UG1 LONGWALLS 101 TO 105 BUILT FEATURES MANAGEMENT PLAN ESSENTIAL ENERGY

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1	September 2017	September 2017	Approved	MCO and MSEC	Environmental Department
2	June 2020		Inclusion of Longwalls 104-105	MCO	UG Technical Services

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1.0 INTRODUCTION

The Moolarben Coal Complex is an open cut and underground coal mining operation located approximately 40 kilometres north of Mudgee in the Western Coalfield of New South Wales (NSW) (Figure 1).

Moolarben Coal Operations Pty Ltd (MCO) is the operator of the Moolarben Coal Complex on behalf of the Moolarben Joint Venture (Moolarben Coal Mines Pty Ltd [MCM], Sojitz Moolarben Resources Pty Ltd and a consortium of Korean power companies). MCO and MCM are wholly owned subsidiaries of Yancoal Australia Limited.

The UG1 Underground Mine is a component of the approved Moolarben Coal Complex (Figure 2). The UG1 Underground Mine commenced first workings in April 2016 and commenced secondary workings (longwall extraction) in October 2017 by longwall mining methods from the Ulan Seam within Mining Lease (ML) 1605, ML 1606, ML 1628, ML 1691 and ML 1715 (Figure 3).

Mining operations at the Moolarben Coal Complex are currently approved until 31 December 2038 in accordance with Project Approval (05_0117) (Moolarben Coal Project Stage 1) (as modified) and Project Approval (08_0135) (Moolarben Coal Project Stage 2) (as modified).

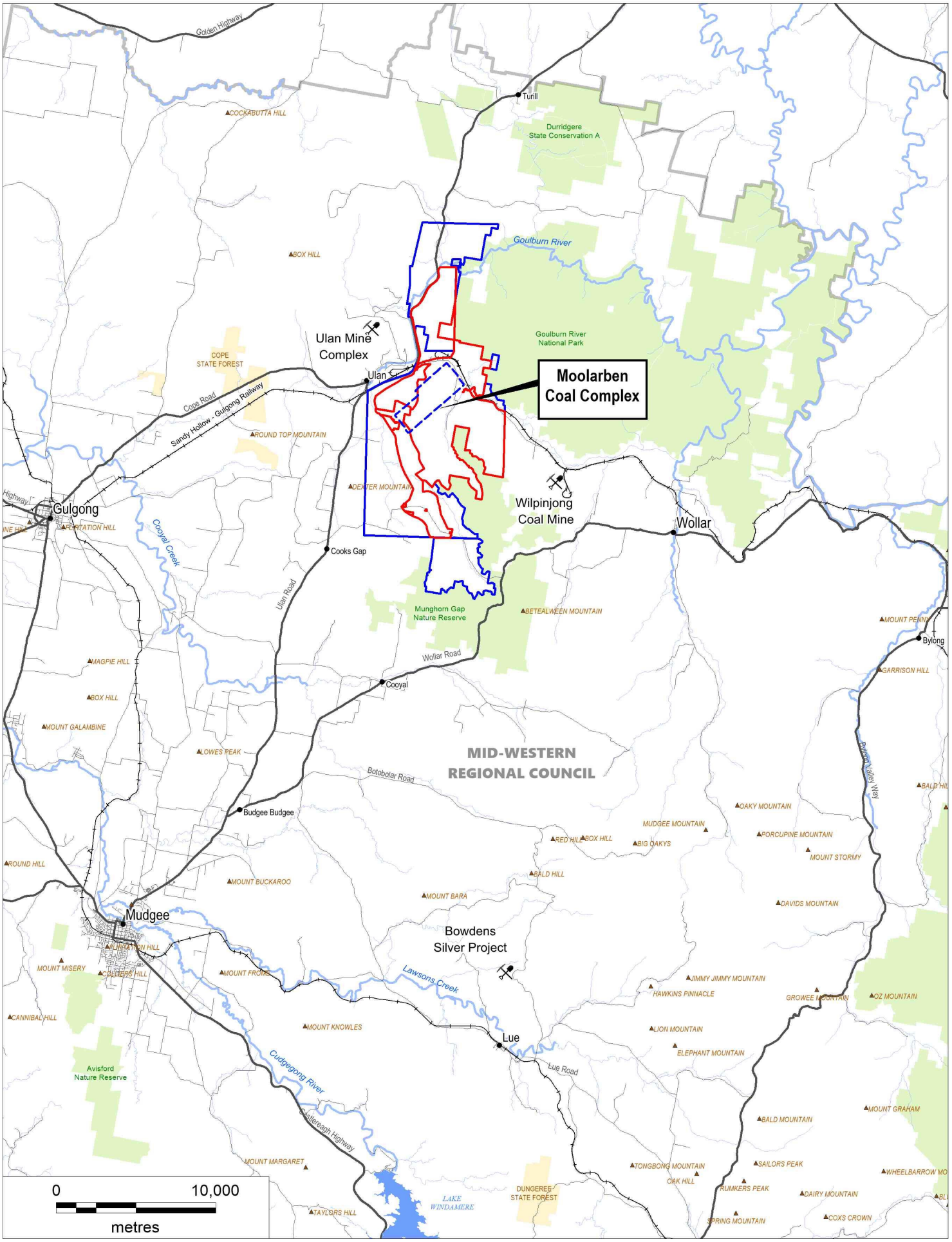
This UG1 Longwalls 101 to 105 Built Features Management Plan – Essential Energy (LW101-105 BFMP-EE) forms a part of the Extraction Plan for Longwalls 101 to 105 (herein referred to as Longwalls 101-105) of the approved UG1 Underground Mine.

1.1 PURPOSE AND SCOPE

Purpose: This LW101-105 BFMP-EE outlines the management of potential subsidence impacts of the proposed secondary workings described in the Extraction Plan on the existing 66 kilovolt (kV)/22 kV dual circuit powerline and future substation.

Scope: This LW101-105 BFMP-EE covers the future substation and the 66 kV/22 kV dual circuit powerline in the vicinity of the Study Area[1], which relates to the extent of subsidence effects resulting from the secondary extraction of Longwalls 101-105 (Figure 4). T

[1] Longwalls 101-105 and the area of land within the furthest extent of the 26.5 degree (°) angle of draw and 20 millimetres (mm) predicted subsidence contour.



Legend

- Exploration Licence Boundary
- Mining Lease Boundary
- Local Government Area
- National Park / Nature Reserve
- State Forest
- Mining Project

