

**BUSHFIRE ASSESSMENT REPORT**

**PROPOSED LAND CHANGE OF USE TO SCHOOL GROUNDS**

**LOT 1 DP 1247459  
118 Dragonfly Drive, Chisholm**

Date: **21/10/2022**

Prepared for: **Catholic Diocese of Maitland-Newcastle**

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## 1.0 EXECUTIVE SUMMARY AND COMPLIANCE TABLES

This report has assessed the proposed land change of use to school grounds against the requirements of Section 100B of the Rural Fires Act 1997, 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

<b>Applicant Name</b>	Catholic Diocese of Maitland-Newcastle		
<b>Site Address</b>	118 Dragonfly Drive, Chisholm	<b>Lot/Sec/DP</b>	Lot 1 DP 1247459
<b>Local Government Area</b>	Maitland	<b>FDI</b>	100
<b>Bushfire Prone Land</b>	Yes, mapped bushfire prone land		
<b>Type of development</b>	Land change of use to school grounds	<b>Type of Area</b>	Urban
<b>Special Fire Protection Purpose</b>	Yes	<b>Flame Temperature</b>	1200K
<b>Application Complies with Deemed to Satisfy (DTS) Provisions</b>	Yes	<b>Referral to NSW Rural Fire Service (NSW RFS) required</b>	Yes. Bushfire Safety Authority Required

TABLE 2 – BUSHFIRE THREAT ASSESSMENT

	<b>North and West</b>	<b>East</b>	<b>East</b>	<b>South</b>
<b>Vegetation Structure</b>	Maintained Lands	Forest	Grassland	Grassland
<b>Asset Protection Zone (APZ)</b>	140 metres	79 metres	40 metres	105 metres
<b>Accurate Slope Measure</b>	N/A	4 degrees downslope	4 degrees downslope	N/A
<b>Slope Range</b>	N/A	1 to 5 degrees downslope	1 to 5 degrees downslope	N/A
<b>Planning for Bush Fire Protection (2019) Table A1.12.1 Minimum Setbacks</b>	N/A	79 metres	40 metres	N/A
<b>AS3959 (2018) Bushfire Attack Level (BAL)</b>	BAL-LOW	BAL-12.5	BAL-12.5	BAL-LOW

The above details minimum setbacks for a future building. No buildings are proposed.

TABLE 3 – PLANNING FOR BUSH FIRE PROTECTION (2019) SECTION 6 COMPLIANCE

<b>Performance Criteria</b>	<b>Proposed Development Determinations</b>	<b>Method of Assessment</b>
<b>Asset Protection Zone</b>	<p>Asset Protection Zones have been determined in accordance with Planning for Bush Fire Protection (2019).</p> <p>The Asset Protection Zone will be maintained for the life of development and defensible space is provided onsite.</p>	Acceptable Solution
<b>Landscaping</b>	Landscaping to comply with Planning for Bush Fire Protection (2019), appendix 4.	Acceptable Solution
<b>Construction Standards</b>	No buildings are proposed as part of this development. Existing school buildings have been built in accordance with Planning for Bush Fire Protection (2019).	Not applicable
<b>Access</b>	No new public roads are proposed for this development.	Acceptable Solution
<b>Property Access</b>	Property access offers compliance with Planning for Bush Fire Protection (2019) section 6.	Acceptable Solution
<b>Water and Utility Services</b>	Water, electricity and gas services offer compliance with Planning for Bush Fire Protection (2019).	Acceptable Solution
<b>Emergency Management</b>	The existing Bush Fire Emergency Management and Evacuation Plan for the school shall incorporate the subject site.	Acceptable Solution

## **2.0 INTRODUCTION**

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### **2.1 PURPOSE OF REPORT**

The purpose of this report is to establish suitable bushfire mitigation measures for the proposed land change of use to school grounds for existing vacant land located at Lot 1 DP 1247459, 118 Dragonfly Drive, Chisholm. The assessment acknowledges the requirements of Section 100B of the Rural Fires Act 1997 and Planning for Bush Fire Protection (2019) to protect persons, property and the environment from dangers that may arise from a bushfire.

