

# WAMBO COAL PTY LIMITED



## SOUTH BATES EXTENSION UNDERGROUND MINE

### EXTRACTION PLAN LONGWALLS 21 TO 24

### APPENDIX E BUILT FEATURES MANAGEMENT PLAN

WAMBO COAL PTY LIMITED  
SOUTH BATES EXTENSION UNDERGROUND MINE

BUILT FEATURES MANAGEMENT PLAN  
LONGWALLS 21 - 24



PREPARED BY  
WAMBO COAL PTY LIMITED AND  
RESOURCE STRATEGIES PTY LTD

JULY 2020  
Project No. WAM-09-15  
Document No. 01008879

## 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

<b>Document No.</b>	BFMP LW21-24
<b>Title</b>	Built Features Management Plan for South Bates Extension Underground Mine Longwalls 21 to 24
<b>General Description</b>	Management of potential subsidence impacts and/or environmental consequences on all public infrastructure and all classes of other built features for mining of Longwalls 21 to 24 at the South Bates Extension Underground Mine

### Revisions

Rev No	Date	Description	By	Checked
A	July 2020	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) (**Figure 1**). The Wambo Coal Mine is owned and operated by Wambo Coal Pty Limited (WCPL), a subsidiary of Peabody Energy Australia Pty Limited.

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*.

The South Bates Extension Underground Mine is a component of the approved Wambo Coal Mine. 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).

The South Bates Extension Underground Mine commenced in Longwall 17 in December 2018 and involves extraction of coal by longwall mining methods from the Whybrow Seam within Coal Lease (CL) 397, Mining Lease (ML) 1594, ML 1572 and Mining Lease Application Area (MLA) 557 (**Figure 2**).

### 1.1 PURPOSE AND SCOPE

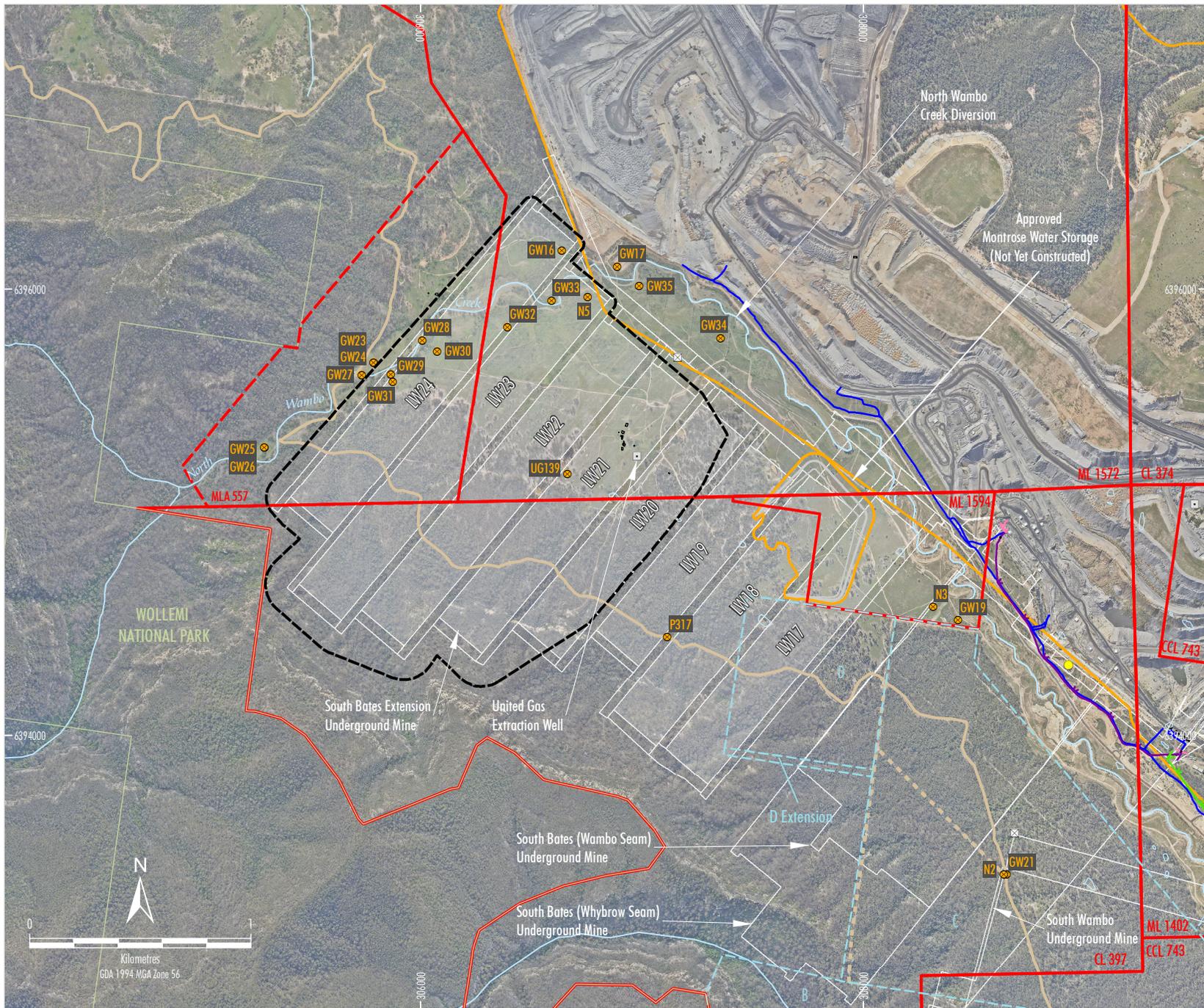
**Purpose:** This Built Features Management Plan (BFMP) for Longwalls 21 to 24 outlines the management of all items of public infrastructure and all classes of other built features for the proposed secondary workings described in the Extraction Plan.

**Scope:** This BFMP covers all items of public infrastructure and all classes of other built features within the Longwalls 21 to 24 Application Area (**Figure 1**).

This BFMP has been prepared in accordance with Condition B7(e) of Schedule 2 of the Development Consent (DA 305-7-2003) as a component of the South Bates Extension Underground Mine Longwalls 21 to 24 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, Mine Subsidence Engineering Consultants [MSEC] and Resource Strategies) has been endorsed by the Secretary of the NSW Department of Planning, Infrastructure and Environment (DPIE).

The Longwalls 21 to 24 Application Area is located wholly within WCPL-owned land (**Figure 2**). No items of public infrastructure are located within the Longwalls 21 to 24 Application Area and therefore this BFMP applies to WCPL-owned built features only.



- LEGEND**
- Mining and Coal Lease Boundary
  - - - Mining Lease Application Boundary
  - National Park Boundary
  - Existing/Approved Surface Development Area
  - Approved Underground Development
  - ⊠ Ventilation Shaft
  - Remnant Woodland Enhancement Program (RWEPP) 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: WCPL (2020, 2016); NSW Spatial Services (2019)  
 Orthophoto: WCPL (May 2019)

**Figure 1**

## 1.2 ABBREVIATIONS AND ACRONYMS

BFMP	Built Features Management Plan	ML	Mining Lease
CCC	Community Consultative Committee	MLA	Mining Lease Application
CL	Coal Lease	MSEC	Mine Subsidence Engineering Consultants
DPIE-Water	NSW Department of Planning, Industry and Environment – Water	NSW	New South Wales
DPIE	NSW Department of Planning, Industry and Environment	BCD	Biodiversity and Conservation Division
km	kilometre	WAMP	WCPL Asset Management Plan
kV	kilovolt	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 21 to 24 (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 21 to 24 Application Area does not intersect the Notification Area of any Prescribed Dam gazetted under the *Dams Safety Act, 1978* (**Figure 3**).

