CENTENNIAL

DRAFT

# Built Features Management Plan

## 701, 718-724 Panels

## Clarence Colliery

## March 2026

# Table of Contents

**1 BACKGROUND ..... 2**

1.1 Introduction ..... 2
1.2 Project Description ..... 4

**2 PURPOSE ..... 4**

**3 SCOPE ..... 5**

3.1 Extraction Plan Area ..... 5
3.2 Built Features ..... 5

**4 CONSULTATION AND PLAN DEVELOPMENT ..... 6**

**5 REGULATORY REQUIREMENTS ..... 6**

5.1 Development Consent ..... 6
5.2 Mining Leases ..... 7
5.3 Extraction Plan Guidelines ..... 7
5.4 Work, Health and Safety Legislation ..... 7

**6 PERFORMANCE MEASURES AND INDICATORS ..... 7**

6.1 Mine Design ..... 7
6.2 Subsidence Prediction ..... 8
*6.2.1 SCT Operations – Strata Control Technology (SCT) ..... 8*
*6.2.2 Mine Subsidence Engineering Consultants Pty Ltd (MSEC) ..... 8*
6.3 Performance Measures ..... 9
6.4 Performance Indicators ..... 10

**7 RISK MANAGEMENT ..... 10**

7.1 Identified Risks ..... 2
*7.1.1 Heidelberg Materials - Clarence Quarry (Sand) ..... 2*
*7.1.2 Endeavour Energy 811 Feeder 66kV power lines ..... 2*
*7.1.3 Clarence to Lithgow No 2 Dam Pipeline Infrastructure ..... 3*
*7.1.4 Telstra Network Infrastructure ..... 3*
*7.1.5 Farm Dam ..... 3*
*7.1.6 Unsealed tracks and trails ..... 3*
7.2 Risk Assessment Outcome ..... 4

**8 BUILT FEATURES AND PREDICTED IMPACTS ..... 4**

8.1 Heidelberg Materials - Clarence Quarry ..... 4
*8.1.1 Predicted Impacts ..... 4*
8.2 Endeavor Energy 811 Feeder 66kV Power Lines ..... 5
*8.2.1 Predicted Impacts ..... 5*
8.3 Clarence to Lithgow No2 Dam Pipeline ..... 5
*8.3.1 Predicted Impacts ..... 5*
8.4 Telstra Cable ..... 5
*8.4.1 Predicted Impacts ..... 5*
8.5 Farm Dams ..... 5
*8.5.1 Predicted Impacts ..... 5*
8.6 Unsealed tracks and trails ..... 5
*8.6.1 Predicted Impacts ..... 6*

**9 MANAGEMENT MEASURES ..... 6**

9.1 Heidelberg Materials - Clarence Quarry ..... 6
9.2 Endeavour Energy 811 Feeder 66Kv power lines ..... 6
9.3 Clarence to Lithgow No 2 Dam Pipeline ..... 6
9.4 Telstra Cable ..... 7

9.5 Farm Dams ..... 7
9.6 Unsealed tracks and trails ..... 7
9.7 State Survey Marks ..... 7

**10 MONITORING PROGRAM ..... 8**

10.1 Baseline Monitoring for Built Features ..... 8
*10.1.1 Detailed Aerial Mapping ..... 8*
*10.1.2 Conventional Survey Monitoring ..... 8*
*10.1.3 GNSS Monitoring Stations ..... 8*
*10.1.4 Visual Inspections ..... 8*
10.2 Built Features Monitoring ..... 9
*10.2.1 Heidelberg Materials – Clarence Quarry (Sand) ..... 9*
*10.2.2 Endeavour Energy 811 Feeder 66kV Power Lines ..... 9*
*10.2.3 Clarence to Lithgow No. 2 Dam Pipeline Infrastructure ..... 9*
*10.2.4 Telstra Network Infrastructure ..... 9*
*10.2.5 Farm Dam ..... 10*
*10.2.6 Unsealed tracks and trails ..... 10*

**11 SUBSIDENCE REMEDIATION ..... 13**

**12 ADAPTIVE MANAGEMENT ..... 13**

**13 CONTINGENCY PLANS ..... 16**

**14 ROLES AND RESPONSIBILITIES ..... 16**

**15 REPORTING ..... 17**

**16 AUDIT AND REVIEW ..... 18**

16.1 Audit ..... 18
16.2 Review ..... 19

**17 DOCUMENT CONTROL ..... 19**

**18 REFERENCES ..... 19**

# List of Figures

Figure 1 – Extraction Plan Area 701,718-724 Panels ..... 3
Figure 2 – Built Features and Mine Plan ..... 4
Figure 3 - –Staged Implementation and Adaptive Management Strategy decision flowchart ..... 15

# List of Tables

Table 1 – Built Feature within Extraction Plan Area and Relevant Management Plan ..... 5
Table 2 - Development Consent Conditions DA-504-00 ..... 6
Table 3 – Subsidence Impact Assessment Criteria ..... 9
Table 4 - Performance Indicators ..... 10
Table 5 - State Survey Marker ..... 7
Table 6 – BFMP Subsidence Monitoring Program summary ..... 10
Table 7 – BFMP Roles and Responsibilities ..... 16
Table 8 – Reporting Requirements ..... 17

# List of Appendices

Appendix 1 – Consultation
Appendix 2 – Trigger Action Response Plan
Appendix 3 – Work Health and Safety Legislation

# DOCUMENT CONTROL

| | | |
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| | Executive Manager Water, Wastewater & Waste | Lithgow City Council | 09/03/2026 |
| | Quarry Manager | Heidelberg Materials | 09/03/2026 |
| | Easement Management Officer | Endeavor Energy | 09/03/2026 |
| | Telstra Manager | Telstra | 09/03/2026 |
| | Senior Natural Resource Management Officer | Crown Lands | 09/03/2026 |
| | | NSW Spatial Services | 09/03/2026 |

# 1 BACKGROUND

## 1.1 Introduction

Clarence Colliery (Clarence) is an underground coal mining operation located 10 kilometres east of Lithgow in the Western Coalfields of New South Wales (Figure 1). Clarence Colliery Pty Ltd is the operator and manager of Clarence Colliery on behalf of the shareholding entities, all of which are fully owned subsidiaries of Centennial Coal Company Pty Ltd.

Clarence operates under three development consents, one of which is DA 504-00 which was granted in 2005 by the NSW Department of Infrastructure, Planning and Natural Resources (now the NSW Department of Planning, Housing and Infrastructure (DPHI)). Clarence Colliery also holds Mining Lease (ML) 1583 which lies within the area associated with DA 504-00.

Under DA504-00 an Extraction Plan is required to be developed and approved prior to undertaking secondary extraction (schedule 3 condition 2). The Extraction Plan describes the applicable regulatory framework, mine planning, management and monitoring measures to be implemented to protect all natural and built features in addition to administering public safety measures associated with secondary extraction.

An Extraction Plan has been prepared to allow second workings associated with the 701, 718-724 panels (**Figure 2).**

The 701, 718-724 Panels Built Features Management Plan (BFMP) has been developed in accordance with Schedule 3, Condition 2(g)(ii) of DA 504-00 for the extraction of 701, 718-724 Panels. The Extraction Plan and BFMP have been prepared generally in accordance with the Department of Planning & Environment, *Extraction Plan Guideline* (2022) and the Resources Regulator, *Managing Risks of Subsidence Guide* 2026).

