



BUSHFIRE PROTECTION ASSESSMENT FOR THE CONSTRUCTION OF THE PROPOSED

COMMUNITY INFRASTRUCTURE DEPOT

ON LOT 1 in DP 819014

No. 252 COAL ROAD, MUSWELLBROOK

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Directors Approval

G.L. Swain



EXECUTIVE SUMMARY

Australian Bushfire Protection Planners Pty Limited has been commissioned by CCG Architects, on behalf of Muswellbrook Shire Council, to prepare a report to provide advice on the bushfire protection measures required for the construction of the proposed Community Infrastructure Depot building on Lot 1 in DP 819014, No. 252 Coal Road, Muswellbrook.

The site is zoned for SP2 – Special Purpose and contains the existing Waste Management Facility.

The proposed Community Infrastructure Depot occupies the south-western portion of the site.

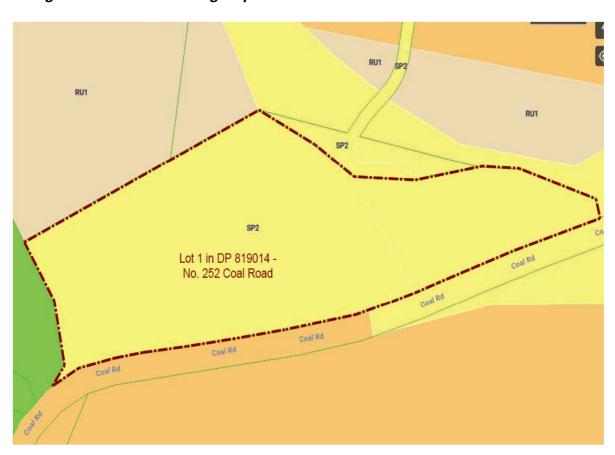


Figure 1 - Landuse Zoning Map.

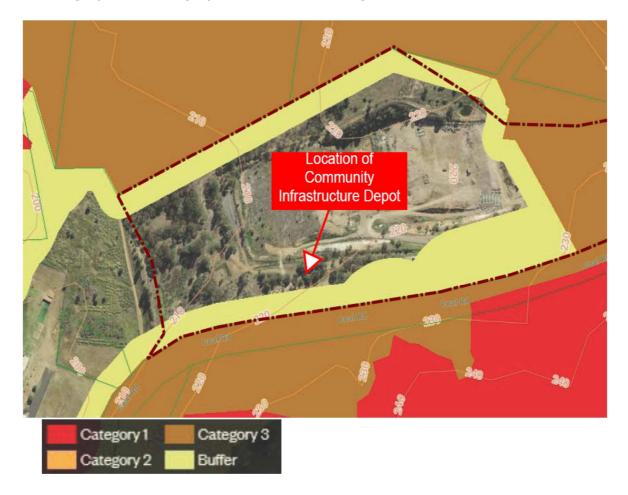
The Muswellbrook Bushfire Prone Land Map records the site of the proposed Community Infrastructure Depot as being in the buffer zone to Category 3 Bushfire Prone Vegetation on the land to the south of Coal Road.

The remainder of the site is not recorded as containing bushfire prone vegetation.

A review of the Bushfire Prone Land Map against the actual vegetation on the development site and adjoining land confirms that the extent of the mapped Category 1 and Category 3 Bushfire Prone Vegetation is correct.



Figure 2 – Extract from Muswellbrook Bushfire Prone Land Map showing Category 1 and Category 3 Bushfire Prone Vegetation and Buffer Zones.



The site inspection identified that the unmanaged Upper Hunter Box-Blakelys Red Gum Grassy Forest on the land to the south of Coal Road is bushfire prone and this report examines the bushfire protection measures required to mitigate the risk to the proposed Community Infrastructure Depot.

Figure 3 provides a copy of an Aerial Photograph showing the location of the Community Infrastructure Depot site within the existing Waste Management facility.



Figure 3 – Aerial Photograph showing the Development Site and the adjoining landuse.



Due to the development site being located within a bushfire prone area, the application for the proposed development is triggered by the Bushfire Prone Land Map and Section 4.14 of the *Environmental Planning & Assessment Act 1979* applies to the construction of the proposed buildings.

Section 4.14 of the *Environmental Planning and Assessment Act* requires a Consent Authority, when considering development within a bushfire prone area, to be satisfied that the development conforms with the specifications and requirements of *Planning for Bushfire Protection 2019*.

