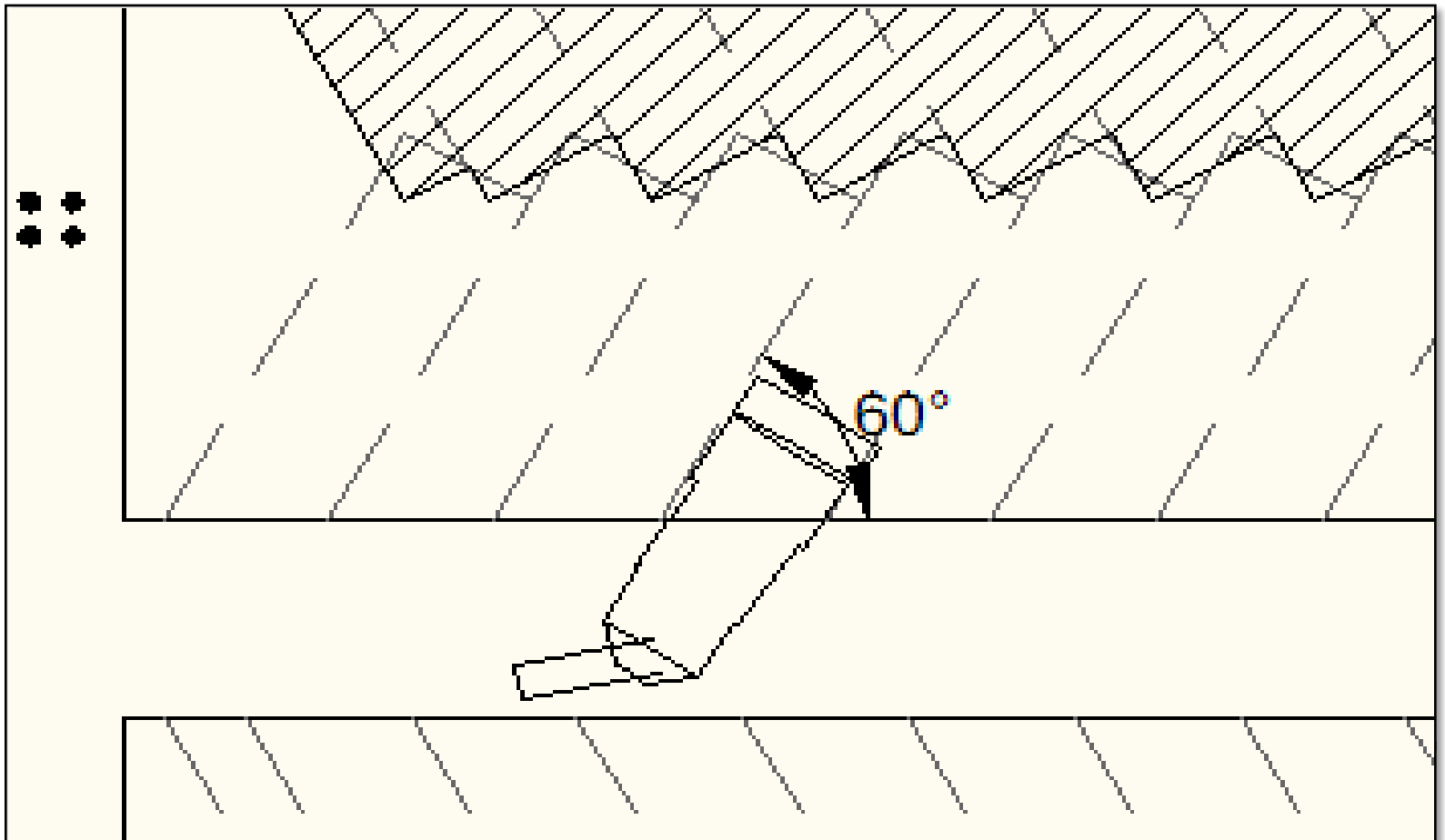
2) If the continuous miner has to be retrieved using the Beltor Puller

3) The continuous miner operator can judge his cut depth better

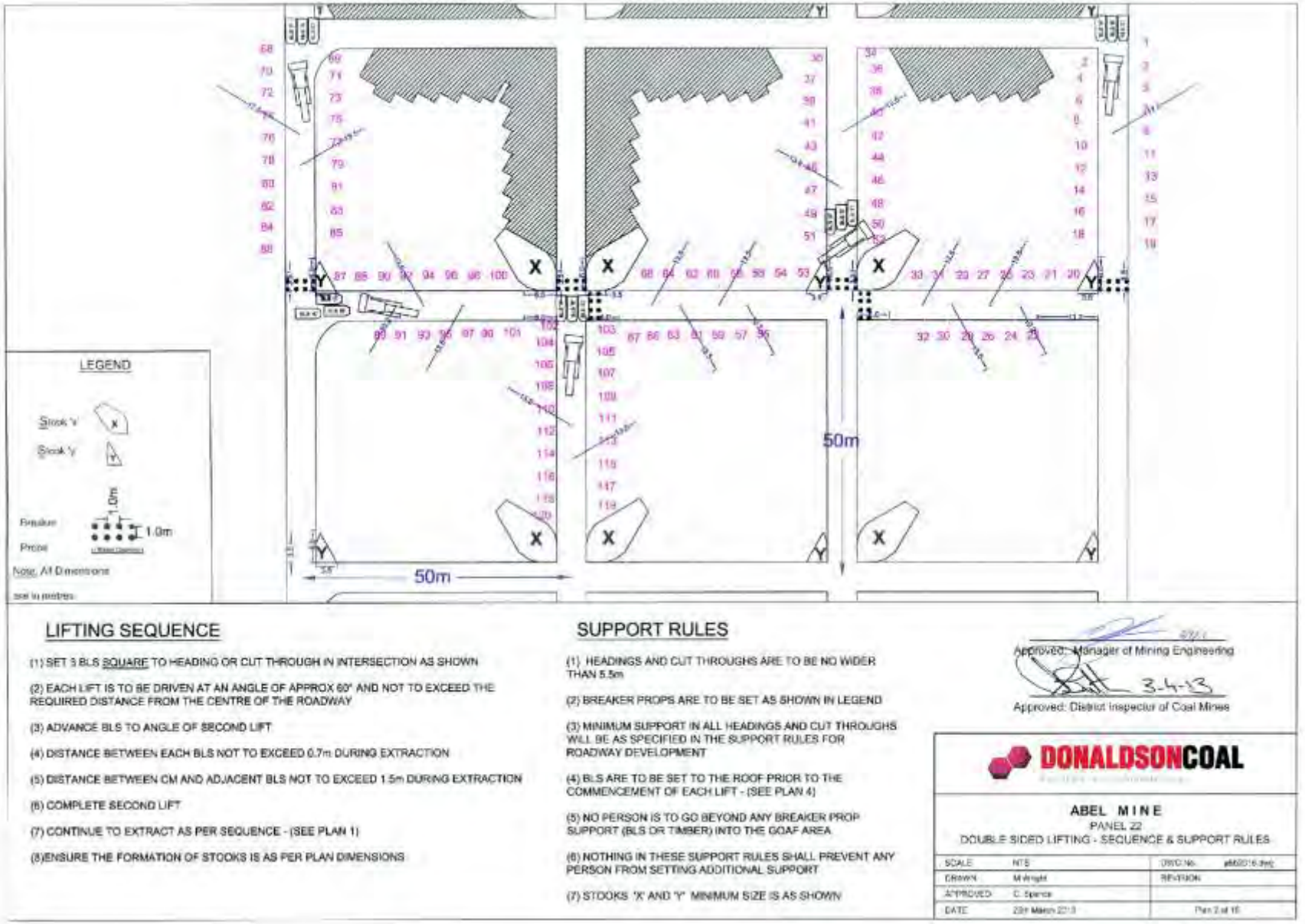
4) Operations removed from full goaf exposure

60° Lifts (*cont.*)

- All lifts must be driven at the same angle otherwise the outbye fender is compromised (lift is thinner than expected). Fender is designed as per MDG-1005 Manual on pillar extraction in NSW underground coal mines.



Sequence and Support Rules



LIFTING SEQUENCE

(1) SET 3 BLS 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 BLS TO ANGLE OF SECOND LIFT

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

(5) DISTANCE BETWEEN CM AND ADJACENT BLS NOT TO EXCEED 1.5m DURING EXTRACTION

(6) COMPLETE SECOND LIFT

(7) CONTINUE TO EXTRACT AS PER SEQUENCE - (SEE PLAN 1)

(8)ENSURE THE FORMATION OF STOOKS IS AS PER PLAN DIMENSIONS

SUPPORT RULES

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

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

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

(4) BLS ARE TO BE SET TO THE ROOF PRIOR TO THE COMMENCEMENT OF EACH LIFT - (SEE PLAN 4)

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

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

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

Approved: Manager of Mining Engineering

3-4-13

Approved: District Inspector of Coal Mines

DONALDSONCOAL

ABEL MINE

PANEL 22

DOUBLE SIDED LIFTING - SEQUENCE & SUPPORT RULES

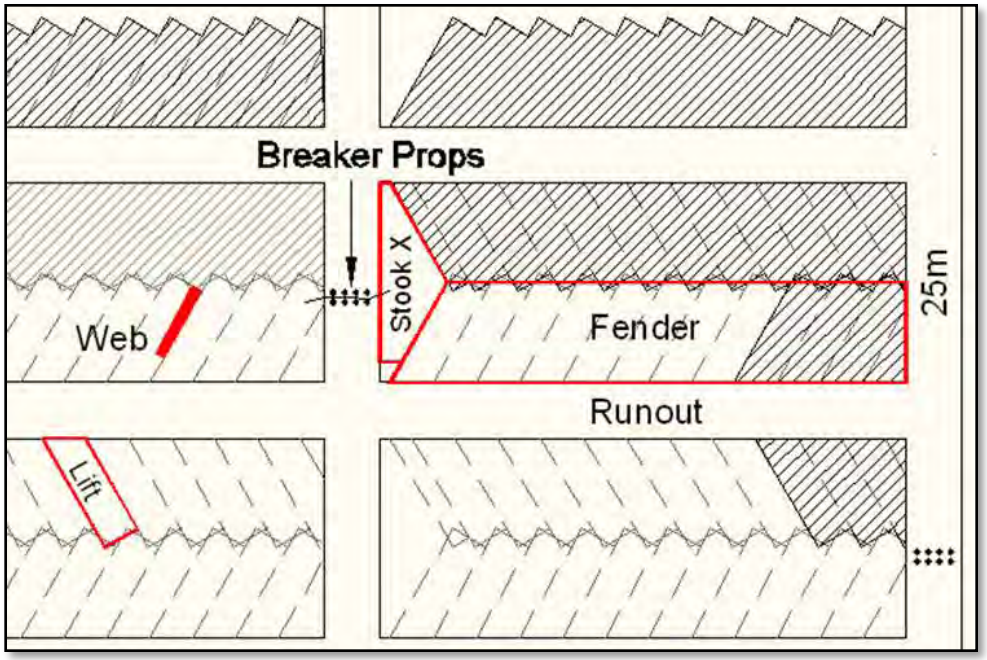
SCALE	NTS	DWG No.	
DRAWN	M Wright	REVISION	
APPROVED	C Spence		
DATE	28th March 2013	Plan 2 of 16	