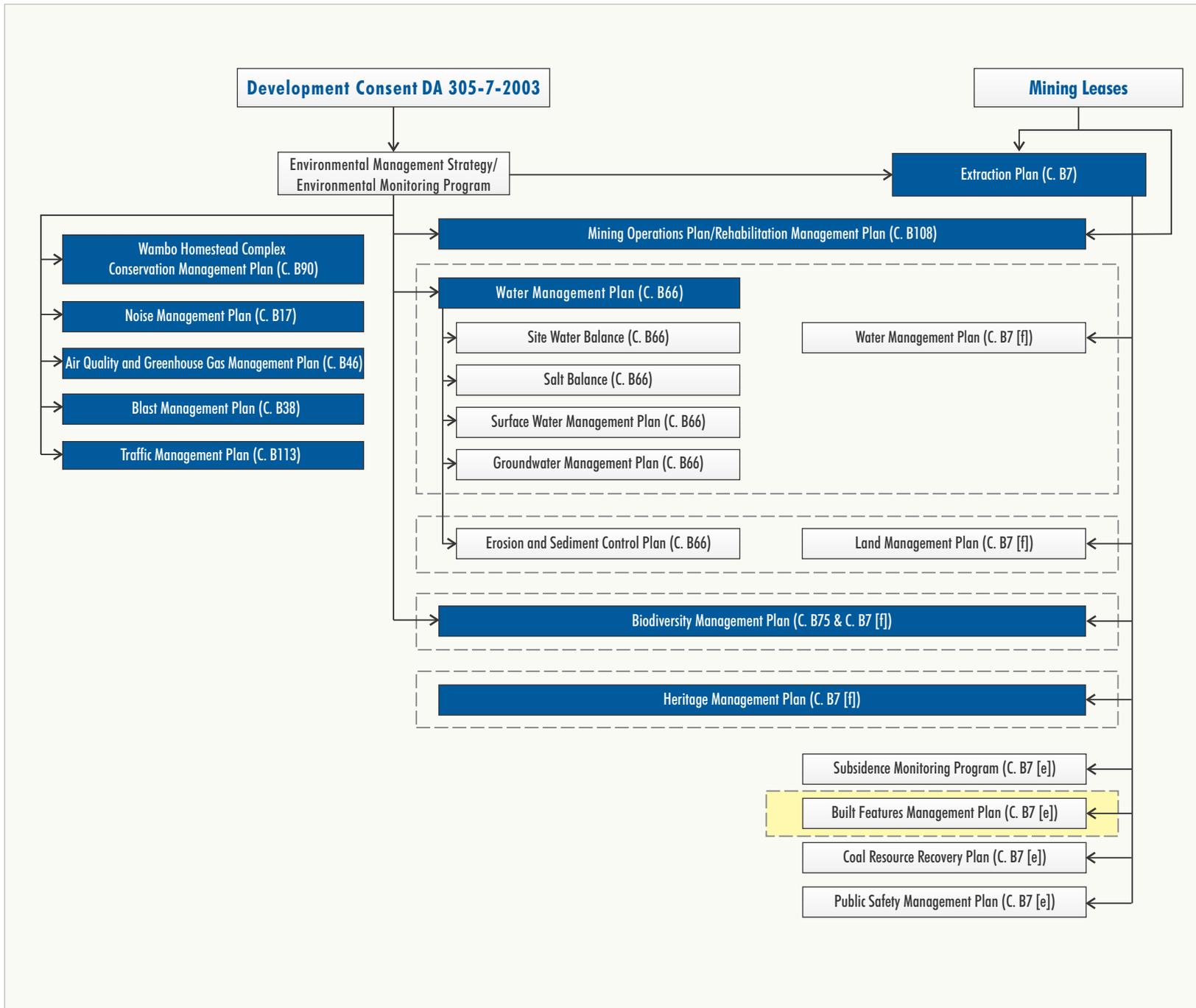
## 2 BUILT FEATURES

A number of WCPL-owned built features are located within, or in the vicinity of, the Longwalls 21 to 24 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 21 to 24 Application Area.

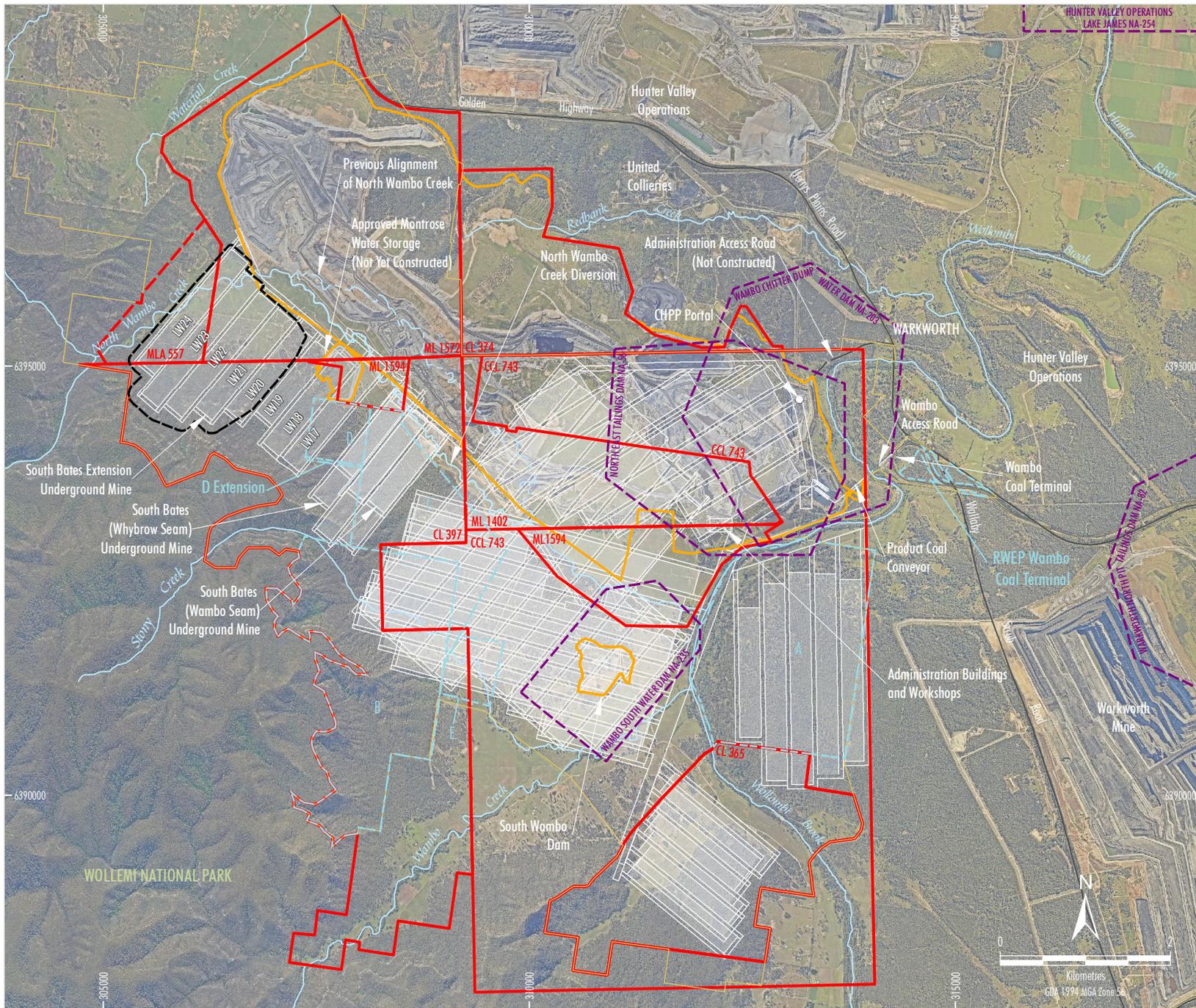
The Longwalls 21 to 24 Application Area is located wholly within the Patrick Plains Mine Subsidence District (proclaimed 2 July 1980 and revised on 7 July 2017). Wells, fences, gates and tracks are the only man-made structures in the Longwalls 21 to 24 Application Area known to have been constructed prior to declaration of the Mine Subsidence District.