Planning for Bushfire Protection 2019 provides specific deemed-to-satisfy provisions on the bushfire protection measures necessary for rural & residential subdivisions, the construction of "Special Fire Protection Purpose Developments" and the construction of Class 1, 2, 3 & 4 buildings in Bushfire Prone areas.

The document does not identify specific deemed-to-satisfy protection measures for buildings of Class 5 to 8 of the Building Code of Australia. The document does provide the following advice for these classes of buildings:

"The NCC does not provide for any bushfire specific performance requirements for these particular classes of buildings. As such A.S. 3959 and the NASH Standard are not considered as a set of Deemed to Satisfy provisions, however compliance with A.S. 3959 and NASH must be considered when meeting the aim and objectives of Planning for Bushfire Protection 2019

The objectives of *Planning for Bushfire Protection 2019* are:

- (i) Afford occupants of any building adequate protection from exposure to a bushfire:
- (ii) Provide for a defendable space to be located around buildings;
- (iii) Provide appropriate separation between a hazard and buildings which, in combination with other measures, prevent the likely fire spread to buildings;
- (iv) Ensure that safe operational access and egress for emergency service personnel and residents is available;
- (v) Provide for ongoing management and maintenance of bushfire protection measures; and
- (vi) Ensure that utility services are adequate to meet the needs of firefighters.

This Bushfire Protection Assessment undertakes an assessment of the bushfire protection measures required to address bushfire risk to the proposed building, consistent with the provisions of Section 4.14 of the *Environmental Planning and Assessment Act 1979* and examines the adequacy of the setbacks [defendable spaces] to the building; fire-fighting access and provision of fire-fighting water supplies, fuel management protocols and other matters considered necessary to mitigate any potential bushfire threat to persons, property and the environment.



The characteristics of the site as discussed in this report, together with the recommendations provided in this assessment, confirms that the site is suitable in terms of its intended use.

Graham Swain

Managing Director,

Enoham Swain

Australian Bushfire Protection Planners Pty Limited.



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SECTION 1

INTRODUCTION

1.1 Aim of this Assessment.

The aim of this Bushfire Protection Assessment is to address the aim & objectives of *Planning for Bushfire Protection 2019* including:

- Determine the formation of the vegetation within 140 metres of the development site, in accordance with the vegetation classification system contained in Appendix 1 of *Planning for Bushfire Protection 2019*;
- Undertake an assessment to determine the effective slope of the land on and surrounding the development site;
- Determine the Fire Danger Index [FDI] for the site;
- Undertake an assessment to determine bushfire protection strategies for the proposed development, including the bushfire protection measures required to be implemented in the design and construction of the Canopies and the requisite bushfire protection measures required to address the safety of the staff and shoppers.
- Prepare a report that addresses the following matters:
 - (i) The provision of building setbacks (Asset Protection Zones) from vegetated areas and the siting of buildings to minimize the impact of radiant heat and direct flame contact;
 - (ii) Fire-fighting water supplies;
 - (iii) Access requirements for emergency service vehicles;
 - (iv) Construction standards to be used for the future buildings within the proposed development to minimize the vulnerability of buildings to ignition from radiation and ember attack;
 - (v) Land management responsibilities; and
 - (vi) Evacuation management.

1.2 Statutory Requirements.

This assessment has been prepared having regard to the following legislative and planning requirements:



1.2.1 Legislation.

(a) Environmental Planning and Assessment Act - 1979 (EPA Act)

Planning and development within NSW is regulated by the *Environmental Planning & Assessment Act*, 1997 (EPA Act). In relation to bushfire protection planning for retail/commercial development in bushfire prone areas in NSW, Section 4.1.4 of the EPA Act applies and requires a consent authority to be satisfied that the proposed development conforms to the specifications and requirements of *Planning for Bushfire Protection 2019*.

(b) Rural Fires Act 1997

The objectives of the *Rural Fires Act* are to provide:

- > The prevention, mitigation and suppression of fires;
- Coordination of bushfire fighting and prevention;
- Protection of people and property from fires; and
- > Protection of the environment.

Sections 63(1) and 63(2) require public authorities and owners / occupiers of land to take all practicable steps to prevent the occurrence of bushfires on, and to minimize the danger of the spread of bushfires.

