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. Most of the site has been rehabilitated with minor areas still to be completed.

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.

Version 7 (August 2024) of the FMP was 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 with Kleinfelder, Cool Burn Fire and Ecology, NSW RFS and MCC representatives attending 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).

A review of the FMP (Version 8) has been undertaken to remove any controls/mitigation measures that are no longer in place now that most of the site has been rehabilitated.

1.2 OBJECTIVES

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

- 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 landholdings, and surrounding area;
- To protect MCC infrastructure 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.

Condition 23(b) of DA 205/2002 (Mod 9), required this FMP to be divided into the following sections:

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

As the rehabilitation operations have been completed, reference to these requirements have been removed from the FMP. This FMP addresses post rehabilitation operations only.

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 (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 1 July 2025). Major bushfires were recorded in 1994, 1995, 1997 and 2008, within 100km of the site as shown in **Figure 1** (RFS, 2025). 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 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.

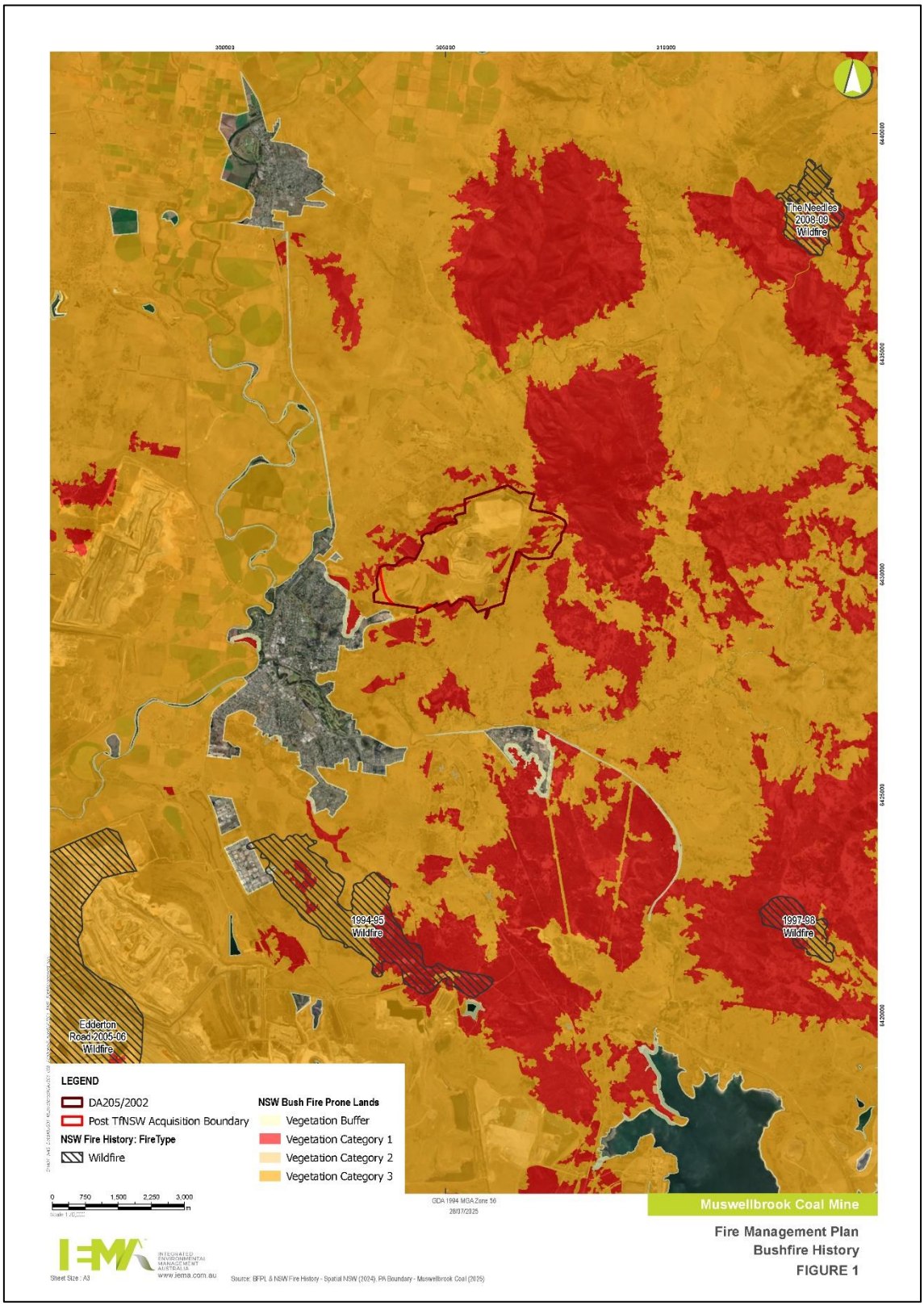

Figure 1: Bushfire History

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.