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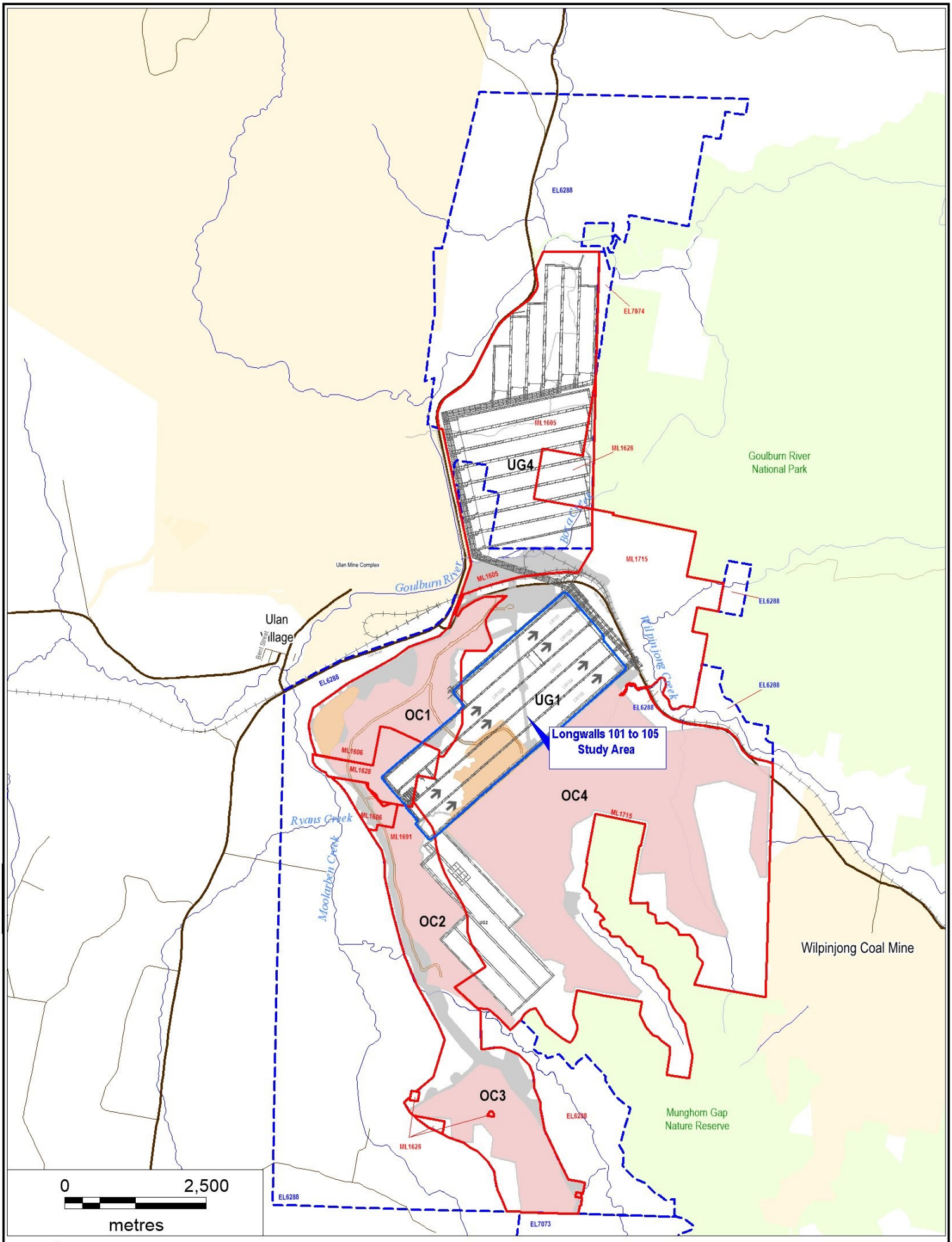
Figure 1
Regional Location



Legend

- Exploration Licence Boundary
- Mining Lease Boundary
- Haul Road
- Rail Line
- Watercourse

Existing / Approved Development

- Open Cut Mining Area
- Underground Workings
- Out-of-Pit Emplacement
- Surface Infrastructure

- Longwalls 101 to 105 Study Area
- Direction of Longwall Mining

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MOOLARBEN COAL

Figure 2
Moolarben Coal Complex Layout

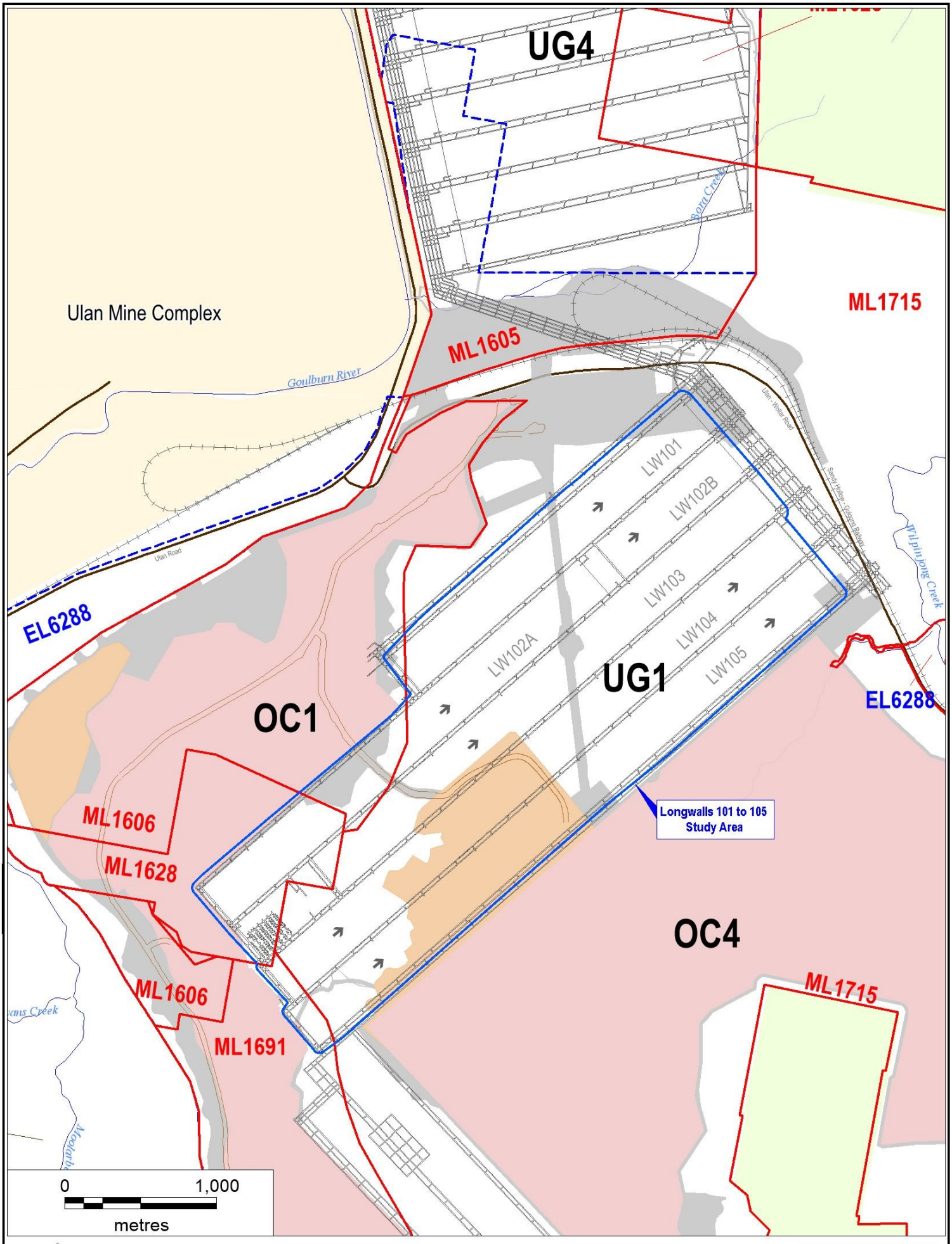
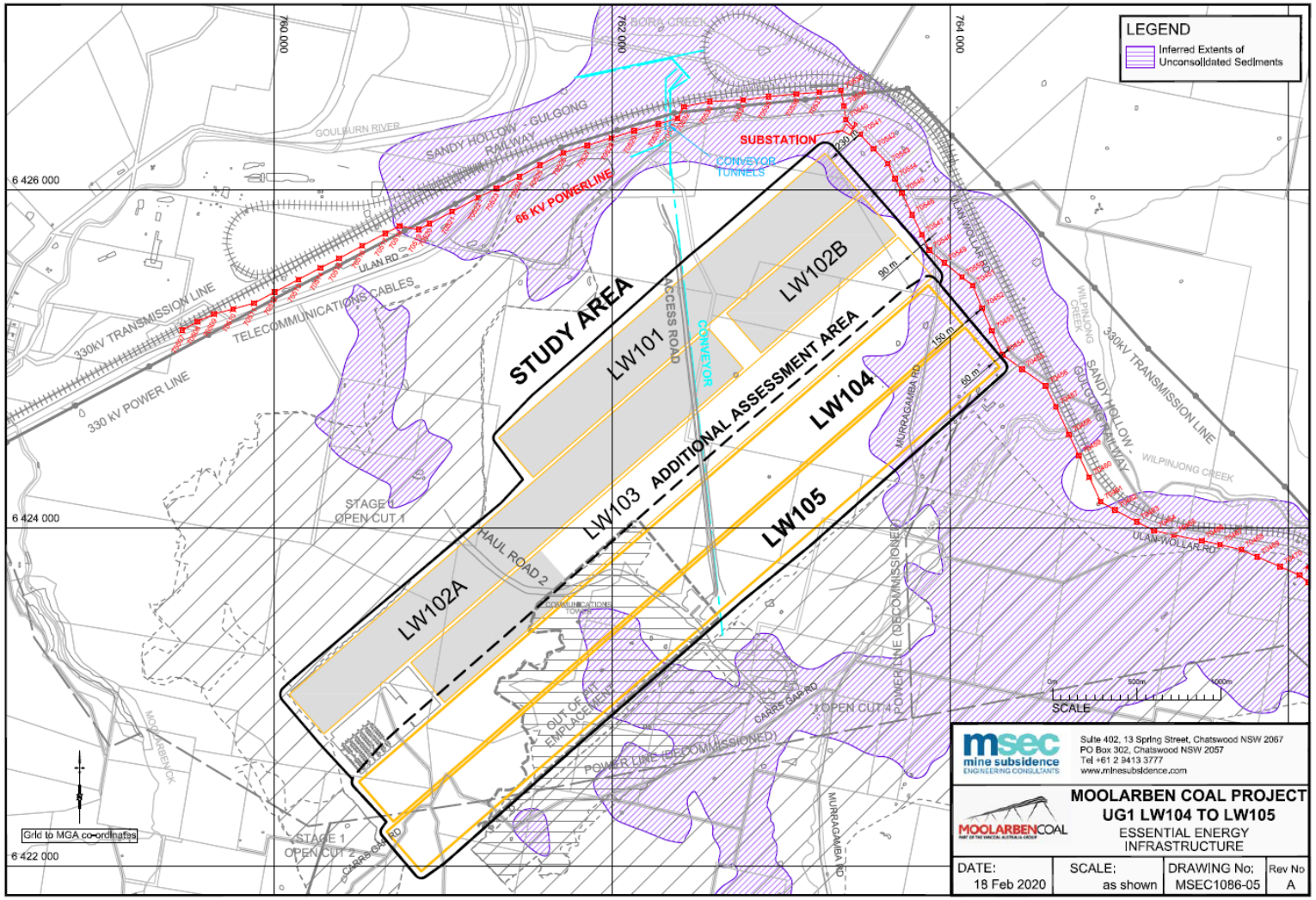


