BUSHFIRE CERTIFICATE

PROPOSED MULTI-DWELLING DEVELOPMENT

LOT 395 to 397 DP 702896
25 to 29 Prospero Street, Maryland

Date: **12/4/2023**

Prepared for: **Land and Housing Corporation**

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I hereby declare that I am a BPAD accredited bushfire practitioner.

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Signature

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Document Status

Revision No.	Issue	Description	Reviewed	Approved by Director
1	17/05/2021	Final	C. Couch	P. Couch
2	14/09/2021	Rev A – revised site plan	C. Couch	P. Couch
3	15/06/2022	Rev B – revised site plan	C. Couch	P. Couch
4	12/04/2023	Rev C – revised site plan	C. Couch	P. Couch

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This report has assessed the proposed multi-dwelling development against the requirements of Section 4.14 of the Environmental Planning and Assessment Act 1979, AS3959 (2018) Construction of buildings in bushfire-prone areas and Planning for Bush Fire Protection (2019).

This report establishes that the development is capable of complying with the acceptable solutions of Planning for Bush Fire Protection (2019).

TABLE 1 – PROPERTY DETAILS AND TYPE OF PROPOSAL

Applicant Name	Land and Housing Corporation		
Site Address	25 to 29 Prospero Street, Maryland	**Lot/Sec/DP**	Lot 395 to 397 DP 702896
Local Government Area	Newcastle	**FDI**	100
Bushfire Prone Land	Yes, mapped bushfire prone land		
Type of development	9 residential units	**Type of Area**	Urban
Special Fire Protection Purpose	No	**Flame Temperature**	1090K
Application Complies with Acceptable Solutions	Yes. Relevant specifications and requirements are satisfied	**Referral to NSW Rural Fire Service (NSW RFS)required**	No

TABLE 2 – BUSHFIRE THREAT ASSESSMENT

	North	**East**	**South**	**West**
Vegetation Structure	Forest	Maintained Lands	Maintained Lands	Maintained Lands
Asset Protection Zone (APZ)	68 metres	140 metres	140 metres	140 metres
Accurate Slope Measure	9 degrees downslope	N/A	N/A	N/A
Slope Range	6 to 10 degrees downslope	N/A	N/A	N/A
AS3959 (2018) Bushfire Attack Level (BAL)	BAL-12.5	BAL-LOW	BAL-LOW	BAL-LOW

TABLE 3 – PLANNING FOR BUSH FIRE PROTECTION (2019) COMPLIANCE

Performance Criteria	Proposed Development Determinations	Method of Assessment
Asset Protection Zone	Asset protection zones have been determined in accordance with Planning for Bush Fire Protection (2019). The asset protection zone will be maintained for the life of development and defendable space is provided onsite.	Acceptable Solution
Siting and Design	Buildings have been designed to minimise the risk of bushfire attack.	Acceptable Solution
Construction Standards **AS3959 (2018)**	Bushfire Attack Levels have been determined in accordance with Planning for Bush Fire Protection (2019). The highest BAL to the proposed buildings was determined to be BAL-12.5. The proposed development increases dwelling density with the development complying with section 8.2.1 of Planning for Bush Fire Protection (2019). The new dwelling will be exposed to radiant heat thresholds of less than 29 kw/m2.	Acceptable Solution
Private and or Public Road Infrastructure	The public road system is not affected or changed as part of this application.	Acceptable Solution
Property Access	Property access to comply with Planning for Bushfire Protection (2019) Section 7.	Acceptable Solution
Water and Utility Services	Water, electricity and gas services offer compliance with Planning for Bush Fire Protection (2019) Section 7.	Acceptable Solution
Landscaping	Landscaping to comply with Planning for Bush Fire Protection (2019) Appendix 4.	Acceptable Solution

Bushfire Certification

This report has been prepared by Phillip Couch, a Fire Protection Association, Bushfire Planning and Design - Alternate Solutions Accredited Practitioner (FPAA BPAD-Level 3) and a Graduate Fire Engineer with the Institution of Fire Engineers. Phillip Couch certifies that the proposed development design conforms to the relevant specifications and requirements of AS3959 (2018) Construction of buildings in bushfire-prone areas and Planning for Bush Fire Protection (2019) detailed in Section 4.14 of the Environmental Planning and Assessment Act 1979.

