

WAMBO COAL PTY LIMITED



SOUTH BATES EXTENSION UNDERGROUND MINE

EXTRACTION PLAN LONGWALLS 17 TO 20

APPENDIX E BUILT FEATURES MANAGEMENT PLAN

Peabody

WAMBO COAL PTY LIMITED
SOUTH BATES EXTENSION UNDERGROUND MINE

BUILT FEATURES MANAGEMENT PLAN
LONGWALLS 17 - 20



PREPARED BY
WAMBO COAL PTY LIMITED AND
RESOURCE STRATEGIES PTY LTD

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RELEVANT STAKEHOLDERS

This Built Features Management Plan provides a summary of the management plan prepared for assets relevant to Wambo Coal Pty Limited. Wambo Coal Pty Limited is the only relevant stakeholder as there are no built features owned or operated by other parties.

DOCUMENT CONTROL

| | |
|----------------------------|--|
| Document No. | BFMP LW17-20 |
| Title | Built Features Management Plan for South Bates Extension Underground Mine Longwalls 17 to 20 |
| General Description | Management of potential subsidence impacts and/or environmental consequences on all public infrastructure and all classes of other built features for mining of Longwalls 17 to 20 at the South Bates Extension Underground Mine |

Revisions

| Rev No | Date | Description | By | Checked |
|--------|------------|----------------------|------------------------------|-----------|
| A | April 2018 | Final for Submission | WCPL and Resource Strategies | P. Jaeger |

| | |
|--|----------------------------|
| The nominated Coordinator for this document is | Technical Services Manager |
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1 INTRODUCTION

The Wambo Coal Mine is an open cut and underground coal mining operation located approximately 15 kilometres (km) west of Singleton, near the village of Warkworth, New South Wales (NSW). The Wambo Coal Mine is owned and operated by Wambo Coal Pty Limited (WCPL), a subsidiary of Peabody Energy Australia Pty Limited.

The South Bates Extension Underground Mine is a component of the approved Wambo Coal Mine. The South Bates Extension Underground Mine is scheduled to commence in Longwall 17 in September 2018 and involves extraction of coal by longwall mining methods from the Whybrow Seam within Coal Lease (CL) 397, Mining Lease (ML) 1594 and ML 1572 (**Figure 1**).

The potential environmental impacts of the existing Wambo Coal Mine were assessed in the *Wambo Development Project Environmental Impact Statement* (the Wambo Development Project EIS) (WCPL, 2003). Development Consent DA 305-7-2003 for the Wambo Coal Mine was granted on 4 February 2004 by the then NSW Minister for Urban Affairs and Planning under Part 4 of the NSW *Environmental Planning and Assessment Act, 1979*.

An application to modify the Development Consent (DA 305-7-2003 MOD 17) to allow the development of the South Bates Extension Underground Mine (Longwalls 17 to 25) in the Whybrow Seam was approved in December 2017. The application was accompanied by the *South Bates Extension Modification Environmental Assessment* (WCPL, 2017).

