Bush Fire Assessment Report

New dwelling

435 Kaludabah Road Piambong

Document Tracking:

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Manor Homes

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Contents

1 Introduction

1.1 Building and Site Characteristics

This report forms part of the submission requirements to support a Development Application summarised in **Table 1.**

Table 1: Proposal summary

Property Details	435 Kaludabah Road Piambong 2850 Lot/Section/Plan no: 899/-/DP1278019 Council: MID-WESTERN REGIONAL COUNCIL	
Type of Proposal	New dwelling	Rural (>10,000m^2)
Development	EP&A: s4.14 – Infill development – Proposed new dwelling	
Bush fire prone land status	Subject Lot not mapped as bushfire prone land – **Figure 1.** It is understood the Bush fire land (BFPL) mapping is due to be updated and will capture all areas within the LGA containing bushfire hazards, including the subject lot.	
Information relied upon	• Site Plan – Provided by Manor Homes (**Figure 2).** • FireMaps and ePlanning software - cadastral and topographic information and for New South Wales	

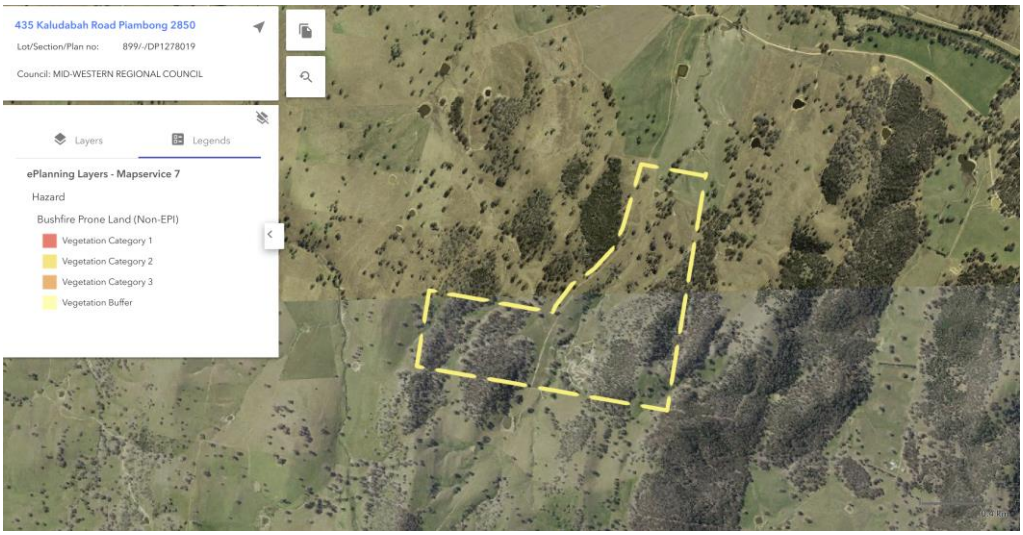

Figure 1: Bush fire prone land mapping showing subject lot captured.

1.2 Legislative requirements

The subject Lot/site is 'Bush fire prone land' as determined by local council bush fire prone land mapping under s.146 of the Environmental Planning and Assessment Act (EP&A) 1979.

The proposal is assessed in accord with Section 4.14 of the EP&A Act 1974, which details the legislative requirements for development consent for infill development on bushfire prone land. Infill development is assessed in accordance with Chapter 7 of 'Planning for Bush Fire Protection 2019' (PBP).

The National Construction Code (NCC) contains Performance Requirements and Deemed-to-Satisfy (DTS) provisions relating to the construction of buildings in bushfire prone areas, including variations in NSW, for buildings in designated bushfire prone areas. The NCC calls upon the Australian *Standard 3959 - 2018: Construction of buildings in bushfire prone areas* and the *NASH Standard: National Association of Steel-framed Housing.*

1.3 Scope

The purpose of this report is to demonstrate compliance, or otherwise, with the broad aims and objectives of *Planning for Bushfire Protection 2019 (PBP)* and *AS 3959-2018 'Construction of buildings in bushfire-prone areas.*

Based on these requirements, this report seeks to:

1. Assess the proposal with reference to PBP-2019 and AS3959-2018;
2. Identify appropriate Bush fire Protection Measures designed to mitigate the bushfire risk and protect occupants
3. Assist the Consent Authority in the determination of the suitability of the proposed development.

The recommendations contained herein may assist in forming the basis of any specific bushfire conditions that Council and/ or the NSW Rural Fire Service may elect to place within the consent conditions issued for the subject Development Application (DA).

1.4 Other known constraints

No threatened species or other known significant environmental or heritage constraints are known or have been advised.

Council as the determining authority will assess more thoroughly any potential environmental and heritage issue.