Figure 3
UG1 Longwalls 101-105 Layout



Source; MSEC (2020)

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Essential Energy Assets

Figure 4

While the proposed Essential Energy Substation (to be located at the Remote Services Facilities) is outside of the Study Area (Figure 4), the potential for far-field effects is also discussed in this LW101-105 BFMP-EE.

1.2 SUITABLY QUALIFIED AND EXPERIENCED PERSONS

In accordance with Condition 5(a), Schedule 4 of Project Approval (08_0135), the suitably qualified and experienced persons that have prepared this LW101-105 BFMP-EE, namely representatives from Mine Subsidence Engineering Consultants (MSEC) and MCO, were endorsed by the Secretary of the Department of Planning and Environment (DPIE).

This LW101-105 BFMP-EE has been prepared in consultation with Essential Energy (Section 4.4).

A list of the key responsibilities of MCO personnel in relation to this LW101-105 BFMP-EE, and a list of key contacts, is provided in Section 11.

1.3 STRUCTURE OF THE LONGWALLS 101-105 BFMP-EE

The remainder of the LW101-105 BFMP-EE is structured as follows:

Section 2: Describes the review and update of the LW101-105 BFMP-EE.

Section 3: Outlines the statutory requirements applicable to the LW101-105 BFMP-EE.

Section 4: Provides baseline data, extraction schedule, revised assessment of the potential subsidence impacts and environmental consequences for Longwalls 101-105, as well as the outcomes of the risk assessment.

Section 5: Details the performance measures relevant to Essential Energy assets.

Section 6: Describes the monitoring program.

Section 7: Describes the management measures that will be implemented.

Section 8: Details the performance indicators that will be used to assess against the performance measures.

Section 9: Provides a contingency plan to manage any unpredicted impacts and their consequences.

Section 10: Describes the Trigger Action Response Plan (TARP) management tool.

Section 11: Describes the roles and responsibilities for MCO personnel and key contacts.

Section 12: Describes the program to collect sufficient baseline data for future Extraction Plans.

Section 13: Describes the Annual Review, audits, regular reporting and improvement of environmental performance.

Section 14: Outlines the management and reporting of incidents.

Section 15: Outlines the management and reporting of complaints.

Section 16: Outlines the management and reporting of non-compliances with statutory requirements.

Section 17: Lists the references cited in this LW101-105 BFMP-EE.

2.0 LONGWALLS 101 TO 105 BFMP-EE REVIEW AND UPDATE

In accordance with Condition 5, Schedule 6 of Project Approval (08_0135), this LW101-105 BFMP-EE will be reviewed as follows:

5. Within 3 months of the submission of:
(a) the submission of annual review under condition 4 above;
(b) the submission of an incident report under condition 7 below;
(c) the submission of an audit under condition 9 below; or
(d) any modification to the conditions of this approval or MP 05_0117 (unless the conditions require otherwise),

the Proponent shall review and, if necessary, revise the strategies, plans, and programs required under this approval to the satisfaction of the Secretary. Where this review leads to revisions in any such document, then within 4 weeks of the review the revised document must be submitted to the Secretary for approval

2.1 ACCESS TO INFORMATION

In accordance with Condition 11, Schedule 6 of Project Approval (08_0135) MCO will make the approved LW101-105 BFMP-EE publicly available on the MCO website.

3.0 STATUTORY REQUIREMENTS

MCO's statutory obligations are contained in:

- the conditions of the NSW Project Approval (05_0117) (as modified) and NSW Project Approval (08_0135) (as modified);
- the conditions of Commonwealth Approvals (EPBC 2007/3297, EPBC 2013/6926, EPBC 2008/4444 and 2017/7974);
- relevant licences and permits, including conditions attached to the Environment Protection Licence (EPL) No. 12932 and MLs (i.e. ML 1605, ML 1606, ML 1628, ML 1691 and ML 1715); and
- other relevant legislation.

Obligations relevant to this LW101-105 BFMP-EE are described below.

3.1 EP&A ACT PROJECT APPROVAL

Condition 5(g), Schedule 4 of Project Approval (08_0135) requires the preparation of a Built Features Management Plan as a component of the Extraction Plan. In addition, Conditions 3, 5(n), 5(p) and 6, Schedule 4 and Condition 3, Schedule 6 of Project Approval (08_0135) outline general management plan requirements that are applicable to the preparation of this LW101-105 BFMP-EE.

Table 1 presents these requirements and indicates where they are addressed within this LW101-105 BFMP-EE.

Table 1: Management Plan Requirements

Project Approval (08_0135) Condition	LW101-105 BFMP-EE Section
Condition 3, Schedule 4	
Notes: *...* • *The Proponent will be required to define more detailed performance indicators for each of these performance measures in Built Features Management Plans or Public Safety Management Plan (see condition 5 below).* • *Measurement and/or monitoring of compliance with performance measures and performance indicators is to be undertaken using generally accepted methods that are appropriate to the environment and circumstances in which the feature or characteristic is located. These methods are to be fully described in the relevant management plans. In the event of a dispute over the appropriateness of proposed methods, the Secretary will be the final arbiter.* *...* • *Requirements under this condition may be met by measures undertaken in accordance with the Mine Subsidence Compensation Act 1961.* *...*	Section 8 Sections 5, 6 & 8 Section 9
Condition 5(g), Schedule 4	
(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 feature/s;* • *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 the infrastructure;*	Section 4.1 Section 4.4 Sections 7 & 9 Section 13.1
Condition 5(n), Schedule 4	
(n) include a contingency plan that expressly provides for adaptive management where monitoring indicates that there has been an exceedance of any performance measure in Tables 18 and 19, or where any such exceedance appears likely;.	Section 9
Condition 5(p), Schedule 4	
(p) include a program to collect sufficient baseline data for future Extraction Plans.	Section 12
Condition 6, Schedule 4	
6. The Proponent shall ensure that the management plans required under conditions 5(g)-(l) above include: *(a) an assessment of the potential environmental consequences of the Extraction Plan, incorporating any relevant information that has been obtained since this approval; and* *(b) a detailed description of the measures that would be implemented to remediate predicted impacts.*	Section 4 and 6.3 Section 7