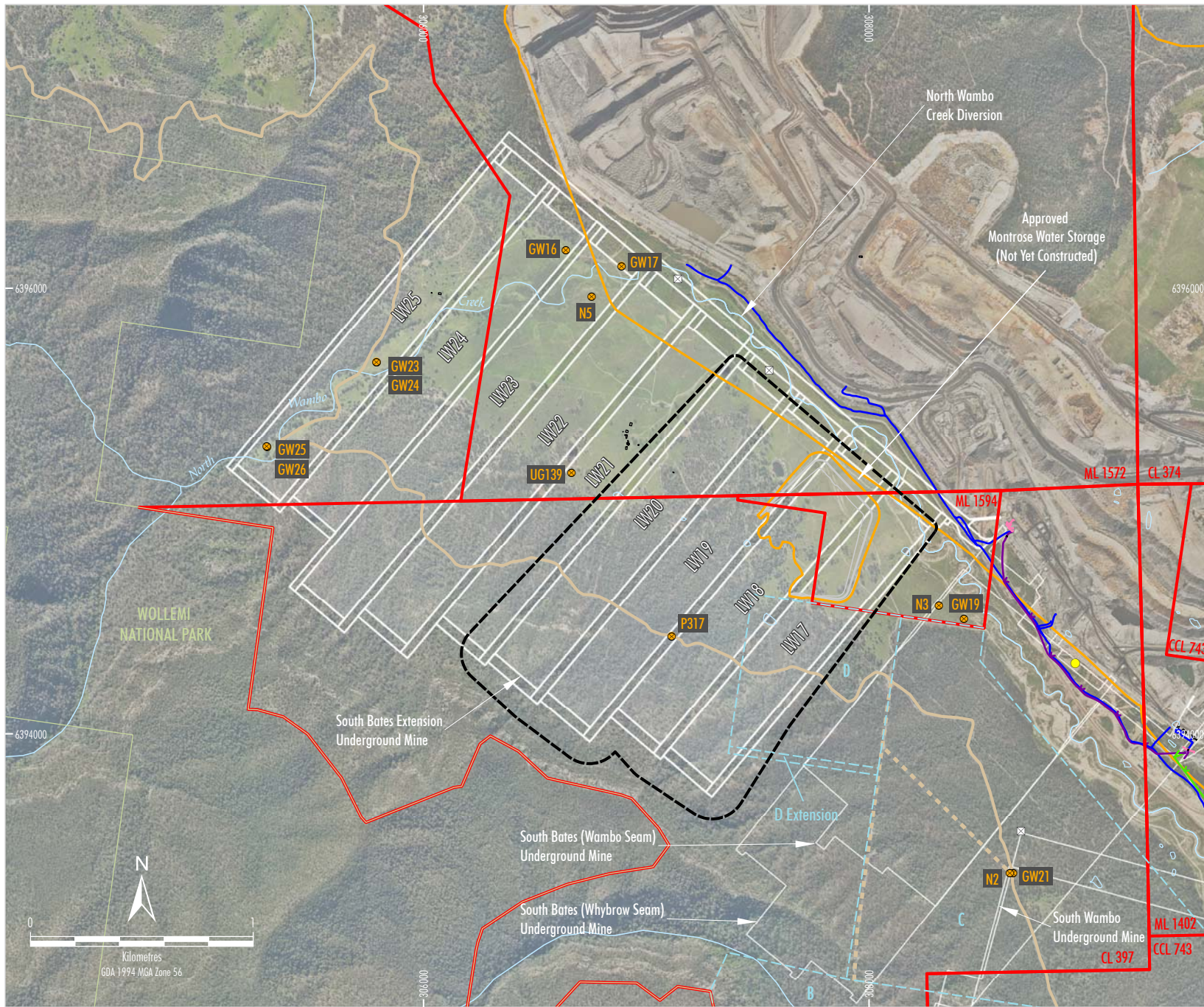
1.1 PURPOSE AND SCOPE

Purpose: This Built Features Management Plan (BFMP) for Longwalls 17 to 20 outlines the management of all classes of built features for the proposed secondary workings described in the Extraction Plan.

Scope: This BFMP covers all classes of built features within the Longwalls 17 to 20 Application Area (**Figure 1**).

This BFMP has been prepared in accordance with Condition 22C(g) of Schedule 4 of the Development Consent (DA 305-7-2003) as a component of the South Bates Extension Underground Mine Longwalls 17 to 20 Extraction Plan.

This BFMP has been prepared by WCPL with assistance from Resource Strategies. The appointment of the team of suitably qualified and experienced experts (which includes representatives from WCPL and Resource Strategies) has been endorsed by the Secretary of the DP&E.



- LEGEND**
- Mining and Coal Lease Boundary
 - National Park Boundary
 - Existing/Approved Surface Development Area
 - Approved Underground Development
 - Approved Ventilation Shaft (Not Yet Constructed)
 - Remnant Woodland Enhancement Program (RWEF) Area
 - Extraction Plan Application Area
 - Fire Trail
 - - - Access Track
 - 11 kV Power Line
 - - - 11 kV Power Line Buried
 - 66 kV Power Line and Fibre Optic Cable
 - Surface Water Supply/Dewatering Pipeline
 - Buildings
 - Dams
 - ⊗ Groundwater Monitoring Site
 - Gas Riser 01

Source: NSW Department of Industry (2017); WCPL (2018, 2016)
 Orthophoto: WCPL (May 2017)

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 W A M B O C O A L M I N E
 Location of Built Features

Figure 1

1.2 ABBREVIATIONS AND ACRONYMS

| | | | |
|----------|---|------|---|
| BFMP | Built Features Management Plan | km | kilometre |
| CCC | Community Consultative Committee | kV | kilovolt |
| CL | Coal Lease | ML | Mining Lease |
| DI-Water | Department of Industry – Water | MSEC | Mine Subsidence Engineering Consultants |
| DP&E | NSW Department of Planning and Environment | NSW | New South Wales |
| DRG | NSW Department of Planning and Environment - Division of Resources and Geoscience | OEH | NSW Office of Environment and Heritage |
| EPA | NSW Environment Protection Authority | WAMP | WCPL Asset Management Plan |
| | | WCPL | Wambo Coal Pty Limited |

1.3 STRUCTURE OF THE BUILT FEATURES MANAGEMENT PLAN

This BFMP forms part of WCPL's Environmental Management System for the Wambo Coal Mine and includes a WCPL Asset Management Plan for Longwalls 17 to 20 (WAMP) (component plan), provided in **Attachment 1**.