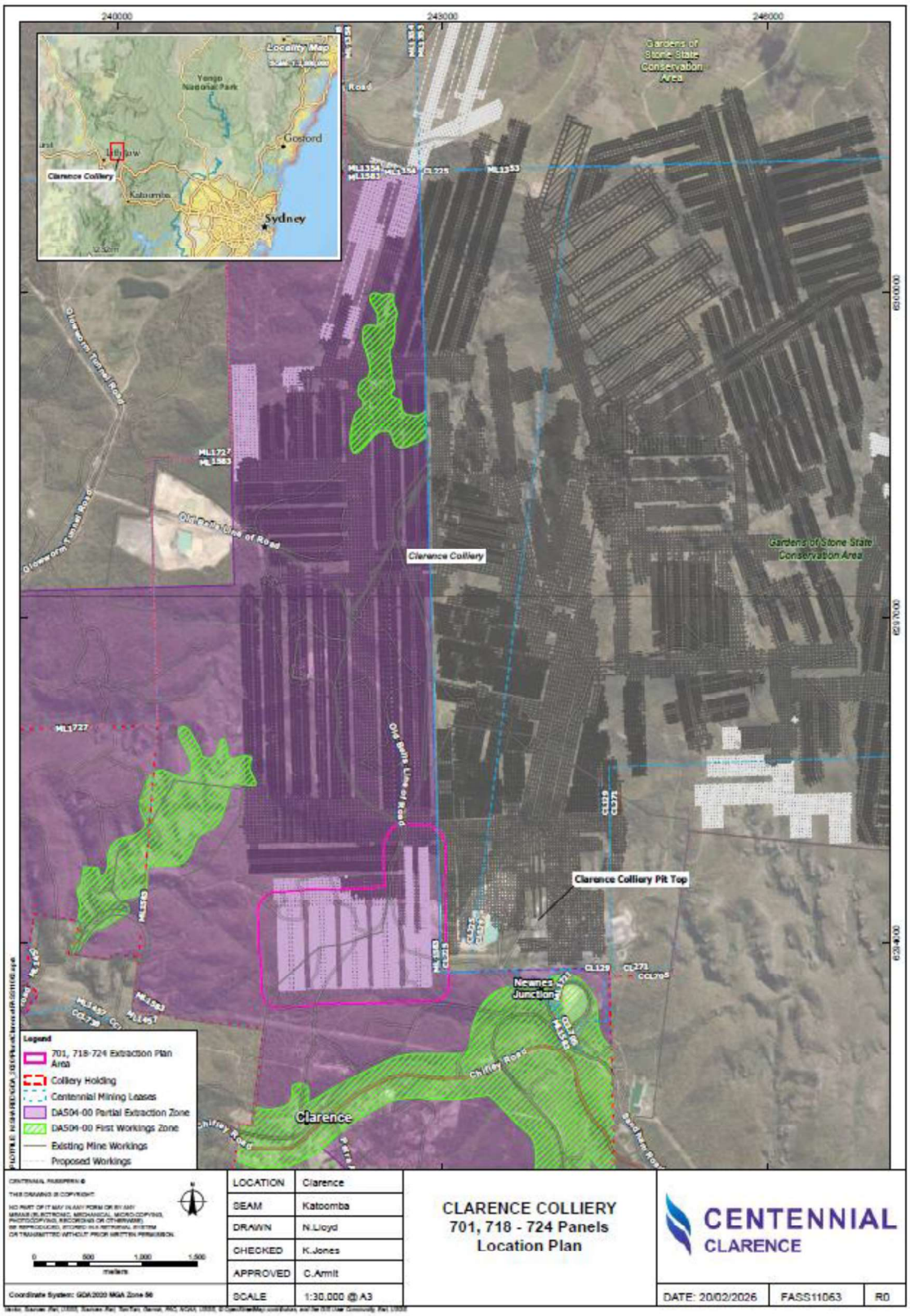


**Figure 1 – Extraction Plan Area 701,718-724 Panels**

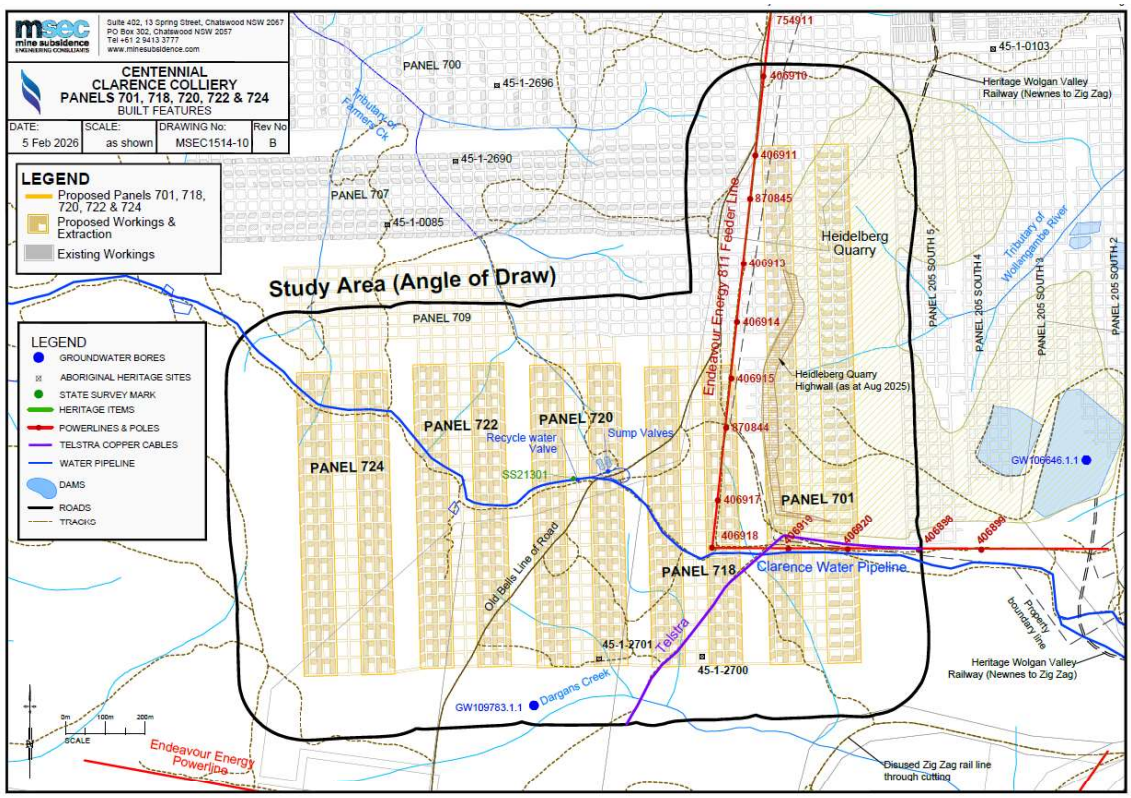


**Figure 2 – Built Features and Mine Plan**

## 1.2 Project Description

The Extraction Plan area comprises a surface area of approximately 213 hectares (**Section 3.1**). The depth of cover above the Katoomba Seam in this area ranges from approximately 188 m to 297 m. The Extraction Plan area lies within the Gardens of Stone State Conservation Area (GoS SCA) and on Crown Lands. The existing natural surface environment of the Extraction Plan area includes the following watercourses; Browns (Dargans) Swamp, Old Bells Swamp, Old Bell Swamp North, two small dams associated with the Clarence to Lithgow No. 2 Water transfer Pipeline and tributaries of Farmers Creek, Dargan Creek and native bushland.

The existing built features include the Heidelberg Materials - Clarence Sand Quarry, Telstra network infrastructure, Endeavour Energy 811 Feeder 66kV power lines, Clarence to Lithgow No2 Dam water transfer pipeline and dam infrastructure, unsealed public roads, tracks and trails, including Old Bells Line of Rd.

# 2 Purpose

The purpose of the BFMP is to outline the management strategies, controls, and monitoring programs to be implemented for the management of potential subsidence impacts on built features resulting from the secondary extraction of the 701 and 718–724 Panels.

# 3 Scope

## 3.1 Extraction Plan Area

The Extraction Plan area is defined by the greater of the predicted 20 mm subsidence contour and the 35° angle of draw. The BFMP applies to the management of risks associated with the development of subsidence resulting from the extraction of the 701, 718, 720, 722, and 724 Panels located within Clarence ML1583 under Development Consent DA 504-00.

## 3.2 Built Features

The management of built features located within the Extraction Plan area (Figure 2) is outlined in this BFMP. **Table 1** identifies each built feature along with the relevant assessment, management, and monitoring plans.

**Table 1 – Built Feature within Extraction Plan Area and Relevant Management Plan**

| Feature | Identification | Management and Monitoring |
|---|---|---|
| **Heidelberg Materials – Clarence Sands Quarry** | Aerial photographs<br>Quarry mapping<br>Lidar<br>Site Inspection | 701, 718-724 Panels Built Features Management Plan<br>701, 718-724 Panels Subsidence Monitoring Program |
| **Endeavour Energy 811 Feeder 66Kv power lines** | Aerial photographs<br>Pre-mining inspection | 701, 718-724 Panels Built Features Management Plan<br>701, 718-724 Panels Subsidence Monitoring Program |
| **Clarence to Lithgow No 2 Dam Pipeline** | Ground truthing<br>Lithgow City Council (LCC) asset plans | 701, 718-724 Panels Built Features Management Plan<br>701, 718-724 Panels Subsidence Monitoring Program |
| **Telstra Cable** | Ground truthing | 701, 718-724 Panels Built Features Management Plan<br>701, 718-724 Panels Subsidence Monitoring Program |
| **Farm Dams** | Aerial photographs<br>Ground truthing | 701, 718-724 Panels Built Features Management Plan<br>701, 718-724 Panels Subsidence Monitoring Program |
| **Unsealed tracks and trails** | Aerial photographs<br>Ground truthing<br>Subsidence Predictions and Impact Assessment (MSEC, 2026) | 701, 718-724 Panels Built Features Management Plan<br>701, 718-724 Panels Subsidence Monitoring Program<br>701, 718-724 Panels Public Safety Management Plan |
| **State Survey Marks** | Subsidence Predictions and Impact Assessment (MSEC, 2026)<br>Ground truthing | 701, 718-724 Panels Built Features Management Plan<br>701, 718-724 Panels Subsidence Monitoring Program |

# 4 Consultation and Plan Development

The PSMP is required to be prepared in consultation with the DPHI and the NSW Resources Regulator (RR) as per Schedule 3 (Specific Environmental Conditions), Condition 2(g)(ii) of the Development Consent. The draft PSMP was submitted via the NSW Planning Portal to Lithgow City Council (LCC), Crown Lands, NPWS, RR and DPHI on 9 March 2026. Copies of the draft BFMP was emailed to Heidelberg Materials, Telstra and Endeavour Energy on 9 March 2026 as part of the BFMP consultation process.

A summary of all consultation undertaken, including correspondence with DPHI, RR, Council, asset owners and Dam Safety NSW, is provided in Appendix 1.

# 5 Regulatory Requirements

Clarence operations are conducted in accordance with relevant legislation and requirements of statutory authorities. Legislative and regulatory requirements are generally recognised through the imposition of conditions on the development consent, licences, mining approvals and Work, Health and Safety Legislation.

## 5.1 Development Consent

Development Consent **DA 504-00** includes conditions relating to the preparation of this BFMP. These conditions are summarised in **Table 2** below, together with references to the relevant sections of this document where each requirement is addressed.

**Table 2 - Development Consent Conditions DA-504-00**

| Condition | Development Consent Condition | Section Addressed |
|---|---|---|
| Schedule 2 Condition 10 | The Applicant must:<br>(a) repair, or pay the full costs associated with repairing, any public infrastructure that is damaged by the development; and<br>(b) relocate, or pay the full costs associated with relocating any public infrastructure that needs to be relocated as a result of the development. | **Section 11** |
| Schedule 3 Condition 2 (g)(ii) | Built Features Management Plan which has been prepared in consultation with the Resources Regulator, to manage the potential subsidence impacts of the proposed underground workings on built features. | **Section 4** |
| Schedule 3 Condition 2 (g)(viii) | Trigger Action Response Plan/s, which contain:<br>• appropriate triggers to warn of increased risk of exceedance of any performance measure;<br>• specific actions to respond to high risk of exceedance of any performance measure to ensure that the measure is not exceeded;<br>• an assessment of remediation measures that may be required if exceedances occur and the capacity to implement the measures; and<br>• adaptive management where monitoring indicates that there has been an exceedance of any impact assessment | **Section 6.4** |

| Condition | Development Consent Condition | Section Addressed |
|---|---|---|
| | criteria in Table 1 or condition 5, or where any such exceedance appears likely | |
| Schedule 3 Condition 2 (g)(ix) | Contingency Plan that expressly provides for:<br>• adaptive management where monitoring indicates that there has been an exceedance of any impact assessment criteria in Table 1 or condition 5, or where any such exceedance appears likely;<br>• an assessment of remediation measures that may be required if exceedances occur and the capacity to implement those measures; | **Section 13** |

## 5.2 Mining Leases

The second workings are within mining lease ML1583. Under ML1583, there are no longer conditions regarding extraction plans or roads and tracks.

## 5.3 Extraction Plan Guidelines

The Extraction Plan and BFMP have been prepared generally in accordance with the Department of Planning, Industry & Environment, *Extraction Plan Guideline* (2022).

## 5.4 Work, Health and Safety Legislation

Clarence has developed a Safety Management System that integrates plans, policies and procedures that enables a systematic approach to establishing and maintaining effective systems to manage health and safety consistent with WHS legislation and AS/NZS 4804:2001.

Work, Health and Safety (WHS) requirements have been considered for the Extraction Plan principally within the context of subsidence related risks to built features, including to private property and public infrastructure and in reference to Managing Risks of Subsidence Guide: WHS (Mines and Petroleum Sites) Legislation (NSW Department of Industry - Resources Regulator, 2023). These conditions are summarised in Appendix 3 of this document, together with references to the relevant sections where each requirement is addressed.

# 6 Performance Measures and Indicators

## 6.1 Mine Design

Mine design is the primary control utilised at Clarence for subsidence control and impact avoidance. Void and pillar widths have been designed to support the overburden and limit spans with minimal subsidence effects at the surface. The final pillars left following panel extraction are specifically designed to provide long term stable support to the surface with no expected surface cracking and minimal ground movement.

Mining panels at Clarence Colliery (Panels 701 and 718–724) are designed to manage and limit subsidence through the use of partial extraction geometries, central spine pillars, and retained barrier pillars. The panel layout incorporates first and second workings with secondary partial extraction on

both sides of a central spine pillar, together with partial extraction of inter-panel barrier pillars. This design approach has been adopted to control ground movement while maintaining long-term stability.

The main mine design dimensions of the proposed panels include:

- Panel void widths generally comprising dual sub-panels of approximately 83.5 m each (with reduced widths of approximately 70.4 m in the southern portion of Panel 701);
- A central spine pillar with a typical width of approximately 60.5 m across all panels;
- Inter-panel solid barrier pillars ranging from approximately 60.5 m to 69.5 m in width; and
- Panel void lengths ranging from approximately 752 m to 1,301 m, depending on panel extent.

Panels are planned to be extracted from south to north, with concurrent extraction of sub-panels within each panel and staggered start and finish times. Extraction ratios (including the spine pillar) generally range from approximately 57% to 62%, varying with depth of cover and cut-through spacing as recommended by SCT (2026). When barrier pillars are included, overall extraction ratios reduce to approximately 46% to 49%.

## 6.2 Subsidence Prediction

Subsidence predictions for the proposed secondary extraction of the 701 and 718–724 Panels have been prepared by suitably qualified and experienced geotechnical specialists, as described in Sections 6.2.1 and 6.2.2.

Two-dimensional subsidence prediction profiles were developed by SCT Operations Pty Ltd (2026) using numerical modelling methods based on the site-specific geotechnical characteristics of the Clarence Colliery area. These predictions were subsequently used by Mine Subsidence Engineering Consultants Pty Ltd (MSEC) to develop three-dimensional subsidence contours across the Study Area using the Incremental Profile Method (IPM), calibrated to be consistent with the SCT predictions.

The predicted subsidence parameters for the extraction of the 701 and 718–724 Panels indicate low levels of mining-induced ground movement, with predicted subsidence effects remaining below the impact assessment criteria specified in Development Consent DA-504-00.

Subsidence predictions and impact assessments prepared for the Extraction Plan inform the assessment of potential impacts to built features and the development of appropriate management, monitoring and contingency measures under this BFMP.

As additional specialist assessments are completed for the Extraction Plan, this section will be updated to incorporate those findings, where relevant.

### 6.2.1 SCT Operations – Strata Control Technology (SCT)

Preliminary assessment of the proposed mining layout for the extraction of the 701 and 718–724 Panels was undertaken by SCT to inform the final panel geometries adopted for the study area.