Table 1 (Continued): Management Plan Requirements

Project Approval (08_0135) Condition	LW101-105 BFMP-EE Section
Condition 3, Schedule 6	
3. The Proponent shall ensure that the management plans required under this approval are prepared in accordance with any relevant guidelines, and include:	Sections 3 and 4.4
(a) detailed baseline data;	Section 4.1
(b) a description of:	
• *the relevant statutory requirements (including any relevant approval, licence or lease conditions);*	Section 3
• *the relevant limits or performance measures/criteria;*	Section 5
• *the specific performance indicators that are proposed to be used to judge the performance of, or guide the implementation of, the project or any management measures;*	Section 8
(c) a description of the measures that would be implemented to comply with the relevant statutory requirements, limits, or performance measures/criteria;	Sections 7 & 9
(d) a program to monitor and report on the:	Sections 6, 8 & 13
• *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;	Section 9
(f) a program to investigate and implement ways to improve the environmental performance of the project over time;	Sections 6 & 13
(g) a protocol for managing and reporting any:	
• *incidents;*	Section 14
• *complaints;*	Section 15
• *non-compliances with statutory requirements; and*	Section 16
• *exceedances of the impact assessment criteria and/or performance criteria; and*	Section 9
(h) a protocol for periodic review of the plan.	Section 2

3.2 OTHER LEGISLATION

The Acts which may be applicable to the conduct of the Moolarben Coal Complex includes, but is not limited to, the:

- *Crown Lands Act, 1989;*
- *Fisheries Management Act, 1994;*
- *Heritage Act, 1977;*
- *Coal Mine Subsidence Compensation Act 2017;*
- *Mining Act, 1992;*
- *National Parks and Wildlife Act, 1974;*

- *Biodiversity Conservation Act, 2016;*
- *Protection of the Environment Operations Act, 1997;*
- *Roads Act, 1993;*
- *Water Act, 1912;*
- *Water Management Act, 2000;*
- *Work Health and Safety Act, 2011;* and
- *Work Health and Safety (Mines and Petroleum Sites) Act, 2013.*

Relevant licences or approvals required under these Acts will be obtained as required.

4.0 ESSENTIAL ENERGY 66 KV/22 KV DUAL CIRCUIT POWERLINE

4.1 BASELINE DATA

A 66 kV/22 kV dual circuit powerline owned by Essential Energy runs adjacent to Ulan-Wollar Road and the Sandy Hollow Gulgong Railway Line and is shown on Figure 4. The 66 kV/22 kV dual circuit powerline is supported on timber poles with guy wires at changes in the alignment of the powerline for additional lateral restraint.

The nearest sections of the 66 kV/22 kV dual circuit powerline are approximately 90 metres (m) from the northern (finishing) end of Longwall 103 (pole 70548) and 60m from the finishing end of Longwall 105 (pole 70454). A substation is located within the Remote Services Infrastructure Facilities to the north of Longwall 101.

4.2 LONGWALLS 101-105 EXTRACTION SCHEDULE

The 66 kV/22 kV dual circuit powerline and substation are located to the north and east of the Longwalls 101-105 Study Area (Figure 4) and may be subject to subsidence effects (i.e. far-field horizontal movements).

Longwalls 101-105 and the area of land within the furthest extent of the 26.5° angle of draw and 20 mm predicted subsidence contour (i.e. the Longwalls 101-105 Study Area) are shown on Figures 3 and 4. Longwall extraction will occur from the west to the east. The longwall layout includes approximately 311 m panel widths (void) with 20 m pillars (solid).

The provisional extraction schedule for Longwalls 101-105 is provided in Table 2.

Table 2: Provisional Extraction Schedule

Longwall	Estimated Start Date	Estimated Duration	Estimated Completion Date
101	-	-	Complete
102 (A+B)	-	-	Complete
103		9 months	June 2020
103 Plunge	-	-	Complete
104	July 2020	12 months	June 2021
105	July 2021	11 months	May 2022

Following approval of the UG1 Optimisation Modification in April 2016, MCO has delineated geological features in Longwall 102 and 103 that prevented economic mining of these sections, and has subsequently revised the longwall layout to avoid these features. The subsequent barrier pillar separating Longwalls 102A and 102B is approximately 140 m in length and the LW103 commencing end was shorted by 660m and replaced by a first workings only production panel. LW104 was also shortened by 70m at the commencing end to allow for a rear of panel shaft. In addition, following further detailed design, Longwalls 101-103 have been shortened by approximately 70 m to provide safe operational conveyor distance between the end of the longwalls and main headings. With the exception of these changes, the longwall geometry is the same as that for the approved UG1 Optimisation Modification, and MSEC (2017a and 2020) concludes that the overall impact assessments for the natural and built features are unchanged or reduced.

4.3 REVISED SUBSIDENCE AND IMPACT PREDICTIONS

Subsidence and impact predictions for Longwalls 101-105 in relation to the Essential Energy assets was conducted by MSEC (2015) as part of the Moolarben Coal Complex UG1 Optimisation Modification Environmental Assessment (EA) and was summarised as follows:

> *The depth of cover under the three poles of the 66kV powerline, which are located along the Ulan-Wollar Road and just within the UG1 Study Area, is 110 metres. The nearest pole is located within 30 metres of the finishing end of Longwall 103, and, as shown in the Fig. C.07 in Appendix C, this pole is predicted to experience low systematic subsidence movements of less than 20 mm and very low tilts and strains. The other poles are predicted to experience no systematic subsidence movements.*
>
> *In addition to these low systematic subsidence and tilts the 66kV powerline may also experience some far field horizontal movements of up to 200 mm towards the mined panels. However, these movements usually occur with little differential horizontal movements, i.e. strains.*

Revised subsidence and impact predictions specifically for the extraction of Longwalls 101-105 on Essential Energy assets were conducted by MSEC and reported in MSEC (2020) . Subsequent to the preparation of MSEC (2017b), the longwall layout was revised to incorporate a reduced longwall length and shorter barrier pillar (Section 4.2). MSEC (2020) includes updated subsidence predictions for the revised layout. As the asset is located further from Longwalls 101-103 (and is no longer within the extent of the area predicted to experience conventional subsidence impacts), a reduced impact is predicted by MSEC (2020) compared to MSEC (2017b).

In relation to subsidence predictions MSEC (2017a; 2017b, 2020) make the following conclusions:

- The 66 kV/22 kV dual circuit powerline and substation are located at least 60 m from the finishing ends of the longwalls.

- The powerline and substation will not be subjected to measurable conventional vertical mine subsidence ground movements (i.e. less than survey accuracy limits).
- The first longwall (Longwall 101) is the furthest from the 66 kV powerline (i.e. 230 m) which allows for validation of the subsidence behaviour over the ends of the longwall panels which can be variable, however should generally be accurate to within 50 mm.
- The power poles and substation may, however, experience some far field horizontal movements in the order of 90 mm to 160 mm towards the mined panels. Relative movement between poles is expected to be less than 50 mm and relative movement within the substation is expected to be negligible.
- There is a low probability that significant strains could develop at the location of the powerline and substation due to non-conventional movements and, therefore, adverse impacts are considered unlikely.
- Notwithstanding, to check for the potential development of irregular subsidence movements, monitoring and management measures have been developed (Sections 6 and 7, respectively).

It is expected that any subsidence impacts affecting the serviceability of the 66 kV/22 kV dual circuit powerline could be managed using typical mitigation and management techniques for powerlines (Section 7).

4.4 RISK ASSESSMENT MEETING

In accordance with the draft *Guidelines for the Preparation of Extraction Plans* (DP&E and DRE, 2015), potential risks and potential risk control measures and procedures have been considered at a risk assessment for the Essential Energy infrastructure in the vicinity of Longwalls 101-103, held on 22 March 2017. Attendees at the risk assessment meeting included representatives from MCO, Essential Energy, MSEC and a risk assessment facilitator (AXYS Consulting Pty Ltd [AXYS]). This was subsequently reviewed by MCO and MSEC representatives for Longwall 104 and 105 in January 2020.