1.2.2 Planning Policies.

Planning for Bushfire Protection – 2019 (NSW Rural Fire Service)

This document provides guidance on the planning and development control processes in relation to bushfire protection measures for rural residential and residential subdivision, "Special Fire Protection" and Class 5-8 and 10 buildings in bushfire prone areas [Industrial buildings are Class 7 as defined by the Building Code of Australia].

These measures include the provision of defendable space requirements and access/water supply provisions to Class 5-8 & 10 developments in bushfire prone areas.

Provision for the assessment of construction standards to buildings and management / maintenance of the Asset Protection Zones/defendable space to buildings is also provided.

1.3 Development Proposal.

This Bushfire Protection Assessment has been prepared for the construction of the proposed Community Infrastructure Depot building on Lot 1 in DP 819014, No. 252 Coal Road, Muswellbrook.



Figure 4 – Site Plan of Muswellbrook Shire Council existing Site Plan.

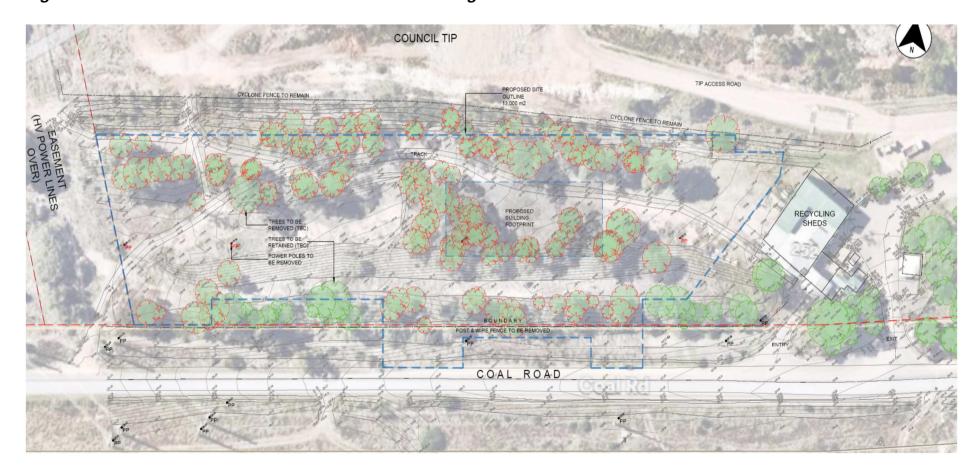




Figure 5 – Site Plan of the proposed Community Infrastructure Depot.

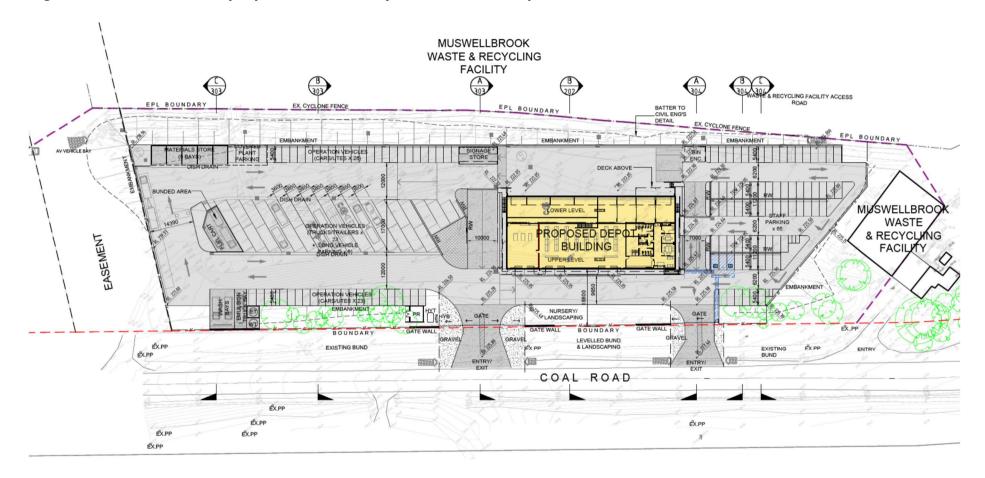




Figure 6 – Site Plan – Operational Parking.