The relationship of this BFMP to the Wambo Coal Mine Environmental Management System is shown on **Figure 2**.

The Longwalls 17 to 20 Application Area does not intersect the Notification Area of any Prescribed Dam gazetted under the *Dams Safety Act, 1978* (**Figure 3**).

2 BUILT FEATURES

A number of WCPL-owned built features are located within, or in the vicinity of, the Longwalls 17 to 20 Application Area as indicated in **Figure 1**. Monitoring and management measures have been developed for each of these built features and are detailed in the WAMP as summarised in **Table 1**. WCPL owns all assets within the Longwalls 17 to 20 Application Area.

The Longwalls 17 to 20 Application Area is located wholly within the Patrick Plains Mine Subsidence District (proclaimed 2 July 1980 and revised on 7 July 2017). Wells, fences, gates and tracks are the only man-made structures in the Longwalls 17 to 20 Application Area known to have been constructed prior to declaration of the Mine Subsidence District.

The approved location for the Montrose Water Storage Dam is above the north-eastern end of Longwalls 17 to 19. The Montrose Water Storage Dam would not be constructed until after the completion of Longwalls 17 to 20.

The Longwalls 17 to 20 Application Area is wholly within WCPL-owned land and there are no relevant proposed developments within the Longwalls 17 to 20 Application Area proposed by other parties.