The investigation and analysis methods used during the risk assessment review included (AXYS, 2020):

- Confirmation of relevant Essential Energy assets.
- Review of the revised subsidence predictions and potential impacts on Essential Energy assets (including consideration of past experience in Longwall 101 and 102 and in the Western Coalfield).
- Consideration and discussion of the proposed monitoring program, management measures and contingency measures.

The following potential risks were identified during the risk assessment (AXYS, 2020):

- Essential Energy substation becomes unserviceable due to mining of Longwalls 101-103 and customers are affected.
- 66 kV/22 kV dual circuit powerline becomes unserviceable due to mining of Longwalls 101-105 and customers are affected.

A number of risk control measures and procedures were identified prior to and during the risk assessment and are summarised as follows:

Baseline Data / Validation

1. Carry out a baseline audit of the 66 kV/22 kV dual circuit powerline in the Longwalls 101-105 Study Area, before mining of Longwalls 104 is within 400 m of the structures.
2. Design of substation is to include consideration of anticipated subsidence (in consultation with Essential Energy).
3. Installation of the subsidence monitoring program (tilt monitoring points on the power poles closest to Longwalls 101-105 and subsidence monitoring points around the substation).

Management / Monitoring / Response Measures

4. Establish a key contacts list between MCO and Essential Energy to provide updates on the status of mining activities, and for ongoing liaison.
5. Include in the LW101-105 BFMP-EE a schedule of times/frequency of communication with Essential Energy during mining of Longwalls 101-105.
6. Develop a TARP and include triggers for conditions that may need to be actioned by MCO and/or Essential Energy.

MCO considers all risk control measures and procedures to be feasible to manage all identified risks.

The proposed risk control measures and procedures have been incorporated where relevant in this LW101-105 BFMP-EE and the program for implementation is summarised in Table 3.

Table 3: Program for Implementation of Proposed Risk Control Measures and Procedures

	Risk Control Measure / Procedure	LW101-105 BFMP-EE Section	Proposed Timing
Baseline Data / Validation			
1	Carry out a baseline audit of the 66 kV/22 kV dual circuit powerline in the Longwalls 101-105 Study Area.	Section 6.2	Prior to secondary extraction within 400 m of the structures
2	Design the substation to include consideration of anticipated subsidence (in consultation with Essential Energy).	Section 6.2	Complete
3	Extend the subsidence monitoring program for LW104-5.	Section 6	Prior to Longwall 104
Management / Monitoring / Response Measures			
4	Establish key contacts list in the LW101-105 BFMP-EE.	Section 11.1	Complete
5	Include a schedule of times/frequency of communication with Essential Energy for the status of mining of Longwalls 101-103 in the LW101-105 BFMP-EE.	Section 7 and Table 6	Complete
6	Include in the TARP triggers for conditions that may need to be actioned by MCO and/or Essential Energy.	Section 10 and Attachment 1	Complete

5.0 PERFORMANCE MEASURES

The performance measures specified in Table 19, Schedule 4 of Project Approval (08_0135) relevant to the 66 kV/22 kV dual circuit powerline, as a built feature, are listed in Table 4.

Table 4: Built Features Subsidence Impact Performance Measures

Feature	Subsidence Impact Performance Measure
Key public infrastructure:	
Gulgong-Sandy Hollow Railway Line Ulan-Wollar Road	Always safe and serviceable. Damage that does not affect safety or serviceability must be fully repairable, and must be fully repaired.
Other infrastructure:	
Murragamba Road Low voltage electricity power line *	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 fully replaced or fully compensated.

Source: Table 19 in Schedule 4 of Project Approval (08_0135).

* Low voltage electricity power line refers to the 66 kV/22 kV dual circuit powerline.

In accordance with Condition 3, Schedule 4 of Project Approval (08_0135), MCO must ensure that there is no exceedance of the performance measures listed in Table 19, to the satisfaction of the Secretary of the DPIE.

Section 6 outlines the monitoring that will be undertaken to assess the impact of Longwalls 101-105 against the performance measures in relation to the 66 kV/22 kV dual circuit powerline. Management measures for the 66 kV/22 kV dual circuit powerline are outlined in Section 7 and performance indicators for the performance measures are summarised in Section 8.

6.0 MONITORING

A monitoring program will be developed in order to monitor the impacts of the extraction of Longwalls 101-105 on the 66 kV/22 kV dual circuit powerline to identify unsafe conditions or loss of serviceability during or after mining. Key components of the monitoring program are summarised in Table 5.

Table 5: 66 kV/22 kV Dual Circuit Powerline and Substation Monitoring Program Overview

Monitoring Component	Parameter	Timing/Frequency	Responsibility
Pre-mining			
66 kV/22 kV dual circuit powerline – power poles within 300 m of the relevant longwall	Installation of tilt monitoring points in consultation with Essential Energy. Baseline structure survey – 2 x monitoring points at each timber pole.	Prior to commencement of Longwall 101 extraction and extend prior LW104 extraction.	Underground Technical Manager / Registered Mine Surveyor / Essential Energy
Essential Energy Substation – foundation design.	The substation foundation will be designed in consultation with Essential Energy.	Complete	Underground Technical Manager / Essential Energy
Essential Energy Substation – Subsidence monitoring.	Installation of survey monitoring points and undertake baseline survey.	Complete	Underground Technical Manager / Registered Mine Surveyor
Maintenance inspections.	Condition of existing 66 kV/22 kV dual circuit powerline (e.g. land clearance, vegetation clearance, road clearance, pole foundations, integrity and function of support clamps or other items).	As per Essential Energy's routine maintenance schedule.	Essential Energy
During and After Mining			
66 kV/22 kV dual circuit powerline - Visual inspection (including structural assessment).	Condition of existing 66 kV/22 kV dual circuit powerline (e.g. land clearance, vegetation clearance, road clearance, pole foundations, integrity and function of support clamps or other items). Photo points (including baseline photographic record).	Prior to secondary extraction within 400 m of the Longwall 104 take-off position.	Underground Technical Manager and representative of asset owner if required
66 kV/22 kV dual circuit powerline – power poles within 300 m of the relevant longwall	Structure survey – 2 x monitoring points at each timber pole.	Prior to secondary extraction within 400 m of the Longwall take-off position (i.e. the existing longwall mining limits). At 100 m intervals when mining within 400 m of the longwall take-off position. *[Inspection sheets provided to Essential Energy if/when movement detected]*	Underground Technical Manager / Registered Mine Surveyor

Table 5 (Continued): 66 kV/22 kV Dual Circuit Powerline Monitoring Program Overview

Monitoring Component	Parameter	Timing/Frequency	Responsibility
During and After Mining (Continued)			
Essential Energy Substation – Subsidence monitoring.	Subsidence monitoring at survey points installed around the substation. Parameters include: • vertical subsidence; • tilt; • tensile strain; and • compressive strain.	Prior to secondary extraction within 400 m of the longwall 101-103 take-off position (i.e. the existing longwall mining limits). At 100 m intervals when mining within 400 m of the longwall take-off position. *[Inspection sheets provided to Essential Energy if/when movement detected]*	Underground Technical Manager / Registered Mine Surveyor
66 kV/22 kV dual circuit powerline – Subsidence impact inspection.	Condition of existing 66 kV/22 kV dual circuit powerline (e.g. land clearance, vegetation clearance, road clearance, pole foundations, integrity and function of support clamps or other items). Photo points (including comparison to baseline photographic record).	In the event monitoring detects movements in excess of survey/design tolerances. Opportunistic visual observations during routine works by MCO and its contractors. At any time in case of fault or emergency and where requested by Essential Energy.	Underground Technical Manager
	As per Essential Energy inspections (e.g. fault / emergency patrol).	Routinely as per Essential Energy inspections.	Essential Energy
Essential Energy Substation – Subsidence impact inspection.	Subsidence impact inspections will target the identification of: • surface cracking; • surface humps; and • tilting of foundations. Condition of substation (including photographic record for baseline comparison).	Following identification of ground movements (in excess of survey accuracy) at the substation monitoring points. Opportunistic visual observations during routine works by MCO and its contractors.	Underground Technical Manager
	As per Essential Energy inspections.	Routinely as per Essential Energy inspections.	Essential Energy
Post-Mining			
66 kV/22 kV dual circuit powerline – power poles within 300 m of the relevant longwall	Structure survey – 2 x monitoring points at each timber pole. Condition of 66 kV/22 kV dual circuit powerline post-mining (e.g. land clearance, vegetation clearance, road clearance, pole foundations, integrity and function of support clamps or other items).	Within three months of longwall completion (e.g. longwall has been relocated from the final end of block mining position).	Underground Technical Manager and representative of asset owner if required