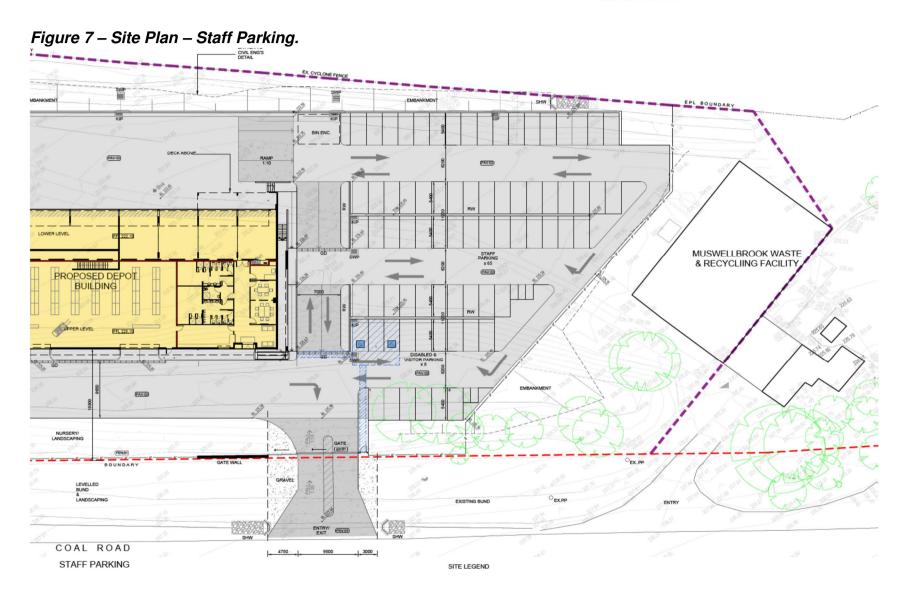




Figure 8 – Lower Level Floor Plan of the Community Infrastructure Building.

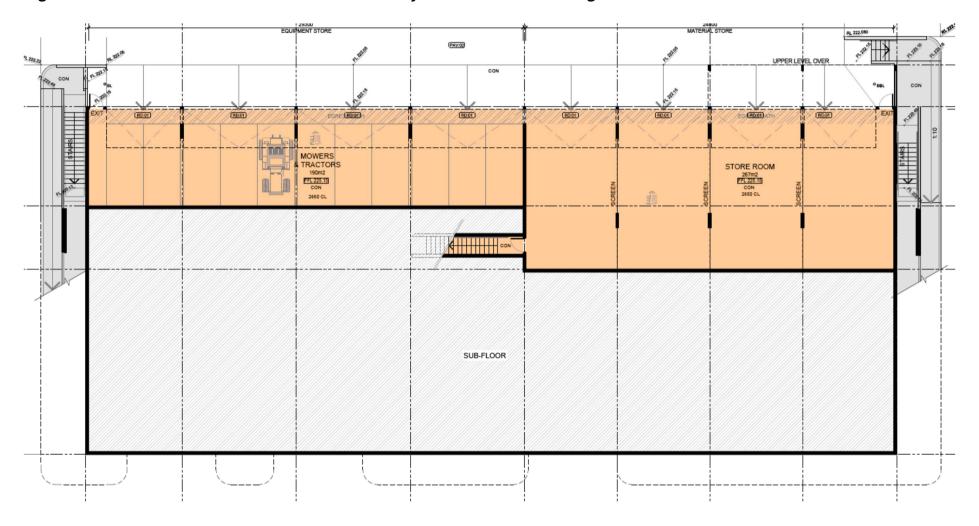
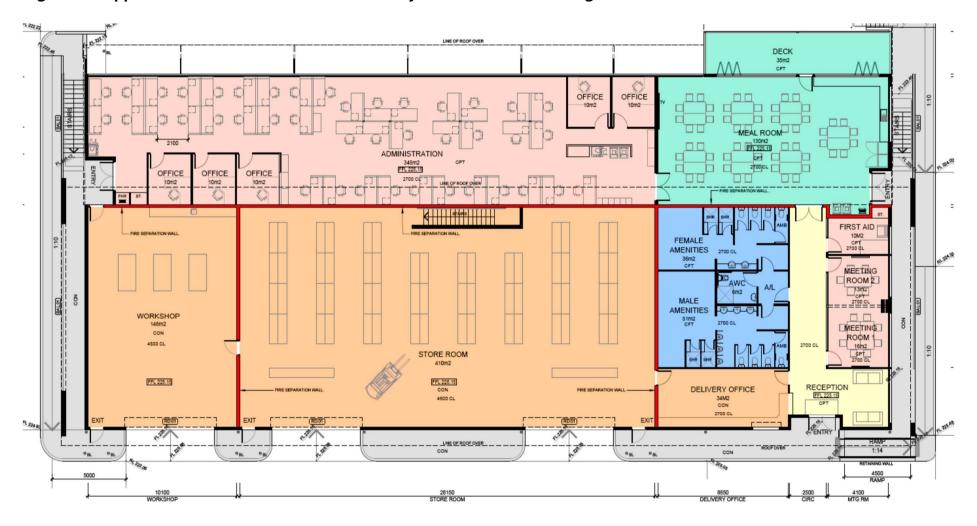




Figure 9 – Upper Level Floor Plan of the Community Infrastructure Building.





