A decorative background element on the left side of the page, consisting of a series of concentric, irregular contour lines in a light grey color, resembling a topographic map. The lines are more densely packed in some areas and more spread out in others, creating a sense of depth and terrain.

Bushfire Protection Assessment
Proposed Dual Occupancy
17 Buckaroo Road, Buckaroo

David Boekemann

DOCUMENT TRACKING

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LIMITATIONS

The bushfire protection measures recommended in this report do not completely remove the risk to life and property, and they do not guarantee that a development will not be impacted by a bushfire event. This is substantially due to the degree of vegetation management, the unpredictable nature and behaviour of fire, and extreme weather conditions.

ACKNOWLEDGEMENTS

This document has been prepared by Eco Logical Australia Pty Ltd with support from David Boekemann

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Abbreviations

Abbreviation	Description
AS 3959	Australian Standard (AS) 3959-2018 'Construction of buildings in bushfire-prone areas'
APZ	Asset Protection Zone
BAL	Bushfire Attack Level
BFPL	Bush fire prone land
BPM	Bushfire protection measures
BFSA	Bush fire safety authority
DA	Development application
DtS	Deemed-to-satisfy
EP&A Act	<i>Environmental Planning and Assessment Act 1979</i>
FDI	Fire Danger Index
IPA	Inner Protection Area
NASH	National Association of Steel-framed Housing
NCC	National Construction Code
PBP	'Planning for Bush Fire Protection 2019'
RF Act	<i>Rural Fires Act 1997</i>
RF Reg	<i>Rural Fires Regulation 2013</i>
RFS	NSW Rural Fire Service

1. Property and proposal

Table 1 below identifies the subject property and outlines the type of development proposed.

Table 1: Subject site and development proposal summary

Street address:	17 Buckaroo Road, Buckaroo
Postcode:	2850
Lot/DP no:	Lot 123 DP 755418
Local Government Area:	Mid-Western Regional Council
Fire Danger Index (FDI)	80
Current land zoning:	RU4 – Primary Production Small Lots
Type of development proposed:	Dual occupancy

1.1 Description of proposal

The proposal is for alterations / additions to the existing residence, pool and a new cabin on the subject land (see Figure 1).

The alterations / additions to the existing dwelling are to the north-east and south-east extent of the dwelling. The new secondary dwelling (cabin) contains habitable space including dining, bedroom and bathroom facilities. Both are single storey structures only.

The floor plans for the existing dwelling (with proposed alterations / additions) and new cabin are shown in Figure 2 and Figure 3.

The proposed development is located on land classified as bush fire prone on the Mid-Western Regional Council Bush Fire Prone Land (BFPL) map¹.

1.2 Assessment process

The proposal was assessed in accordance with Section 4.14 of the *Environmental Planning and Assessment Act 1979* and the requirements for increased residential densities, including dual occupancy, in Section 8.2.1 of *Planning for Bush Fire Protection 2019*, herein referred to as PBP (RFS 2019).

This assessment is based on the following information sources:

- Background documentation provided by David Boekemann;
- Information contained within the site plan (Project 1803 / Drawing DA 10) from Natalie Matthews Architects dated 8 April 2022;
- GIS analysis including online spatial resources (i.e. Google Maps, ARCGIS Earth, SIX Maps, Nearmap and the NSW Government Planning Portal); and
- Site inspection previously undertaken on 31 October 2020 in preparation of a previous ELA Bushfire Protection Assessment report (project number 20SYD_17413) for the proposed demolition of an old mud and metal brick hall and replacement of this structure with a new

¹ <https://www.planningportal.nsw.gov.au/spatialviewer/#/find-a-property/address>

single-storey two-bedroom secondary dwelling (dated the 25 November 2020). This proposal has since been withdrawn.

Table 2 identifies the bushfire protection measures assessed and whether an acceptable or performance solution is being proposed by the proponent.

Table 2: Summary of bushfire protection measures assessed

Bushfire Protection Measure	Acceptable Solution	Performance Solution	Report Section
Asset Protection Zones	<input checked="" type="checkbox"/>	<input type="checkbox"/>	3.1
Landscaping	<input checked="" type="checkbox"/>	<input type="checkbox"/>	3.2
Construction standard	<input checked="" type="checkbox"/>	<input type="checkbox"/>	3.3
Access	<input checked="" type="checkbox"/>	<input type="checkbox"/>	3.4
Water supply	<input checked="" type="checkbox"/>	<input type="checkbox"/>	3.5
Electrical services	<input checked="" type="checkbox"/>	<input type="checkbox"/>	3.6
Gas services	<input checked="" type="checkbox"/>	<input type="checkbox"/>	3.7

1.3 Significant environmental features

An assessment of significant environmental features, threatened species, populations or ecological communities under the *Biodiversity Conservation Act 2016* that may potentially be affected by the proposed bushfire protection measures has not been undertaken in this report as it is covered by other parts of the Development Application (DA) process.