12/4/2023

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2.0 INTRODUCTION

2.1 PURPOSE OF REPORT

The purpose of this report is to establish suitable bushfire mitigation measures for the proposed multi-dwelling development to be constructed at Lot 395 to 397 DP 702896, 25 to 29 Prospero Street, Maryland, in order for the Council to make determination of the proposed development pursuant to the requirements of Section 4.14 of the Environmental Planning and Assessment Act 1979.

Features on or adjoining the site that may mitigate the impact of a bushfire on the proposed development
The vegetation to the north of the site has direct fire runs of less than 150 metres in length and traverses a drainage line. This will result in reduced fire intensity and size.

Likely environmental impact of any proposed bush fire protection measures
No clearing of native vegetation is required for the proposed development.

The recommendations within this report address the aims and objectives of Planning for Bush Fire Protection (2019) to reduce the risk of ignition of the multi-dwelling development in a bushfire event.

2.2 PROPOSED DEVELOPMENT

The proposed development includes the construction of 9 residential units over 3 residential zoned allotments.

3.0 BUSHFIRE ATTACK ASSESSMENT

3.1 VEGETATION CLASSIFICATION

Potential bushfire hazards were identified from Newcastle Council's Bushfire Prone Mapping as occurring within the investigation area. Aerial mapping and inspection of the site reveals that the bushfire prone land map is reasonably accurate in respect to the current bushfire hazard.

The major vegetative threats have been determined using Keith (2004) to derive vegetation structures listed in Planning for Bush Fire Protection (2019).

Primary vegetation structures have been identified in Figure 1 – Site Constraints Map and separation distances shown in Table 2 – Bushfire Attack Assessment.

PHOTOGRAPH 1 – SITE PHOTO

View of the subject site looking south from Prospero Street. The site is surrounded by established residential properties.

PHOTOGRAPH 2 – NORTHERN FOREST

View of forest located north of the site. The upper stratum is dominated by eucalypts with a low understorey of exotic shrubs and grasses.

