

Bushfire Hazard Assessment Report

Planning Proposal

At:
90 Weavers Road, Maroota

Reference Number: 150714

Prepared For:
Max Endicott

17th August 2015



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List of Abbreviations:

APZ	Asset Protection Zone
AS3959	Australian Standard 3959 – 2009 as amended.
BAL	Bushfire Attack Level
BCA	Building Code of Australia
BPMS	Bushfire Protection Measures
BPLM	Bushfire Prone Land Map
Council	The Hills Council
DA	Development Application
EP&A Act	<i>Environmental Planning and Assessment Act - 1979</i>
ESD	Ecologically Sustainable Development
FRNSW	Fire and Rescue NSW
IPA	Inner Protection Area
LEP	Local Environmental Plan
NCC	National Construction Code
NP	National Park
NSP	Neighbourhood Safer Place
OPA	Outer Protection Area
PBP	<i>Planning for Bush Fire Protection – 2006</i>
ROW	Right of Way
RF Act	<i>Rural Fires Act - 1997</i>
RFS	NSW Rural Fire Service
SEPP	State Environmental Planning Policy
SFPP	Special Fire Protection Purpose
SWS	Static Water Supply

1.0 Introduction

The subject site is known as 90 Weavers Road, Maroota (Lot 239 DP 752025) and is a large allotment zoned RU1 – Primary Production. The planning proposal relates to the proposed new zoning (RU2 - Rural Landscape) to allow for the future cluster subdivision of the subject site into five (5) new rural-residential allotments and one (1) association allotment (having no building rights).

As part of this planning proposal the applicant has had a subdivision plan prepared by Survey Plus (ref 12266_SUB_E, rev E dated 10.08.15) to demonstrate that the proposed future subdivision can comply with Council's relevant specifications and requirements. We have also relied on this subdivision plan to demonstrate the proposal satisfies the relevant specifications and requirements of Planning for Bush Fire Protection 2006. In this regard should the planning proposal be successful and the future subdivision application remains consistent with this subdivision plan this report is suitable for use for both applications.

The subject site has street frontage to Weavers Road to the northeast and abuts other private rural allotments to the southeast, southwest and northwest. The vegetation identified as being a potential bushfire hazard is located within the Weavers Road reserve and neighbouring allotments to the north, neighbouring allotments to the east and northwest and the subject property (proposed Lot 1) to the southwest.

The Hills Council's Bushfire Prone Land Map identifies that the subject site as containing designated Category 1 Vegetation and its associated 100 metre buffer zone and therefore the application of *Planning for Bush Fire Protection* 2006 (PBP) is required. Demonstration that future development can comply with the requirements of PBP 2006 will be included herein.

2.0 Purpose of Report

The purpose of this Bushfire Assessment Report is to provide an independent bushfire hazard determination together of the subject site and surrounding area and to determine if the planning proposal and subsequently the future development applications will comply with the requirements of Planning for Bush Fire Protection 2006.

3.0 Scope of this Report

The scope of this report is limited to providing a bushfire hazard assessment for future development within the subject site. Where reference has been made to the surrounding lands, this report does not purport to directly assess those lands; rather it may discuss bushfire impact and/or progression through those lands and possible bushfire impact to the subject site.

4.0 Referenced Documents and Persons

Comments provided are based on the requirements of the NSW *Environmental Planning and Assessment Act* 1979 (EP&A Act), the *Rural Fires Act* 1997, the Rural Fires Regulation 2013, the RFS document known as '*Planning for Bush Fire Protection* 2006' for the purposes of bushfire hazard determination and Australian Standard 3959 2009 titled 'Construction of buildings in bushfire-prone areas' as amended for building/structural provisions.

A company representative has made an inspection of the site and the surrounding area. The proposed subdivision plan prepared by Survey Plus (ref 12266_SUB_F, rev F dated 14.08.15) has been relied upon for this report.