The North Wambo Creek Diversion is located outside the Longwalls 21 to 24 Application Area and is not anticipated to experience direct subsidence impacts due to the mining of the proposed longwalls. North Wambo Creek is located directly above the Longwalls 23 and 24 and ephemeral drainage lines are located across the Study Area.

The Longwalls 21 to 24 Application Area is wholly within WCPL-owned land and there are no relevant developments within the Longwalls 21 to 24 Application Area proposed by other parties.



**Figure 2**



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

Source: WCPL (2020); NSW Spatial Services (2019)  
 Orthophoto: WCPL (May 2019)

**Peabody**  
 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 21 to 24 Application Area**

Built Feature	Relevant Stakeholder	Component Plan
Montrose West Open Cut Pit walls and emplacement areas	WCPL	WAMP ( <b>Attachment 1</b> )
Exploration bores and gas wells	WCPL	WAMP ( <b>Attachment 1</b> )
Exploration plant that may be located in the area	WCPL	WAMP ( <b>Attachment 1</b> )
11 kilovolt (kV) powerline	WCPL	WAMP ( <b>Attachment 1</b> )
Ventilation shaft for South Bates Extension Underground Mine	WCPL	WAMP ( <b>Attachment 1</b> )
Groundwater monitoring bores	WCPL	WAMP ( <b>Attachment 1</b> )
Fences	WCPL	WAMP ( <b>Attachment 1</b> )
Farm dams	WCPL	WAMP ( <b>Attachment 1</b> )
Wells or bores	WCPL	WAMP ( <b>Attachment 1</b> )
Roads (all types)	WCPL	WAMP ( <b>Attachment 1</b> )
Drainage culverts	WCPL	WAMP ( <b>Attachment 1</b> )
Farm buildings or sheds	WCPL	WAMP ( <b>Attachment 1</b> )
Tanks	WCPL	WAMP ( <b>Attachment 1</b> )
House (Whynot Homestead)	WCPL	WAMP ( <b>Attachment 1</b> )

There are two State survey control mark in the vicinity of the Longwalls 21 to 24 Application Area (MSEC, 2020). 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 these survey marks 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*.

There is also a redundant United gas extraction well (VW3) located in the vicinity of the Whynot Homestead. This gas well will be decommissioned by WCPL prior to commencement of secondary extraction in Longwall 21.

### 3 PERFORMANCE MEASURES

The performance measures specified in Table 2 of Schedule 2 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 (including public infrastructure and all structures on privately-owned land)	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 2 of Schedule 2 of the Development Consent (DA 305-7-2003).

In accordance with Condition B4 of Schedule 2 of the Development Consent (DA 305-7-2003), WCPL must ensure that underground mining operations comply with the performance measures listed in Table 2 of Schedule 2 of the Development Consent (DA 305-7-2003).

Performance indicators for the performance measures relating to the built features within the Longwalls 21 to 24 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 21 to 24 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 B5 of Schedule 2 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 2 is to be settled by the Planning Secretary, following consultation with the Resources Regulator. Any decision by the Planning Secretary shall be final*

Additional requirements under WCPL mining tenements in regard to built features within the Longwalls 21 to 24 Application Area are addressed in Attachment 1 of the Extraction Plan.

## 5 SUBSIDENCE PREDICTIONS

Predictions of subsidence effects for Longwalls 21 to 24 were developed by MSEC (2020). The maximum subsidence, tilts and curvatures predicted for Longwalls 21 to 24 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 21 to 24**

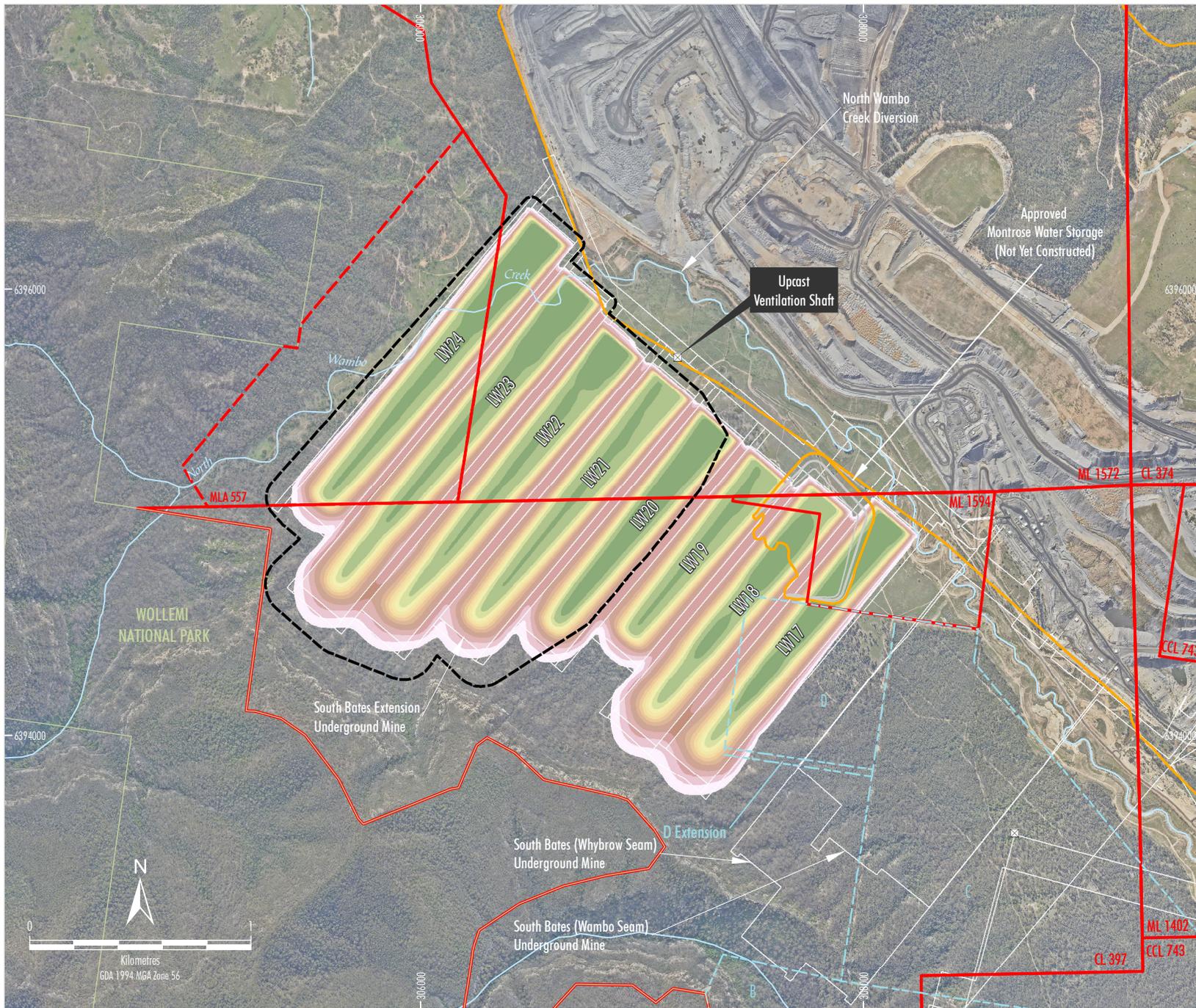
Subsidence Parameter	Maximum Values Predicted Anywhere Above the Longwalls
Maximum Subsidence (mm)	1,950
Maximum Tilt (mm/m)	85
Maximum Hogging Curvature (km <sup>-1</sup> )	> 3.0
Maximum Sagging Curvature (km <sup>-1</sup> )	> 3.0

Source: MSEC (2020).

mm = millimetre.

mm/m = millimetres per metre.

km<sup>-1</sup> = per kilometre.