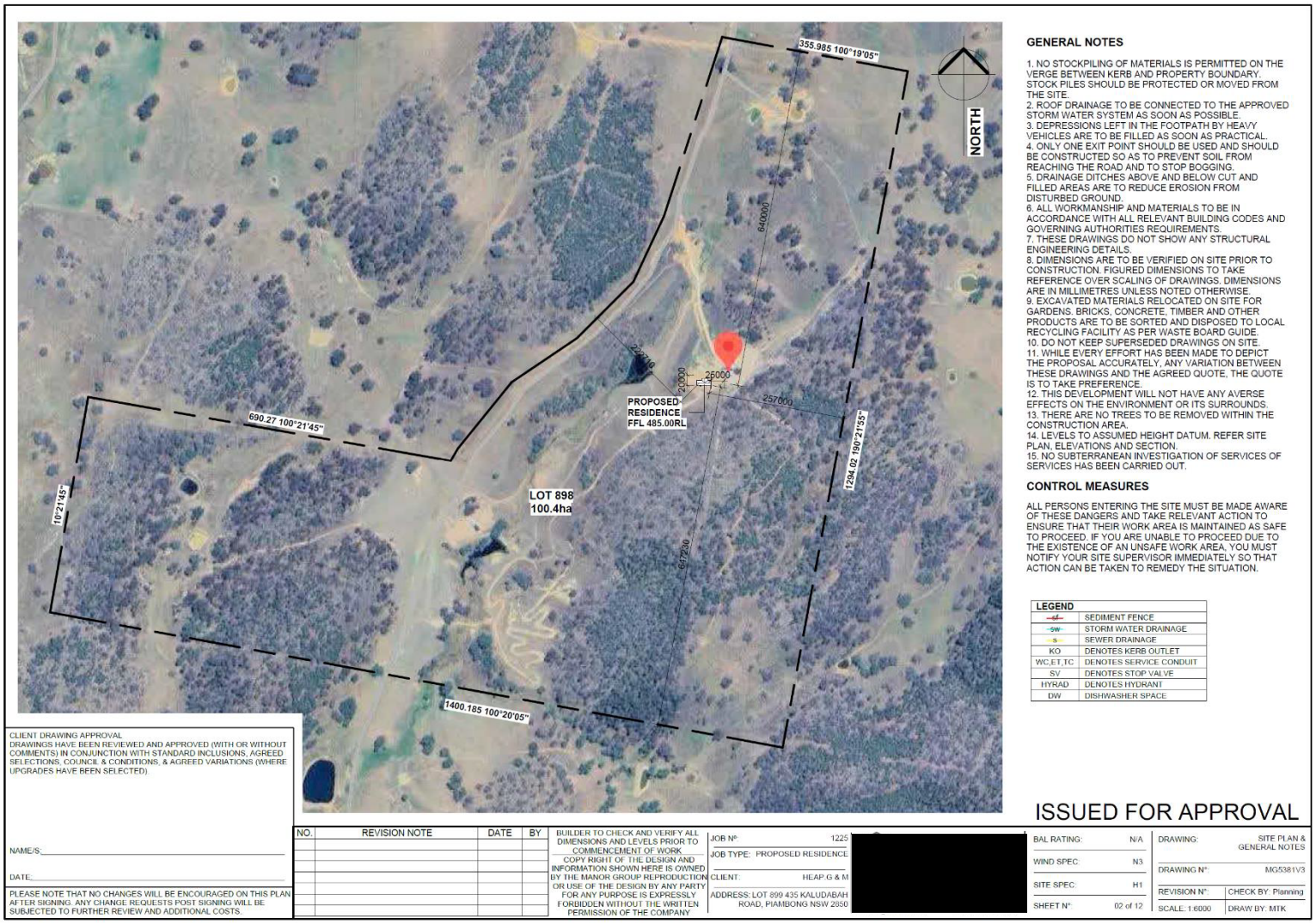

Figure 2: Site Plan showing dwelling location and setbacks to boundary.

2 Site Assessment

The relevant Asset Protection Zone (APZ) and bushfire attack level (BAL) is determined using the methodology detailed in Appendix 1 of PBP. The steps and results are detailed below and summarised in **Table 2.**

2.1 Vegetation

Determine vegetation formations according to Keith (2004) in all directions around the proposed development to 140m.

Vegetation extent (bushfire hazard) within the study area is derived from Aerial photo interpretation (latest NearMap Imagery)

- To the East , South-east and South are areas described as *"Dry-Sclerophyll Forest* "under the NSW SEED Environmental Database (**Image 1** below) assessed as Forest under PBP
- In all other directions are areas assessed as Grassland under PBP