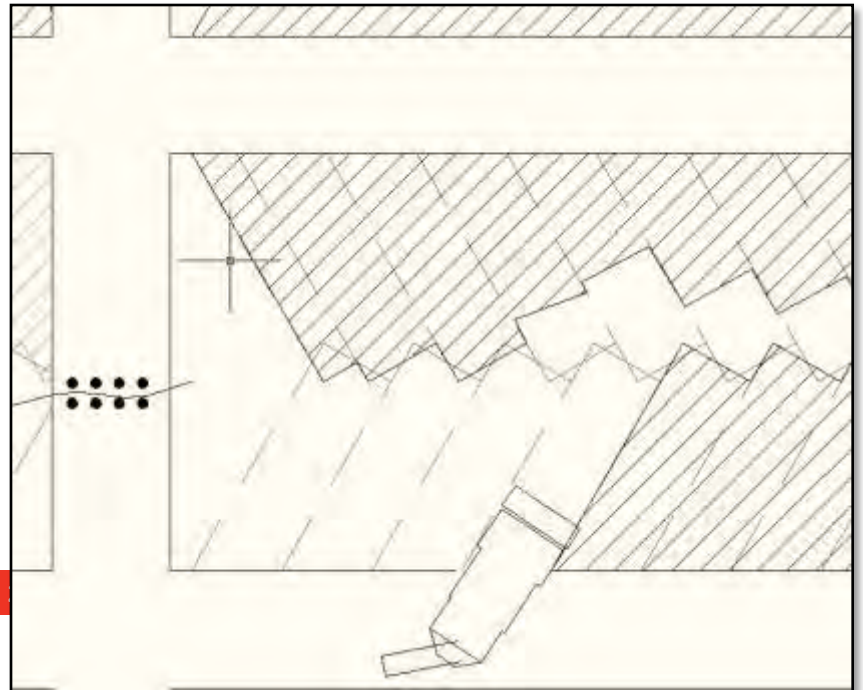
Extraction Sequence (*cont.*)

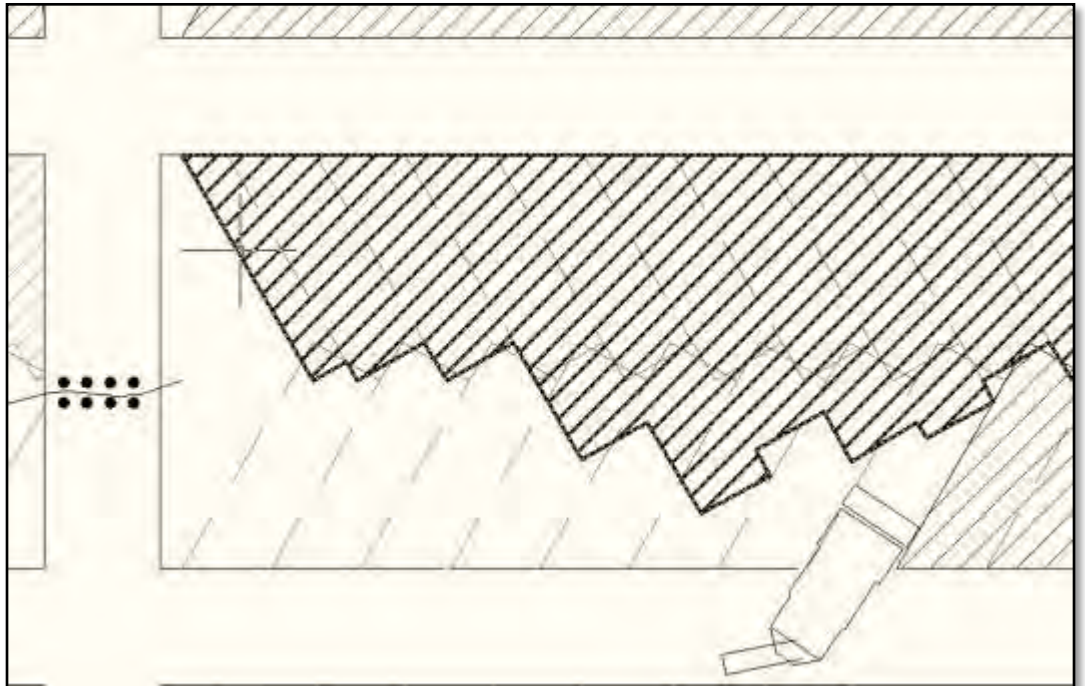
- Minor variations to planned sequence can only be approved in writing by Area Leader after visual examination
- Length of lifts is as per approved sequence plan (all measurements are from centre line of heading/ cut through angled at 60^{o}) and noted on the ATM
- Width of lift as per miner
- Team Leader 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
- Position of last lift & Stook Y marked on rib as sequence control (*to ensure correct stook size is left*)

Distance From Centre Line

- The distance the continuous miner cuts into the lift is critical. If the lift is too short too much coal is left in the goaf which may affect regular caving. If the lift is too long, lifting on the other side of the fender may be placed at risk due to less support than anticipated.
- **Fender** is a pillar with a short life cycle. As per MDG 1005 design w/h > 2.5 to 3.







