



**Communications Management Plan
Longwalls 30 to 31**

Mandalong Mine

MEMS-EP-9000-CMP-9052

June 2021

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DOCUMENT CONTROL

DOCUMENT DETAILS	Name:		Communications Management Plan LW30-31		
	Author:		Phil Enright		
	Number:		MEMS-EP-9000-CMP-9052		
	Revision No.:		2		
	Document Status		Final		
APPROVAL DETAILS	Revision No.	Date Sent	Details of Approval	Approved By	Approval Date
	0	15/02/2021	Draft for review by Telstra Network Integrity and Comms Network Solutions	Phil Enright Mining Approvals Coordinator	15/02/2021
	1	24/03/2021	Final	Phil Enright Mining Approvals Coordinator	24/03/2021
	2	25/06/2021	Final	Phil Enright Mining Approvals Coordinator	25/06/2021
CIRCULATION DETAILS	Name		Department	Circulation Date	
	Mr Mark Schneider Project Specialist		Telstra Network Integrity Services	24/03/2021 (Rev.1)	
	Mr Colin Dove Telecommunications Consultant, External Plant		Comms Network Solutions	24/03/2021 (Rev.1)	
	Director Resources Assessments		Department of Planning, Industry and Environment – Resource Assessments	24/03/2021 (Rev.1)	
	Director Resources Assessments		Department of Planning, Industry and Environment – Resource Assessments	25/06/2021 (Rev.2)	

Definitions

CAN	Customer Access Network, that part of the Telstra network which delivers services to customer's premises.
DSLAM	Digital Subscriber Line Access Multiplexer is equipment installed in telephone exchanges and at remote locations to provide customer broadband access. The DSLAM allows customer modem access using ADSL technology for broadband access to the internet. The DSLAM equipment can be installed remote from the exchange to multiplex modem connections to the exchange.
Elevated Joint (EJ)	Galvanised steel channel section buried approximately 400 mm below ground level and extending approximately 800mm above ground. This post is used to bring buried cable to the surface to allow jointing. Allows ease of access for maintenance of joint and provides identification of cable line and protection of joint.
OTDR	Optical Time Domain Reflectometer, used to determine transmission loss characteristics for a fibre length for laser transmission on optical fibre cables.
Plan Review Meeting	Forum to be convened as required to implement this management plan. Participants to include representatives from Centennial Mandalong, Telstra, Mine Subsidence Board and consultants as required. Meetings to be at agreed as required
RAM 8 Systems	Digital pair gain systems where 2 copper pairs are used to multiplex up to 8 subscriber lines. The multiplexing unit is installed in a pit to separate the individual signals to each customer premises
Telstra NI	Telstra Network Integrity, responsible for the protection of the external telecommunications network owned and operated by Telstra Pty Ltd

1 BACKGROUND

1.1 Introduction

Mandalong Mine is an existing underground longwall coal mine located on the western side of Lake Macquarie near Morisset, approximately 35 km southwest of Newcastle. Centennial Mandalong Pty Ltd is the operator of the mine and is a wholly owned subsidiary of Centennial Coal Company Pty Limited.

Development Consent for Mandalong Mine (SSD-5144) was approved on 12 October 2015 and permits extraction of 6.5 million tonnes of run-of-mine (ROM) coal per calendar year until 31 December 2040.

An Extraction Plan is required to be developed and approved prior to undertaking secondary extraction. This Extraction Plan, prepared for Longwall panels 30-31 (LW30-31), describes the applicable regulatory framework, mine planning, management and monitoring measures to be implemented to protect all surface/subsurface natural and built features in addition to administering public safety measures associated with secondary extraction.

This Communications Management Plan (in support of the LW30-31 Extraction Plan) has been developed in accordance with the current requirements of Condition 6, Schedule 4 of SSD-5144 for the extraction of LW30-31, and in accordance with Mining Leases (ML1722 and ML1744) requirements issued under the Mining Act 1992 to extract longwall panels within the West Wallarah Seam.

The Extraction Plan and Communications Management Plan have been prepared generally in accordance with the Department of Planning & Environment, *Draft Guidelines for the Preparation of Extraction Plans V5* (2015) and the Department of Industry - Resources Regulator, *Managing Risks of Subsidence Guide: WHS (Mines and Petroleum Sites) Legislation* (2017).

The area applicable to this extraction plan is defined in detail in **Section 3.1**

1.2 Project Description

The Extraction Plan area comprises a surface area of approximately 209 hectares. Across the Extraction Plan area, the ground surface elevation ranges from 40 m to 240 m. Due to the elevated topography, alluvium is limited in this area. The depth of cover above the West Wallarah Seam in this area ranges from approximately 285 m to 500 m.

The existing surface environment of the Extraction Plan area includes watercourses, native bushland, steep slopes and archaeological heritage items.

There are nine private properties, one property owned by Central Coast Council, one owned by Centennial Coal and one Crown Land lot. A small area of Olney State Forest is located at the southern extent of the Extraction Plan Area. Of the nine privately owned properties, four dwellings will be affected by subsidence. Local roads, power lines, telecommunication networks and other associated infrastructure are also included in the area of potential subsidence influence. This infrastructure is managed by the Built Features Management Plan and supporting individual infrastructure management plans developed for Public Roads (Crown), Telstra Communications and Ausgrid Powerlines.

2 Purpose

The purpose of the Communications Management Plan is to provide the management strategies, controls and monitoring programs to be implemented for the management of potential subsidence impacts on the Telstra communications network affected by the extraction of LW30-31.

3 Scope

3.1 Extraction Plan Area

The Communications Management Plan applies to the management of risks relating to the development of subsidence from the extraction of LW30 and LW31, located within Centennial Mandalong Mining Leases (ML1722 and ML1744) and Development Consent SDD-5144. The Extraction Plan Area is defined by the minimum of a 26.5° angle of draw or 20mm limit of subsidence at the Upper 95% Confidence Limits from the extents of proposed extraction of LW30-31 (**Figure 1**).

3.2 Telstra Communications Network

Within the Extraction Plan Area for LW30-31, the Telstra communications network is generally located from Binalong Way and extending along a private access road and powerline easements to private properties. The network consists of the following two main components.

3.2.1 Aerial CAN

The Aerial CAN copper cable extending from Binalong Way is fed from Dooralong Exchange Area by an aerial 100Pr cable feeding east along Mandalong Road via the Durren Durren area. The aerial cable then extends along a private access road and Ausgrid powerline easement over LW30-31.

3.2.2 Pits, Conduits and Elevated Joints

Associated pits conduits and elevated joints support the above cable network.