Table 1: Statutory Requirements

Approval/ Licence Condition No.	Condition	Section
Development Consent Requirement		
23 (a)	Deleted.	NA
23 (b)	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. 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). The FMP shall address firefighting response to both structural (on-site) fires and vegetation (on and off site) fires impacting on the facility.	This plan **Error! Reference source not found.**, 7.0 **Error! Reference source not found.**
23 (b)(i)	24-hour emergency contact details including alternative telephone contact.	9.0
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.	6.1
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.	6.0
23 (b)(viii)	Such additional matters as required by the NSW RFS District Office.	1.1

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 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 HUNTER VALLEY BUSH FIRE RISK MANAGEMENT PLAN (HVBFRMP)

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 human-induced ignitions, managing fuel loads, improving community preparedness, and containing fires effectively. The HVBFRMP 2023 did not identify any specific treatment works applying to MCC.

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 most 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.

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. Hunter Valley Bushfire Risk Management Plan 2023.
- 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

5.0 SUPPORTING DOCUMENTS

- Development Consent DA 205/2002.
- MP 30 Environmental Management Strategy.

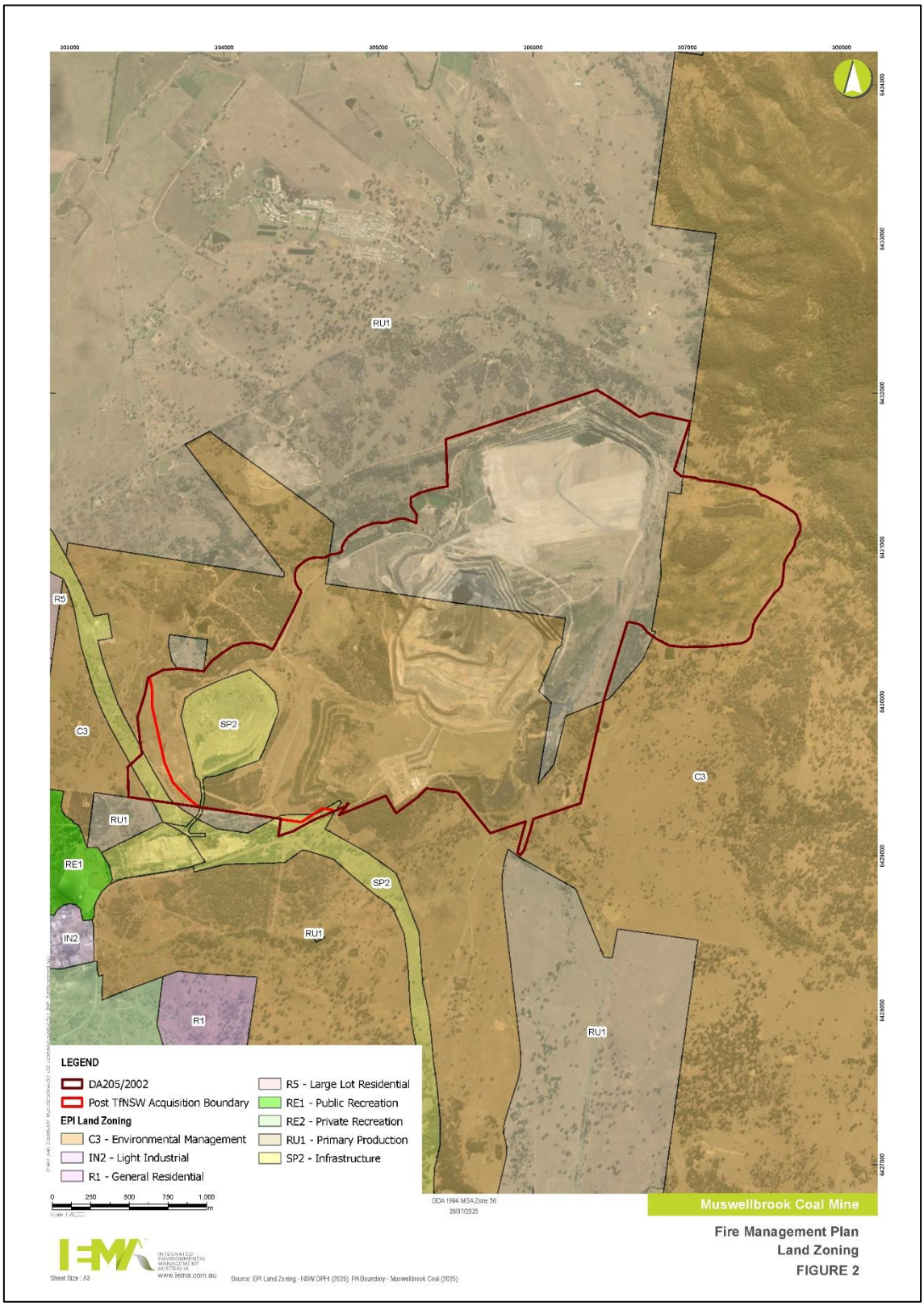

Figure 2: Land Zoning

6.0 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 bushfire event), or active (direct firefighting or supporting firefighting operations, such as access, water supplies, emergency evacuation).

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 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.
- **Bushfire preparedness and awareness**: This is a passive measure, considered as preparedness for all persons accessing MCC landholdings ahead of a fire event. Education relates to property preparedness (tidy up fine fuels 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 MCC, emergency agencies and stakeholders.