The impact footprint of the bushfire protection measures (e.g. Asset Protection Zone (APZ) is clearly identified within this report and therefore capable of being assessed by suitably qualified persons as required. Mid-Western Regional Council is the determining authority for this development; they will assess more thoroughly any potential environmental issues.

1.4 Aboriginal cultural heritage

An assessment of any Aboriginal cultural heritage objects (within the meaning of the *National Parks and Wildlife Act 1974*) that may potentially be affected by the proposed bushfire protection measures has not been undertaken in this report as it is covered by other parts of the Development Application (DA) process.

The impact footprint of the bushfire protection measures (e.g. APZ) is clearly identified within this report and therefore capable of being assessed by suitably qualified persons as required. Mid-Western Regional Council is the determining authority for this development; they will assess more thoroughly any potential Aboriginal cultural heritage issues.



1 SITE PLAN
1:2000

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ALL RIGHTS RESERVED. NO PART OF THIS DOCUMENT OR INFORMATION CONTAINED HEREIN MAY BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS WITH OUR WRITTEN PERMISSION. THIS DRAWING AND ANY ARCHITECTS DO NOT SCALE DRAWINGS OR REPRODUCE DIMENSIONS ON THE REPORT. ALL DIMENSIONS TO ARCHITECTURAL WORKING DRAWINGS SHALL BE AS SHOWN. PROJECT NO. 1803
PRINT DATE AND TIME: Friday, 8 April 2022, 2:40 pm



PROJECT
BUCKAROO
540 Ulan Rd Mudgee
NSW

REVISION		
REV ID	ISSUE DATE	DESCRIPTION
D1 - WIP	Work in Progress	
<i>WIP - WORK IN PROGRESS</i> Friday, 8 April 2022		

DATE: Work in Progress
PROJECT NO.: 1803
SCALE: 1:2000 @ A3
DRAWN BY: --
CHECKED BY: --