FIGURE 1 – SITE CONSTRAINTS MAP

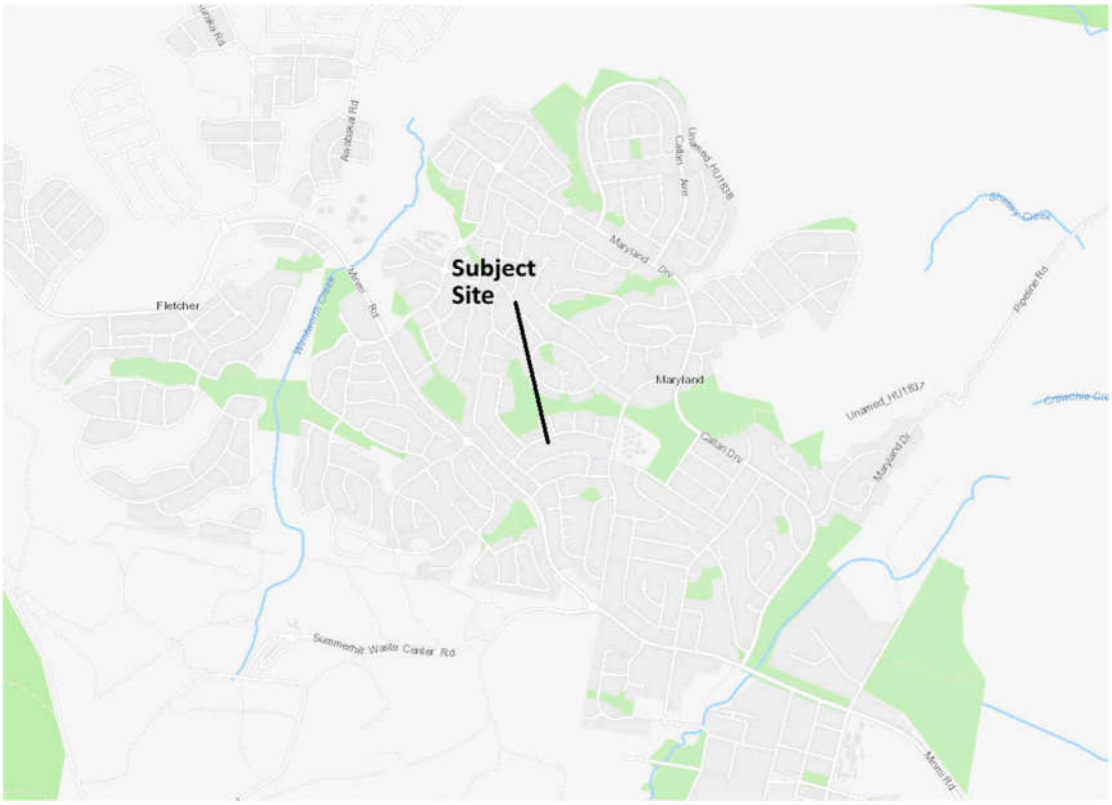

FIGURE 2 – LOCALITY MAP
Courtesy of OpenStreetMap

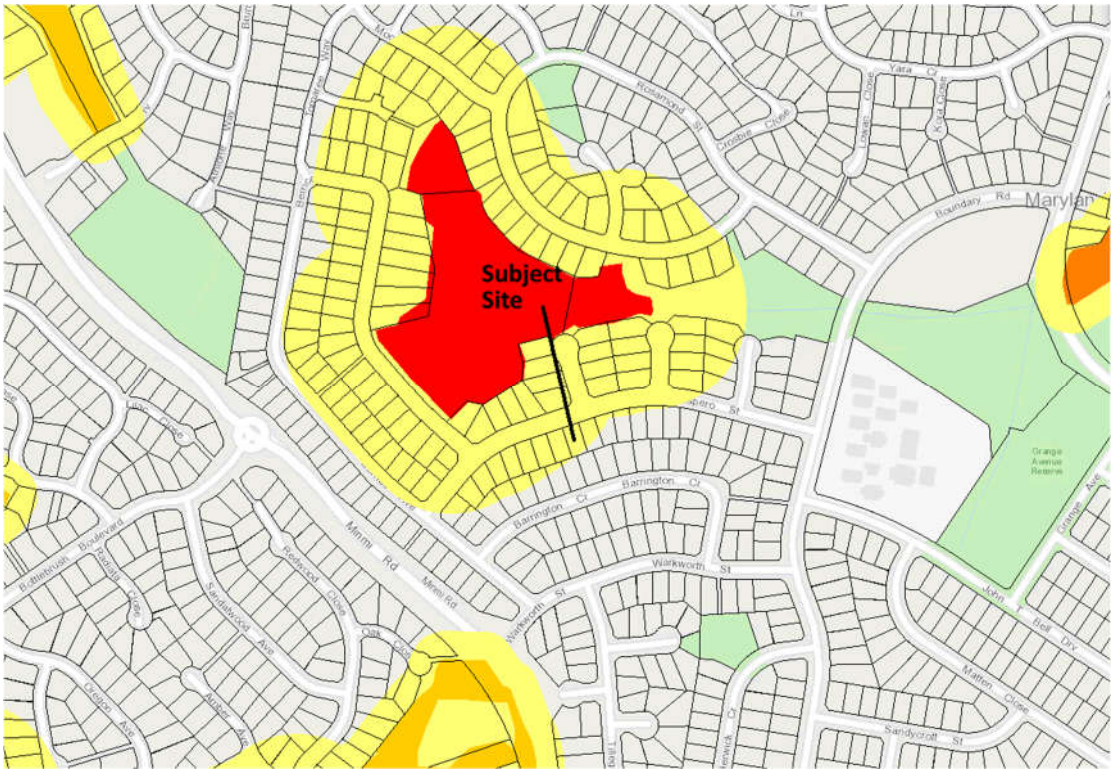

FIGURE 3 – COUNCIL'S BUSHFIRE PRONE LAND MAP

3.2 EFFECTIVE SLOPE

Effective Slope was measured using 2-metre contour data obtained from the Department of Lands and verified by a laser hypsometer on site. The laser hypsometer verified slope within the vegetation, calculating effective fire run slope from 5 separate measurements in each dominant direction.