Under the provisions of Section 100B of the Rural Fires Act 1997 as amended, a Bushfire Safety Authority (BFSA) is required from the Commissioner of the NSW Rural Fire Service.

This report complies with Rural Fires Regulation 2008 Clause 44 Application for Bushfire Safety Authority. The assessment encompasses the subject site and neighbouring areas.

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 school in a bushfire event.

### **2.2 PROPOSED DEVELOPMENT**

The subject site is vacant land located east of the existing school identified as St Bede's Catholic College and St Aloysius Catholic Primary School. The proposed development includes the change of use to become school playgrounds. No buildings are proposed as part of this development. The subject site will retain its current zoning of R1 residential and is 1.349 hectares in size.

### **2.3 SIGNIFICANT ENVIRONMENTAL FEATURES**

There are no known significant environmental features affecting the site.

### **2.4 ENVIRONMENTAL ASSETS**

There are no known environmental assets on the subject site.

### **2.5 ABORIGINAL HERITAGE**

Searches of NSW National Parks and Wildlife Service's database identify no known aboriginal relics or aboriginal places as defined by National Parks and Wildlife Act 1974 to exist on the site.



PHOTOGRAPH 1 – SITE PHOTO

View of the subject site looking north. The subject site is mown grass with the existing school visible to the west.



PHOTOGRAPH 2 – EASTERN GRASS AND FOREST

View of grassland and Hunter Macleay Dry Sclerophyll Forest located east of the site. The forest is dominated by eucalypts in the upper stratum with a sparse grassy understorey. Significant clearing has occurred in recent years and will continue as further subdivision stages progress.



FIGURE 1 – SITE CONSTRAINTS MAP



### **3.0 BUSHFIRE ATTACK ASSESSMENT**

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#### **3.1 VEGETATION CLASSIFICATION**

Potential bushfire hazards were identified from Maitland Council 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.

#### **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 MINIMUM SETBACKS AND ASSET PROTECTION ZONES**

Minimum setbacks have been determined in accordance with Planning for Bush Fire Protection (2019) Table A1.12.1. The minimum Asset Protection Zone for subdivision has been demonstrated in Section 1.0 Executive Summary and Compliance Tables.

The required Asset Protection Zone is available within the subject site and neighbouring managed road reserve.

#### **3.4 BUSHFIRE ATTACK LEVELS**

BALs and relevant construction levels in accordance with Planning for Bush Fire Protection (2019) have been demonstrated in Section 1.0 Executive Summary and Compliance Tables, Table 2 Bushfire Threat Assessment.