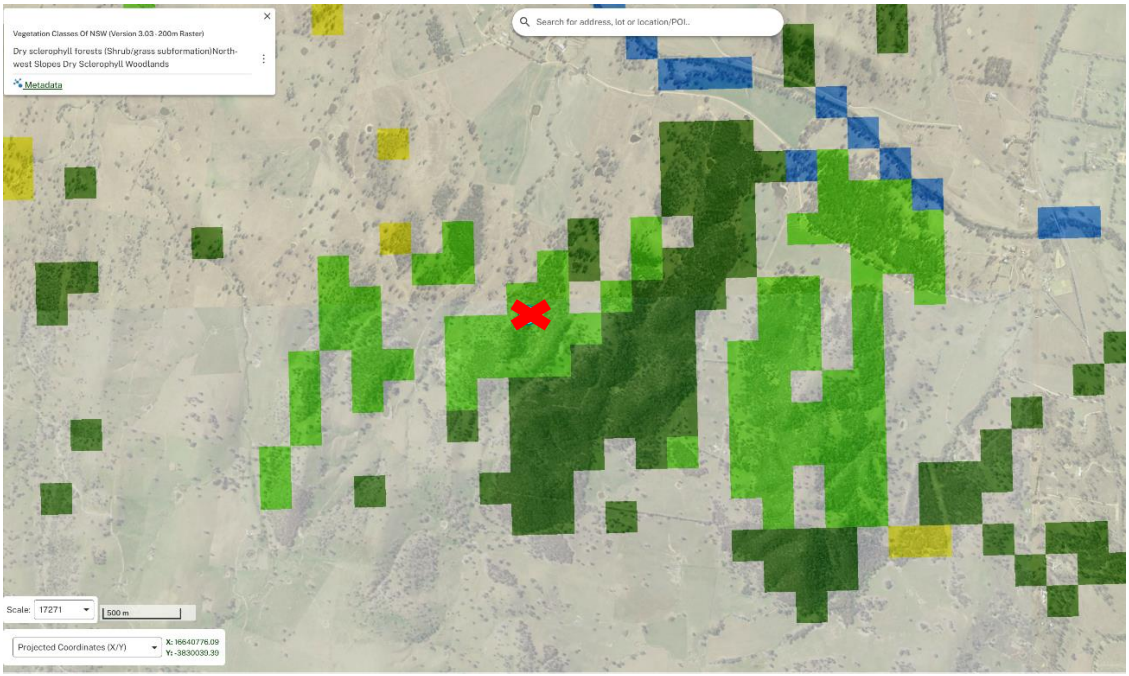

Image 1: Area directly east of building envelope mapped as Dry-Sclerophyll Forest (SEED Data NSW Government)

2.2 Effective Slope

Determine the effective slope of the land from the building for a distance of 100 metres

The slope(s) that most significantly influences the bush fire behavior and has been derived from topographic 2m contour data (FireMaps – FPAA Mapping Software) and depicted in **Figure 3**

2.3 Fire weather

Determine the relevant Fire Area having a Fire Danger Index (FFDI) for the council area

The Lot is situated within MID-WESTERN REGIONAL COUNCIL having a FFDI of 80

2.4 Separation distance and Available APZ:

Determine the separation distance from the unmanaged vegetation to the closest external wall.

The separation distance in all hazard directions is shown in **Figure 3** which represents the available APZ in that direction.

2.5 Bush fire attack level (BAL):

The Bush fire attack level (BAL) is used as the basis for establishing the construction requirements for development of Class 1, 2, 3 and 4 (part) buildings in NSW in bush fire prone areas.

The site assessment methodology for determining the construction requirements for bushfire prone areas is calculated using Appendix 1 of PBP 2019 which determines the appropriate BAL

Table 2: Bush fire hazard assessment

Transect	Vegetation formation	Effective Slope	Minimum APZ[1] (BAL-29)	Separation	BAL[2]	Comments
East, South-east South	Forest	Upslope	20m	40m Proposed APZ	**BAL-12.5**	With the proposed APZ established and maintained, the highest BAL the development is exposed to is assessed as **BAL-12.5** **Recommendation:** Minimum 40m area around the dwelling, to be established and maintained as an IPA. This is the minimum setback for **BAL-12.5** radiant heat exposure. Refer APZ **Section 3.1**
North, South-West	Grassland	Downslope > $0\text{-}5^0$	11m	40m Proposed APZ	**BAL-12.5**	
West	Grassland	Downslope > $5\text{-}10^0$	12m	40m Proposed APZ	**BAL-12.5**	

[1]PBP 2019 – Table A1.12.3 - Minimum distances for APZs – residential infill development, FFDI 80 areas (<29kW/m2, 1090K)

[2]PBP 2019 - Table A1.12.6 - Determination of BAL, FDI 80 – residential infill development