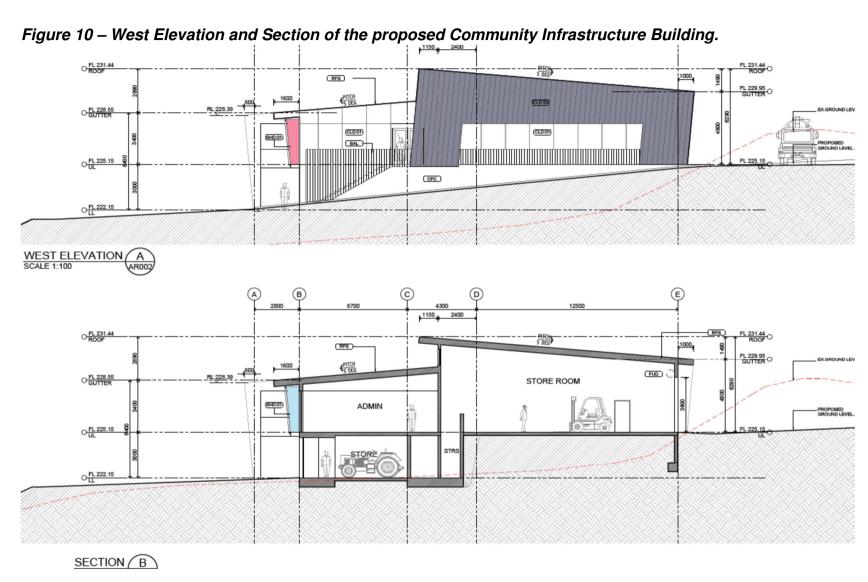




Figure 11 – South & North Elevations of the proposed Community Infrastructure Building.





NORTH ELEVATION B



Figure 12 – East Elevation of the proposed Community Infrastructure Building.



EAST ELEVATION (C)



1.4 Documentation Reviewed.

The following documents were reviewed in the preparation of this assessment:

- Architectural Plans prepared by CCG Architects Project No. 23 149;
- Aerial Photograph of the site;
- Muswellbrook Council Certified Bushfire Prone Land Map;
- Planning for Bushfire Protection 2019 prepared by the NSW Rural Fire Service.

1.5 Site Inspection.

Graham Swain of *Australian Bushfire Protection Planners Pty. Limited* inspected the development site and adjoining land on the 25th April 2024 to assess the topography, slopes, vegetation classification and land use within and adjoining the development site.

An assessment of the extent of bushfire prone vegetation and the accuracy of the Muswellbrook Bushfire Prone Land Map was also undertaken.



SECTION 2

DESCRIPTION OF DEVELOPMENT SITE

2.1 Location & Description.

The site is known as Lot 1 in DP 819014, No. 252 Coal Road, Muswellbrook.

Figure 13 – Site Location Plan.



2.2 Adjoining Land Use.

The Community Infrastructure Depot site is adjoined to the north by the existing Waste Management Facility.

The existing Recycling Sheds occupies the land the east of the proposed Community Infrastructure Depot.

The land to the south and southeast of the proposed Community Infrastructure Depot is vacant.

The land to the southwest of the proposed Community Infrastructure Depot is vacant land within the Waste Management Facility and contains a High Voltage Electrical Transmission Line.



2.3 Topography.

Appendix A1.5 of *Planning for Bushfire Protection 2019* states that slopes should be assessed and the gradient of the land should be determined which will most significantly influence the fire behaviour on the site.

Within the Depot Site.

The land within the Depot site slopes to the north from Coal Road.

The existing mounds will be levelled as part of site works.

> Beyond the Building Site.

The topography of the land containing the bushfire prone vegetation rises to the south. The land to the west of the Depot site falls to the west at 0-5 degrees.

Figure 14 - Contour Plan.