DRAWING TITLE
SITE PLAN

DRAWING NO.
DA 10

REVISION
01 - WIP

PRELIMINARY - NOT FOR CONSTRUCTION

Figure 1: Site plan

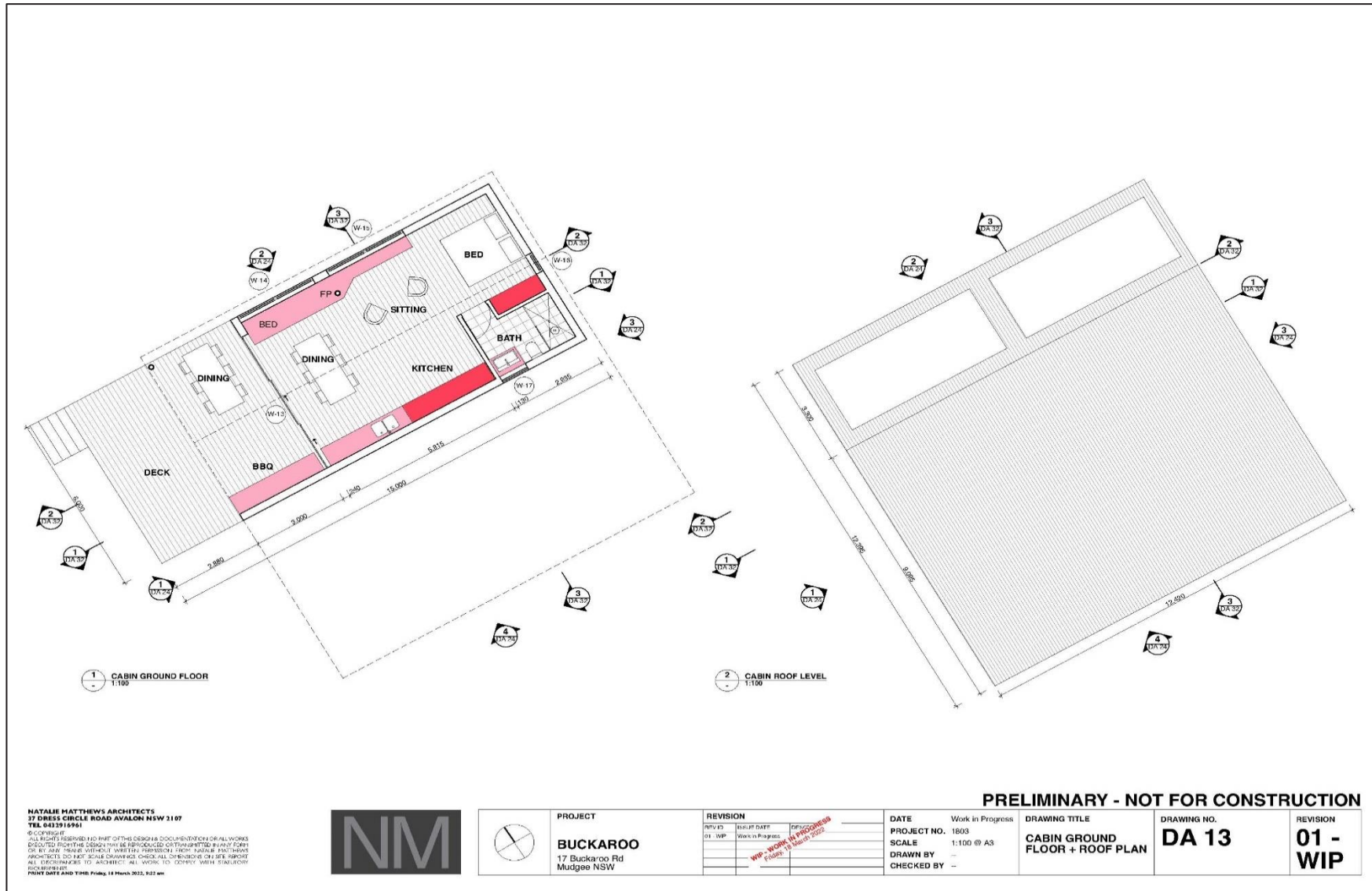


Figure 3: Ground Floor Layout and Roof Plan of Proposed New Cabin

2. Bushfire hazard assessment

2.1 Process

The site assessment methodology set out in Appendix 1 of PBP has been utilised in this assessment to determine the required APZ and Construction requirements.

Figure 4 and Table 3 show the effective slope and predominant vegetation representing the highest bushfire threat potentially posed to the proposed secondary dwelling from various directions.

2.2 Vegetation assessment

In accordance with PBP, the predominant vegetation formation has been assessed for a distance of at least 140 m from the subject building in all directions.

The predominant vegetation has been determined by site assessment.

2.3 Slope assessment

In accordance with PBP, the slope that would most significantly influence fire behaviour was determined over a distance of 100 m from the boundary of the proposed development under the classified vegetation.

The effective slope has been determined from 10 m contour data and revised where required by site assessment.

2.4 Summary of assessment

The bushfire hazard is located in all directions from the proposed development (existing residential dwelling with alterations / additions and new cabin) and is classified as 'Grassland' by PBP.

The subject land surrounding the existing residential dwelling and the new cabin has the capacity for the setback to the bushfire hazard to be expanded to exceed the minimum 'required' Asset Protection Zones of Table A1.12.3 of PBP to those 'available' distances within the property and are shown in Table 3 and Figure 4.

The effective slope on Transects 1-8 falls into the slope categories of 'all upslope and flat land' or '>0 to 5 degrees down slope' as shown in Table 3 and Figure 4 .

Photos of the site and adjoining land can be found in Section 7.

Table 3: Bushfire hazard assessment, APZ requirements and BALs

Transect #	Slope	Vegetation Formation	Required APZ	Available APZ	Bushfire Attack Level (BAL)	Comments
Proposed secondary dwelling (Cabin)						
1 North-west	>0 to 5 degrees downslope	Grassland	11 m	23 m	BAL-12.5	An enlarged APZ is proposed to reduce the construction standard to BAL-12.5. The APZ can be provided within the subject land. Manage as an IPA in perpetuity.
2 North-east	All upslope and flat land	Grassland	10 m	20 m	BAL-12.5	An enlarged APZ is proposed to reduce the construction standard to BAL-12.5. The APZ can be provided within the subject land. Manage as an IPA in perpetuity.
3 South-east	All upslope and flat land	Grassland	10 m	20 m	BAL-12.5	An enlarged APZ is proposed to reduce the construction standard to BAL-12.5. The APZ can be provided within the subject land. Manage as an IPA in perpetuity.
4 South-west	>0 to 5 degrees downslope	Grassland	11m	23 m	BAL-12.5	An enlarged APZ is proposed to reduce the construction standard to BAL-12.5. The APZ can be provided within the subject land. Manage as an IPA in perpetuity.
Existing primary dwelling (with alterations / additions)						
5 North-west	>0 to 5 degrees downslope	Grassland	11m	23 m	BAL-12.5	An enlarged APZ is proposed to reduce the construction standard to BAL-12.5. The APZ is provided within the subject land. Continue to manage as an IPA in perpetuity.
6 North-east	All upslope and flat land	Grassland	10 m	20 m	BAL-12.5	An enlarged APZ is proposed to reduce the construction standard to BAL-12.5. The APZ is provided within the subject land. Continue to manage as an IPA in perpetuity.
7 South-east	All upslope and flat land	Grassland	10 m	20 m	BAL-12.5	An enlarged APZ is proposed to reduce the construction standard to BAL-12.5. The APZ is provided within the subject land. Continue to manage as an IPA in perpetuity.
8 South-west	>0 to 5 degrees downslope	Grassland	11m	23 m	BAL-12.5	An enlarged APZ is proposed to reduce the construction standard to BAL-12.5. The APZ is provided within the subject land. Continue to manage as an IPA in perpetuity.