Two dimensional subsidence predictions associated with the extraction of the 701 and 718–724 Panels have been prepared by SCT Operations Pty Ltd (2026). The assessment was undertaken using the following methodology:

i. Geological and geotechnical characterisation of the overburden, coal seam and floor strata using available borehole logs, geotechnical testing data and geological modelling
ii. Development of a geotechnical model incorporating stratigraphy, rock strength parameters and in-situ stress conditions

iii. Numerical modelling of pillar extraction to assess stress redistribution and rockmass behaviour associated with the proposed panels
iv. Prediction of cumulative surface subsidence associated with extraction of the proposed panels and comparison with the 100 mm subsidence limit specified in Development Consent DA-504-00
v. Hydraulic conductivity modelling to assess the potential extent of the mining-induced fracture network and its interaction with overlying stratigraphic units
vi. Empirical assessment of the height of fracturing and total depressurisation above the proposed panels
vii. Assessment of potential subsidence, geotechnical and hydrogeological impacts associated with the proposed extraction plan

### 6.2.2 Mine Subsidence Engineering Consultants Pty Ltd (MSEC)

Mine Subsidence Engineering Consultants Pty Ltd (MSEC) has prepared a Subsidence Predictions and Impact Assessment Report for the 701 and 718 – 724 Panels (MSEC, 2026). The assessment is based on the two-dimensional subsidence profiles developed and provided by SCT (2026) and applies the Incremental Profile Method (IPM), calibrated to be consistent with the SCT predictions, to develop three-dimensional subsidence contours across the Study Area.

The Study Area assessed by MSEC is defined by the greater of the predicted 20 mm subsidence contour and a 35-degree angle of draw.

Based on the three-dimensional subsidence modelling undertaken by MSEC, the maximum predicted total subsidence effects associated with the extraction of the 701 and 718–724 Panels are:
• up to 77 mm ± 20 mm of vertical subsidence;
• a maximum tilt of approximately 1.0 mm/m;
• hogging and sagging curvatures of approximately 0.02 $km^{-1}$; and
• tensile and compressive strains of up to 0.3 mm/m.

All predicted subsidence parameters are below the approved subsidence impact assessment criteria specified under Development Consent DA-504-00. MSEC concludes that predicted subsidence effects are low and that associated strains and curvatures are expected to be within the order of survey tolerance.

## 6.3 Performance Measures

As outlined in Section 6.1, the primary objective of the mine design is to prevent any significant mine-induced risk to natural and built features by maintaining low levels of subsidence, ensuring that built features remain within acceptable performance limits, and that there is negligible additional risk to public safety.

The DA 504-00 Schedule 3, Condition 1 – Subsidence Impact Assessment Criteria are provided below. SCT and MSEC modelled subsidence predictions are both less than the Development Consent Subsidence Impact Assessment Criteria presented in Table 4**.**

**Table 3 – Subsidence Impact Assessment Criteria**

| Level of Extraction | Subsidence | Tilt | Horizontal Strain (compressive and tensile) |
|---|---|---|---|
| First Workings | 20 mm | 1.0 mm/m | 1.0 mm/m |
| Partial Extraction | 100 mm | 3.0 mm/m | 2.0 mm/m |

**Table 4 - Subsidence Impact Performance Measure Commitments - Built Features**

| Key Public Infrastructure | Subsidence Performance Measure |
|---|---|
| High voltage power supply infrastructure | Always safe and serviceable<br>Damage that does not affect safety or serviceability must be fully repairable and must be fully repaired |
| **Other Built Infrastructure** | |
| Power lines and power poles | Always safe and serviceable |
| Telecommunications infrastructure | Damage must be fully repairable and must be fully repaired or else replaced or fully compensated<br>Clarence will repair, or pay the full cost associated with repairing and/or relocating public infrastructure (Sch. 2 cond. 10) |
| Privately owned residences and businesses | |
| Local roads | |
| Other built features and improvements (including access roads, farm dams, tracks, trails and fences) | |
| **Public Safety** | |
| Public Safety | Negligible additional risk |

## 6.4 Performance Indicators

To establish compliance with the performance measures outlined in Section 6.3, Clarence has established a subsidence monitoring program developed in consultation with the land owner, built feature owners and RR. Trigger Action Response Plans (TARPs) have also been established and provided in
These documents establish the appropriate subsidence monitoring, parameters and associated trigger levels to demonstrate that subsidence performance satisfies the Subsidence Performance Measures.

The TARPs provide the trigger values as outlined in Table 5.

**Table 5 - Performance Indicators**

| Performance Indicator | Tigger | Action / Response |
|---|---|---|
| **Level 1**<br>**Low** | Operations within prediction and approved impact. | Continued operations and monitoring as normal. |
| **Level 2**<br>**Medium** | Operations within approved impacts but exceed or potentially exceed predictions. | Review and investigation processes are engaged, with adaptive management as required. |
| **Level 3**<br>**High** | Operations exceed approved impact. | Adaptive Management fully engaged. |

# 7 Risk Management

Clarence has adopted the Stature Risk Assessment Program which was developed to ensure consistency in all risk assessments across the Centennial Coal operations. The Stature Risk Assessment

Program sets out a consequences table and risk ranking matrix for managing identified risks consistent with AS/NZS ISO 31000:2009.

All operational processes undertaken at the Clarence operations are subject to the risk assessment process prior to implementation. The process for risk and change management is undertaken according to the methodology and tools contained within Risk Management Arrangements and Change Management System.

Clarence has completed a Workplace Risk Assessment and Control as required by the Work Health Safety (Mines and Petroleum Sites) Regulation 2022 to develop control measures to manage the risk to health and safety associated with subsidence.

A risk assessment was undertaken specifically for the 701, 718–724 Panels Extraction Plan and associated management plans. The assessment determined that the risk of damage to built features from subsidence associated with the extraction of Panels 701 and 718–724 is Low.

## 7.1 Identified Risks

Potential risks to built features associated with mine subsidence have been identified based on the subsidence predictions and impact assessments prepared to date, including the MSEC subsidence impact assessment.

The predicted subsidence effects for the 701 and 718–724 Panels indicate low levels of vertical subsidence, tilt, curvature and strain. Non-conventional subsidence mechanisms, including valley-related movements, far-field horizontal movements and cliff instability, have been assessed and are not expected to result in adverse impacts to built features.

Identified risks to built features are therefore considered to be low and manageable through the monitoring and management measures outlined in this BFMP.

### 7.1.1 Heidelberg Materials - Clarence Quarry (Sand)

Potential hazards to the Clarence Quarry and public safety from the impact of mine subsidence can include:

- potential surface cracking of the quarry floor or access tracks;
- potential changes to drainage patterns; and
- potential changes to quarry batter slopes and highwalls.

The predicted magnitude of subsidence associated with the extraction of the 701 and 718–724 Panels is not sufficient to cause any of the above-mentioned hazards. Predicted subsidence, tilt and strain levels are low relative to existing quarry geometry and batter slopes, and are unlikely to adversely affect drainage, highwalls or quarry operations. Predicted strains are below levels at which fracturing would be expected, and surface cracking has not been observed above existing panels at Clarence. Any minor cracking, should it occur, would be readily managed as part of normal quarry operations.

### 7.1.2 Endeavour Energy 811 Feeder 66kV power lines

Potential hazards to the Endeavour Energy 811 Feeder 66 kV power lines and public safety from the impact of mine subsidence can include:

- potential changes to pole alignment due to tilt or horizontal movement;
- potential changes to conductor clearance heights; and
- minor rotation of hanging insulators.

The predicted magnitude of subsidence associated with the extraction of the 701 and 718–724 Panels is not sufficient to cause any of the above-mentioned hazards. Predicted subsidence movements are

low and within the tolerance of single pole power line infrastructure, which has demonstrated capacity through extensive mining experience in NSW to accommodate movements well in excess of those predicted for the proposed panels.

### 7.1.3 Clarence to Lithgow No 2 Dam Pipeline Infrastructure

Potential hazards to the Clarence to Lithgow No. 2 Dam water pipeline infrastructure and public safety from the impact of mine subsidence can include:

- potential for pipeline deformation due to subsidence-induced strain; and
- potential for pipeline damage associated with curvature.

The predicted magnitude of subsidence associated with the extraction of the 701 and 718–724 Panels is not sufficient to cause any of the above-mentioned hazards. Predicted tensile and compressive strains are low and well within the tolerance of polyethylene (PE) pipelines, which have been demonstrated through extensive mining experience in NSW and Queensland to accommodate subsidence movements in excess of those predicted for the proposed panels.

### 7.1.4 Telstra Network Infrastructure

Potential hazards to the Telstra network infrastructure and public safety from the impact of mine subsidence can include:

- potential damage to buried telecommunications cables due to subsidence-induced strain; and
- potential disruption to telecommunications services.

The predicted magnitude of subsidence associated with the extraction of the 701 and 718–724 Panels is not sufficient to cause any of the above-mentioned hazards. Predicted tensile and compressive strains are low and well within the tolerance of buried copper cables, which have been demonstrated through extensive mining experience in NSW to accommodate subsidence movements in excess of those predicted for the proposed panels.

### 7.1.5 Farm Dams

Potential hazards to farm dams and public safety from the impact of mine subsidence can include:

- potential cracking of dam embankments due to subsidence-induced strain; and
- potential deformation of dam structures associated with tilt or curvature.

The predicted magnitude of subsidence associated with the extraction of the 701 and 718–724 Panels is not sufficient to cause any of the above-mentioned hazards. Predicted tensile and compressive strains are low and within the tolerance of earth farm dams, which have been demonstrated through extensive mining experience in NSW to accommodate subsidence movements well in excess of those predicted for the proposed panels. The farm dams within the Study Area have been decommissioned, further reducing the risk of adverse impacts.

### 7.1.6 Unsealed roads, tracks and trails

Potential hazards to unsealed roads, tracks, future mountain bike trails and public safety from the impact of mine subsidence can include:

- Potential for surface cracking
- Potential for surface ridges (compression) and

The predicted magnitude of subsidence caused by the extraction of panels is not sufficient to cause any of the above-mentioned hazards.

### 7.1.7 State Survey Marks

Potential hazards to state survey marks from the impact of mine subsidence can include:

- potential vertical displacement of the survey mark; and

- potential loss of survey accuracy due to tilt or curvature.

The predicted magnitude of subsidence associated with the extraction of the 701 and 718–724 Panels is not sufficient to result in adverse impacts to the integrity of the state survey mark. Any survey control marks required for future use can be re-established, if required, following completion of mining and stabilisation of the ground, in consultation with NSW Spatial Services.

## 7.2 Risk Assessment Outcome

The risk assessment outcome for built features reflects the low magnitude of predicted subsidence effects and the conclusion that predicted movements are within approved subsidence impact assessment criteria and SSR performance measures.

For all built features assessed to date, the likelihood of subsidence-related damage is considered low and the consequence of potential impacts is expected to be minor. No proactive remediation or pre-emptive engineering works are required based on current predictions.

# 8 Built Features and Predicted Impacts

Predicted subsidence magnitudes vary locally depending on feature location relative to individual panels and are derived from the three-dimensional subsidence contours(MSEC, 2026). Variations in predicted subsidence across built features reflect differences in panel geometry, depth of cover and relative position within the Extraction Plan Area.

This section summarises the predicted subsidence impacts on built features located within the Extraction Plan Area. Detailed subsidence predictions and impact assessments have been undertaken by Mine Subsidence Engineering Consultants (MSEC) and are documented separately.

Based on the adopted mine design and subsidence modelling, the following order-of-magnitude subsidence effects are expected within the Extraction Plan Area:

- Total vertical subsidence: 77 mm ± 20 mm
- Tilt: ≤ 1.0 mm/m
- Strains: ≤ 0.3 mm/m (tensile and compressive)

These predicted subsidence effects are below the approved subsidence impact assessment criteria and are not expected to result in material impacts to built features.

## 8.1 Heidelberg Materials - Clarence Quarry

The Heidelberg Materials Clarence Quarry is located partially within the Extraction Plan Area, with the western portion of the quarry situated directly above Panel 701. The quarry comprises active extraction areas, haul roads, hardstand areas and quarry batters formed in sandstone bedrock. Quarry operations involve progressive excavation and rehabilitation of the site.

### 8.1.1 Predicted Impacts

Subsidence of up to approximately 65 mm is predicted to occur within the quarry footprint, with predicted tilts of up to approximately 0.8 mm/m and strains of less than 0.3 mm/m. These subsidence effects are expected to be small relative to existing quarry excavation geometries and batter slopes and are not anticipated to adversely affect quarry operations, drainage performance or highwall stability. Minor surface undulations may occur in unsealed areas; however, quarry infrastructure is expected to remain safe, serviceable and repairable.