**LEGEND**

- Mining and Coal Lease Boundary
- - - Mining Lease Application Boundary
- National Park Boundary
- Existing/Approved Surface Development Area
- Approved Underground Development
- 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: WCPL (2020); NSW Spatial Services (2019)  
MSEC (2020)  
Orthophoto: WCPL (May 2019)

**Peabody**  
WAMBO COAL MINE  
**Predicted Subsidence from the  
South Bates Extension Underground Mine**

**Figure 4**

## 6 RISK ASSESSMENT

A Subsidence Risk Assessment for Longwalls 21 to 24 was undertaken to identify subsidence impacts with high risk levels and/or potentially severe consequences, including a workshop conducted in February 2020. The workshop was facilitated by a risk assessment specialist and attended by relevant WCPL personnel and technical specialists (Risk Mentor, 2020). 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 21 to 24 could be managed at a tolerable level of risk (Risk Mentor, 2020).

## 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	<b>Environment and Community Manager</b>	<b>Peter Jaeger</b>	<b>(02) 6570 2206</b>
	<b>Control Room (24 hours)</b>		<b>(02) 6570 2240</b>
	General Manager	Albert Scheepers	(02) 6570 2300
	Technical Services Manager	Michael Berry	
	Mining Engineering Manager (Underground Mine Manager)	Justin Peterkin	
		Community Hotline	
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

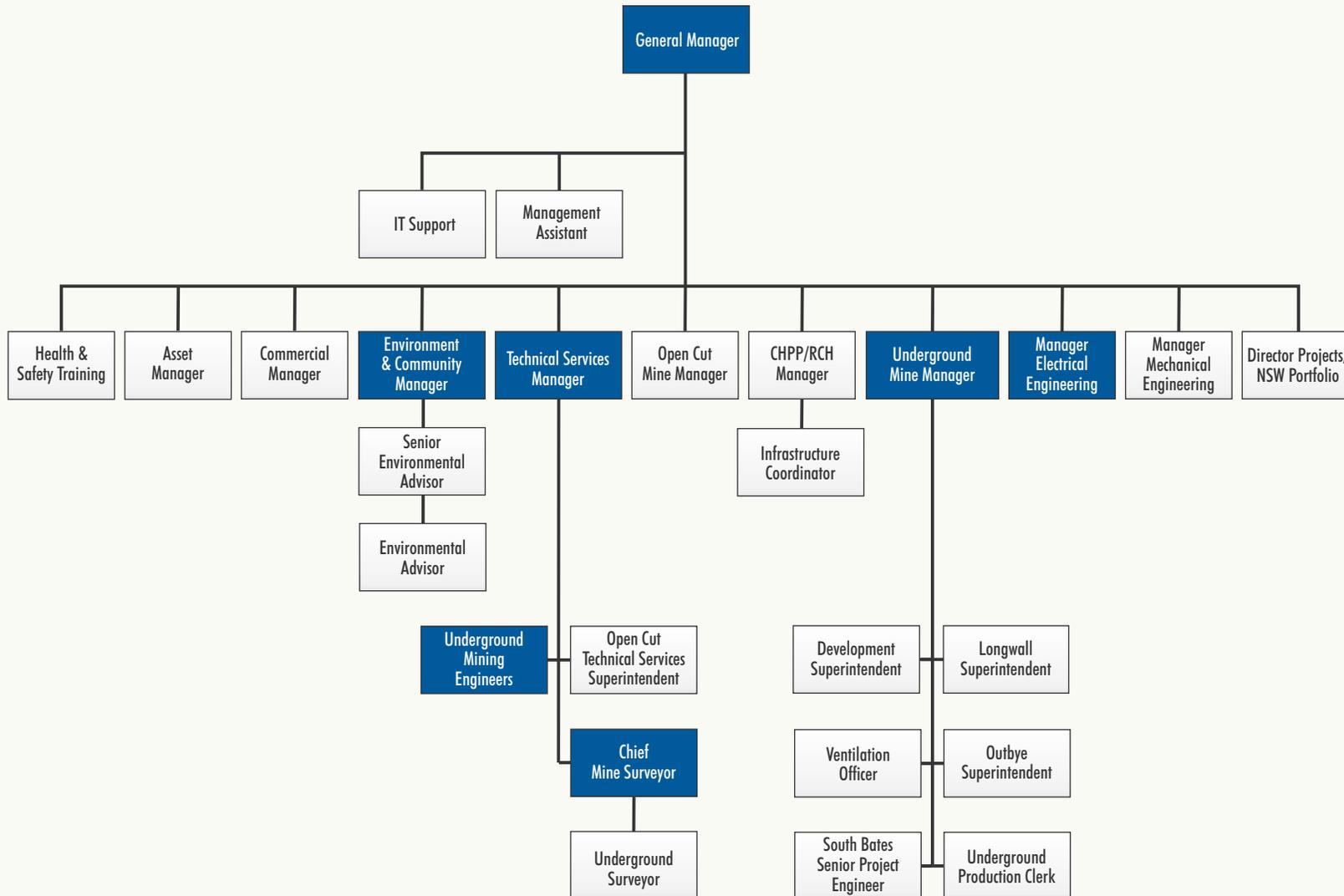


Figure 5

**Table 5  
Summary of Reporting Framework**

Report	Frequency	Distribution <sup>1</sup>	Distribution Method <sup>1</sup>	Responsibility for Data Collation and Preparation	Responsibility for Submission
Subsidence Management Status Report	To be updated fortnightly. Must be submitted if impacts greater than predicted are identified or upon request.	DPIE (Manager, Mining Projects) NSW Resources Regulator (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)	DPIE (Manager, Mining Projects) NSW Resources Regulator (Subsidence Executive Officer) Subsidence Advisory NSW (District Manager) BCD (General Contact) DPIE-Water (Water Regulation)	Email	Environment and Community Manager	General Manager
Annual Review	Annual (for the period 1 January to 31 December)	DPIE (Manager, Mining Projects) NSW Resources Regulator (Subsidence Executive Officer) NSW Resources Regulator (Manager Environmental Sustainability) Subsidence Advisory NSW (District Manager) BCD (General Contact) DPIE-Water (Water Regulation) Singleton Shire Council (General Manager) CCC Members	Email and/or Post	Environment and Community Manager	General Manager

<sup>1</sup> Distribution details are provided in Attachment 4 of the Extraction Plan.

Notes: DPIE – NSW Department of Planning, Industry and Environment.  
BCD – Biodiversity and Conservation Division  
DPIE-Water – Department of Planning, Industry and Environment – 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 (2020) *South Bates Extension Subsidence Assessment – Subsidence Predictions and Impact Assessments for the Natural and Built Features in Support of the Extraction Plan Application for WYLW21 to WYLW24 at the South Bates Extension Underground Mine*. Report prepared for Wambo Coal Pty Limited.

Risk Mentor (2020) *Wambo U/G South Bates Extension – Longwalls 21-24 – Extraction Plan 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 21 – 24

WAMBO COAL PTY LIMITED  
SOUTH BATES EXTENSION UNDERGROUND MINE

WCPL ASSET MANAGEMENT PLAN  
LONGWALLS 21 - 24



PREPARED BY  
WAMBO COAL PTY LIMITED AND  
RESOURCE STRATEGIES PTY LTD

JULY 2020  
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## DOCUMENT CONTROL

<b>Document No.</b>	WAMP LW21-24
<b>Title</b>	WCPL Asset Management Plan for South Bates Extension Underground Mine Longwalls 21 to 24
<b>General Description</b>	Management of potential subsidence impacts and environmental consequences on Wambo Coal Pty Limited assets for mining of Longwalls 21 to 24 at the South Bates Extension Underground Mine.

