



# **Muswellbrook Coal**

# MP 33 Fire Management Plan

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#### 1.0 INTRODUCTION

Muswellbrook Coal Company (MCC) is a wholly owned subsidiary of the Idemitsu Kosan Company Ltd. Group. MCC has a long association with coal mining at Muswellbrook, with underground coal mining commencing in 1907 and open cut operations in 1944. The mine is located on Muscle Creek Road, approximately 3 kilometres to the north-east of Muswellbrook.

On September 1, 2003, Development Consent for DA 205/2002 was granted by Muswellbrook Shire Council (MSC) to extend the former MCC No.1 Open Cut. The No.1 Open Cut Extension commenced operations in March 2005 and has a capacity to produce up to 2,000,000 tonnes coal per annum. This approval has subsequently been modified on several occasions with the latest modification granted in 2016 to allow mining in an area known as the "Continuation Project" and to extend the life of the mining operations to 2022. Rehabilitation activities will continue past this date. A modification to the approval was granted on 20 December 2022 to allow the storage, handling and transport of coal to continue until the end of March 2023. An additional modification to the consent was granted on 27 February 2024 to align rehabilitation requirements with updated mining lease conditions and other administrative changes.

Mining activities ceased at MCC in December 2022 with the last coal hauled from site in March 2023. Rehabilitation of the site and completion of mine closure activities are ongoing.

#### 1.1 SCOPE

The Development Consent requires the preparation, approval and implementation of an Environmental Management Strategy (EMS) and subordinate Environmental Management Plans (EMP). One of these EMPs is the Fire Management Plan (FMP). Whilst this plan specifically addresses issues related to bushfire management, it should be read in conjunction with other EMP's.

This FMP has been prepared by Kleinfelder Australia in consultation with NSW Rural Fire Service (RFS) (see **Appendix 1** for copies of correspondence with RFS). Consultation with RFS was undertaken on 26 June 2024 in the preparation of this FMP. Kleinfelder, Cool Burn Fire and Ecology, NSW RFS and MCC representatives attended the meeting. The following matters were discussed:

- Access and emergency plans;
- Muswellbrook Bypass;
- Assets and Asset Protection Zones (APZs);
- Water supplies; and
- Hazards and mitigation strategies.

The RFS did not require additional matters to be considered or addressed beyond provisions listed under Condition 23 (Bushfire Management Plan and other Fire Controls) of DA 205/2002 (Mod 9).

#### 1.2 OBJECTIVES

The primary objective of this FMP is to provide mitigation measures addressing the following:

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- To prevent the potential ignition and spread of bushfires from MCC landholdings to neighbouring properties and minimise the risk to fire fighters and the public from bush fires;
- The protection of life and safety of personnel and broader community on MCC operations, landholdings, and surrounding area;
- To protect MCC mining infrastructure, continued operations and the environment from the effects of bushfire;
- To understand the environmental and cultural constraints and opportunities regarding bushfire management; and
- To identify and demonstrate how MCC is meeting its legislative requirements with regards to bushfire management.

In accordance with Condition 23(b) of DA 205/2002 (Mod 9), this FMP has been divided into the following sections:

- Rehabilitation operations (Decommissioning, Landform Establishment and Ecosystem Establishment); and
- Post rehabilitation operations.

#### **1.3 WEATHER, CLIMATE AND BUSHFIRE SEASON**

The climate in the Upper Hunter region, as detailed in the Muswellbrook Bushfire Risk Management Plan (BFRMP) (2011), is classified as cool temperate or sub-tropical with summer rainfall. The Bush Fire Danger Period (BFDP), declared annually by the NSW Rural Fire Service (RFS), typically occurs between October 1 to March 31, based on modelled fire potential. The BFDP may start as early as August or September if adverse conditions, such as hot, dry weather, are forecasted within the relevant calendar year.

#### **1.4 IGNITION SOURCES**

The following sources of ignition have been identified across the site (Muswellbrook BFRMP 2011 and Hunter Valley BFRMP 2023):

- Lightning strike;
- Accidental fire;
- Powerline clash; and
- Arson.

#### 1.5 BUSHFIRE HISTORY

The Project site occurs on Bush Fire Prone Land (BFPL), mapped under Section 10.3 of the EP&A Act (RFS, 2024). No fires have been recorded on site under NSW DCCEEW *NPWS Fire History - Wildfires and Prescribed Burns* mapping (viewed 29 July 2024). Major bushfires were recorded in 1994, 1995, 1997 and 2008, within 100km of the site as shown in **Figure 1** (RFS, 2024). The site, surrounded by agriculture, grazing farmlands, and industrial development, benefits from early observation and rapid response to potential fire ignitions.

**Figure 1** illustrates the type of bushfire prone land within the Project site and surrounding land. As per NSW RFS document 2015, *Guide for Bush Fire Prone Land Mapping,* version 5b, vegetation definitions include the following:

• Vegetation Category 1 – considered to be the highest risk for bush fire. It is represented as red on the bush fire prone land map and will be given a 100m buffer. This vegetation category has the highest combustibility and likelihood of forming fully

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developed fires including heavy ember production. Vegetation Category 1 consists of:

- Areas of forest, woodlands, heaths (tall and short), forested wetlands and timber plantations.
- Vegetation Category 2 considered to be a lower bush fire risk than Category 1 and Category 3 but higher than the excluded areas. It is represented as light orange on a bush fire prone land map and will be given a 30-metre buffer. This vegetation category has lower combustibility and/or limited potential fire size due to the vegetation area shape and size, land geography and management practices. Vegetation Category 2 consists of:
  - *Rainforests.*
  - Lower risk vegetation parcels. These vegetation parcels represent a lower bush fire risk to surrounding development and consist of:
    - Remnant vegetation;
    - Land with ongoing land management practices that actively reduces bush fire risk. These areas must be subject to a plan of management or similar that demonstrates that the risk of bush fire is offset by strategies that reduce bush fire risk; AND include:
      - Discrete urban reserve/s;
      - Parcels that are isolated from larger uninterrupted tracts of vegetation and known fire paths;
      - Shapes and topographies which do not permit significant upslope fire runs towards development;
      - Suitable access and adequate infrastructure to support suppression by firefighters;
      - Vegetation that represents a lower likelihood of ignitions because the vegetation is surrounded by development in such a way that an ignition in any part of the vegetation has a higher likelihood of detection.
- Vegetation Category 3 considered to be medium bush fire risk vegetation. It is higher in bush fire risk than category 2 (and the excluded areas) but lower than Category 1. It is represented as dark orange on a Bush Fire Prone Land map and will be given a 30-metre buffer. This category consists of:
  - Grasslands, freshwater wetlands, semi-arid woodlands, alpine complex and arid shrublands.
- Vegetation Buffer a zone between bushland and developments that is most likely to be affected by a bushfire in the adjacent area1. The buffer can be either 100 metres from the vegetation for Category 1 vegetation or 30 metres for Category 2 or 3 vegetation.

