

Metallurgical Coal



ANNEX H BUILT FEATURES MANAGEMENT PLAN

WEST CLIFF AREA 5 LONGWALLS 37 AND 38 EXTRACTION PLAN

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Rev: A

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Attachments

ATTACHMENT A – APPIN ROAD MP (RMS)

ATTACHMENT B – WCA5 PUBLIC ROADS MP (WSC)

ATTACHMENT C – ELECTRICITY ASSETS MP (INTEGRAL ENERGY)

ATTACHMENT D – SYDNEY WATER MP (SYDNEY WATER)

ATTACHMENT E – TELECOMMUNICATIONS MP (TELSTRA AND POWERTEL)

Review History

| Revision | Description of Changes | Date | Approved |
|----------|-----------------------------|------------------|----------|
| P0 | New Document | June 2012 | |
| P1 | Document for review | March/April 2013 | |
| P2 | Revised Document | June 2013 | |
| A | Draft for Agency comment | June 2013 | |
| A | Final (no further comments) | August 2013 | |

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1 INTRODUCTION

1.1 PROJECT BACKGROUND

BHP Billiton Illawarra Coal (BHPBIC) operates the Bulli Seam Operations (BSO) (Appin and West Cliff Collieries) extracting hard coking coal used for steel production.

On 22 December 2011 the Planning and Assessment Commission (PAC), under delegation of the Minister for Planning, approved the BSO Project (MP 08_0150) under Part 3A of the *Environmental Planning and Assessment Act 1979* (EP&A Act) to continue mining operations until 31 December 2041.

This Built Features Management Plan (BFMP) supports the Longwalls 37 and 38 Extraction Plan for West Cliff Area 5. The relationship between this BFMP and the other components of the Extraction Plan is shown in Figure 1 of the Extraction Plan.

1.2 SCOPE

This BFMP has been prepared by Cardno on behalf of BHPBIC in accordance with the BSO Approval *Condition 5 (g), Schedule 3* as follows:

5. *The Proponent shall prepare and implement an Extraction Plan for first and second workings within each longwall mining domain to the satisfaction of the Director-General. Each extraction plan must:*
 - g. *include a Built Features Management Plan, which has been prepared in consultation with DRE and the owners of affected public infrastructure, to manage the potential subsidence impacts and/or environmental consequences of the proposed second workings, and which:*
 - *addresses in appropriate detail all items of key public infrastructure and other public infrastructure and all classes of other built features;*
 - *has been prepared following appropriate consultation with the owner/s of potentially affected features;*
 - *recommends appropriate pre-mining measures to reduce subsidence impacts;*
 - *recommends appropriate remedial measures and includes commitments to mitigate, repair, replace or compensate all predicted impacts on potentially affected built features in a timely manner; and*
 - *in the case of all key public infrastructure, and other public infrastructure except roads, trails and associated structures, reports, external auditing for compliance with ISO 31000 (or alternative standard agreed with the infrastructure owner) and provides for annual auditing of compliance and effectiveness during extraction of longwalls which may impact infrastructure.*

The Study Area for the Extraction Plan is defined in accordance with Mine Subsidence Engineering Consultants (MSEC, 2013), as the surface area predicted to be affected by the proposed mining of Longwalls 37 and 38 and encompasses the area bounded by, whichever is the greater of the following limits:

- 35⁰ Angle of Draw for the maximum depth of cover, which equates to a horizontal distance of between 320 m and 380 m outside the limit of the proposed extraction area); and
- The 20 mm predicted limit of vertical subsidence, which is generally within the 35⁰ Angle of Draw.

Additionally, features sensitive to far-field movements, which includes potential horizontal, valley closure and valley upsidence movements, which may be outside the 20 mm subsidence zone or 35⁰ Angle of Draw have been assessed including:

- Watercourses (including the Georges River), within the predicted limits of 20 mm total upsidence and 20 mm total closure;
- Wedderburn Airport;
- Groundwater bores; and
- Survey control marks.

Two separate Study Areas have been defined, one for each of the longwalls. The Longwall 37 Study Area is located primarily to the west of the Georges River; and the Longwall 38 Study Area is located primarily to the east of the Georges River. The Study Area locations are illustrated by **Figure 1** (MSEC, 2013). It is noted that while the Study Areas do traverse the Georges River, neither of the proposed longwalls will mine under the River.

1.3 OBJECTIVES

The objectives of this BFMP are to identify key infrastructure, which may potentially be affected by the proposed mining of Longwalls 37 and 38; and to describe the processes implemented by BHPBIC to develop asset specific Infrastructure Management Plans (IMPs) and Property Subsidence Management Plans (PSMP) for these assets.

Agreements with individual asset owners (referred to as IMPs) are currently in place (for West Cliff Area 5) and will be updated in consultation with those owners and relevant agencies, and submitted to Department of Planning and Infrastructure (DP&I) prior to the extraction of Longwalls 37 and 38. This BFMP provides an overview of the potential impacts to built features from the extraction of the longwalls and documents the arrangements that are currently in place, which will be adopted (as relevant) for West Cliff Area 5.

The aim of these IMPs is to manage the potential subsidence impacts and/or environmental consequences on affected public infrastructure and all classes of other built features in consultation with the asset owner. PSMPs will be prepared on an 'as needs' basis with private landowners in relation to assets, such as houses and farm dams. The public infrastructure and other classes of built features identified in the Study Area are shown on the MSEC (2013) figures, MSEC533-15 to MSEC533-22.

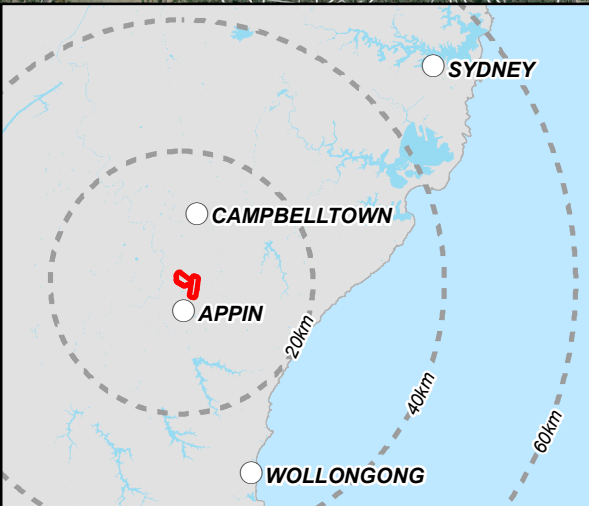
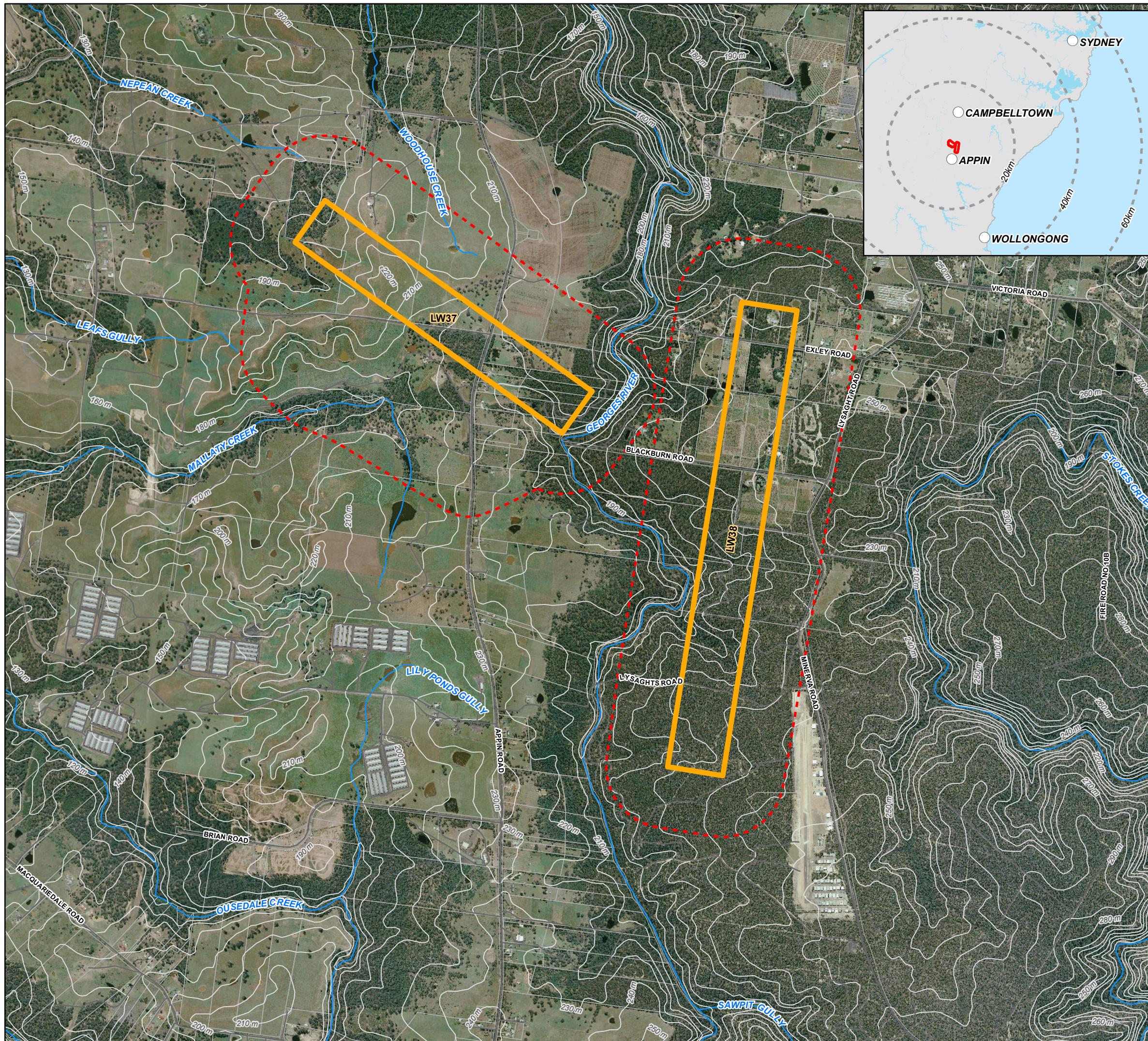
1.4 DISTRIBUTION