### Revisions

Rev No	Date	Description	By	Checked
A	July 2020	Final for Submission	WCPL and Resource Strategies	P. Jaeger

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Figure 2	Wambo Coal Mine Environmental Management System
Figure 3	Monitoring of Environmental Consequences against Performance Indicators and Measures

### LIST OF ATTACHMENTS

Attachment 1	WCPL Asset Management Plan Trigger Action Response Plan
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## 1 INTRODUCTION

The South Bates Extension Underground Mine is a component of the approved Wambo Coal Mine. The South Bates Extension Underground Mine commenced in Longwall 17 in December 2018 and involves extraction of coal by longwall mining methods from the Whybrow Seam within Coal Lease (CL) 397, Mining Lease (ML) 1594, ML 1572 and Mining Lease Application (MLA) 557 (**Figure 1**).

### 1.1 PURPOSE AND SCOPE

**Purpose:** This WCPL Asset Management Plan for Longwalls 21 to 24 (WAMP) outlines the management of potential subsidence impacts on WCPL assets.

**Scope:** This WAMP covers WCPL assets within the Longwalls 21 to 24 Application Area (**Figure 1**).

This WAMP is a component of the Built Features Management Plan for Longwalls 21 to 24, which is part of the South Bates Extension Underground Mine Longwalls 21 to 24 Extraction Plan (**Figure 2**).

WCPL assets are identified in **Section 2** and relevant management measures are outlined in **Section 5**.

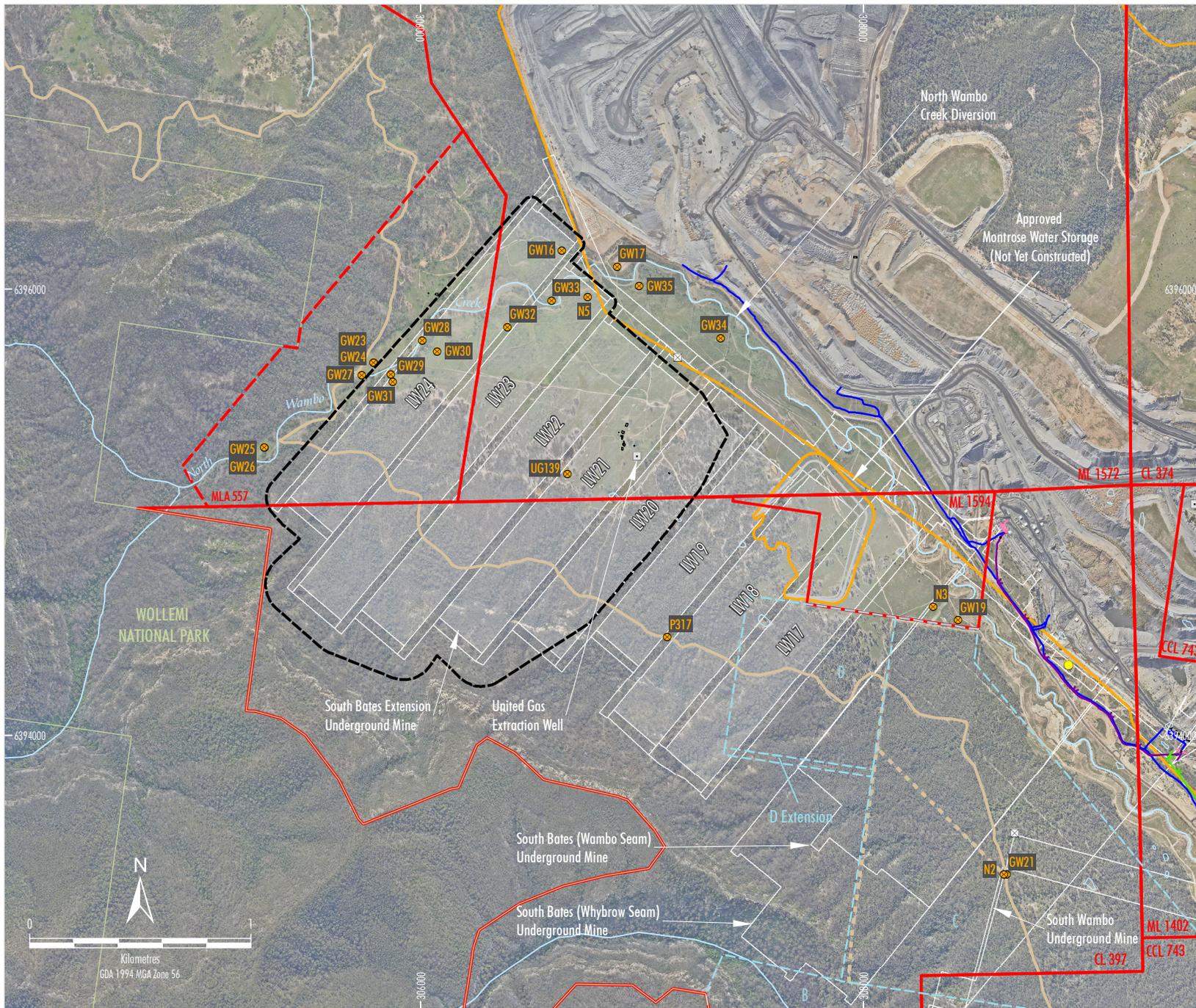
**Attachment 1** provides a **Trigger Action Response Plan** for this WAMP which is a simple and transparent snapshot of the monitoring of subsidence impacts and, where required, the implementation of management and/or contingency measures.

## 2 WCPL ASSETS

The WCPL assets located within the Longwalls 21 to 24 Application Area are shown on **Figure 1** and include:

- Montrose West Open Cut Pit walls and emplacement areas.
- Exploration bores and gas wells.
- Exploration plant that may be located in the area.
- 11 kilovolt (kV) powerline.
- Ventilation shaft for South Bates Extension Underground Mine.
- Groundwater monitoring bores.
- Fences.
- Farm dams.
- Wells or bores.
- Roads (all types).
- Drainage culverts.
- Farm buildings or sheds.
- Tanks.
- House (Whynot Homestead).

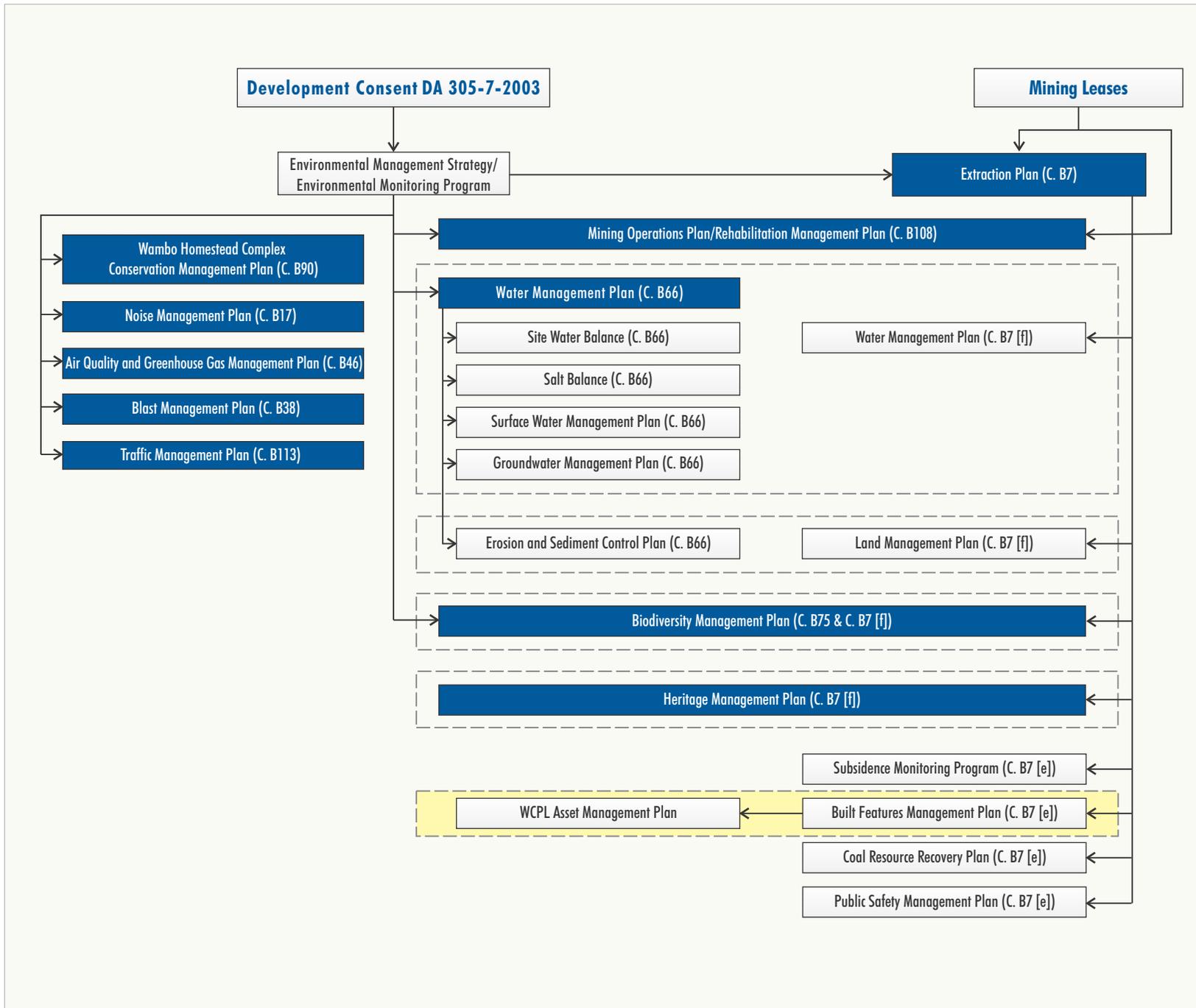
The North Wambo Creek Diversion is located outside the Longwalls 21 to 24 Application Area and is not anticipated to experience direct subsidence impacts due to the mining of Longwalls 21 to 24. Monitoring, management and mitigation strategies for the North Wambo Creek Diversion are discussed in the Water Management Plan (Appendix A) for the South Bates Extension Underground Mine Longwalls 17 to 20 Extraction Plan.