Effective Slopes have been identified in Figure 1 – Site Constraints Map and slope ranges are shown in Table 2 – Bushfire Threat Assessment.

3.3 BUSHFIRE ATTACK LEVELS

BALs and relevant construction levels in accordance with Planning for Bush Fire Protection (2019) have been demonstrated in Section 1 Executive Summary and Compliance Tables.

PHOTOGRAPH 3 – UNDERSTOREY MANAGEMENT WITHIN FOREST

View of understorey management within the northern forest adjacent residential properties. There is no guarantee of perpetual management with the forest measured to the edge of residential properties.

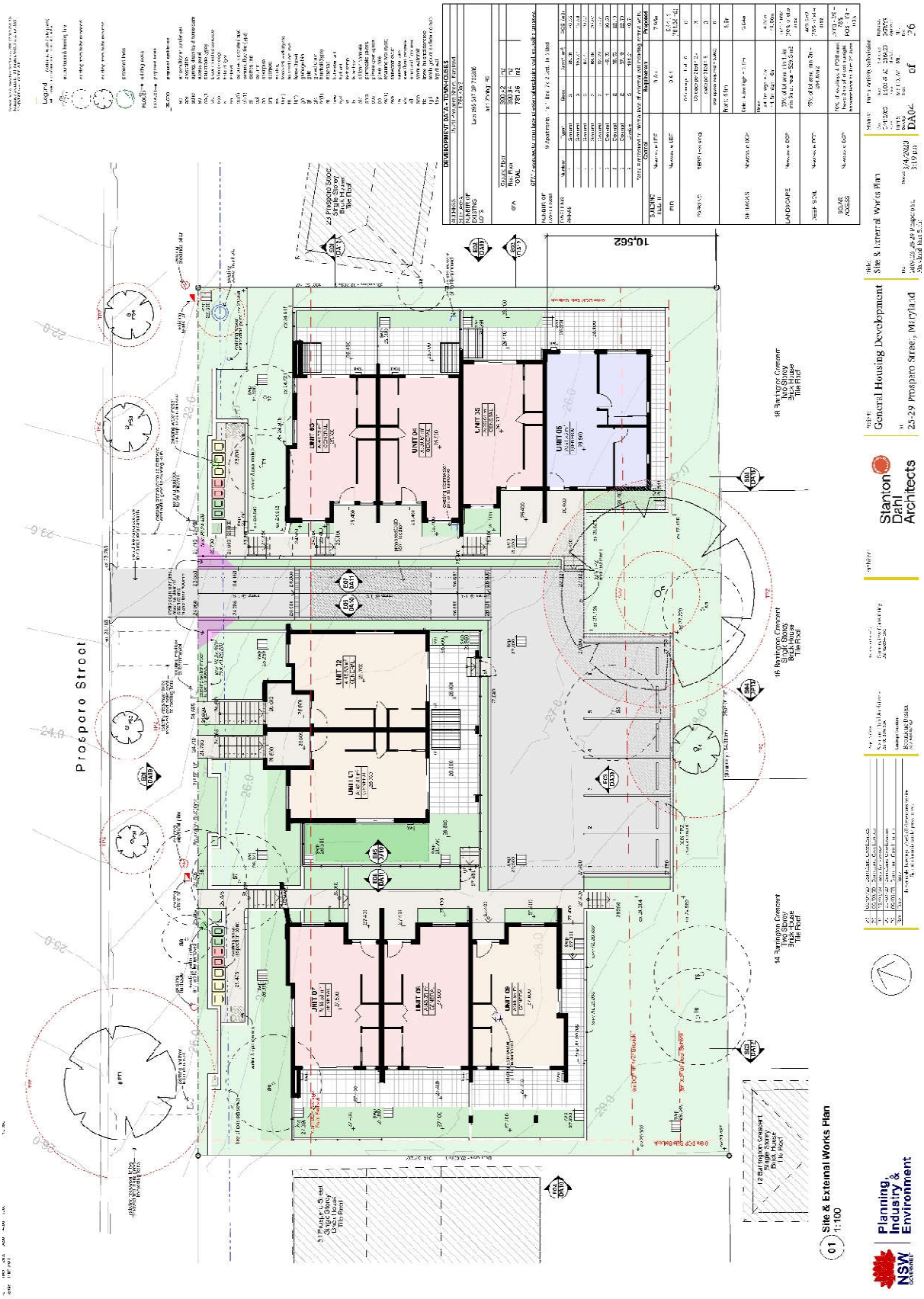

FIGURE 4 – SITE PLAN

4.0 UTILITY SERVICES AND INFRASTRUCTURE

4.1 WATER SERVICES

A reticulated water supply and street hydrant access is available providing coverage of the development in accordance with AS 2419.1 – 2005. It is noted that hydrant pressures have not been tested as part of this report.

4.2 ELECTRICITY SERVICES

The existing electrical transmission lines are located underground and require no additional protection measures.

4.3 GAS SERVICES

- Reticulated or bottled gas to be installed and maintained in accordance with AS1596 (2002) and the requirements of the relevant authorities. Metal piping is to be used.
- Fixed gas cylinders to be kept clear of flammable material by a distance of 10 metres and shielded on the hazard side of the installation.
- Gas cylinders close to the dwelling are to have the release valves directed away from the building and be at least 2 metres from flammable material with connections to and from the gas cylinder being of metal.
- Polymer-sheathed, flexible gas supply lines to gas meters adjacent to the buildings are not to be used.

5.0 PROPERTY ACCESS

Property access is by way of Prospero Street providing access from the public road system directly to the private land, giving firefighters access to the building.

Property access roads shall comply with Section 7 of Planning for Bush Fire Protection (2019).

Planning for Bush Fire Protection (2019) requires no specific access requirements in an urban area where a 70-metre, unobstructed path can be demonstrated between the most distant external part of the proposed building and the nearest part of the public access road (where the road speed limit is not greater than 70kph) that supports the operational use of emergency firefighting vehicles (i.e. a hydrant or water supply). There are no formal requirements for property access.