## 8.2 Endeavor Energy 811 Feeder 66kV Power Lines

The Endeavour Energy 811 Feeder 66 kV transmission line traverses the Extraction Plan Area. The powerline consists of pole-founded structures supporting suspended conductors and associated fittings

### 8.2.1 Predicted Impacts

Subsidence of up to approximately 70 mm is predicted to occur along the powerline alignment, with predicted tilts of up to approximately 0.5 mm/m and strains of 0.3 mm/m. These subsidence effects are expected to be within acceptable tolerances for pole-founded overhead electricity infrastructure and are not anticipated to adversely affect pole stability, conductor clearances or electrical performance.

## 8.3 Clarence to Lithgow No2 Dam Pipeline

The Clarence to Lithgow No. 2 Dam pipeline traverses the Extraction Plan Area and forms part of the regional water supply network. The pipeline is a buried asset comprising pipe sections, joints and associated access points located within areas potentially affected by mine subsidence.

### 8.3.1 Predicted Impacts

Subsidence of up to approximately 70 mm is predicted to occur along sections of the pipeline alignment, with predicted tilts of up to approximately 0.5 mm/m and strains of <0.3 mm/m. These subsidence effects are expected to be within tolerances for buried pipeline infrastructure and are not anticipated to result in loss of structural integrity, leakage or disruption to water supply.

## 8.4 Telstra Cable

A Telstra telecommunications cable traverses the Extraction Plan Area and information has been gathered from a Before You Dig Australia (BYDA) search and site inspections. The asset consists of buried copper cables with associated access points and jointing pits.

### 8.4.1 Predicted Impacts

Subsidence of up to approximately 50 mm is predicted to occur along the cable alignment, with predicted tilts of up to approximately 0.5 mm/m and strains of up to 0.3mm/m. These subsidence effects are expected to be within tolerances for buried telecommunications infrastructure and are not anticipated to result in damage to cables, pits or loss of service.

## 8.5 Farm Dams

The two farm dams within the Study Area are not being used. Two small farm dams of estimated volume 0.5ML each are located within the Extraction Plan Area. The dams comprise earth-fill embankments and basin areas that retain surface water for local use.

### 8.5.1 Predicted Impacts

Subsidence of up to approximately 60 mm is predicted to occur in the vicinity of the farm dams, with predicted tilts of up to approximately 0.5 mm/m and 0.3mm/m strains. These subsidence effects are expected to be small and are not anticipated to adversely affect embankment stability, water storage capacity or overall dam functionality.

## 8.6 Unsealed roads, tracks and trails

Surface access within the Extraction Plan Area is provided by unsealed tracks and trails that support recreational use and land management activities. Some tracks and trails are located directly above or

adjacent to the proposed mining panels. Old Bells Line of Road is the main public road within the Study Area and is located directly above the 718 and 722 Panels. The unsealed road is regularly graded and maintained by the Clarence Sands Quarry to support heavy vehicle haulage.

### 8.6.1 Predicted Impacts

Subsidence of up to approximately 77 mm is predicted to occur along sections of unsealed roads, tracks and trails, with predicted tilts of up to approximately 0.3 mm/m. These subsidence effects may manifest as minor surface undulations, shallow settlement or localised unevenness; however, access, safety and drainage performance are not anticipated to be adversely affected.

# 9 Management Measures

Management measures for built features have been developed having regard to the subsidence predictions and impact assessments prepared to date. Given the low magnitude of predicted subsidence effects, management measures focus on monitoring, inspection and adaptive response rather than proactive engineering works.

No pre-emptive remediation is proposed for built features given the subsidence prediction and impact assessment. Management actions will be implemented only where monitoring indicates subsidence movements exceeding predictions or performance measures, consistent with the Trigger Action Response Plan and Adaptive Management Plan.

## 9.1 Heidelberg Materials - Clarence Quarry

Clarence has consulted directly with Heidelberg Materials, including attending a site geotechnical inspection, sharing information and monitoring plans for the parts of the Quarry within the EP Area. Management of potential subsidence impacts on the Heidelberg Materials Clarence Quarry will be undertaken through consultation with Heidelberg Materials and ongoing communication regarding subsidence predictions and mining schedules. Visual inspections will be undertaken in areas where quarry infrastructure intersects predicted subsidence zones. Ground surveys will be conducted along the western highwall. Surveys include ground marks and a GNSS unit 700_03 with adjacent survey mark, which has been installed above the southern corner of the western highwall. In addition, Centennial geotechnical inspections will be undertaken monthly during the undermining of the 701 Panel. If any subsidence-related impacts are identified, corrective actions will be implemented in consultation with Heidelberg Materials to ensure safe quarry operations are maintained.

## 9.2 Endeavour Energy 811 Feeder 66Kv power line

Clarence has consulted directly with Endeavour Energy, including sharing information and providing a proposed monitoring plan for the power line and associated infrastructure. Management of the Endeavour Energy 811 Feeder 66 kV powerline will include monitoring subsidence movements in the vicinity of powerline poles and undertaking visual inspections of pole footings during and following mining. Should any subsidence-related impacts be identified, investigation and any required adjustments or repairs will be undertaken in consultation with Endeavour Energy to ensure the ongoing safety and serviceability of the powerline.

## 9.3 Clarence to Lithgow No 2 Dam Pipeline

Clarence has consulted directly with Lithgow City Council, including sharing information and providing a proposed monitoring plan for the pipeline. Management of the Clarence to Lithgow No. 2 Dam pipeline will include monitoring of subsidence and periodic visual inspections of the pipeline

corridor. Any required maintenance or repairs will be undertaken in consultation with Lithgow City Council to ensure the ongoing integrity of the pipeline and continuity of water supply.

## 9.4 Telstra Cable

Management of the Telstra telecommunications cable will include monitoring subsidence movements along the cable corridor and undertaking inspections along the corridor, including at known access points, jointing pits and surface expressions. It is currently not known if the cable is active or inactive. Any subsidence related damage to the telecommunications network will be managed with repairs undertaken in consultation with Telstra to ensure continuity of service.

## 9.5 Farm Dams

Management of farm dams within the Extraction Plan Area will include visual inspections following mining to identify any signs of cracking, leakage or differential settlement. Any required maintenance or repairs will be undertaken in consultation with the relevant landholders to ensure dam stability and water storage capacity are maintained.

## 9.6 Unsealed roads, tracks and trails

Clarence has consulted directly with National Parks and Wildlife Service and Crown Lands. Subsidence management of unsealed roads, tracks and trails will include monitoring subsidence and undertaking visual inspections of affected sections where tracks and trails intersect predicted subsidence zones. If future mountain bike trails or associated infrastructure are constructed within the Extraction Plan Area, monitoring and inspections will be undertaken in consultation with the National Parks and Wildlife Service or Crown Lands where works are located. Any required repairs or maintenance will be undertaken in consultation with the relevant land manager to ensure access routes remain safe and serviceable.

## 9.7 State Survey Marks

One State Survey Mark, identified within the Survey Control Information Management System (SCIMS), is designated within the Extraction Plan area and is potentially susceptible to subsidence from the proposed mining activities. The SCIMS Online status for the survey mark will remain noted as affected by mine subsidence where applicable. Clarence will consult with Spatial Services regarding management of the mark should impacts occur.

**Table 6 - State Survey Marker**

| Mark | Vertical Class / Order | MGA Easting | MGA Northing | Zone | Horizontal Class / Order |
|---|---|---|---|---|---|
| SS21301 | U | 242172 | 6294054 | 56 | U |

* Note Class U - Unknown or unreliable surveys

# 10 Monitoring Program

The subsidence monitoring program for built features has been developed with reference to the recommendations of MSEC and is intended to verify subsidence performance during and following extraction of the 701 and 718–724 Panels.

Monitoring will include conventional ground surveys, GNSS monitoring stations, visual inspections, other environmental monitoring and feature-specific inspections. Monitoring results will be reviewed progressively and used to inform adaptive management where required.

## 10.1 Baseline Monitoring for Built Features

### 10.1.1 Detailed Aerial Mapping

An aerial LIDAR survey was undertaken in August 2025, over part of the mining area and publicly available LiDAR was used for the residual area.

### 10.1.2 Conventional Survey Monitoring

Centennial Clarence has a well-established conventional subsidence monitoring program lines typically consist of feno markers driven into the ground, nominally spaced at between 10-25m intervals that are measured for vertical subsidence. Within the Extraction Plan area (as detailed within the 701, 718-724 Panels Subsidence Monitoring Program), one crossline is to be established:

- Crossline 700G– Located over 701, 718, 720, 722 and 724 Panels
- Crossline 700H- Located over the southern end of the 718 Panel

The monitoring point spacing, survey methods and scheduled visual inspections allow for the detection of both conventional and non-conventional subsidence movements due to any potential changes in geological conditions and mining within steep slope areas within the Extraction Plan area.

### 10.1.3 GNSS Monitoring Stations

A GNSS monitoring station (700_3) was installed within the Extraction Plan area, on the Quarry Highwall crest to compliment the conventional survey monitoring cross lines and marks, the details of which are included within the 701, 718-724 Panels Subsidence Monitoring Program. The GNSS monitoring stations will form part of the baseline monitoring, gathering natural pre-mining ground movement to confirm natural movements as a result of seasonal influences (e.g. variations in temperature and moisture). An adjacent ground survey mark will be installed at each GNSS unit to provide a backup monitoring point in the event that the GNSS unit and/or the mounting post is damaged by vandalism, bushfire or other reasons and to allow continued subsidence monitoring past the cessation of the GNSS units post mining.

### 10.1.4 Visual Inspections

Visual inspections will be undertaken along the survey line 700G which is on an existing access trail will be completed concurrently with survey monitoring. The unsealed tracks and trails are also utilised regularly by Centennial's contractors to access and download data from the environmental monitoring network. These contractors will be made aware of underground mining locations and will provide any updates on changed track conditions or signs of subsidence impacts.

## 10.2 Built Features Monitoring

### 10.2.1 Heidelberg Materials – Clarence Quarry (Sand)

As outlined in Section 7.1.1, the low level of predicted subsidence (consistent with MSEC predictions) is not expected to result in any significant impacts to quarry operations or infrastructure. The management strategy for the Clarence Quarry is to undertake subsidence monitoring on nearby survey marks and GNSS units, with pre- and post-mining surveys undertaken to confirm subsidence.

Heidelberg currently undertake production (almost daily frequency) safety inspections which include when working near the highwalls and dumps above the 701 Panel. Heidelberg currently undertake annual geotechnical inspections which Centennial and MSEC attended in 2025.

Monthly geotechnical inspections will be conducted by Centennial when 701 and 718 panel second workings are occurring beneath the Southern and Western Highwalls to detect any subsidence effects (e.g. cracking) on the quarry's highwalls, dumps, access roads or other infrastructure. Any issues identified will be recorded and addressed in consultation with Heidelberg Materials. A summary of monitoring requirements is provided in Table 7 and detailed in the Built Features Management Plan.

### 10.2.2 Endeavour Energy 811 Feeder 66kV Power Lines

As described in Section 7.1.2, the predicted consistent with MSEC predictions is not expected to affect the serviceability of the 811 Feeder assets. The management strategy for the Endeavour Energy network is to monitor poles and the condition of Endeavour Energy infrastructure.

Weekly visual inspections will be undertaken when powerline infrastructure is located within the active mining area. Inspections will focus on pole location and alignment. Any changes observed will be recorded and managed in consultation with Endeavour Energy. The monitoring program is summarised in Table 7 and detailed in the SMP.

### 10.2.3 Clarence to Lithgow No. 2 Dam Pipeline Infrastructure

As outlined in Section 7.1.3, the low predicted subsidence is not expected to impact the structural integrity or serviceability of the Clarence to Lithgow No. 2 Dam pipeline. The management strategy for the pipeline is to monitor subsidence along the 700G Line adjacent to the pipeline pre- and post-extraction, as detailed in the Pipeline Management Plan and Subsidence Monitoring Program.

During active subsidence periods, weekly visual inspections will be undertaken along accessible sections of the pipeline to check for signs of ground movement or leakage. As water is not continuously running through the pipeline, the pipeline will be checked for leakage through the Study Area prior to the commencement of 701 Panel and after the completion of 724 Panel. Any anomalies will be recorded and addressed in consultation with Lithgow City Council. Monitoring requirements are summarised in Table 7.

### 10.2.4 Telstra Network Infrastructure

As described in Section 7.1.4, low subsidence predictions are not expected to impact the serviceability of Telstra's buried copper and optical fibre assets. The management strategy for the Telstra communication network is to monitor subsidence along the 700H Line where the Telstra cable crosses Dargans Creek and along the 700G Line.