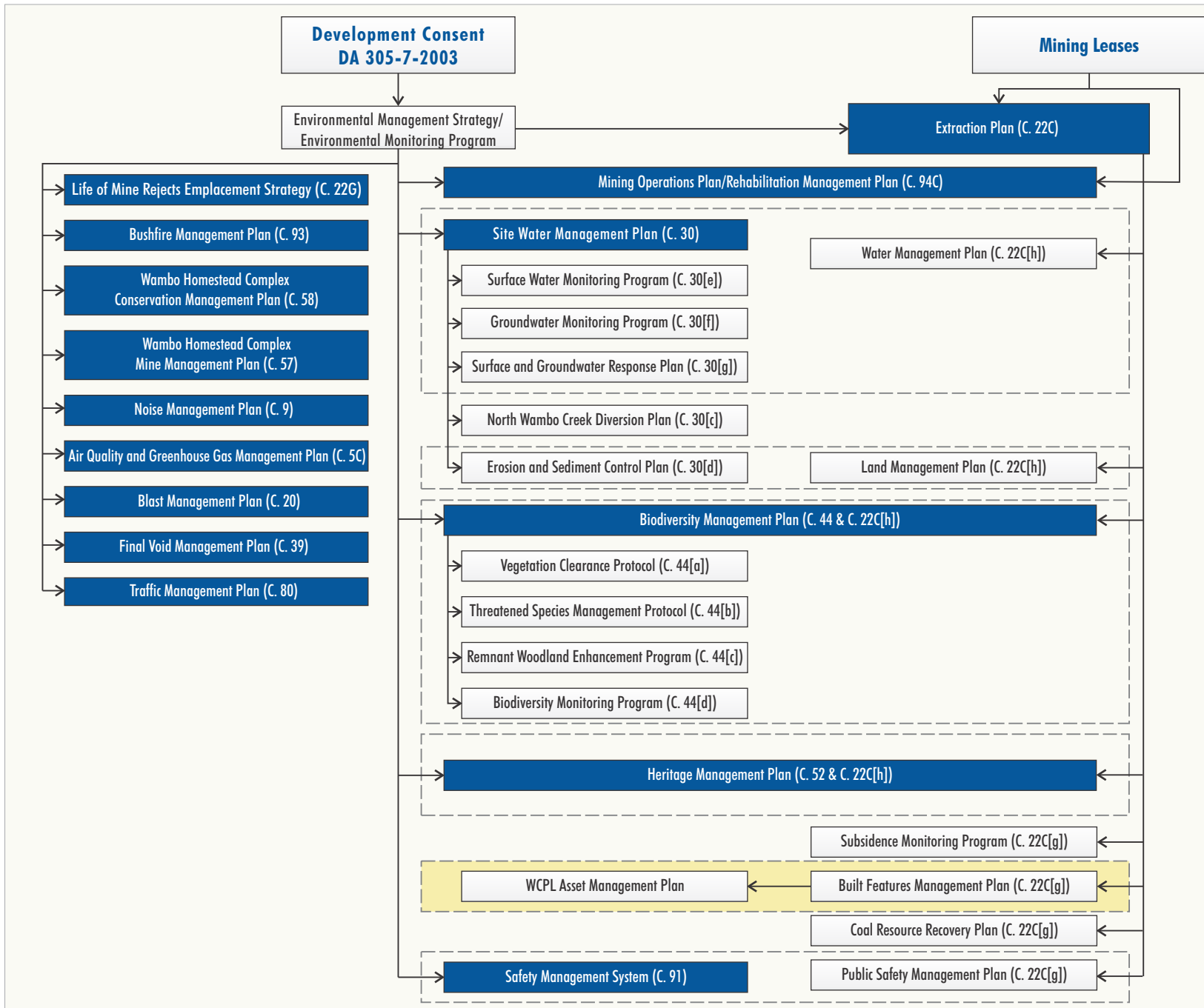
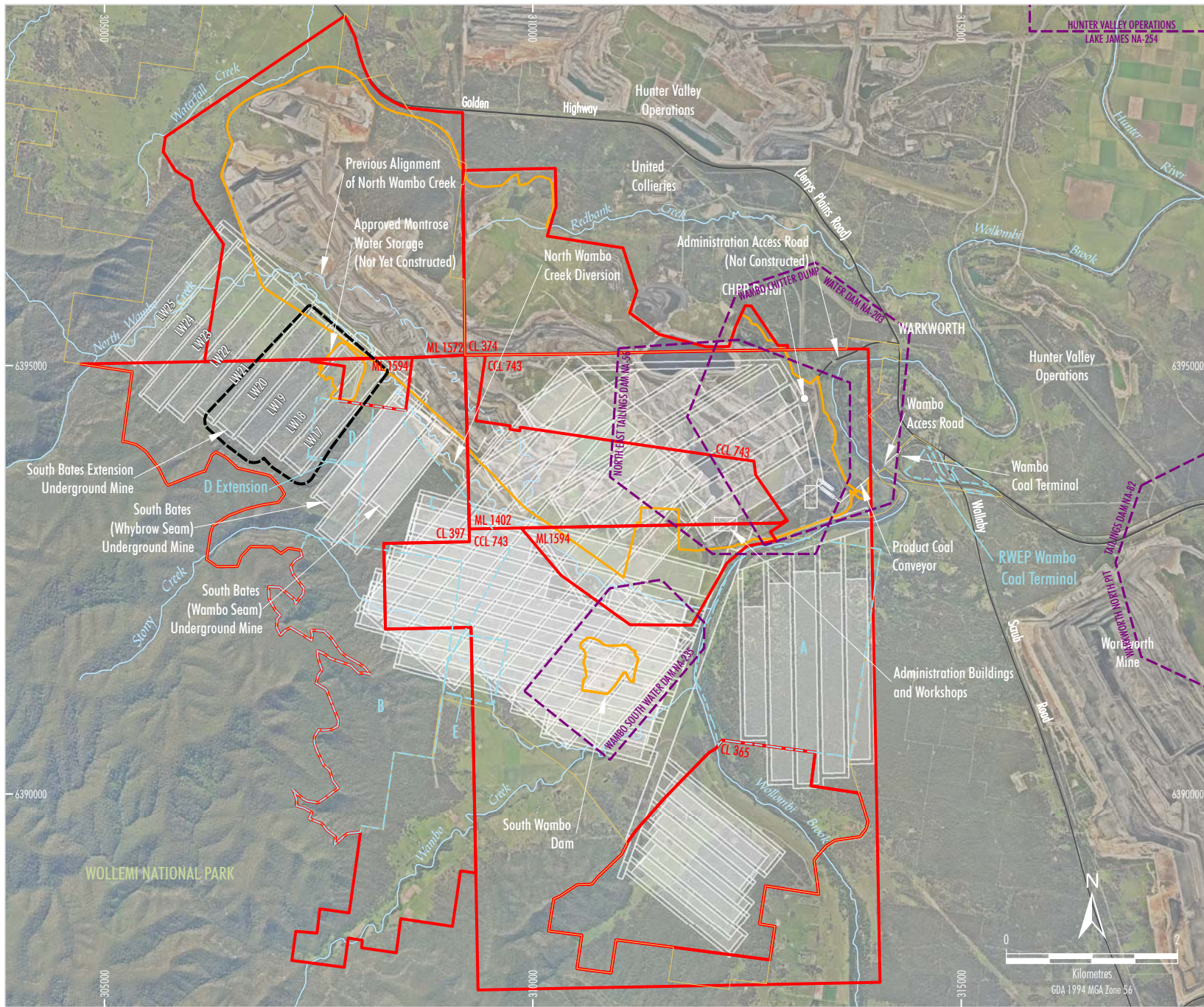


Figure 2



- LEGEND**
- WCPL Owned Land
 - Mining and Coal Lease Boundary
 - Existing/Approved Surface Development Area
 - Approved Underground Development
 - - - Remnant Woodland Enhancement Program (RWEF) Area
 - - - Extraction Plan Application Area
 - - - Prescribed Dam Notification Area

