

**peter
bushfire.**

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1 Introduction

| | | |
|----------------------------------|---------------------------|-----------------------|
| Street or property name: | 38 Raleigh Street | |
| Suburb, town or locality: | Albion Park | Postcode: 2527 |
| Lot/DP no: | Lot 57 DP 1270677 | |
| Local Government Area: | Shellharbour City Council | |
| Type of development: | Residential development | |

1.1 Background

Cavi Developments commissioned Peterson Bushfire to prepare a Bushfire Assessment Report to inform a proposed development at the above address which is located on 'bushfire prone land'.

This assessment has been prepared by a consultant accredited by the Fire Protection Association of Australia's BPAD scheme (Accreditation No. BPD-L3-18882). It demonstrates that the proposal complies with the NSW Rural Fire Service document *Planning for Bush Fire Protection 2019*.

1.2 Location of subject land

The subject land is a vacant lot located within a new residential subdivision at the end of Crest Road, Albion Park. Figure 1 shows the location of the subject land. The subject land is bounded by cleared and managed lots under development except to the west where vegetation consisting of woodland and rainforest is located.

1.3 Development proposal

The proposal consists of a duplex to be constructed within the available building envelope which is defined by a 25 m building setback measured from the western boundary of the subject land.

1.4 Assessment requirements

The subject land is identified as being bushfire prone land on the Shellharbour City Council Bushfire Prone Land Map. Therefore, the proposed development is to be assessed by Council under the requirements of Section 4.14 of the *Environmental Planning and Assessment Act 1979* which includes the consideration of the NSW Rural Fire Service (RFS) document *Planning for Bush Fire Protection 2019*, referred to within this report as 'PBP'.



Figure 1: Location of subject land and bushfire hazard (*Base image source: Nearmap*)

2 Bushfire hazard assessment

This section describes the bushfire hazard. An understanding of the hazard is necessary in order to determine the application of bushfire protection measures required by PBP, such as Asset Protection Zones (APZ) and Bushfire Attack Levels (BAL).

In accordance with PBP, the bushfire hazard is a combination of slope and vegetation which gives rise to the bushfire threat in relation to the distance between the hazard and the development proposal. A description of effective slope and predominant vegetation is provided below.

2.1 Vegetation types

The bushfire hazard within 140 m of the subject land is the vegetation to the west of the subdivision which consists of woodland on the upper slopes immediately adjacent the subdivision and rainforest further to the west on steeper slopes. Vegetation mapping is included as Figure 2 below.



Figure 2: Vegetation mapping (*Base image source: SEED*)

2.2 Effective slope

The effective slope most significantly influencing fire behaviour approaching the site over the 100 m assessment area is within the PBP slope class of 'downslope 10-15 degrees' for the woodland community adjacent the subdivision, and 'downslope 15-20 degrees' for the rainforest further to the west. The slope was measured using 2 m contour intervals as shown on Figure 3.



Figure 3: Contour layer – 2 m intervals (Base image source: Spatial Map Viewer)

3 Bushfire protection measures

3.1 Asset Protection Zone (APZ)

Using the hazard parameters of vegetation and slope discussed in Section 2 above, the required APZ from the bushfire hazard can be determined using Table A1.12.2 of PBP. The APZ results are listed in Table 1 below.

The APZ is to be a minimum of 25 m to the woodland vegetation to the west of the subdivision. The required 25 m building setback from the western boundary will ensure the APZ is adhered to. The rainforest hazard is located approximately 60 m from the western boundary. The duplex will be 85 m from the rainforest as a result of the 25 m building setback.

Table 1: Determination of APZ and BAL

| Direction ¹ | Vegetation ² | Slope ³ | PBP APZ ⁴ | Proposed APZ ⁵ | BAL ⁶ |
|------------------------|-------------------------|---------------------|----------------------|---------------------------|------------------|
| West | Woodland | Downslope 10-15° | 25 m | 25 m | BAL-29 |
| | Rainforest | Downslope 15-20° | 30 m | 85 m | BAL-12.5 |

¹ Direction of assessment from proposed development.

² Predominant vegetation classification over 140 m from proposed development.

³ Effective slope assessed over 100 m from proposed development where the bushfire hazard occurs.

⁴ Minimum APZ required by PBP acceptable solution for residential development.

⁵ APZ proposed to be established and/or provided by existing management arrangements.

⁶ Bushfire Attack Level (BAL) corresponding to AS 3959-2018 'Construction of buildings in bushfire-prone areas'.

3.2 Vegetation management

The subject land complies with an Inner Protection Area (IPA) standard as described by PBP. Additional vegetation removal is not required for the proposal. Any proposed landscaping is to be done so in accordance with the principles listed in Appendix A4.1.1 of PBP.