The Project site sits within classification 'Vegetation Category 3', with small portions of land as 'Vegetation Category 1'. Surrounding vegetation is considered a mix between these two categories, with a vegetation buffer outside the Project site to the east and south.

This historical context highlights the importance of rigorous bushfire management. While the presence of surrounding agriculture and industry may reduce the likelihood of bushfires, proactive maintenance and mitigation actions are essential. Regular maintenance of firebreaks, vegetation management, and implementation of comprehensive mitigation strategies are crucial to further minimising the risk of future bushfires and ensuring the site's safety and resilience.

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Figure 1: Bushfire History

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#### 2.0 LEGISLATION AND STATUTORY REQUIREMENTS

The relevant approval and licence conditions are shown in **Table 1** along with information on where they are addressed in this plan.

Approval/ Licence Condition No.	Condition	Section
	Development Consent Requirement	
23 (a)	Deleted.	NA
	Within six months of this consent modification, the proponent shall prepare a Fire Management Plan (FMP) in consultation with NSW Rural Fire Service Hunter Valley Fire Control Centre.	This plan
23 (b)	The FMP shall be divided in mining operations and post operations fire management actions. The FMP shall include timelines for actions to be implemented (APZ, etc).	8.0, 9.0
	The FMP shall address firefighting response to both structural (on-site) fires and vegetation (on and off site) fires impacting on the facility.	7.5
23 (b)(i)	24-hour emergency contact details including alternative telephone contact.	0
23 (b)(ii)	Site infrastructure plan.	Figure 3
23 (b)(iii)	Firefighting water supply plan that provides suitable fittings including operational access for fire fighting vehicles to connection points.	Figure 3
23 (b)(iv)	Site access and internal road plan that includes designation for access by Category 1-10 rural fire fighting vehicles.	Figure 3
23 (b)(v)	Construction of a minimum 10 metre asset protection zones (APZ) around all permanent habitable/critical assets and infrastructure and their continued maintenance.	7.1
23 (b)(vi)	Location of hazards (physical, chemical, and electrical) that will impact on the firefighting operations and procedures to manage identified hazards during the firefighting operations.	Figure 3
23 (b)(vii)	Mitigation measures designed to prevent fire occurring within the site and prevent fire escaping the site and developing into a bush/grass fire risk to the surrounding area.	7.0
23 (b)(viii)	Such additional matters as required by the NSW RFS District Office.	1.1

<b>Table 1: Statutory</b>	Requirements
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In addition to the requirements of the development consent, this FMP has been prepared with reference to key legislation and documentation outlined in the following subsections.

#### 2.1 RURAL FIRES ACT 1997

MCC is subject to Section 63 of the *Rural Fires Act 1997* (RF Act). This FMP provides MCC with necessary information and actions to assist their obligations towards bushfire management and mitigation strategies at the site. Part 4 of the *Rural Fires Act 1997* imposes responsibilities on the owners and occupiers of land and public authorities. Part

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4, Division 1, Section 63(2), and Section 63(5) of the RF Act is pertinent to this FMP and is outlined below for reference.

#### Part 4, Division 1, Section 63 of the Rural Fires Act 1997

- 1. It is the duty of a public authority to take the notified steps (if any) and any other practicable steps to prevent the occurrence of bush fires on, and to minimise the danger of the spread of a bush fire on or from:
  - a) any land vested in or under its control or management, or
  - b) any highway, road, street, land or thoroughfare, the maintenance of which is charged on the authority.
- 2. It is the duty of the owner or occupier of land to take the notified steps (if any) and any other practicable steps to prevent the occurrence of bush fires on, and to minimise the danger of the spread of bush fires on or from, that land.
- 3. A public authority or owner or occupier is liable for the costs incurred by it in performing the duty imposed by this section.
- 4. The Bush Fire Co-ordinating Committee may advise a person on whom a duty is imposed by this section of any steps (whether or not included in a bush fire risk management plan) that are necessary for the proper performance of the duty.
- 5. In this section:
  - notified steps means:
  - a) any steps that the Bush Fire Co-ordinating Committee advises a person to take under subsection (4), or
  - b) any steps that are included in a bush fire risk management plan applying to the land.

This FMP has thus been prepared to provide *notified steps* for the management of onsite and offsite bushfire risk to prevent fires at the site, to prevent fires that occur at the site spreading to adjacent properties and to protect assets at the site from external bushfire threats.

#### 2.2 MUSWELLBROOK BUSH FIRE RISK MANAGEMENT PLAN (BFRMP)

The site is located within the scope of lands subject to the provisions of *the Hunter Valley Bush Fire Risk Management Plan 2023* (HVBFRMP 2023). The BFRMP aims to minimise bushfire impacts on life, property, and the environment by reducing humaninduced ignitions, managing fuel loads, improving community preparedness, and containing fires effectively. The HVBFRMP 2023 did not identify any specific treatment works applying to the MOCCM.

#### 2.3 MUSWELLBROOK LOCAL ENVIRONMENTAL PLAN 2009

The site intersects the following land zones under the *Muswellbrook Local Environmental Plan* (MLEP 2009):

- SP2: Infrastructure SP2 land zoning intersects several portions of the southwest of the site.
- RU1: Primary Production RU1 land zoning includes the majority of the northern and northeastern portions of the site.
- C3: Environmental Management C3 zoned lands primarily occur within the southern and southwestern portions of the site.

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**Figure 2** provides an overview of land zoning across the site. This FMP has been prepared with reference to objectives of these land zones under the MLEP 2009.