6.0 LANDSCAPING MAINTENANCE

It is recommended that landscaping is undertaken in accordance with Planning for Bush Fire Protection (2019) Appendix 4 and be maintained for the life of the development.

Trees should be located greater than 2 metres from any part of the roofline of a building. Garden beds of flammable shrubs are not to be located under trees and should be no closer than 10 metres from an exposed window or door. Trees should have lower limbs removed up to a height of 2 metres above the ground.

The landscaped area should be maintained free of leaf litter and debris. The gutter and roof should be maintained free of leaf litter and debris.

Landscaping should be managed so that flammable vegetation is not located directly under windows.

Ground fuels such as fallen leaves, twigs (less than 6 millimetres in diameter) and branches should be removed on a regular basis, and grass needs to be kept closely mown and, where possible, green.

7.0 RECOMMENDATIONS

Based upon an assessment of the plans and information received for the proposal, it is recommended that development consent be granted subject to the following conditions.

1. The proposed building works shall comply with BAL-12.5 in accordance with AS3959 (2018) Construction of buildings in bushfire-prone areas or NASH Standard (1.7.14 updated) National Standard Steel Framed Construction in Bushfire Areas – 2014 as appropriate and the additional construction requirements of Planning for Bush Fire Protection (2019) Section 7.5.2.
2. At the commencement of building works and in perpetuity, the entire property shall be managed as an inner protection area (IPA) as outlined within Appendix 4 of Planning for Bush Fire Protection 2019 and the NSW Rural Fire Service's document Standards for Asset Protection Zones.
3. Water, electricity and gas are to comply with Section 7 of Planning for Bush Fire Protection (2019).
4. Landscaping is to be undertaken in accordance with Planning for Bush Fire Protection (2019) Appendix 4 and managed and maintained in perpetuity.
5. It is recommended that the property owner and occupants familiarise themselves with the relevant bushfire preparation and survival information provided by the NSW RFS.