The finalised BFMP (and applicable IMPs) will be distributed to:

- DP&I.
- Trade and Investment - Division of Resources and Energy (DRE).
- Owners of affected infrastructure.

The BSO Approval requires the BFMP to be developed in consultation with any potentially affected public authorities. This will be achieved through the consultation methods detailed in **Section 7.2** and **Section 7.3**.

BHPBIC will make the BFMP publicly available on the BHPBIC website (*Condition 11, Schedule 6*). The PSMPs and the IMPs are the agreements between the asset owners and BHPBIC and will not be made public if they include sensitive information.



**West Cliff Area 5
Study Areas
(LW37 and 38)**

- Legend**
- - - Study Area
 - Local Roads (LPI)
 - 10m Contours (LPI)
 - Watercourses (LPI)
 - Cadastre (LPI)
 - West Cliff LW 37 and 38 (BHPBIC 2013)

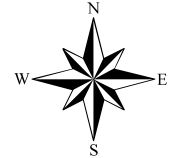
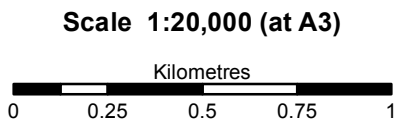


FIGURE 1



2 STATUTORY REQUIREMENTS

Extraction of coal from Longwalls 37 and 38 will be in accordance with the conditions set out in the BSO Approval (08_0150), and the requirements of relevant licences and permits (including conditions attached to mining leases).

2.1 BSO APPROVAL

Condition 5 (g), Schedule 3 of the BSO Approval requires the preparation of a BFMP to manage the potential impacts and/or environmental consequences of the proposed workings on public infrastructure and other built features (refer **Section 1.2**).

The specific IMPs will also address the requirements detailed in *Condition 6, Schedule 3* and *Condition 2, Schedule 6* of the BSO Approval as shown in **Table 2.1**.

Table 2.1 – Management Plan Requirements

| Project Approval Condition | Relevant BFMP Section |
|---|---|
| <p>Condition 6 – Schedule 3</p> <p>The Proponent shall ensure that the management plans required under <i>Condition 5(g)-(l)</i> above include:</p> <ul style="list-style-type: none"> (a) an assessment of the potential environmental consequences of the Extraction Plan, incorporating any relevant information that has been obtained since this approval; (b) a detailed description of the measures that would be implemented to remediate predicted impacts. | <p>Section 4</p> <p>Section 7</p> |
| <p>Condition 2 – Schedule 6</p> <p>The Proponent shall ensure that the management plans required under this approval are prepared in accordance with any relevant guidelines, and include:</p> <ul style="list-style-type: none"> (a) detailed baseline data; (b) a description of: <ul style="list-style-type: none"> – the relevant statutory requirements (including any relevant approval, licence or lease conditions); – any relevant limits or performance measures/criteria; (c) a description of the measures that would be implemented to comply with the relevant statutory, limits, requirements or performance measures/criteria; (d) a program to monitor and report on the: <ul style="list-style-type: none"> – impacts and environmental performance of the project; – effectiveness of any management measures (see c above); (e) a contingency plan to manage any unpredicted impacts and their consequences and to ensure that ongoing impacts reduce to levels below relevant impact assessment criteria as quickly as possible; (f) a program to investigate and implement ways to improve the environmental performance of the project over time; | <p>Section 3</p> <p>Section 2</p> <p>Section 5</p> <p>Sections 5 to 8</p> <p>Sections 5 to 8</p> <p>Section 6</p> <p>Section 8</p> <p>Section 10</p> <p>Section 9</p> |

| Project Approval Condition | Relevant BFMP Section |
|--|------------------------------|
| (g) a protocol for managing and reporting any: <ul style="list-style-type: none"> - incidents; - complaints; - non-compliances with statutory requirements; and - exceedances of the impact assessment criteria and/or performance criteria; and (h) a protocol for periodic review of the plan. | Section 10 |

Due consideration will be given to all the BSO Approval Conditions in the preparation of this BFMP, including those relating to auditing, rehabilitation and environmental management.

2.2 LEGISLATION AND GUIDELINES

This BFMP conforms to the requirements of the relevant legislation and advisory documents and guidelines.

Details of specific legislation and guidelines will be provided in each IMP as applicable to that particular plan.

2.3 RELEVANT LEASES AND LICENCES

The following leases and licences apply to BHPBIC's operations in West Cliff Area 5:

- Mining Leases as per **Table 2.2**.
- Environmental Protection Licence (EPL) 2504 which applies to BSO, including Appin and West Cliff Mines. A copy of the licence can be accessed at the EPA website via the following link <http://www.environment.nsw.gov.au/poeo>.
- West Cliff Mining Operations Plan (MOP) July 2007 to June 2014
- All relevant OH&S and HSEC approvals
- Any additional leases, licences of approvals resulting from the BSO Approval.

Table 2.2 – West Cliff Mine Leases, Licences and other Reference Documents

| Mining Lease - Document Number | Issue Date | Expiry Date/ Anniversary Date |
|---------------------------------------|-------------------|--------------------------------------|
| CCL 724 | 4 July 1991 | 26 October 2011 (renewal pending) |
| Part CCL 767 | 29 October 1991 | September 2010 (renewal pending) |
| CCL 381 | 24 October 1991 | 23 October 2012 (renewal pending) |
| ML 1678 | 27 September 2012 | 26 September 2033 |
| MPL 200 | 13 January 1982 | 13 January 2024 |
| MPL 201 | 13 January 1982 | 13 January 2024 |

3 BASELINE ASSESSMENT

Built features within the Longwalls 37 and 38 Study Area were identified and assessed in the MSEC Report (MSEC, 2013) appended to the Extraction Plan as **Annex A**. The built features are listed below in **Table 3.1** and shown in **Figure 2**.