Visual inspections will be undertaken during active mining to identify any ground cracking or disturbance near pits, conduits or cable alignments. Any required repairs will be arranged in

accordance with the Communications Management Plan. The monitoring schedule is summarised in Table 7.

### 10.2.5 Farm Dam

As outlined in Section 7.1.5, the predicted low level of subsidence is not expected to adversely affect the structural integrity or performance of the farm dam. The management strategy includes pre- and post-mining subsidence monitoring along the 700G Line, which runs past the dams, with visual inspections undertaken during active subsidence periods. It is noted that the dams are not used.

During under mining weekly inspections will be conducted to identify any signs of cracking, seepage or settlement along the embankment or spillway areas. Monitoring requirements are summarised in Table 7 and detailed in the Subsidence Monitoring Program.

### 10.2.6 Unsealed roads, tracks and trails

As described in Section 7.1.6, only minor ground movement is expected to affect unsealed tracks and trails. The management strategy is to monitor subsidence levels along relevant crosslines consistent with the Public Roads monitoring approach (Section 10.2.2).

Weekly visual inspections will be carried out while unsealed access tracks fall within the active subsidence zone, with monthly inspections continuing for six months following mining activity. These inspections will record any cracking, rutting, or minor surface deformation. Any required maintenance—such as regrading—will be undertaken in accordance with the Tracks and Trails Management Plan. Monitoring requirements are summarised in Table 7

**Table 7 – BFMP Subsidence Monitoring Program summary**

| Feature | Location | Monitoring Method | Parameter | Monitoring Frequency and Duration |
|---|---|---|---|---|
| **Heidelberg Materials Sand Quarry** | | **Crossline 700G** Feno marks | Vertical subsidence – subsidence performance in line with predictions | **Baseline** Prior to mining 701, 718-724<br><br>**Post Mining**<br>• Survey after completion of each sub-panel<br>• Survey minimum once yearly during sub-panel extraction<br>Monitoring cessation 3 years after sub-panel completion |
| | | **GNS Unit 700_03** | Vertical subsidence – subsidence performance in line with predictions | **Baseline** Prior to mining 701, 718-724<br><br>**Post Mining**<br>• Survey after completion of each sub-panel<br>• Survey minimum once yearly during sub-panel extraction<br>Monitoring cessation 3 years after sub-panel completion |

| Feature | Location | Monitoring Method | Parameter | Monitoring Frequency and Duration |
|---|---|---|---|---|
| | | **Visual Inspections** | Weekly during active subsidence of roads, powerline, pipeline<br><br>Presence of mine-induced damage:<br>• surface cracking within quarry areas<br>• deformation or instability of quarry highwalls<br>• impacts to quarry infrastructure<br><br>Risk to public safety | **Baseline**<br>Prior to mining 701, 718-724<br><br>**Post Mining**<br>• If triggered<br>• Monthly Centennial Geotechnical inspects during undermining of 701 Panel |
| **Endeavour Energy 66kV 811 Feeder** | NPWS and/or Crown Lands | **Crossline 700G**<br>Feno marks | Vertical subsidence – subsidence performance in line with predictions | **Baseline**<br>Prior to mining 701, 718-724<br><br>**Post Mining**<br>• Survey after completion of each sub-panel<br>• Survey minimum once yearly during sub-panel extraction<br>Monitoring cessation 3 years after sub-panel completion |
| | | **Visual Inspection of poles and powerline infrastructure** | Weekly during active subsidence of roads, powerline, pipeline<br><br>Presence of mine-induced damage:<br>• Pole tilt or ground movement<br>• Damage to powerline infrastructure | **Baseline**<br>Prior to mining 701, 718-724<br><br>**Post Mining**<br>• If triggered<br>• 3 months after mining a sub-panel<br>• Minimum once yearly for 3 years for each sub-panel<br>Monitoring cessation 3 years after sub-panel completion |
| **LCC Clarence Pipeline** | NPWS and/or Crown Lands | **Crossline 700G**<br>Feno marks | Vertical subsidence – subsidence performance in line with predictions | **Baseline**<br>Prior to mining 701, 718-724<br><br>**Post Mining**<br>• Survey after completion of each sub-panel<br>• Survey minimum once yearly during sub-panel extraction<br>Monitoring cessation 3 years after sub-panel completion |

| Feature | Location | Monitoring Method | Parameter | Monitoring Frequency and Duration |
|---|---|---|---|---|
| | | **Visual inspection of pipeline infrastructure** | Weekly during active subsidence of roads, powerline, pipeline<br><br>Presence of mine-induced damage:<br>• Ground deformation along pipeline corridor<br>• Leading from pipeline<br>• Exposure or damage to pipeline infrastructure | **Baseline**<br>Prior to mining 701, 718-724<br><br>**Post Mining**<br>• If triggered<br>• 3 months after mining a sub-panel<br>• Minimum once yearly for 3 years for each sub-panel<br>Monitoring cessation 3 years after sub-panel completion |
| **Farm Dams** | NPWS and/or Crown Lands | **Visual inspection of dam walls and water levels** | Weekly during active subsidence of roads, powerline, pipeline<br><br>Presence of mine-induced damage:<br>• surface cracking of dam walls<br>• leaking or loss of stored water<br>• deformation of dam structure | **Baseline**<br>Prior to mining 701, 718-724<br><br>**Post Mining**<br>• If triggered |
| **Unsealed roads, tracks and trails** | NPWS and/or Crown Lands | **Crossline 700G**<br>Feno marks | Vertical subsidence – subsidence performance in line with predictions | **Baseline**<br>Prior to mining 701, 718-724<br><br>**Post Mining**<br>• Survey after completion of each sub-panel<br>• Survey minimum once yearly during sub-panel extraction<br>Monitoring cessation 3 years after sub-panel completion |
| | | **Crossline 700H**<br>Feno marks | Vertical subsidence – subsidence performance in line with predictions | **Baseline**<br>Prior to mining 701, 718-724<br><br>**Post Mining**<br>• Survey after completion of each sub-panel<br>• Survey minimum once yearly during sub-panel extraction<br>Monitoring cessation 3 years after sub-panel completion |

| Feature | Location | Monitoring Method | Parameter | Monitoring Frequency and Duration |
|---|---|---|---|---|
| | | **Visual Inspection of surface tracks** | Weekly during active subsidence of roads, powerline, pipeline<br><br>Presence of mine-induced damage:<br>• surface cracking on tracks<br><br>Risk to public safety | **Baseline**<br>Prior to mining 701, 718-724<br><br>**Post Mining**<br>• If triggered<br>• 3 months after mining a sub-panel<br>• Minimum once yearly for 3 years for each sub-panel<br>Monitoring cessation 3 years after sub-panel completion |

# 11 Subsidence Remediation

Subsidence remediation is outlined in the Clarence Rehabilitation Management Plan. Clarence commits to mitigating, monitoring, repairing to pre-mining condition at full cost or equivalent unless the owner agrees otherwise or the damage is fully restored, repaired or compensated under the Coal Mine Subsidence Compensation Act 2017 features which are damaged by mining operations. The timely repair is also required from a public safety aspect. This is detailed further in the Rehabilitation Management Plan (Centennial, 2023). Clarence will consult with the landowner and arrange prompt temporary repairs to make access tracks safe, followed by timely permanent repairs to the appropriate NPWS standards.

Rehabilitation and remediation is outlined in the Clarence Rehabilitation Management Plan. Clarence commits to mitigating, monitoring, repairing to pre-mining condition at full cost or equivalent unless the owner agrees otherwise or the damage is fully restored, repaired or compensated under the Coal Mine Subsidence Compensation Act 2017; those features which are damaged by mining operations.

Even though there is no damage and no surface subsidence cracking predicted for 701, 718-724 Panels, as a contingency, subsidence remediation will be completed in timely manner in consultation with NPWS or Crown Lands. The erection of signage and appropriate barricading and repair of subsidence impacts (e.g. filling of subsidence cracks) is important from a public safety aspect.

Clarence will consult with the land owner and arrange prompt temporary repairs to make roads and access tracks safe, followed by timely permanent repairs to the appropriate standards.

# 12 Adaptive Management

In addition to the conservative narrow panel widths and wide spine and barrier pillar widths, which were specifically designed to provide reduced levels of subsidence and impact, Clarence has developed an adaptive management approach in accordance with Condition 2(g)(ix) of Development Consent DA504-00, which requires a "Contingency Plan that expressly provides for:

- adaptive management where monitoring indicates that there has been an exceedance of any impact assessment criteria in Table 1 or condition 5, or where any such exceedance appears likely;
- an assessment of remediation measures that may be required if exceedances occur and the capacity to implement those measures."

The Adaptive Management Strategy includes the following three steps:

1. Implementation of a detailed monitoring program to measure and record mining-induced ground movements and impacts on natural and built features during and after mining;
2. A review of relevant observations at appropriate stages, when:
    a. mining of each panel has progressed a sufficient distance such that the majority of mining-induced movements have occurred; and
    b. there remains sufficient time to adjust the mine plan for future panels without resulting in delays to mine production if required; and/or
    c. monitoring results exceed the TARPs (Appendix 2)
3. A decision on whether to adjust the mine plan for future panels to further reduce the potential for exceeding the conditions of approval of development consent DA504-00.

For clarity, changes to extraction lifts, void widths (and associated changes to barrier pillar widths) can be made prior to the extraction of each panel, if required.

The process for assessing and determining if a change to the mine plan is required during or after the mining of an approved panel is illustrated by the Adaptive Management Strategy ( Figure 3).

In relation to Criteria A, Clarence will engage a subsidence expert to review and assess subsidence monitoring data and conduct Assessment 1. If Assessment 2 is required, Clarence will engage a subsidence expert to recalibrate the subsidence modelling/predictions and determine whether a change to the mine plan is likely to be effective in reducing likelihood of exceeding Criteria A.

In its subsidence assessment, SCT (2026) advised that the current predicted geological structure mapping indicate that subsidence may be greater than predicted over the southern end of 724 Panel. The following adaptive management measures are proposed over the southern end of 724 Panel:

- Install GNSS units to monitor the development of subsidence above the southern ends of 701, 718-724 Panels;
- Inspect geological conditions during extraction of first workings (this is currently planned to occur during second workings extraction of 722 Panel);
- Review monitoring results from GNSS units above the southern ends of 701, 718 to 722 Panels, which have been placed at similar extraction heights as the area above the southern end of 724 Panel;
- Reassess potential for increased subsidence in light of mapped geological conditions in 724 Panel and observations of subsidence above the southern ends of 701, 718 to 722 Panels;
- If the reassessment finds that subsidence is likely to exceed the allowed limit of 100 mm, consider reduction in lifts or other changes to the mine plan to reduce the potential for subsidence above the southern end of 724 Panel.