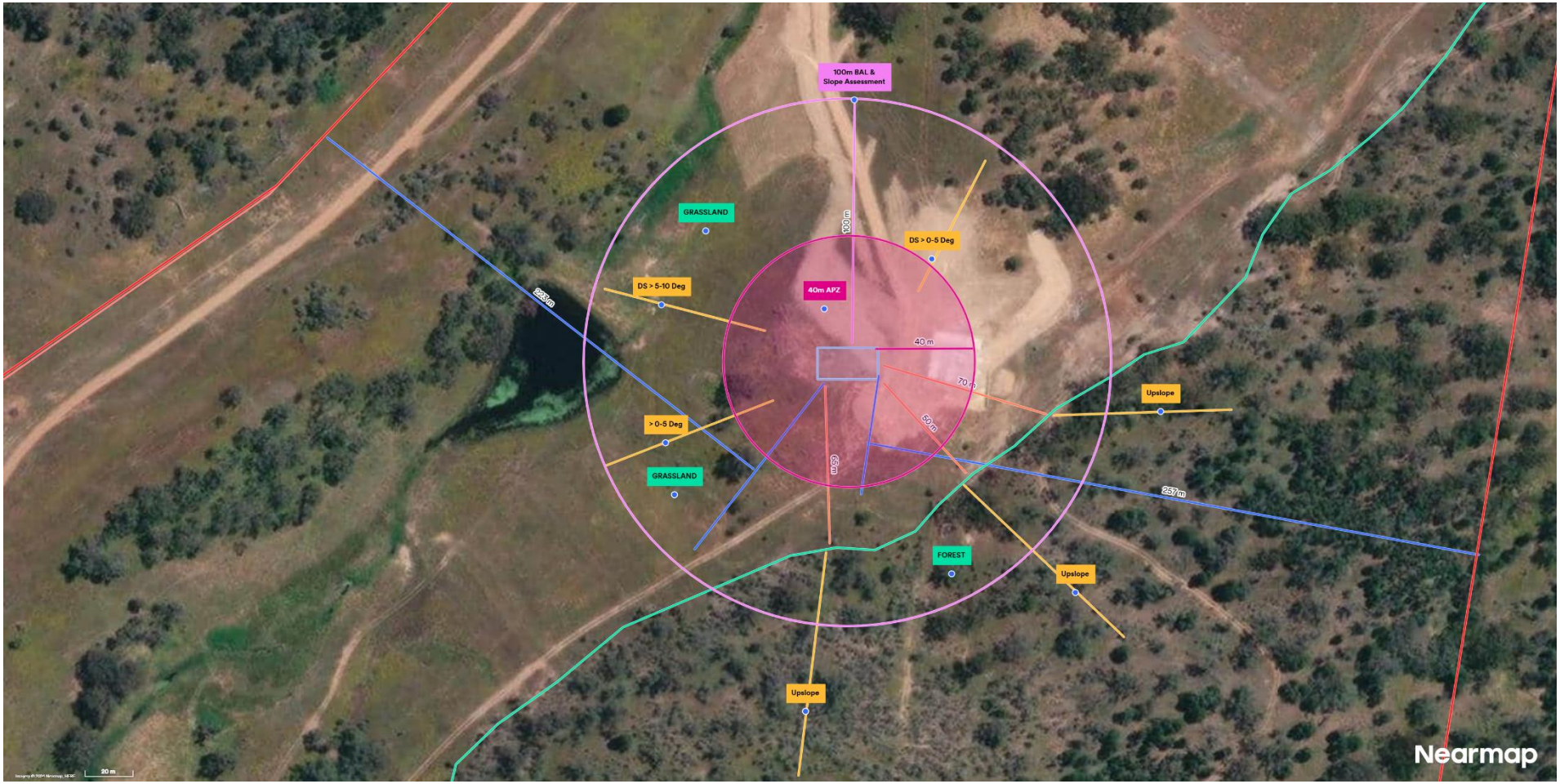

Figure 3: Bush fire hazard assessment showing proposed 40m APZ

3 Bush fire protection measures

The following Bushfire Protection Measures (BPMs) are based on the development type and the assessed level of risk described in **Section 2.**

Intent of measures: to minimise the risk of bush fire attack and provide protection for emergency services personnel, residents and others assisting firefighting activities.

Table 3 : Summary of bushfire protection measures assessed.

Bushfire Protection Measure	Report Section	Acceptable Solution	Performance Solution
Asset Protection Zones	3.1	☑	☑
Construction standards	3.2	☑	☐
Access	3.3	☐	☑
Water supply	3.4	☑	☐
Electrical services	3.5	☑	☐
Gas services	3.6	☑	☐
Landscaping	3.7	☑	☐
Emergency Management	3.8	☑	☐

Performance Solutions

1. Asset Protection Zones
    - Direct compliance with the Performance Criteria.
2. Access
    - Direct compliance with the Performance Criteria.

Pursuant to s7.4 of PBP2019, this report demonstrates that the APZ dimensions and Access conditions can comply with the Performance Criteria for Infill development.

All other BPMs can comply with the Acceptable Solutions under Table 7.4a of PBP for residential infill development (Section 3)

BPMs recommended achieve a 'Better Bush fire outcome' holistically for the development and occupants of the existing dwelling when compared any existing measures in place.

3.1 Asset Protection Zone (APZ)

An APZ is a buffer zone between a bush fire hazard and buildings. APZ is managed to minimise fuel loads and reduce potential radiant heat levels, flame, localised smoke and ember attack.