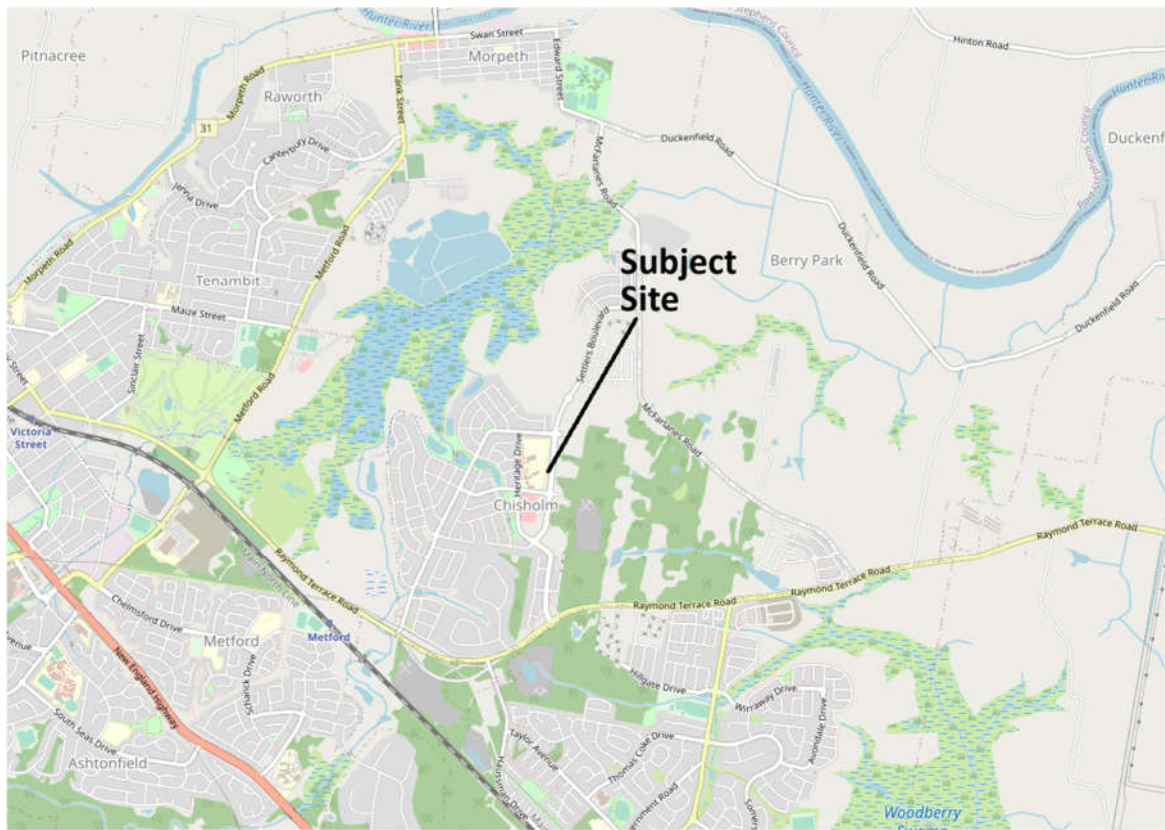


FIGURE 2 – LOCALITY MAP  
Courtesy of OpenStreetMap

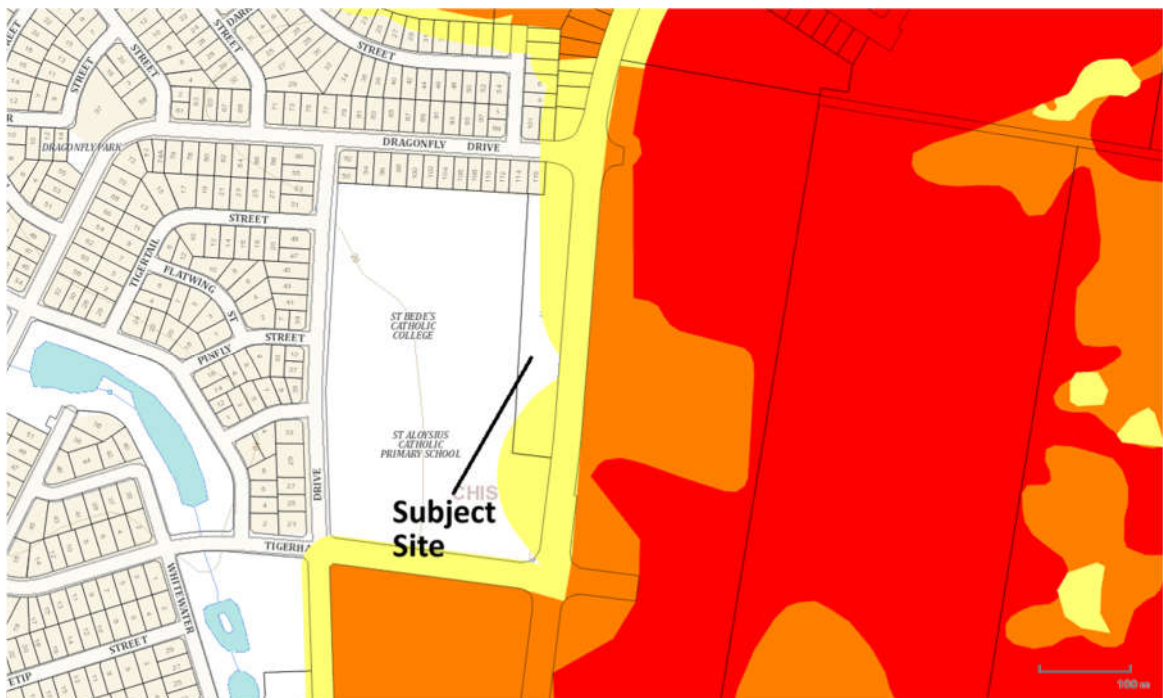


FIGURE 3 – COUNCIL'S BUSHFIRE PRONE LAND MAP

## **4.0 UTILITY SERVICES AND INFRASTRUCTURE**

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### **4.1 WATER SERVICES**

A reticulated water supply and street hydrant access are available providing coverage of much of the land in accordance with AS 2419.1 – 2005. Any future buildings constructed shall consider hydrant span compliance.