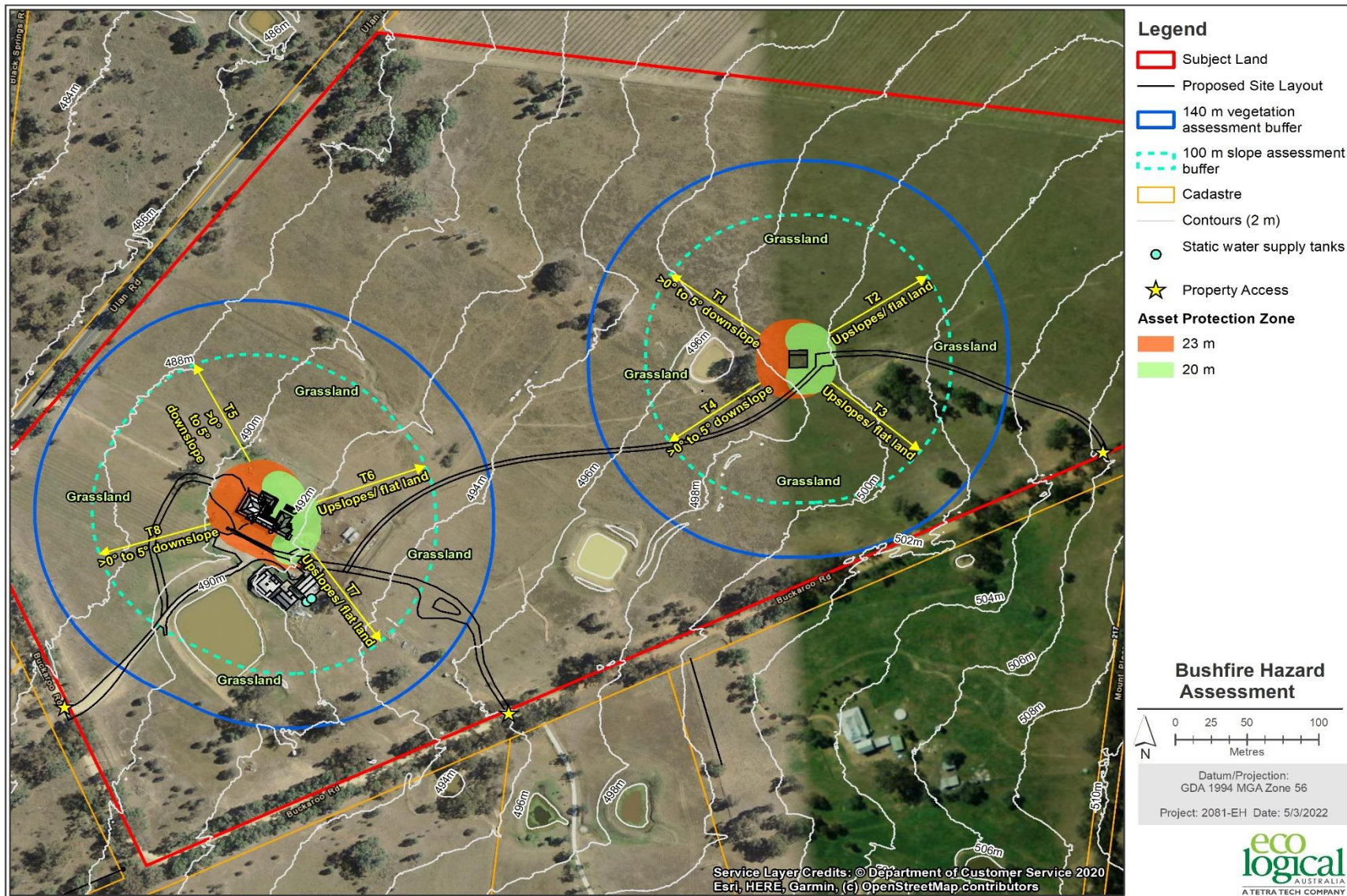


Figure 4: Bushfire Hazard Assessment

3. Bushfire protection measures

3.1 Asset Protection Zones

Table 3 shows the dimensions of the required APZ and where relevant, information on how the APZ is to be provided is included. The footprint of the APZ is also shown on Figure 4.