#### 3.0 **REFERENCES**

- Environmental Planning and Assessment Act 1979.
- Rural Fires Act 1997
- Development Consent DA 205/2002.
- Continuation Project Statement of Environmental Effects (EMM) 2016.
- Australian/New Zealand Standard AS/NZS ISO 31000:2009 Risk Management principle and guidelines.
- NSW RFS (2021). Bush Fire Environmental Assessment Code 2021.
- NSW RFS. Muswellbrook Bushfire Risk Management Plan 2011.
- Keith, D. (2004) Ocean Shores to Desert Dunes: the native vegetation of New South Wales and the ACT. DIPNR
- Bureau of Meteorology, Australian Government. http://www.bom.gov.au
- Muswellbrook Local Environmental Plan 2009
- Muswellbrook Development Control Plan 2009
- NSW RFS (2023) Fire Trail Standards V 2.0
- NSW RFS (2014) A guide to developing a Bush Fire Emergency Management and Evacuation Plan.
- NSW RFS (2019) Planning for Bushfire Protection (PBP)

#### 4.0 DEFINITIONS/ACRONYMS

BFDP	Bushfire Danger Period
BFPL	Bushfire Prone Land
DA	Development Application
HVBFRMP	Hunter Valley Bush Fire Risk Management Plan

- LEP Muswellbrook Local Environmental Plan
- MCC Muswellbrook Coal Company Ltd
- MSC Muswellbrook Shire Council
- NSW New South Wales
- PBP 2019 NSW RFS Planning for bush fire protection 2019
- RFS Rural Fire Service

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#### Figure 2: Land Zoning

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#### 5.0 SUPPORTING DOCUMENTS

- Development Consent DA 205/2002.
- MP 30 Environmental Management Strategy.
- MP 11 MCR Emergency Response Management Plan.

#### 6.0 INFORMATION AND TRAINING

All workers required to work at the site must undertake the relevant site Induction. This includes information on bushfire management at the site.

Training records will be maintained for each worker at the site.

#### 7.0 PERFORMANCE CRITERIA: FIRE MANAGEMENT ACTIONS

A plan showing the site infrastructure can be seen in **Figure 3**.

The following fire management actions have been designed to provide appropriate mitigation strategies to protect identified assets at risk. Treatments are either passive (pre-planned treatments that limit/eliminate the need for any action during a wildfire event), or active (direct firefighting or supporting firefighting operations, such as access, water supplies, emergency evacuation). Note that these actions are only available during rehabilitation operations. Once rehabilitation operations have been completed this action may no longer be available.

Treatments at site include:

- Access and firebreaks: This treatment offers both a passive hazard reduction adjacent to assets (e.g. access roads adjacent to conveyor, fire breaks to fence lines); and also supports active treatment by providing a strategic, planned and safe access around the site for firefighting operations.
- Water supplies: To support active treatment actions for fire suppression, suitable water supplies, locations, volumes and accessibility need to be planned and identified.
- Contractor, personnel and visitor education bushfire preparedness and awareness: This is a passive measure, considered as preparedness for all staff and visitors ahead of a fire event. Education relates to property preparedness (tidy up fine fuels, clean gutters etc.), personal life and safety reactions (understanding procedures to follow, safe evacuation destinations and routes).
- **Emergency management procedures**: This is a passive (administrative) treatment, which provides a framework around emergency management and coordination between the MCC, emergency agencies and stakeholders.

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Figure 3: Site Infrastructure Plan

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#### 7.1 ASSET PROTECTION ZONES/FIRE BREAKS

Where feasible and permissible, MCC will maintain a 10m wide firebreak around the perimeter of the site to provide defendable space to prevent the spread of fire either onsite or offsite. Fire breaks will be maintained to the standards of an Asset Protection Zone (APZ).

**Table 2** outlines acceptable standards for installation and maintenance of an APZ, to be installed and managed as per performance criteria outlined under Appendix 4 of the NSW RFS *Planning for bush fire protection 2019* (PBP 2019). APZs installed for assets identified under this FMP are to be a minimum 10m width and are to be managed for the lifetime of the corresponding asset onsite.

## Table 2: Inner Protection Area (IPA) Management Parameters under PBP 2019(RFS 2019a)

Management Component	Inner Protection Area (Section A4.1.1 PBP 2019)
Trees	<ul> <li>Tree canopy less than 15% at maturity with 2-5m separation between branches of adjoining trees and no branches touching or overhanging the building.</li> <li>Tree limbs should be removed up to a height of 2m above ground to prevent spread from ground fires to the crown.</li> <li>Trees with smooth bark should be planted / retained in favour of rough-barked trees.</li> <li>Preference should be given to smooth barked and evergreen trees.</li> </ul>
Shrubs	<ul> <li>Retained shrubs should form less than 10% of total groundcover within the IPA and should be retained in parcels, separated from trees to prevent ground fires spreading towards the crown of trees</li> <li>Clumps of shrubs should be separated from exposed windows and doors by a distance of at least twice the height of the vegetation.</li> </ul>
Grasses	<ul> <li>Grass should be managed to approximately 100 mm height to limit their ability to ignite and propagate a fire.</li> <li>Loose fuels such as twigs and leaf little should be removed or managed to a standard whereby fuel level is low, but soil erosion does not occur.</li> </ul>

#### 7.2 INTERNAL ROADS/TRAIL MANAGEMENT

Access roads leading to the site are classed as Category 1 Trails in accordance with the NSW RFS *NSW Fire Trail Standards – November 2023* (Version 2.0). As these roads are outside the control of MCC, additional information about the standard that they need to be hasn't been included in the FMP. Only trails that MCC has control over are included in the FMP. More details on the requirements for Category 7 trails, which MCC has control over, is found in **Table 3**.

Maintenance of assets associated with fire trails (signage, water points, gates, pavement material, operational support points) will occur with reference to relevant provisions listed under Chapter 5.3 of the *NSW RFS NSW Fire Trail Standards – November 2023* (Version 2.0).

Fire trails within the site will be mapped and signposted as per their classification under

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this FMP and the NSW RFS *NSW Fire Trail Standards* – *November 2023* (Version 2.0), positioned as directional markers and including the trail name and Category Number (e.g. C7).