These assets are largely the same as the assets present in the currently mined areas of West Cliff Area 5 to the south. As such there are existing IMPs in place for infrastructure, detailing the management and mitigation measures agreed between BHPBIC and the asset owners (refer **Table 3.1**). These IMPs will be updated in consultation with asset owners to address the extraction of Longwalls 37 and 38.

Descriptions of these assets, and the potential impacts on them from the extraction of Longwalls 37 and 38, are provided in **Section 4**.

A summary of potential mitigation and management measures are provided in **Section 7**, however these will be further developed in consultation with the asset owners and included in the updated IMPs for each item prior to mining.

Table 3.1 – Occurrence and Management Documentation for Built Features in WCA5

| Public Utilities | LW 37 & 38 | West Cliff Area 5 | Management Plan (to be updated if required) |
|--|------------|-------------------|---|
| Roads (Appin Road and local roads - Lysaght/Minerva Road, Blackburn Road and Exley Road) | ✓ | ✓ | Roads Management Plan to be updated. |
| Culverts (associated with Roads see above) | ✓ | ✓ | See above |
| Water, Gas or Sewerage Pipelines (Sydney Water and United Utilities) | ✓ | ✓ | LW Mining Beneath the Macarthur Water Supply Pipeline Revision 4 May 2011 to be updated |
| Electricity Transmission Lines or associated plants | ✓ | ✓ | Integral Energy Transmission Infrastructure Monitoring & Management Plan to be updated |
| Telecommunications Lines or associated Plants | ✓ | ✓ | Telecommunications Management Plan to be updated |
| Air Strips | ✓ | ✓ | Wedderburn Airport Management Plan to be prepared / updated |
| Farm buildings or sheds | ✓ | ✓ | Specific PSMP will be negotiated with the Property owner |
| Tanks | ✓ | ✓ | Specific PSMP will be negotiated with the Property owner |
| Gas or Fuel Storages | ✓ | ✓ | Specific PSMP will be negotiated with the Property owner |

| Public Utilities | LW 37 & 38 | West Cliff Area 5 | Management Plan (to be updated if required) |
|---|-----------------------|--------------------------|---|
| Fences | ✓ | ✓ | Specific PSMP will be negotiated with the Property owner |
| Farm Dams | ✓ | ✓ | Specific PSMP will be negotiated with the Property owner |
| Wells or Bores | ✓ | ✓ | Specific PSMP will be negotiated with the Property owner |
| Areas of Archaeological significance | ✓ | ✓ | Archaeological sites will be surveyed and a monitoring programme established. |
| Permanent Survey Control Marks | ✓ | ✓ | BHPBIC will restore any survey marks disrupted by mining |
| Houses | ✓ | ✓ | Specific PSMP will be negotiated with the Property owner |
| Associated structures such as Workshops, Garages, on-site Waste Water Systems, Water or Gas Tanks or Swimming Pools | ✓ | ✓ | Specific PSMP will be negotiated with the Property owner |

Public Infrastructure within West Cliff Longwalls 37 and 38

WESTCLIFF AREA 5
LW 37 and 38

Legend

- - - Study Area
 - Survey Marks (MSEC, 2013)
 - Major Road (LPI)
 - Arterial Road (LPI)
 - Local Road (LPI)
 - - - Tracks/Paths (LPI)
 - Watercourses (LPI)
 - Cadastre (LPI)
 - West Cliff LW 37 and 38 (BHPBIC 2013)
- Buildings and Farm Dams (MSEC, 2013)**
- Dams
 - Houses
 - Pools
 - Rural Structures
 - Tanks

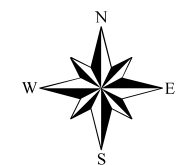
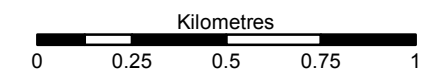
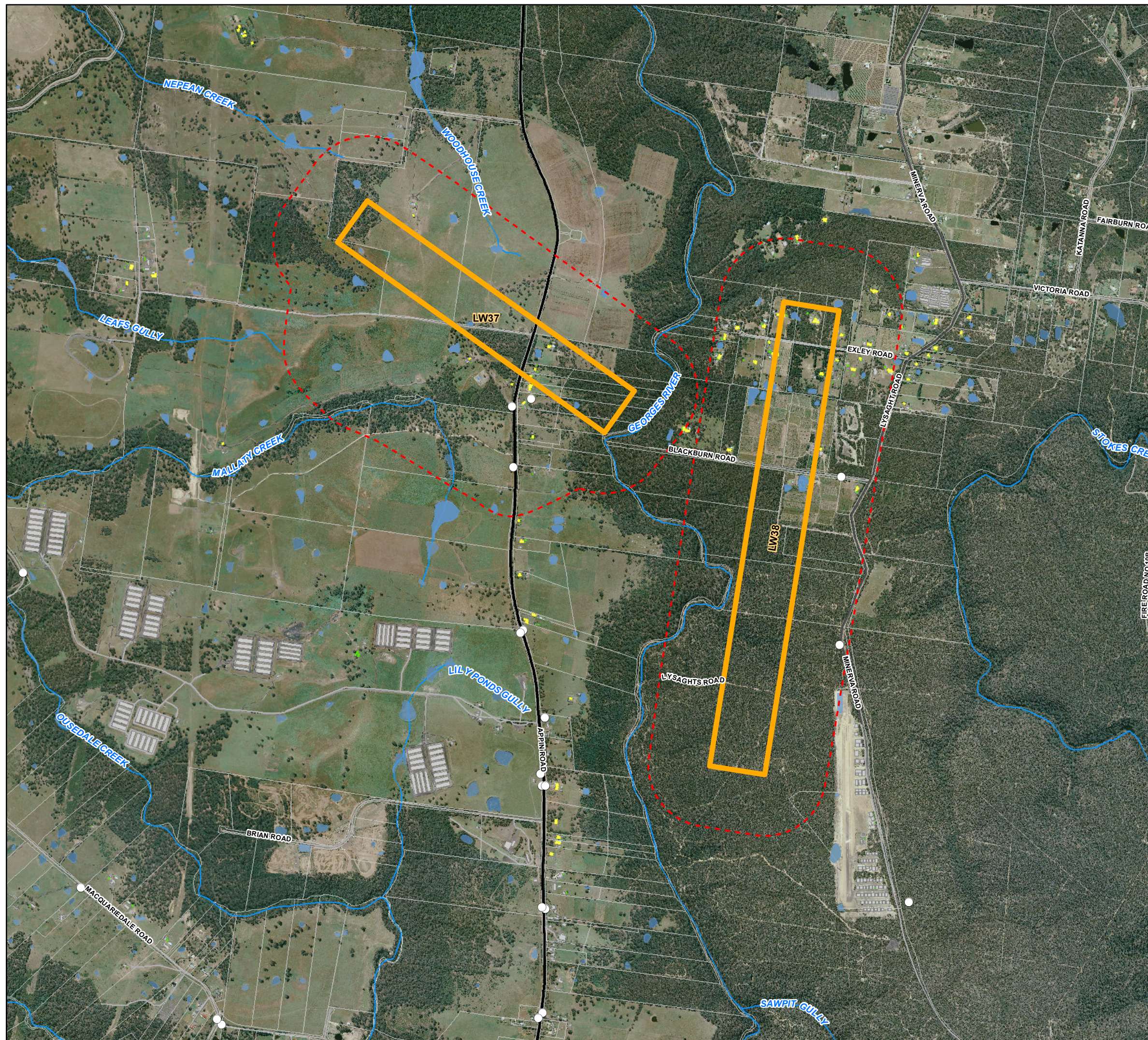


FIGURE 2

Scale 1:20,000 (at A3)



Map Produced by Cardno NSW/ACT Pty Ltd (WOL)
Date: 14/03/2013
Coordinate System: GDA 1994 MGA Zone 56
Project: 112054-01
Map: G1004_PublicInfrastructure_LW37and38.mxd 02
Aerial imagery supplied by BHPBIC (2007 and 2009)



4 PREDICTED IMPACTS

4.1 APPIN ROAD

Longwall 38 is approximately 900 m to the west of Appin Road at the southern end of the longwall and approximately 1300 m from Appin Road at the northern end. At these distances, there are no significant predicted conventional subsidence movements due to the extraction of Longwall 38, therefore prediction results for Longwall 37 only have been presented by MSEC (2013).