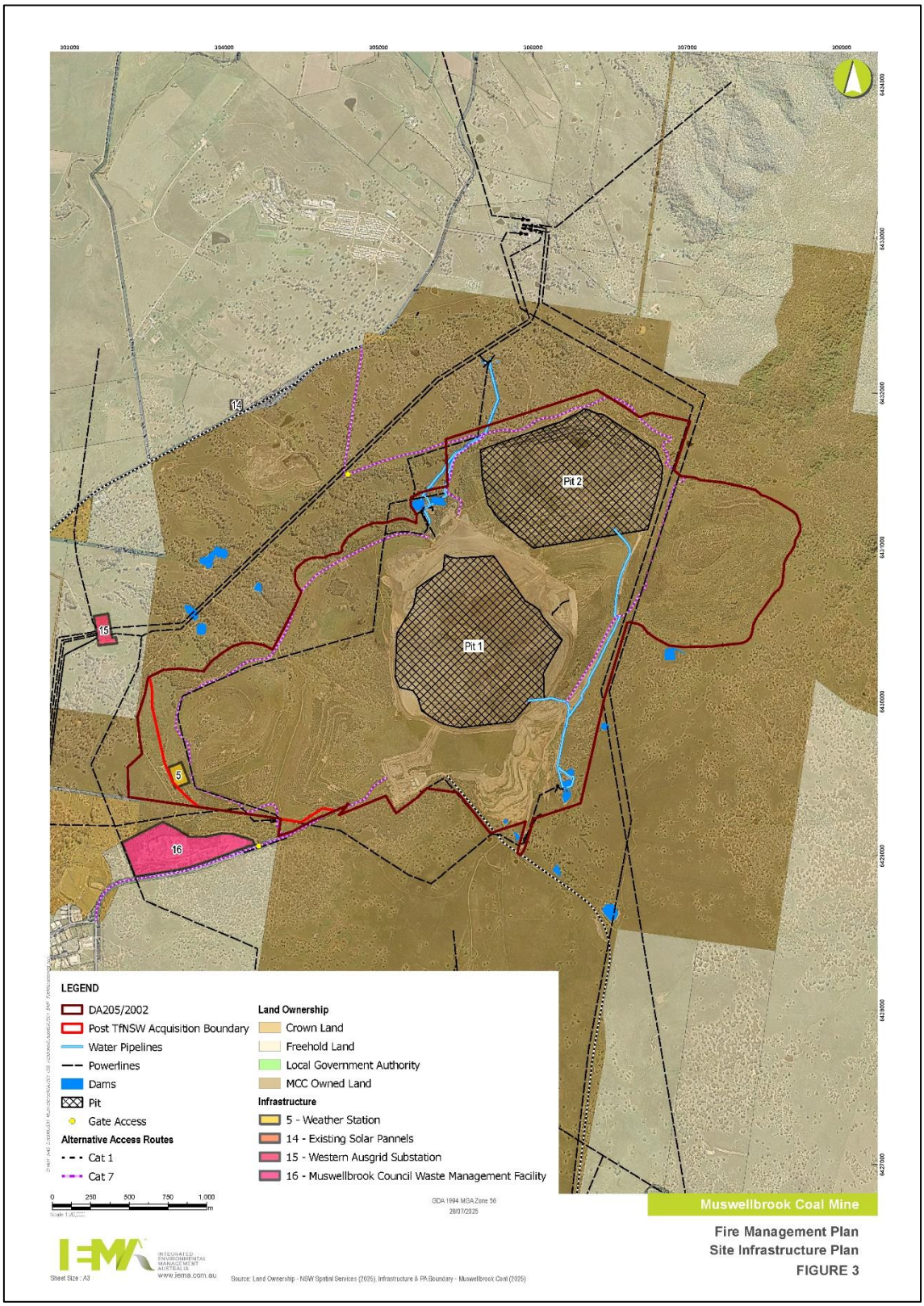

Figure 3: Site Infrastructure Plan

6.1 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	• Tree canopy less than 15% at maturity with 2-5m separation between branches of adjoining trees and no branches touching or overhanging the building. • Tree limbs should be removed up to a height of 2m above ground to prevent spread from ground fires to the crown. • Trees with smooth bark should be planted / retained in favour of rough-barked trees. • Preference should be given to smooth barked and evergreen trees.
Shrubs	• 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 • Clumps of shrubs should be separated from exposed windows and doors by a distance of at least twice the height of the vegetation.
Grasses	• Grass should be managed to approximately 100 mm height to limit their ability to ignite and propagate a fire. • 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.

6.2 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 (water points, gates, pavement material) 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).

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

Attribute	Performance Solutions	Acceptable Solutions
Width	The fire trail must provide a width for: • The unobstructed traversing of the terrain without damage to the appliance. • The traversing of the terrain at a speed appropriate for safe firefighting operation. • The ability of an appliance to navigate the section without a reversing manoeuvre. • The fire trail must not be of a width that impedes the tactical movement of appliances. • The fire trail must not impede firefighting personnel's access to the appliance (egress and ingress). • Provides an unobstructed view for firefighters. • Does not pose an increased risk to firefighting personnel safety in any way. • Does not impact on evacuation of the area in any way. • Considers any negative impacts on the surrounding environment.	**Option 1:** The trail must have a minimum width of 3.5m. Where there is a curve with a radius <20m, refer to Performance Solution. **Option 2:** If <120m linear distance from the end of a passing bay to the start of the next passing bay, the width can be reduced to 3m. Where there is a curve with a radius <20m, refer to Performance Solution. **Both options:** No more than 5% of the total length of the fire trail may be narrower than the Acceptable Solution.