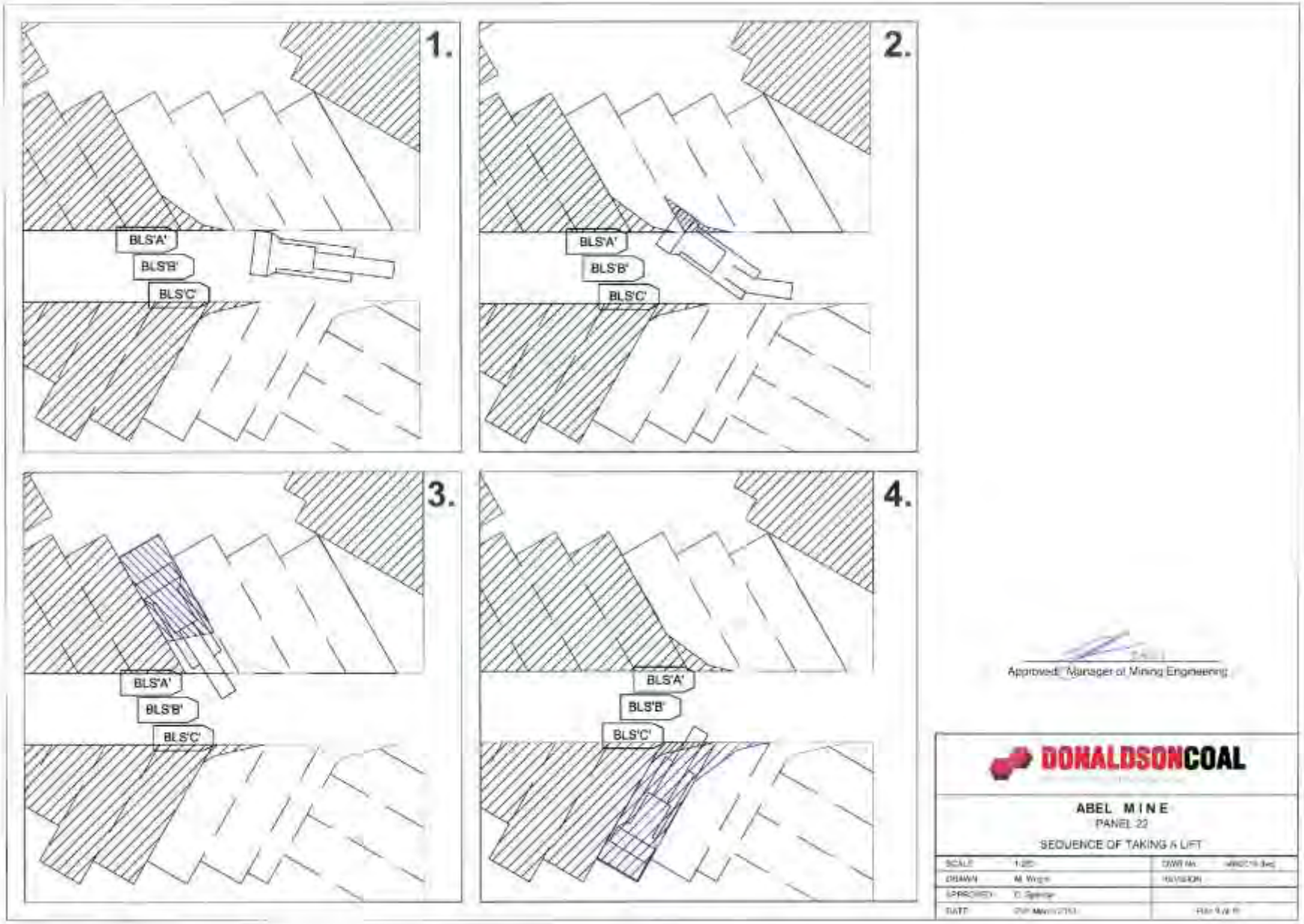
Pillar Extraction Roof Support

- Breaker props set in accordance with Support Rules shown on plans

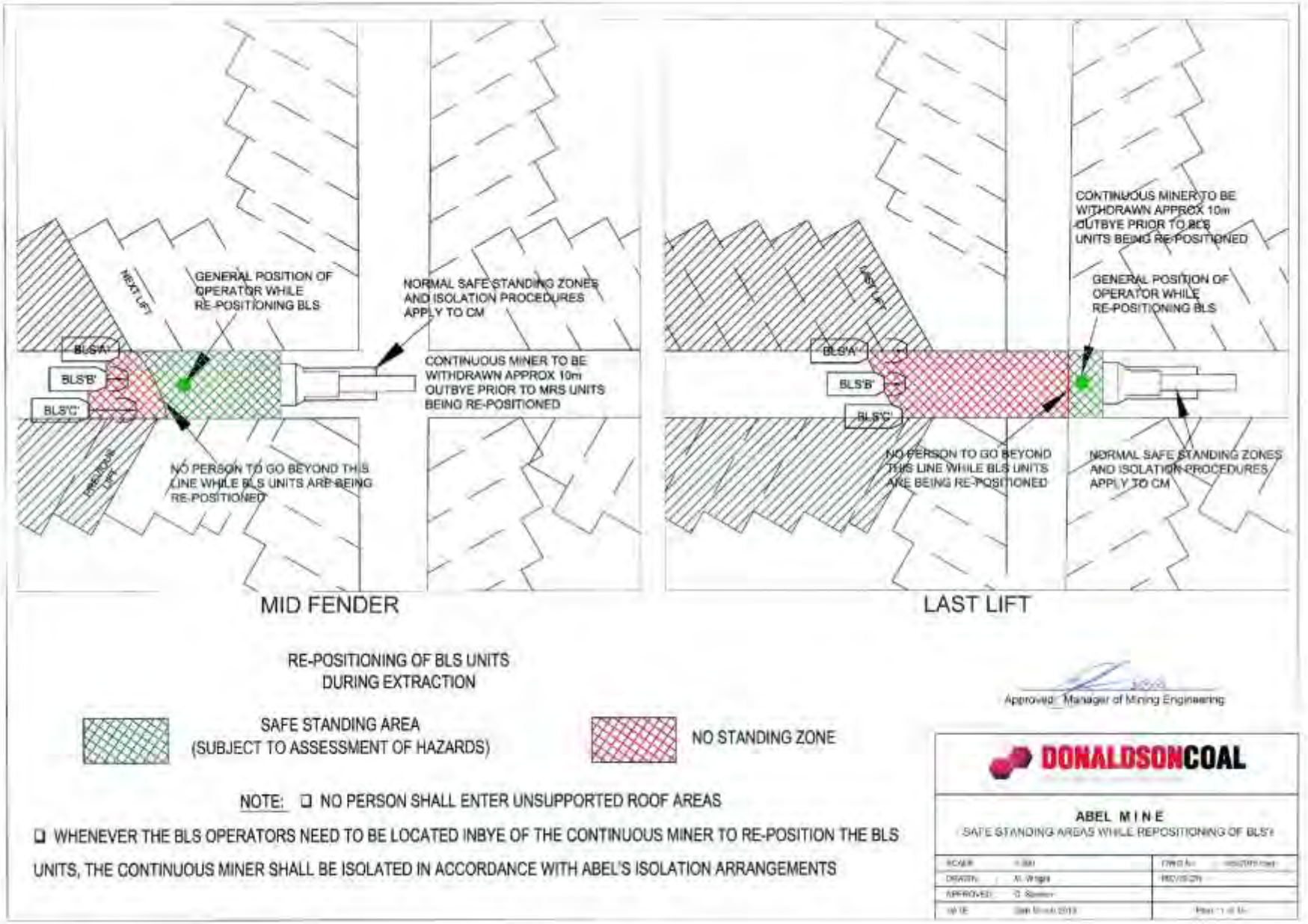
- Breaker props are to be set on the outbye side of the goaf in each access roadway to prevent goaf over run, prevent goaf debris entering heading and to clearly demarcate boundary between goaf and working places.

- Brattice to be installed in between the 2 rows of breakers.

Sequence of Taking a Lift



BLS Operations

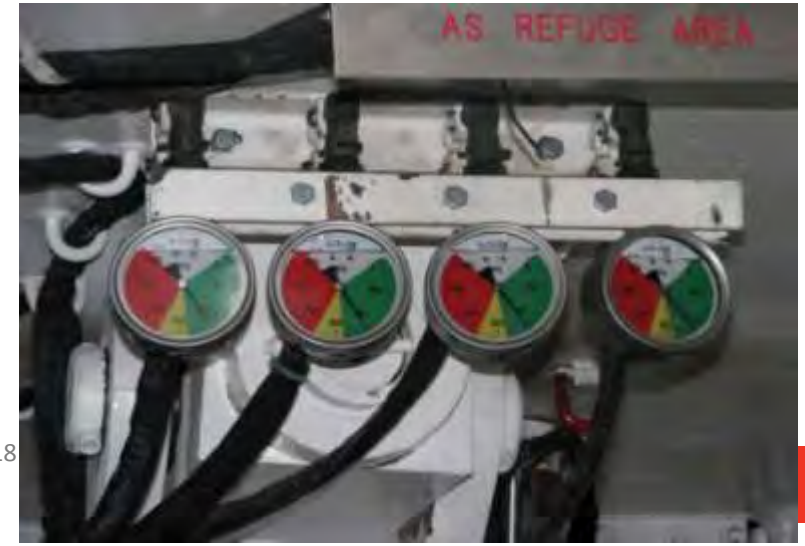


BLS Operations

- 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- No Entry unsupported roof adjacent to BLS”)
- Tie & stow the jumper cables correctly.

DONALDSONCOAL
Part of the Yancoal Australia Group

- 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



donaldson coal

Pillar Extraction – BLS Leg Pressure Test

(To be carried out on Production Shifts)

Name BEN LAWRENCE Crew 1

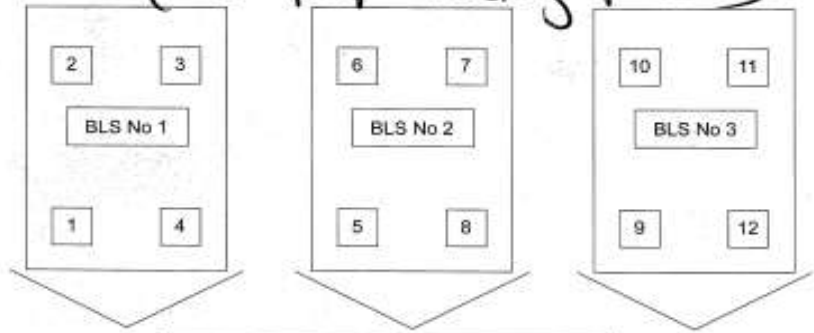
Time 12:00 to 12:30 Date 25/6/11 Panel 1 Shift N (D) A

0272

- ❑ 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 readings are to be taken at least once per shift.

		Pressure		Pressure
BLS No1	Leg 1	260	Leg 1	260
	Leg 2	280	Leg 2	280
	Leg 3	280	Leg 3	260
	Leg 4	280	Leg 4	280
BLS No2	Leg 5	260	Leg 5	280
	Leg 6	280	Leg 6	260
	Leg 7	280	Leg 7	280
	Leg 8		Leg 8	
BLS No3	Leg 9	260	Leg 9	280
	Leg 10	280	Leg 10	260
	Leg 11	260	Leg 11	280
	Leg 12	280	Leg 12	0

(LR prop bosing pressure)



GAUGE LAYOUT ON MACHINE

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

donaldson coal

1701

Pillar Extraction – BLS Audit of Compliance

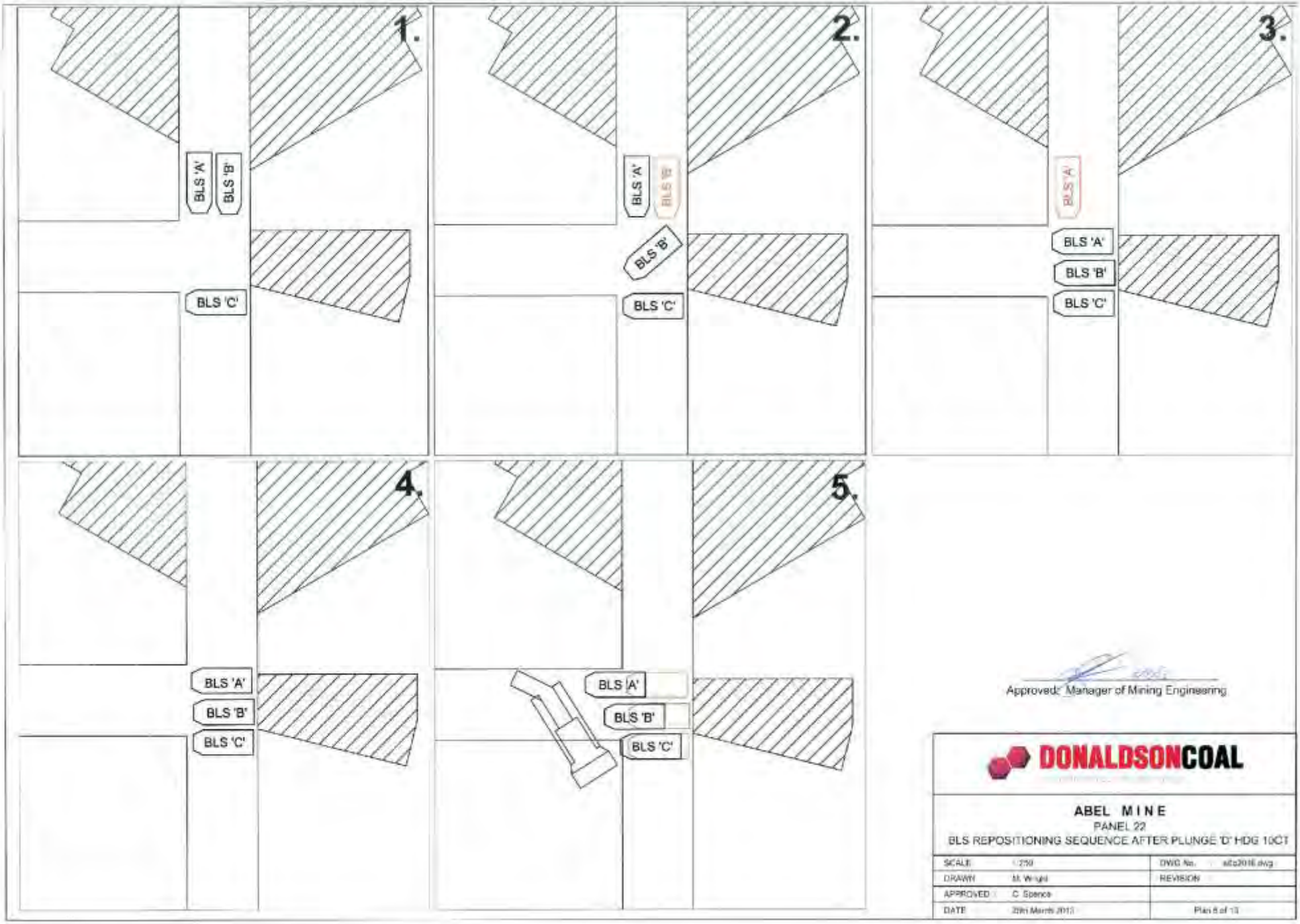
Name of person conducting audit : Team Leader ..... **Date** ..... **Panel** ..... **Shift N D A**