Table 5 (Continued): 66 kV/22 kV Dual Circuit Powerline Monitoring Program Overview

Monitoring Component	Parameter	Timing/Frequency	Responsibility
Post-Mining (Continued)			
Essential Energy Substation – Subsidence impact inspection.	Subsidence monitoring at survey points installed around the substation. Parameters include: • vertical subsidence; • tilt; • tensile strain; and • compressive strain. Condition of substation (including photographic record for baseline comparison).	Within three months of longwall completion (e.g. longwall has been relocated from the final end of block mining position).	Underground Technical Manager and representative of asset owner if required

The frequency of monitoring will be reviewed either:

- in accordance with the Annual Review; or
- if triggered as a component of the Contingency Plan as outlined in Section 9 of this LW101-105 BFMP-EE.

6.1 SUBSIDENCE PARAMETERS

Subsidence parameters (i.e. subsidence, tilt, tensile strain, compressive strain and absolute horizontal translation) associated with mining will be measured in accordance with the UG1 Longwalls 101 to 105 Subsidence Monitoring Program (LW101-105 SMP).

In summary, surveys will be conducted to measure subsidence movements in three dimensions using a total station survey instrument. Subsidence movements (i.e. tilt) will be measured at multiple heights on the power poles closest to Longwalls 101-105.

Monitoring of subsidence specific to the Essential Energy 66 kV/22 kV dual circuit powerline will be measured by survey of power poles.

Prior to mining of Longwall 101 and again in 104, and in consultation with Essential Energy, MCO will install targets on the power poles closest to Longwalls 101-105 and will undertake a baseline survey of the poles. MCO will also install subsidence monitoring points around the Essential Energy substation. Unless otherwise agreed with Essential Energy, inspection sheets detailing the outcome of the subsidence monitoring program will be provided to Essential Energy.

6.2 SUBSIDENCE IMPACTS

A visual inspection (including structural assessment) of the 66 kV/22 kV dual circuit powerline and a visual inspection of the Essential Energy substation will be conducted prior to secondary extraction within 400 m of the Longwall 101 and 104 take-off positions. Visual inspections will also be conducted by MCO at the 66 kV/22 kV dual circuit powerline and substation in the event monitoring detects movements in excess of survey/design tolerances. Additional opportunistic observations of subsidence impacts will be conducted during routine works by MCO and its contractors.

Where relevant, inspections of subsidence impacts will include photographic record of the impacts from nominated photo points for comparison with baseline photographic records.

It is understood that Essential Energy also conducts routine inspections (including fault and emergency patrols) which would be used for monitoring of the impacts of subsidence if conducted during the course of mining Longwalls 101-105.

Information will be recorded in the LW101-105 BFMP-EE Subsidence Impact Register (Attachment 2) and reported in accordance with Project Approval (08_0135) (Section 13).

6.3 ENVIRONMENTAL CONSEQUENCES

MCO and Essential Energy will compare the results of the subsidence impact monitoring against the built features performance measure and indicators (Sections 5 and 8). In the event the observed subsidence impacts from the Moolarben Coal Complex exceed the performance measure or indicators, MCO and Essential Energy will assess the consequences of the exceedance in accordance with the Contingency Plan described in Section 9.

7.0 MANAGEMENT MEASURES

A number of potential management measures in relation to the 66 kV/22 kV dual circuit powerline and/or Essential Energy substation are considered to be applicable. These include:

- alteration of conductor tensions;
- modification to attachment points such as placement of stringing sheaves to earth wires and/or phase conductors; and
- strengthening of pole footings.

The substation foundation will be designed in consultation with Essential Energy including potential management measures.

In the event management measures are considered to be required, the appropriate action will be determined and implemented in consultation with Essential Energy.

A summary of management measures will be reported in the Annual Review.

Key management actions and timing is summarised in Table 6.

Table 6: 66 kV/22 kV Dual Circuit Powerline and Substation Key Management Actions

Management Measure	Timing/Frequency	Responsibility
Pre-mining		
Notification to Essential Energy prior to commencement of secondary extraction.	Prior to secondary extraction of Longwall 101 and 104.	Underground Technical Manager
Installation of tilt monitoring points in consultation with Essential Energy.	Prior to secondary extraction of Longwall 101 and 104.	Underground Technical Manager
Structural assessment of 66 kV/22 kV dual circuit powerline timber poles (to identify management measures potentially required pre-subsidence) and **visual inspection** of substation (to establish baseline condition).	Prior to secondary extraction within 400 m of the Longwall 101 and 104 take-off position.	Underground Technical Manager and representative of asset owner if required

Table 6 (Continued): 66 kV/22 kV Dual Circuit Powerline and Substation Key Management Actions

Management Measure	Timing/Frequency	Responsibility
During Mining		
Notification to Essential Energy prior to subsidence effects on the 66 kV/22 kV dual circuit powerline or substation.	Prior to secondary extraction within 400 m of the Longwall 101 and 104 take-off position.	Underground Technical Manager
Provision of **inspection sheets** detailing the outcome of the subsidence impact monitoring program to Essential Energy (unless otherwise agreed with Essential Energy).	Following identification of movements in excess of survey/design tolerances at the 66 kv/22 kV dual circuit powerline poles or at the substation.	Underground Technical Manager
Ensure **safe access** to 66 kV/22 kV dual circuit powerline and substation is available such that routine inspections and maintenance and remediation works are able to be undertaken.	During Longwalls 101-105 extraction.	Underground Technical Manager
Implement TARP (Attachment 1).	During Longwalls 101-105 extraction.	Underground Technical Manager
Post-mining		
Structural assessment of 66 kV/22 kV dual circuit powerline timber poles and **visual inspection** of substation (to identify any post-mining remediation works required).	Within three months of longwall completion (e.g. longwall has been relocated from the final end of block mining position).	Underground Technical Manager
The 66 kV/22 kV dual circuit powerline will be **straightened where affected by subsidence.** Where straightening is impractical, **stays may be installed. Roller sheathing will be removed** where fitted.	Within three months of longwall completion (e.g. longwall has been relocated from the final end of block mining position).	Underground Technical Manager

8.0 ASSESSMENT OF PERFORMANCE INDICATORS AND MEASURES

In accordance with Condition 5(d), Schedule 4 of Project Approval (08_0135), performance indicators have been developed for the performance measures listed in Table 4 (Section 5).

The performance indicators proposed to ensure that the performance measures are achieved include:

- the structural integrity of the 66 kV/22 kV dual circuit powerline (power poles and transmission lines) is maintained;
- the electrical clearance from land, vegetation and roads is maintained; and
- the serviceability of the access roads/tracks is maintained.

Monitoring conducted to inform the assessment of secondary extraction of Longwalls 101-105 against the performance indicators for the performance measures relevant to the 66 kV/22 kV dual circuit powerline as a built feature is outlined in Section 6.

If a performance measure is considered to have been exceeded, the Contingency Plan outlined in Section 9 of this LW101-105 BFMP-EE will be implemented.