The maximum predicted conventional tilt along Appin Road within the Study Area, at any time during or after the extraction of Longwall 37, is 6.2 mm/m (i.e. 0.6%) or a change in grade of 1 in 160. The existing gradients along the alignment of the road within the Study Area vary up to approximately 50 mm/m (i.e. 5%) with an average existing gradient of approximately 15 mm/m (ie 1.5%).

It is unlikely, therefore, that the predicted conventional tilts along the road would result in significant changes in surface water drainage, as the maximum predicted change in grade is less than 1% and is much less than the typical existing gradients along the alignment of the road within the Study Area.

The maximum predicted conventional hogging and sagging curvature along the road within the Study Area, at any time during or after the extraction of the proposed longwalls, are 0.07 km^{-1} and 0.12 km^{-1} respectively. The minimum radii of curvatures associated with the maximum predicted hogging and sagging curvatures are 14 km and 8 km respectively.

The road is of flexible construction with a bitumen seal and is likely to tolerate curvatures of these magnitudes without significant impact. It is possible that minor cracking could occur in some places along the road, due to localised concentrations of tensile strains, and that minor rippling of the road surface could occur in other places, due to localised concentrations of compressive strains.

As the magnitudes of the maximum predicted curvatures are relatively low, any such impacts are likely to be infrequent occurrences and of a minor nature.

4.2 LOCAL ROADS

The locations of local roads within the Study Area are illustrated in **Figure 2**. Appin Road is the only public road and the only sealed road in the portion of the Study Area surrounding Longwall 37. Within the portion of the Study Area surrounding Longwall 38, there are three sealed public roads.

The main local road within the Study Area is Lysaght/Minerva Road which is located at the eastern edge of the Study Area and is approximately 230 m to the east of Longwall 38 at its nearest point. Two smaller roads, Exley and Blackburn Roads, cross over the footprint of Longwall 38 and are approximately perpendicular to the longitudinal axis of the longwall. The local roads have single carriageways with bitumen seals and no kerb and gutter.

Lysaght/Minerva Road is located outside the predicted 20 mm subsidence contour and as a result is expected to experience only minimal subsidence movements.

The maximum predicted conventional tilt along the alignment of Exley and Blackburn Roads, resulting from the extraction of the proposed longwalls, is 4.0 mm/m (i.e. 0.4 %), which represents a change in grade of 1 in 250.

The predicted tilts are less than 1% and are unlikely, therefore, to result in any significant impacts on the serviceability or surface water drainage for the local roads. If any additional

ponding or adverse changes in surface water drainage were to occur as the result of mining, the roads would be repaired using normal road maintenance techniques.

The predicted mine subsidence movements at the local roads within the Study Area are less than those observed and predicted at Appin Road which has been mined directly beneath by previously extracted longwalls. The local roads would be maintained in a safe and serviceable condition throughout the mining period using normal road maintenance techniques.

4.2.1 Local Road Drainage Culverts

There are no identified drainage culverts on public land within the Study Area. There are, however, drainage culverts on private land. These drainage culverts could be subjected to the full range of predicted conventional subsidence movements.

The predicted changes in grade are small, being less than 1%, and therefore are unlikely to result in any significant impacts on the serviceability of the local road drainage culverts. If the flow of water through any drainage culverts were to be adversely affected, as a result of extraction of the proposed longwalls, they would be remediated by re-levelling the affected culverts.

Previously extracted longwalls throughout the NSW Coalfields have been mined directly beneath drainage culverts. The incidence of impacts on drainage culverts has been found to be low where depths of cover were greater than 400 m, such as the case within the Study Area. Impacts have been generally limited to cracking in the concrete headwalls which will be remediated. In some cases however cracking in the culvert pipes require the culverts to be replaced.

With remedial measures implemented it is expected that the drainage culverts within the Study Area could be maintained in serviceable conditions throughout the mining period (MSEC, 2013).

4.3 MACARTHUR WATER SUPPLY SYSTEM

The 1200 mm diameter treated water gravity main, which forms part of the Macarthur Water Supply System, is located to the west of the Study Area and is approximately 690 m from the commencing end of Longwall 37 at its nearest point. At this distance the water pipeline is unlikely to be subjected to any significant conventional subsidence movements resulting from the extraction of the proposed longwalls, but may experience minor far field effects resulting from the extraction of Longwall 37.

The 1200 mm diameter water pipeline forms part of the Macarthur Water Supply System which was designed and constructed in 1994 to the Mine Subsidence Board's design requirements.

The pipeline has previously been mined beneath by Longwalls 30 to 35 at West Cliff. The potential valley related and far field effects at the location of the water pipeline resulting from the extraction of Longwall 37 would be negligible and much less than the parameters used for the design of the pipeline and those experienced from the previously extracted longwalls (MSEC, 2013).

Mitigation measures have been undertaken to the pipeline to accommodate the predicted movements at the point where the pipeline crosses Mallaty Creek.

With the implementation of any necessary mitigative measures, it is expected that the pipeline can be maintained in a safe and serviceable condition throughout the mining period.

4.4 SYDNEY WATER INFRASTRUCTURE

Sydney Water infrastructure within the Study Area comprises a rising sewer main between Appin and Rosemeadow. The rising sewer main forms part of a pressure sewer reticulation network for Appin Township. The section of pipeline within the Study Area comprises a 225 mm diameter polyethylene pipe.

Longwall 38 is more than 900 m to the east of the rising sewer main location at the southern end of the longwall and approximately 1300 m at the northern end. At these distances, there are no significant predicted conventional subsidence movements due to the extraction of Longwall 38, therefore prediction results for Longwall 37 only have been presented by MSEC (2013).

The maximum predicted conventional strains for the sewer pipeline, based on applying a factor of 15 to the maximum predicted conventional curvatures, are 1.1 mm/m tensile and 1.8 mm/m compressive. The pipeline does not cross any stream valleys within the Study Area and will therefore not experience valley related movements.

The maximum predicted conventional hogging and sagging curvatures at the water infrastructure, resulting from the extraction of the proposed longwalls, are 0.07 km^{-1} and 0.12 km^{-1} , respectively, which equate to minimum radii of curvatures of 15 km and 8 km, respectively.

The 225 mm diameter pipeline is made from polyethylene which can typically accommodate large movements. Recommended design parameters for the pipeline were provided in a report prepared by MSEC (MSEC421) in September 2009. MSEC (2013) consider that assuming the pipeline has been constructed using these design parameters, risk of impact to the pipeline resulting from extraction of the proposed longwalls is considered to be very low. Additionally, the rising sewer main is a pressure main and is unlikely, therefore, to be affected to any great extent by changes in gradient due to subsidence or tilt (MSEC, 2013).

4.5 GAS PIPELINES

There are no gas pipelines within the Study Area. However, there are three gas pipelines, being the Alinta EGP and AGN Natural Gas Pipelines and the Gorodok Ethane Pipeline to the west of the Study Area. The pipelines are approximately 720 m from the proposed Longwall 37 at its nearest point. All three pipelines are located within an easement, which crosses over the western ends of Longwalls 30 to 36.

At 720 m from Longwall 37, the gas pipelines are unlikely to be subjected to any significant conventional subsidence movements resulting from the extraction of the proposed longwalls, but may experience minor far field effects resulting from the extraction of Longwall 37 (MSEC, 2013).