5.0 Site Zone

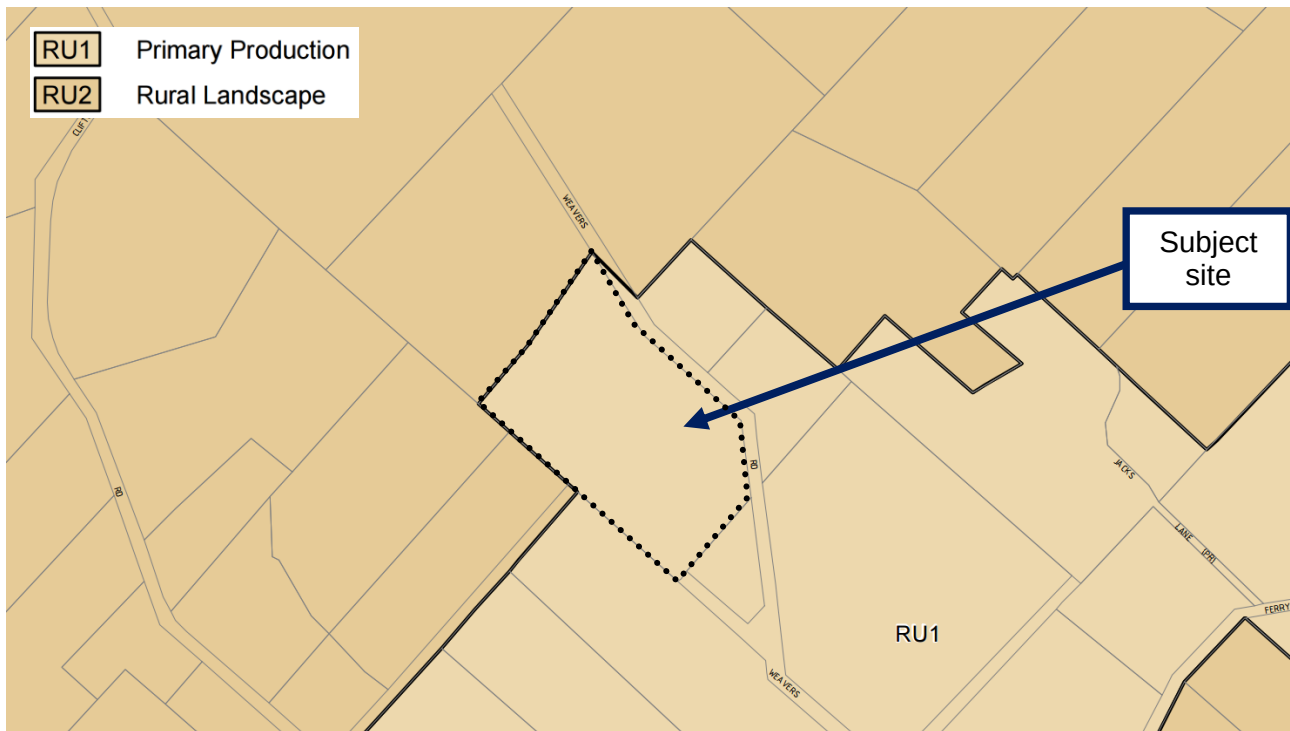


Image 01: Zone plan extract from The Hills Council Mapping database

6.0 Aerial view of the subject allotment



Image 02: Aerial view of the subject area, extract from SixMaps.

7.0 Compliance Tables & Notes

The following table sets out the projects compliance with *Planning for Bush Fire Protection – 2006*.

Proposed lot 2:

	Northeast	Southeast	Southwest	Northwest
Vegetation Structure	Woodland	Maintained grounds	Forest	Forest
Slope	0 – 5 degrees down	N/A	15 – 20 degrees down	5 – 10 degrees down
Required Asset Protection Zone	15 metres	N/A	60 metres	35 metres
Proposed Asset Protection Zone	>15 metres	>100 metres	≥61 metres	>61 metres
Significant Environmental Features	Weavers Road	Proposed Lot 3	Proposed Lot 1	Slashed pastures

Proposed lot 3:

	North	Southeast	Southwest	Northwest
Vegetation Structure	Woodland	Maintained grounds	Forest	Forest
Slope	0 – 5 degrees down	N/A	15 – 20 degrees down	5 – 10 degrees down
Required Asset Protection Zone	15 metres	N/A	60 metres	35 metres
Proposed Asset Protection Zone	>15 metres	>100 metres	≥61 metres	>83 metres
Significant Environmental Features	Weavers Road	Proposed Lot 4	Proposed Lot 1	Proposed Lot 2

Proposed lot 4 (existing dwelling):

	North	East	South	West
Vegetation Structure	Woodland	Maintained grounds	Maintained grounds	Forest
Slope	0 – 5 degrees down	N/A	N/A	15 – 20 degrees down
Required Asset Protection Zone	15 metres	N/A	N/A	60 metres
Proposed Asset Protection Zone	>100 metres	>100 metres	>100 metres	>73 metres
Significant Environmental Features	Weavers Road	Weavers Road	Proposed Lot 5	Proposed Lot 1

Proposed lot 5:

	North	East	South	West
Vegetation Structure	Maintained grounds	Forest	Maintained grounds	Forest
Slope	N/A	N/A	N/A	0 - 5 degrees down
Required Asset Protection Zone	N/A	N/A	N/A	25 metres
Proposed Asset Protection Zone	>100 metres	>100 metres	>100 metres	≥50 metres
Significant Environmental Features	Proposed Lot 4	Weavers Road	Proposed Lot 6	Proposed Lot 1

Proposed Lot 6:

	North	East	South	West
Vegetation Structure	Maintained grounds	Forest	Maintained grounds	Forest
Slope	N/A	N/A	N/A	0 - 5 degrees down
Required Asset Protection Zone	N/A	N/A	N/A	25 metres
Existing Asset Protection Zone	>100 metres	>100 metres	>100 metres	≥50 metres
Significant Environmental Features	Proposed Lot 5	Weavers Road	Neighbouring private allotment	Proposed Lot 1

Asset Protection Zones Compliance

The proposed new allotments can accommodate a building footprint achieving the minimum required Asset Protection Zones under Appendix 2 of Planning for Bush Fire Protection 2006.

The available Asset Protection Zones will consist of maintained land within the subject property and land considered 'equivalent to an APZ' being the developed portion of Weavers Road and maintained grounds within neighbouring private rural-residential allotment.

Construction Level Compliance

No new dwellings are proposed as part of this application. An independent assessment will be required under s79BA of the *Environmental Planning and Assessment Act 1997* at the time of an application for the construction of a dwelling within the newly created allotments.

Retrofitting recommendations will be made for the existing dwelling within proposed Lot 4 to protect against the entry of smoke and embers into the dwelling.