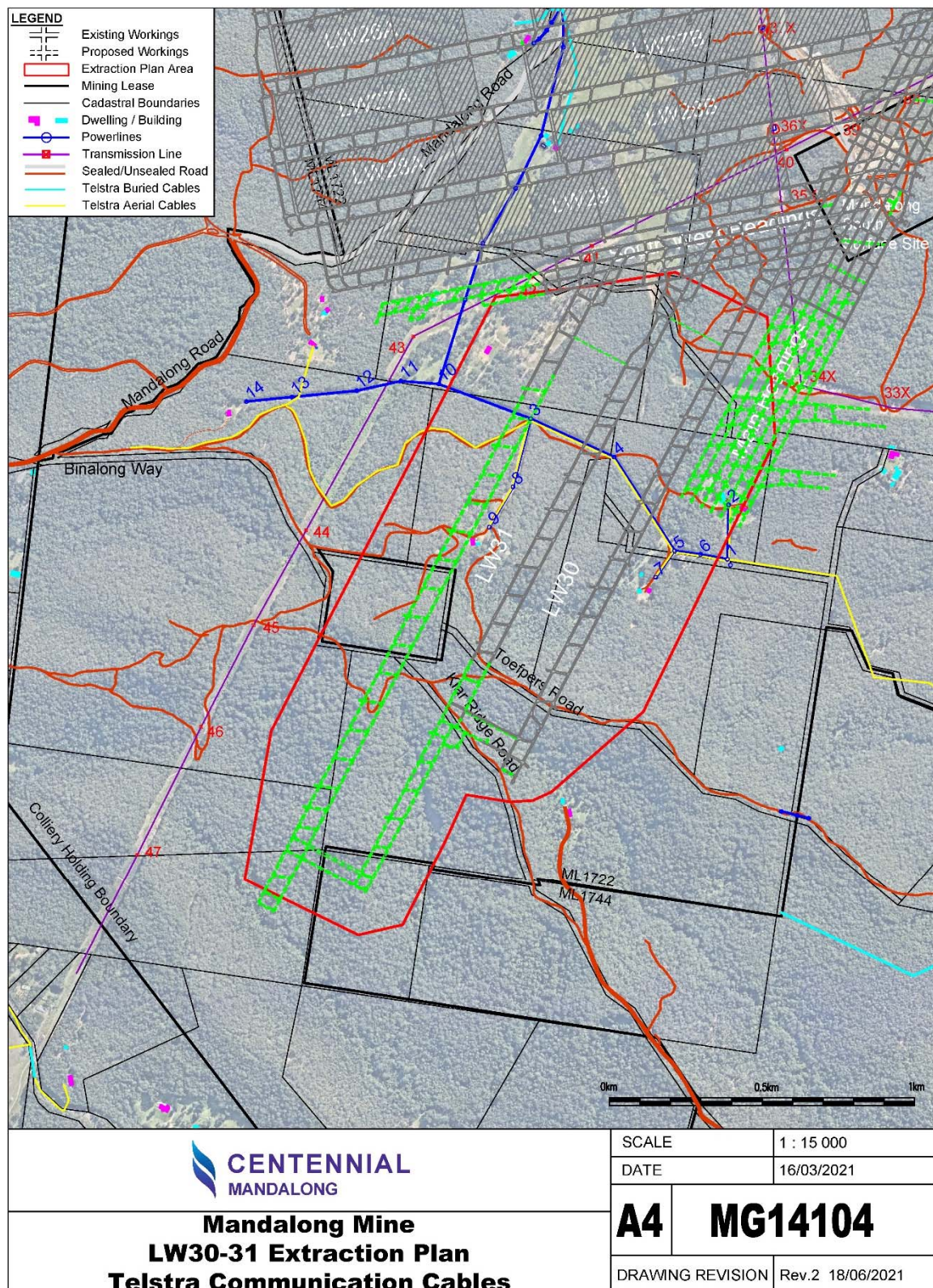


Figure 1 –Telstra Network within Extraction Plan Area LW30-31

4 Consultation and Plan Development

The Communications Management Plan has been prepared and developed in consultation with Telstra as required by Development Consent SSD-5144. Telstra's approved communications consultant, Comms Network Solutions (2020) conducted an audit of the Telstra infrastructure located over the whole of the LW30-33 Modification 9 Area and provided an impact assessment report against the predicted subsidence from LW30-33. RR have also been consulted during the development of the Communications Management Plan. A summary of the consultation for the Communications Management Plan is presented in **Table 1** and a copy of the correspondence included in **Appendix 4**.

Mandalong Mine has successfully extracted 29 longwalls beneath Telstra infrastructure since the commencement of longwall mining in 2005. There have been seven previous revisions of the Telstra Communications Management Plan. Each revision has been conducted in consultation with Telstra and Comms Network Solutions in preparation for each mining application (Extraction Plan).

The process for consultation, communication and the provision of information pertaining to this management plan will be managed according to Centennial Mandalong's **HSMC-SC-Information and Communications Arrangements** and **HSMS-SE-6592-Consultation Arrangements**.

Table 1 – Overview of Stakeholders Consulted Specifically for the Management Plan

Stakeholder	Date	Consultation Type and Summary of Aspects/Issues	Section Addressed
Comms Network Solutions (CNS) Telstra Network Integrity Services (Telstra)	Ongoing	Ongoing consultation for the implementation of the Communications Management Plan LW25-31.	Section 4
CNS Telstra	20/07/2020	Centennial Mandalong contacted CNS to advise the development of Extraction Plan LW30-33 and request to prepare Audit and Impact Assessment of Telstra infrastructure within the extraction plan area. Provided CNS with a plan of EP area and properties affected by mining.	Section 4 Appendix 4
CNS	30/07/2020	CNS fee proposal to conduct the audit and assessment of LW30-33 (MOD 9) area. Purchase order raised.	Section 4
CNS	14/11/2020	Centennial Mandalong provided DgS subsidence predictions and subsidence plans provided to CNS.	Section 4 Appendix 4
CNS	6/12/2020	CNS provided draft Telstra Communications Assessment Report for Extraction Plan LW30-33	Section 4 Appendix 4
CNS	12/12/2020	Telstra Communications Assessment Report for Extraction Plan LW30-33 finalised.	Section 4 Appendix 4
CNS Telstra	15/02/2021	Centennial Mandalong provided draft Communications Management Plan LW30-31 to CNS and Telstra for their review.	Section 4 Appendix 4

Stakeholder	Date	Consultation Type and Summary of Aspects/Issues	Section Addressed
Telstra CNS	18/02/2021	Mr Mark Schneider – Project Specialist Telstra Network Integrity Services confirmed by email that the Communications Management Plan LW30-31 was acceptable to Telstra. No changes to the draft Communications Management Plan LW30-31 were requested by Telstra.	Section 4 Appendix 4

5 Regulatory Requirements

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

5.1 Development Consent

Development Consent SSD-5144 conditions relate to the preparation of this Communications Management Plan. These conditions are summarised in **Table 2** below, together with the notation of the section of this document in which each matter is addressed.

Table 2 - Development Consent Conditions SSD-5144

Condition	Development Consent Condition	Section Addressed
Schedule 4 Condition 4	Performance Measures – Built Features The Applicant shall ensure that the development does not cause any exceedances of the performance measures in Table 7, to the satisfaction of the Secretary.	Section 6 and Table 7
Schedule 4 Condition 5	Performance Measures Any dispute between the Applicant and the owner of any built feature over the interpretation, application or implementation of the performance measures in Table 7 is to be settled by the Secretary, following consultation with DRE. Any decision by the Secretary shall be final and not subject to further dispute resolution under this consent.	Section 6
Schedule 4 Condition 6 (g)	Extraction Plan (g) include a Built Features Management Plan, which has been prepared in consultation with DRE and the owners of affected built features, 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 (with particular consideration to tension/angle/suspension towers on transmission lines), and other public infrastructure; - 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 which may impact the infrastructure;	Extraction Plan LW30-31 Built Features Management Plan LW30-31 Communications Management Plan LW30-31 Section 4 Section 7 Section 9

Condition	Development Consent Condition	Section Addressed
Schedule 4 Condition 6 (o)	(o) Trigger Action Response Plan addressing all features in Tables 6 and 7 which contain: • appropriate triggers to warn of the development of an increasing risk of exceedance of any performance measures; • specific actions to respond to high risk exceedance of any performance measure to ensure that the measure is not exceeded; and • an assessment of remediation measures that may be required if exceedances occur and the capacity to implement the measures;	Section 12 Appendix 1
Schedule 4 Condition 6 (p)	(p) 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 6 and 7, or where any such exceedance appears likely; and an assessment of the remediation measures that may be required if exceedances occur and the capacity to implement the measures;	Section 12 and Appendix 1
Statement of Commitments	Subsidence Monitoring and Management As part of the development of each Extraction Plan, Centennial Mandalong will update the Public Safety Management Plan and Built Features Management Plans in consultation with the relevant infrastructure owners.	This Plan and Built Features Management Plan

5.2 Mining Leases

The Extraction Plan Area for LW30-31 is associated with two mining leases held by Centennial Mandalong, ML1722 and ML1744. **Table 3** summarise the relevant conditions relating to the Extraction Plan for LW30-31 and preparation of the Communications Management Plan.

Table 3 – Summary of ML1722 and ML1744 conditions relating to Communications

	Mining Lease No. 1722 and 1744	Section Addressed
ML1722 and ML1744 Condition 6	Extraction Plan (a) In this condition: (i) approved Extraction Plan means a plan, being: A. an extraction plan or subsidence management plan approved in accordance with the conditions of a relevant development consent and provided to the Secretary; or B. a subsidence management plan relating to the mining operations subject to this lease: I. submitted to the Secretary on or before 31 December 2014; and II. approved by the Secretary. (ii) relevant development consent means a development consent or project approval issued under the Environmental Planning & Assessment Act 1979 relating to the mining operations subject to this lease. (b) The lease holder must not undertake any underground mining operations that may cause subsidence except in accordance with an approved Extraction Plan. (a) The lease holder must ensure that the approved Extraction Plan provides for the effective management of risks associated with any subsidence resulting from mining operations carried out under this lease. (b) The lease holder must notify the Secretary within 48 hours of any: (i) incident caused by subsidence which has a potential to expose any person to health and safety risks; (ii) significant deviation from the predicted nature, magnitude, distribution, timing and duration of subsidence effects, and of the potential impacts and consequences of those deviations on built features and the health and safety of any person; or (iii) significant failure or malfunction of a monitoring device or risk control measure set out in the approved Extraction Plan addressing: A. built features; B. public safety; or C. subsidence monitoring.	Extraction Plan LW30-31 Built Features Management Plan LW30-31 Public Roads Management Plan LW30-31 Public Safety Management Plan LW30-31 Subsidence Monitoring Program LW30-31

5.3 Extraction Plan Guidelines

The Extraction Plan and Communications Management Plan have been prepared generally in accordance with the Department of Planning & Environment, *Draft Guidelines for the Preparation of Extraction Plans V5* (2015). **Table 4** provides a summary of the guidelines requirements for key component plans.

Table 4 - Extraction Plan Guideline Requirements for Key Component Plans

Extraction Plan Guideline Requirement – Key Component Plans	Section Addressed
An overview of all landscape features, heritage sites, environmental values, built features or other values to be managed under the component plan	Sections 1 Section 3.2
Setting out all performance measures included in the development consent relevant to the features or values to be managed under the component plan	Section 6
Setting out clear objectives to ensure the delivery of the performance measures and all other relevant statutory requirements (including relevant safety legislation)	Section 6
Proposing performance indicators to establish compliance with these performance measures and statutory requirements;	Section 6 TARPS in Appendix 1
Describe the landscape features, heritage sites and environmental values to be managed under the component plan, and their significance. It should be noted that a full description of such features, sites and values would commonly have been provided and considered in a recent environmental impact assessment. Consequently, this section can be relatively brief, and focus on the presentation of appropriate figures and/or graphical plans;	Section 8
Describe all currently-predicted subsidence impacts and environmental consequences relevant to the features, sites and values to be managed under the component plan;	Section 8
Describe all measures planned to remediate these impacts and/or consequences, including any measures proposed to ensure that impacts and/or consequences comply with performance measures and/or the Applicant's commitments;	Section 9 Section 10 TARPS in Appendix 1
Describe the existing baseline monitoring network and the current baseline monitoring results, including pre-subsidence photographic surveys of key landscape features and key heritage sites which may be subject to significant subsidence impacts (such as significant watercourses, swamps and Aboriginal heritage sites);	Section 10.1
Fully describing the proposed monitoring of subsidence impacts and environmental consequences;	Section 10
Describe the proposed monitoring of the success of remediation measures following implementation;	Section 10
Describe adaptive management proposed to avoid repetition of unpredicted subsidence impacts and/or environmental consequences;	Section 11 TARPS in Appendix 1
Describe contingency plans proposed to prevent, mitigate or remediate subsidence impacts and/or environmental consequences which substantially exceed predictions or which exceed performance measures;	Section 11 Section 12 TARPS in Appendix 1
Listing responsibilities for implementation of the plan; and	Section 13
An attached Trigger, Action, Response Plan (effectively a tabular summary of most of the above).	Appendix 1

5.4 Work Health and Safety Legislation

Mandalong Mine has developed a Safety Management System framework (MS-1001) that integrates plans, policies and procedures that enables a systematic approach to establishing and maintain effective systems to manage health and safety consistent with WHS legislation and AS/NZS 4804:2001.