Production and Fitting Operations			
1. During the shift were remote functions tested (lower, advance, set)?	Yes	No	N/A
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	N/A
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	N/A
3.2 Remain under supported roof at all times?	Yes	No	N/A
3.3 Stay clear of airborne dust generated by cutting operations?	Yes	No	N/A
3.4 Remain alert of changing roof conditions when BLS units are lowered from the roof prior to re-positioning?	Yes	No	N/A
3.5 Communicate with crew members when re-positioning or flitting BLS units?	Yes	No	N/A
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	N/A
5. Whenever the BLS operator needs to be located inbye of the continuous miner to position the BLS units, is the main circuit breaker off and are the Abel Isolation Procedures being applied?	Yes	No	N/A
6. Does the BLS unit operator comply with the continuous miner remote control procedures at all times?	Yes	No	N/A
7. When BLS units are being flitted -			
7.1 Does the BLS operator ensure that all personnel were in the **"safe standing zone"** before flitting operations commenced?	Yes	No	N/A
7.2 Are all crew members under the control of the remote control operator?	Yes	No	N/A
7.3 When flitting concurrently, do pendant operators stay in full view of remote control operator?	Yes	No	N/A
7.4 Does the BLS operator give directions to the crew?	Yes	No	N/A
8. Is the transmitter being turned off when not in use?	Yes	No	N/A
9. 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	N/A
10. 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	N/A
11. Are any personnel taking possession of the transmitter without the express permission of the BLS operator?	Yes	No	N/A
12. 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	N/A
Maintenance			
13. 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	N/A
14. 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	N/A
15. Is the mineworker who is carrying out maintenance in control of the transmitter?	Yes	No	N/A
16. Is the mineworker who is carrying out maintenance, switching the transmitter off and placing it in a safe place off his person?	Yes	No	N/A
17. Is the mineworker who is carrying out maintenance, switching the main circuit breaker off and applying Abel's Isolation Procedure?	Yes	No	N/A

Comments:

Team Leader: _____ Date: _____

Area Leader: _____ Date: _____



Approved: Manager of Mining Engineering

DONALDSONCOAL

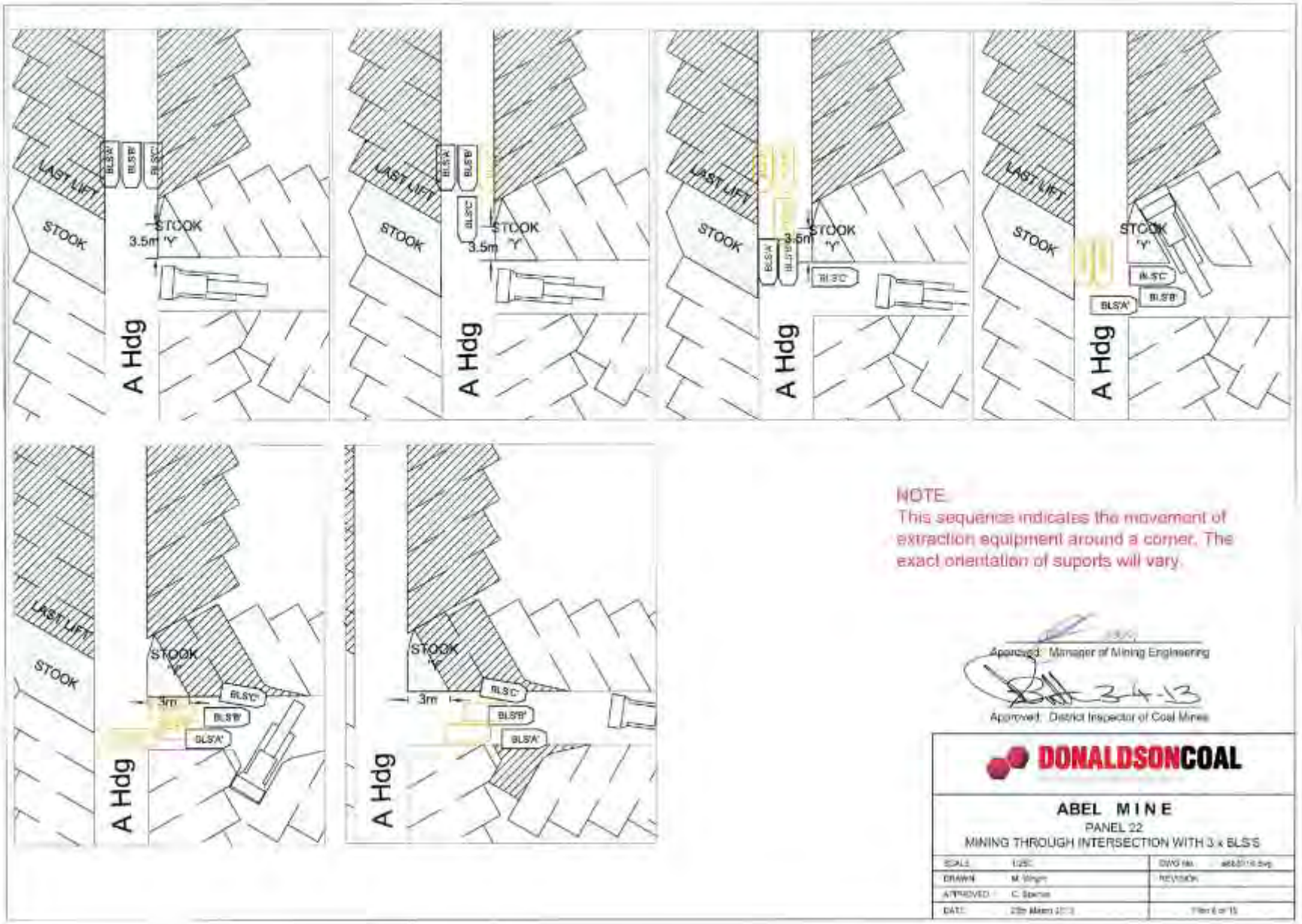
ABEL MINE

PANEL 22

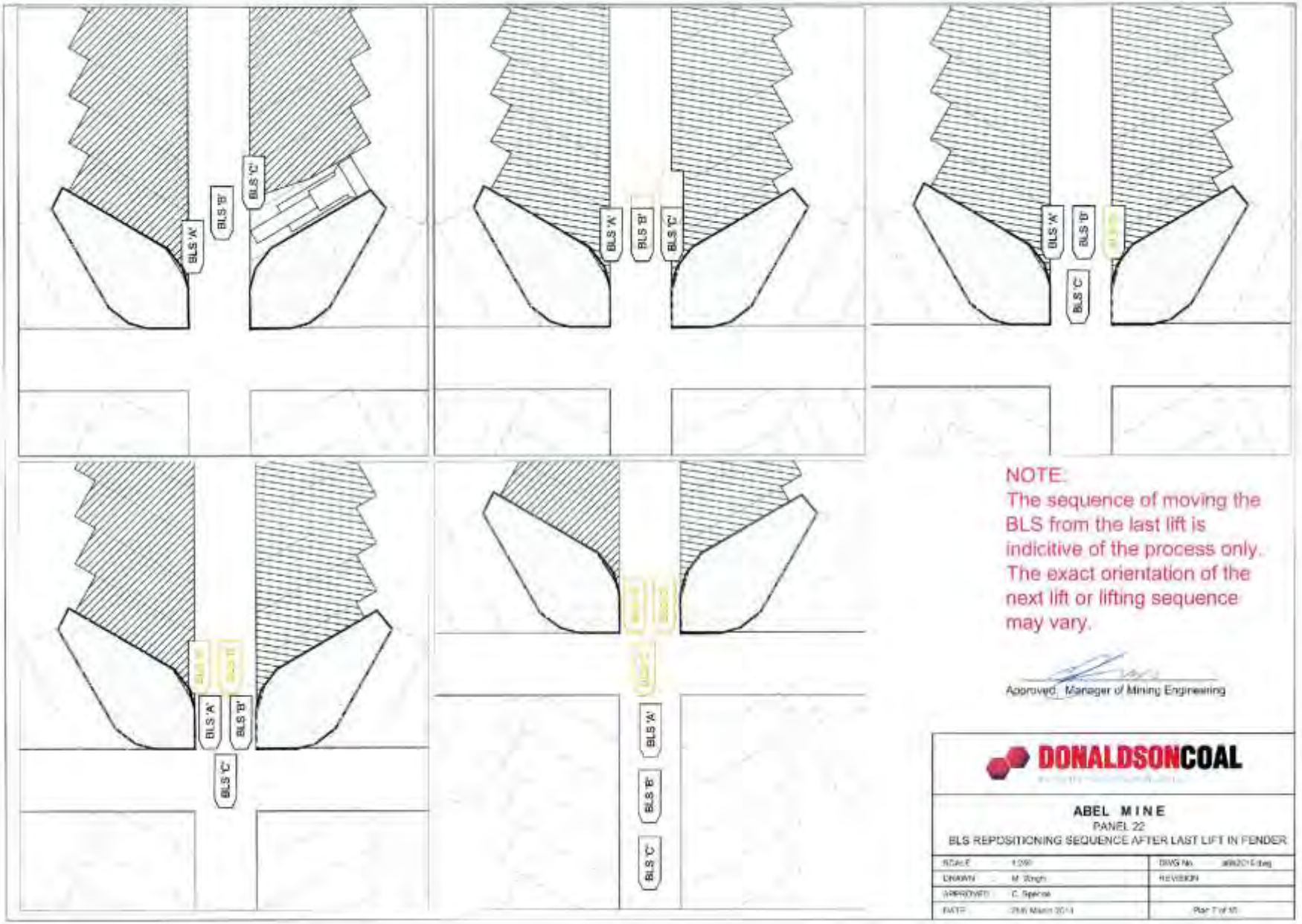
BLS REPOSITIONING SEQUENCE AFTER PLUNGE 'D' HDG 10CT

SCALE	1:250	DWG No.	abp2016.dwg
DRAWN	M. Wright	REVISION	
APPROVED	C. Spence		
DATE	28th March 2013	Plan 8 of 13	