Table 4: Relevant APZ Performance Criteria, Acceptable Solution and Compliance:

PERFORMANCE CRITERIA	ACCEPTABLE SOLUTION (DTS)	COMPLIANCE
APZs are provided commensurate with the construction of the building; and A defendable space is provided.	an APZ is provided in accordance with Table A1.12.2 in Appendix 1.	☑ Can comply. Refer Recommendations.
APZs are managed and maintained to prevent the spread of a fire to the building.	APZs are managed in accordance with the requirements of Appendix 4 of PBP.	☑ Can comply. Refer Recommendations.
The APZ is provided in perpetuity. APZ maintenance is practical, soil stability is not compromised and the potential for crown fires is minimised	APZs are wholly within the boundaries of the development site. APZ are located on lands with a slope less than 18 degrees.	☑ Can comply. Refer Recommendations.

Performance Solution 1.

The proposed development **can achieve** the setbacks required using the Acceptable Solution methodology for calculating the required APZ distance (PBP Table A1.12.2).

In recognition of the inability of the lot to achieve alternative access to the building envelope a larger APZ over the minimum is proposed to provide increased area of Defendable Space around the building.

Providing a 40m APZ to accommodate **BAL-12.5** radiant heat setbacks based onForest vegetation (**Table 2**), will provide double the Acceptable Solution distance of 20m.

Acceptance Criteria:

The proposed radius of the APZ is established to withstand Radiant Heat levels exceeding 12.5kW/m² (BAL-12.5).

Quantitative Assessment Process

APZ is established and managed in perpetuity in accordance with Table A1.12.6 (FDI 80) of Appendix 1 of PBP. (see below recommendations)

The Bush Fire Attack Level (BAL) will remain at the acceptable solution of **BAL-29** (Section 3.2)

APZ Recommendations:

- At the commencement of building works and in perpetuity, a minimum 40m around the dwelling, shall be managed as an Inner Protection Area (IPA) in accordance with Appendix 4 of PBP.

- When establishing an IPA, the following requirements are recommended:
    - Tree canopy cover be less than 15% at maturity;
    - Trees at maturity are not touching or overhang the building;
    - Lower limbs are removed up to a height of 2m above the ground;
    - Tree canopies are separated by 2 to 5m;
    - Preference is given to smooth-barked and evergreen trees;
    - Large discontinuities or gaps in vegetation are provided to slow down or break the progress of fire towards buildings;
    - Shrubs are not located under trees or form more than 10% of ground cover;
    - Clumps of shrubs are separated from exposed windows and doors by a distance of at least twice the height of the vegetation.
    - Grass to be kept mown (as a guide grass no more than 100mm in height);

3.2 Construction standards

The appropriate design and construction of buildings enhance their survivability from bush fires

Table 5: Relevant Construction Standards Performance Criteria, Acceptable Solution and Compliance:

PERFORMANCE CRITERIA	ACCEPTABLE SOLUTION (DTS)	COMPLIANCE
The proposed building can withstand bush fire attack in the form of embers, radiant heat and flame contact	BAL is determined in accordance with Table A1.12.5 Construction provided in accordance with the NCC and as modified by section 7.5	☑Can comply Refer Recommendations.
proposed fences and gates are designed to minimise the spread of bush fire.	fencing and gates are constructed in accordance with section 7.6.	☑ Can comply. Refer Recommendations.
proposed Class 10a buildings are designed to minimise the spread of bush fire.	Class 10a buildings are constructed in accordance with section 8.3.2.	☑ Can comply. Refer Recommendations.

Note: A larger APZ is proposed in-lieu of Access limitations (Section 3.3). No change to the Acceptable Solution for construction is recommended.

AS3959 – 2018

- New construction the shall comply to Section 3 (Construction General) and Section 7 **(BAL–29)** of *Australian Standard AS 3959-2018 'Construction of buildings in bushfire-prone areas* as (AS 3959 – 20018);

- In accordance with Section 7.5.2 of PBP, variations to AS 3959 apply in NSW for the purposes of NSW G5.2(a)(i) of Volume One of the NCC. The relevant clauses relate to sarking, subfloors within BAL 12.5 and BAL-19, fascia and bargeboards within BAL-40.

Adjacent Structures - Sheds, Carports, Garages:

There are no bush fire protection requirements for Class 10a buildings located more than 6m from a dwelling in bush fire prone areas. For structures <6m , the BAL of the main dwelling applies.

Fences and Gates:

All fences in bush fire prone areas should be made of either hardwood or non-combustible material. In circumstances where the fence is within 6m of a building or in areas of BAL-29 or greater, they should be made of non-combustible material only.

3.3 Access arrangements

Design of access roads shall enable safe access and egress for residents attempting to leave the area at the same time that emergency service personnel are arriving to undertake firefighting operations.

The existing private access road is approximately 1.5Km from the public road to the proposed building envelope.

Strict compliance with the Acceptable solution under PBP is not achievable in relation to the ability to provide an alternative access road due to limitations on the shape and area of the subject lot.