Source: Department of Lands (2017); WCPL (2018)
 Orthophoto: WCPL (May 2017)

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 W A M B O C O A L M I N E
 Notification Areas
 under the Dams Safety Act, 1978



Figure 3

Table 1
Summary of Built Features within the Longwalls 17 to 20 Application Area

| Built Feature | Relevant Stakeholder | Component Plan |
|--|----------------------|------------------------------|
| Buried 11 kilovolt (kV) powerlines, telecommunication and fibre optic cables | WCPL | WAMP (Attachment 1) |
| Water supply pipelines and associated pumps and ancillary infrastructure | WCPL | WAMP (Attachment 1) |
| Montrose West Open Cut Pit walls and emplacement areas | WCPL | WAMP (Attachment 1) |
| Montrose Water Storage Dam | WCPL | - ¹ |
| Exploration drill holes | WCPL | WAMP (Attachment 1) |
| Groundwater monitoring bore (P317) | WCPL | WAMP (Attachment 1) |
| Fences | WCPL | WAMP (Attachment 1) |
| Farm dams | WCPL | WAMP (Attachment 1) |
| Unsealed roads/tracks | WCPL | WAMP (Attachment 1) |
| Site access tracks/fire trails | WCPL | WAMP (Attachment 1) |
| Exploration plant that may be located in the area | WCPL | WAMP (Attachment 1) |
| Drainage culverts | WCPL | WAMP (Attachment 1) |
| North Wambo Creek Diversion | WCPL | - ² |

¹ The approved location for the Montrose Water Storage Dam is above the north-eastern ends of Longwalls 17 to 19. The Montrose Water Storage Dam would not be constructed until after the completion of Longwalls 17 to 20.

² The North Wambo Creek Diversion is managed separately in accordance with the Water Management Plan for Longwalls 17 to 20.

There is one State survey control mark within the Longwalls 17 to 20 Application Area, located above the main gate of Longwall 20 (MSEC, 2018). Under the *Surveying and Spatial Information Act, 2002*, survey marks cannot be displaced or damaged without a relevant authorisation. WCPL will manage the impacts of mine subsidence on this survey mark in consultation with NSW Spatial Services, including lodging a relevant application under the *Surveying and Spatial Information Regulation, 2017* as required by the *Surveyor-General's Direction No. 11 Preservation of Survey Infrastructure*.

3 PERFORMANCE MEASURES

The performance measures specified in Table 14B of Schedule 4 of the Development Consent (DA 305-7-2003) relevant to built features are listed in **Table 2**.

Table 2
Built Features Performance Measures

| Feature | Subsidence Impact Performance Measure |
|--------------------|---|
| All built features | Always safe. Serviceability should be maintained wherever practicable. Loss of serviceability must be fully compensated. Damage must be fully repairable, and must be fully repaired or else replaced or fully compensated. |

Source: Table 14B of Schedule 4 of the Development Consent (DA 305-7-2003).

In accordance with Conditions 22 and 22A of Schedule 4 of the Development Consent (DA 305-7-2003), WCPL must ensure that there is no exceedance of the performance measures listed in Tables 14A and 14B of Schedule 4 of the Development Consent (DA 305-7-2003).

Performance indicators for the performance measures relating to the built features within the Longwalls 17 to 20 Application Area are presented in the relevant component plan of this BFMP as summarised in **Table 1**. The assessment of the secondary extraction of Longwalls 17 to 20 against the performance indicators for the performance measures for built features will be undertaken in accordance with the relevant component plan of this BFMP.

4 LEGAL REQUIREMENTS AND GUIDELINES

The Development Consent (DA 305-7-2003) includes provisions for dispute resolution between WCPL and the owner of any built feature over the interpretation, application or implementation of the performance measures listed in **Table 2**. Specifically Condition 22B of Schedule 4 of the Development Consent (DA 305-7-2003) states:

Any dispute between the Applicant and the owner of any built feature over the interpretation, application or implementation of the performance measures in Table 14B is to be settled by DRG. DRG may seek the advice of the MSB on the matter. Any decision by DRG shall be final and not subject to further dispute resolution under this consent.

Additional requirements under WCPL mining tenements in regard to built features within the Longwalls 17 to 20 Application Area are addressed in Attachment 1 of the Extraction Plan.

5 SUBSIDENCE PREDICTIONS

Predictions of subsidence effects for Longwalls 17 to 20 were developed by MSEC (2018). The maximum subsidence, tilts and curvatures predicted for Longwalls 17 to 20 are summarised in **Table 3** and the location of predicted subsidence is presented in **Figure 4**.