The following Work, Health and Safety (WHS) requirements have been considered for the Extraction Plan principally within the context of subsidence related risks to public safety, including to private property and public infrastructure and in reference to *Managing Risks of Subsidence Guide: WHS (Mines and Petroleum Sites) Legislation* (NSW Department of Industry - Resources Regulator, 2017).

Work Health and Safety legislation relating to the management of risk to health and safety from mine subsidence is addressed in **Table 5**.

Table 5 - Summary of WHS Legislation Relating to Mine Subsidence

Work Health and Safety Legislation Clause	Requirement	Section Addressed
WHS Regulation 2017 Clause 34	Duty to identify hazards A duty holder, in managing risks to health and safety, must identify reasonably foreseeable hazards that could give rise to risks to health and safety.	Section 7 Section 8 Extraction Plan Appendix 4 -Risk Assessments
WHS Regulation 2017 Clause 35	Managing risks to health and safety A duty holder, in managing risks to health and safety, must: (a) eliminate risks to health and safety so far as is reasonably practicable, and (b) if it is not reasonably practicable to eliminate risks to health and safety, minimise those risks so far as is reasonably practicable.	Section 6.1 Section 7 Section 9 Section 11
WHS Regulation 2017 Clause 36	Hierarchy of control measures (1) This clause applies if it is not reasonably practicable for a duty holder to eliminate risks to health and safety. (2) A duty holder, in minimising risks to health and safety, must implement risk control measures in accordance with this clause. (3) The duty holder must minimise risks, so far as is reasonably practicable, by doing 1 or more of the following: (a) substituting (wholly or partly) the hazard giving rise to the risk with something that gives rise to a lesser risk, (b) isolating the hazard from any person exposed to it, (c) implementing engineering controls. (4) If a risk then remains, the duty holder must minimise the remaining risk, so far as is reasonably practicable, by implementing administrative controls. (5) If a risk then remains, the duty holder must minimise the remaining risk, so far as is reasonably practicable, by ensuring the provision and use of suitable personal protective equipment. Note. A combination of the controls set out in this clause may be used to minimise risks, so far as is reasonably practicable, if a single control is not sufficient for the purpose.	Section 6.1 Section 7 Section 9 MS-1001
WHS Regulation 2017 Clause 37	Maintenance of control measures A duty holder who implements a control measure to eliminate or minimise risks to health and safety must ensure that the control measure is, and is maintained so that it remains, effective, including by ensuring that the control measure is and remains: (a) fit for purpose, and (b) suitable for the nature and duration of the work, and (c) installed, set up and used correctly.	Section 9 Section 10 Volume 3 of LW30-31 EP

Work Health and Safety Legislation Clause	Requirement	Section Addressed
WHS Regulation 2017 Clause 38	Review of control measures (1) A duty holder must review and as necessary revise control measures implemented under this Regulation so as to maintain, so far as is reasonably practicable, a work environment that is without risks to health or safety. (2) Without limiting subclause (1), the duty holder must review and as necessary revise a control measure in the following circumstances: (a) the control measure does not control the risk it was implemented to control so far as is reasonably practicable, (b) before a change at the workplace that is likely to give rise to a new or different risk to health or safety that the measure may not effectively control, (c) a new relevant hazard or risk is identified, (d) the results of consultation by the duty holder under the Act or this Regulation indicate that a review is necessary, (e) a health and safety representative requests a review under subclause (4). (3) Without limiting subclause (2) (b), a change at the workplace includes: (a) a change to the workplace itself or any aspect of the work environment, or (b) a change to a system of work, a process or a procedure. (4) A health and safety representative for workers at a workplace may request a review of a control measure if the representative reasonably believes that: (a) a circumstance referred to in subclause (2) (a), (b), (c) or (d) affects or may affect the health and safety of a member of the work group represented by the health and safety representative, and (b) the duty holder has not adequately reviewed the control measure in response to the circumstance.	Section 11 Section 15 Extraction Plan Appendix 4 -Risk Assessments
WHS Regulation (Mines and Petroleum Sites) 2014 Clause 9	Management of risks to health and safety (cl 617 model WHS Regs) (1) A person conducting a business or undertaking at a mine must manage risks to health and safety associated with mining operations at the mine in accordance with Part 3.1 of the WHS Regulations. (2) A person conducting a business or undertaking at a mine must ensure that a risk assessment is conducted in accordance with this clause by a person who is competent to conduct the particular risk assessment having regard to the nature of the hazard. (3) In conducting a risk assessment, the person must have regard to: (a) the nature of the hazard, and (b) the likelihood of the hazard affecting the health or safety of a person, and (c) the severity of the potential health and safety consequences. (4) Nothing in subclause (3) limits the operation of any other requirement to conduct a risk assessment under this Regulation. (5) A person conducting a business or undertaking at a mine (who is the mine operator of the mine or who is a contractor) must keep a record of the following: (a) each risk assessment conducted under this clause and the name and competency of the person who conducted the risk assessment, (b) the control measures implemented to eliminate or minimise any risk that was identified through any such risk assessment. (6) A person conducting a business or undertaking at a mine is not required to keep a record of a risk assessment if: (a) the risk assessment is one that an individual worker is required to carry out before commencing a particular task, and (b) the person keeps a record of risk assessments that addresses the overall activity being undertaken (of which the task forms a part) such as risk assessments carried out in relation to the development of the safety management system for the mine or for a principal mining hazard management plan. (7) The record kept under subclause (5): (a) if kept by a mine operator—forms part of the safety management system of the mine and the records of the mine, or	Section 7 MS-1001

Work Health and Safety Legislation Clause	Requirement	Section Addressed
	(b) if kept by a contractor who has prepared a contractor health and safety management plan—forms part of the plan.	
WHS Regulation (Mines and Petroleum Sites) 2014 Clause 10	Review of control measures (cl 618 model WHS Regs) (1) A person conducting a business or undertaking at a mine must review and as necessary revise control measures implemented under clause 9 in the following circumstances: (a) an audit of the effectiveness of the safety management system for the mine indicates a deficiency in a control measure, (b) a worker is moved from a hazard or assigned to different work in response to a recommendation contained in a health monitoring report provided under Part 3, (c) an incident referred to in clause 128 occurs, (d) any other incident occurs that is required to be notified to the regulator under the WHS laws. (2) The mine operator of a mine must ensure that a control measure that is the subject of a request by a health and safety representative under clause 38 (4) of the WHS Regulations is reviewed and as necessary revised, whether the request is made to the mine operator or notified to the mine operator under subclause (3) by another person conducting a business or undertaking at the mine. (3) A person conducting a business or undertaking at the mine who is not the mine operator of the mine must immediately notify the mine operator of a request made to the person under clause 38 (4) of the WHS Regulations. (4) A health and safety representative for workers at the mine may request a review of a control measure under clause 38 (4) of the WHS Regulations as if the circumstances referred to in subclause (1) were included as a circumstance in clause 38 (4) (a) of the WHS Regulations.	Section 11 Section 14 Section 15 MS-1001
WHS Regulation (Mines and Petroleum Sites) 2014 Clause 23 Identification of principal mining hazard management plan	(1) The mine operator of a mine must identify all principal mining hazards associated with mining operations at the mine. (2) The mine operator must conduct, in relation to each principal mining hazard identified, a risk assessment that involves a comprehensive and systematic investigation and analysis of all aspects of risk to health and safety associated with the principal mining hazard. (3) The mine operator, in conducting a risk assessment under subclause (2), must: (a) use investigation and analysis methods that are appropriate to the principal mining hazard being considered, and (b) consider the principal mining hazard individually and also cumulatively with other hazards at the mine.	Centennial Risk Management System – consistent with AS/NZS ISO 31000:2009 Risk Assessments in Appendix 4 Extraction Plan Subsidence WHS No. 1001025001 Built Features LW30-31 No. 1001284061 PSMPs LW30-31 No. 1001285007 Environment LW30-31 No. 1001284063
WHS Regulation (Mines and Petroleum Sites) 2014 Clause 24	(1) The mine operator of a mine must consider the following when preparing a principal mining hazard management plan for a principal mining hazard at the mine in accordance with this clause and Schedule 1. (2) A principal mining hazard management plan must: (a) provide for the management of all aspects of risk control in relation to the principal mining hazard, and	Extraction Plan LW30-31 and Public Safety Management Plan