The compliance of the proposed APZ with regards to Section 5.3 of PBP, is detailed in Table 4.

Table 4: APZ requirements and compliance

Performance Criteria	Acceptable Solutions	Compliance Notes
The intent may be achieved where:		
Potential building footprints will not be exposed to radiant heat levels exceeding 29 kW/m ² on each proposed lot.	APZs are provided in accordance with Tables A1.12.2 and A1.12.3 based on the FDI.	Complies APZ exceeds the requirements of Table A1.12.3 as shown in Table 3 and Figure 4.
APZs are managed and maintained to prevent the spread of a fire towards the building.	APZs are managed in accordance with the requirements of Appendix 4 of PBP.	Can Comply APZ is currently in place around existing dwelling and new APZ around cabin can be established. All APZ to be managed to IPA standards.
The APZ is provided in perpetuity.	APZs are wholly within the boundaries of the development site.	Complies The proposed development has APZs which are contained within the subject development site.
APZ maintenance is practical, soil stability is not compromised and the potential for crown fires is minimised.	APZs are located on lands with a slope less than 18 degrees.	Complies APZ is not located on slopes greater than 18°.

3.2 Landscaping

The compliance of the proposed landscaping with regards to Section 7.4 of PBP is detailed in Table 5.

Table 5: Landscaping requirements and compliance

Performance Criteria	Acceptable Solutions	Compliance Notes
The intent may be achieved where:		
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' (see Appendix 4 of PBP);	To comply APZ/landscaping is to be managed in accordance with PBP. Landscaping specifications provided in Appendix A
	A clear area of low-cut lawn or pavement is maintained adjacent to the house;	To comply
	Fencing and retaining walls are constructed in accordance with Section 7.6; and	Not applicable No fencing/retaining walls proposed.
Trees and shrubs are planted such that:	<ul style="list-style-type: none"> the branches will not overhang the roof; the tree canopy is not continuous; and 	To comply

Performance Criteria	Acceptable Solutions	Compliance Notes
	<ul style="list-style-type: none"> if proposed, a windbreak is located on the elevation from which fires are likely to approach. 	

3.3 Construction standards

The building construction standard for the existing dwelling (with proposed alterations / additions) and the new proposed cabin (secondary dwelling) is based on determination of the Bushfire Attack Level (BAL) in accordance with PBP and then applying the appropriate construction specifications.

The compliance of the proposed construction with regards to Section 7.4 of PBP is detailed in Table 6.

Table 6: Construction requirements (adapted from Table 7.4a of PBP)

Performance Criteria	Acceptable Solutions	Compliance Notes
The intent may be achieved where:		
The proposed building can withstand bush fire attack in the form of embers, radiant heat and flame contact.	BAL is determined in accordance with Tables A1.12.5 to A1.12.7 of PBP.	Complies BAL determined in accordance with table A1.12.6 as shown in Table 3.
	Construction provided in accordance with the National Construction Code (NCC) and as modified Section 7.5 of PBP.	Can comply
Proposed fences and gates are designed to minimise the spread of bush fire.	Fencing and gates are constructed in accordance with Section 7.6 of PBP.	Not applicable No fencing/retaining walls proposed.
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 of PBP.	Not applicable No Class 10a buildings proposed.

3.3.1 Bushfire Attack Level (BAL)

The building construction standard is based on the determination of the BAL in accordance with Appendix 1 of PBP. The BAL is based on known vegetation type, effective slope and managed separation distance between the development and the bushfire hazard. The existing dwelling (with proposed alterations / additions) and the new proposed cabin (secondary dwelling) will be exposed to **BAL-12.5** as identified in Table 3.

3.3.2 Construction requirements

The Deemed to Satisfy (DtS) provisions of the NCC for construction requirements for buildings in designated bush fire prone areas are specified in:

- AS 3959:2018 'Construction of buildings in bushfire-prone areas' (SA 2018); and
- NASH Standard: Steel Framed Construction in Bushfire Areas 2014 (NASH 2014).

Construction has been determined as **BAL-12.5** and shall comply with Sections 3 and 5 of AS 3959:2018 or NASH Standard 1.7.14 as appropriate.

3.3.3 Additional construction requirements

For construction complying with the specifications detailed in AS 3959:2018, the additional ember protection provisions identified in Section 7.5 in PBP apply as required.