3.3 Bushfire Attack Level (BAL)

As shown in Table 1, the proposed development is rated BAL-29 in accordance with Table A1.12.5 of PBP. The BAL relates to a set of construction specifications listed within AS 3959-2018 *Constructions of buildings in bushfire-prone areas* (AS 3959). The BALs are influenced by the closest vegetation community being the woodland adjacent the western boundary.

The duplex is to be designed and constructed to comply with BAL-29 for the entire roof and northern, western and southern elevations. The eastern elevation may comply with BAL-19 in accordance with shielding provisions set-out at Section A1.8 of PBP.

It is important to note that NSW has a minor variation to AS 3959 that is to be applied to design and construction. The variation is listed in Section 7.5.2 of PBP.

3.4 Water supply and utilities

Water

The nearest hydrants are located on Raleigh Street 40 m to the north and 70 m to the east of the existing driveway layback. All sides of the duplex will be within 90 m of where a fire appliance can stand at the sealed edge of Raleigh Street as measured by the lay of the hose along the existing access handle.

This distance exceeds the Acceptable Solution distance specified by PBP. This is a situation created as a result of hydrant placement within the subdivision relative to the lot layout. Compliance with PBP and *AS 2419.1-2005 Fire hydrant installations - System design, installation and commissioning* (Standards Australia 2005) can be achieved when the hose is measured across the front of the adjoining Lot 58 to the north, through the 25 m building setback.

The distance also complies with the Fire & Rescue NSW document '*Fire hydrants for minor residential developments*' (Fire & Rescue NSW 2016). The subject land is within the jurisdiction of Fire & Rescue NSW. Section 6.1 of the document states that all dwellings are to be within 90 m of a carriageway that can support a fire appliance and where there is a street hydrant within 60 m of the driveway entrance. In the case of the proposed development, a tanker can stand on Raleigh Street within 40 m of a hydrant and fire-fighters can gain access to all sides of the duplex within 90 m. The existing hydrant placement is considered adequate for the development of the subject land. An additional water supply is not required for bushfire protection.

Electrical supply

The electrical supply within the subdivision and to the subject land is underground and therefore complies with PBP.

Gas supply

Any gas services are to be installed and maintained in accordance with *AS/NZS 1596-2014 The storage and handling of LP gas* (Standards Australia, 2014).

3.5 Access

Public roads

Raleigh Avenue and Crest Road provide the public road vehicular access to the development. The roads have been designed and approved based on PBP and are therefore suitable for the development of the subject land.

Property access roads

The subject land is accessed by an existing driveway approximately 30 m long and 3 m wide. There are no specific standards required for the driveway as fire appliances will not need to enter the driveway or the property. They would stand on the street when attending to a fire at the property. Additional access provisions are not required to support the proposed development.

4 Conclusion and recommendations

The proposal consists of a duplex that will have an APZ that complies with *Planning for Bush Fire Protection 2019*. With the application of *AS 3959-2018 Construction of buildings in bushfire-prone areas* BAL-29/19 construction provisions, the proposed development will be able to satisfy the specifications and requirements of *Planning for Bush Fire Protection 2019*. The existing vegetation management, access and water supply arrangements comply with PBP.

The following recommendations were made within this report to achieve compliance:

1. Any proposed landscaping is to be done so in accordance with the principles in Appendix A4.1.1 of *Planning for Bush Fire Protection 2019*.
2. The duplex is to be designed and constructed to comply with BAL-29 of *AS 3959-2018 Construction of buildings in bushfire-prone areas* for the entire roof and northern, western and southern elevations. The eastern elevation may comply with BAL-19. The NSW variation to AS 3959 as listed in Section 7.5.2 of PBP is also to apply to the AS 3959 BAL requirements.
3. Any gas services installed are to be in accordance with *AS/NZS 1596-2014 The storage and handling of LP gas* (Standards Australia, 2014).

In the author's professional opinion the proposed development can comply with *Planning for Bush Fire Protection 2019*.



David Peterson



References

NSW Rural Fire Service (RFS). 2019. *Planning for Bush Fire Protection: A Guide for Councils, Planners, Fire Authorities and Developers*. State of New South Wales through the NSW Rural Fire Service.

Standards Australia. 2005. *Fire hydrant installations - System design, installation and commissioning*, AS2419.1, Fourth edition 2005, Standards Australia International Ltd, Sydney.

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Standards Australia. 2018. *Construction of buildings in bushfire-prone areas*, AS 3959, Standards Australia International Ltd, Sydney.