Work Health and Safety Legislation Clause	Requirement	Section Addressed
Preparation of principal mining hazard management plan	(b) so far as is reasonably practicable, be set out and expressed in a way that is readily understandable by persons who use it.. (3) A principal mining hazard management plan must: (a) describe the nature of the principal mining hazard to which the plan relates, and (b) describe how the principal mining hazard relates to other hazards associated with mining operations at the mine, and (c) describe the analysis methods used in identifying the principal mining hazard to which the plan relates, and (d) include a record of the most recent risk assessment conducted in relation to the principal mining hazard, and (e) describe the investigation and analysis methods used in determining the control measures to be implemented, and (f) describe all control measures to be implemented to manage risks to health and safety associated with the principal mining hazard, and (g) describe the arrangements in place for providing the information, training and instruction required by clause 39 of the WHS Regulations in relation to the principal mining hazard, and (h) refer to any design principles, engineering standards and technical standards relied on for control measures for the principal mining hazard, and (i) set out the reasons for adopting or rejecting each control measure considered. (4) The mine operator of a mine must consider the following when preparing a principal mining hazard management plan for a principal mining hazard at the mine: (a) the matters set out in Schedule 1 in respect of the principal mining hazard, and (b) any other matter relevant to managing the risks associated with the principal mining hazard at the mine.	and Communications Management Plan
WHS Regulation (Mines and Petroleum Sites) 2014 Clause 67 Subsidence	(1) In complying with clause 9, the mine operator of an underground coal mine must manage risks to health and safety associated with subsidence at the mine. (2) Without limiting subclause (1), the mine operator must ensure that: (a) so far as is reasonably practicable, the rate, method, layout, schedule and sequence of mining operations do not put the health and safety of any person at risk from subsidence, and (b) monitoring of subsidence is conducted, including monitoring of its effects on relevant surface and subsurface features, and (c) any investigation of subsidence and any interpretation of subsidence information is carried out only by a competent person, and (d) all subsidence monitoring data is provided to the regulator in the form and at the times required by the regulator, and (e) so far as is reasonably practicable, procedures are implemented for the effective consultation, co-operation and co-ordination of action with respect to subsidence between the mine operator and relevant persons conducting any business or undertaking that is, or is likely to be, affected by subsidence	Section 6.1 Section 10 Section 13 Section 14 Section 9 TARPs Extraction Plan Appendix 4 - Risk Assessments
WHS Regulation (Mines and Petroleum Sites) 2014 Clause 128 Duty to notify regulator of certain incidents	(1) The operator of a mine or petroleum site must take all reasonable steps to ensure that the regulator is notified in accordance with this clause after becoming aware of an incident (other than a notifiable incident) arising out of the carrying out of mining operations or petroleum operations at the mine or petroleum site, but only if the incident: (a) results in illness or injury that requires medical treatment within the meaning of clause 13 of Schedule 9, or (b) is a high potential incident. (5) In this clause:	Appendix 1 TARPs Public Safety Management Plan Communications Management Plan

Work Health and Safety Legislation Clause	Requirement	Section Addressed
	<i>high potential incident</i> means any of the following: (m) any indication from monitoring data of the development of subsidence which may result in any incident referred to in clause 179 (a) (xvi) - a failure of ground, or of slope stability control measures, or 179 (a) (xvii) - rock falls, instability of cliffs, steep slopes or natural dams, occurrence of sinkholes, development of surface cracking or deformations or release of gas at the surface, due to subsidence.	Land Management Plan
WHS Regulation (Mines and Petroleum Sites) 2014 Schedule 1 Subsidence Clause 3C Principal hazard management plans – additional matters to be considered	Subsidence The following matters must be considered in developing the control measures to manage the risks of subsidence: (a) the characteristics of all relevant surface and subsurface features, (b) the characteristics of all relevant geological, hydrogeological, hydrological, geotechnical, topographic and climatic conditions, including any conditions that may cause elevated or abnormal subsidence or the formation of sinkholes, (c) the characteristics of any previously excavated or abandoned workings that may interact with any proposed or existing mine workings, (d) the existence, distribution, geometry and stability of significant voids, standing pillars or remnants within any old pillar workings that may interact with any proposed or existing mine workings, (e) the predicted and actual nature, magnitude, distribution, timing and duration of subsidence, (f) the rate, method, layout, schedule and sequence of mining operations.	Extraction Plan - Appendix 1 (Ditton Geotechnical Services, 2021) Extraction Plan and Volume 3 (Component Plans)
WHS Regulation (Mines and Petroleum Sites) 2014 Schedule 3 Clause 16 High Risk Activities	Secondary extraction or pillar extraction, splitting or reduction (1) The following are identified as high risk activities: (a) secondary extraction by longwall mining, shortwall mining or miniwall mining, (b) pillar extraction, (c) pillar splitting, (d) pillar reduction. (2) The waiting period for any such activity is 3 months. (3) The information and documents that must be provided in relation to any such activity are as follows: (a) details of the authoritative sources used in determining that the proposed method of work can be done safely, (b) engineering plans showing the manner and sequence of extraction, endorsed by the individual nominated to exercise the statutory function of mining engineering manager at the mine, (c) information about the land above or in the vicinity of the proposed activity including land use and details of who owns or occupies any land that may be affected by subsidence, (d) in the case of a pillar extraction, details of the procedures for the recovery of buried and immobile mining plant in or around a goaf, (e) details of how the risks to the health and safety of workers and other persons from subsidence caused by the activity will be managed.	Extraction Plan LW30-31 and High Risk Activity Notification for LW30-31

6 Performance Measures and Indicators

6.1 Mine Design

Mandalong Mine is designed to provide reduced levels of subsidence by using sub-critical longwall panels (180m to 200m) combined with 43m to 53m wide chain pillars that utilise the bridging effect of the overlying massive conglomerate and sandstone strata. This design is proven and provides subsidence impacts below safe, serviceable and repairable (SSR) criteria for dwellings and also minimises the impacts to the flood plain, natural features and built features managed by this plan.

6.2 Subsidence Prediction

Subsidence predictions and potential impacts from the extraction of LW30-31 on surface and subsurface features present within the Extraction Plan Area has been prepared by Ditton Geotechnical Services (2021) based on the following methodology:

- (i) The development of a geotechnical model of the overburden and immediate roof-pillar-floor system using available borehole log and testing data.
- (ii) Prediction of maximum subsidence effect parameters for the proposed longwalls.
- (iii) Review of Mandalong Mine's subsidence data and impacts associated with LW1 - 27.
- (iv) Prediction of first and final subsidence effect profiles and final contours and assessment of the potential impacts to existing and proposed features or developments.
- (v) Prediction of post-mining surface levels.
- (vi) Potential surface cracking widths and their general location.
- (vii) Prediction of sub-surface heights of continuous and discontinuous fracturing above the proposed longwall panels.
- (viii) Potential ponding depth locations.
- (ix) Potential surface gradient changes and erosion / slope stability impacts.
- (x) Valley Closure and Uplift potential along watercourses.
- (xi) Far-field horizontal displacements and strains.
- (xii) Predicted impacts and management strategies required for the environment, developments and Aboriginal and European Heritage sites.

Two empirically based prediction models (**ACARP, 2003** and **SDPS®**) have been used to generate subsidence profiles and contours above the proposed longwall panels after mining is complete. **Surfer 8®** software has then been used to generate subsidence, tilt, horizontal displacement, and strain contours above the panels from the **SDPS®** output files.

The subsidence predictions models used in this study are summarised below:

- **ACARP, 2003** - An empirical model that was originally developed for predicting maximum single and multiple longwall panel subsidence, tilt, curvature and strain in the Newcastle Coalfield. The model database included measured subsidence parameters and overburden geology data, which have been back analysed to predict the subsidence reduction potential (SRP) of massive lithology in terms of 'Low', 'Moderate' and 'High' SRP categories.

The model database also includes chain pillar subsidence, inflexion point distance, goaf edge subsidence and angle of draw prediction models, which allow subsidence profiles to be generated

for any number of panels and a range of appropriate confidence limits. The Upper 95% Confidence Limit (U95%CL) has been adopted in this study for predictions of the Credible Worst-Case values.

The model has been updated by Ditton Geotechnical Services (DgS) since 2007 to allow the original **ACARP, 2003** model to be applied to other Australian Coalfields and improve its robustness over a greater range of mining geometries and geologies.

- **SDPS[®], 2007** - A US developed (Virginia Polytechnical Institute) influence function model for subsidence predictions above longwalls or pillar extraction panels. The model requires calibration to measured subsidence profiles to reliably predict the subsidence and differential subsidence profiles required to assess impacts on surface features.

The model also includes a database of percentage of hard rock (i.e. massive sandstone / conglomerate) that effectively reduces subsidence above super-critical and sub-critical panels due to either bridging or bulking of collapsed material. This is consistent with the **ACARP, 2003** models prediction methodology.

Pre-feasibility studies of appropriate panel widths and set-back distances required to minimise or limit surface impacts to manageable levels have been undertaken by Centennial Mandalong and DgS prior to the preparation of the predictions. The outcomes of the preliminary analysis have resulted in the mining geometry and layout adopted.

Based on regression analysis techniques, curves of 'best fit' have been used to estimate Mean and Credible Worst-Case (Upper 95% Confidence Limits) for the subsidence effects due to the proposed longwalls. The curves are based on measured subsidence data in the NSW Coalfields and key mining geometry parameters (refer **ACARP, 2003**). The Mandalong mining experience to-date has also been reviewed against the database (LW1-27).