9.0 CONTINGENCY PLAN

In the event the performance measures relevant to the 66 kV/22 kV dual circuit powerline as a built feature, summarised in Table 4, are considered to have been exceeded or are likely to be exceeded, MCO will implement the following Contingency Plan:

- The observation will be reported to the Underground Technical Manager or the Environmental and Community Manager within 24 hours.
- The observation will be recorded in the Subsidence Impact Register (Attachment 2).
- The likely exceedance will be reported in an Incident Report (refer to the Extraction Plan).
- MCO will provide the Incident Report to relevant stakeholders (i.e. DPIE, DRE and Essential Energy).
- MCO will conduct an investigation to identify and evaluate contributing factors to the exceedance, including re-survey of the relevant subsidence monitoring lines, analysis of predicted versus observed subsidence parameters and a review of the subsidence monitoring program with updates to the program where appropriate.
- An appropriate course of action will be developed in consultation with relevant stakeholders and government agencies including proposed contingency measures (Section 9.1), and a program to review the effectiveness of the contingency measures.
- The course of action will be approved by, and implemented to the satisfaction of, Essential Energy and DRE.
- This LW101-105 BFMP-EE and the performance indicators will be reviewed to adequately manage future potential impacts within the limits of Project Approval (08_0135).

MCO will comply with the *Coal Mine Subsidence Compensation Act, 2017 (formerly* NSW *Mine Subsidence Compensation Act, 1961);* in the event that property damages occur as a result of mining Longwalls 101-105.

9.1 CONTINGENCY MEASURES

Contingency measures will be developed in consideration of the specific circumstances of the feature (e.g. the location, nature and extent of the impact, and the assessment of environmental consequences).

Potential contingency measures that could be considered in the event the performance measure for the 66 kV/22 kV dual circuit powerline is exceeded are summarised in Table 7.

Table 7: Potential Contingency Measures

Environmental Consequence	Potential Contingency Measures	
	Measure	Description
Impact on:		
Transmission Wires	Stabilisation techniques	Sheaving of conductors and/or earth wires.
	Rebuilding	Construction of new transmission lines.
Poles	Stabilisation techniques	Installation of supports.
	Rebuilding	Construction of new pole(s) or emergency structures.
Substation	Subsidence remediation	Repair of any observed cracking.

10.0 TRIGGER ACTION RESPONSE PLAN – MANAGEMENT TOOL

The framework for the various components of this LW101-105 BFMP-EE are summarised in the TARP shown in Attachment 1. The TARP illustrates how the various predicted subsidence impacts, monitoring components, performance measures, and responsibilities are structured to achieve compliance with the relevant statutory requirements, and the framework for management and contingency actions.

The TARP comprises:

- baseline conditions;
- predicted subsidence impacts;
- trigger levels from monitoring to assess performance; and
- triggers that flag implementation of contingency measures.

The TARP system provides a simple and transparent snapshot of the monitoring of environmental performance and the implementation of management and/or contingency measures.

11.0 ROLES AND RESPONSIBILITIES

Key responsibilities of MCO personnel in relation to this LW101-105 BFMP-EE are summarised in Table 8. Responsibilities may be delegated as required.

Table 8: Longwalls 101 to 105 Built Features Management Plan – Essential Energy
Responsibility Summary

Responsibility	Task
General Manager	• Ensure resources are available to MCO personnel to facilitate the completion of responsibilities under this LW101-105 BFMP-EE.
Underground Technical Manager	• Ensure the LW101-105 SMP is implemented. • Ensure monitoring required under this LW101-105 BFMP-EE is carried out within specified timeframes, adequately checked and processed and prepared to the required standard. • Undertake relevant monitoring and implementation of management measures summarised in Tables 5 and 6 respectively.
Environmental and Community Manager	• Liaise with relevant stakeholders regarding subsidence impact management and related environmental consequences.
Registered Mine Surveyor	• Undertake all subsidence monitoring to the required standard within the specified timeframes and ensure data are adequately checked, processed and recorded.

11.1 KEY CONTACTS

The details of key contacts and phone numbers in relation to this LW101-105 BFMP-EE are summarised in Table 9.

Table 9: Longwalls 101 to 105 Built Features Management Plan – Essential Energy
Key Personnel Contact Details

Organisation	Position	Contact Name	Phone Number
MCO	Underground Technical Manager	Mr Liam Mildon	02 6376 1614
	Environmental and Community Manager	Mr Graham Chase	02 6376 1407
	Moolarben Coal Hotline		1800 556 484
Essential Energy	Mains Design Manager	Mr Damien Lloyd	02 6589 8078
	Essential Energy Fault Line		132 080

12.0 FUTURE EXTRACTION PLANS

In accordance with Condition 5(p), Schedule 4 of Project Approval (08_0135), MCO will collect baseline data for the future Extraction Plan (e.g. for the next Underground Mine). However, for the 66 kV/22 kV dual circuit powerline, the baseline (and post-mining) data collected for Longwalls 101-103 will be used as baseline for Longwalls 104-105 as longwall mining progressively moves further south of the Essential Energy assets.

In addition to the baseline data collection, consideration of the environmental performance and management measures, in accordance with the review(s) conducted as part of this LW101-105 BFMP-EE, will inform the appropriate type and frequency of monitoring of the assets relevant to the next Extraction Plan.

13.0 ANNUAL REVIEW, REGULAR REPORTING AND IMPROVEMENT OF ENVIRONMENTAL PERFORMANCE

In accordance with Condition 4, Schedule 6 of Project Approval (08_0135), MCO will conduct an Annual Review of the environmental performance of the Project by the end of March each year, or as otherwise agreed by the Secretary of the DPIE.

The Annual Review will:

- describe the works carried out in the previous calendar year, and the development proposed to be carried out over the current calendar year;
- include a comprehensive review of the monitoring results and complaints records of the Project over the previous calendar year, including a comparison of these results against the:
  - relevant statutory requirements, limits or performance measures/criteria;
  - monitoring results of previous years; and
  - relevant predictions in the EA;
- identify any non-compliance over the last year, and describe what actions were (or are being) taken to ensure compliance;
- identify any trends in the monitoring data over the life of the Project;
- identify any discrepancies between the predicted and actual impacts of the Project, and analyse the potential cause of any significant discrepancies; and
- describe what measures will be implemented over the next year to improve the environmental performance of the Project.

In accordance with Condition 11, Schedule 6 of Project Approval (08_0135), the Annual Review will be made available on the MCO website.

As described in Section 2, this LW101-105 BFMP-EE will be reviewed within three months of the submission of an Annual Review, and revised where appropriate.

In accordance with Condition 8, Schedule 6 of Project Approval (08_0135), MCO will also provide regular reporting on the environmental performance of the Project on the MCO website.

13.1 AUDITS

In accordance with Condition 9, Schedule 6 of Project Approval (08_0135), an independent environmental audit was conducted by the end of December 2015 and again 2018, and will be undertaken every three years thereafter. A copy of the independent environmental audit will be provided to the Secretary of the DPIE and made available on the MCO website.

The independent environmental audit will be conducted by suitably qualified, experienced and independent team of experts whose appointment has been endorsed by the Secretary of the DPIE.

The independent environmental audit will assess the environmental performance of the Project and assess whether it is complying with the requirements of Project Approval (08_0135), and any other relevant approvals, and recommend measures or actions to improve the environmental performance of the Project.

Further to the above, audits to ISO 31000 Risk Management standard are conducted on elements of the Moolarben UG Safety Management System annually, with internal and external audits being undertaken on alternate years. Additionally, an annual auditing of compliance and effectiveness on built features is captured as part of the Annual Review process.

14.0 INCIDENTS

An incident is defined in Project Approval (08_0135) as a set of circumstances that:

- causes or threatens to cause material harm to the environment; and/or
- breaches or exceeds the limits or performance measures/criteria in Project Approval (08_0135).

In the event that an incident which causes, or threatens to cause, material harm to the environment occurs, the incident will be managed in accordance with the Pollution Incident Response Management Plan.

The reporting of incidents will be conducted in accordance with Condition 7, Schedule 6 of Project Approval (08_0135).

MCO will notify the Secretary of the DPIE, and any other relevant agencies immediately after MCO becomes aware of the incident which causes or threatens to cause material harm to the environment. For any other incident associated with the project, MCO will notify the Secretary and any other relevant agencies as soon as practicable after becoming aware of the incident. Within seven days of the date of the incident, MCO will provide the Secretary of DPIE and any relevant agencies with a detailed report on the incident. The report will:

- describe the date, time and nature of the exceedance/incident;
- identify the cause (or likely cause) of the exceedance/incident;
- describe what action has been taken to date; and
- describe the proposed measures to address the exceedance/incident.