For construction complying with the specifications detailed in the NASH standard, all gaps in roofing assemblies shall be limited to 2 mm unless protected with ember guards made of non-combustible materials, a mesh or perforated sheet with a maximum aperture of 2 mm made of corrosion-resistant steel or bronze or protected with mineral wool or other non-combustible material.

3.3.4 Existing dwelling upgrades

The following construction upgrades are proposed for the existing dwelling as part of the proposed alterations / additions:

- Enclose all openings or cover openings with a non-corrosive aluminium, bronze or steel metal mesh. Where applicable, this includes openable portion of windows, vents, weepholes and eaves (excludes roof tile spaces);
- Subfloor space to be enclosed or screened as outlined above; and
- Affix draught excluders/weather strips to the base of all side-hung external doors.

3.4 Access

The subject land is located adjoining Buckaroo Road. The existing dwelling and outbuildings are accessed via an existing gravel property access road of approximately 180 m in length to the south-west as shown in Figure 4 with suitable turning areas provided. The new cabin is proposed to be accessed via a new established property access road approximately 240m off the existing public road (Buckaroo Road). An additional newly proposed property access road will also be provided between the new cabin and the existing dwelling (with alterations / additions) providing two alternate road access points onto Buckaroo Road.

The compliance of the proposed property access with Section 7.4 of PBP is detailed in Table 7.

Table 7: Property access requirements

Performance Criteria	Acceptable Solutions	Compliance notes
The intent may be achieved where:		
Firefighting vehicles are provided with safe, all-weather access to structures and hazard vegetation.	Firefighting vehicles are provided with safe, all-weather access to structures and hazard vegetation.	<p>Complies</p> <p>Existing 180 m gravel property access road, approximately 4 m wide, provides access from Buckaroo Road to the existing dwelling.</p> <p>Newly proposed gravel road to 4m wide, provides access to the proposed cabin from Buckaroo Road and the existing dwelling.</p> <p>Both provide access to structures for firefighting vehicles.</p>
The capacity of access roads is adequate for firefighting vehicles	The 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.	<p>Complies</p> <p>Existing access complies. No bridges in place. New access to comply. No new bridges proposed.</p>
There is appropriate access to water supply.	<p>Hydrants are provided in accordance with the relevant clauses of AS 2419.1:2005;</p> <p>There is suitable access for a Category 1 fire appliance to within 4 m of the static water supply where no reticulated supply is available.</p>	<p>Not applicable</p> <p>Complies</p> <p>Existing access for Category 1 tanker to within 4m of static water supply tank.</p>

Performance Criteria	Acceptable Solutions	Compliance notes
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;	<p>Complies</p> <p>Property access is approximately 180 m to the existing dwelling off Buckaroo Road.</p> <p>New cabin access road is 240 m off Buckaroo Road. New access road will link to existing internal property access roads to provide an additional alternate access point back onto the public through road system (Buckaroo Road). See Figure 1 and Figure 4.</p>
	There are no specific access requirements in an urban area where an unobstructed path (no greater than 70 m) is provided between the most distant external part of the proposed dwelling and the nearest part of the public access road (where the road speed limit is not greater than 70 kph) that supports the operational use of emergency firefighting vehicles.	Not applicable
	In circumstances where this cannot occur, the following requirements apply:	
	Minimum 4 m carriageway width;	<p>Complies</p> <p>Existing property access \geq 4 m wide</p> <p>All new property access to comply with 4m carriageway width.</p>
	In forest, woodland and heath situations, rural property access roads have passing bays every 200 m that are 20 m long by 2 m wide, making a minimum trafficable width of 6 m at the passing bay;	<p>Not applicable</p> <p>Property access through grassland.</p>
	A minimum vertical clearance of 4 m to any overhanging obstructions, including tree branches;	<p>Complies</p> <p>Any required tree works as required to ensure 4 m vertical clearance from any overhanging trees along property access roads.</p>
	Provide a suitable turning area in accordance with Appendix 3 of PBP;	<p>Not applicable</p> <p>Through property roads to both existing dwelling (with alterations / additions) and new cabin. No dead end property roads present on site requiring suitable turning area to PBP requirements.</p>
	Curves have a minimum inner radius of 6 m and are minimal in number to allow for rapid access and egress;	Complies
	The minimum distance between inner and outer curves is 6m;	Complies
	The crossfall is not more than 10 degrees;	Complies
Maximum grades for sealed roads do not exceed 15 degrees and not more than 10 degrees for unsealed roads;	Complies	

Performance Criteria	Acceptable Solutions	Compliance notes
	A development comprising more than three dwellings has access by dedication of a road and not by right of way.	Not applicable Dual occupancy proposed.