- LEGEND**
- Mining and Coal Lease Boundary
  - - - Mining Lease Application Boundary
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  - Remnant Woodland Enhancement Program (RWEPP) 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: WCPL (2020, 2016); NSW Spatial Services (2019)  
 Orthophoto: WCPL (May 2019)

**Figure 1**



**Figure 2**

### 3 PERFORMANCE MEASURES

The performance measures specified in Table 2 of Schedule 2 of the Development Consent (DA 305-7-2003) relevant to built features are listed in **Table 1**.

**Table 1  
Built Features Performance Measures**

Feature	Subsidence Impact Performance Measure
All built features (including public infrastructure and all structures on privately-owned land)	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 2 of Schedule 2 of the Development Consent (DA 305-7-2003).

In accordance with Condition B4 of Schedule 2 of the Development Consent (DA 305-7-2003), WCPL must ensure that underground mining operations comply with the performance measures listed in Table 2 of Schedule 2 of the Development Consent (DA 305-7-2003).

**Section 4** outlines the monitoring that will be undertaken to assess the impact of Longwalls 21 to 24 against the performance measures in relation to WCPL assets. **Section 5** outlines management measures that will be employed for WCPL assets. Performance indicators for the performance measures are summarised in **Section 6**.

## 4 MONITORING

### 4.1 SUBSIDENCE MONITORING PROGRAM

A monitoring program will be developed in order to monitor the impacts of the extraction of Longwalls 21 to 24 on WCPL assets to identify unsafe conditions or loss of serviceability during or after mining. Key components of the monitoring program are summarised in **Table 2**.

**Table 2**  
**WAMP Monitoring Program Overview**

WCPL Asset	Monitoring Component	Parameter	Timing/Frequency	Responsibility
<b>Pre-mining</b>				
All	Initial visual assessment of WCPL assets.	Initial condition of WCPL assets.	Prior to secondary extraction within 1,000 metres (m) of WCPL assets.	Mine Surveyor
<b>During Mining</b>				
All	Longwalls 21 to 24 subsidence monitoring lines as described in the Subsidence Monitoring Program.	Monitoring parameters include: <ul style="list-style-type: none"> <li>• subsidence;</li> <li>• tilt;</li> <li>• tensile strain;</li> <li>• compressive strain; and</li> <li>• absolute horizontal translation.</li> </ul>	Refer to <b>Subsidence Monitoring Program</b> (Appendix H of the Extraction Plan for Longwalls 21 to 24).	Mine Surveyor
Active service lines <sup>1</sup>	Visual inspections of WCPL active service lines.	The general condition of WCPL active service lines including safety and serviceability.	Weekly inspections.	Infrastructure Coordinator
	Monitoring of WCPL pipeline integrity.	Monitoring of pipelines at fixed points.	Daily inspections commencing when secondary extraction is within 100 m of WCPL pipelines and undertaken until the active mining face is 100 m past the pipeline.	Infrastructure Coordinator
	Flow monitoring.	Monitoring to detect abnormal changes in flow.	Continuous (SCADA) monitoring of pump and pipeline conditions.	Infrastructure Coordinator
Ventilation shaft	Monitoring of ventilation shaft, fan surface infrastructure and underground workings at base of shaft.	Monitoring of ventilation shaft at fixed points.	Weekly inspections in mines inspections program.	Manager Mining Engineering

**Table 2 (Continued)**  
**WAMP Monitoring Program Overview**

WCPL Asset	Monitoring Component	Parameter	Timing/Frequency	Responsibility
<b><i>During Mining (Continued)</i></b>				
Groundwater monitoring bores	Integrity of groundwater monitoring bores.	Review of groundwater monitoring data.	Once the active mining face is 100 m past the bore.	Infrastructure Coordinator
Roads and tracks	Visual inspections of roads and tracks.	Monitoring parameters include: <ul style="list-style-type: none"> <li>• surface cracks;</li> <li>• buckling; and</li> <li>• general safety.</li> </ul>	Prior to secondary extraction within 100 m of any WCPL asset and undertaken at 50 m intervals until the active mining face is 100 m past the WCPL asset.	Mine Surveyor
Culverts	Integrity of culverts.	Cracking of concrete culverts or grade reversal.	Prior to secondary extraction within 100 m of culverts and undertaken at 50 m intervals until the active mining face is 100 m past the culverts.	Infrastructure Coordinator
Farm buildings, sheds, tanks and house (Whynot Homestead)	As described in the Heritage Management Plan.	As described in the Heritage Management Plan.	As described in the Heritage Management Plan.	Infrastructure Coordinator
All	Visual inspections of other WCPL assets.	The general condition of WCPL assets including safety and serviceability.	Monthly inspection during secondary extraction of Longwalls 21 to 24.	Mine Surveyor

<sup>1</sup> Active service lines include all services required for mining at the Wambo Coal Mine (electricity supply, telecommunications, water supply and mine dewatering).

## 4.2 SUBSIDENCE CONSEQUENCES MONITORING

WCPL will compare the results of the subsidence impact monitoring against the built features performance measures and performance indicators. In the event the observed subsidence impacts exceed the performance measures or indicators, WCPL will assess the consequences of the exceedance in accordance with the Contingency Plan described in **Section 7**.

## 5 MANAGEMENT MEASURES

A number of management measures are applicable to WCPL assets. The key management measures are summarised in **Table 3**.