The prediction method allows specialist consultants to assess the potential range of impacts to a given feature in a probabilistic manner. Impact Management Plans and strategies can then be developed that allows appropriate Trigger Action Responses and mine planning adjustments or mitigation measures necessary to deliver satisfactory outcomes to stakeholders.

6.3 Performance Measures

6.3.1 SSD-5144

As outlined in **Section 6.1**, the primary objective of the mine design is to prevent any significant mine induced risk to built features by providing low levels of subsidence, that allow built features including private dwellings to remain safe, serviceable and repairable.

The Communications Management Plan aims to ensure the performance measures in SSD-5144 Schedule 4 Condition 4 Table 7 are not exceeded. The performance measures are shown in **Table 6**.

Table 6 - Subsidence Impact Performance Measures

Key Public Infrastructure	
M1 Motorway	Always safe and serviceable.
Main Northern Railway	Damage that does not affect safety or serviceability must be fully repairable, and must be fully repaired.
330 kV power supply infrastructure	
Other Built Infrastructure	
Power lines and power poles	Always safe.
Telecommunications infrastructure	Serviceability should be maintained wherever practicable.
Privately-owned residences	
Local Roads	Loss of serviceability must be fully compensated.
Other built features and improvements, (including access roads, farm dams, swimming pools, tracks and fences)	Damage must be fully repairable, and must be fully repaired or else replaced or fully compensated.
Public Safety	
Public Safety	Negligible additional risk.

Notes:

- Key public infrastructure is shown in Figure 2 of Appendix 2 and in Figure 1 of Appendix 5
- Other built infrastructure is shown in Figure 1 of Appendix 5.
- The Applicant will be required to define more detailed performance indicators for each of these performance measures in the Built Features Management Plan, Property Subsidence Management Plans and Public Safety Management Plan (see condition 6 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 regarding safety or serviceability do not preclude preventative or mitigatory actions being taken prior to or during mining in order to achieve or maintain these outcomes.
- Requirements under this condition may be met by measures undertaken in accordance with the Mine Subsidence Compensation Act 1961.

6.4 Performance Indicators

To establish compliance with the performance measures outlined in **Section 6.3**, Centennial Mandalong has established a subsidence monitoring program developed in consultation with Telstra and RR. Trigger Action Response Plans (TARPs) have also been established and provided in **Appendix 1**. These documents establish the appropriate subsidence monitoring, parameters and associated trigger levels to demonstrate that subsidence performance satisfies the Subsidence Performance Measures set in **Table 6** and infrastructure requirements.

The Performance Indicators have been established for each built features. The TARPS provide the trigger values as outlined in **Table 7**.

Table 7 – Performance Indicators

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

7 Risk Management

Centennial Mandalong has adopted the Stature Risk Assessment Program which was developed to ensure consistency in all risk assessments across the Centennial Coal operations. The Stature Risk Assessment Program sets out a consequences table and risk ranking matrix for managing identified risks consistent with AS/NZS ISO 31000:2009.

All operational processes undertaken at the Centennial Mandalong operations are subject to the risk assessment process prior to implementation. The process for risk and change management is undertaken according to the methodology and tools contained within **HSMS-SE-1024-Risk Management Arrangements** and **HSMS-SE-1082- Change Management System**.

Centennial Mandalong completed a WRAC Risk Assessment (No. 1001284061) for Built Features affected by subsidence from the secondary extraction of LW30-31 including the Telstra communications network. A full copy of the risk assessment is included within the Extraction Plan LW30-31 Appendix 4.

7.1 Identified Risks

Mandalong Mine has well established Communications Management Plans, which have been developed and refined since the commencement of longwall mining in 2005. Potential hazards to public safety and the Telstra communications network from the impact of mine subsidence can include:

- Potential for damage to direct buried copper cables and potential interruption of service to customers;
- Potential for damage to aerial copper cables and potential interruption of service to customers; and
- Potential for damage to conduit and pit network supporting communications cables and potential interruption of service to customers.

The risk assessment team also considered the tolerance of the communications network to subsidence impact. Two case studies were modelled:

1. Maximum Subsidence Prediction (mean); and
2. Credible Worst-Case Subsidence Prediction (Upper 95% Confident Limits).

This enabled a form of sensitivity analysis of the subsidence predictions to be made as outlined in **Table 8**.

Table 8 – Subsidence Sensitivities

Prediction	Cause
Maximum Predicted Subsidence (Mean)	Expected geotechnical conditions
Maximum Predicted Subsidence (Credible Worst-Case, U95% CL)	Geotechnical conditions worse than anticipated

7.2 Risk Assessment Outcome

A risk ranking (low, moderate, significant, high or extreme) was assigned to each risk/hazard. The risk ranking for the communications lines and associated infrastructure was assessed as **Low** at the maximum predicted subsidence and credible worst-case subsidence. No additional control measures were identified. The full risk assessment is included in Appendix 4 of the Extraction Plan LW30-31.

8 Telstra Network and Predicted Impacts

Telstra Corporation Ltd – Network Integrity is responsible for the management and maintenance of communications network. The Communications Management Plan for LW30-31 (MEMS-EP-9000-CMP-9052) has been developed in consultation with Telstra and their approved telecommunications consultant, Comms Network Solutions. An audit of the communications network was carried out by Comms Network Solutions (2020) and an assessment of likely impact to the communications infrastructure based on the predicted subsidence from the extraction of LW30-31.

8.1 Local Customer Access Network – Aerial Cables

The Aerial CAN copper cable extending from Binalong Way is fed from Dooralong Exchange Area by an aerial 100Pr cable feeding east along Mandalong Road via the Durren Durren area. The aerial cable is 10Pr/0.64 with poles at around 50-60m centres through a relatively narrow tree covered unsealed private access road and Ausgrid powerline easement over LW30-31.

Figure 2 shows a view the aerial cable running along Binalong Way mounted on Telstra poles. **Figure 3** shows typical aerial pole mounted joint.



Figure 2 – View along Binalong Way showing 10/0.64 area cable mounted on Telstra poles



Figure 3 – Typical 10/0.64 pole mounted joint on aerial cable.

8.1.1 Predicted Impact to Local CAN - Aerial

Comms Network Solutions (2020) assessed that the aerial cable present is influenced predominantly by ground tilt from mine subsidence. Ditton Geotechnics (2020) suggests the poles carrying the cables *“are likely to be subject to subsidence of between 0.02 and 1.0m and strains between 2 and 10mm/m compressive strain and tensile strain”*.

Hence the degree of potential ground movement from pole tilt for say 6-8m high poles is a maximum of around 80mm at the pole top. For Telstra poles generally, the tilt will be reduced near the centre and increasing towards the goaf and then reducing again over the chain pillars. The eastern goaf edge of LW30 has the most significant tilt at a predicted level of around 10mm/m. It is anticipated that in this worst case for around 80mm tilt, the aerial cables have sufficient catenary freedom between adjacent poles to accept pole movement caused by ground tilting.

Due to the relatively short spacing of poles and the reducing tilt across the longwalls to the west the risk factor for LW30 is assessed as Moderate (Moderate event with Minor consequences) and for the other longwalls where pole top movement would reduce to around 50-60mm (say 7mm/m maximum for 6-8m pole) the risk factor is assessed as Low (Unlikely event with Minor consequences).

8.1.2 Predicted Impact to Joints Supporting Local CAN Aerial Cables

Comms Network Solutions (2020) assessed that there is little risk to the Telstra poles from ground subsidence as the degree of differential movement between adjacent poles is anticipated to be low. Also as identified in Ditton Geotechnical Assessment (2020) for Ausgrid poles experiencing similar levels of strain and subsidence as predicted for Telstra poles. The in-line joints on the aerial cable are fixed to the poles with slack cable available from the aerial fixture down to the joint. Therefore it is very unlikely that the in-line joints will be impacted by subsidence.

9 Management Measures

The management strategy is to monitor subsidence and conduct visual inspections of the affected section of the Telstra communications network. Subsidence effects monitoring will be consistent with the Property Subsidence Management Plans and Communications Management Plan due to the location of the infrastructure positioned along private access roads and Ausgrid powerlines. The monitoring summary is detailed in **Section 10.2.2**.

10 Monitoring Program

The Mandalong Mine Subsidence Monitoring Program comprises a number of techniques including conventional subsidence monitoring, visual inspections and aerial LIDAR surveys, developed in order to:

- Demonstrate mine development and extraction is undertaken as per approved designs;
- Provide information to demonstrate statutory compliance and obligations are satisfied;
- Targeted monitoring of sensitive surface and built features;
- Meet stakeholder monitoring requirements to minimise impact to infrastructure;
- Provide appropriate and timely subsidence information to assess against triggers established in the TARPs; and
- To provide data for future monitoring systems for ongoing mining within Mandalong mining leases.

The Subsidence Monitoring Program is scheduled in the Centennial Compliance Database. The compliance database allows for surveys, inspections and notifications to be scheduled on either time or productions schedule (longwall face position). The required actions are assigned to the relevant role to ensure the subsidence monitoring program is achieved.

10.1 Baseline Monitoring

Comms Network Solutions recommends visual inspections of the aerial cable route prior to and during the development of subsidence in the location of the Telstra Network.

10.1.1 Conventional Subsidence Monitoring

Crosslines 24 and 25 will provide the baseline subsidence monitoring for within the extraction plan area (**Figure 4**).

10.2 Subsidence Monitoring

10.2.1 Subsidence Monitoring Zones

Mandalong Mine has developed three subsidence monitoring zones to accommodate the development of subsidence from the narrow longwall panels and the bridging effect of the overlying massive strata that provides the reduced levels of subsidence. Unique to Mandalong Mine and as a result of the bridging massive strata, subsidence develops later than in typical longwall operations, with the majority of subsidence realised after the longwall face has retreated approximately 500m.