Direct compliance with the Performance Criteria *"firefighting vehicles can access the dwelling and exit the property safely"* will be satisfied by a recommending larger APZ over the minimum under PBP with no recommended reduction in the BAL (Section 3.1).

The larger 40m APZ (double the Acceptable Solution distance) can support a larger Defendable Space area for Emergency Personnel

Additionally, it is noted:

- Access road passes through open ground and unlikely to be cut off by wild fire;
- A vehicle doing 20km/hr from the dwelling location along the private road back to Kaludabah Road will take approximately 4.5 minutes;
- Kaludabah road provides opportunity to head west Castlereagh Hwy being main arterial all weather road leading towards Mudgee 20mins away.

Performance Solution 2.

In recognition of the inability of the lot to achieve alternative access to the building envelope, a larger APZ over the minimum is proposed, to support **BAL-12.5** radiant heat setbacks, in accordance with Table A1.12.6 (FDI 80) of Appendix 1 of PBP for Forest vegetation (refer **Table 2**).

Acceptance Criteria:

The proposed radius of the APZ is established to withstand Radiant Heat levels exceeding 12.5kW/m² (BAL-12.5).

Quantitative Assessment Process

40m Proposed APZ to be established

The Bush Fire Attack Level (BAL) will remain at the acceptable solution of **BAL-29** (Section 3.2)

Access Recommendations:

- Private access road (Driveway) to be constructed and maintained in accordance with the performance criteria within Table 7.4a of PBP 2019, as outlined in **Table 6** below.

Table 6: Relevant APZ Performance Criteria, Acceptable Solution and Compliance:

PERFORMANCE CRITERIA	ACCEPTABLE SOLUTION (DTS)	COMPLIANCE
The intent may be achieved where:		
firefighting vehicles are provided with safe, all-weather access to structures and hazard vegetation.	Property access roads are two-wheel drive, all-weather roads.	**To comply**
the capacity of access roads is adequate for firefighting vehicles.	Capacity of road surfaces and any bridges/causeways is sufficient to carry fully loaded firefighting vehicles (up to 23 tonnes), bridges and causeways are to clearly indicate load rating.	**To comply**
there is appropriate access to water supply.	Suitable access for a Category 1 fire appliance to within 4m of the static water supply where no reticulated supply is available.	**To comply**
firefighting vehicles can access the dwelling and exit the property safely.	At least one alternative property access road is provided for individual dwellings (or groups of dwellings) that are located more than 200 metres from a public through road	**Can comply with Performance criteria** **Performance Solution 1**
	Minimum 4m carriageway width;	**To comply**
	In forest, woodland and heath situations, rural property roads have passing bays every 200m that are 20m long by 2m wide, making a minimum trafficable width of 6m, at the passing bay;	**Not applicable** Access will not pass through Forest Woodland or Heath
	Minimum vertical clearance of 4m to any overhanging obstructions, including tree branches; property access	**To comply**
	Curves have a minimum inner radius of 6m and are minimal in number to allow for 6rapid access and egress;	**To comply**
	Minimum distance between inner and outer curves is 6m;	**To comply**

PERFORMANCE CRITERIA	ACCEPTABLE SOLUTION (DTS)	COMPLIANCE
	The crossfall is not more than 10 degrees;	**To comply**
	Crossfall is not more than 10 degrees; maximum grades for sealed roads do not exceed 15 degrees and not more than 10 degrees for unsealed roads;	**To comply**
	Development comprising more than three dwellings has formalised access by dedication of a road and not by right of way.	**Not applicable**

3.4 Water supply

An adequate supply of water is essential for firefighting purposes. The water supply would enable occupants to stay and defend if chosen to and allow fire-fighting personnel to attach equipment for use.

Table 7: Relevant Water Supply Performance Criteria, Acceptable Solution and Compliance:

PERFORMANCE CRITERIA	ACCEPTABLE SOLUTION (DTS)	COMPLIANCE
Adequate water supply is provided for firefighting purposes.	a static water supply is provided where no reticulated water is available.	☑ Can comply. Refer Recommendations.
a static water supply is provided for firefighting purposes in areas where reticulated water is not available	Refer Recommendations for list of relevant Acceptable Solutions for compliance.	☑ Can comply. Refer Recommendations.

Water Supply Recommendations:

- Rural lots (>10,000m2) require a 20,000-litre static water supply tank with unobstructed access will be provided.
- A hardened ground surface for truck access is supplied within 4m;
- 65mm Storz outlet with a metal ball valve is fitted to the outlet, located within the IPA or non-hazard side, and away from the structure;
- Exposed water pipes are adequate for water flow and are metal including any fittings;
- The supply pipes from tank to ball valve have the same bore size to ensure flow volume;
- Underground tanks are clearly marked and have an access hole of 200mm to allow refill direct from the tank;
- Above-ground tanks are manufactured from concrete or metal;
- Raised tanks have their stands constructed from non -combustible materials;
- Tanks on the hazard side of a building are provided with adequate shielding for the protection of firefighters;
- Where pumps are provided, they are a minimum 5hp or 3kW petrol or diesel-powered pump, and are shielded against bush fire attack;
- Any hose and reel for firefighting be connected to the pump and be 19mm internal diameter, and firehose reels are constructed in accordance with AS/NZS 1221:1997, and installed in accordance with the relevant clauses of AS 2441:2005;