**Table 3  
WAMP Key Management Measures**

Management Measure	Timing/Frequency	Responsibility
<b>Pre-mining</b>		
<b>Structural assessment</b> of WCPL assets to identify modifications potentially required pre-subsidence.	Structural assessment and any identification of modifications required will be undertaken prior to secondary extraction within 1,000 m of WCPL assets.	Underground Mining Engineer
Posting of <b>warning signs</b> at suitable locations on unsealed roads and site access tracks.	Prior to secondary extraction of each longwall.	Technical Services Manager
<b>Notification to electrical engineer in charge</b> prior to subsidence effects on WCPL powerlines.	Prior to secondary extraction within 100 m of a power line.	Technical Services Manager
<b>Notification to Open Cut Examiner</b> prior to subsidence effects on access roads.	Prior to secondary extraction within 100 m of an access road.	Technical Services Manager
Assessment of water pipelines and <b>provision of sufficient slack in pipelines</b> for subsidence.	Prior to secondary extraction within 100 m of pipeline.	Infrastructure Coordinator
<b>Assessment of bores</b> and decommission and seal prior to extraction if required (dependent on condition).	Prior to secondary extraction of each longwall.	Technical Services Manager
Whynot Homestead will be <b>fenced to prevent access</b> .	Prior to secondary extraction of Longwall 21.	Infrastructure Coordinator
<b>Decommissioning</b> of United gas extraction well (VW3).	Prior to secondary extraction of Longwall 21.	Technical Services Manager
<b>During Mining</b>		
Maintain <b>safe access</b> to WCPL assets such that WCPL personnel are able to undertake routine maintenance and remediation works as required.	During secondary extraction of Longwalls 21 to 24. Regular inspection when undermining (internal notification process for any significant impacts observed by WCPL personnel).	Underground Mining Engineer
<b>Communication protocols</b> to ensure interaction between underground and surface operations.	Weekly meetings.	Infrastructure Coordinator
WCPL <b>internal longwall panel status reports</b> to ensure internal WCPL stakeholders are aware of the longwall progression and are able to provide sufficient notification to relevant WCPL personnel regarding potential subsidence impacts to WCPL assets.	WCPL personnel to conduct fortnightly reports during secondary extraction of Longwalls 21 to 24. WCPL personnel to send weekly status and aerial photo to the relevant internal stakeholders.	Mine Surveyor
Provision of a 15 m <b>separation barrier around the Montrose West pit walls</b> .	Always.	Technical Services Manager
<b>Post-mining</b>		
Update <b>warning signs</b> if a change to the WCPL asset is identified during monitoring described in <b>Table 2</b> .	If change detected. Full review following completion of active mining.	Technical Services Manager
<b>Repair</b> of WCPL assets in accordance with associated standards and procedures.	As required.	Infrastructure Coordinator
<b>Structural assessment</b> of WCPL assets and subsidence assessment post-Longwalls 21 to 24 extraction.	Following completion of active mining.	Technical Services Manager
<b>Structural assessment</b> of Whynot Homestead to assess if demolition is required.	Following completion of active mining.	Infrastructure Coordinator

## 6 ASSESSMENT OF PERFORMANCE INDICATORS AND MEASURES

In accordance with Condition B2 of Schedule 2 of the Development Consent (DA 305-7-2003), performance indicators have been developed for the performance measures listed in **Table 1**.

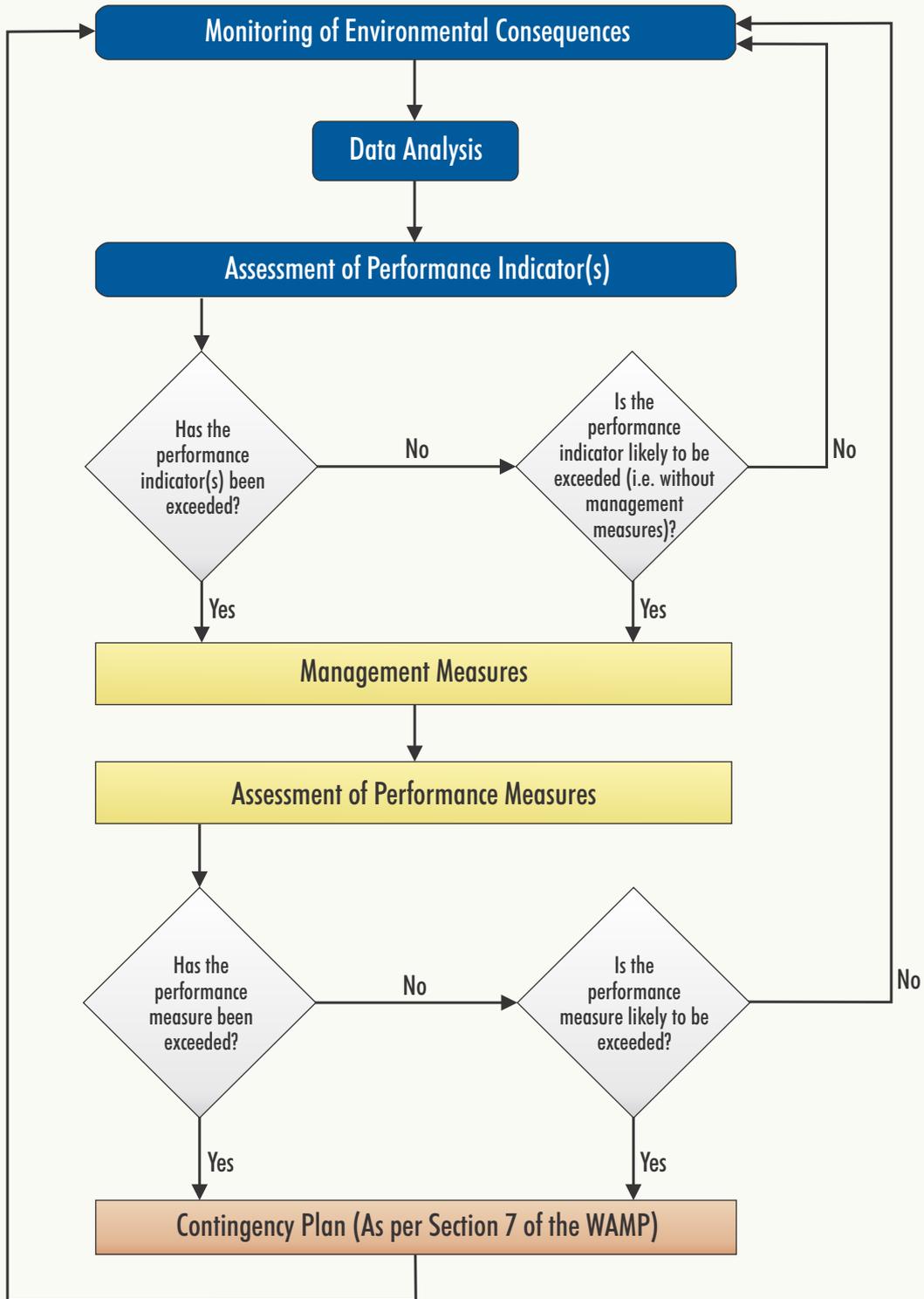
The proposed performance indicators for the built features performance measures will be considered to have been exceeded if:

- the **structural integrity** of any WCPL asset is assessed to have been compromised;
- the **functionality** of any WCPL powerlines, cables or pipelines is compromised; or
- the **integrity of access roads** required for the serviceability of WCPL assets is not maintained.

Monitoring conducted to inform the assessment of the secondary extraction of Longwalls 21 to 24 against the performance indicators for the performance measures relevant to WCPL assets is outlined in **Section 4** of this WAMP. The monitoring process and subsequent assessment of performance indicators and measures is outlined in **Figure 3**.

If a performance measure is considered to have been exceeded, the Contingency Plan outlined in **Section 7** of this WAMP will be implemented.