Additional subsidence also develops over the longwall panel following the extraction of the next adjacent longwall panel. This is due to the compression of the intervening chain pillar and strata. The additional subsidence contributed is typically in the order of 0.30m and is dependent on the geotechnical conditions and the depth of cover. Tilts and strains typically remain unchanged and may be reduced as a result of the decreased vertical subsidence differential between the maingate chain pillar and the centre of the longwall panel. In areas with higher depth of cover over 300m some additional minor settlement may occur following the extraction of the adjacent two to three longwall panels.

Accordingly, with 29 longwall panels now completed, Mandalong has developed three subsidence monitoring zones which define required monitoring activities in actively subsiding and stable areas of

the mine as follows below. Full details of proposed monitoring activities within each zone are described within the Subsidence Monitoring Program for each Extraction Plan progressively approved by the mine.

10.2.1.1 Active Subsidence Zone for Visual Monitoring

The “Active Subsidence Zone” for visual monitoring inspections is defined as:

- 100m in advance of the current longwall face position; and
- the following 500m of longwall extraction (i.e. 500m behind the face position).

10.2.1.2 Active Longwall Zone for Crossline Monitoring

The “Active Longwall Subsidence Zone” includes the nominated crosslines for the current longwall panel and the three previous longwall panels.

10.2.1.3 Stable Longwall Subsidence Zone for Crossline Monitoring

The “Stable Longwall Subsidence Zone” represents the stable non-subsiding areas beyond the three previous longwall panels, defined as being from the start of the nominated crosslines up to the Active Longwall Subsidence Zone.

10.2.2 Telstra Communications

Subsidence monitoring for the Telstra communication lines will coincide with the monitoring for Property Subsidence Management Plans and Powerline Management Plan and the associated weekly inspections.

Weekly visual inspections will be conducted along the Telstra network via private access roads and powerline easements while the infrastructure is within the Active Subsidence Zone. Monthly visual monitoring will then continue for the following six months or when the next longwall mines beneath the infrastructure. The inspections will be combined with any feedback received from property owners in the area, who may be aware of particular problems associated with buildings, roadways or other services on their properties. The results of the visual inspections will be recorded on the subsidence inspection checklist sheet and filed.

Table 9 provides the monitoring program for the Telstra Communications network.

10.2.3 Crossline Monitoring

Subsidence monitoring on Crossline 24 and Crossline 25 will be conducted following the completion of each longwall panel.

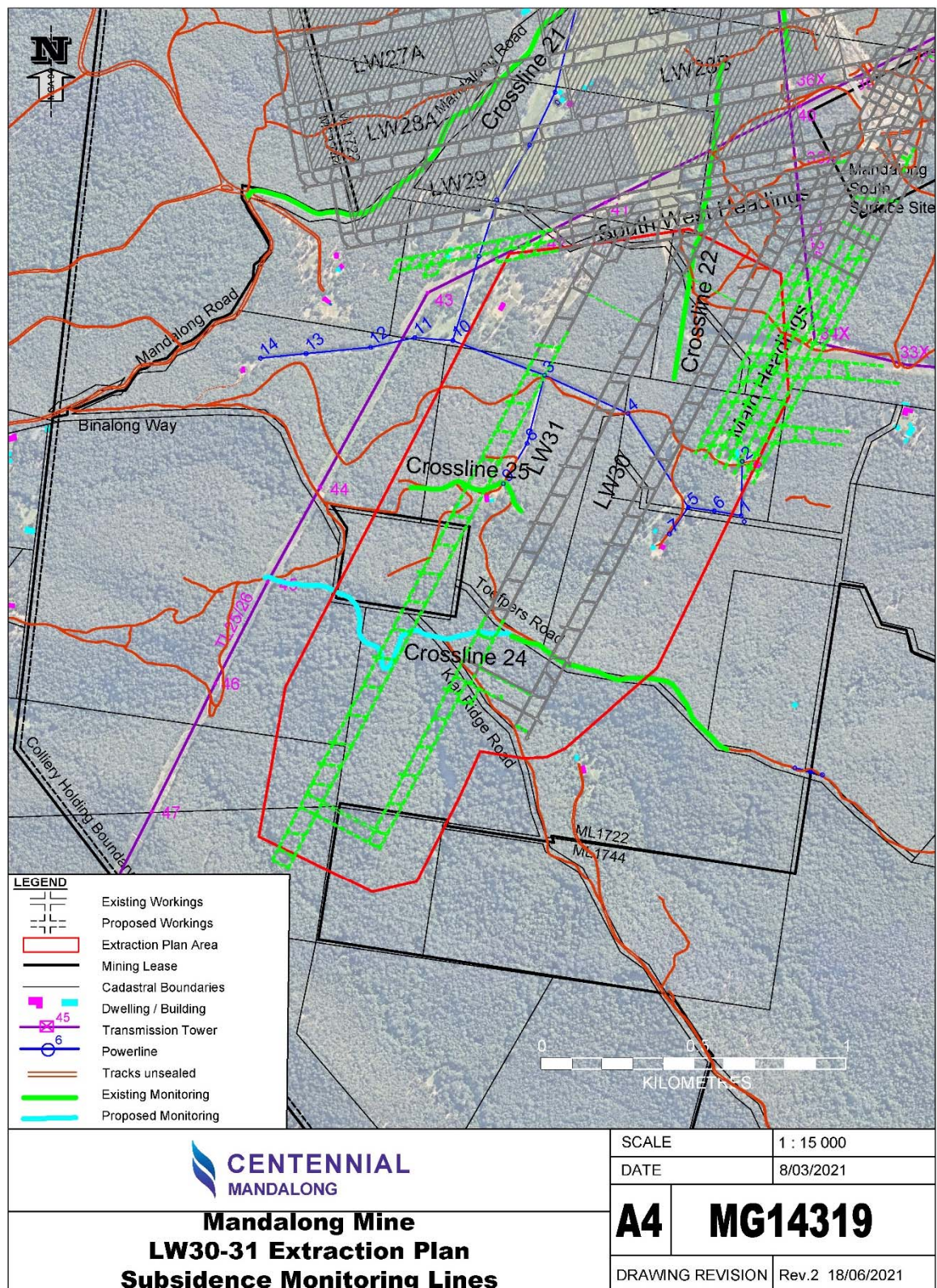


Figure 4 –Subsidence Monitoring Lines for LW30-31

Table 9 –Telstra Communications Subsidence Monitoring Program Summary

Feature	Location	Monitoring Method	Parameter	Monitoring Frequency and Duration
Private Access Roads PSMP Telstra Communications Network Communications Management Plan Ausgrid Powerlines Powerline Management Plan	Private Access Roads Private properties Powerline easements 11kV powerline Telstra Network Local CAN – Aerial cables	Crossline 24 and Crossline 25 Star posts adjacent to road at 10m spacing;	Vertical subsidence, tilt and strain.	<u>Baseline</u> Prior to mining LW30 and LW31. <u>Post Mining</u> 2 months after mining LW30 and LW31. <u>Stable Zone</u> 2 yearly.
		Visual Inspection	Presence of mine-induced damage: • surface tensile cracking in pavement • surface compressive shearing in pavement • surface cracking in fill embankments • erosion of local slope stability for fill embankment if cracking occurs • cracking to culverts and pipes • road drainage • damage to Telstra infrastructure (conduits, cables). • aerial cable –tilting pole; change in conductor sag/tension; ground clearance; damage to connections. Risk to public safety	<u>Active Zone</u> Weekly visual inspection while infrastructure is within the current LW active subsidence zone. <u>Post Mining</u> Monthly visual inspection for the following six months or next longwall panel.

Feature	Location	Monitoring Method	Parameter	Monitoring Frequency and Duration
		Telstra Visual inspection of infrastructure conducted by Telstra - Comms Network Solutions.	Inspection of poles, cables, joints, conduits	<u>Baseline</u> Prior to mining impacting poles from the extraction of LW30 and 31 <u>Post Mining</u> 2 months after mining LW30 and LW31

11 Adaptive Management

In addition to the conservative narrow longwall panel layout specifically designed to provide reduced levels of subsidence and impact, Centennial Mandalong developed an adaptive management approach designed to avoid repetition of any unpredicted subsidence and or environmental consequences. This system involves the monitoring and evaluation of impacts to Telstra communication infrastructure against the performance indicators defined in **Section 6.4** and contingency plan (TARP) in the event that a performance indicator is exceeded.

12 Contingency Plans

Trigger Action Response Plans (TARP) have been developed using performance indicators for Telstra communications lines. In the event that subsidence monitoring and or visual inspections identify that a performance indicator has been exceeded, Centennial Mandalong will implement the contingency measures as detailed in the Communication Lines TARPS (refer **Appendix 1**).

13 Roles and Responsibilities

The responsibility for implementation, monitoring and review of the Communications Management Plan lies with the Mining Approvals Coordinator. The roles and responsibilities for the Communications Management Plan are outline in **Table 10**. A list of the key personnel and their contact details for the Communications Management Plan is included in **Appendix 2**.