Previous mining has occurred beneath the pipeline by Longwalls 30 to 35 at West Cliff, resulting in the pipeline remaining operable and serviceable. MSEC (2013) state that the potential valley related and far field effects at the location of the gas pipelines resulting from the extraction of Longwall 37 would be negligible and much less than the parameters used for the design of the pipelines and those experienced from the previously extracted longwalls.

Mitigation measures have been undertaken to allow the gas pipelines to accommodate the predicted movements at the Mallaty Creek crossing resulting from the extraction of Longwalls 29 to 38.

MSEC (2013) considers that the implementation of any necessary mitigation measures, would allow the pipeline to be maintained in a safe and serviceable condition throughout the mining period.

4.6 ELECTRICAL INFRASTRUCTURE

The electrical infrastructure within the Study Area comprises 11 kV powerlines, which follow the local roads through the Study Area. The powerlines consist of aerial copper cables supported on timber poles. There is a 66 kV power line and 330 kV transmission line located to the south of the Study Area boundary, above the western ends of Longwalls 31 to 36. The lines are approximately 780 m south of proposed Longwall 37 at its nearest point.

The maximum predicted tilt at the powerlines is 6.5 mm/m (i.e. 0.7%) which represents a change in verticality of 1 in 155. It is expected that the power poles within the Study Area will generally experience tilts less than this maximum, as a result of the variations in the predicted tilts across the Study Area.

The maximum predicted subsidence and tilts at the powerlines, resulting from the extraction of the proposed longwalls, are similar to those typically experienced elsewhere in the Southern Coalfield. Longwalls in the Southern Coalfield have mined directly beneath powerlines in the past, with only very minor impacts observed. Some remedial measures were undertaken, which included adjustments to cable catenaries, pole tilts and to consumer cables, connecting between the powerlines and the houses. The incidence of these impacts was very low.

Based on this experience it is likely that the extraction of the proposed longwalls would result in minor impacts on the powerlines within the Study Area. Remedial measures will be undertaken during the extraction of longwalls as required.

The 66 kV power line and 330 kV transmission line have been mined beneath previously by Longwalls 31 to 35 at West Cliff with continued operability and serviceability. Mitigation measures, undertaken for one of the 330 kV towers, included construction of a cruciform base. With the implementation of mitigation measures, where required, the 66 kV power line and 330 kV transmission line would be maintained in a safe and serviceable condition throughout the mining period (MSEC, 2013).

4.7 TELECOMMUNICATIONS INFRASTRUCTURE

The telecommunications infrastructure within the Study Area comprises a direct buried optical fibre cable, aerial and direct buried copper cables. Longwall 38 is more than 900 m to the east of the optical fibre cable location at the southern end of the longwall and approximately 1300 m at the northern end. At these distances there are no significant predicted conventional subsidence movements due to extraction of Longwall 38 therefore prediction results for Longwall 37 only have been presented by MSEC (2013).

4.7.1 Optical Fibre Cables

The optical fibre cables are direct buried and are unlikely, therefore, to be impacted by tilt. The cables are also unlikely to be impacted by curvature, as the cables are flexible and would be expected to tolerate the predicted minimum radius of curvature within the Study Area of 8 km.

The optical fibre could, however, be affected by the ground strains resulting from the extraction of the proposed longwalls. The greatest potential for impacts will occur as a result of localised ground strains due to non-conventional ground movements.

The tensile strains in the optical fibre cables could be higher than predicted, where the cables connect to the support structures, which may act as anchor points, preventing any differential movements that may have been allowed to occur in the ground. Tree roots have also been known to anchor cables to the ground. The extent to which the anchor points affect the ability of the cables to tolerate the mine subsidence movements depends on the cable size, type, age, installation method and ground conditions.

In addition to this, optical fibre cables contain additional fibre lengths over the sheath lengths, where the individual fibres are loosely contained within tubes. Compression of the sheaths can transfer to the loose tubes and fibres and result in “micro-bending” of the fibres constrained within the tubes, leading to higher attenuation of the transmitted signal (MSEC, 2013). If the maximum predicted compressive strains were to be fully transferred into the optical fibre cables, the strains could be of sufficient magnitude to result in the reduction in capacities of the cables or transmission loss.

The strains transferred to optical fibre cables can be monitored using an Optical Time Domain Reflectometer (OTDR). The OTDR would be used to notify the infrastructure owners of strain concentrations due to non-conventional ground movements.

Optical fibre cables have been mined directly beneath by previously extracted longwalls in the Southern Coalfield of New South Wales, with the implementation of suitable management strategies resulting in their continued operability and serviceability. Predicted movements will be reviewed by the infrastructure owners, to assess the potential impacts and to develop the appropriate management strategies.

4.7.2 Copper Telecommunications Cables

Direct buried copper telecommunications cables are unlikely to be impacted by tilt. The cables are also unlikely to be impacted by curvature, as the cables are flexible and would be expected to tolerate the predicted minimum radius of curvature within the Study Area of 8 km.

The direct buried copper cables could, however, be affected by the ground strains resulting from the extraction of the proposed longwalls. The copper cables are more likely to be impacted by tensile strains rather than compressive strains. The cables could experience higher tensile strains where they are anchored to the ground by associate infrastructure or by tree roots. The cables could also experience higher compressive strains at creek crossings due to valley related movements (MSEC, 2013).

Aerial copper telecommunications cables are generally not affected by ground strains as they are supported by the poles above ground level. However, they could be affected by changes in bay lengths due to mining induced differential subsidence, horizontal ground movements and lateral movement at the tops of the poles due to tilting. The stability of the poles can also be affected by mining induced tilts and by changes in the catenary profiles of the cables (MSEC, 2013).

Longwalls in the Southern Coalfield of New South Wales have mined directly beneath copper telecommunications cables in the past, where the magnitudes of the predicted mine subsidence movements were similar to those predicted within West Cliff's Area 5 Study Area. There have been no reported impacts on direct buried copper telecommunications cables in case studies reviewed by MSEC (2013). There have also been no significant impacts

reported on direct buried telecommunications cables elsewhere in the NSW Coalfields, where depths of cover were greater than 400 m, such as the case for the proposed longwalls.

There have been only minor impacts on aerial copper telecommunications cables reported for the case studies reviewed by MSEC (2013). Some remedial measures were required, including adjustments to cable catenaries, pole tilts and consumer cables. The incidence of these impacts was very low.

It is unlikely that the extraction of the proposed longwalls would result in any significant impacts on the direct buried or aerial copper telecommunications cables within the Study Area. Any minor impacts on these cables would be repaired.

4.8 AIR STRIPS

There are no air strips within the Study Area. Wedderburn Airport is located 390 m south east of the Longwall 38 Study Area, over the previously extracted Longwalls 20 to 24. The airport comprises an airstrip approximately 1 km in length and several large sheds to the east of the airstrip.

At 390 m from Longwall 38 the airport is unlikely to be subject to any significant conventional subsidence movements resulting from the extraction of the proposed longwalls. However, the Airport may experience minor far field effects resulting from the longwall extraction. A management plan will be developed in consultation with the operators of the airport to address any impacts from the mining.

4.9 SURVEY CONTROL MARKS

There are survey control marks located across the Study Area, which are therefore, expected to experience the full range of predicted subsidence movements. The survey control marks located outside of the Study Area, but in its vicinity, are also expected to experience small amounts of subsidence and small far-field movements (MSEC, 2013).

On the completion of the longwalls, once the ground has stabilised, the survey control marks required for future use will be reinstated.

4.10 BUILDINGS, HOUSES AND OTHER ASSETS

There are 207 rural building structures, which have been identified within the Study Area, including sheds, garages, gazebos, pergolas, greenhouses, playhouses, shade structures and other non-residential building structures. Other built features identified within the Study Area include such structures as 33 houses, 82 water tanks, one registered ground water bore and 43 farm dams. All these features will be managed in accordance with specific PSMPs as described in **Section 7.4.8**.

5 PERFORMANCE MEASURES AND INDICATORS

The BSO Approval provides Subsidence Impact Performance Measures (*Schedule 3*). The conditions relevant to built features within the Study Area are included in **Table 5.1**.