The findings of the reviews will be included in an Adaptive Management Report, which will be submitted to DPHI for review. The Adaptive Management Report can be a standalone report or be included as part of an End of Panel Report

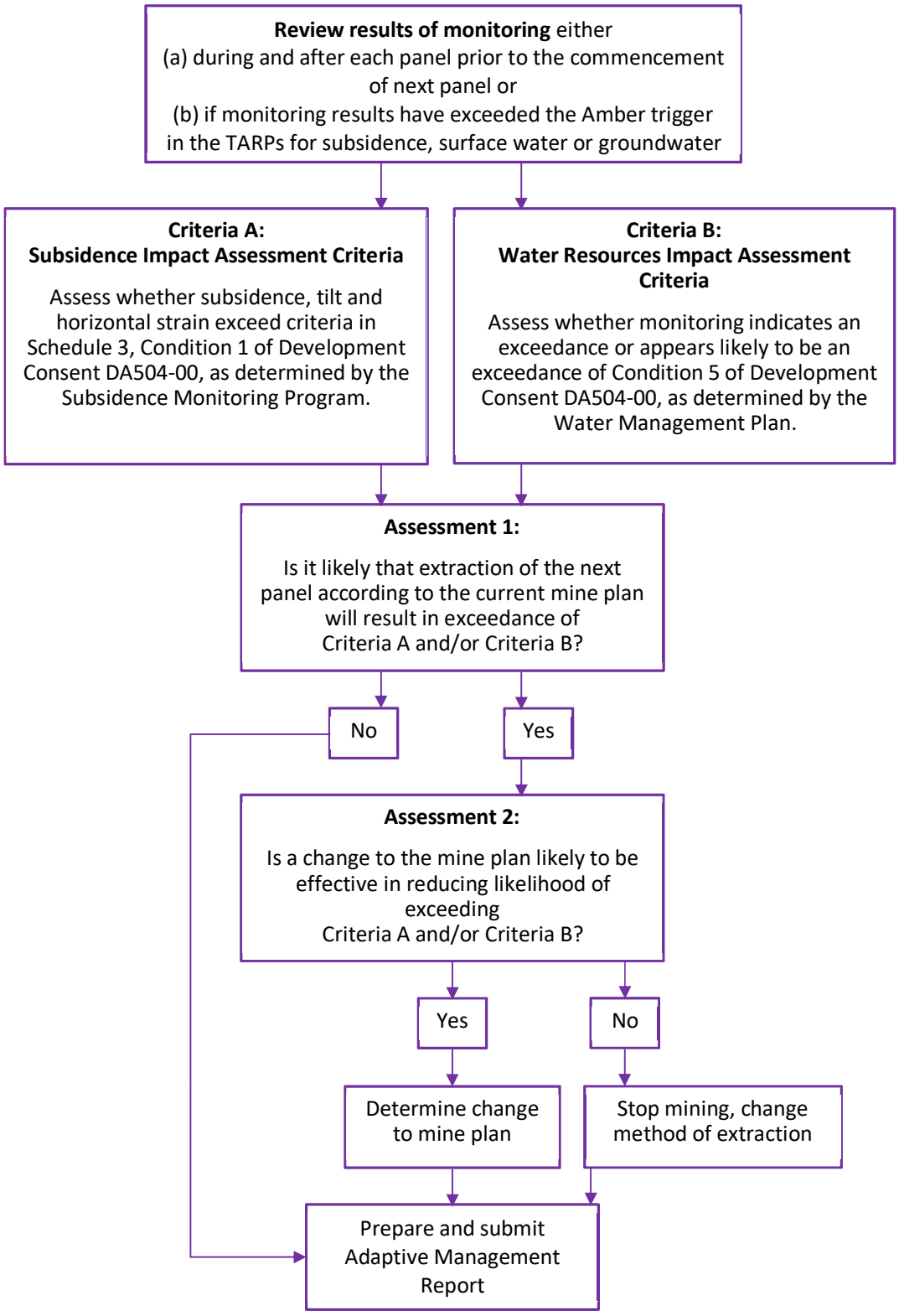


**Figure 3 -Staged Implementation and Adaptive Management Strategy decision flowchart**

# 13 Contingency Plans

Trigger Action Response Plans (TARPs) have been developed using performance indicators for built features. In the event that subsidence monitoring and or visual inspections identify that a performance indicator has been exceeded, Clarence Colliery will implement the contingency measures as detailed in the TARP for the specific built features (refer

# 14 Roles and Responsibilities

The responsibility for implementation, monitoring and review of the BFMP lies with the Environment and Community Coordinator. The roles and responsibilities for the BFMP are outline in **Table 8.**

**Table 8 – BFMP Roles and Responsibilities**

| Position | Responsibility |
|---|---|
| Manager of Mining Engineering | • Ensuring that sufficient resources are available to implement this plan<br>• Notifying the Resources Regulator in the event that there is Notifiable incident as per the WHS (Mines and Petroleum) legislation |
| Technical Services Manager (TSM) | • Co-ordinate underground inspections and pillar monitoring<br>• Monitor workings and report (where necessary) any excursions from the mine design dimensions<br>• Ensure that sufficient resources are available to implement this plan<br>• Ensure subsidence monitoring and inspections are conducted at the required schedule and persons conducting monitoring/inspections are trained in the requirements of this plan<br>• Review and assess the subsidence monitoring results against the performance measures<br>• Preparation and submission of formal reporting requirements outlined in this plan |
| Production Manager | • Monitor workings and correct (where necessary) any excursions from the mine design dimensions<br>• Panel audits<br>• Provide as mined second workings panel void distances to survey department |
| Environment and Community Coordinator (ECC) | Implementation, monitoring and review of this plan, including:<br>• Ensure that the Subsidence Monitoring Program, required inspections, mining notifications are scheduled into the Centennial Compliance Database prior to the commencement of each panel<br>• Review and assess subsidence monitoring results<br>• Consult with the landowners, infrastructure owners and relevant government departments<br>• Notify of any exceedance of performance indicators in accordance with the TARPs and management plan<br>• Coordinate any remedial work as required<br>• Carry out inspections required under this BFMP<br>• Review and audit of the BFMP |
| Mine Surveyor | • Update second workings record tracings of the mine plan and include the “as mined” panel void distances |

| | |
|---|---|
| | • Conduct compliance checks against the Extraction Plan approved mine design dimensions<br>• Establishment of subsidence monitoring in accordance with the Subsidence Monitoring Program<br>• Ensure all subsidence surveys are conducted in accordance with the approved Subsidence Monitoring Program<br>• Survey underground first and second workings<br>• Review and assess subsidence monitoring results<br>• Notify the ECC of any identified public safety issues<br>• Provide the monitoring results to the TSM and RR<br>• Removal of subsidence monitoring marks after monitoring has ceased<br>• When required, conduct inspections within the applicable subsidence zone to the standard required<br>• Promptly notify the ECC of any issue identified during a subsidence inspection or subsidence survey |

# 15 Reporting

Reporting will be completed in accordance with the Guidelines for the Preparation of Extraction Plans (NSW Department of Planning & Environment, 2022) and WHS (Mines and Petroleum Sites) Regulation requirements, as summarised in **Table 9**.

**Table 9 – Reporting Requirements**

| Report | Trigger | Requirements | Stakeholders |
|---|---|---|---|
| Incident Reporting | Subsidence related incident in accordance with consent condition, WHS Regulations or TARP | In accordance with requirements of:<br>• Development Consent Schedule 5 Condition 5A; or<br>• WHS (Mines and Petroleum Sites) Regulation Part 7, section 124; or<br>• TARP | RR – Subsidence Engineer<br>DPHI<br>Geotechnical Engineer<br>NPWS<br>Crown Lands<br>Relevant asset owner (if applicable) |
| Annual Review | Annual Review required under development consent DA504-00 | Report to include:<br>• reports of impacts and environmental monitoring results;<br>• monitoring results, predicted versus actual; and<br>• summary of subsidence impacts | RR<br>DPHI<br>Crown Lands<br>LCC<br>NPWS |

| Report | Trigger | Requirements | Stakeholders |
|---|---|---|---|
| Subsidence Management Status Report | 4 Monthly | Present a summary of the relevant subsidence and environmental monitoring for the relevant panel<br>Provide a preliminary characterisation of any impact exceedances in accordance with the relevant TARP(s) and/or performance measures.<br>Distinguish impact:<br>• subsidence and environmental monitoring within or exceeding predictions;<br>• those which exceed predictions but remain within performance measures and/or performance indicators; and<br>• those which exceed performance measures and/or performance indicators.<br>Report to include:<br>• monitoring data analysis;<br>• full description of any subsidence impacts that exceed predictions and/or performance measures;<br>• location identification of unpredicted impacts using aerial photos with mine layout superimposed;<br>• photos of the impact that exceeded predictions; and<br>• mine design recommendations | DPHI<br>RR<br>NPWS<br>Crown Lands |
| Mining Notifications | One month prior to mining beneath property or built feature | Scheduled date that the property or built feature will be affected by subsidence. | NPWS<br>Crown Lands<br>Relevant asset owner where appropriate |

# 16 Audit and Review

Audit and review procedures are outlined in Clarence Colliery Safety Management System that comply with the NSW Work Health and Safety (Mines and Petroleum Sites) Regulations. These procedures are utilised to manage audit and review functions of the BFMP.

## 16.1 Audit

The requirements of the BFMP are to be audited periodically for compliance and effectiveness during the extraction of 701, 718-724 Panels.

Any non-conformances or deficiencies found during the audit are to be brought to the attention of the TSM so that corrective actions can be outlined. These corrective actions are to be allocated and carried out accordance with the Corrective Action Procedure.

## 16.2 Review

The BFMP will be reviewed in the event that one of the following occurs:

- Stakeholders raise issues that necessitates a review;
- Where unpredicted impacts or consequences have required implementation of contingency actions under this plan;
- Monitoring, incident or audit processes demonstrate a review is required;
- Where triggered by a level 3 – high (red) TARP; and
- Where triggered by circumstances under the WHS (Mines and Petroleum Sites) regulation or other regulations

# 17 Document Control

An integrated Document Control Procedure is incorporated into Centennial Centennial's Safety Management System. Documents, data and records pertaining to this plan will be managed according to the appropriate procedure.

# 18 References


Centennial (2025) *Clarence Rehabilitation Management Plan*

Centennial (2026) *Clarence 701, 718-724 Panels Public Safety Management Plan*

Centennial (2026) *Clarence 701, 718-724 Panels Subsidence Monitoring Program*

NSW Department of Industry - Resources Regulator. (2017). *Managing Risk of Subsidence, Guide: WHS(Mines and Petroleum Sites) Legislation.*

NSW Department of Planning & Environment. (2022). *Extraction Plan Guideline.*

Spatial Services - Department of Customer Service. (2020). *Surveyor-General's Direction No.11 – Preservation of Survey Infrastructure.*

# Appendix 1 – Consultation

| Summary of Consultation | | | |
|---|---|---|---|
| *Stakeholder* | *Comments Requested (and date)* | *Comments Received (and date)* | *Comments / Issues Raised* |
| *Heidelberg Materials* | *16/6/2025*<br>*24/7/25*<br>*28/1/2026*<br>*4/2/2026*<br>*25/2/2026*<br>*9/3/2026* | | *Geotechnical site visit/project presentations*<br>*Provision of August LiDAR data/aerial photo*<br>*Subsidence predictions presentation*<br>*Provision of Clarence mine workings*<br>*Provision of seam data*<br>*HM granted access to install GNSS unit, unit installed*<br>*Draft Built Features MP provided for comment* |
| *Endeavour Energy* | *9/4/2025*<br>*15/5/2025*<br>*2/6/2025*<br>*27/1/2026*<br>*9/3/2026* | | *Project introduction meeting and emails*<br>*EE Provided infrastructure data*<br>*Draft Built Features MP provided for comment* |
| *Telstra* | *19/5/2025*<br>*5/3/2026*<br>*9/3/2026* | | *Project introduction*<br>*Request*<br>*for contacts from Telstra*<br>*Draft Built Features MP provided for comment* |
| *Crown Lands* | *11/8/2025*<br>*14/10/2025*<br>*6/11/2025*<br>*9/3/2026* | | *Project introduction*<br>*701, 718-724 Panels EP Project introduction Letter Draft Built Features MP provided for comment*<br>*s81 consent - Permit provided to install GW monitoring and land access*<br>*Provision of project GIS data*<br>*Draft Built Features MP provided for comment* |

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|---|---|---|---|
| *DPHI* | *26/6/2025*<br>*22/8/2025*<br>*25/02/2026*<br>*9/3/2026* | | *Project Inception Meeting*<br>*Endorsement Letter 1*<br>*Endorsement Letter 2*<br>*Draft Built Features MP provided for comment* |
| *RR* | *14/10/2025*<br>*9/3/2026* | | *701, 718-724 Panels EP Project introduction Letter*<br>*Draft Built Features MP provided for comment* |
| *LCC* | *12/12/23*<br>*17/1/24*<br>*14/10/2025*<br>*9/3/2026* | | *Project introduction and Clarence Pipeline data transfer*<br>*701, 718-724 Panels EP Project introduction Letter*<br>*Draft Built Features MP provided for comment* |
| *NPWS* | *14/10/2025*<br>*9/3/2026* | | *701, 718-724 Panels EP Project introduction Letter*<br>*Draft Built Features MP provided for comment* |