Trafficable Surface	The fire trail trafficable surface must: • Be constructed and able to be maintained such that the surface is accessible under all (excluding extreme weather such as flooding or storm surge) conditions. • Provide sufficient traction to allow traversing of the terrain under all conditions (except for flood, storm surge and snowfall). • Provide sufficient carrying capacity to ensure safe passage for appliances without losing traction or being rendered immobile. • Be free from major defects that may interfere with appliance operational speed; and • Allow for a safe working platform for personnel to access the appliance cabin and equipment.	Trail surfaces under all (excepting extreme weather such as flooding or storm surge) weather conditions must be able to carry: • a Gross Appliance Mass of 8 tonnes; and • an Axle Load of 6 tonnes.

Attribute	Performance Solutions	Acceptable Solutions
	• Ensure a safe working environment for personnel and should have sufficient integrity for its expected term of use in the event of an incident. • Be free of contaminants. • Incorporate, as far as possible local and sustainable materials.	
Clearance	The fire trail clearance must: • Provide a cleared envelope free from obstructions preventing access or thoroughfare. • Provide sufficient clearance from protrusions that could cause damage to the appliance. • In the event of overgrowth, be of such a nature to allow safe thoroughfare of the appliance. • Enable clear visibility for free forward movement of appliances. • Allow appliances to travel at an operational speed (in line with the conditions on the trail). • Allow personnel unimpeded access to appliance cabin and equipment. • Afford suitable footing and freedom of movement for personnel. • 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; • Be achieved and maintained through environmentally conscious and responsible methods. • Be achieved and maintained in accordance with relevant environmental approvals.	The trail must have: • an envelope free of obstructions, including dense vegetation, to allow for unimpeded operations; • a minimum vertical clearance of 4m above the trafficable surface; and • a minimum horizontal clearance of 2.75m from the trafficable surface centreline.
Grade	The grade of the trail must: • Provide sufficient traction for a fully laden appliance while ascending and descending. • Provide a safe working angle that does not impede physical	There are no defined grade criteria, refer to Performance Solution.