Table 5.1 – Subsidence Impact Performance Measures

| Built features (Condition 3, Schedule 3) | |
|---|--|
| Other public infrastructure (including water supply pipelines, high pressure gas pipelines; high pressure gas pipelines and the gas distribution network; electricity transmission and distribution lines; telecommunications cables and optical fibre networks; roads, trails and associated structures). Other built features (including houses, industrial premises, swimming pools, farm dams and other improvements) | Always safe. Serviceability should be maintained wherever practicable. Loss of serviceability must be fully compensated, or else the damaged built feature or damaged infrastructure component must be replaced. |

**Note. Not all of the above mentioned features are present in the LW 37 and 38 Study Area as the subsidence impact performance measures in Schedule 3 relate to the entire BSO Area.*

In order to mitigate the potential subsidence impacts and environmental consequences from the mining of Longwall 37 and 38 monitoring and recording will be undertaken prior to mining, throughout the extraction and at the completion of extraction and associated subsidence (refer **Section 6**).

In the event that any subsidence impact is recorded appropriate management, remediation and/or mitigation measures would be implemented in consultation with and the agreement of relevant stakeholders (refer **Section 7**).

If the subsidence impact performance measures are exceeded, BHPBIC will notify the appropriate stakeholders and implement the Contingency Plan (**Section 8**).

6 MONITORING AND REPORTING

6.1 MONITORING PROGRAM

The aim of monitoring and review programs is to ensure relevant and accurate data is gathered in a timely manner to allow appropriate decision making. Monitoring programs will be developed in consultation with the relevant infrastructure owner and undertaken with their prior consent. Further monitoring detail will be provided in the revised IMPs or PSMPs for each infrastructure item as appropriate.

6.2 REPORTING

Monitoring results will be presented and reviewed at the monthly BHPBIC Subsidence Management Meetings. However, if the findings of monitoring are deemed to warrant an immediate response the Manager Infrastructure and/or Manager Property will initiate the requirements of the TARP's developed as part of the IMPs and PSMPs.

Monitoring results will be provided to infrastructure owners such as Roads and Maritime Services (RMS), Wollondilly Shire Council (WSC), Campbelltown City Council (CCC), Australian Rail Track Corporation (ARTC), Telstra, PowerTel, Sydney Water, Integral Energy the Mine Subsidence Board and relevant government regulators as appropriate.

Monitoring results will be made publicly available in accordance with BSO Approval *Condition 8 & 11, Schedule 6* and will also be included in the Annual Review *Condition 4, Schedule 6*.

7 MANAGEMENT AND MITIGATION STRATEGIES

7.1 BUILT FEATURES MANAGEMENT PLAN PROCESS

The management of potential subsidence impacts to built features has been successfully undertaken by BHPBIC for several decades. Examples of successful management in recent years have been publicly recognised via the NSW Premiers Infrastructure Award for innovation on the Hume Highway in 2011 and in the 2010 Australian Institute of Project Management Achievement Awards for the “Upper Canal Longwall 409 Mining Project.”

The BFMP Process involves frequent consultation with infrastructure owners and key stakeholders, as well as thorough revision and planning. Each IMP is a live document and may be modified at any time (with relevant stakeholder input and endorsement as required) to reflect monitoring outcomes and lessons learnt. The process of mine planning and updates to IMPs is summarised in the Illawarra Coal Mine Planning Cycle (**Figure 3**).

Given the longevity of interaction with each of the key infrastructure owners it is proposed that the management of the built features in West Cliff Area 5 will be facilitated by an extension to the existing IMPs and development of individual PSMPs as required. A general summary of these plans and the measures they will include is provided in the following sections.

7.2 CONSULTATION

BHPBIC has established consultation with numerous infrastructure owners and service providers within areas of Appin Mine and West Cliff Colliery. The following infrastructure owners attended BHPBIC’s Interagency Consultation Day held on March 5 2008 for the BSO Project, this also included project specific consultation for the Study Area.

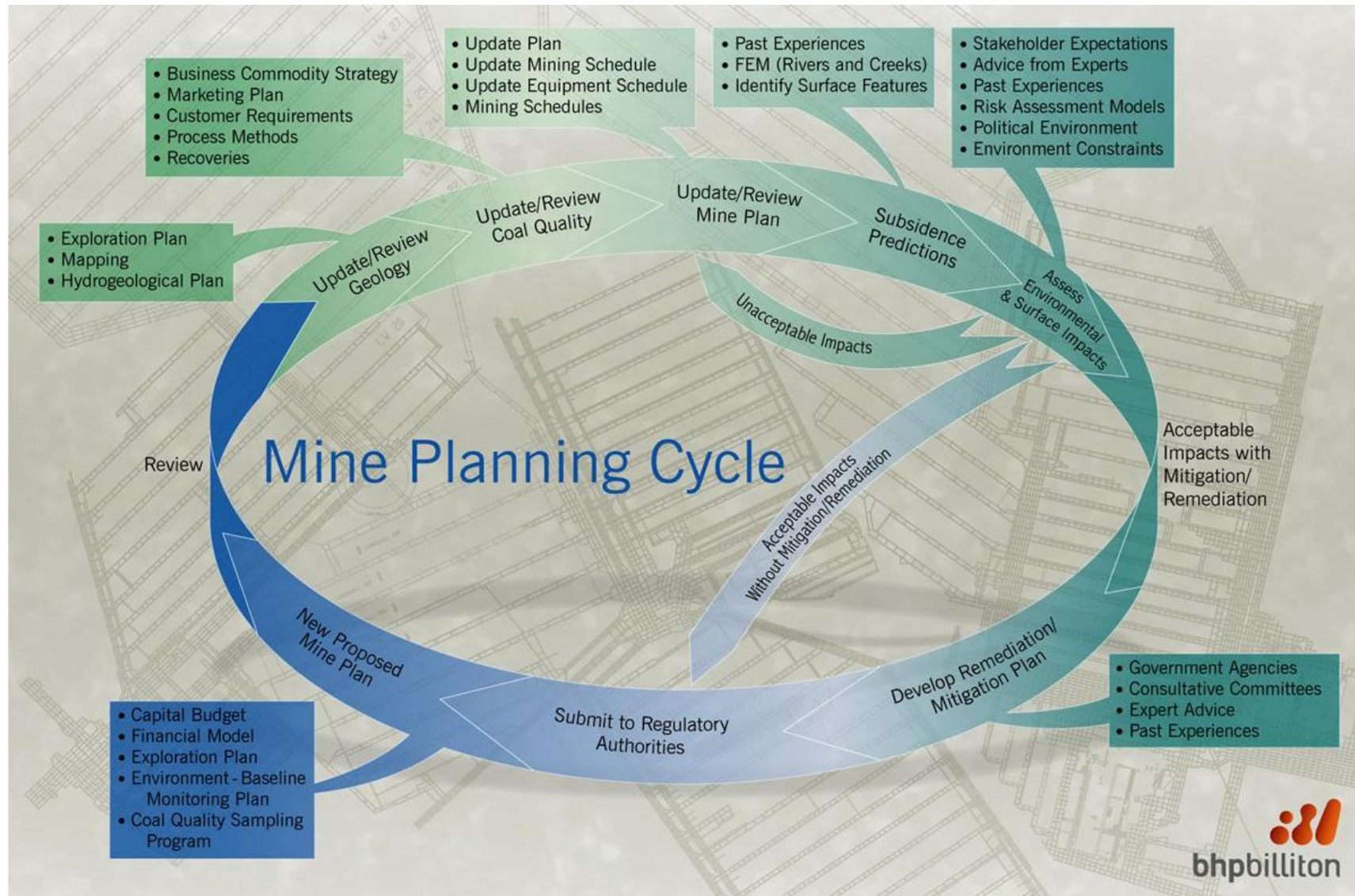
- ARTC
- Integral Energy
- PowerTel
- Sydney Water
- Telstra
- Optus

BHPBIC continues to consult with these stakeholders on a regular basis regarding the management of their assets within current and future mining areas as part of the IMP’s.