### **4.2 ELECTRICITY SERVICES**

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

### **4.3 GAS SERVICES**

No gas services are proposed to be expanded into the subject site.



**PHOTOGRAPH 3 – NORTHEASTERN CLEARED LAND FOR RESIDENTIAL DEVELOPMENT**  
View of cleared land located northeast of the site for future residential development stages within Waterford County.

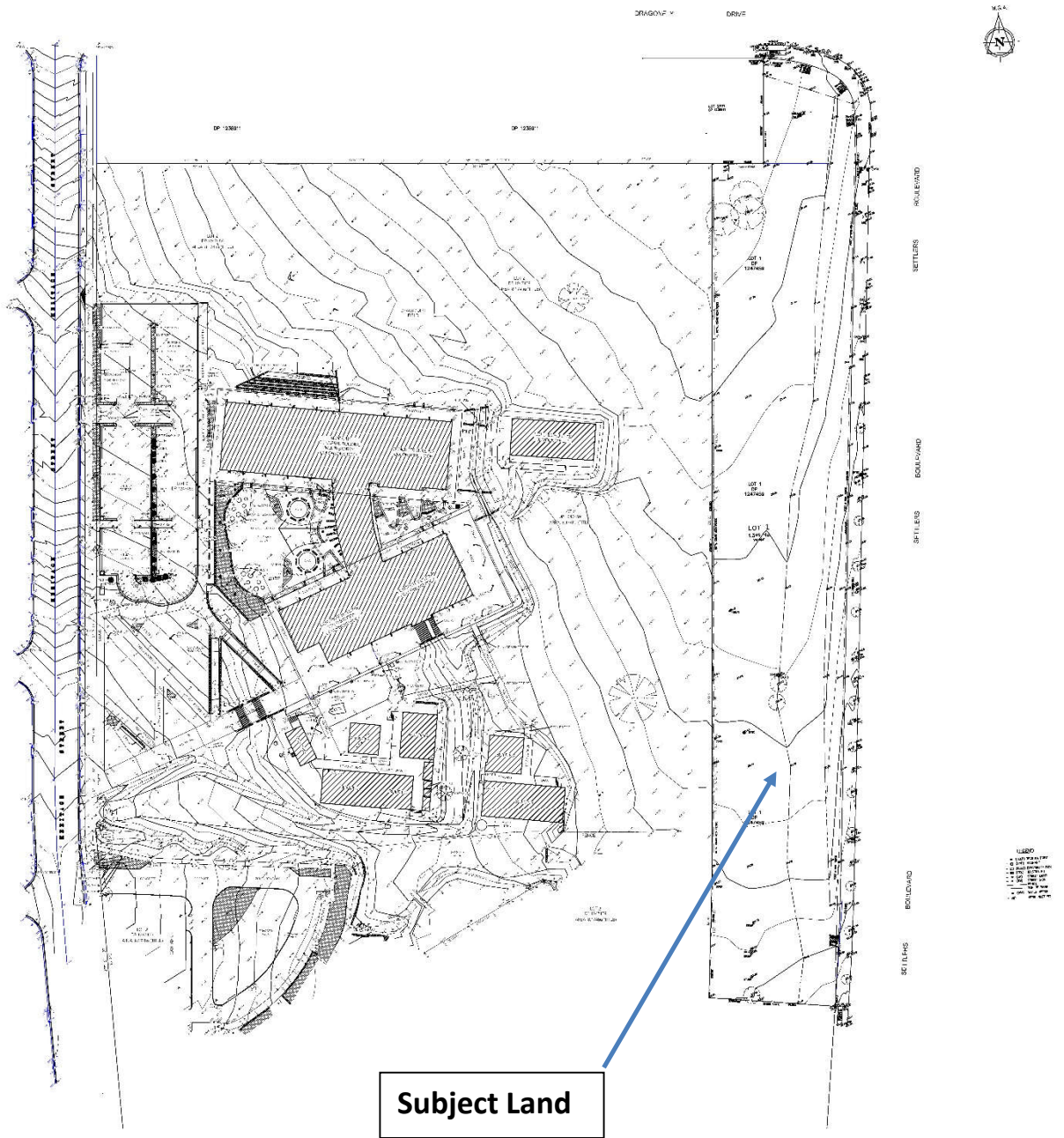


FIGURE 4 – SITE PLAN

## **5.0 PROPERTY ACCESS**

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### **Public Road Access**

The subject site is located on Dragonfly Drive being a two-lane road interconnecting into the local road network. Emergency Services are expected to have good access to the area at most times.

No new public roads are proposed for this development.

### **Fire Trails**

Fire trails do not intersect the vegetation in the local area. No new fire trails are proposed for this development.

### **Property Access**

Property access is provided by way of Dragonfly Drive providing access from the public road system directly to the private land. No new buildings are proposed however hydrant span compliance can be reviewed with future development.

Property access roads shall comply with Planning for Bush Fire Protection (2019) Section 6.

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**

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It is recommended that landscaping is undertaken in accordance with Planning for Bush Fire Protection (2019) Appendix 4 and 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 EMERGENCY AND MAINTENANCE PLANS**

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### **7.1 BUSHFIRE MAINTENANCE PLANS**

The existing bushfire maintenance plan should be expanded to include the subject site. The subject site shall be managed as an inner protection area.

### **7.2 FIRE EMERGENCY PROCEDURES**

The existing arrangements for emergency and evacuation of the school and associated buildings, shall be expanded to incorporate the subject site, with specific consideration of bushfire.

## **8.0 RECOMMENDATIONS**

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There are presently no buildings located onsite and no buildings are proposed as part of this development application. The intended use of the land is as playground and sporting facilities which will benefit the existing school building resilience. Any future building will be assessed separately under relevant bushfire legislation that is current at time of lodgement:

1. Following approval of the development application 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.