Access and Services

Guideline Ref.	Proposed Development Determinations
Property Access	The proposed allotments will have street frontage to Weavers Road to the northeast / east. Any new private access drive must comply with the requirements for Property Access as detailed in section 4.1.3(2) of Planning for Bush Fire Protection 2006.
Water Supply	Water considerations will be required to be applied at the time of the construction of a new dwelling within the proposed new allotments. A 10,000 litre water supply is likely to be required at that time. The existing swimming pool within proposed Lot 4 satisfies the water supply requirements for the existing dwelling.
Evacuation	Evacuation is possible by utilising existing road infrastructure. It is recommended that the occupants complete a Bush Fire Safety Plan addressing "Prepare, Act Survive" as advocated by the NSW RFS http://www.rfs.nsw.gov.au/ under publications / bushfire safety.

8.0 Bushfire Hazard Assessment

8.01 Preface

Properties considered to be affected by possible bushfire impact are determined from the local Bushfire Prone Land Map as prepared by Council and or the Rural Fire Service. All property development within affected areas is subject to the conditions detailed in the document '*Planning for Bush Fire Protection 2006*' (PBP). Set back distances for the purpose of creating Asset Protection Zones (APZ's) must be applied and any buildings must then conform to corresponding regulations detailed in Australian Standard 3959 'Construction of buildings in bushfire prone areas' 2009.

Planning for Bush Fire Protection 2006, (PBP) formally adopted on the 1st March 2007 and amended May 2010 (Appendix 3) provides for the protection of property and life (including fire-fighters and emergency service personnel) from bushfire impact.

The thrust of the document is to ensure that developers of new properties or sub-divisions include the constraints associated with the construction of buildings in bushfire prone areas within their proposed development sites. PBP is applicable to proposed development inside determined Category 1 or 2 areas and also inside a buffer zone radius of 100m from a Category 1 bushfire area or 30m from a Category 2 bushfire area.

The document also acknowledges 'infill' developments associated with re-development of existing properties and allows some higher levels of building safety where the increased 'set backs' (APZ's) may not be achievable.

The future development application will relate to the subdivision of an existing allotment for residential purposes. To accord with PBP the subdivision is classified as integrated development and future application will be assessed under section 100B of the *Rural Fires Act 1997* and a Bushfire Safety Authority will be required from the Commissioner of the NSW Rural Fire Service.

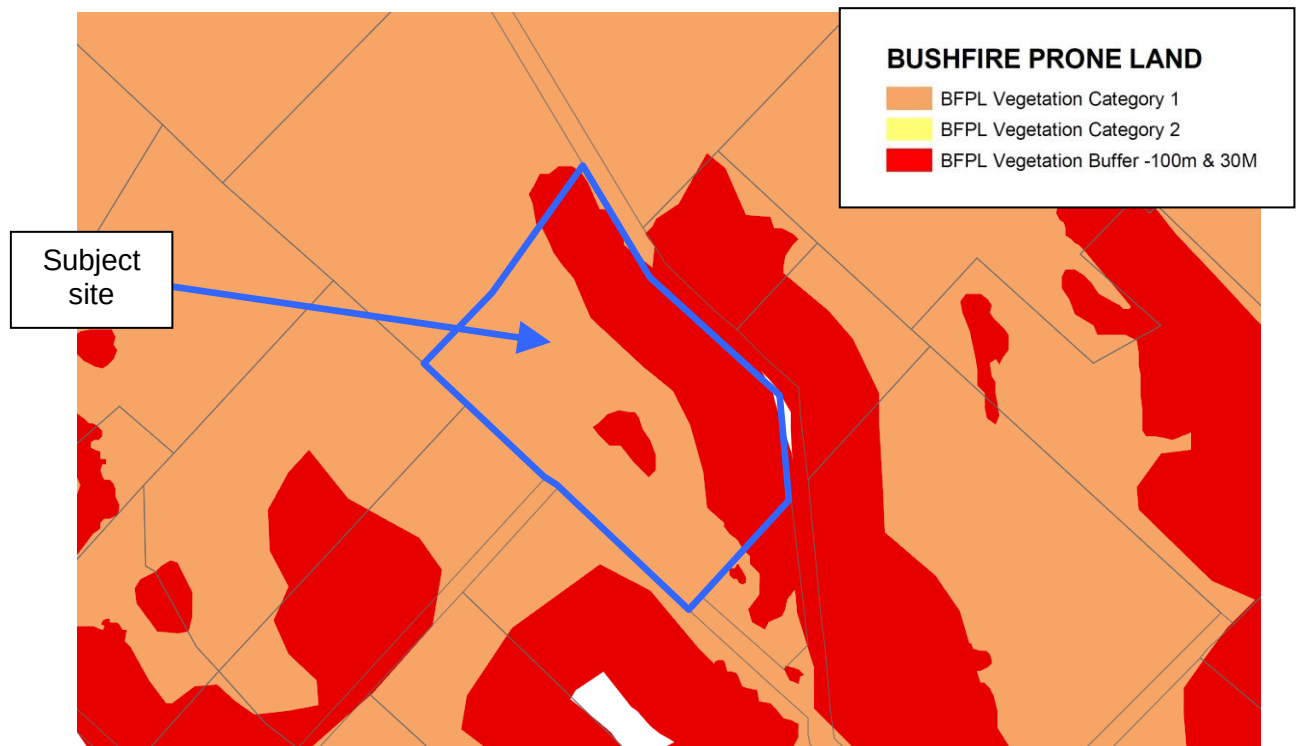


Image 03: Extract from The Hills Council's Bushfire Prone Land Map

8.02 Location

The subject site is known as 90 Weavers Road, Maroota (Lot 239 DP 752025) and is a large allotment zoned RU1 – Primary Production.