Each IMP and PSMP is developed in consultation with the relevant owner and will be provided to the infrastructure owner/manager prior to longwall extraction. These Plans will include the following information:

- Background information on BHPBIC and the mining operations.
- Specific features identified on the property and if known, any plans the infrastructure owner has for additional activities on the premises.
- Details of predicted subsidence impacts and associated probabilities of these impacts occurring.
- The expected timing of mine subsidence.
- A monitoring program to be undertaken by BHPBIC and the infrastructure owner.
- Performance measures and indicators.

Figure 3 – BHPBIC Mine Planning Cycle



- Appropriate pre-mining mitigation measures.
- Process for identifying and managing impacts, including the assistance BHPBIC and the Mine Subsidence Board would provide the infrastructure owner.
- A TARP developed in consultation with the infrastructure owners.
- Contact details and any further information from BHPBIC for improvements to the process defined above.

7.3 TECHNICAL COMMITTEE

The current process undertaken at BHPBIC for the management of major infrastructure with the potential to be at risk from mining induced subsidence is via the formation of a Technical Committee. The Technical Committee is comprised of asset owners, technical specialists, and BHPBIC representatives.

Further development of each IMP will therefore involve input from a Technical Committee (where required) developed specifically for each built feature.

The Technical Committee would further develop management measures to ensure the safe operation of infrastructure during mining and would review the performance of the management measures following the mining of each longwall.

Modification to existing IMPs for West Cliff Area 5 will include a review and update of all relevant management measures.

7.4 MITIGATION MEASURES

The BSO Approval Conditions (*Condition 5 (g), Schedule 3*) require that the BFMP recommends pre-mining mitigation measures to reduce subsidence impacts where appropriate. The pre-mining mitigation measures for the infrastructure within the Study Area will be detailed in IMPs. General detail of the proposed management of built features within the Study Area is provided below.

7.4.1 Appin Road

BHPBIC has developed a Roads Management Plan for the previously approved longwall extraction at West Cliff to manage the potential impacts on public roads, including Appin Road. The Plan was developed in consultation with the WSC, CCC, the RMS and the Mine Subsidence Board (MSB).

The Plan will be reviewed in consultation with the RMS, CCC and WSC and amendments made where necessary, to include predicted movements resulting from extraction of Longwall 37. Due to the distance of Longwall 38 from Appin Road, MSEC (2013) did not consider there to be any significant impact from the extraction of this longwall.

7.4.2 Local Roads

The Roads Management Plan will be reviewed in consultation with RMS, CCC and WSC and amendments made where necessary, to include the local roads within the Study Area.

7.4.2.1 Local Road Drainage Culverts

The Roads Management Plan will be reviewed in consultation with RMS, CCC and WSC and where required, revised to incorporate the culverts within the Study Area.

7.4.3 Macarthur Water Supply System

A management plan has been established for the 1200 mm water pipeline for Longwalls 34 to 36. The existing management plan will be reviewed, in consultation with Sydney Water, and amendments made where necessary, to include predicted movements resulting from Longwalls 37 and 38. With the implementation of these management strategies, it would be expected that the 1200 mm water pipeline can be maintained in a safe and serviceable condition during and after extraction of the proposed longwalls.

7.4.4 Sydney Water Infrastructure

Management strategies have already been developed by BHPBIC, in consultation with Sydney Water, to manage the impacts on water infrastructure within the West Cliff Colliery mining area. These management strategies will be extended to include the proposed Longwalls 37 and 38. With the implementation of these management strategies, it would be expected that Sydney Water infrastructure can be maintained in safe and serviceable conditions during and after the extraction of the proposed longwalls.

7.4.5 Gas Pipelines

A management plan has been established for the gas pipelines for the extraction of Longwalls 34 to 36. The management plan will be reviewed, in consultation with the utility owners, and amendments made to the plan where necessary, to include predicted movements resulting from Longwalls 37 and 38. With the implementation of these management strategies, it would be expected that the gas pipelines can be maintained in safe and serviceable conditions during and after the extraction of the proposed longwalls.

7.4.6 Electrical Infrastructure

BHPBIC has developed an Integral Energy Transmission Structure Monitoring and Management Plan for the longwalls at Appin Area 7, West Cliff and Dendrobium to manage the potential impacts on the electrical infrastructure. The IMP was developed in consultation with Integral Energy. The plan will be reviewed and, where required, revised to incorporate the powerlines within the Study Area. With the implementation of these management strategies, it would be expected that the powerlines could be maintained in safe and serviceable conditions during and after the extraction of the proposed longwalls. With the implementation of these management strategies, it would be expected that the electrical infrastructure can be maintained in a safe and serviceable condition during and after the extraction of the proposed longwalls.

7.4.7 Telecommunications Infrastructure

A management plan has been established for the electrical infrastructure for Longwalls 34 to 36. This management plan will be reviewed in consultation with the infrastructure owners, and amendments will be made to the plan where necessary, to incorporate the telecommunications infrastructure within the Study Area. With the implementation of these management strategies, it would be expected that the telecommunications infrastructure can

be maintained in a safe and serviceable condition during and after the extraction of the proposed longwalls.

7.4.8 Other Assets

BHPBIC will prepare PSMPs for all landholders within the Study Area, similar to those prepared for the properties at Appin Area 7 and West Cliff Colliery.

The PSMPs will address the management of all surface infrastructure including rural buildings and commercial structures. The PSMPs will be negotiated with the individual property and asset owners in consultation with the MSB prior to the commencement of longwall mining. Any mitigation measures will also be developed in consultation with the asset owner and the Mine Subsidence Board.

8 CONTINGENCY AND RESPONSE PLANS

8.1 CONTINGENCY PLAN

In the event the Subsidence Performance Measures detailed in **Section 5** of this BFMP are considered to have been exceeded, or are likely to be exceeded, BHPBIC will implement a Contingency Plan to manage any unpredicted impacts and their consequences.

This would involve:

- Capture photographic record immediately.
- Notify relevant stakeholders (including owners and any tenants) soon as practicable.
- Notify relevant agencies and specialists soon as practicable.
- Conduct site visits with stakeholders as required.
- Contract specialists to investigate and report on changes identified.
- Provide incident report to relevant agencies and/or owners/tenants.
- Develop site Corrective Management Action (CMA) in consultation with key stakeholders if required (pending stakeholder availability) and seek approvals.
- Implement CMA as agreed with stakeholders following approvals.
- Conduct initial follow up monitoring and reporting.
- Review Management Plan.
- Report in regular reporting and AEMR.

BHPBIC will consult with appropriate specialists and relevant agencies in order to devise an appropriate response in respect to the identified exceedance.

The development and implementation of contingency measures will be specifically designed to address the specific circumstances of the exceedance and assessment of consequences.

All incidents will be reported internally through BHPBIC's Incident Procedure and related records will be maintained in accordance with the Records Management Procedure (refer **Section 10.4**).

8.2 TARPS

Appropriate TARP will be developed in consultation with the infrastructure owners and provided in the IMPs.

9 INCIDENTS, COMPLAINTS, EXCEEDANCES AND NON-CONFORMANCES

9.1 INCIDENTS

BHPBIC will notify the DP&I and any other relevant agencies of any incident associated with the Bulli Seam Operations as soon as practicable after BHPBIC becomes aware of the incident. BHPBIC will provide the DP&I and any relevant agencies with a detailed report on the incident within seven days of the date of the occurrence.

9.2 COMPLAINTS HANDLING

BHPBIC will:

- Provide a readily accessible contact point through a 24 hour toll-free Community Call Line (1800 102 210). The number will be displayed prominently on BHPBIC sites in a position visible by the public as well as on publications sent to the local community.
- Respond to complaints in accordance with the BHPBIC Community Complaints and Enquiry Procedure.
- Maintain good relations and communication lines between community and BHPBIC staff.
- Keep a register of any complaints, including the details of the complaint with information such as:
 - Time and date.
 - Person receiving the complaint.
 - Complainant's contact name and phone number.
 - Description of the complaint.
 - Work area where complaint relates to.
 - Details of any verbal response.
 - Details of any written response where appropriate.