2. Any landscaping is to be undertaken in accordance with Planning for Bush Fire Protection (2019) Appendix 4 and managed and maintained in perpetuity.
3. The subject site shall be added to the existing emergency management plans with specific consideration of bushfire.

## **9.0 CONCLUSION**

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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.

## **10.0 APPENDIX 1.0 – ASSET PROTECTION ZONES SUMMARY**

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Below is a summary of Asset Protection Zones outlined in appendix 4 of Planning for Bush Fire Protection (2019) and the NSW Rural Fire Service's "Standards for Asset Protection Zones". The property owner(s) should obtain these two documents and familiarise themselves with their content.

### **Generally**

Asset Protection Zones (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 Inner Protection Area (IPA). Refer to the plans for locations of APZ and distances from Assets.

### **Inner Protection Area (IPA)**

The inner protection area 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. Large discontinuities or gaps in the vegetation to slow down or break the progress of fire towards buildings should be created;
2. Shrubs should not be located under trees;
3. Shrubs should not form more than 10% ground cover; and
4. Clumps of shrubs should be separated from exposed windows and doors by a distance of at least twice the height of the vegetation.

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

1. Tree canopy cover should be less than 15% at maturity;
2. Trees at maturity should not touch or overhang the building;
3. Lower limbs should be removed up to a height of 2m above the ground;
4. Tree canopies should be separated by 2 to 5m; and
5. Preference should be given to smooth barked and evergreen trees.

### **Outer Protection Area (OPA)**

The Outer Protection Area (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. Shrubs should not form a continuous canopy;
2. Shrubs should form no more than 20% of ground cover.

#### **B. Trees:**

1. Existing trees can be retained.
2. Tree canopy cover should be less than 30%; and
3. Canopies should be separated by 2 to 5m.

### **Grass (throughout the entire asset protection zone)**

Grass should be kept mown (as a guide grass should be kept to no more than 100mm in height); and leaves and vegetation debris should be removed.

## **11.0 REFERENCES AND DISCLAIMER**

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### **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).

Rural Fires Act 1997.

Rural Fires Regulation 2008.

### **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) Building 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.