The subject site has street frontage to Weavers Road to the northeast and abuts other private rural allotments to the southeast, southwest and northwest. The vegetation identified as being a potential bushfire hazard is located within the Weavers Road reserve and neighbouring allotments to the north, neighbouring allotments to the east and northwest and the subject property (proposed Lot 1) to the southwest.



Photograph 01: View northwest from Weavers Road toward the subject site

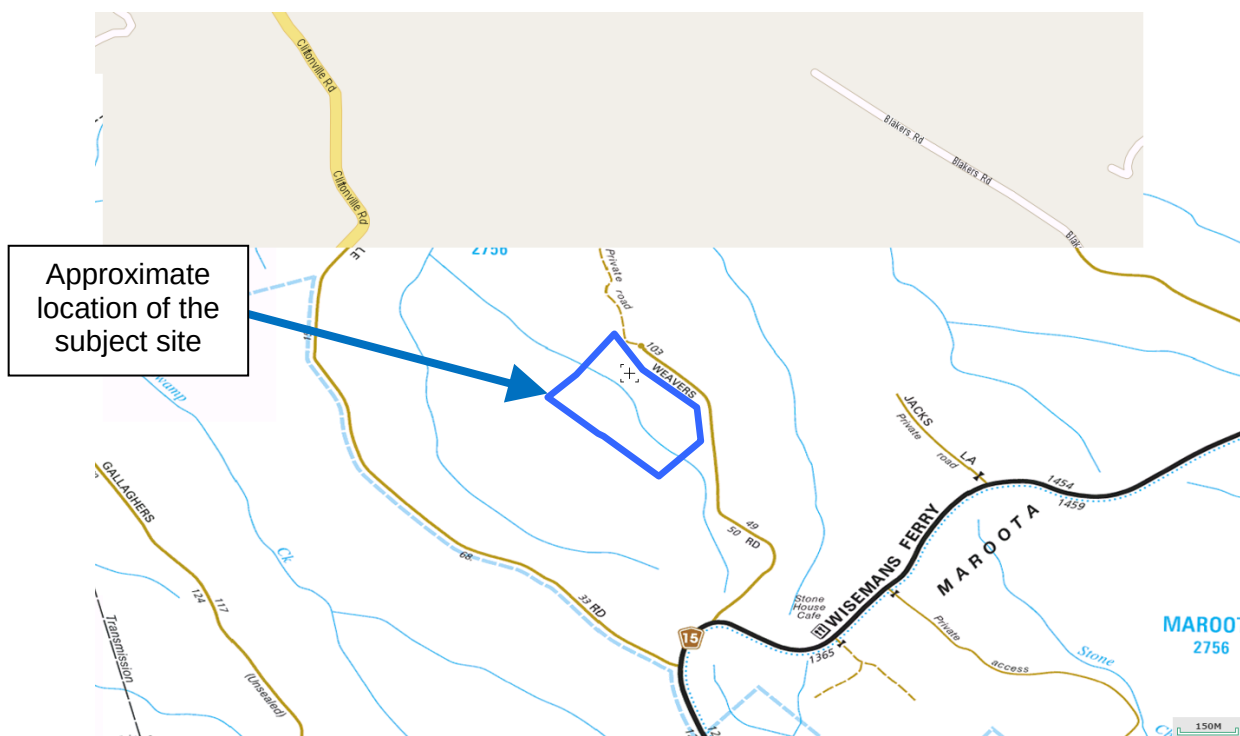


Image 04: Extract from street-directory.com.au

8.03 Vegetation

The vegetation identified as being a potential bushfire hazard is located within the Weavers Road reserve and neighbouring allotments to the north, neighbouring allotments to the east and northwest and the subject property (proposed lot 1) to the southwest.

The vegetation posing a hazard to the north was found to comprise of trees 10-20 metres in height having a 10-30% canopy foliage cover and an understorey of shrubs and grasses. This area was found to be mapped as 'Sandstone Ridgetop Woodland' on The Hills Council vegetation mapping. The vegetation posing a hazard to the north was determined to be Woodland.

The vegetation posing a hazard to the east, southwest and west was found to comprise of trees 10-20 metres in height having a 30-70% canopy foliage cover and an understorey of low trees, shrubs and grasses. This area was found to be mapped as 'Sandstone Gully Forest' and 'Shale/Sandstone Transition Forest' on The Hills Council vegetation mapping. The vegetation posing a hazard to the east, southwest and west was determined to be Forest.

The vegetation posing a hazard to the northwest was found to predominately comprise of shrubs >2 metres in height. Immediately adjacent proposed Lot 2 is an area of slashed pastures, however as the ongoing management of this area cannot be guaranteed it has been assessed as forming part of the hazard to this aspect. While it is noted that this area is mapped as being 'Sandstone Heath' on The Hills Council vegetation mapping in consideration of the potential fire run from the west it has been assessed as a Forest hazard.