9.3 NON-CONFORMANCE PROTOCOL

The requirement to comply with all approvals, plans and procedures is the responsibility of all personnel (staff and contractors) employed on or in association with the West Cliff Mine. Regular inspections, internal audits and initiation of any remediation/rectification work will be undertaken by the Manager Infrastructure and/or Manager Landholders.

Non-conformities, corrective actions and preventative actions are managed in accordance with the BHPBIC *Non-Conformance, Preventative and Corrective Action Procedure (IHP0107)*. This procedure details the processes to be utilised with respect to the identification of non-conformances, the application of appropriate corrective action(s) to address non-conformances and the establishment of preventative actions to avoid non-conformances. The key elements of the process include:

- Identification of non-conformance and/or non-compliances.
- Recording of non-conformance and/or non-compliance.
- Evaluation of the non-conformance and/or non-compliance to determine specific corrective and preventative actions.

- Corrective and preventative actions to be assigned to a responsible person.
- Management review of corrective actions to ensure the status and effectiveness of the actions.

An Annual Review will be undertaken to assess BHPBIC's compliance with all conditions of the BSO Approval, mining leases and all other approvals and licences.

An independent environmental audit will also be undertaken (*Condition 9, Schedule 6*) to review the adequacy of strategies, plans or programs under these approvals and if appropriate, recommend actions to improve the environmental performance of the BSO. The independent environmental audit will be undertaken by a suitably qualified, experienced and independent team of experts whose appointment has been endorsed by the Director-General of DP&I.

10 PLAN ADMINISTRATION

This BFMP will be administered in accordance with the requirements of the West Cliff Area 5 EMS and the BSO Approval Conditions. A summary of the administrative requirements is provided below.

10.1 ROLES AND RESPONSIBILITIES

All statutory obligations applicable to West Cliff Area 5 operations are identified and managed via an online compliance management system (TICKIT). The online system can be accessed by the responsible BHPBIC managers from the below link:

<https://illawarracoal.tod.net.au/login>

The overall responsibility for the implementation of this BFMP resides with the Manager Infrastructure who shall be the BFMP's authorising officer.

Parties responsible for subsidence management in West Cliff Area 5 and the implementation of the BFMP include:

Head of External Affairs

- Ensure that the requisite personnel and equipment are provided to enable this BFMP to be implemented effectively.

Manager Infrastructure

- Authorise the BFMP and any amendments thereto.
- Delegate to an appropriately qualified person the responsibility to document any changes to the BFMP, recognising the potential for those changes to affect other aspects of the BFMP.
- Provide regular updates to BHPBIC on the results of the BFMP.
- Arrange information forums for key stakeholders as required.
- Prepare any report in accordance with the BFMP. Maintain records required by the BFMP.
- Organise and participate in assessment meetings called to review mining impacts.
- Within 72 hours, respond to any queries or complaints made by members of the public in relation to aspects of the BFMP.

- Organise audits and reviews of the BFMP.
- Address any identified non-conformances, assess improvement ideas submitted and implement if considered appropriate.
- Arrange for the implementation of any agreed actions, responses or remedial measures.
- Ensure surveys required by this BFMP are conducted and record details of instances where circumstances prevent these from taking place.

Survey Coordinator

- Collate survey data and present in an acceptable form for review at assessment meetings.
- Bring to the attention of the Manager Infrastructure any findings indicating an immediate response may be warranted.
- Bring to the attention of the Manager Infrastructure any non-conformances identified with the Plan provisions or ideas aimed at improving the BFMP.

Technical Experts

- Conduct the roles assigned to them in a competent and timely manner to the satisfaction of the Manager Infrastructure and formally provide expert opinion as requested.

Person(s) Performing Inspections

- Formally bring to the attention of the Manager Infrastructure any non-conformances identified with the Plan, or ideas aimed at improving the Plan.
- Conduct inspections in a safe manner.

10.2 RESOURCES REQUIRED

The Head of External Affairs provides resources sufficient to support this BFMP.

Equipment will be needed for the TARPs provisions of the IMPs and PSMPs identified in this BFMP. Where this equipment is of a specialised nature, it will be provided by the supplier of the relevant service. All equipment is to be appropriately maintained, calibrated and serviced as required in operation manuals.

It shall be the responsibility of the Manager Infrastructure to ensure that personnel and equipment are provided as required to allow the provisions of this Plan to be implemented.

10.3 TRAINING

All staff and contractors working on BHPBIC sites are required to complete the BHPBIC training program which includes:

- An initial site induction (incl. all relevant aspects of environment, safety and community).
- Safe Work Methods Statements and Job Safety Analyses, Toolbox Talks and Pre-shift communications.
- On-going job specific training and re-training (where required).

All training records are maintained by the BHPBIC Safety and Training Department (STAX database system), which can be accessed by BHPBIC staff via the online information system iPick.

It shall be the responsibility of the Manager Infrastructure to ensure that all persons and organisations having responsibilities under this BFMP are trained and understand their responsibilities.

The person(s) performing regular inspections shall be under the supervision of the Manager Infrastructure and be trained in observation and reporting. The Manager Infrastructure shall be satisfied that the person(s) performing the inspections are capable of meeting and maintaining this standard.

10.4 RECORD KEEPING AND CONTROL

Environmental Records are maintained in accordance with the BHPBIC procedure *Records Management (ICHP0108)*.

10.5 DOCUMENT CONTROL

The BHPBIC *Document Control Procedure (ICHP0103)* outlines the method for control of defined 'business critical' documentation for all BHPBIC operations. The system has been designed in such a manner to ensure that:

- Documents are approved for adequacy by authorised personnel prior to use.
- Obsolete documents are promptly removed from circulation.
- Documents are reissued, or made available, to relevant persons in a timely fashion after changes have been made and the authorisation process is complete.

The BFMP and other relevant documentation will be made available on the BHPBIC website (*Condition 11, Schedule 6*).

10.6 MANAGEMENT PLAN REVIEW

A comprehensive review of the objectives and targets associated with the BSO is undertaken on an annual basis via the BHPBIC Balanced Planning (1 year outlook) and Balanced Strategy (5 year outlook) processes. These reviews, which include involvement from senior management and other key site personnel, assess the performance of the mine over the previous year and develop goals and targets for the following period.

An annual review of the environmental performance of BSO will also be undertaken in accordance with *Condition 4, Schedule 6*. More specifically this BFMP will be subject to review (and revision if necessary, to the satisfaction of the Director-General) within three months of:

- The submission of an annual review under Condition 4, Schedule 6.
- The submission of an incident report under Condition 7, Schedule 6.
- The submission of an audit report under Condition 9, Schedule 6.
- Any modification to the conditions of the BSO Approval.

If deficiencies in the EMS and/or BFMP are identified in the interim period, the plans will be modified and approvals for these modifications sought as required. This process has been designed to ensure that all environmental documentation continues to meet current environmental requirements, including changes in technology and operational practice, and the expectations of stakeholders.

11 REFERENCES

Mine Subsidence Engineering Consultants, 2009. *The Prediction of Subsidence parameters and the Assessment of Mine Subsidence Impacts on Natural Features and Surface Infrastructure Resulting from the Bulli Seam Operations in Support of the Part 3A Application*. Report prepared for BHP Billiton Illawarra Coal. Revision D, August 2009.

Mine Subsidence Engineering Consultants, 2013. *West Cliff Colliery – Longwalls 37-38. Subsidence Predictions and Impact Assessments for the Natural Features and Surface Infrastructure in support of the Extraction Plan: Report Number: MSEC533 Revision B*. A report to BHPBIC.

Attachment A – Appin Road MP (RMS)

Attachment B – WCA5 Public Roads MP (WSC)

Attachment C – Electricity Assets MP (Integral Energy)

Attachment D – Sydney Water MP (Sydney Water)

Attachment E – Telecommunications MP (Telstra and PowerTel)