Attribute	Performance Solutions	Acceptable Solutions
	The fire trail must provide a width	Option 1: The trail must have
	for:	a minimum width of 3.5m.
	• The unobstructed traversing of	Where there is a curve with a
		radius <20m rafor to
	the terrain without damage to	
	the appliance.	Performance Solution.
	• The traversing of the terrain at a	<b>Option 2:</b> If <120m linear
	• The traversing of the terrain at a	distance from the end of a
	speed appropriate for sale	passing bay to the start of the
	firefighting operation.	next passing bay the width
	The ability of an appliance to	can be reduced to 3m. Where
	navigate the section without a	there is a surry with a radius
	reversing manoeuvre.	there is a curve with a radius
	• The fire trail must not be of a	<20m, refer to Performance
	width that impedes the tactical	Solution.
	mourners of appliances	Both options: No more than
	movement of appliances.	5% of the total length of the
	I he fire trail must not impede	fire trail may be parrower than
Width	firefighting personnel's access to	the Accentable Solution
	the appliance (egress and	the Acceptable Solution.
	ingress).	
	Provides an unobstructed view	
	for firefighters	
	Doog not poop on increased rick	
	<ul> <li>Does not pose an increased risk</li> </ul>	
	to firefighting personnel safety in	
	any way.	
	<ul> <li>Does not impact on evacuation</li> </ul>	
	of the area in any way.	
	Considers any negative impacts	
	on the surrounding environment	
	Has appropriate signage (for	
	• Thas appropriate signage (10)	
	example, longer sections of a	
	fire trail that are narrower than	
	the Acceptable Solution must be	
	appropriately signposted)	
	The fire trail trafficable surface must:	Trail surfaces under all
	Be constructed and able to be	(excepting extreme weather
	maintained such that the surface	such as flooding or storm
	is accessible under all	surge) weather conditions
	ls accessible under all	surge) weather conditions
	(excluding extreme weather	must be able to carry:
Trafficable	such as flooding) conditions.	a Gross Appliance Mass of
Surface	<ul> <li>Provide sufficient traction to</li> </ul>	8 tonnes; and
Surface	allow traversing of the terrain	<ul> <li>an Axle Load of 6 tonnes.</li> </ul>
	under all conditions (except for	
	flood, storm surge and snowfall)	
	Provide sufficient carrying	
	canacity to oncure cafe paceage	
	tapacity to ensure sale passage	
	for appliances without losing	

#### Table 3: Operational Performance criteria for Category 7 Trails (RFS, 2023)

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Attribute	Performance Solutions	Acceptable Solutions
	<ul> <li>traction or being rendered immobile.</li> <li>Be free from major defects that may interfere with appliance operational speed; and</li> <li>Allow for a safe working platform for personnel to access the appliance cabin and equipment.</li> <li>Ensure a safe working environment for personnel and should have sufficient integrity for its expected term of use in the event of an incident.</li> <li>Be free of contaminants.</li> <li>Incorporate, as far as possible local and sustainable materials.</li> </ul>	
Clearance	<ul> <li>The fire trail clearance must:</li> <li>Provide a cleared envelope free from obstructions preventing access or thoroughfare.</li> <li>Provide sufficient clearance from protrusions that could cause damage to the appliance.</li> <li>In the event of overgrowth, be of such a nature to allow safe thoroughfare of the appliance.</li> <li>Enable clear visibility for free forward movement of appliances.</li> <li>Allow appliances to travel at an operational speed (in line with the conditions on the trail).</li> <li>Allow personnel unimpeded access to appliance cabin and equipment.</li> <li>Afford suitable footing and freedom of movement for personnel.</li> <li>Provide sufficient space for the safe access to the appliance by personnel, except where there are significant environmental constraints. In this case, alternative clearance solutions may be considered in consultation with the RFS;</li> <li>Be achieved and maintained through environmentally conscious and responsible methods.</li> </ul>	<ul> <li>The trail must have:</li> <li>an envelope free of obstructions, including dense vegetation, to allow for unimpeded operations;</li> <li>a minimum vertical clearance of 4m above the trafficable surface; and</li> <li>a minimum horizontal clearance of 2.75m from the trafficable surface centreline.</li> </ul>

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Attribute	Performance Solutions	Acceptable Solutions
	Be achieved and maintained in accordance with relevant environmental approvals.	
Grade	<ul> <li>The grade of the trail must:</li> <li>Provide sufficient traction for a fully laden appliance while ascending and descending.</li> <li>Provide a safe working angle that does not impede physical operational capability of the appliance.</li> <li>Not exceed the physical ground clearance capabilities of the appliance.</li> <li>A fully laden appliance is capable of traversing the terrain.</li> <li>Operational capability of the appliance and personnel are not adversely impacted.</li> <li>Minimise impacts to the environment and reduce earthworks required.</li> <li>Possess appropriate surface water management.</li> </ul>	There are no defined grade criteria, refer to Performance Solution.
Crossfall	<ul> <li>The crossfall of the trail must provide sufficient traction for fully laden appliances while ascending and descending.</li> <li>Ensure the risk of roll over and uncontrolled movement of appliances is managed.</li> <li>Crossfall of the trail must provide a stable foundation for appliances and personnel to ensure operational capability.</li> <li>Must provide sufficient traction for fully laden appliances.</li> <li>Ensure that the risk of rollover and uncontrolled movement of vehicles is managed.</li> <li>Safety of personnel in firefighting operations is managed.</li> </ul>	Unless transitioning between cross sections, the crossfall of the trail is no more than 6 degrees (10.5%).
Horizontal Curves	<ul> <li>Horizontal Curves must:</li> <li>Allow the relevant appliance to navigate through a curve in a single movement without coming to a stop or having to reverse.</li> <li>Allow safe travel speed, not reducing operational effectiveness.</li> </ul>	There is no defined criteria for horizontal curves, refer to Performance Solution.