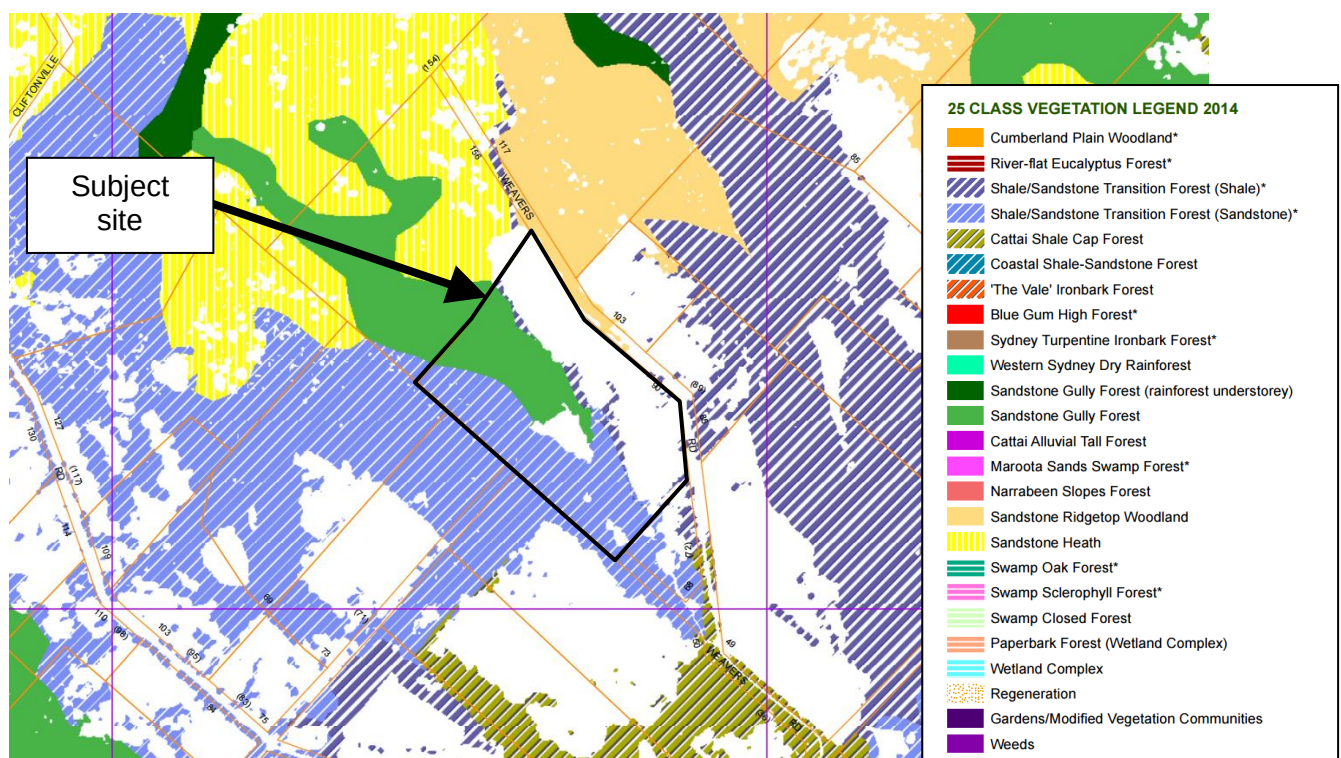


Image 05: Extract from The Hills Council vegetation mapping

8.04 Slope and Topography

The slope that would most significantly affect bushfire behaviour within the hazard must be assessed for at least 100 metres from the available building footprints to determine the minimum required Asset Protection Zones.

The slope that would most significantly influence bushfire behaviour was determined onsite and verified from topographic mapping to be:

- 0 - 5 degrees down slope within the hazard to the north (and west of lots 5 & 6)
- 15 - 20 degrees down slope within the hazard to the west of lots 2, 3 & 4
- 5 - 10 degrees down slope within the hazard to the northwest