**Table 3
Maximum Predicted Subsidence, Tilt and Strains for Longwalls 17 to 20**

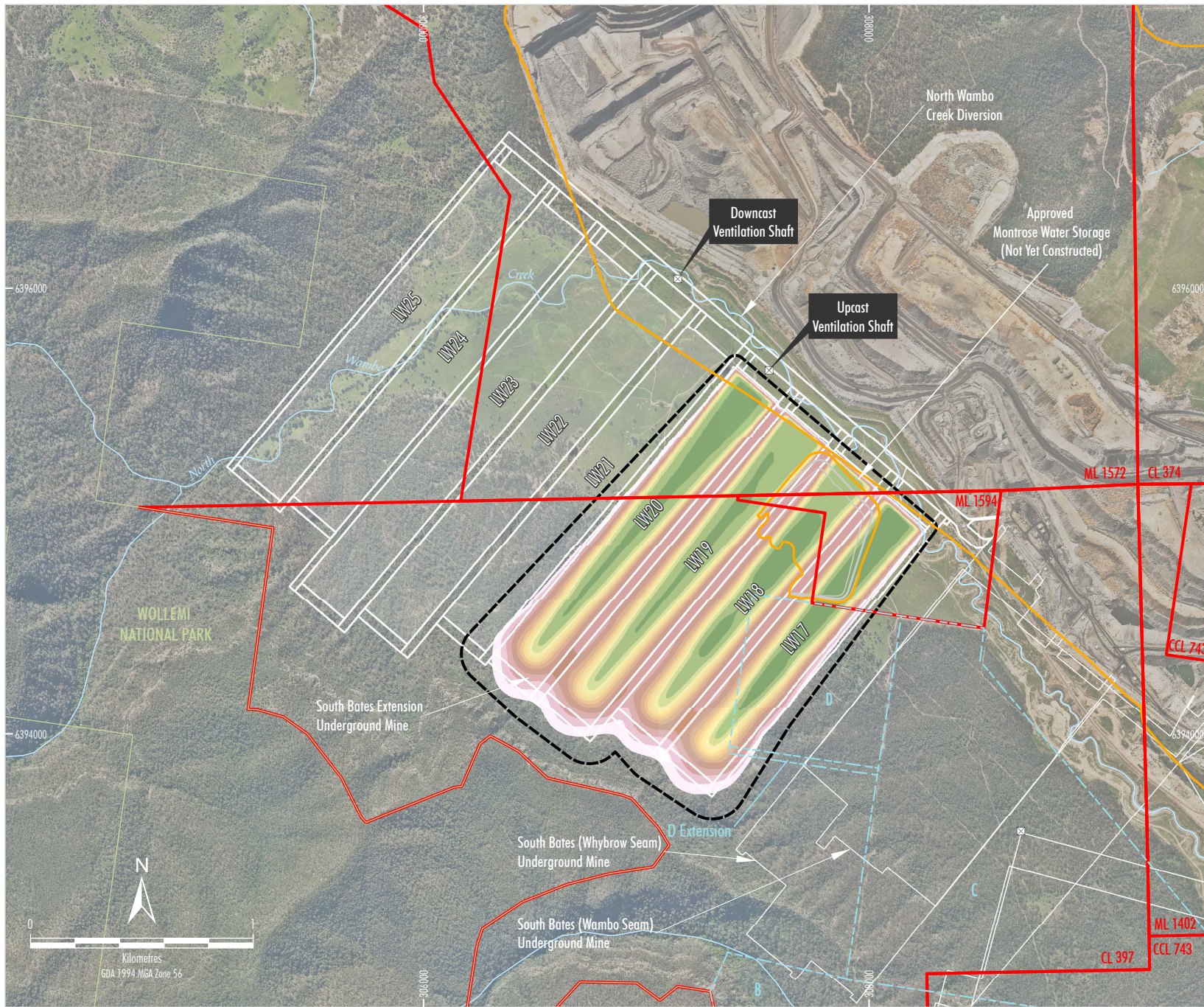
| Subsidence Parameter | Maximum Values Predicted Anywhere Above the Longwalls |
|---|---|
| Maximum Subsidence (mm) | 1,950 |
| Maximum Tilt (mm/m) | 90 |
| Maximum Hogging Curvature (km ⁻¹) | > 3.0 |
| Maximum Sagging Curvature (km ⁻¹) | > 3.0 |

Source: MSEC (2018).

mm = millimetre.

mm/m = millimetres per metre.

km⁻¹ = per kilometre.