2.4 Vegetation.

Vegetation is classified using Figure A1.2 of *Planning for Bushfire Protection 2019*, which classifies vegetation types into the following groups:

- (a) Rainforest;
- (b) Wet Sclerophyll Forest;
- (c) Dry Sclerophyll Forest:
- (d) Woodland:
- (e) Tall Heath;
- (f) Short Heath; and
- (g) Grassland.

Exception for the vegetation along Coal Road, the Depot site will be cleared of unmanaged vegetation. The vegetation along Coal Road will be retained and managed.

Similarly, the grassland vegetation on the Council Tip, to the north of the development site and the Power Line Easement to the west of the site will be managed to maintain a grass height of 150mm during the Bushfire Danger Period.

The vacant land to the south of Coal Road contains grassland and Upper Hunter Box Blakelys Red Gum Grassy Forest. A pocket of Upper Hunter Box Blakelys Red Gum Grassy Forest occupies an area of land to the west of the Depot site.

2.5 Significant Environmental Features on the land within the Depot Site.

The Depot site does not contain any significant environmental features.

2.6 Known Threatened Species, Populations, Endangered Ecological Communities or Critical Habitat on the land within the Depot Site.

There are no known threatened species, populations, endangered ecological communities or critical habitat within the Depot site.

2.7 Details of Aboriginal/European Heritage within the Depot Site.

There are no known Aboriginal sites, relics or European heritage within the Depot site.



SECTION 3

BUSHFIRE PROTECTION ASSESSMENT

3.1 Introduction.

The Muswellbrook Bushfire Prone Land Map records the Community Infrastructure Depot site as being affected by the buffer zone to Category 3 Bushfire Prone Vegetation on the land to the south of Coal Road.

Therefore, the construction of the proposed Depot building is required to comply with the provisions of Section 4.14 of the *Environmental Planning & Assessment Act 1979*.

Section 4.14 of the *Environmental Planning and Assessment Act* requires that the development located in a bushfire prone area shall comply with the requirements of *Planning for Bushfire Protection 2019* with respect to the protection of persons, property and the environment from the danger that may arise from a bushfire.

The aim of Planning for Bushfire Protection 2019 is to 'provide for the protection of human life and minimise impacts on property from the threat of bushfire while having due regard to development potential and protection of the environment'.

Bushfire protection can be achieved through a combination of strategies which are based on the following principles:

- (i) Control the types of development permissible in bushfire prone areas;
- (ii) Minimise the impact of radiant heat and direct flame contact by separating development form bushfire hazards;
- (iii) Minimise the vulnerability of buildings to ignition and fire spread from flames, radiant heat and embers;
- (iv) Enable appropriate access and egress for the public and fire-fighters;
- (v) Provide adequate water supplies for bushfire suppression and operations;
- (vi) Focus on property preparation, including emergency planning and property maintenance requirements; and
- (vii) Facilitate the maintenance of Asset Protection Zones (APZs), fire trails, access for fire-fighting and on-site equipment for fire suppression.



Planning for Bushfire Protection 2019 provides the following objectives for Class 5 to 8 buildings:

- (i) Provide safe access to/from the public road system for fire-fighters providing property protection during bushfire and for occupant egress for evacuation;
- (ii) Provide suitable emergency and evacuation (and relocation) arrangements for occupants of the development;
- (iii) Provide adequate services of water for protection of buildings during and after the passage of bushfire and to locate gas and electricity so as not to contribute to the risk of a fire to a building; and
- (iv) Provide for the storage of hazardous materials away from the hazard.

'The general fire safety construction provisions of the NCC are taken as acceptable solutions, however construction requirements for bushfire protection will need to be considered on a case by case basis'.

Planning for Bushfire Protection 2019 does not provide specific deemed-tosatisfy protection measures for Class 5 to 8 buildings as defined by the Building Code of Australia.

However, compliance with A.S.3959 - 2018 must be considered when meeting the aims and objectives of *Planning for Bushfire Protection 2019*.

Section 3.2 of this report examines the development proposal in relation to the provision of a suitable "defendable space" between the bushfire hazard and the proposed building.

The bushfire construction standards to the proposed building is examined in Section 3.3 and the provision of access and water supplies for fire-fighting operations management of the defendable space [Asset Protection Zone] and evacuation planning are examined in Sections 3.4 - 3.9 of this report.