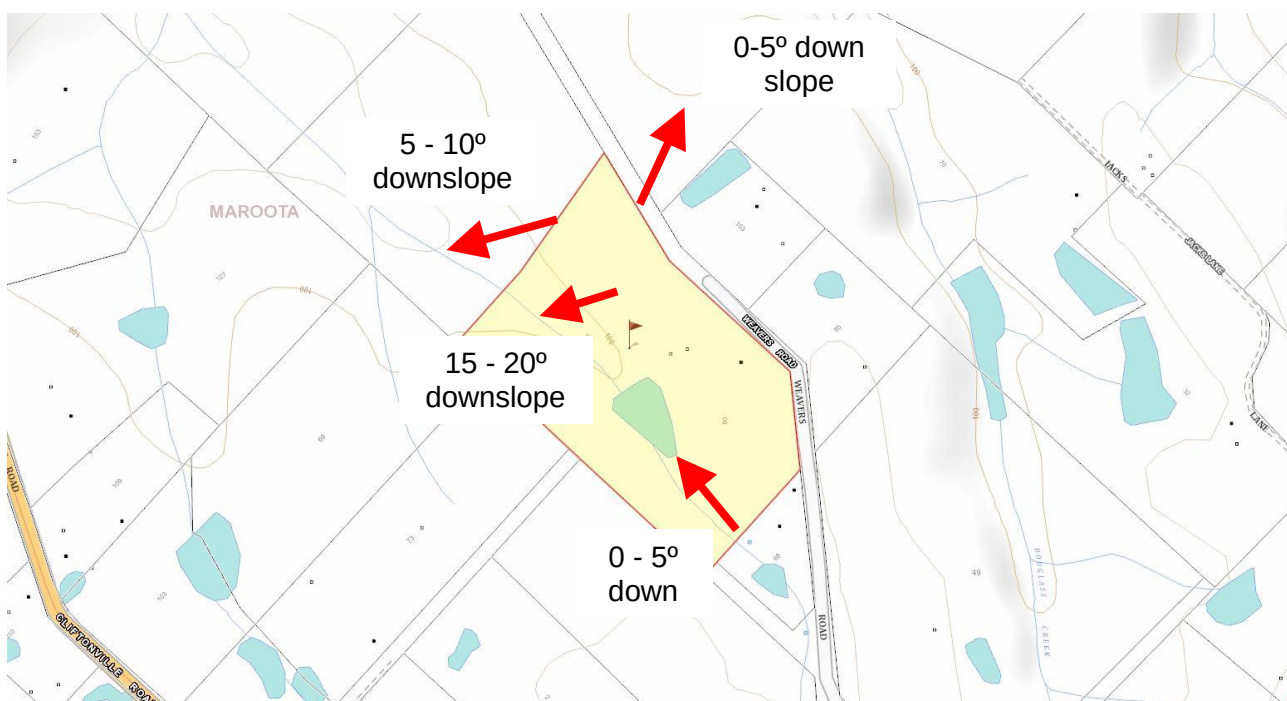


Image 06: Extract from SixMaps

8.05 Asset Protection Zones

The minimum required Asset Protection Zones (APZ) for proposed new allotments were determined from Table A2.4 of Planning for Bush Fire Protection 2006 and detailed in the compliance table in section 7.0 of this report.

The proposed new allotments can accommodate a building footprint achieving or exceeding the minimum required Asset Protection Zones under Appendix 2 of Planning for Bush Fire Protection 2006. The available Asset Protection Zones will consist of maintained land within the subject property and land considered 'equivalent to an APZ' being the developed portion of Weavers Road and maintained grounds within neighbouring private rural-residential allotment.

All Asset Protection Zones will be maintained as an Inner Protection Area as detailed in the NSW Rural Fire Service's document 'Standards for Asset Protection Zones'.

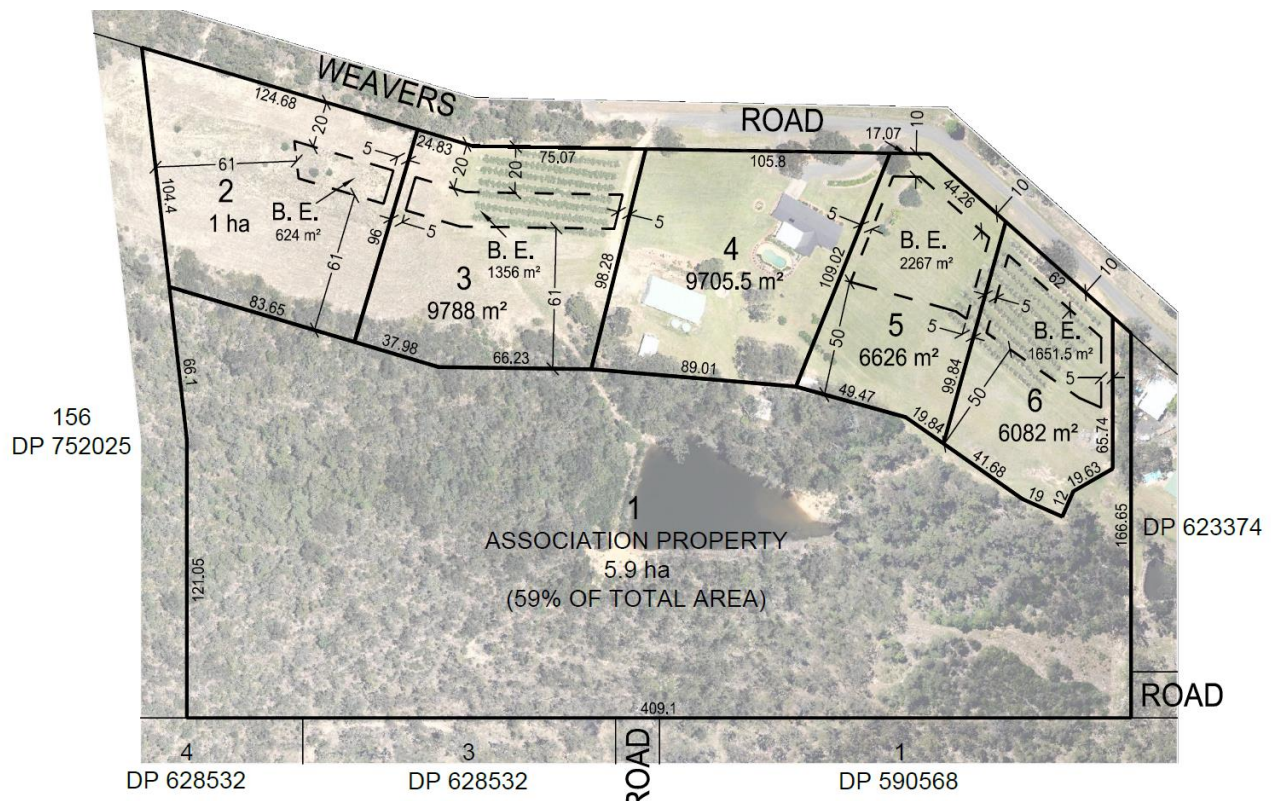


Image 07: Extract from the proposed subdivision plan

8.06 Fire Fighting Water Supply

There are no reticulated water mains or hydrants available within this area. The subject property was found to contain a large dam which can be utilised for the replenishment of attending fire services.