- LEGEND**
- Mining and Coal Lease Boundary
 - National Park Boundary
 - Existing/Approved Surface Development Area
 - Approved Underground Development
 - Approved Ventilation Shaft
 - Remnant Woodland Enhancement Program (RWEPP) Area
 - Extraction Plan Application Area
- Subsidence Contour Colour Scale (mm)**
- 20
 - 50
 - 100
 - 200
 - 400
 - 600
 - 800
 - 1000
 - 1200
 - 1400
 - 1600
 - 1800

Source: NSW Department of Industry (2017); WCPL (2018); MSEC (2018)
 Orthophoto: WCPL (May 2017)

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 W A M B O C O A L M I N E
 Predicted Subsidence from the
 South Bates Extension Underground Mine

Figure 4

6 RISK ASSESSMENT

A Subsidence Risk Assessment for Longwalls 17 to 20 was undertaken to identify subsidence impacts with high risk levels and/or potentially severe consequences, including a workshop conducted in February 2018. The workshop was facilitated by a risk assessment specialist and attended by relevant WCPL personnel and technical specialists (Operational Risk Mentoring, 2018). The Subsidence Risk Assessment is provided as Technical Report 4 of the Extraction Plan.

With the implementation of the identified controls, the risk assessment team consensus was that subsidence related impacts over Longwalls 17 to 20 could be managed at a tolerable level of risk (Operational Risk Mentoring, 2018).

7 ROLES AND RESPONSIBILITIES

The key responsibilities of WCPL personnel in relation to this BFMP are specified in the component plan of this BFMP. A summary WCPL organisation structure is provided in **Figure 5**. Contact details for key personnel are provided in **Table 4**.

Table 4
BFMP Key Personnel Contact Details

| Organisation | Position | Contact Name | Phone Number |
|-------------------------|--|---------------------|-----------------------|
| WCPL | Environment and Community Manager (Acting) | Peter Jaeger | (02) 6570 2206 |
| | Control Room (24 hours) | | (02) 6570 2240 |
| | General Manager | Albert Scheepers | (02) 6570 2330 |
| | Technical Services Manager | Michael Berry | |
| | Mining Engineering Manager (Underground Mine Manager) (Acting) | Peter Jandzio | |
| | Community Hotline | | (02) 6570 2245 |
| Subsidence Advisory NSW | Emergency Service (24 hours) | | 1800 248 083 |
| | Newcastle District Office | | (02) 4908 4300 |

8 REPORTING FRAMEWORK

The reporting framework relevant to this BFMP is summarised in **Table 5**.