Mining Through an Intersection with 3 BLS

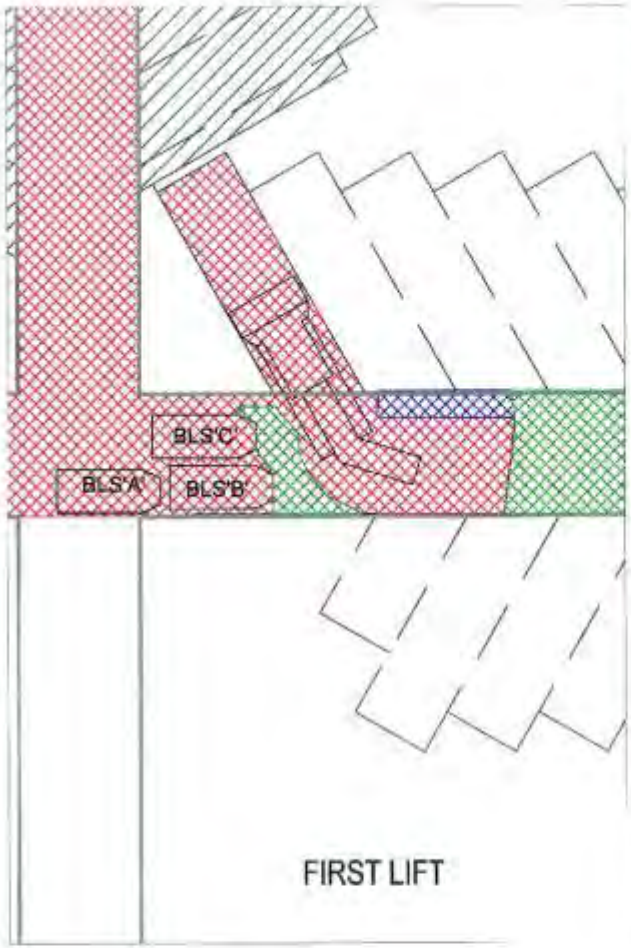


BLS Repositioning After Last Lift Belt Road

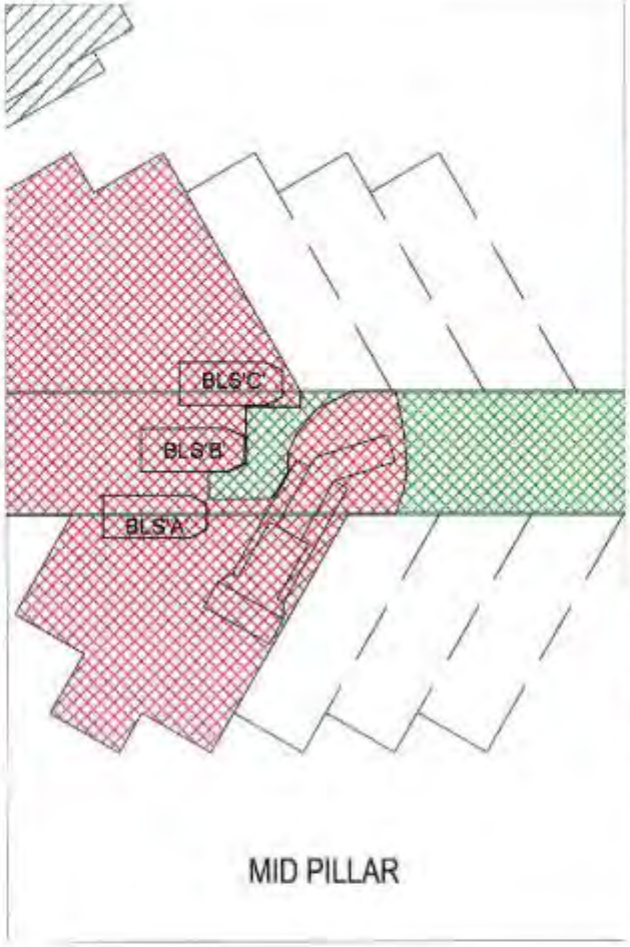


Safe Standing Zones (MDG 5002)

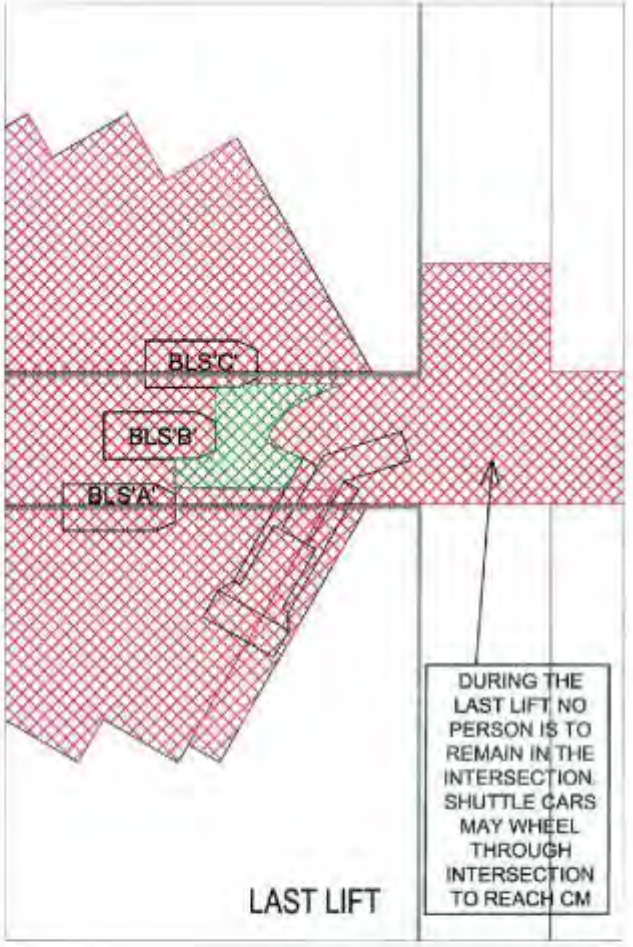
- No person shall go into unsupported roof areas at Abel Mine.
- A *Safe standing Zone* is specifically related to continuous miner and BLS operations and is a designated area where people can pass or work when the continuous miner or BLS is operational or energised.
- A *No Standing Zone* also relates to continuous miner and BLS operations and is an area where people are prohibited from entering
- A *Controlled Standing Zone* is a no standing zone until the machine operator deems it to be safe and grants permission to enter the area.



FIRST LIFT



MID PILLAR



LAST LIFT

NOTE: NO PERSON SHALL ENTER UNSUPPORTED ROOF AREAS

Approved: Manager of Mining Engineering

NO STANDING ZONE

SAFE STANDING AREA
(SUBJECT TO ASSESSMENT OF HAZARDS)

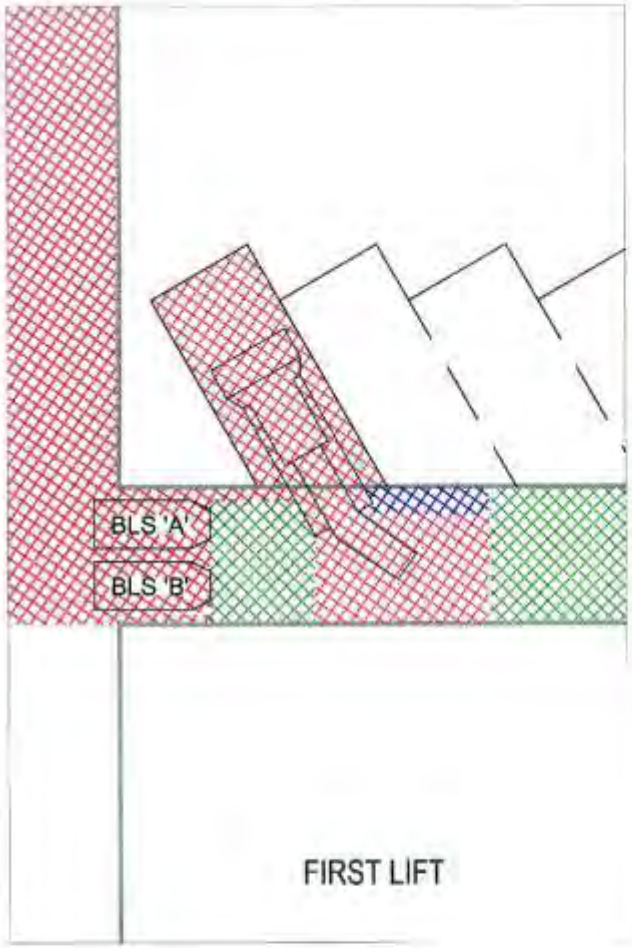
CONTROLLED STANDING ZONE
(NO STANDING ZONE UNTIL MACHINE OPERATOR DEEMS IT TO BE SAFE AND GRANTS PERMISSION TO ENTER THE AREA)

DONALDSONCOAL

ABEL MINE

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

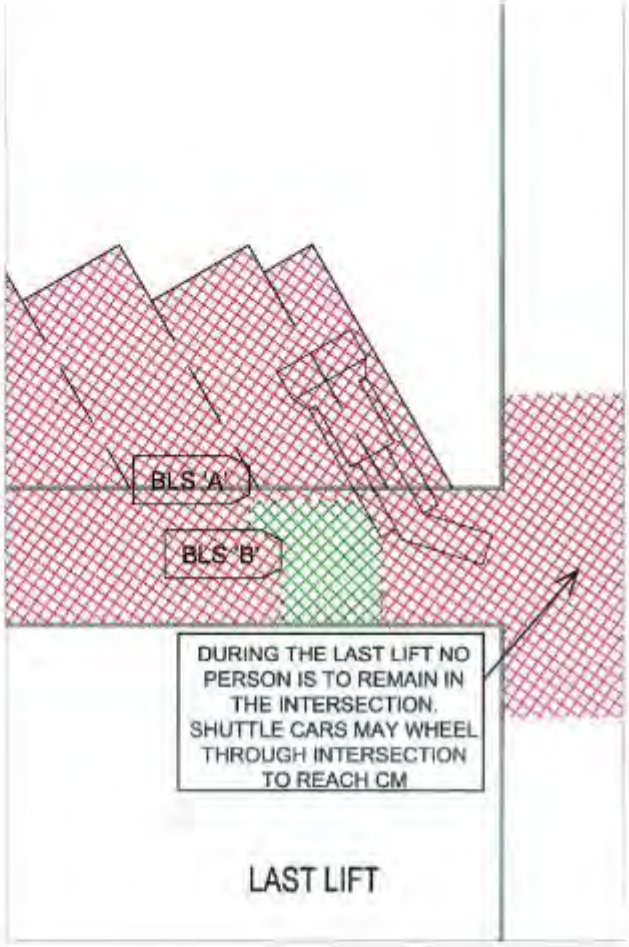
SCALE	NTS	DWG No.	a662216.dwg
DRAWN	M. Wright	REVISION	
APPROVED	G. Spence		
DATE	28th March 2013	Plan 33 of 15	



FIRST LIFT

FOR SHUTTLE CAR SAFE ZONES REFER TO PLANS FOR CONTINUOUS MINER DEVELOPMENT ZONES

MID PILLAR



DURING THE LAST LIFT NO PERSON IS TO REMAIN IN THE INTERSECTION. SHUTTLE CARS MAY WHEEL THROUGH INTERSECTION TO REACH CM

LAST LIFT

NOTE: NO PERSON SHALL ENTER UNSUPPORTED ROOF AREAS

Approved: Manager of Mining Engineering

NO STANDING ZONE

SAFE STANDING AREA
(SUBJECT TO ASSESSMENT OF HAZARDS)

CONTROLLED STANDING ZONE
(NO STANDING ZONE UNTIL MACHINE OPERATOR DEEMS IT TO BE SAFE AND GRANTS PERMISSION TO ENTER THE AREA)