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Attribute	Performance Solutions	Acceptable Solutions
	<ul> <li>Not impact hazard reduction ignition or back burning operation.</li> <li>Not increase risk to personnel working on the ground, where appliances are unable to identify hazards when travelling around sharp curves.</li> <li>Allow for appropriate sight distances to any identified hazards.</li> <li>Minimise environmental impact by following natural contours of the land when possible</li> </ul>	
Passing Bays	<ul> <li>A passing bay must:</li> <li>Allow for the effective and safe passing of two appliances without avoidable delays to operations.</li> <li>Be capable of supporting the required appliance mass and axle load.</li> <li>Allow for the free flow of multiple appliances on the fire trail.</li> <li>Allow for the access and passing of appliances without reversing.</li> <li>Ensure unimpeded access to the appliance cabin and equipment off the trail and away from vegetation.</li> <li>Provide opportunities for appliances to pass at appropriate intervals for continuous operational movement.</li> <li>A passing bay must be designed and constructed to minimise environmental impact</li> </ul>	Capacity for passing bays is to be a widened trafficable surface of at least 5.5 metres. A passing bay is defined as a constructed bay or widening of the trafficable surface to provide access under all weather conditions and provide capability for appliance passing. Passing Bays must be constructed no more than 250m between the end of one bay and the start of another along the trail, and with one in five bays permitted to be up to 300m apart (no two consecutive bays can be greater than 250m apart). A passing bay must comprise: • pavement materials to match the trafficable surface; • an area large enough to allow the appliance to enter and exit without requiring a reversing manoeuvre; or • where a turnaround bay is used as a passing bay, it must allow for the safe positioning of the appliance, parallel to and off the main carriageway; and • a space that allows the safe passing of another

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Attribute	Performance Solutions	Acceptable Solutions
		appliance while firefighters are working
Turnaround Bays	<ul> <li>The turnaround bays must:</li> <li>Be large enough to allow for the relevant appliance to return in the direction from where it came through a three-point turning manoeuvre.</li> <li>Provide sufficient space for the relevant appliance to change direction without obstructing the fire trail.</li> <li>Be present at the end of each fire trail.</li> <li>Provide tactical maneuverability locations for appliances.</li> <li>Provide sufficient space for personnel to access firefighting equipment and implement likely firefighting tactics.</li> <li>Not prevent thoroughfare of other appliances along the fire trail.</li> <li>Provide directional change opportunities particularly when an escape route is required.</li> <li>Be constructed to minimise environmental impact.</li> </ul>	<ul> <li>Turnaround bays are to be constructed as surfaces to provide access under all weather conditions and must be provided every 500m along the trail, where a trail changes vehicle carrying capacity and at the termination of a trail. Each turnaround bay must enable the whole vehicle to be off the trafficable trail and:</li> <li>be constructed with an area clear of the trafficable surface at least 5.5m wide and 6m deep, which is accessible for a three-point turn or U-turn;</li> <li>OR – have a turning circle which has a minimum outer diameter of 17m.</li> </ul>
Engineered Culverts and Bridges (Major Crossing Structures)	<ul> <li>Possess adequate bearing capacity for safe crossing of appliances.</li> <li>Have adequate width to allow movement of the relevant appliance.</li> <li>Allow for the effective strategic movement of appliances.</li> <li>Not impede the operational capability of appliances.</li> <li>Not affect the trail's integration with the network.</li> <li>Be clearly delineated.</li> <li>Have appropriate guidepost delineation for safe visibility.</li> <li>Allow for unobstructed flow of natural watercourses (unless in accordance with a relevant water authority approval).</li> <li>Not divert natural flow of the watercourse (unless in accordance</li> </ul>	<ul> <li>Have appropriate guidepost delineation for safe visibility; and</li> <li>be able to carry:         <ul> <li>a Gross Appliance Mass of 15 tonnes; and</li> <li>an Axle Load of 6 tonnes.</li> </ul> </li> <li>Where new crossing structures can provide a higher vehicular GVM carrying capacity, then this is strongly encouraged.</li> </ul>

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Attribute	Performance Solutions	Acceptable Solutions
	with a relevant water authority	
	approval).	
Bed Level Crossings and Piped Culverts (Minor Crossing Structures)	<ul> <li>Crossing structures shall:</li> <li>possess adequate bearing capacity for safe crossing of appliances.</li> <li>Have adequate width to allow movement of the relevant appliance.</li> <li>Allow for the effective strategic movement of appliances.</li> <li>Not impede the operational capability of appliances.</li> <li>Not affect the trail's integration with the network.</li> <li>Have appropriate guidepost delineation for safe visibility.</li> <li>Allow for unobstructed flow of natural watercourses (unless in accordance with a relevant water authority approval).</li> <li>Not divert natural flow of the watercourse (unless in accordance with a relevant water authority approval).</li> </ul>	<ul> <li>Crossing structures must:</li> <li>be able to carry a Gross Appliance Mass of 15 tonnes; and</li> <li>have appropriate guidepost delineation for safe visibility.</li> <li>Refer to NSW Rural Fire Service Fire Trail Design, Construction and Maintenance Manual for guidance on types of crossing structures.</li> </ul>
Corridor Hazards	<ul> <li>Corridor hazards must:</li> <li>Be identified by appropriate signage or spatially.</li> <li>Be assessed for their potential risk and, if deemed significant, be rectified such that the risk for the trail becoming inaccessible is reduced to an acceptable level.</li> <li>Be addressed such that impacts to the whole fire trail network are minimised.</li> <li>Be controlled if they pose a risk to firefighters being able to perform operations safely and effectively.</li> <li>Be prioritised based on the importance of the trail within the network and the severity of the hazard.</li> <li>Corridor hazard management must examine:</li> <li>Trees and tree limbs to extend beyond the cleared area of a fire trail which presents a safety.</li> </ul>	There is no defined criteria for corridor hazards, refer to Performance Solution.

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Attribute	Performance Solutions	Acceptable Solutions
	<ul> <li>risk. These are generally mature trees with: <ul> <li>a lean towards the trail and weaknesses in their root structure; and/or</li> <li>branches with weaknesses which extend over the trail.</li> </ul> </li> <li>Mature trees (high potential) to be environmentally and culturally sensitive. Therefore, the environmental cost of removing the tree partially or fully must be considered against the safety risk.</li> <li>Areas with a history of instability such as batter failure or rock falls require inspection schedules to minimise the risk of damage to appliances and personnel.</li> </ul>	

#### 7.3 WATER SUPPLIES

Water supplies are shown in **Figure 3**. Water supplies at the site include reticulated water (Asset 2 - Site Office and Workshop), onsite dams (Asset 7, Asset 11), water cart infill locations (Asset 9 and Asset 10 – temporary) and water tanks (Asset 13). It is recommended that clear, stabilised access is provided to all water supplies for use in an emergency, while onsite dams may provide a source of water for helicopter use during firefighting operations.

Annual monitoring (see **Section 12.0**) will include review of the accessibility and volume of water supplies. It is recommended that static water tanks are maintained onsite where accessible from retained fire trails to provide a source of static water onsite. All water connection points, and above ground pipes should be metal (heat resistant) and include suitable connections for local firefighting personnel (e.g., 65mm Storz valves).