3.5 Electricity services

The location of electricity services limits the possibility of ignition of surrounding bush land or the fabric of buildings. Relevant Acceptable Solutions in Table 7.4a of PBP for Electricity services:

Table 8: Relevant Water Supply Performance Criteria, Acceptable Solution and Compliance:

PERFORMANCE CRITERIA	ACCEPTABLE SOLUTION (DTS)	COMPLIANCE
Location of electricity services limits the possibility of ignition of surrounding bush land or the fabric of buildings.	Where practicable, electrical transmission lines are underground; Where overhead, are installed with short pole spacing (30m), unless crossing gullies, gorges or riparian areas; No part of a tree is closer to a power line than the distance set out in accordance with the specifications in ISSC3 *Guideline for Managing Vegetation Near Power Lines.*	☑ Can comply Refer recommendations.

Electricity Services Recommendations:

- Where practicable, new electrical transmission lines are underground;
- Where overhead, are installed with short pole spacing (30m), unless crossing gullies, gorges or riparian areas; and
- No part of a tree is closer to a power line than the distance set out in accordance with the specifications in *ISSC3 Guideline for Managing Vegetation Near Power Lines.*

3.6 Gas services

The location and design of gas services will not lead to ignition of surrounding bushland or the fabric of buildings.

Table 9: Relevant Gas Supply Performance Criteria, Acceptable Solution and Compliance:

PERFORMANCE CRITERIA	ACCEPTABLE SOLUTION (DTS)	COMPLIANCE
Location and design of gas services will not lead to ignition of surrounding bushland or the fabric of buildings.	Reticulated or bottled gas is installed and maintained in accordance with AS/NZS 1596:2014 and the requirements of relevant authorities, and metal piping is used; All fixed gas cylinders are kept clear of all flammable materials to a distance of 10m and shielded on the hazard side; All connections to and from gas cylinders are metal (polymer sheathed flexible gas supply lines are not used) Above-ground gas service pipes are metal, including and up to any outlets.	☑ Can comply Refer recommendations.

Gas Services Recommendations:

- Reticulated or bottled gas is installed and maintained in accordance with AS/NZS 1596:2014 and the requirements of relevant authorities, and metal piping is used;
- All fixed gas cylinders are kept clear of all flammable materials to a distance of 10m and shielded on the hazard side;
- Connections to and from gas cylinders are metal;
- Polymer-sheathed flexible gas supply lines are not used; and
- Above-ground gas service pipes are metal, including and up to any outlets.

3.7 Landscaping

Landscaping within the APZ is designed and managed in accordance with the requirements of 'Asset protection zone standards' outlined in Appendix 4 of PBP – 2019.

Table 10: Relevant Landscaping Performance Criteria, Acceptable Solution and Compliance:

PERFORMANCE CRITERIA	ACCEPTABLE SOLUTION (DTS)	COMPLIANCE
landscaping is designed and managed to minimise flame contact and radiant heat to buildings, and the potential for wind-driven embers to cause ignitions	Compliance with the NSW RFS '*Asset protection zone standards*' Clear area of low-cut lawn or pavement is maintained adjacent to the house; Fencing is constructed in accordance with section 7.6; and Trees and shrubs are located so that branches will not overhang the roof; the tree canopy is not continuous; and any proposed windbreak is located on the elevation from which fires are likely to approach.	☑ Can comply. Refer Recommendations.

Landscaping Recommendations:

- 1m wide area suitable for pedestrian traffic provided around the curtilage of the building;
- Planting is limited in the immediate vicinity of the building;
- Planting does not provide a continuous canopy to the building (i.e. Plants are isolated)
- Landscape species are chosen to ensure tree canopy cover is less than 15% at maturity;
- Trees do no touch or overhang buildings;
- Avoid species with rough fibrous bark, or which retain/shed bark in long strips;
- Use smooth bark trees species which generally do not spread fire up into the crown;
- Avoid planting of deciduous species that increase fuel at surface/ ground level (i.e. leaf litter); Avoid climbing species to walls and pergolas;
- Locate combustible materials such as mulch, flammable fuel stores away from the building;
- Locate combustible structures such as garden sheds, pergolas and materials such as timber garden furniture away from the building;
- Low flammability vegetation species are used.
- Fencing within 6m of a building or in areas of BAL-29 or greater are made of non-combustible material only.

3.8 Emergency Management

It is recommended that residents living in a Bush fire Prone Area are encouraged to prepare a Bush fire Survival Plan. The plan should include:

1. Triggers for leaving early in the event of a bush fire or deciding to stay if well prepared.
2. Checklists –
    a. Equipment and Protective clothing checklist
    b. Action checklist – before, during and after the fire.
3. Preparing your home to make it safer.
4. Awareness of current Bush fire Alert Levels and Fire Danger Ratings
5. Key information sites include the "Fires Near Me" smartphone app.