3.2 The provision of Defendable Space/s [Asset Protection Zones].

Defendable Spaces/Asset Protection Zones [APZs] have been assessed for the proposed Depot building in accordance with *Planning for Bushfire Protection 2019* and Australian Standard A.S. 3959 – 2018 (using effective slope and predominant vegetation communities).

The assessment is based on the predominant vegetation on the adjoining land to the south of the Depot site being unmanaged grassland and Upper Hunter Box Blakelys Red Gum Grassy Forest.



Table A1.12.5 of *Planning for Bushfire Protection 2019* identifies that to prevent flame contact on the proposed Depot building exposed to the forest vegetation on the upslope land to the south of Coal Road the minimum width of the Defendable Space is 18 metres.

The actual width of the Defendable Space to the south of the proposed Depot building is more than 45.00 metres and includes the width of Coal Road (measured from the vegetation line) and the building setback from the Coal Road boundary and more than 100 metres from the pocket of vegetation in the western portion of the Waste Management Site.

EMBANKMENT SIGNAGE STORE DECK ABOVE LOWER LEVEL VISIT RKIN DEPOT 10000 BUILDING UPPER LEVEL PL 25:29 NON CLIMABLE NUR SERY/ BOUNDARY GATE BOUNDARYLANDS CAPING GRAVEL GRAVE EVELLED BUND LANDSCAPING **EXISTII** BUND ENTRY/ ENTRY EXIT C (N ROAD °рр

Figure 15 – Fire Protection (Defendable Space) Plan.

3.3 Access Standards for Firefighting Operations.

Appendix 3 "Access" of *Planning for Bushfire Protection 2019* provides specifications on the access provisions for fire-fighting operations within developments which are subject to bushfire attack.



Vehicular access to the proposed Depot site will be provided directly off Coal Road via two entry/exit driveways with a secondary link to the existing driveway at the Recycling Sheds.

The proposed internal access roads will be constructed to provide heavy rigid and articulated vehicle access to the proposed building.

This internal road network will therefore provide suitable access for fire-fighting appliances similar to NSW Rural Fire Service Category 1 Tankers and Fire & Rescue NSW Composite and Aerial Appliances.

3.4 Construction Measures to the Warehouse Building.

Table 1 examines the bushfire construction standards required to be implemented to comply with A.S. 3959 – 2018 – 'Construction of Buildings in Bushfire Prone Areas'.

Table 1. Determination of Bushfire Construction Standards.

Aspect	Vegetation within 140m of development	Predominant Vegetation Formation Class	Effective Slope of Land	Width of Defendable Space provided to fixed assets	Bushfire Construction Standard – A.S. 3959 – 2018
South	Grassland/ Forest	Forest	Upslope	More than 45.00 metres	BAL 12.5

The separation width between the Depot building and the bushfire hazard to the south of Coal Road exceeds 45 metres. Therefore, the Depot building shall be constructed to comply with Section 3 and Section 5 (BAL 12.5) of A.S. 3959 – 2018 – 'Construction of Buildings in Bushfire Prone Areas'.

Roof lights shall be Ampelite FS Fire Check.

A non-combustible Fire Wall shall be provided to the eastern side of the Fueling Bay.

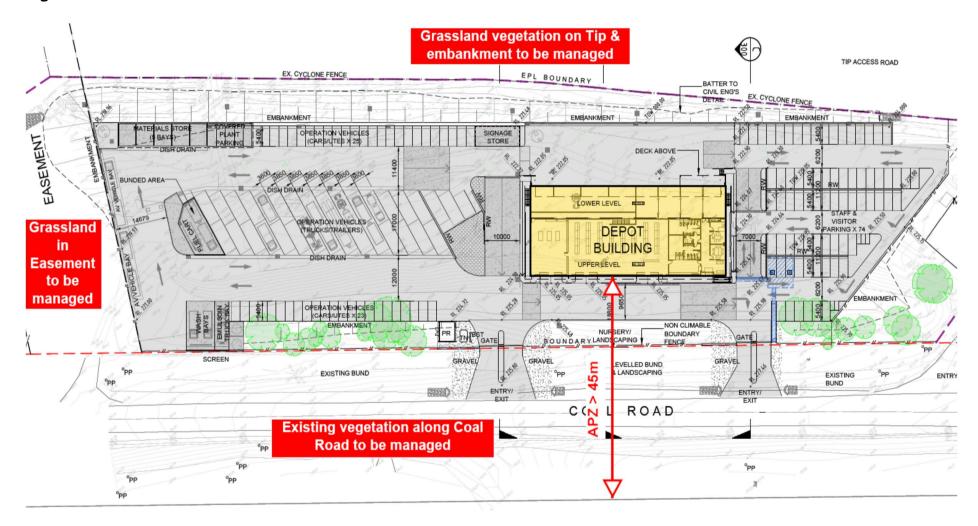
3.5 Bushfire Hazard Management.