# Appendix 2 – Trigger Action Response Plan

| Aspect | Performance Commitments | **Condition Green**<br>**(Operations within Predictions & Approved Impacts)** | **Condition Amber**<br>**(Operations within Approved Impact Performance Measures but potentially exceeding predictions/designs)** | **Condition Red**<br>**(Operations Exceed Approved Impact Performance Measures)** |
|---|---|---|---|---|
| | | ***Continue Operations/Monitoring as Normal*** | ***Review Processes & Adaptive Management as Required*** | ***Adaptive Management Process Fully Engaged*** |
| **Heidelberg Materials – Clarence Quarry (Sand)** | Always safe and serviceable<br>Damage must be fully repairable and must be fully repaired or else replaced or fully compensated.<br>Negligible impacts to quarry infrastructure | **ACTIONS AND RESPONSES**:<br>• Surface walkover inspections of quarry do not identify any underground mining-induced impacts.<br>• Underground mining controls and monitoring indicate all parameters are within design criteria and Green trigger levels.<br>• Condition Green for ground movements and effects. | **TRIGGERS**:<br>• Surface walkover inspections identify mining-induced impacts that can be repaired;.<br>• Heidelberg Materials notify Clarence of potential mining-induced impacts;<br>• Condition Amber for ground movements and effects is triggered. | **TRIGGERS**:<br>• Any impact that would have been an incident if a person were present.<br>• A hazard has been identified that involves potential serious injury or illness to a person or persons on Quarry property and cannot be controlled |
| | | **ACTIONS & RESPONSES**:<br>• No response required when above parameters are met.<br>• Continue Subsidence Monitoring Program | **ACTIONS & RESPONSES**:<br>• Undertake applicable surface inspection of quarry infrastructure.<br>• Notify and liaise with Heidelberg Materials<br>• Review available data and undertake targeted surface and geotechnical investigations.<br>• Confirm whether any observed impacts are mining-induced.<br>• If no mining-induced impacts observed, continue Subsidence Monitoring Program.<br>• If mining-induced impacts observed, repair impacts in | **ACTIONS & RESPONSES**:<br>Clarence and Heidelberg Materials meet to decide whether any additional management measures are required, including:<br>• Suspend work activities within the hazardous area<br>• Demarcate workplace to restrict people from entering or working in hazardous area<br>• Emergency evacuation of workplace<br>Notify the Department and any other relevant agencies immediately upon becoming aware of an incident, in accordance with DA504-00 Condition 5A (Incident Notification), via the Department's Major Projects Website. |

| Aspect | Performance Commitments | **Condition Green**<br>**(Operations within Predictions & Approved Impacts)** | **Condition Amber**<br>**(Operations within Approved Impact Performance Measures but potentially exceeding predictions/designs)** | **Condition Red**<br>**(Operations Exceed Approved Impact Performance Measures)** |
|---|---|---|---|---|
| | | ***Continue Operations/Monitoring as Normal*** | ***Review Processes & Adaptive Management as Required*** | ***Adaptive Management Process Fully Engaged*** |
| | | | consultation with Heidelberg Materials.<br>• In consultation with Heidelberg Materials, review and assess monitoring and inspections and consider whether any additional management measures are required, including:<br>  ○ Additional surveys of ground marks around Quarry;<br>  ○ Increase frequency of surveys, inspections and reporting;<br>  ○ Periodically repair quarry as required<br>  ○ Assess public and workplace safety risk and implement immediate controls if required<br>  ○ Temporarily demarcate area(s) within Quarry where mining-induced impacts may result in potential safety hazards<br>• Notify relevant regulator where applicable.<br>• Implement adaptive management measures.<br>• Investigate and implement suitable remediation in consultation with stakeholder as per DA504-00 Schedule 2 Condition 10 | |

| Aspect | Performance Commitments | **Condition Green**<br>**(Operations within Predictions & Approved Impacts)** | **Condition Amber**<br>**(Operations within Approved Impact Performance Measures but potentially exceeding predictions/designs)** | **Condition Red**<br>**(Operations Exceed Approved Impact Performance Measures)** |
|---|---|---|---|---|
| | | ***Continue Operations/Monitoring as Normal*** | ***Review Processes & Adaptive Management as Required*** | ***Adaptive Management Process Fully Engaged*** |
| **Endeavour Energy 811 Feeder 66kV powerlines and power poles** | Negligible impacts to powerline infrastructure | **TRIGGERS**:<br>• Surface inspections of poles and easement do not identify mining-induced impacts.<br>• Underground mining controls and monitoring indicate all parameters remain within Green trigger levels.<br>• Subsidence monitoring confirms impacts remain within approved performance measures, being vertical subsidence ≤80 mm,<br>tilt ≤2.4 mm/m and<br>strain ≤1.6 mm/m) | **TRIGGERS**:<br>• No surface impacts observed; however, underground or subsidence monitoring systems trigger investigation.<br>• Condition Amber for ground movements and effects is triggered.<br>• Subsidence monitoring confirms impacts remain within approved performance measures, being vertical subsidence 80 to 100 mm,<br>tilt >2.4 to 3.0 mm/m and<br>strain >1.6 to 2.0 mm/m | **TRIGGERS**:<br>• Surface inspections identify mining-induced cracking, deformation or instability affecting poles, foundations or clearances.<br>• Any impact that would constitute a notifiable incident.<br>• Subsidence monitoring confirms impacts remain within approved performance measures, being vertical subsidence >100mm<br>tilt >3.0mm/m<br>strain >2.0mm/m |
| | | **ACTIONS & RESPONSES**:<br>• No response required when above parameters are met.<br>• Continue Subsidence Monitoring Program | **ACTIONS & RESPONSES**:<br>• Undertake targeted inspection of power line infrastructure.<br>• Notify and liaise with Endeavor Energy.<br>• If no impacts observed, continue Subsidence Monitoring Program.<br>• Review subsidence predictions and mine design.<br>If impact observed, refer to Condition Red responses. | **ACTIONS & RESPONSES**:<br>• Review available data and undertake targeted investigations.<br>• Confirm whether impacts are mining-induced.<br>• Assess immediate safety risks and implement controls.<br>• Notify Endeavour Energy and relevant regulators.<br>• Implement adaptive management measures.<br>• Investigate and implement remediation in consultation with stakeholders. |

| Aspect | Performance Commitments | **Condition Green**<br>**(Operations within Predictions & Approved Impacts)** | **Condition Amber**<br>**(Operations within Approved Impact Performance Measures but potentially exceeding predictions/designs)** | **Condition Red**<br>**(Operations Exceed Approved Impact Performance Measures)** |
|---|---|---|---|---|
| | | ***Continue Operations/Monitoring as Normal*** | ***Review Processes & Adaptive Management as Required*** | ***Adaptive Management Process Fully Engaged*** |
| **Clarence to Lithgow No 2 Dam Pipeline infrastructure** | Negligible impacts to pipeline | **TRIGGERS**:<br>• Surface inspections of the pipeline corridor do not identify mining-induced impacts.<br>• Monitoring remains within Green trigger levels<br>• Subsidence monitoring confirms impacts remain within approved performance measures, being vertical subsidence ≤80 mm, tilt ≤2.4 mm/m and strain ≤1.6 mm/m) | **TRIGGERS**:<br>• No surface impacts identified; however, underground or subsidence monitoring systems trigger investigation.<br>• Condition Amber for ground movements and effects is triggered.<br>• Subsidence monitoring confirms impacts remain within approved performance measures, being vertical subsidence 80 to 100 mm, tilt >2.4 to 3.0 mm/m and strain >1.6 to 2.0 mm/m | **TRIGGERS**:<br>• Surface inspections identify mining-induced cracking, deformation or instability affecting the pipeline<br>• Any impact that would have been a dangerous incident if a person were present.<br>• Subsidence monitoring confirms impacts remain within approved performance measures, being vertical subsidence >100mm tilt >3.0mm/m strain >2.0mm/m |
| | | **ACTIONS & RESPONSES**:<br>• No response required when above parameters are met.<br>• Continue Subsidence Monitoring Program. | **ACTIONS & RESPONSES**:<br>• Undertake targeted surface inspection of pipeline alignment.<br>• Notify and liaise with the relevant asset owner<br>• If no impacts observed, continue Subsidence Monitoring Program.<br>• Review subsidence predictions and mine design.<br>If impact observed, refer to Condition Red responses. | **ACTIONS & RESPONSES**:<br>• Review available data and undertake targeted investigations.<br>• Confirm whether impacts are mining-induced.<br>• Assess safety and service risks and implement immediate controls if required.<br>• Notify asset owner and relevant regulators.<br>• Implement adaptive management measures.<br>• Investigate and implement remediation in consultation with stakeholder Investigate and implement suitable remediation in |

| Aspect | Performance Commitments | Condition Green<br>(Operations within Predictions & Approved Impacts) | Condition Amber<br>(Operations within Approved Impact Performance Measures but potentially exceeding predictions/designs) | Condition Red<br>(Operations Exceed Approved Impact Performance Measures) |
|---|---|---|---|---|
| | | ***Continue Operations/Monitoring as Normal*** | ***Review Processes & Adaptive Management as Required*** | ***Adaptive Management Process Fully Engaged*** |
| | | | | consultation with stakeholder as per DA504-00 Schedule 2 Condition 10. |
| **Telstra Network infrastructure** | Negligible impacts to Telstra infrastructure | **TRIGGERS**:<br>• Surface inspections of pits, conduits and infrastructure do not identify mining-induced impacts.<br>• Monitoring remains within Green trigger levels.<br>• Subsidence monitoring confirms impacts remain within approved performance measures, being vertical subsidence ≤80 mm, tilt ≤2.4 mm/m and strain ≤1.6 mm/m) | **TRIGGERS**:<br>• No surface impacts identified; however, underground or subsidence monitoring systems trigger investigation.<br>• Condition Amber for ground movements and effects is triggered.<br>• Subsidence monitoring confirms impacts remain within approved performance measures, being vertical subsidence 80 to 100 mm, tilt >2.4 to 3.0 mm/m and strain >1.6 to 2.0 mm/m | **TRIGGERS**:<br>• Surface inspections identify mining-induced cracking, deformation or damage to telecommunications infrastructure.<br>• Any impact resulting in loss of service or unsafe conditions.<br>• Subsidence monitoring confirms impacts remain within approved performance measures, being vertical subsidence >100mm tilt >3.0mm/m strain >2.0mm/m |
| | | **ACTIONS & RESPONSES**:<br>• No response required when above parameters are met.<br>• Continue Subsidence Monitoring Program | **ACTIONS & RESPONSES**:<br>• Undertake targeted inspection of Telstra infrastructure.<br>• Notify and liaise with Telstra<br>• If no impacts observed, continue Subsidence Monitoring Program.<br>• Review subsidence predictions and mine design.<br>If impact observed, refer to Condition Red responses. | **ACTIONS & RESPONSES**:<br>• Review available data and undertake targeted investigations.<br>• Confirm whether impacts are mining-induced.<br>• Implement immediate controls where required.<br>• Notify Telstra and relevant regulators.<br>• Implement adaptive management measures. |

| Aspect | Performance Commitments | **Condition Green**<br>**(Operations within Predictions & Approved Impacts)** | **Condition Amber**<br>**(Operations within Approved Impact Performance Measures but potentially exceeding predictions/designs)** | **Condition Red**<br>**(Operations Exceed Approved Impact Performance Measures)** |
|---|---|---|---|---|
| | | ***Continue Operations/Monitoring as Normal*** | ***Review Processes & Adaptive Management as Required*** | ***Adaptive Management Process Fully Engaged*** |
| | | | | • Investigate and implement remediation in consultation with stakeholders. |
| **Farm Dams** | Negligible impacts to dam and associated infrastructure | **TRIGGERS**:<br>• Surface inspections do not identify cracking, deformation or leakage attributable to mining.<br>• Monitoring remains within Green trigger levels.<br>• Subsidence monitoring confirms impacts remain within approved performance measures, being vertical subsidence ≤80 mm,<br>tilt ≤2.4 mm/m and<br>strain ≤1.6 mm/m) | **TRIGGERS**:<br>• No surface impacts identified; however, underground or subsidence monitoring systems trigger investigation.<br>• Condition Amber for ground movements and effects is triggered.<br>• Subsidence monitoring confirms impacts remain within approved performance measures, being vertical subsidence 80 to 100 mm,<br>tilt >2.4 to 3.0 mm/m and<br>strain >1.6 to 2.0 mm/m | **TRIGGERS**:<br>• Surface inspections identify mining-induced cracking, leakage, deformation or instability.<br>• Any impact posing a safety or environmental risk.<br>• Subsidence monitoring confirms impacts remain within approved performance measures, being vertical subsidence >100mm<br>tilt >3.0mm/m<br>strain >2.0mm/m |
| | | **ACTIONS & RESPONSES**:<br>• No response required when above parameters are met.<br>• Continue Subsidence Monitoring Program | **ACTIONS & RESPONSES**:<br>• Undertake targeted inspection of dam structures.<br>• Notify and liaise with Lithgow City Council (LCC) and National Parks and Wildlife Services (NPWS)<br>• If no impacts observed, continue Subsidence Monitoring Program. | **ACTIONS & RESPONSES**:<br>• Review available data and undertake targeted investigations.<br>• Confirm whether impacts are mining-induced.<br>• Assess safety risks and implement immediate controls.<br>• Notify landholder and relevant regulators. |