8.0 CONCLUSION

The final recommendation is that the proposed development offers compliance with Planning for Bush Fire Protection (2019). There is potential for bushfire attack at this site and a list of recommendations has been included in the above assessment to reduce that risk.

The proposed development results in a better bushfire outcome by replacing existing dwellings that do not comply with AS3959, with bushfire compliant construction.

9.0 APPENDIX 1.0 – ASSET PROTECTION ZONES SUMMARY

Below is a summary of asset protection zones (APZ) outlined in Planning for Bush Fire Protection (2019) Appendix 4 and the NSW RFS' Standards for Asset Protection Zones. The property owner(s) should obtain these two documents and familiarise themselves with their content.

Generally
APZ refer to the area between the bushfire threat and the asset (i.e. building). The APZ may contain two areas; the Inner Protection Area (IPA) and the Outer Protection Area (OPA). Some areas should be managed entirely as an IPA. Refer to the plans for locations of APZ and distances from assets.

IPA
The IPA is located adjacent to the asset and is identified as a fuel-free zone.

A. Shrubs (consisting of plants that are not considered to be trees)

1. Shrubs must be located away from a building's glazing and vent openings.
2. Avoid planting around entryways if the vegetation is flammable.
3. A maximum 20% of the IPA may contain shrubs.
4. A minimum 1.5 metre separation of shrubby vegetation from the building shall be maintained.
5. Shrubs must not have a connection with the tree canopy layer; remove/trim shrubs or underprune trees.
6. Ensure turf is suitably mown and/or grasslands are continually slashed to restrict to maximum 100 millimetres high.

B. Trees: Maintain a minimum 2-5 metre canopy separation.

1. Trees are allowed in the IPA however they should not touch or overhang buildings. No tree should be within 2 metres of the roofline.
2. Underprune branches between the shrub layer and the canopy layer.
3. Ensure branches do not overhang buildings.
4. Ensure all trees in the IPA within 3 metres of buildings do not provide a serious fire threat.
5. Trees should have lower limbs removed up to a height of 2 metres above the ground.

OPA
The OPA is located adjoining the vegetation. The OPA should be maintained as a fuel-reduced area. This assumes trees may remain but with a significantly reduced shrub, grass, and leaf litter layer. In many situations leaf litter and the shrub layer may not require maintenance at all.

A. Shrubs:

1. Reduce or trim large stands of shrubs.

B. Trees:

1. Existing trees can be retained.
2. Ensure a separation is available between shrubs and tree canopy.
3. Reduce tree canopy so there is no interlocking canopy.

10.0 REFERENCES AND DISCLAIMER

References

Standards Australia AS3959 (2018) Construction of buildings in bushfire-prone areas.

Keith D. "Ocean Shores to Desert Dunes", Department of Environment and Conservation, Sydney, (2004).

Environmental Planning and Assessment Act 1979.

New South Wales Rural Fire Service Planning for Bush Fire Protection (2019).

Disclaimer

Despite the recommendations in this report, it is impossible to remove the risk of fire damage to the building entirely. This report assesses and provides recommendations to reduce that risk to a manageable level. It is of paramount importance that the recommendations are adhered to for the life of the structure and that all maintenance is performed to ensure a level of protection is provided to the building, occupants and firefighters.

Planning for Bush Fire Protection (2019) states that notwithstanding the precautions adopted, it should always be remembered that bushfires burn under a wide range of conditions and an element of risk, no matter how small, always remains.

AS3959 (2018) Construction of buildings in bushfire-prone areas states that the standard is designed to lessen the risk of damage to buildings occurring in the event of the onslaught of bushfire. There can be no guarantee, because of the variable nature of bushfires, that any one building will withstand bushfire attack on every occasion.