DONALDSONCOAL

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

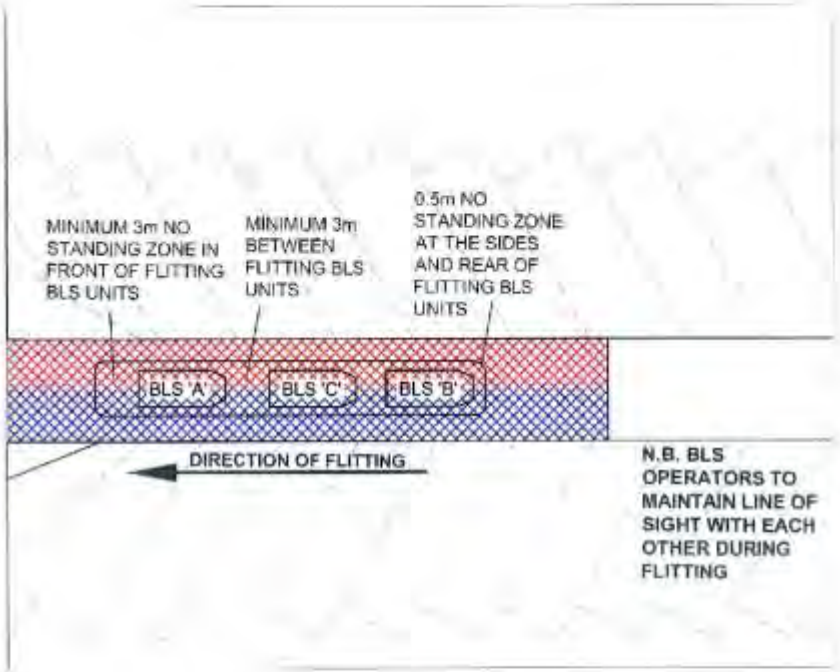
SCALE	NTS	DWG No.	abb2016.dwg
DRAWN	M Wright	REVISION	
APPROVED	C Spence		
DATE	25th March 2013	Plan 12 of 15	

- 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

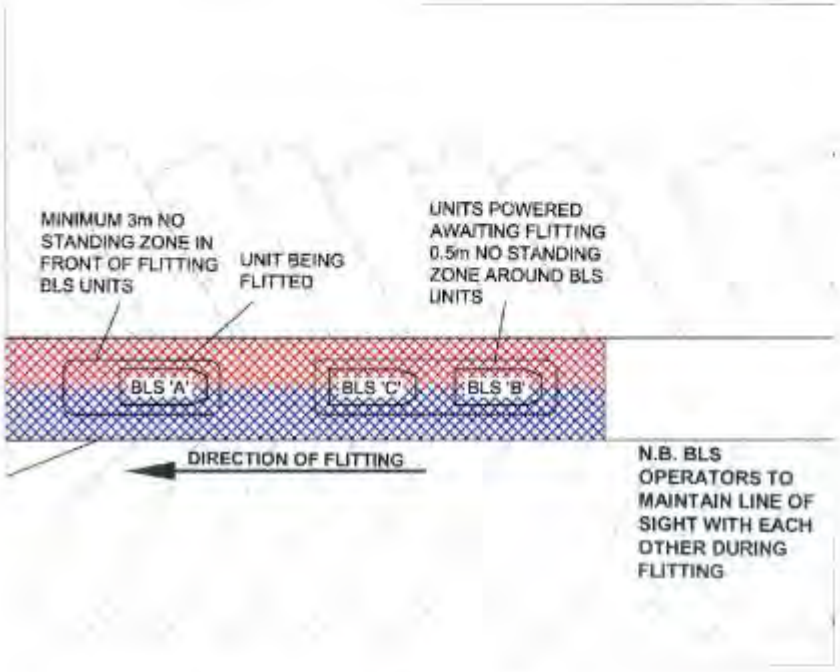
Level 2

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

- Flitting BLS units from one side of panel to other may be done using one of two methods:
  1. 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.***
  2. Flitted alternately (i.e. one BLS unit at time to length of jumper cable between each unit), using one remote control transmitter only.



FLITTING OF BLS UNITS
SIMULTANEOUSLY



FLITTING OF BLS UNITS
ALTERNATELY

Approved: Manager of Mining Engineering

NO STANDING ZONE

SAFE STANDING AREA
(SUBJECT TO ASSESSMENT OF HAZARDS)

CONTROLLED STANDING ZONE
(NO STANDING ZONE UNTIL MACHINE OPERATOR DEEMS IT TO BE SAFE AND GRANTS PERMISSION TO ENTER THE AREA)

DONALDSONCOAL

ABEL MINE
NO STANDING ZONES WHILE BLS FLITTING

SCALE	1:250	DWG No.	4862016.dwg
DRAWN	M. Wright	REVISION	
APPROVED	C. Spence		
DATE	20th March 2013	Plan 1/1 of 1	

Approved: Manager of Mining Engineering

NOTE: NO PERSON SHALL ENTER UNSUPPORTED ROOF AREAS

NO STANDING ZONE

SAFE STANDING AREA

(SUBJECT TO ASSESSMENT OF HAZARDS)

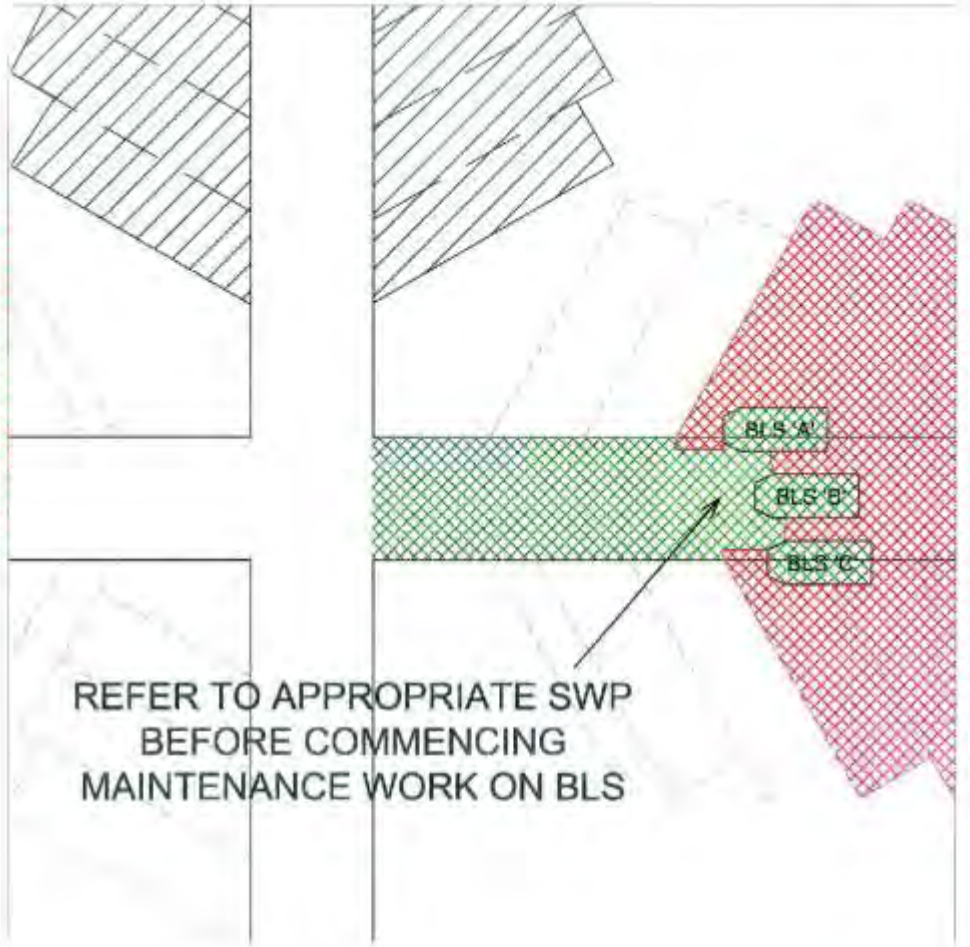
DONALDSONCOAL

ABEL MINE

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

SCALE	1:250	DWG No.	abl020116.dwg
DRAWN	M. Wright	REVISION	
APPROVED	C. Spence		
DATE	25th March 2013	Plan 16 of 16	

REFER TO APPROPRIATE SWP
BEFORE COMMENCING
MAINTENANCE WORK ON BLS



REFER TO APPROPRIATE SWP
BEFORE COMMENCING
MAINTENANCE WORK ON BLS

NOTE: NO PERSON SHALL ENTER UNSUPPORTED ROOF AREAS

NO STANDING ZONE

SAFE STANDING AREA

(SUBJECT TO ASSESSMENT OF HAZARDS)

Approved: Manager of Mining Engineering

DONALDSONCOAL

ABEL MINE

SAFE STANDING AREAS FOR BLS MAINTENANCE

SCALE	1:250	DWG No.	abl2016.dwg
DRAWN	M. Wright	REVISION	
APPROVED	C. Spence		
DATE	29th March 2019	Plan 15 of 15	

Work Order 129183 COPY

B.C.

W.O. Type: PREVENTATIVE
W.O. Status: In Scheduling
Date Created: 10/04/2013
Start Date: 16/04/2013
☐ Safety ☐ Environmental

Reported By: SART6 (Bernard Connor)
Planner: 3845 (Maintenance Planner - Abel Mine)
Supervisor: SART6 (Bernard Connor)
Lead Trade: OPS
PM#: 00477

Est Hours: 1 hr.

Title: **AM Panel 19A Extraction Emergency Pods Audit - Operations Weekly**

Equipment: AM-MP-PANEL 19A (Panel 19A)
System: AM-MP-PANEL 19A (Panel 19A)

Safety: AM-MP-PANEL 19A (Panel 19A)
ISOLATION LEVELS:

Level 1 - Disconnect with a physical and visual break.
Level 2 - Isolate using devices that are not visual (eg: Circuit Breaker on a CM; Isolation valve in an air line
Level 3 - Control switch (eg: Signal Line on Conveyor Belt)
Level 4 - Immobilisation of energy source by neutralising, packing or securing to prevent movement. To be used in conjunction with Level 1 and Level 2 isolation.