#### 7.4 EMERGENCY MANAGEMENT

Emergency management at the site is undertaken in accordance with MP-11 MCR Emergency Response Control Plan.

Any fire that is either unmanaged or unplanned should be extinguished as quickly as possible (first response - if considered safe to do so) to avoid spread. If fire spread exceeds control for personal capabilities or resources, the following actions should be implemented:

- Establish safety for all persons present.
- Evacuate area to designated safe location.
- Report fire to 000.
- Report fire as per internal process.
- If an outbreak of fire occurs on site, RFS personnel shall be meet at the site offices

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and workshop (see Item 2 at **Figure 3** for location). RFS personnel and equipment shall be organised by an RFS group officer and the RFS contingent shall be escorted by authorised MCC personnel to the fire. MCC will provide an updated contacts list to the RFS on an annual basis.

• If the fire is restricted to the MCC site the use of water carts and other firefighting equipment, including trained personnel, may be made available to assist the RFS.

#### 7.5 STRUCTURAL FIRES

Management of structural fires on site are managed in accordance with MP-11 MCR Emergency Response Control Plan.

The site is currently equipped with fire extinguishers, fire hose reels and water carts to manage structural fires. Additionally, the site has several dams which can be used as a source for firefighting response. Regular fire safety training and drills are regularly conducted for all staff. Fire breaks are currently being maintained around key infrastructure and fuel storage areas to prevent the spread of fires.

#### 8.0 REHABILITATION OPERATIONS: FIRE MANAGEMENT ACTIONS

The phase 'rehabilitation operations' relates to the decommissioning phase of MCC operations, where assets are being removed from the site, during landform shaping and during stabilisation of previously mined land.

**Table 4** outlines the specific fire management actions to be undertaken during rehabilitation operations.

Specific Protection	Fire Management Actions
Measures	
Asset Protection Zones	<ul> <li>Maintain a minimum 10m APZ around permanent critical/habitable structures, such as offices, amenities, and maintenance assets onsite.</li> <li>Maintain firebreak around the perimeter of the site of 10m width, where permissible and possible.</li> <li>APZs are to be managed via mechanical methods (e.g., slashing) and / or grazing, undertaken in January – February (summer) and July – August (prior to BFDP) each year (at minimum). Trimming of regrowth vegetation may be required. Quarterly management, at minimum, is required for Asset 3 (Fuel Tank Area) due to the bazardous nature of the asset</li> </ul>
	<ul> <li>APZs are to be managed as per IPA outlined in Table 2</li> </ul>
Building protection and maintenance	<ul> <li>Monitor the condition of all infrastructure within the site, including car parking areas, annually for signs of deterioration that may increase bushfire risk (e.g., gaps in screens, openings in windowsills / doors, walls, roof, and floors). This should be done before the bushfire danger period starts (i.e., before September).</li> </ul>

 Table 4: Rehabilitation Operations: Fire Management Actions

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Specific	Fire Management Actions			
Measures				
	<ul> <li>Maintain buildings and structures in good condition by applying the following practices:</li> <li>Proper housekeeping.</li> <li>Keeping landscaping and fine fuels away from buildings.</li> <li>Regular maintenance and repair.</li> </ul>			
Access for firefighting operations	<ul> <li>Access roads and fire trails:</li> <li>Fire trails will be made trafficable in accordance with NSW Fire Trail Standards referencing performance criteria for fire trail operation listed in Section 7.2.</li> <li>Signage implemented to identify all access routes.</li> <li>Reduce bushfire ignitions:</li> <li>Maintain access management to prevent unauthorised access (i.e., locked gates);</li> <li>Maintain surveillance of site assets and entry points:</li> </ul>			
	<ul> <li>Maintain surveinance of site assets and entry points,</li> <li>Maintain signage that no smoking is permitted onsite; and</li> <li>Communication – no 'hot works' capable of raising sparks are permitted during total fire bans, engines are not to be left idling when vehicles and machinery are on grasses (off-road), communication regarding bushfire risk and emergency response during toolbox talks and onsite inductions.</li> </ul>			
	<ul> <li>Water Supply:</li> <li>Maintain the following water supply onsite: <ul> <li>Town water supply connected to site administration building.</li> <li>A single fire hydrant, fire hose reels, and reticulation system with a backup diesel fire pump (manual start), located adjacent to the existing site office and workshop.</li> <li>Two water tanks near the main office and three to the west of the site.</li> </ul> </li> </ul>			
Water Supply	<ul> <li>The following equipment are currently available onsite: <ul> <li>CAT 7 with a 75,000-litre tank.</li> <li>Hino with a 14,000-litre tank.</li> <li>1,000-litre foam tanks for foam application.</li> <li>Heavy mobile equipment with automatic fire suppression systems and fire extinguishers.</li> <li>All vehicles equipped with 4.5kg and 9kg fire extinguishers (80ABE rating).</li> <li>Fire extinguishers at the main office building.</li> <li>CO<sub>2</sub> extinguishers near electrical installations.</li> </ul></li></ul>			
	Additional Water Sources:			
	Update documentation:			
Hazardous materials	<ul> <li>Update the MCC's Notification of Hazardous Chemicals when the rehabilitation operations phase ends.</li> <li>HAZMAT locations, subject to higher potential ignition risk, are identified in Figure 3.</li> </ul>			

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Specific Protection Measures	Fire Management Actions
	<ul> <li>Ongoing Inspection:</li> <li>Conduct regular inspections of dangerous goods.</li> </ul>
	<ul> <li>Evacuation Procedure:</li> <li>During an emergency (e.g., bushfire), all employees, contractors, and visitors must assemble at the Emergency Assembly Area south of the main carpark and follow the emergency management procedure.</li> </ul>
Emergency and evacuation planning	<ul> <li>Training and Emergency Response:</li> <li>All workers, visitors, and contractors are trained in general emergency procedures during inductions, including raising the alarm, site evacuation procedures, and emergency assembly area location.</li> </ul>
	<ul> <li>Documentation:</li> <li>Emergency management of fires at the site will be undertaken as outlined under Section 7.0.</li> </ul>

#### 9.0 POST REHABILITATION: FIRE MANAGEMENT ACTIONS

The post rehabilitation phase refers to the rehabilitation stage where there will be no regular people on site, fewer to no structural assets or construction, and therefore a decrease in potential ignition sources. Primary fire risk would be via natural occurrence (e.g. lightning), unauthorised entry to the site (arson) and/or spread of fire into the site, especially from the northwest during prevailing dry and hot periods subject to northwesterly vectors during summer months.