The most distant external point of the available building footprints are located greater than 70 metres from a hydrant and therefore a 10,000 Static Water Supply is required to be provided within each new allotment.

These supplies will be addressed and conditioned at the time of future development applications for the construction of the future dwellings.

The existing swimming pool within proposed lot 4 satisfies the water supply requirements for the existing dwelling.

8.07 Property Access – Fire Services & Evacuation

The subject site has street frontage to Weavers Road to the northeast / east. All proposed rural/ residential allotments will have street frontage to Weavers Road.

Any new private access drive must comply with the requirements for Property Access as detailed in section 4.1.3(2) of Planning for Bush Fire Protection 2006.

Fire services will have free pedestrian access around the building footprints and access to the hazard interface for hazard reduction or fire suppression activities. Access for fire services and opportunities for occupant evacuation will be considered adequate for this property and can comply with the requirements of PBP 2006.

9.0 Site & Bushfire Hazard Determination

9.01 Planning for Bush Fire Protection - 2006

Planning for Bush Fire Protection – 2006 (PBP) is applicable to those lands determined as being within a 'bushfire prone area' in accordance with a local Bushfire Prone Land Map as provided by the Rural Fire Service and Council.

The most appropriate method of determining site bushfire hazard under the terms of PBP is to consider the site in a singular form.

Bushfire prone areas are defined as those areas;

- *within or within 100m of high or medium bushfire hazards; or*
- *within or within 30m of low bushfire hazards.*

In this instance the subject site has been identified as being bushfire prone land therefore it is appropriate to apply PBP and AS3959 – 2009 (for any dwelling construction).

9.02 Australian Standard AS 3959 – 2009 'Construction of buildings in bushfire –prone areas'

Australian Standard 3959 – 2009 'Construction of buildings in bushfire-prone areas' provides for six (6) levels of building construction these being BAL - Low, BAL - 12.5, BAL - 19, BAL - 29, BAL - 40 and BAL - FZ. The Australian Standard 3959 specifies construction standards for buildings within various Bushfire Attack Levels as determined by the *Planning for Bush Fire Protection – 2006* document. The NSW Rural Fire Service will not accept deemed to satisfy provisions for BAL Flame Zone and therefore have a NSW variation to the listed standard provisions of BAL FZ under AS3959 - 2009.

9.03 Correlation between bushfire impact and AS3959

Bushfire Attack Level	Maximum radiant heat impact (kW/m ²)	Level of construction under AS3959-2009
Low		No special construction requirements
12.5	≤12.5	BAL - 12.5
19	12.6 to 19.0	BAL - 19
29	19.1 to 29.0	BAL - 29
40	29.1 to 40.0	BAL - 40
Flame Zone	>40.0	BAL FZ No deemed to satisfy provisions

9.04 Site Specific Bushfire Hazard Determination

All property development must be assessed on an individual basis as broad-brush approaches of documents such as PBP may not be applicable in every instance. The proposed future development located at 90 Weavers Road, Maroota was assessed against the requirements of *Planning for Bush Fire Protection* 2006 noting the following:

- a) The building footprints can meet or exceed the minimum required Asset Protection Zones.
- b) Recommendations to maintain the Asset Protection Zones within the subject property can be included in future development consent.
- c) Future water supply can satisfy the requirements for Services as detailed in section 4.1.3 of PBP.
- d) The proposed access drives and roads can satisfy the requirements for Property Access as detailed in section 4.1.3 (2) of PBP.

9.05 Viable Construction Method

The objectives of *Planning for Bush Fire Protection* – 2006 are for the protection of life including fire fighters. Provided these objectives can be met the construction of buildings is feasible and both the Rural Fire Service and Council should be in a position to consider such applications.

No new dwellings will be proposed as part of the subdivision application. An independent assessment will be required under s79BA of the *Environmental Planning and Assessment Act* 1997 at the time of any future application for the construction of a dwelling within the proposed allotments. All future dwellings will be outside a BAL Flame Zone and therefore comply with the principles of PBP 2006.

10.0 Recommendations

Following rezoning of the subject site the following recommendations should be applied within the consent conditions for the subsequent subdivision of the subject site.

The recommendations are provided as the minimum necessary for compliance with Planning for Bush Fire Protection – 2006 and Australian Standard 3959 'Construction of buildings in bushfire-prone areas - 2009. Additional recommendations are provided to supplement these minimum requirements where considered necessary.

General

1. That the proposed development complies with the subdivision plan prepared by Survey Plus (ref 12266_SUB_F, rev F dated 14.08.15).

Construction – existing dwelling within Lot 4 only

2. That where applicable all openable windows on the existing dwelling be screened with aluminium, steel or bronze metal mesh having an aperture size of ≤ 2.0 mm in such a way that the entire opening remains screened when in the opened position.
3. That where applicable all vents and weepholes on the existing dwelling be screened with aluminium, steel or bronze metal mesh having an aperture size of ≤ 2.0 mm in such a way that the entire opening is screened.
4. That where applicable all external hinged doors on the existing dwelling have draught excluders fitted having a flammability index of not more than 5.