Table 10 – Roles and Responsibilities

Position	Responsibility
Mine Manager	• Authorisation of the Communications Management Plan • Ensuring that sufficient resources are available to implement this plan.
Mining Approvals Coordinator	Implementation, monitoring and review of this plan, including: • Ensure that the Subsidence Monitoring Program, required inspections, mining notifications are scheduled into the Centennial Compliance Database prior to the commencement of each longwall panel. • Ensuring subsidence monitoring and inspections are conducted at the required schedule and persons conducting monitoring/inspections are trained in the requirements of this plan. • Consulting with the landowners, infrastructure owners and relevant government departments including Telstra Network Integrity, Comms Network Solutions, DPIE, RR and SA NSW. • Review and assess the subsidence monitoring results against the performance measures. • Notification of any exceedance of performance indicators in accordance with the TARPs and management plan. • Coordinating any remedial work as required. • Preparation and submission of formal reporting requirements outlined in this plan. • Review and audit of the Communications Management Plan.
Subsidence Surveyor	• Establishment of subsidence monitoring in accordance with the Subsidence Monitoring Program. • Ensure all subsidence surveys are conducted in accordance with the approved Subsidence Monitoring Program. • Review and assess subsidence monitoring results. • Notify the Mining Approvals Coordinator of any identified public safety issues. • Provide the monitoring results to the Mining Approvals Coordinator, RR, Telstra Network Integrity, Comms Network Solutions, Ditton Geotechnical Services and SA NSW.
Survey Department	• When required, conduct inspections within the applicable subsidence zone to the standard required, using the subsidence inspection checklist. • Promptly notify the Mining Approvals Coordinator of any issue identified during a subsidence inspection.
Comms Network Solutions	• Conduct inspections following subsidence to determine if communications have been impacted. • Provide reports on testing and inspections to Centennial and Telstra Network Integrity.

14 Reporting

Reporting will be completed in accordance with the *Draft Guidelines for the Preparation of Extraction Plans* (NSW Department of Planning & Environment, 2015), as summarised in **Table 11**.

Table 11 - Reporting Requirements

Report	Trigger	Requirements	Stakeholders
Incident Reporting	Any occasion or incident in accordance with consent condition, WHS Regulations or TARP.	In accordance with requirements of: - Development Consent Schedule 6 Condition 10; or - WHS Regulation (Mines and Petroleum Sites) Clause 128; or - TARP.	RR
Bi-Monthly Subsidence Impact Reporting	If a new impact is identified, compile after monthly subsidence.	Distinguish impact: - within predictions; - those which exceed predictions but remain within performance measures and/or performance indicators; and - those which exceed performance measures and/or performance indicators. Report to include: - full description; - location identification using aerial photos with longwall layout superimposed; - photos of the impact; and - preliminary characterisation of the impact in accordance with the relevant TARP(s).	DPIE Telstra Network Integrity Ditton Geotechnical Services Comms Network Solutions SA NSW CCC
Annual Review	Annual Report required under development consent SSD-5144.	Report to include: - six-monthly reports of impacts and environmental monitoring results; - monitoring results; and - summary of subsidence impacts.	RR DPIE CCC
Community Consultative Committee (CCC)	CCC meetings are typically held three times per year.	Subsidence and environmental performance is included as an agenda item at each meeting.	CCC
Mining Notification	One month prior to mining beneath Telstra network.	Scheduled date that the Telstra Network will be affected by subsidence and within the Active Subsidence Zone.	Telstra Network Integrity Comms Network Solutions

15 Audit and Review

Audit and review procedures are outlined in Centennial Mandalong's Safety Management System that comply with the NSW Work Health and Safety (Mines and Petroleum Sites) Regulations. These procedures are utilised to manage audit and review functions of the Built Features Management Plan. Refer Document **HSMS-SE-1028- System Evaluation**.

15.1 Audit

The requirements of the Communications Management Plan are to be audited annually for compliance and effectiveness during the extraction of LW30-31.

Any non-conformances or deficiencies found during the audit are to be brought to the attention of the System Coordinator so that corrective actions can be outlined. These corrective actions are to be allocated and carried out accordance with **HSMS-SE-1029 - Corrective Action Procedure**.

15.2 Review

The Communications Management Plan will be reviewed every three years or in the event that one of the following occurs:

- Stakeholders raise issues that necessitates a review;
- Where unpredicted impacts or consequences have required implementation of contingency actions under this plan;
- Monitoring, incident or audit processes demonstrate a review is required;
- Where triggered by a TARP;
- With each new Extraction Plan;
- Where triggered by circumstances in either Clause 10 or Clause 128 of WHS (Mines and Petroleum Sites) Regulation or Clause 38 WHS Regulation; or
- Change in mine design or layout.

16 Document Control

An integrated Document Control Procedure is incorporated into Centennial Mandalong's Safety Management System.

Documents, data and records pertaining to this plan will be managed according to **HSMS-SE-1025- Information Control**.

17 BIBLIOGRAPHY

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APPENDICES

Appendix 1 Trigger Action Response Plans

Monitoring and Controls	Trigger	Action
Built Feature – Telstra Communications Network CAN Local Aerial copper cable 10/0.64		
• Centennial established subsidence monitoring / inspection sites for private access roads and adjacent communications lines • Centennial to mark the centreline and edges of current longwall panel on road pavement one month prior to private access roads and communications being affected by subsidence. • Centennial to notify Telstra one month prior to communications being affected by subsidence from each longwall panel. • Centennial to conduct weekly visual inspections of private roads and communications located along road and powerline easement when influenced by subsidence within the Active Subsidence Zone. Record results on the Subsidence Inspection Checklist. • Centennial to conduct monthly visual inspections for the following six months or until next longwall, and record results on the Subsidence Inspection Checklist. • Comms Network Solutions to inspect cable after completion of longwall panel. • Centennial to conduct post-mining surveys following the development of subsidence (majority of subsidence developed after 2 months) when LW is completed. • Centennial to provide pre and post mining subsidence monitoring results to Telstra, RR and SA NSW.	LEVEL 1 – LOW Operations within predicted subsidence and impact. • Development of subsidence and impact as expected. • Subsidence prediction – tilt and strains within Upper 95% Confidence Limits • No interruption of service. • Continue operations and monitoring program • Unlikely remedial work will be required.	• Centennial to conduct post mining inspection and provide subsidence monitoring results to Telstra, RR and SA NSW.
	LEVEL 2 – MEDIUM Operations within approved impacts but exceed or potentially exceed predictions • Development of subsidence exceeding or potentially exceeding subsidence prediction (Upper 95% Confidence Limits). • Tensile and compressive strains may increase 2 to 3 times predicted values due to crack development. • No or minor impact to communication network. • No interruption of service. • Continue operations and monitoring program	• Centennial to notify Telstra Integrity Services and Comms Network Solutions that subsidence predictions have exceeded or potentially exceeded predictions. • Comms Network Solutions to inspect Telstra network for any damage and provide report to Centennial and Telstra. • Centennial to conduct post mining inspection and provide subsidence monitoring results to Telstra, RR and SA NSW.
	LEVEL 3 – HIGH Operations exceed approved impact • Development of subsidence and impact greater than expected (Upper 95% Confidence Limits). • Damage to aerial copper cable phone line causing interruption to Telstra communications service.	• Centennial to notify Telstra Integrity Services and Comms Network Solutions that subsidence predictions have exceeded. • Centennial to provide notification to RR and SA NSW • Centennial to arrange a Review Meeting to review survey results, cable inspections and proposed action to remediate damage to communication network. • Centennial to notify external stakeholders including relevant government agencies in accordance with Incident Reporting S6 Condition 10 and WHS Regulations. • Centennial to conduct review and predictions as per adaptive management process as detailed in the Extraction Plan LW25-31.

Appendix 2 Key Personnel Contact List

Centennial Mandalong

Phil Enright
Mining Approvals Coordinator
Telephone: 02 4973 0948
Mobile 0439 409 781,
Email : phil.enright@centennialcoal.com.au

Centennial Mandalong

Mark Harrower
Subsidence and Projects Surveyor
Telephone: 02 4973 0955
Mobile 0447234185
Email : mark.harrower@centennialcoal.com.au

Telstra

Mark Schneider
Team Manager
Telstra Network Integrity
Locked Bag 5035, Parramatta, 2124, NSW.
Telephone: 8851 2297
Mobile 0419 242 044
Email : Mark.P.Schneider@team.telstra.com

Comms Network Solutions

Colin Dove
Telecommunications Consultant, External Plant,
Mobile 0428 970 826
Fax 9546 6713
Email: cdove@commsnet.net.au

Ditton Geotechnical Services Pty Ltd

Steve Ditton
Principal Engineer
82 Roslyn Avenue,
Charlestown, NSW, 2290.
Telephone: 02 4920 9798
Mobile: 0413 094074
Email: steve.dgs@westnet.com.au

Appendix 3 Visual Inspection Check List

SUBSIDENCE INSPECTION CHECKLIST

Date & Time		
Longwall Number		
Face Position (chainage)		
Road or Area Inspected		
Inspected by:		
Inspection Zone (Face chainage - 500m) to (Face chainage +100m)		
INSPECTION ITEM	CHECKED	COMMENTS
Surface cracking		
Surface humps (compression)		
Step change in road pavement		
Damage to roadside drainage channels		
Warning Signage		
Powerline – poles, insulators, conductors, reduced conductor clearance.		
Rock mass stability		
Dams		
Other		

SUBSIDENCE INSPECTION CHECKLIST

Where to Inspect

500 metres behind and 100 metres in front of the current face position.

Cover the full subsidence bowl out to the 26.5° angle of draw.