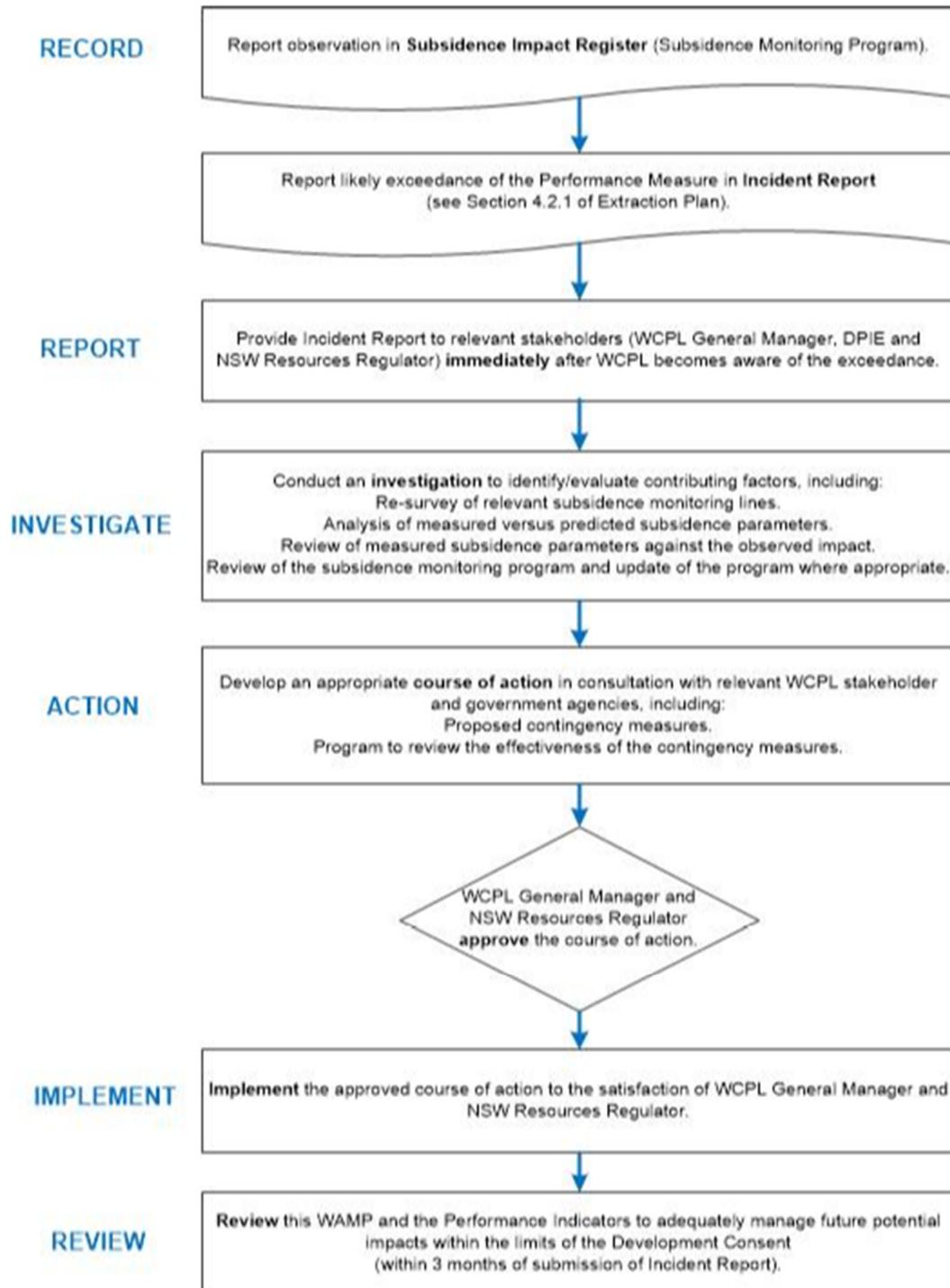
# CONTINGENCY MANAGEMENT



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## 7 CONTINGENCY PLAN

In the event the built features performance measures summarised in **Table 1** are considered to have been exceeded or are likely to be exceeded, in accordance with the schematic presented in **Figure 3**, WCPL will implement the following Contingency Plan:



Note: DPIE = NSW Department of Planning, Industry and Environment

## 8 ROLES AND RESPONSIBILITIES

Key responsibilities of WCPL personnel in relation to this WAMP are summarised in **Table 4**. Responsibilities may be delegated as required.

**Table 4**  
**WAMP Responsibilities Summary**

<b>Responsibility</b>	<b>Task</b>
<b>General Manager</b>	<ul style="list-style-type: none"> <li>Ensure resources are available to WCPL personnel to facilitate the completion of responsibilities under this WAMP.</li> </ul>
<b>Mining Engineering Manager (Underground Mine Manager)</b>	<ul style="list-style-type: none"> <li>Ensure resources are available to WCPL personnel to facilitate the completion of responsibilities under this WAMP.</li> </ul>
<b>Technical Services Manager</b>	<ul style="list-style-type: none"> <li>Ensure timely and accurate Subsidence Management Status Reporting under this WAMP.</li> <li>Ensure the Subsidence Monitoring Program and this WAMP are implemented.</li> <li>Ensure monitoring and Subsidence Management Status Reports required under the Subsidence Monitoring Program and this WAMP are: carried out within specified timeframes; adequately checked and processed; and are prepared to the required standard.</li> </ul>
<b>Infrastructure Coordinator</b>	<ul style="list-style-type: none"> <li>Ensure site services are maintained in a safe and serviceable condition.</li> </ul>
<b>Environment and Community Manager</b>	<ul style="list-style-type: none"> <li>Liase with relevant stakeholders regarding subsidence impact management and related environmental consequences.</li> <li>Ensure Incident Reports and Subsidence Management Status Reports required under this WAMP are prepared within specified timeframes and to the required standard.</li> </ul>
<b>Underground Mining Engineer</b>	<ul style="list-style-type: none"> <li>Undertake relevant monitoring and implementation of management measures summarised in <b>Tables 2 and 3</b> respectively.</li> </ul>
<b>Mine Surveyor</b>	<ul style="list-style-type: none"> <li>Undertake all subsidence monitoring to the required standard within the specified timeframes and ensure data are adequately checked, processed and recorded.</li> </ul>

ATTACHMENT 1

WCPL ASSET MANAGEMENT PLAN TRIGGER ACTION RESPONSE PLAN

**Table A-1  
WCPL Asset Management Plan Trigger Action Response Plan**

Condition	Normal	Level 1	Level 2
	Predicted Impacts	Implement Management Measures	Restoration/Contingency Phase
<b>Trigger</b>	<ul style="list-style-type: none"> <li>Subsidence effects on WCPL assets.</li> </ul>	<ul style="list-style-type: none"> <li>Management measures implemented (with regard to the specific circumstances of the subsidence impact [e.g. the nature and extent of the impact] in accordance with <b>Section 5</b>).</li> </ul>	<ul style="list-style-type: none"> <li>If the Performance Measure relevant to WCPL assets has been exceeded, or is likely to be exceeded (i.e. loss of safety or serviceability).</li> </ul>
<b>Action</b>	<ul style="list-style-type: none"> <li>Conduct monitoring, consistent with <b>Section 4</b> and the Subsidence Monitoring Program (Appendix H of the Extraction Plan for Longwalls 21 to 24).</li> <li>Implement management measures, as required, in accordance with <b>Section 5</b>.</li> </ul>	<ul style="list-style-type: none"> <li>Implement management measures, as required, in accordance with <b>Section 5</b>.</li> </ul>	<ul style="list-style-type: none"> <li>Implement Contingency Plan described in <b>Section 7</b>.</li> </ul>
<b>Frequency</b>	<ul style="list-style-type: none"> <li>Monitoring frequency consistent with <b>Section 4</b>.</li> </ul>	<ul style="list-style-type: none"> <li>As required, in accordance with <b>Section 5</b>.</li> </ul>	<ul style="list-style-type: none"> <li>As required, in accordance with <b>Section 7</b>.</li> </ul>
<b>Position of Decision Making</b>	<ul style="list-style-type: none"> <li>Technical Services Manager.</li> </ul>	<ul style="list-style-type: none"> <li>Technical Services Manager.</li> <li>Mining Engineering Manager (Underground Mine Manager).</li> </ul>	<ul style="list-style-type: none"> <li>General Manager.</li> </ul>

Note: WCPL refers to Wambo Coal Pty Limited.