| Aspect | Performance Commitments | **Condition Green**<br>**(Operations within Predictions & Approved Impacts)** | **Condition Amber**<br>**(Operations within Approved Impact Performance Measures but potentially exceeding predictions/designs)** | **Condition Red**<br>**(Operations Exceed Approved Impact Performance Measures)** |
|---|---|---|---|---|
| | | ***Continue Operations/Monitoring as Normal*** | ***Review Processes & Adaptive Management as Required*** | ***Adaptive Management Process Fully Engaged*** |
| | | | • Review subsidence predictions and mine design.<br>If impact observed, refer to Condition Red responses. | • Implement adaptive management measures.<br>• Investigate and implement remediation in consultation with stakeholders. |
| **Roads, Tracks and Trails**<br>(roads, tracks and tracks and motorbike, mountain bike and walking trails) | Negligible impacts to roads, tracks and trails | TRIGGERS:<br>• Surface walkover inspections of the roads, tracks and trails remains compliant within condition green triggers for ground movements and effects, and does not identify any mining induced impacts, such as:<br>• Visible cracking/fracturing<br>• Underground Mining Controls and Monitoring indicates all parameters are within design criteria / Level Green trigger levels<br>• Subsidence monitoring confirms impacts remain within approved performance measures, being vertical subsidence ≤80 mm, tilt ≤2.4 mm/m and strain ≤1.6 mm/m) | TRIGGERS:<br>• Surface walkover inspections of roads, tracks and tracks does not identify any mining induced impacts (refer examples in Condition Green); however, underground monitoring or subsidence monitoring systems trigger further investigation/surface inspection and/or<br>• NPWS, Lithgow City Council, Clarence Sands Quarry notify Clarence of potential mining-induced impacts Condition Amber for ground movements and effects is triggered (refer earlier above)<br>• Subsidence monitoring confirms impacts remain within approved performance measures, being vertical subsidence 80 to 100 mm,<br>• tilt >2.4 to 3.0 mm/m and<br>• strain >1.6 to 2.0 mm/m | **TRIGGERS**:<br>• Surface walkover inspections of roads, tracks and tracks and trails identifies the development of mining induced surface cracking/fracturing or deformation<br>• Mining-induced changes in grade, heaving or buckling, increased ponding or other significant damage to roads, tracks and tracks and trails are observed during monitoring<br>• Any of the following events occurs that would have been a dangerous incident if a person were reasonably in the vicinity at the time when the event occurred (High Potential Incidents as per Cl 128(5a) of the WHSMP Regulations 2014):<br>○ *a failure of ground, or of slope stability control measures*<br>○ *rock falls, instability of cliffs, steep slopes or natural dams, occurrence* |

| Aspect | Performance Commitments | **Condition Green**<br>**(Operations within Predictions & Approved Impacts)** | **Condition Amber**<br>**(Operations within Approved Impact Performance Measures but potentially exceeding predictions/designs)** | **Condition Red**<br>**(Operations Exceed Approved Impact Performance Measures)** |
|---|---|---|---|---|
| | | ***Continue Operations/Monitoring as Normal*** | ***Review Processes & Adaptive Management as Required*** | ***Adaptive Management Process Fully Engaged*** |
| | | | | *of sinkholes, development of surface cracking or deformations due to subsidence.*<br>• Subsidence monitoring confirms impacts remain within approved performance measures, being vertical subsidence >100mm<br>tilt >3.0mm/m<br>strain >2.0mm/m |
| | | **ACTIONS & RESPONSES**:<br>• No response required when above parameters are met.<br>• Continue Subsidence Monitoring Program | **ACTIONS & RESPONSES**:<br>• Clarence Environment and Community Coordinator (or delegate) to undertake targeted surface inspection of accessible access tracks and trails in relevant area to confirm if any impact at surface<br>• Notify and liaise with NPWS or Crown Lands<br>• If no impacts observed, continue Subsidence Monitoring Program<br>• Calibrate subsidence model and review mine design<br>If impact observed, refer Condition Red responses. | **ACTIONS & RESPONSES**:<br>Review available data or undertake targeted surface investigations to confirm if the impact is mining-induced or related to natural surface movements or activation of a natural feature:<br>• If confirmed related to natural surface movements or activation of a natural feature, continue Subsidence Monitoring Program<br>• If confirmed mining induced impacts, Clarence will:<br>○ Notify and consult with relevant stakeholders as per requirements specified within the Extraction Plan/SMP/PSMP, Development Consent and related approvals<br>○ Assess public safety risk. Consider erecting warning signs/warning tape |

| Aspect | Performance Commitments | **Condition Green**<br>**(Operations within Predictions & Approved Impacts)** | **Condition Amber**<br>**(Operations within Approved Impact Performance Measures but potentially exceeding predictions/designs)** | **Condition Red**<br>**(Operations Exceed Approved Impact Performance Measures)** |
|---|---|---|---|---|
| | | ***Continue Operations/Monitoring as Normal*** | ***Review Processes & Adaptive Management as Required*** | ***Adaptive Management Process Fully Engaged*** |
| | | | | or restricting access in immediate area<br>○ Notify Resource Regulator under relevant WHS laws (i.e. for high potential incidents)<br>○ Take all reasonable and feasible steps to ensure that the exceedance ceases and does not recur<br>○ Implement **Adaptive Management** process as described within the Extraction Plan<br>○ Cease secondary extraction in that area if appropriate (with direction from PIS[1] and DPE)<br>Investigate remedial options in consultation with relevant stakeholders (incl. NPWS and DPE). Implement suitable remedial option once agreed |

# Appendix 3 – Work Health and Safety Legislation

| WHS Legislation and Clause | Section Requirement | Section Addressed |
|---|---|---|
| WHS Regulation 2017<br>Clause 34 | **Duty to identify hazards**<br>A duty holder, in managing risks to health and safety, must identify reasonably foreseeable hazards that could give rise to risks to health and safety. | **Section 5** |
| WHS Regulation 2017<br>Clause 35 | **Managing risks to health and safety**<br>A duty holder, in managing risks to health and safety, must:<br>(a) eliminate risks to health and safety so far as is reasonably practicable, and<br>(b) if it is not reasonably practicable to eliminate risks to health and safety, minimise those risks so far as is reasonably practicable. | **Section 6.1**<br><br>The panel layout is the key design element in respect of reducing risks from subsidence. The proposed mine design will result in subsidence levels no greater than 100mm |
| WHS Regulation 2017<br>Clause 38 | **Review of control measures**<br>(1) A duty holder must review and as necessary revise control measures implemented under this Regulation so as to maintain, so far as is reasonably practicable, a work environment that is without risks to health or safety.<br>(2) Without limiting subclause (1), the duty holder must review and as necessary revise a control measure in the following circumstances:<br>(a) the control measure does not control the risk it was implemented to control so far as is reasonably practicable,<br>(b) before a change at the workplace that is likely to give rise to a new or different risk to health or safety that the measure may not effectively control,<br>(c) a new relevant hazard or risk is identified,<br>(d) the results of consultation by the duty holder under the Act or this Regulation indicate that a review is necessary,<br>(e) a health and safety representative requests a review under subclause (4).<br>(3) Without limiting subclause (2) (b), a change at the workplace includes:<br>(a) a change to the workplace itself or any aspect of the work environment, or<br>(b) a change to a system of work, a process or a procedure.<br>(4) A health and safety representative for workers at a workplace may request a review of a control measure if the representative reasonably believes that:<br>(a) a circumstance referred to in subclause (2) (a), (b), (c) or (d)<br>affects or may affect the health and safety of a member of the work group represented by the health and safety representative, and | **Section 10**<br>**Section 13** |

| WHS Legislation and Clause | Section Requirement | Section Addressed |
|---|---|---|
| | (b) the duty holder has not adequately reviewed the control measure in response to the circumstance. | |
| WHS Regulation (Mines and Petroleum Sites) 2022<br>Management of Risks to Health and Safety | **Management of risks to health and safety** (Part 3, Division 1, Subdivision 1, Section 14)<br>(1) A person conducting a business or undertaking at a mine or petroleum site must manage risks to health and safety associated with mining operations or petroleum operations at the mine or petroleum site in accordance with the WHS Regulations, Part 3.1 .<br>(2) A person conducting a business or undertaking at a mine or petroleum site must ensure that a risk assessment is conducted in accordance with this section by a person who is competent to conduct the risk assessment having regard to the nature of the hazard.<br>(3) In conducting a risk assessment, the person must have regard to:<br>(a) the nature of the hazard, and<br>(b) the likelihood of the hazard affecting the health or safety of a person, and<br>(c) the severity of the potential health and safety consequences.<br>(4) Subsection (3) does not limit the operation of another requirement to conduct a risk assessment under this Regulation.<br>(5) A person conducting a business or undertaking at a mine or petroleum site who is the operator of the mine or the petroleum site or who is a contractor must keep a record of the following:<br>(a) each risk assessment conducted under this section and the name and competency of the person who conducted the risk assessment,<br>(b) the control measures implemented to eliminate or minimise any risk that was identified by the risk assessment.<br>(6) A person conducting a business or undertaking at a mine or a petroleum site is not required to keep a record of a risk assessment if:<br>(a) the risk assessment is required to be carried out by an individual before the worker commences a tasks that forms part of an activity, and<br>(b) the person keeps a record of risk assessments that addresses the overall activity being undertaken, of which the task forms a part.<br>(7) A record kept under subclause (5) by an operator of a mine or petroleum site forms part of:<br>(a) the safety management system of the mine or petroleum site, and<br>(b) the records of the mine or petroleum site.<br>(8) A record, kept under subsection (5) by a contractor who has prepared a contractor health | **Section 6.1**<br><br>The panel layout is the key design element in respect of reducing risks from subsidence. The proposed mine design will result in subsidence levels no greater than 100mm<br>Appendix 4 of the Extraction Plan Main report |

| WHS Legislation and Clause | Section Requirement | Section Addressed |
|---|---|---|
| | and safety management plan, forms a part of the plan. | |
| WHS Regulation (Mines and Petroleum Sites) 2022 Part 3, Division 2, section 27<br><br>Identification of principal hazards and conduct of risk assessments | (1) The operator of a mine or petroleum site must identify all principal mining hazards associated with mining operations or petroleum operations at the mine or petroleum site.<br>(2) The operator must conduct, in relation to each principal mining hazard identified, a risk assessment that involves a comprehensive and systematic investigation and analysis of all aspects of risk to health and safety associated with the principal hazard.<br>(3) The operator, in conducting a risk assessment under subclause (2), must:<br>(a) use investigation and analysis methods that are appropriate to the principal hazard being considered, and<br>(b) consider the principal hazard individually and also cumulatively with other hazards at the mine or petroleum site. | Centennial Risk Management System – consistent with AS/NZS ISO 31000:2009<br><br>Appendix 4 of the Extraction Plan Main report |
| WHS Regulation (Mines and Petroleum Sites) 2022 Part 7, section 124<br><br>Duty to notify regulator of certain incidents<br><br>S190 – dangerous incidents | (1) The operator of a mine or petroleum site must take all reasonable steps to ensure that the regulator is notified in accordance with this section after becoming aware of an incident (other than a notifiable incident) arising out of the carrying out of mining operations or petroleum operations at the mine or petroleum site, but only if the incident:<br>(a) results in illness or injury that requires medical treatment within the meaning of schedule 9 of section 12, or<br>(b) is a high potential incident.<br><br>(1) In this section:<br>*high potential incident* means any of the following:<br>(m) any indication from monitoring data of the development of subsidence which may result in damage to plant or structures or a failure of ground<br><br>For the WHS (MPS) Act, section 14(c), an incident in relation to a workplace that exposes a worker or other person to a serious risk to a person's health or safety emanating from an immediate or imminent exposure to one or more of following is a dangerous incident:<br>190(1)(p) - a failure of ground, or of slope stability control measures, or<br>190(1)(q) - rock falls, instability of cliffs, steep slopes or natural dams, occurrence of sinkholes, development of surface cracking or deformations or release of gas at the surface, due to subsidence. | **Section 14** |