LEGEND
 ■ Key personnel responsible for implementation of the Extraction Plan

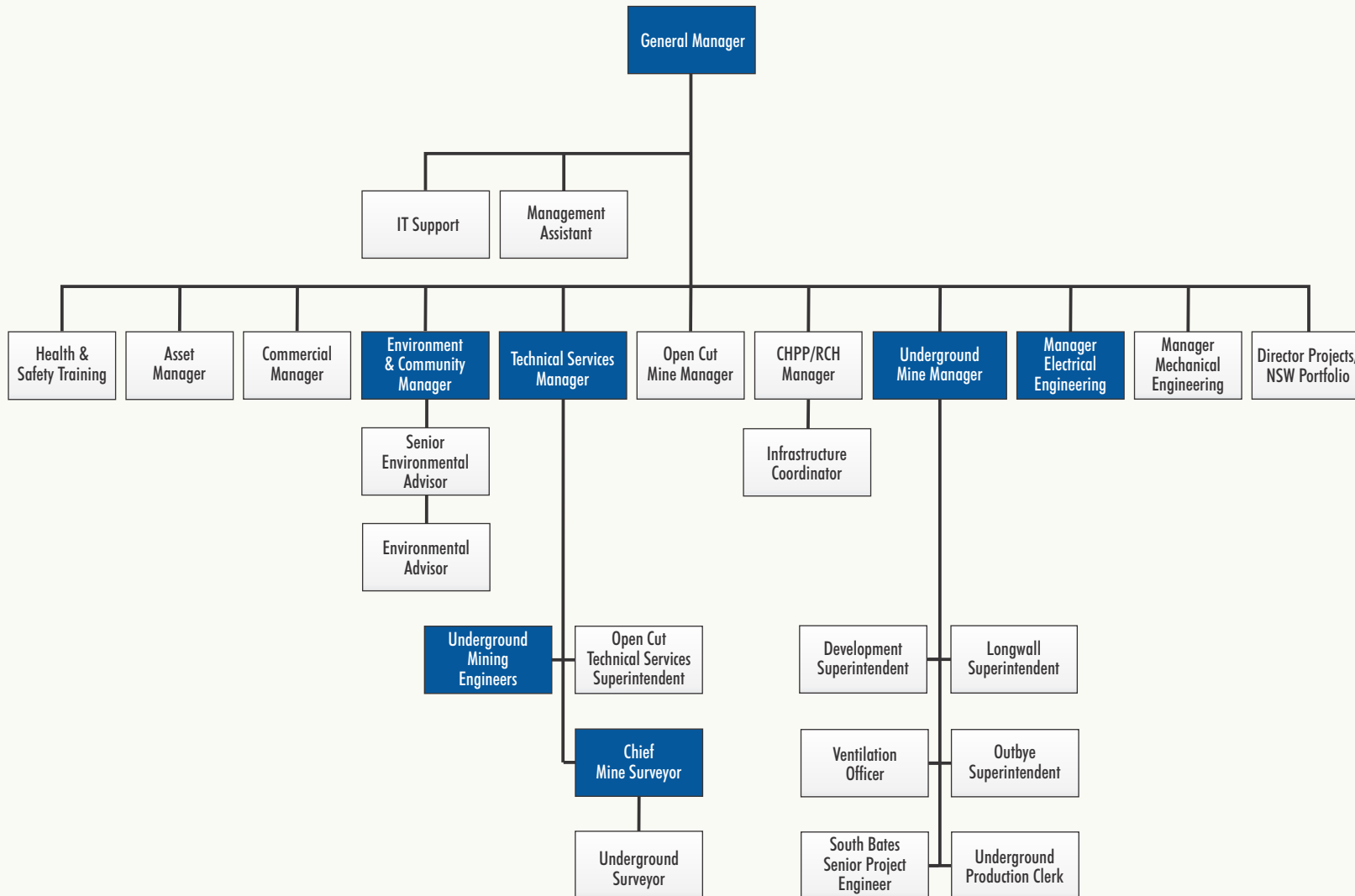


Figure 5

**Table 5
Summary of Reporting Framework**

| Report | Frequency | Distribution ¹ | Distribution Method ¹ | Responsibility for Data Collation and Preparation | Responsibility for Submission |
|-------------------------------------|---|---|----------------------------------|---|---|
| Subsidence Management Status Report | To be updated fortnightly. Must be submitted if new impacts are identified or upon request. | DP&E (Manager, Mining Projects) DRG (Subsidence Executive Officer) | Email | Technical Services Manager Environment and Community Manager | Technical Services Manager (in consultation with Mining Engineering Manager and Environment and Community Manager) |
| Six Monthly Report | Annual (for the period 1 January to 30 June) | DP&E (Manager, Mining Projects) DRG (Subsidence Executive Officer) Subsidence Advisory NSW (District Manager) OEH/EPA (General Contact) DI-Water (Water Regulation) | Email | Environment and Community Manager | General Manager |
| Annual Review | Annual (for the period 1 January to 31 December) | DP&E (Manager, Mining Projects) DRG (Subsidence Executive Officer) DRG (Manager Environmental Sustainability) Subsidence Advisory NSW (District Manager) OEH/EPA (General Contact) DI-Water (Water Regulation) Singleton Shire Council (General Manager) CCC Members | Email and/or Post | Environment and Community Manager | General Manager |

¹ Distribution details are provided in Attachment 4 of the Extraction Plan.

Notes: DP&E – NSW Department of Planning and Environment.
 DRG – NSW Department of Planning and Environment - Division of Resources and Geoscience.
 OEH/EPA – NSW Office of Environment and Heritage/NSW Environment Protection Authority.
 DI-Water – Department of Industry – Water.
 CCC – Community Consultative Committee.

9 MANAGEMENT PLAN REVIEW

This BFMP and its component plan will be reviewed in detail, and revised if necessary, in the following circumstances:

- within three months of the submission of an Incident Report relating to a subsidence impact, (Section 4.2.1 of the Extraction Plan) taking into consideration any contingency response implemented following submission of the Incident Report (Section 4.2.1 of the Extraction Plan); and/or
- where there is a significant change in operation that may affect the environment or the community.

In addition to the above, this BFMP will also be reviewed within three months of:

- the submission of an Annual Review;
- the submission of an audit report; or
- any modification to the conditions of the Development Consent (DA 305-7-2003).

10 REFERENCES

Mine Subsidence Engineering Consultants (2018) *South Bates Extension Subsidence Assessment – Subsidence Predictions and Impact Assessments for the Natural and Built Features in Support of the Extraction Plan Application for the South Bates Extension WYLV17 to WYLV20*. Report prepared for Wambo Coal Pty Limited.

Operational Risk Mentoring (2018) *South Bates Extension Underground Mine – Longwalls 17 to 20 Subsidence Risk Assessment Report*. Report prepared for Wambo Coal Pty Limited.

Wambo Coal Pty Limited (2003) *Wambo Development Project Environmental Impact Statement*.

Wambo Coal Pty Limited (2017) *South Bates Extension Modification Environmental Assessment*.

ATTACHMENT 1
WCPL ASSET MANAGEMENT PLAN
LONGWALLS 17 - 20

INTERNAL MANAGEMENT PLAN.
REFER TO SUMMARY IN EXTRACTION PLAN.