Attribute	Performance Solutions	Acceptable Solutions
	operational capability of the appliance. • Not exceed the physical ground clearance capabilities of the appliance. • A fully laden appliance can traverse the terrain. • Operational capability of the appliance and personnel are not adversely impacted. • Minimise impacts to the environment and reduce earthworks required. • Possess appropriate surface water management.	
Crossfall	• The crossfall of the trail must provide sufficient traction for fully laden appliances while ascending and descending. • Ensure the risk of roll over and uncontrolled movement of appliances is managed. • Crossfall of the trail must provide a stable foundation for appliances and personnel to ensure operational capability. • Must provide sufficient traction for fully laden appliances. • Ensure that the risk of rollover and uncontrolled movement of vehicles is managed. • Safety of personnel in firefighting operations is managed.	Unless transitioning between cross sections, the crossfall of the trail is no more than 6 degrees (10.5%).
Horizontal Curves	Horizontal Curves must: • Allow the relevant appliance to navigate through a curve in a single movement without coming to a stop or having to reverse. • Allow safe travel speed, not reducing operational effectiveness. • Not impact hazard reduction ignition or back burning operation. • Not increase risk to personnel working on the ground, where appliances are unable to identify hazards when travelling around sharp curves.	There are no defined criteria for horizontal curves, refer to Performance Solution.

Attribute	Performance Solutions	Acceptable Solutions
	• Allow for appropriate sight distances to any identified hazards. • Minimise environmental impact by following natural contours of the land when possible	
Passing Bays	A passing bay must: • Allow for the effective and safe passing of two appliances without avoidable delays to operations. • Be capable of supporting the required appliance mass and axle load. • Allow for the free flow of multiple appliances on the fire trail. • Allow for the access and passing of appliances without reversing. • Ensure unimpeded access to the appliance cabin and equipment off the trail and away from vegetation. • Provide opportunities for appliances to pass at appropriate intervals for continuous operational movement. • A passing bay must be designed and constructed to minimise environmental impact	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 appliance while firefighters are working
Turnaround Bays	The turnaround bays must: • Be large enough to allow for the relevant appliance to return in the direction from where it came through a three-point turning manoeuvre.	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

Attribute	Performance Solutions	Acceptable Solutions
	• Provide sufficient space for the relevant appliance to change direction without obstructing the fire trail. • Be present at the end of each fire trail. • Provide tactical manoeuvrability locations for appliances. • Provide sufficient space for personnel to access firefighting equipment and implement likely firefighting tactics. • Not prevent thoroughfare of other appliances along the fire trail. • Provide directional change opportunities particularly when an escape route is required. • Be constructed to minimise environmental impact.	at the termination of a trail. Each turnaround bay must enable the whole vehicle to be off the trafficable trail and: • 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; • OR – have a turning circle which has a minimum outer diameter of 17m.

Engineered Culverts and Bridges (Major Crossing Structures)	Crossing structures must:
	• Possess adequate bearing capacity for safe crossing of appliances.
	• Have adequate width to allow movement of the relevant appliance.
	• Allow for the effective strategic movement of appliances.
	• Not impede the operational capability of appliances.
	• Not affect the trail's integration with the network.
	• Be clearly delineated.
	• Have appropriate guidepost delineation for safe visibility.
	• Allow for unobstructed flow of natural watercourses (unless in accordance with a relevant water authority approval).
	• Not divert natural flow of the watercourse (unless in accordance with a relevant water authority approval).
		Crossing structures must:
		• Have appropriate guidepost delineation for safe visibility; and
		• be able to carry:
		  ○ a Gross Appliance Mass of 15 tonnes; and
		  ○ an Axle Load of 6 tonnes.
		Where new crossing structures can provide a higher vehicular GVM carrying capacity, then this is strongly encouraged.

Bed Level Crossings and Piped Culverts (Minor Crossing Structures)	Crossing structures shall: • possess adequate bearing capacity for safe crossing of appliances. • Have adequate width to allow movement of the relevant appliance.	Crossing structures must: • be able to carry a Gross Appliance Mass of 15 tonnes; and • have appropriate guidepost delineation for safe visibility.

Attribute	Performance Solutions	Acceptable Solutions
	• Allow for the effective strategic movement of appliances. • Not impede the operational capability of appliances. • Not affect the trail's integration with the network. • Have appropriate guidepost delineation for safe visibility. • Allow for unobstructed flow of natural watercourses (unless in accordance with a relevant water authority approval). • Not divert natural flow of the watercourse (unless in accordance with a relevant water authority approval).	Refer to NSW Rural Fire Service Fire Trail Design, Construction and Maintenance Manual for guidance on types of crossing structures.