Asset Protection Zones

5. That all grounds not built upon within the proposed Lots 2, 3, 4, 5 and 6 and the access handle servicing proposed Lot 1 be maintained as an Asset Protection Zone (Inner Protection Area).

Maintenance of the Asset Protection Zones is to be in accordance with the NSW Rural Fire Service's document 'Standards for Asset Protection Zones' and Appendix 2 of Planning for Bush Fire Protection 2006.

Landscaping

6. That any new landscaping within the subject property is to comply with Appendix 5 'Landscaping and Property Maintenance' of *Planning for Bush Fire Protection* 2006.

Access

7. That the construction of any new access drive within the rural residential allotments complies with the requirements for Property Access as detailed in section 4.1.3 (2) of *Planning for Bush Fire Protection* 2006, in particular:
- A minimum carriageway width of four metres.
 - A minimum vertical clearance of four metres to any overhanging obstructions, including tree branches.
 - Curves have a minimum inner radius of six metres and are minimal in number to allow for rapid access and egress.
 - The minimum distance between inner and outer curves is six metres.
 - The 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.
 - Internal roads for rural properties provide a loop road around any dwelling or incorporate a turning circle with a minimum 12 metre outer radius (or suitable turning provisions for a fire appliance).

Services

8. That electricity and gas are to comply with section 4.1.3 of *Planning for Bush Fire Protection* 2006 as follows:

Electricity:

- Where practicable, new electrical transmission lines are underground.
- Where overhead electrical transmission lines are proposed:
 - lines are installed with short pole spacing (30 metres), 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 'Vegetation Safety Clearances' issued by Energy Australia (NS179, April 2002).

Note: Requirements for fences, water supply and building materials is to be determined and approved as part of any future 79BA development consent to construct any new fences or dwellings.

11.0 Conclusion

Given that the property is deemed bushfire prone under The Hills Council's Bushfire Prone Land Map any future development would need to meet the requirements of *Planning for Bush Fire Protection* 2006 and of the construction requirements of Australian Standard 3959 'Construction of buildings in bushfire-prone areas' 2009 if any are applicable. The determination of any bushfire hazard must be made on a site-specific basis that includes an assessment of the local bushland area and its possible impact to the subject site.

The subject site is known as 90 Weavers Road, Maroota (Lot 239 DP 752025) and is a large allotment zoned RU1 – Primary Production. The subject site has street frontage to Weavers Road to the northeast and abuts other private rural allotments to the southeast, southwest and northwest.

Compliance with *Planning for Bush Fire Protection* 2006 must be achieved for any future subdivision to be approvable and as such site constraints should be determined at this planning proposal stage and the sites capacity to comply with these requirements should be demonstrated.

The required Asset Protection Zones (APZ) for the future subdivision were determined from Appendix 2 of *Planning for Bush Fire Protection* 2006. A potential subdivision of the site into five (5) rural-residential allotments and one (1) association allotment has been included for the purpose of assessing the sites compatibility for the purposes of rezoning to allow future rural-residential development.

The available building footprints within these proposed new allotments can comply with or exceed the minimum requirements of PBP 2006. The access design and the provisions of future services (water, gas and electricity) can also meet the requirements of section 4.1.3 of PBP 2006.

An independent assessment will be required under s79BA of the *Environmental Planning and Assessment Act* 1997 at the time of any future application for the construction of a dwelling within the proposed allotments.

In accordance with the bushfire safety measures contained in this report, and consideration of the site specific bushfire risk assessment it is my opinion that the site and the proposed subdivision provided as part of this planning proposal has the capacity to comply with the requirements of PBP 2006. By applying this guideline it will provide a reasonable and satisfactory level of bushfire protection to the subject development and also satisfy both the Rural Fire Service's requirements and those of Council in this area.

Should you have any enquiries regarding this project please contact our office.

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Disclaimer:

Quote from *Planning for Bush Fire Protection* 2006, 'Any representation, statement opinion, or advice expressed or implied in this publication is made in good faith on the basis that the State of New South Wales, the NSW Rural Fire Service, its agents and employees are not liable (whether by reason of negligence, lack of care or otherwise) to any person for any damage or loss whatsoever which has occurred or may occur in relation to that person taking or not taking (as the case may be) action in respect of any representation, statement or advice referred to above..'

Similarly the interpretations and opinions provided by Building Code and Bushfire Hazard Solutions in regard to bushfire protection are also given in the same good faith.

12.0 Annexure 01

List of Referenced Documents

- a) *Environmental Planning and Assessment Act* 1979
- b) *Rural Fires Act* 1997 as amended
- c) 'Planning for Bush Fire Protection' 2006 - NSW Rural Fire Services & Planning NSW
- d) 'Construction of buildings in bushfire prone areas' - AS 3959 – 2009 (as amended) – Standards Australia
- e) 'The Hills Council's Bushfire Prone Land Map'
- f) Subdivision plan prepared by Survey Plus (ref 12266_SUB_F, rev F dated 14.08.15)
- f) Acknowledgements to:
NSW Department of Lands – SixMaps
Street-directory.com.au

Attachments

Attachments: Nil