**Table 5** outlines the specific fire management actions to be undertaken during the post rehabilitation phase.

Specific Protection	Fire Management Actions
Measures	
	<ul> <li>Minimum 10m APZ is recommended for any built infrastructure remaining (i.e., weather station).</li> </ul>
Asset	<ul> <li>A 10m fire break will be maintained around the boundary of the site where permissible and possible.</li> </ul>
Protection Zones	<ul> <li>APZs are to be managed via mechanical methods (e.g., slashing) and/or grazing, undertaken in January – February (summer) and July – August (prior to BFDP) each year (at minimum). Trimming of regrowth vegetation may be required.</li> </ul>
	• APZs are to be managed as per IPA outlined in Table 2.
Access for firefighting operations	• All fire trails to be maintained as per their classification as discussed in <b>Section 7.2</b> .

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Specific	Fire Management Actions
Protection	
Measures	
	Dams and Water Tanks:
	Slash/mow 1m around vehicle access points to each dam to assist
	with managing stable access.
	Maintain suitable stabilised access through
	grading/mowing/placement of rock aggregate to a designated water
	collection point to prevent bogging or wear to the track so as to
	prevent emergency access.
	Static Water Supply (SWS):
Water	Signpost dams and remaining water tanks with direct access from
/vlgguZ	tracks/trails as Static Water Supply (SWS).
Fire	
Fighting	Water Supply Monitoring:
Water	Conduct inspection of dam levels prior to, during and following each
Supply	vear's fire season (BFDP) to identify and record where water supply
	onsite is suitable.
	Evacuation Routes and Assembly Areas
Emergency	Evacuation routes are to be clearly marked on site plans and
and	signposting to aid in firefighting and emergency evacuation.
evacuation	
planning	Coordination with Local Fire Services:
	Establish a communication plan with local fire services.

#### 10.0 MUSWELLBROOK BYPASS

Currently, the New England Highway passes through Muswellbrook, forming the main access road through the town. Transport for NSW (TfNSW) is undertaking works to construct a bypass of Muswellbrook to improve travel times, freight efficiency and safety for all road users. The current alignment for the bypass is located to the east of Muswellbrook and connects the New England Highway to the north and south of Muswellbrook.

The bypass will overlap 11.7ha of the Development Consent footprint. TfNSW are in the process of acquiring this land from MCC and once this acquisition has been finalised the footprint of the bypass will be removed from MCC's Development Consent. The bypass potentially introduces additional bushfire risks such as ignition sources and threat to life and safety.

Consultation with TfNSW was undertaken in July 2024 (**Appendix 1**) to gain understanding of any controls associated with fires starting on the road impacting on MCC. TfNSW will be responsible for managing these risks in accordance with their Bushfire Management Plan.

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#### 11.0 COMMUNICATE AND CONSULT

A copy of the FMP will be provided to the following stakeholders:

- Muswellbrook Shire Council
- NSW Rural Fire Service
- Ausgrid
- NSW Fire and Rescue
- NSW Police

The 24-hour contact number for MCC is 1800 600 205. A message will be sent to key site personnel who will be able to respond to a fire on site.

#### 12.0 MONITORING AND REVIEW

Annual monitoring of fire management actions outlined under this FMP will be undertaken prior to the commencement of the designated BFDP, indicatively occurring between June and August each year, to allow implementation of recommendations prior to the onset of the BFDP.

Annual monitoring of fire management actions will involve:

- Mapping fire events (planned or unplanned) at the SITE, including post-fire analysis/investigation to review the current management framework and update where improvements are identified.
- Monitoring fire management actions against the objectives of this FMP, management actions under this FMP and performance criteria outlined in the FMP.
- Monitor the condition, implementation and suitability of onsite communication procedures and their applicability in the event of an emergency.

Monitoring will also identify any redundant assets and any new assets for the bushfire protection register. Items / fire protection measures that do not meet performance criteria outlined in the FMP will be repaired to conform with the relevant provisions / standards.

#### **13.0 EXTERNAL REPORTING**

Within 2 weeks of finalising the FMP, a copy will be made available for public viewing via the MCC website.

The performance of MCC's FMP will be reported through the Annual Environmental Management Report (AEMR).

#### 14.0 REVIEW OF THE FMP

The FMP will be reviewed:

- Within 6 months of changes to Development Consent conditions relating to bushfire management,
- Following an independent environmental audit which recommends changes to the FMP, and
- Following a significant fire event, being a bushfire onsite that either required

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assistance from the RFS and/or required evacuation of the site.

In addition, a review of this FMP will occur every five (5) years where none of the triggers identified above have occurred within the relevant operation period.

The review of the FMP will focus on the following:

- Evaluating the effectiveness of mitigation actions;
- Introducing learnings and improvements;
- Removing redundant items; and
- Addressing changes in context, hazards, community, and environment.

#### **15.0 ACCOUNTABILITIES**

Ultimately MCC is responsible for fire management of the site, and in some areas, Ausgrid and Energy Australia, and will be responsible for management regarding:

- The balance between fuel load management for asset protection;
- Powerline easements;
- Annual inspections of fuel loads, fire breaks, containment lines, access suitability prior to the fire season;
- Water supply access for firefighting;
- Emergency and evacuation planning; and
- Safe working environment on the site during both mining operations and post mining operations.

External companies/utilities with easements within the site are responsible for maintaining their assets, however MCC will include review of the status of bushfire management within the footprint of external assets (e.g., powerlines) to inform the relevant company/utility where management of their asset is required to reduce the risk of bushfire onsite.

The roles of key personnel are summarised in Table 6.