Emergency Management Recommendations:

- A simple Bush fire survival plan is prepared for occupants of the dwelling. This plan shall be prepared in accordance with the relevant steps detailed by the NSW Rural Fire Service *Bushfire Survival Plan.*

https://www.rfs.nsw.gov.au/__data/assets/pdf_file/0003/36597/BFSP-Complete.pdf

4 Specific objectives for infill development:

Table 4 lists the specific objectives for Infill development from PBP and how they are satisfied.

Table 11: Specific objectives

Specific Objective	Comment
Provide a defendable space to enable unimpeded access for firefighting around all elevations of the building	• Direct access to public road system with ample space to conduct firefighting operations around the dwelling with compliant and **larger APZ recommended over the Acceptable Solution.**
Provide better bush fire outcome on a redevelopment site than currently exists, consummate to the scale of works proposed	• The proposal can meet all recommended Bush fire protection measures (BPM's) holistically providing a "Better bushfire outcome" than if the development did not proceed. • The provision for dedicated Static Water Supply (SWS) if not already available, represents a significant upgrade.
Design and construct buildings commensurate with the bush fire risk	• Construction works can comply with the prescribed BAL and construction recommendations.
Provide access, services and landscaping to aid firefighting operations	• The proposal can comply with the performance criteria under PBP for access, utilities and landscaping recommended in Section 3.
Not impose an increased bush fire management and maintenance responsibility on adjoining land owners	• The recommended APZ is contained wholly within the subject Lot does not rely or impose a burden on neighbouring Lots.
Increase the level of bush fire protection to existing dwellings based on the scale of the proposed work and level of potential risk	• Construction works can comply with the recommended BAL. • Development will comply with the relevant recommendations for all Bush fire protection measures (BPM's)

5 Conclusions and recommendations

The proposal can meet the requirements for the specific objectives of Infill development by compliance with the acceptable or performance solutions for all BPM's within 'PBP-2019.'

Table 12: Conclusions and Recommendations

Performance Criteria	Report Section	Summary of Recommendations
Asset Protection Zones	3.1	• Minimum 40m around the dwelling to be managed as an Inner Protection Area (IPA) in accordance with Appendix 4 of PBP
Construction standards	3.2	• New construction to comply with Section 3 (General) and 5 (**BAL-29**) of AS3959-2018; including variations to AS 3959 apply in NSW under Section 7.5.2 of PBP • Adjacent structures: BAL construction requirements of the main occupancy or separated by a minimum of 6m • Fences and gates: hardwood or non-combustible material
Access	3.3	• Property access road to be upgraded and maintained in accordance with the requirements outlined in **Table 6**
Water supply	3.4	• 20,000L dedicated for firefighting purposes with 65mm Storz fitting using metal only fittings. Hard stand area available within 4m.
Electricity service	3.5	• New electrical transmission lines are underground. • Any new transmission lines and poles to be installed in compliance with ISSC3 *Guideline for Managing Vegetation Near Power Lines*.
Gas service	3.6	• Gas services are to be installed and maintained in accordance with AS/NZS 1596:2014. Above-ground gas service pipes, connections and outlets are metal. Gas cylinders kept clear of flammable materials to 10m
Landscaping	3.7	• Designed and managed in accordance with Appendix 4 of *PBP*
Emergency Management	3.8	• Bush fire survival plan is prepared for occupants of the dwelling.

Provided the development, APZ areas, Landscaping, Access and Utilities on site are constructed, designed and maintained in accordance with the recommendations described in this report, the proposed development can satisfy the aims, objectives and performance requirements of PBP 2019 considered relevant to the development under Section 4.14 of the EP&A Act 1974

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6 Disclaimer

Client uses only	This document is intended for client use only. This document must be used for the stated purpose only. It must not be distributed to a third party or used for an alternative purpose without written approval of the author.
Limit Liability	The author is not liable to any person for damage or loss of life resulting from actions taken or not taken as recommended in this report.
Changeable guidelines	This report is based on the author's interpretation of *Planning for Bush Fire Protection 2019 (PBP)* and *Australian Standard AS 3959-2018 'Construction of buildings in bushfire-prone areas* as at the time of writing.
Conflict of interest	This report reflects the opinions and recommendations of the author only, and not those of the Rural Fire Service (RFS). Should Council or the RFS modify the recommendations or reject an assessment or proposal the author will not be held liable for any financial loss incurred as a result.
Remaining risk	Notwithstanding the recommendations made by the author, there can be no absolute guarantee that a bushfire will not occur or cause damage to property because of the extreme number of variables that bushfires present.
Measures not upheld in perpetuity	It is the responsibility of the client to maintain all bushfire protection measures proposed on an ongoing basis.

7 References

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