The intention of bushfire hazard management is to prevent flame contact with a structure, reduce radiant heat to below the ignition thresholds for various elements of a building, to minimize the potential for wind driven embers to cause ignition and to reduce the effects of smoke on occupants and firefighters.

The management of the site shall comply with the recommendations of Appendix 4 of *Planning for Bushfire Protection 2019* and *Standards for Asset Protection Zones*.



Figure 16 – Plan of Fire Protection Measures.





3.6 Water Supplies for Firefighting Operations.

The fire-fighting water supply to the proposed Depot building shall comply with the Building Code of Australian [BCA] and Australian Standard A.S. 2419.1 – 2021.

Electricity and gas supplies will be laid underground and therefore address the performance standard of Chapter 4 of *Planning for Bushfire Protection* 2019.

3.7 Emergency Management for Fire Protection / Evacuation.

Due to the land surrounding the Waste Management Facility being recorded as being bushfire prone there is the likelihood that the vegetation on the land to the northwest, southwest and south will be subject to a significant bushfire event that may impact the Waste Management Facility and the Community Infrastructure Depot site.

Therefore, it is recommended that a Bushfire Emergency Evacuation Plan (BEEP) be prepared for the facilities on the site.

The BEEP shall identify the measures required to evacuate the facilities when fire approaches the site during Total Fire Ban days.

The site shall not be occupied when fires occur in the local area during Catastrophic Fire Weather days.



SECTION 4

CONCLUSION

The Development Application seeks approval for the construction of a Community Infrastructure Depot within the existing Waste Management Facility on Lot 1 in DP 819014, No. 252 Coal Road, Muswellbrook.

The southern edge of the site is recorded on the Muswellbrook Bushfire Prone Land Map as containing the buffer zone to the mapped Category 3 Bushfire Prone Vegetation located to the south of Coal Road.

This report therefore examines the bushfire protection measures required to be provided to the Depot building from a fire in the vegetation on the land to the south and potential impact from large 'campaign' fires that may occur in the broader landscape surrounding the Waste Management Facility.

Bushfire construction standards have been recommended to the building and a Bushfire Emergency Evacuation Plan (BEEP) shall be prepared prior the occupation of the Depot building.

Table 2 summarises the extent to which the development conforms to the aim and objectives of *Planning for Bushfire Protection 2019*.

Table 2. Compliance with the aim and objectives of *Planning for Bushfire Protection 2019.*

Bushfire Protection Measure	Compliance with the aim and objectives of <i>Planning for Bushfire Protection 2019.</i>
Defendable Space setback	The width of the Defendable Space removes flame contact from the southern aspect of the Depot Building.
Access for fire-fighting operations	The proposed access roads comply with the specifications of Appendix 3 of <i>Planning for Bushfire Protection 2019</i>
Water supplies for fire fighting	Hydrant supply to be installed in accordance with AS 2419.1 - 2021.
Emergency Management	Bushfire Emergency Evacuation Plan (BEEP) to be prepared for the complex.

I confirm that the proposed development complies with the aim and objectives of *Planning for Bushfire Protection 2019* and the deemed to satisfy requirements of Section 8.3.10 of *Planning for Bushfire Protection 2019* – Buildings of Class 5 to 8 and Class 10 of the Building Code of Australia in respect to the provision of asset protection zones [defendable spaces], access and water/utilities for fire-fighting operations.



Graham Swain, Managing Director,

andham Swain

Australian Bushfire Protection Planners Pty Limited.

Fire Protection Association Australia Member No 4878



REFERENCES:

- N.S.W Rural Fire Service Planning for Bushfire Protection 2019;
- Environmental Planning & Assessment Act 1979;
- Rural Fires Act 1997;
- Rural Fires Regulation 2022;
- NSW Rural Fire Service Guideline for Bushfire Prone Land Mapping 2015;
- Bushfire Environmental Assessment Code 2019;
- Building Code of Australia;
- Australian Standard A.S. 3959-2018 "Construction of Buildings in Bushfire Prone Areas";
- Muswellbrook Bushfire Prone Land Map.