Personnel	Roles under this FMP
Head of Muswellbrook Site	<ul> <li>One of three primary roles that may be the Incident Controller during emergency response scenarios.</li> <li>Possessing a detailed knowledge of the environmental constraints and obligations that apply to the site.</li> <li>Develop a thorough understanding of the purpose of this FMP and importance of implementing prescribed controls.</li> <li>Provide adequate resources to implement this FMP, including both personnel, funding, and onsite assets.</li> <li>Reporting to Idemitsu on any significant environmental incidents.</li> </ul>
Rehabilitation Operations Manager	<ul> <li>One of three primary roles that may be the Incident Controller during emergency response scenarios.</li> <li>Liaison between Thiess Rehabilitation and MCC in relation to this FMP.</li> </ul>

 Table 6: Organisational Responsibilities

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Personnel	Roles under this FMP				
	Maintain vegetation along the access road to reduce the				
	bushfire risk.				
	<ul> <li>Maintain vegetation around boundary lines and access tracks to reduce the bushfire risk.</li> </ul>				
	Maintain access to dams for firefighting access.				
Thiess	One of three primary roles that may be the Incident Controller				
Rehabilitation	during emergency response scenarios.				
Site Manager	Liaison between all levels of Thiess Rehabilitation and MCC     in relation to the EMP.				
	Mhan able upon completion of the emergency event				
	• When able, upon completion of the emergency event, establish site recovery plan.				
Environmental	Primary contact to the NSW RFS outside of emergency ovents				
Superintendent	<ul> <li>Provide any relevant support or assistance to the designated</li> </ul>				
	Incident Controller or Scene Controller during an emergency				
	event.				
	Responsible for managing compliance with this FMP.				
	Responsible for site monitoring prior to commencement of				
	BFDP.				
	Coordinating reviews of the FMP.				
Maintenance	Maintain assets onsite to prevent degradation and increased     risk to bushfire attack				
Superintendent	Maintain firefighting equipment including static water				
	connection points (hydrants) and static water supply.				
	<ul> <li>Maintain vegetation around power lines to reduce the</li> </ul>				
	bushfire risk.				
	Communicate to external companies / utilities where				
	management of their asset / easement onsite is required to				
	reduce the risk of bushfires onsite.				
Senior Site	Report fires onsite or within local area that are identified				
Personnel /	Immediately to 000 (unless already shown on NSW RFS				
Supervisors	Fires Near Me application).				
	Scene Controller.				
All personnel	Develop a thorough understanding of the purpose of this				
	Piver and importance of implementing prescribed controls.				
	<ul> <li>neport any lifes identified onsite or within the surrounding landscape immediately to Senier Site Personnel /</li> </ul>				
	Supervisors where available or directly to the Site Manager /				
	Operations Manager where no designated MCC Manager is				
	assigned to their work.				

### 16.0 LIST OF APPENDICIES

Appendix 1: Correspondence Regarding Fire Management Plan

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### 17.0 REVISION DETAILS

Revision No.	Date	Reviewed By	Details/Reason for Revision
1	February 2005	MCC Technical Services Department, Carbon Based Environmental	Original Management Plan
2	December 2010	MCC Technical Services Department, Carbon Based Environmental	5 Yearly Review
3	December 2015	MCC Environmental, Technical Services and Production Departments	5 Yearly Review
4	November 2017	MCC Environmental, Technical Services and Production Departments	Update following modification for Continuation Project
5	October 2020	MCC Environmental Department	3 Yearly Review
6	April 2023	Environmental, Production, Administration and Maintenance Departments	End of mining operations
7	August 2024	Environmental, Maintenance and Production Departments with assistance from Kleinfelder	Consent Modification 9

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#### Appendix 1: Correspondence Regarding Fire Management Plan NSW Rural Fire Service

RE: Muswellbrook Coal Company - Fire Management Plan Co	nside	erations						
Mark Denton <mark.denton@rfs.nsw.gov.au></mark.denton@rfs.nsw.gov.au>	٢	S Reply	所 Reply All	$\rightarrow$	Forward	ij		
To S Jess Bowditch Cc S Brad Deane; Dan Pedersen			^		Mon 1/07	7/2024 1	:34 PM	
External Email								f
Good afternoon Jessica,								
thank you no I have nothing further to add.								
Regards Mark Inspector Mark Denton District Manager – Hunter Valley								
Image: P 02 6675 1200 M 0467 284 416 E Mark Denton@rfs.nsw.gov.au         Hunter Valley 2161 Putty Rd. Bulga NSW 2330         P.O Box 3111 Singleton NSW 2330         www.rfs.nsw.gov.au								
The RFS acknowledges the Traditional Owners of Country throughout Australia. We pay our respects to Elders past and present.	2	NSW						
From: Jess Bowditch <u>&gt; Sent: Monday, July 1, 2024 10:49 AM To: Mark Denton <u>&gt; Cc: Brad Deane &lt;<u>BDeane@kleinfelder.com</u>&gt;; Dan Pedersen &lt;<u>dan@coolburn.com.au</u>&gt; Subject: RE: Muswellbrook Coal Company - Fire Management Plan Considerations</u></u>								
Hi Mark,								
Thank you again for your time last week to discuss the requirements and expectations for the Fire Mana	gement	Plan (FMP) for N	1uswellbrook Coal	Comp	any.			L
Further to our discussions, I have attached the current DA conditions and a site overview map of Muswe	llbrook	Coal.						
In review of this, could you please let me know if you have any further comments or notes to be outlined	in the F	MP.						
Thank you in advance,								
Jessica Bowditch Environmental Advisor								
Environmental Management, Approvals and Compliance (EMAC)								

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#### Transport for NSW

RE: Fire Management Plan						
JBess Bowditch To Julie Thomas Cc • Brad Deane	3	← Reply	Keply All	→ Forward Tue 9/07/2	(024 11:4)	••• 5 AM
Hi Julie,						
Thanks again for your time earlier this week.						
I have had a bit of a look through our documents, and our project approval contains requirements for a bushfire management plan to be created for the construction of the project. Our landscaping specification of the project approval contains requirements for a bushfire management plan to be created for the construction of the project.	ion also	includes fire mitiga	ation during the design			
I will reach out to the maintenance team to see if they have something more suited for the operational side of things.						
I'll let you know once I hear back, and I will provide what I can for reference.						
Have a good weekend.						
Kad Regards, Next Wood Project Manager Regional Project Delivery Infrastructure & Piece Transport for NSW						
Mc 0437 105 443 76 Victoria Street, Grafton NSW 2460						
NSW Transport for NSW						
This email is inheded only for the addressee and may contain confidential information. If you receive this email in error please delete it and any attachments and notify the sender immediately by reply email. Transport for NSW tales all care to ensure that attachme consequences shick may arise from opening or using an attachment.	ints are fre	e from viruses or other	defects. Transport for NSW	assume no liability for any los	is, damage or o	other
Consider the environment. Please don't print this e-mail unless really necessary.						
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