What to look for

- Surface cracking - edges of extraction void and travelling abutments particularly in rock outcrop areas.
- Surface humps (compression) - near centre of extracted panels and travelling abutment
- Step change in land surface - associated with cracking
- Serviceability of the road and drainage devices
- Damage to poles, insulators or conductors
- Increase or decrease in conductor tension
- Reduced conductor clearance
- Rock mass stability – boulders and cuttings.
- Any effect that may cause a safety risk to road users. – If unsure report immediately.

Actions if there is damage to infrastructure or surface.

Immediately notify the:

- Mine Manager
- Mining Approvals Coordinator
- Subsidence Surveyor
- Lake Macquarie City Council – Emergency Response phone number
- Subsidence Advisory NSW – Emergency Service phone number
- Ausgrid - Emergency Service phone number

If road repairs or remediation work is required these will be undertaken by LMCC or by their approved contractor.

Appendix 4 Correspondence



Communications Management Plan
Phil Enright to: cdove

20/07/2020 11:01 AM

Hi Col,

We are currently preparing a new Extraction Plan for Longwalls 30 to 33 and I would like to enquire if you are available to quote on preparing a Telstra communications subsidence impact assessment report for the project (similar to previous reports).

The development of this extraction plan has been brought forward due to significant impact of the geology encountered on the approved Longwalls 25 to 31 and future longwalls.

As a result of this geology, the approved Longwalls 30 and 31 won't be developed as planned, but reoriented in a south-west direction as opposed to westerly direction. The original Longwalls 32 to 37 will be developed as Longwalls 32 and 33.

A modification to the development consent to reorientate the longwall panels is currently being assessed by DPIE.

Attached is a plan showing the location of Longwalls 30 to 33 for your information.

If you have any questions, please give me a call on my mobile.



MG14104-Telstra.pdf



RE: Communications Management Plan Colin Dove to: Phil Enright 30/07/2020 12:32 PM

From: "Colin Dove" <cdove@commsnet.net.au>

To: "Phil Enright" <phil.enright@centennialcoal.com.au>

History:

This message has been forwarded.

1 Attachment



QuoteMandalongLW30-LW33 July20.pdf

Phil,

Attached Quote as requested

Thanks

Colin Dove

Mob 0428 970826

From: Phil Enright <phil.enright@centennialcoal.com.au>

Sent: Monday, July 20, 2020 11:02 AM

To: cdove@commsnet.net.au

Subject: Communications Management Plan

Hi Col,

We are currently preparing a new Extraction Plan for Longwalls 30 to 33 and I would like to enquire if you are available to quote on preparing a Telstra communications subsidence impact assessment report for the project (similar to previous reports).

The development of this extraction plan has been brought forward due to significant impact of the geology encountered on the approved Longwalls 25 to 31 and future longwalls.

As a result of this geology, the approved Longwalls 30 and 31 won't be developed as planned, but reoriented in a south-west direction as opposed to westerly direction. The original Longwalls 32 to 37 will be developed as Longwalls 32 and 33.

A modification to the development consent to reorientate the longwall panels is currently being assessed by DPIE.

Attached is a plan showing the location of Longwalls 30 to 33 for your information.

If you have any questions, please give me a call on my mobile.

Regards

Phil Enright

Mining Approvals Coordinator

p: +61 (0) 2 4973 0948 | f: +61 (0) 2 4973 0999 | m: +61 (0) 439 409 781 | Internal: 3948



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12 Kerry Anderson Drive, Mandalong NSW 2264 Australia
centennialcoal.com.au

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Communication Assessment LW 30-33
Phil Enright to: cdove

04/11/2020 02:19 PM

Col,

As discussed earlier this week, plans showing subsidence, tilt and strains are provided.

I will send a dropbox link to the subsidence assessment for LW30-33 as it is too large to email.

I would like to finalise the management plan with Telstra prior to Christmas as we need to lodge the Extraction Plan application to DPIE in February, ready to commence mining LW30 in June 2021.

Please let me know if you need any additional information or have any questions.



Telstra LW30-33 Strain.pdf Telstra LW30-33 Subs.pdf Telstra LW30-33 Tilt.pdf



MP for Telstra Mandalong

Colin Dove to: Phil Enright

06/12/2020 09:19 PM

History:

This message has been replied to.

Phil,

Sorry I have been on night work since we spoke and this is my first break tonight.

I just hadn't had a chance to send the MP as discussed or forgot when I staggered around during the day

Now attached as a Draft

Thanks

Colin Dove

Mob 0428 970826



MP LW30-LW33 Draft 30Nov.docAppend A Sht 1 Layout LW30 to LW33.jpg



Append A Sht 4Telstra LW30-33 Tilt.pdfAppend A Sht 6 Surface Geology LW30-LW33.pdf



Append A Sht2 Telstra LW30-33 Subs.pdfAppend A Sht3 Telstra LW30-33 Strain.pdf



Append A Sht5 Monitoring LW30-33.pdf



RE: MP for Telstra Mandalong

Colin Dove to: Phil Enright

12/12/2020 12:37 PM

Phil,

Again sorry for the delay

Attached changes as submitted

I have left it in word format rather than include the MP as one inclusive .pdf doc with all appendices. I can't recall how or if we had sign off by Telstra last time as I can't find a record of sign off cover sheet for LW25-31

I think once you completed your 'Communications Management Plan' we asked Mark Schneider to send an email confirming agreement with your document

Let me know if sign off is required with Telstra or the email agreement with your documentation?

Thanks

Colin Dove

Mob 0428 970826

From: Phil Enright <phil.enright@centennialcoal.com.au>

Sent: Monday, December 7, 2020 1:31 PM

To: Colin Dove <cdove@commsnet.net.au>

Subject: Re: MP for Telstra Mandalong

Hi Col,

Thanks for sending through. I have used track changes to provide some suggested edits, mainly around timing and longwall numbers.

Also, I have removed SA NSW from the management plan as all costs and management are Centennial Mandalong's responsibility.

We provide SA NSW will an update on subsidence mitigation and remediation at our quarterly meetings.

Regards

Phil Enright

Mining Approvals Coordinator

p: +61 (0) 2 4973 0948 | f: +61 (0) 2 4973 0999 | m: +61 (0) 439 409 781 | Internal: 3948



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Mandalong Mine Communications Management Plan LW 30-31

Phil Enright to: cdove, Mark.P.Schneider

15/02/2021 11:37 AM

Hi Colin and Mark

Please find attached draft Communications Management Plan prepared for Longwalls 30 and 31 for your review.

The management plan is based on Colin's "Telstra Communicaitons Assessment Report for Extraction Plan LW30-33, December 2020" (also attached)

If you have any changes or corrections, please advise or markup using track changes.

As per previous management plans, when Telstra is satisfied with the management plan, please provide a confirmation letter or email.

It is planned to submit the Extraction Plan application for LW30-31 in March in preparation for LW30 to commence extraction in June to July 2021.

If you have any questions or require further information, please don't hesitate to give me a call.



MP LW30-LW33 Final 12Dec20.doc



Mandalong Mine Communications Managment Plan LW30-31 Rev0.docx



RE: Mandalong Mine Communications Management Plan LW30-31
 Schneider, Mark P to:
 Dove, Colin, Phil Enright 18/02/2021 10:57 AM
 From: "Schneider, Mark P" <Mark.P.Schneider@team.telstra.com>
 To: "Dove, Colin" <cdove@commsnet.net.au>, "Phil Enright"
 <phil.enright@centennialcoal.com.au>
 History: This message has been replied to.

Thanks Colin,

Hi Phil,

Telstra accepts Colin's advice below.

Mark Schneider

Network Integrity – Project Specialist

Design & Construction | InfraCo Operations

P 02 8842 5185

M 0419 242 044

E Mark.P.Schneider@team.telstra.com

W www.telstra.com

This email may contain confidential information.
 If I've sent it to you by accident, please delete it immediately



From: Colin Dove <cdove@commsnet.net.au>

Sent: Thursday, 18 February 2021 9:40 AM

To: Phil Enright <phil.enright@centennialcoal.com.au>; Schneider, Mark P <Mark.P.Schneider@team.telstra.com>

Subject: RE: Mandalong Mine Communications Management Plan LW30-31

[External Email] This email was sent from outside the organisation – be cautious, particularly with links and attachments.

have read through the plan and the 'Centennial Communications Management Plan for Longwalls 30 to 31 Mandalong Mine', is a re-write, in the format required by the Resources Regulator of the Draft Telstra Management Plan provided by Comms Network Solutions P/L on 12th December 2020. Accordingly can you please advise Phil Enright that the 'Centennial Communications Management Plan for Longwalls 30 to 31 Mandalong Mine' has been reviewed by Telstra NI and is acceptable to Telstra for Mandalong Mine Extraction of Longwalls 30 & 31.

Phil, Minor note on P4 there are two typos in Table 1 in reference to 'Extraction Olan LW30-33'

Regards

Colin Dove

Mob 0428 970826

From: Phil Enright <phil.enright@centennialcoal.com.au>

Sent: Monday, February 15, 2021 11:37 AM

To: cdove@commsnet.net.au; Mark.P.Schneider@team.telstra.com

Subject: Mandalong Mine Communications Management Plan LW30-31

Hi Colin and Mark

Please find attached draft Communications Management Plan prepared for Longwalls 30 and 31 for your review.

The management plan is based on Colin's "Telstra Communicaitons Assessment Report for Extraction Plan LW30-33, December 2020" (also attached)

If you have any changes or corrections, please advise or markup using track changes.

As per previous management plans, when Telstra is satisfied with the management plan, please provide a

Centennial Mandalong

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Facsimile 49 730 999**