GENERAL PRE-WORK CONSIDERATIONS:
---
1. Identify all of the people involved in the task and those that may be affected by the task. Has appropriate communication occurred?
2. Does the work involve the issuing of a permit (eg: hot work; working at height; confined space; excavation, etc
3. Have all of the appropriate testing and tagging been completed on all pieces of equipment to be used?
4. Has the job changed? Ensure to complete a SWMS for any change of procedure.
5. Have you and your work crew been appointed to complete the work to be undertaken?
6. Have you completed a SWMS or a SWP available for the task?
7. Have you verified if there are any applicable site procedures, standards or rules relating to the job you are about to undertake?
8. Have all the energy sources been identified and isolation requirements understood?
9. Is all the equipment fit for purpose and has it been checked by the relevant department?
10. Do you understand the requirement to inspect your work area for hazards and implement controls?
11. Have you suitable PPE for the job and is it in good condition?
12. Have all chemicals been approved for use on site & are MSDS's available?
13. Are all members of the work crew aware of emergency procedures relevant to the work being undertaken?
14. At the completion of the work ensure that all tags and isolation locks are removed, all permits are signed off, & all tools, signage, rubbish have been removed from the work area.

Crew: 3820 (D/S Crew - Abel Mine)

Priority: 1

Status: In Scheduling

	Name	Signature	Date
Work Completed By:			
Supervisor:			
Work Order Closed By:			

DONALDSON COAL
Part of Gloucester Coal

Work Order 129183

Trade: OPS (Operations)

Labor: [1 x 1.0 hour] OPS (Operations)

Instructions: Instructions: All Pillar Extraction Panel Emergency Pods are to be checked that the following Equipment is present and in servicable condition.

- 2 off 6m - 36mm Amsteel Blue sling - 93 Tonne Slings
- 2 off 55 Tonne Bow Shackles
- 2 sledge hammers _____ 6131678697
- 2 shovels _____ 6120031656
- 2 miners picks _____ 6130092453
- 2 pelican picks _____ 6130092457
- 2 saws + spare saw blades _____ 6130082225 ,6131579975 - blades
- 2 crow bars
- 2 measuring sticks _____ 6131586766
- 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
- One spare 200metre extension cable - could be located nearbye
- Check the pod has signage indicating the equipment is for "Emergency use only".

- One off Roll of Brattice
- One off 1 inch Air line

Please outline steps taken to replenish any missing equipment: _____

_____

_____

_____

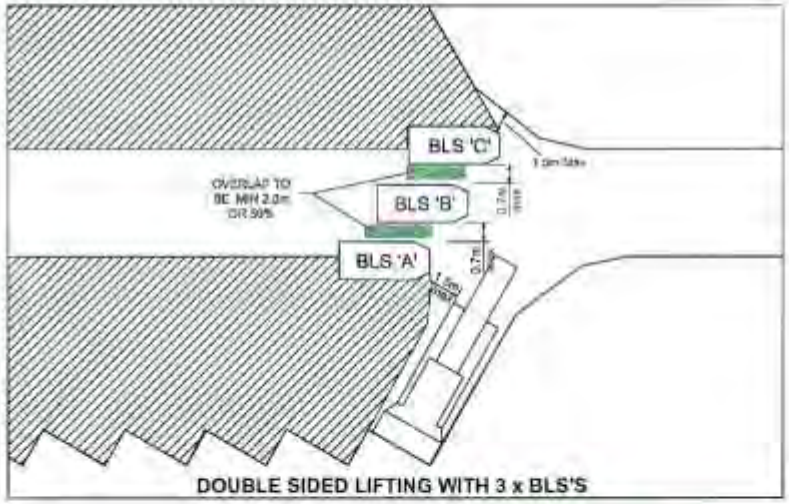
Date: __/__/__ Shift: _____ Completed by: _____


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

RULES & PROCEDURES FOR BLS OPERATION

1. The BLS 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 BLS'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 BLS to the roof, set the front legs first so any roof bolts which may snap off are deflected into the goaf.
4. The BLS 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. Under 'normal' conditions ensure that the units are clear of the roof before tramming forward. (Check that the pressure gauge reads zero) or refer to point 12.
6. Prior to taking a lift, the BLS units are to be set a maximum of 1.5m from the CM as shown.
7. Keep slack floor coal in front of the BLS units to a minimum as this will assist with the movement of the BLS after each lift is taken.
8. The BLS units are to be operated from one feeder cable and jumper cables are to be used to power the second and third BLS.
9. IT IS IMPORTANT THAT ALL CARE IS TAKEN TO ENSURE THAT CABLES ARE NOT DAMAGED.
10. The main feeder cable to the BLS is to be hung from mesh or bolts of the roadway to be lifted.
11. When double sided lifting the BLS cable cross over point is to be maintained 15m outbye of the breakaway point of the next lift.
12. Under heavy roof conditions the BLS 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 BLS units before moving them.
14. The operator is to ensure that the BLS units legs are set as vertical to the roof as possible, to avoid damage and to ensure that maximum support is maintained.
15. All BLS's are to be operational prior to commencing any lift.
16. Reflective markers are to be hung from the mesh in front of the BLS to designate the unsupported roof edge.
17. The BLS's are not to be used as a refuge area.

SINGLE SIDED LIFTING WITH 2 x BLS'S



DOUBLE SIDED LIFTING WITH 3 x BLS'S

Approved: Manager of Mining Engineering

3-4-13

Noted: District Inspector of Coal Mines

DONALDSONCOAL

ABEL MINE
PANEL 22
RULES & PROCEDURES FOR BLS OPERATION

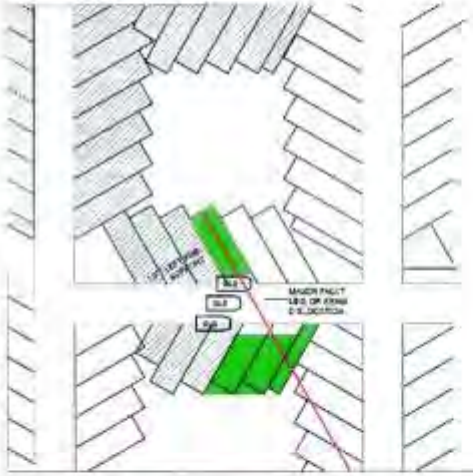
SCALE	1:250	DWG No.	abB22 (6.dwg
DRAWN	M. Wright	REVISION	
CHECKED	C. Spiersa		
DATE	28th March 2013	Plan 6 of 15	

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 MRS
- 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 MRS
- 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 MRS
- 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. AUTHORITY TO MINE (ATM) AND HAZARD PLANS WILL BE PREPARED PRIOR TO EXTRACTION.

Approved: Manager of Mining Engineering

DONALDSONCOAL

ABEL MINE
PANEL 22
SUPPORTING DISTURBED ROOF

SCALE	NTS	TRIM No	
DRAWN	M. Wright	REVISION	
APPROVED	C. Spence		
DATE	20th March 2013	Plan 5 of 15	

donaldson coal

Pillar Extraction – Weekly Audit

1472

Name of personnel conducting audit : Area Leader Gary Day Team Leader Scott Spencer Crew member

Geotechnician Liam Krick Date 27/03/13 Panel 2 Shift N (D) A

The following checks are for the current operations

Have the extents of supported roof in the roadways been delineated with reflective droppers?	(Yes)	No	N/A
Are the ribs being scaled down to remove any loose material?	(Yes)	No	N/A
Is there a need to adjust the rib support TARP?	Yes	(No)	N/A
Where there are geological anomalies, are the ribs adequately	(Yes)	No	N/A
supported?	Yes	No	N/A
Is the goaf readily caving?	(Yes)	No	N/A
Is ventilation in the panel adequate?	(Yes)	No	N/A
Are the BLS units positioned correctly?	(Yes)	No	N/A
Are the BLS units in contact with roof?	(Yes)	No	N/A
Are the BLS Canopies horizontal with less than +/- 15° Tilt?	(Yes)	No	N/A
Are the BLS Legs near vertical?	(Yes)	No	N/A
Are the stooks of the right size?	(Yes)	No	N/A
Is the approved cutting sequence being adhered to?	(Yes)	No	N/A
Are current sequence plans available at the Team Leader's station?	(Yes)	No	N/A
Is the continuous miner being used to clean up the ribs as required during flitting from one place to the next?	(Yes)	No	N/A
Are all face personnel and visitors (if present) complying with the safe standing zones?	(Yes)	No	N/A
Are the housekeeping standards of a high level?	(Yes)	No	N/A
During repair/maintenance is the CM being parked outbye and where appropriate away from the rib where men are working?	Yes	No	(N/A)

Comments/Recommendations

1. Goaf working to 4' edge.
2. Greasy back in BS installation. Minor [illegible] dipping [illegible] of 4

Complete the following considering the face conditions and the roadways for the <u>next two weeks production</u>, specifically roof, rib and floor conditions, to identify the hazards and implement controls to reduce any risk.

Are there any known geological anomalies in the upcoming production area?	(Yes)	No	N/A
Is there evidence of roof support taking weight in the upcoming production area?	Yes	(No)	N/A
Are there any roadways that require additional support in the roof or ribs prior to pillar extraction commencing from that roadway?	Yes	(No)	N/A
Are there any roadways that need cleaning to allow passage of BLS's?	Yes	(No)	N/A
Are there any off centre roadways that need survey lines installed to mark the design centre of the roadway?	Yes	(No)	N/A
Are there any areas of the next pillar extraction roadway that is too high for the BLS units?	Yes	(No)	N/A
Is there any need for a change to the Approved Manner & Sequence in the next row of pillars?	Yes	(No)	N/A
Do any stoppings need repairing?	Yes	(No)	N/A
Are all wheeling corners suitable?	(Yes)	No	N/A
If not - Do they require trimming?	Yes	(No)	N/A

Requirements for the next Belt Retraction & Flit:

Suggested Changes to Manner & Sequence

Signature of Area Leader: [signature] Date: 27/3/13

Production Manager: Date: / /

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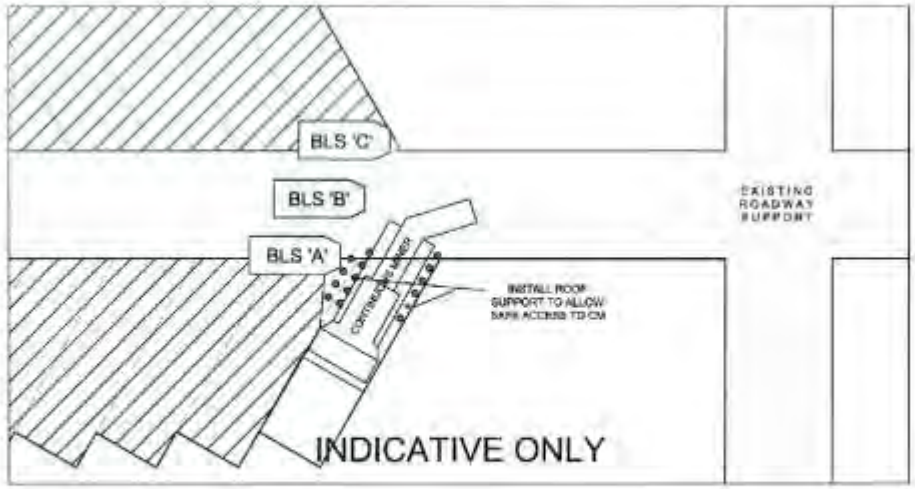
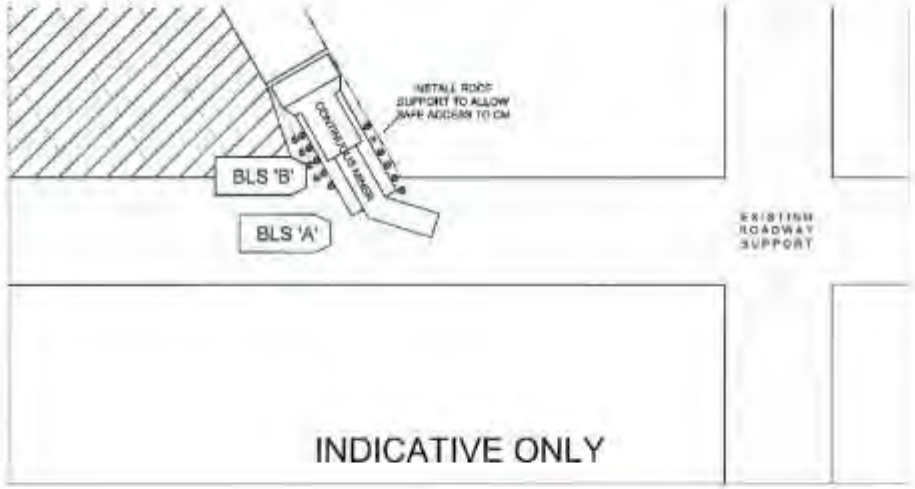
CONTINUOUS MINER RECOVERY PLAN

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 BLS 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. Install sufficient support to allow safe access to the continuous miner on-board controls from under supported roof.
7. Nothing will prevent a mineworker from setting an increased amount of support if necessary for safety.





Approved: Manager of Mining Engineering

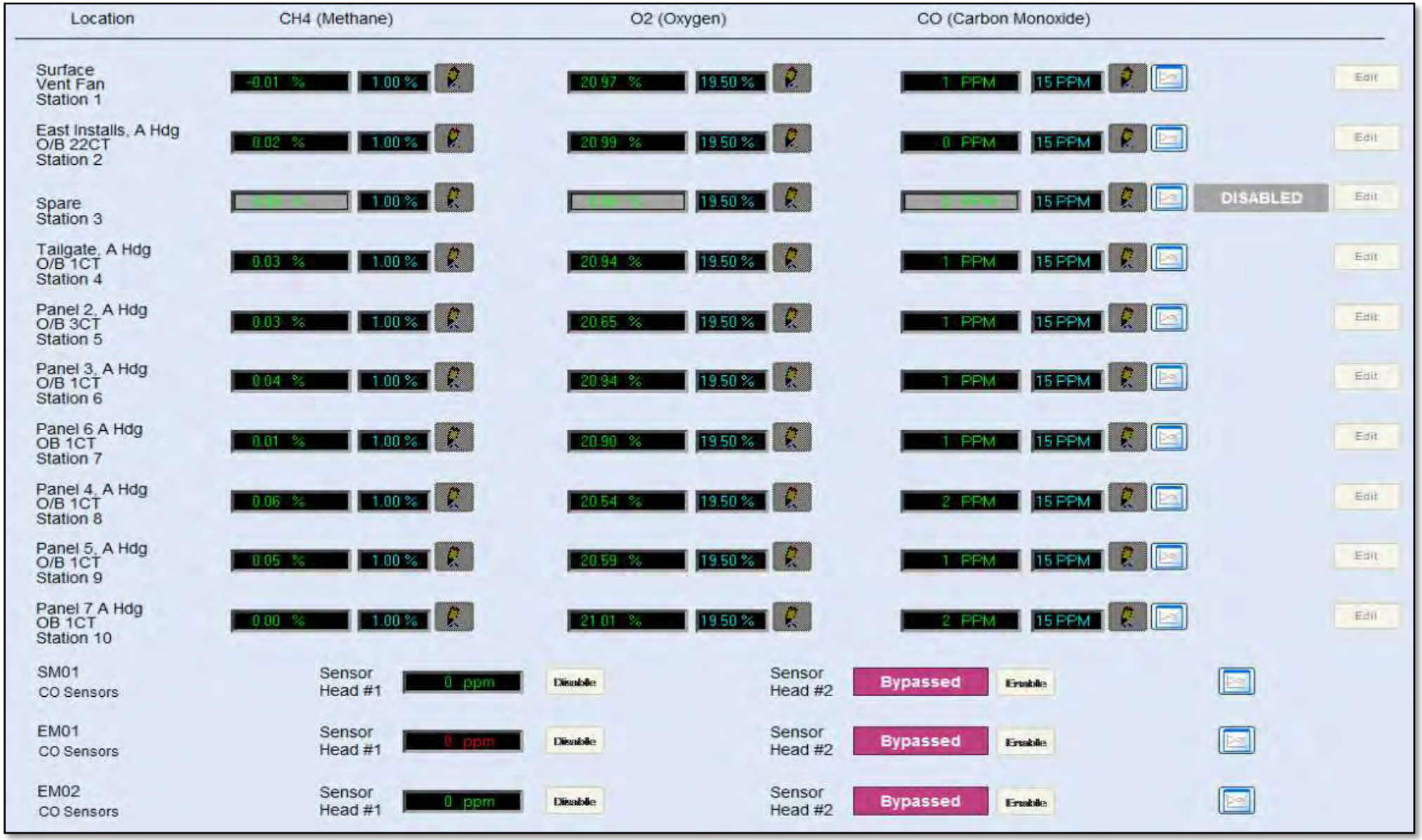
3-4-13

Approved: District Inspector of Coal Mines

DONALDSONCOAL

ABEL MINE
PANEL 22
CONTINUOUS MINER RECOVERY PROCEDURE

SCALE	1:250	DWG No.	abb2016.dwg
DRAWN	M. Wright	REVISION	
APPROVED	C. Spence		
DATE	25th March 2013	Plan 3 of 13	


Location
CH4 (Methane)
O2 (Oxygen)
CO (Carbon Monoxide)
Surface Vent Fan Station 1
-0.01 %
1.00 %
20.97 %
19.50 %
1 PPM
15 PPM
Edit
East Installs, A Hdg O/B 22CT Station 2
0.02 %
1.00 %
20.99 %
19.50 %
0 PPM
15 PPM
Edit
Spare Station 3
1.00 %
19.50 %
15 PPM
DISABLED
Edit
Tailgate, A Hdg O/B 1CT Station 4
0.03 %
1.00 %
20.94 %
19.50 %
1 PPM
15 PPM
Edit
Panel 2, A Hdg O/B 3CT Station 5
0.03 %
1.00 %
20.65 %
19.50 %
1 PPM
15 PPM
Edit
Panel 3, A Hdg O/B 1CT Station 6
0.04 %
1.00 %
20.94 %
19.50 %
1 PPM
15 PPM
Edit
Panel 6 A Hdg OB 1CT Station 7
0.01 %
1.00 %
20.90 %
19.50 %
1 PPM
15 PPM
Edit
Panel 4, A Hdg O/B 1CT Station 8
0.06 %
1.00 %
20.54 %
19.50 %
2 PPM
15 PPM
Edit
Panel 5, A Hdg O/B 1CT Station 9
0.05 %
1.00 %
20.59 %
19.50 %
1 PPM
15 PPM
Edit
Panel 7 A Hdg OB 1CT Station 10
0.00 %
1.00 %
21.01 %
19.50 %
2 PPM
15 PPM
Edit
SM01
CO Sensors
Sensor Head #1
0 ppm
Disable
Sensor Head #2
Bypassed
Enable
EM01
CO Sensors
Sensor Head #1
0 ppm
Disable
Sensor Head #2
Bypassed
Enable
EM02
CO Sensors
Sensor Head #1
0 ppm
Disable
Sensor Head #2
Bypassed
Enable

- Equipment buried - Notifiable under CMHSR 2006 56 (j) (burial of machinery such that it cannot be recovered under its own tractive effort)

Regulation Clause Number	Clause	Notification Period	Non Disturbance Period
56 (1) (j)	the burial of machinery such that it cannot be recovered under its own tractive effort	24 hours	n/a

The Manager of Mining Engineering shall report, within 24 hours, to the Inspector:

1. Any fall of roof at the face or adjacent roadways necessitating supplementary support.
2. Any significant roof weighting on the face.
3. Any unusual occurrence of gas within the Ventilation District.
4. The withdrawal of workmen from the face as a result of high gas levels or any other source of danger.
5. The occurrence of flammable or noxious gases in the roadway, should such gases be at a concentration greater then 2% methane and 1.25% carbon dioxide, and notwithstanding, any limit exceeded from that set out in Clause 21(b) of the *Coal Mine Health and Safety Regulation 2006.*

Pillar Extraction Management Plan - Panel 22 Update

- April 2013

YANCOAL
兖煤澳大利亚有限公司

DONALDSONCOAL
Part of the Yancoal Australia Group

donaldson coal

TRAINING ATTENDANCE REGISTER

FRM-1.4.1

ABEL MINE – TRAINING ATTENDANCE REGISTER

Course Name: ABEL MINE PEMP - A22 Update

Course Date: 17th April, 2013

Facilitator(s): John Knick + Dean Wrightson.

Name	Company	Position	Signature
B. Quinn	Donaldson	miner	
W. NICHOLLS,	" "	" "	
J. LORD	" "	Team leader /	
B. LIDDLE	UGM	miner	
C. RAMPLIN	Donaldson	Electrician	
W. BEAVIS	DONALDSON	fed	
T Meers	"	Fitter	
D. WRIGHTSON	DONALDSON	PRODUCTION MANAGER	

donaldson coal

TRAINING ATTENDANCE REGISTER

FRM-1.4.1

ABEL MINE – TRAINING ATTENDANCE REGISTER

Course Name: Abel Mine PEMP- P22 Update

Course Date: 17th April, 2015

Facilitator(s): John Krick, Dean Wightson

Name	Company	Position	Signature
Matt Wilks	Donaldson	Eloco	
Brady Watters	Don Coal	Fitter	
Chris Fleming	"	Fed	
Colin Pryor	DONALDSON	DEPUTY	
Chris McAlear	" "	FEIT	
Daniel Randall	Don coal	fed	

TRAINING ATTENDANCE REGISTER

FRM-1.4.1

ABEL MINE – TRAINING ATTENDANCE REGISTER			
Course Name:	Abel Mine PEMP P22 Update		
Course Date:	23/4/13		
Facilitator(s):	John Krick		
Name	**Company**	**Position**	**Signature**
Damien Kilmartin	Donaldson coal	Team Leader	