15.0 COMPLAINTS

MCO maintains a Community Complaints Line (Phone Number: 1800 556 484) that is dedicated to the receipt of community complaints. The Community Complaints Line is publicly advertised and operates 24 hours per day, seven days a week, to receive any complaints from neighbouring residents or other stakeholders.

MCO has developed a Community Complaints Procedure which details the process to be followed when receiving, responding to and recording community complaints. The Community Complaints Procedure is supported by a Complaints Database.

The Community Complaints Procedure is a component of the MCO Environmental Management Strategy which requires the recording of relevant information including:

- the nature of complaint;
- method of the complaint;
- relevant monitoring results and meteorological data at the time of the complaint;
- site investigation outcomes;
- any necessary site activity and activity changes;
- any necessary actions assigned; and
- communication of the investigation outcome(s) to the complainant.

In accordance with Condition 11, Schedule 6 of Project Approval (08_0135), the complaints register will be updated monthly and made available on the MCO website.

16.0 NON-COMPLIANCES WITH STATUTORY REQUIREMENTS

A protocol for the managing and reporting of non-compliances with statutory requirements has been developed as a component of MCO's Environmental Management Strategy and is described below.

Compliance with all approvals, plans and procedures will be the responsibility of all personnel (staff and contractors) employed on or in association with the Moolarben Coal Complex.

The Environmental and Community Manager (or delegate) will undertake regular inspections, internal audits and initiate directions identifying any remediation/rectification work required, and areas of actual or potential non-compliance.

As described in Section 14, MCO will notify the Secretary of the DPIE, and any other relevant agencies, of any incident associated with MCO.

A review of MCO's compliance with all conditions of Project Approval (08_0135), mining leases and all other approvals and licenses will be undertaken prior to (and included within) each Annual Review. The Annual Review will be made publicly available on the MCO website.

As described in Section 13.1, an independent environmental audit was conducted by the end of December 2015 and again in 2018, and will be undertaken every three years thereafter. A copy of the audit report will be submitted to the Secretary of the DPIE and made publicly available on the MCO website.

17.0 REFERENCES

AXYS Consulting Pty Ltd (2017) *Potential Impact of Longwall 101 to 103 on Essential Energy Infrastructure – Risk Assessment Report.*

Department of Planning and Environment and NSW Trade & Investment – Division of Resources and Energy (2015) *Guidelines for the Preparation of Extraction Plans Required under Conditions of Development Consents, Project Approvals and Mining Lease Conditions for Underground Coal Mining*. Version 5. Draft.

Mine Subsidence Engineering Consultants (2015) *Moolarben Coal Complex: Revised Predictions of Subsidence Parameters and Revised Assessments of Subsidence Impacts resulting from the Proposed UG1 Mine Layout Optimisation Modification*.

Mine Subsidence Engineering Consultants (2017a) *Moolarben Coal Complex: Moolarben Project Stage 2 – Longwalls 101 to 103 – Subsidence Predictions and Impact Assessments for the Natural and Built Features in Support of the Extraction Plan.* Report number MSEC867.

Mine Subsidence Engineering Consultants (2017b) *Moolarben Coal Operations: Longwalls 101 to 103 - Subsidence Predictions and Impact Assessments for the Essential Energy Infrastructure.*

Mine Subsidence Engineering Consultants (2020) Moolarben Project Stage 2- *Longwalls 104 to 105 Subsidence Predictions and Impacts Assessments for the Natural and Built Features In Support of the Extraction Plan*

ATTACHMENT 1

UG1 LONGWALLS 101 TO 105 BUILT FEATURES MANAGEMENT PLAN – ESSENTIAL ENERGY
TRIGGER ACTION RESPONSE PLAN

Condition	Normal		Level 1	Level 2
	Baseline Conditions	**Predicted Impacts**	**Implement Management Measures**	**Restoration/Contingency Phase**
Trigger	Essential Energy 66 kV/22 kV dual circuit powerline is safe, serviceable and repairable or as otherwise identified by pre-mining inspection. Substation foundation designed in consultation with Essential Energy.	Subsidence effects on the Essential Energy 66 kV/22 kV dual circuit powerline and substation are within predicted levels.	Monitoring identifies impacts that are greater than predicted, but the performance measure has not been exceeded and is not likely to be exceeded.	If the Performance Measure relevant to the Essential Energy 66 kV/22 kV dual circuit powerline has been exceeded, or is likely to be exceeded (i.e. loss of serviceability).
Action	Establish baseline data, including: • Pre-mining inspection. • Installation of tilt monitoring points on power poles closest to Longwalls 101 to 105, and subsidence survey as per the UG1 Longwalls 101 to 105 Subsidence Monitoring Program. • Installation of subsidence monitoring points around the substation, and subsidence survey as per the UG1 Longwalls 101 to 105 Subsidence Monitoring Program.	Conduct monitoring as described in **Section 6**, including: • Survey of power poles closest to Longwalls 101 to 105. • Visual inspection of the condition of existing 66 kV/22 kV dual circuit powerline and substation. • Subsidence impact inspections, targeting the identification of: – surface cracking; – surface humps; – damage to poles, conductors and/or powerlines; – reduced ground clearance; – tilting of substation foundations; – tilting of power poles; and – bent cross-arms or insulators.	Management measures will be determined and implemented in consultation with Essential Energy (with regard to the specific circumstances of the subsidence impact [e.g. the nature and extent of the impact]). Potential management measures are described in **Section 7**. Follow-up inspections will be conducted to assess the effectiveness of the management measures implemented and the requirement for any additional management measures. Notifications by exception (i.e. following identification of movement).	Contingency Plan implemented if performance measure (i.e. secondary trigger) is exceeded (with regard to the specific circumstances of the subsidence impact). In summary: • The observation will be reported to the Underground Technical Manager or the Environmental and Community Manager within 24 hours. • The observation will be recorded in the Subsidence Impact Register. • The exceedance or likely exceedance will be reported in an incident report. • An investigation will be conducted to identify and evaluate contributing factors to the exceedance. • An appropriate course of action will be developed in consultation with relevant stakeholders and government agencies. • The course of action will be approved by, and implemented to the satisfaction of, relevant stakeholders and government agencies. • The Built Features Management Plan – Essential Energy and the performance indicators will be reviewed to adequately manage future potential impacts.
Frequency	• Prior to commencement of extraction of Longwall 101 and 104.	• Survey of power poles closest to Longwalls 101 to 105. – Prior to secondary extraction within 400 m of the Longwall take-off position (i.e. the existing longwall mining limits). – At 100 m intervals when mining within 400 m of the longwall take-off position. • Visual inspection: – Prior to secondary extraction within 400 m of the Longwall 104 take-off position (i.e. the existing longwall mining limits). • Subsidence impact inspection: – In the event monitoring detects movements in excess of survey/design tolerances. – Within three months of longwall completion (e.g. longwall has been relocated from the final end of block mining position). – At any time in case of fault or emergency and where requested by Essential Energy.	To be implemented as required (i.e. if monitoring identifies impacts that are greater than predicted, but the performance measure has not been exceeded and is not likely to be exceeded).	To be implemented following identification of an exceedance of the performance measure, or if the performance measure is likely to be exceeded (i.e. unsafe or loss of serviceability).
Position of Decision Making	• Underground Technical Manager. • Essential Energy – Transmission Manager.	• Underground Technical Manager. • Essential Energy – Transmission Manager.	• Underground Technical Manager. • Essential Energy – Transmission Manager.	• Underground Technical Manager. • Essential Energy – Transmission Manager.

Note: kV = kilovolt

ATTACHMENT 2

UG1 LONGWALLS 101 TO 105 BUILT FEATURES MANAGEMENT PLAN – ESSENTIAL ENERGY
SUBSIDENCE IMPACT REGISTER

UG1 Longwalls 101 to 105 Built Features Management Plan – Essential Energy
Subsidence Impact Register

Impact Register Number	Built Feature	Impact Description	Does Impact Exceed the Built Feature Performance Measure/Indicators? (Yes/No)	Management Measures Implemented	Were Management Measures Effective? (Yes/No)