3.5 Water supplies

Two above ground static water supply tanks totalling 132,000 L (22,000 L and 110,000L) exist on the property. These tanks are located adjoining the shed to the east of the location of the existing dwelling as shown in Figure 4 The compliance of the proposed water supply with regards to Section 7.4 of PBP is detailed in Table 8.

Table 8: Water supply requirements

Performance Criteria	Acceptable Solution	Compliance Notes
An adequate water supply is provided for firefighting purposes.	<ul style="list-style-type: none"> Reticulated water is to be provided to the development where available; A static water supply and hydrant supply is provided for non-reticulated developments or where reticulated water supply cannot be guaranteed; and Static water supplies shall comply with Table 5.3d of PBP. 	<p>Not applicable</p> <p>Complies Two static water supply tanks available on the property totalling 132,000 L. In addition, there are large farm dams.</p>
Water supplies are located at regular intervals; and The water supply is accessible and reliable for firefighting operations.	<ul style="list-style-type: none"> Fire hydrant, spacing, design and sizing complies with the relevant clauses of Australian Standard AS 2419.1 (SA 2005); Hydrants are not located within any road carriageway; and Reticulated water supply to urban subdivisions uses a ring main system for areas with perimeter roads. 	<p>Not applicable No reticulated water supply</p>
Flows and pressure are appropriate.	Fire hydrant flows and pressures comply with the relevant clauses of AS 2419.1 (SA 2005).	<p>Not applicable No reticulated water supply.</p>
The integrity of the water supply is maintained.	<p>All above-ground water service pipes are metal, including and up to any taps; and</p> <p>Above-ground water storage tanks shall be of concrete or metal.</p>	<p>Can comply Proposal to ensure all above ground pipes are metal including taps</p> <p>Complies The existing primary 110,000L water storage tank is metal. The other 22,000L tank on site is plastic.</p>
A static water supply is provided for firefighting purposes in areas where reticulated water is not available	<ul style="list-style-type: none"> where no reticulated water supply is available, water for firefighting purposes is provided in accordance with Table 5.3d; and <ul style="list-style-type: none"> a connection for firefighting purposes is located within the IPA or non-hazard side and away from the structure; 65 mm Storz outlet with a ball valve is fitted to the outlet; and ball valve and pipes are adequate for water flow and are metal; and supply pipes from tank to ball valve have the same bore size to ensure flow volume; and 	<p>Can comply. Proposal is to ensure a static water supply with a minimum capacity of 20,000 L is provided for firefighting purposes at all times within the existing tanks and this supply needs to be plumbed to a 65 mm Storz fitting within 4 m of</p>

Performance Criteria	Acceptable Solution	Compliance Notes
	<ul style="list-style-type: none"> ○ underground tanks have an access hole of 200 mm to allow tankers to refill direct from the tank; and ○ a hardened ground surface for truck access is supplied within 4 m; and ○ above-ground tanks are manufactured from concrete or metal; and ○ raised tanks have their stands constructed from non-combustible material or bush fire-resisting timber (see Appendix F AS 3959); and ○ unobstructed access can be provided at all times; and ○ underground tanks are clearly marked; and ○ tanks on the hazard side of a building are provided with adequate shielding for the protection of firefighters; and ○ all exposed water pipes external to the building are metal, including any fittings; ○ where pumps are provided, they are a minimum 5 HP or 3 kW petrol or diesel-powered pump and are shielded against bush fire attack; any hose and reel for firefighting connected to the pump shall be 19mm (internal diameter); and ○ fire hose reels are constructed in accordance with AS/NZS 1221:1997 Fire hose reels and installed in accordance with AS 2441:2005 (R2018) Installation of fire hose reels. 	<p>the fire tanker access to the property.</p> <p>Static water supply, associated fittings and at least one portable fire pump are to meet the acceptable solutions of PBP.</p>

3.6 Electricity services

The compliance of the proposed supply of electricity services with regards to Section 5.3 and 7.4 of PBP is detailed in Table 9.

Table 9: Requirements for the supply of Electricity services

Performance Criteria	Acceptable Solution	Compliance Notes
Location of electricity services limits the possibility of ignition of surrounding bush land or the fabric of buildings.	<p>Where practicable, electrical transmission lines are underground;</p> <p>Where overhead, electrical transmission lines are proposed as follows:</p> <ul style="list-style-type: none"> • Lines are installed with short pole spacing (30 m), 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 ISSC3 Guide for the Management of Vegetation in the Vicinity of Electricity Assets (ISSC3 2016). 	<p>Existing electricity supply lines to site are above ground and supply line to dwelling is above ground.</p> <p>Can comply</p> <p>Electricity services to the subject site are located above ground.</p>

3.7 Gas services

The compliance of the proposed supply of gas services (reticulated or bottle gas) with regards to Section 7.4 of PBP is detailed in Table 10:

Table 10: Requirements for the supply of gas services

Performance Criteria	Acceptable Solution	Compliance Notes
Location and design of gas services will not lead to ignition of surrounding bushland or the fabric of buildings.	<p>Reticulated or bottled gas is installed and maintained in accordance with AS/NZS 1596:2014 – The Storage and handling of LP gas, the requirements of relevant authorities, and metal piping is used;</p> <ul style="list-style-type: none"> • All fixed gas cylinders are kept clear of all flammable materials to a distance of 10 m 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. 	<p>Not applicable</p> <p>No reticulated or fixed cylinder gas supply proposed.</p>

4. Conclusion

The proposed development of a new secondary dwelling and the alteration and addition to the existing dwelling complies with the specifications and requirements of 'Planning for Bush Fire Protection 2019', as outlined in Table 11 below.

Table 11: Development Bushfire Protection Solutions and Recommendations

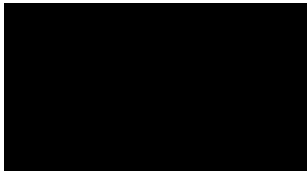
Bushfire Protection Measures	Recommendations	Acceptable Solution	Performance Solution	Report Section
Asset Protection Zones	APZ dimensions are detailed in Table 3 and shown in Figure 4. An enlarged APZ is proposed to reduce the construction standard to BAL-12.5. Identified APZ to be maintained in perpetuity to the specifications detailed in Appendix A.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	3.1
Landscaping	Any future landscaping meets the requirements of PBP listed in Appendix A.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	3.2
Construction standard	The existing dwelling (with alterations/additions) and cabin to be constructed to BAL-12.5 based on the construction specifications detailed in either AS 3959-2018 or the NASH standard. Additional ember provisions detailed in Section 7.5 of PBP are required. Provide additional ember protection upgrades to the existing dwelling (Section 3.3.4).	<input checked="" type="checkbox"/>	<input type="checkbox"/>	3.3
Access	Existing property access road complies with PBP requirements.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	3.4
Water supply	Static water supply to meet PBP acceptable solution specifications.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	3.5
Electricity service	Electricity supply located above ground.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	3.6
Gas service	Gas services are to be installed and maintained in accordance with AS/NZS 1596:2014.	Not applicable	Not applicable	3.7

5. Recommendations

It is recommended that the proposed dual occupancy development be approved in accord with the recommendations outlined in Table 11.



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6. References

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Standards Australia (SA). 2005. *Fire hydrant installations - System design, installation and commissioning*, AS 2419.1:2005, SAI Global, Sydney.

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7. Photos



Photo 1: View of managed land to the northwest of the property near the existing residential dwelling



Photo 2: View of managed land to the south-east within the property



Photo 3: View of managed land to the south-west within the property.



Photo 4: View of managed land to the north-east within the subject property.

Appendix A - Asset protection zone and landscaping standards

The following APZ management specifications in Table 12 apply to the APZs specified in Table 3 and shown in Figure 2. These APZ management specifications should be considered for any landscaping and ongoing management within the subject land.

The APZs identified in Table 3 are to be maintained in perpetuity and management undertaken on an annual basis (as a minimum) and prior to the commencement of the fire season.

Further details on APZ implementation and management can be found on the NSW RFS website (<https://www.rfs.nsw.gov.au/resources/publications>).

Table 12: APZ management specifications

Vegetation Strata	Inner Protection Area (IPA)	Outer Protection Area (OPA)
Trees	<p>Tree canopy cover should be less than 15% at maturity;</p> <p>Trees (at maturity) should not touch or overhang the building;</p> <p>Lower limbs should be removed up to a height of 2 m above ground;</p> <p>Canopies should be separated by 2 to 5 m; and</p> <p>Preference should be given to smooth barked and evergreen trees.</p>	<p>Tree canopy cover should be less than 30%; and</p> <p>Canopies should be separated by 2 to 5 m.</p>
Shrubs	<p>Create large discontinuities or gaps in the vegetation to slow down or break the progress of fire towards buildings should be provided;</p> <p>Shrubs should not be located under trees;</p> <p>Shrubs should not form more than 10% ground cover; and</p> <p>Clumps of shrubs should be separated from exposed windows and doors by a distance of at least twice the height of the vegetation.</p>	<p>Shrubs should not form a continuous canopy; and</p> <p>Shrubs should form no more than 20% of ground cover.</p>
Grass	<p>Should be kept mown (as a guide grass should be kept to no more than 100 mm in height); and</p> <p>Leaves and vegetation debris should be removed.</p>	<p>Should be kept mown to a height less than 100 mm; and</p> <p>Leaf and other debris should be removed.</p>