Corridor Hazards	Corridor hazards must:
	• Be identified by appropriate signage or spatially.
	• 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.
	• Be addressed such that impacts to the whole fire trail network are minimised.
	• Be controlled if they pose a risk to firefighters being able to perform operations safely and effectively.
	• Be prioritised based on the importance of the trail within the network and the severity of the hazard.
	Corridor hazard management must examine:
	• Trees and tree limbs to extend beyond the cleared area of a fire trail, which presents a safety risk. These are generally mature trees with:
	  ○ a lean towards the trail and weaknesses in their root structure; and/or
	  ○ branches with weaknesses which extend over the trail.
	• Mature trees (high potential) to be environmentally and culturally
		There are no defined criteria for corridor hazards, refer to Performance Solution.

Attribute	Performance Solutions	Acceptable Solutions
	sensitive. Therefore, the environmental cost of removing the tree partially or fully must be considered against the safety risk. • 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.	

6.3 WATER SUPPLIES

Water supplies are shown in **Figure 3**. Water supplies at the site include onsite dams (Asset 7, Asset 11). 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 10.0**) will include review of the accessibility and volume of water supplies.

6.4 EMERGENCY MANAGEMENT

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.

7.0 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 north-westerly vectors during summer months.

Table 4 outlines the specific fire management actions to be undertaken during the post rehabilitation phase.

Table 4: Post Rehabilitation: Fire Management Actions

Specific Protection Measures	Fire Management Actions
Asset Protection Zones	• Minimum 10m APZ is recommended for any built infrastructure remaining (i.e., weather station). • A 10m fire break will be maintained around the boundary of the site where permissible and possible. • 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. • 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 **Section 6.2**. **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 to prevent emergency access.
Water Supply/ Fire Fighting Water Supply	**Water Supply Monitoring:** • Conduct inspection of dam levels prior to, during and following each year's fire season (BFDP) to identify and record where water supply onsite is suitable.
Emergency and evacuation planning	**Evacuation Routes and Assembly Areas** • Evacuation routes are to be clearly marked on site plans and signposting to aid in firefighting and emergency evacuation. **Coordination with Local Fire Services:** • Establish a communication plan with local fire services.

8.0 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 historical mining area. 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.

9.0 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 personnel who will be able to coordinate a response to a fire on site.

10.0 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), 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.

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.

11.0 EXTERNAL REPORTING

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

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

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.

13.0 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:

- Fuel load management;
- Powerline easements;
- Annual inspections of fuel loads, fire breaks, containment lines, access suitability prior to the fire season;
- Emergency and evacuation planning; and
- Safe working environment on the site during.

External companies/utilities with easements within the site are responsible for maintaining their assets.

The roles of key personnel are summarised in **Table 5**.

Table 5: Organisational Responsibilities

Personnel	Roles under this FMP
Suitably Qualified or Experienced Person	• Possessing a detailed knowledge of the environmental constraints and obligations that apply to the site. • Develop a thorough understanding of the purpose of this FMP and importance of implementing prescribed controls. • Provide adequate resources to implement this FMP, including both personnel, funding, and onsite assets. • Reporting to Idemitsu Australia on any significant environmental incidents. • Primary contact to the NSW RFS outside of emergency events. • Responsible for managing compliance with this FMP. • Responsible for site monitoring prior to commencement of BFDP. • Coordinating reviews of the FMP. • Maintain vegetation around power lines to reduce the bushfire risk.
All Personnel	• Report fires onsite or within local area that are identified immediately to 000 (unless already shown on NSW RFS Fires Near Me application).

14.0 LIST OF APPENDICIES

Appendix 1: Correspondence Regarding Fire Management Plan

15.0 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
8	August 2025	Environmental Department	Completion of bulk rehabilitation activities

Appendix 1: Correspondence Regarding Fire Management Plan

NSW Rural Fire Service

Transport for NSW

RE: Fire Management Plan

JB Jess Bowditch
To Julie Thomas
Cc Brad Deane

Reply | Reply All | Forward
Tue 9/07/2024 11:45 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 also includes fire mitigation 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.

Kind Regards,
Nick Wood
Project Manager
Regional Project Delivery
Infrastructure & Place
Transport for NSW

M: 0437 105 441
76 Victoria Street, Grafton NSW 2460

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