

# **AUSTRALIAN BUSHFIRE**

# CONSULTING SERVICES











ABN 23 622 676 493 PO Box 212 Berowra Heights 2082

# Bush Fire Assessment Report



Proposed industrial subdivision and storage facility:

9 - 13 Cook Street Forestville NSW 2087

> 20<sup>th</sup> December 2018 Reference 18-317

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#### **Abbreviations:**

ABCS Australian Bushfire Consulting Services Pty Ltd

APZ Asset Protection Zone

AS3959 Australian Standard 3959 – 2009 including amendments 1-3

BAL Bushfire Attack Level

BCA Building Code of Australia

BPMs Bushfire Protection Measures

BPLM Bushfire Prone Land Map

Council Northern Beaches Council

DA Development Application

EP&A Act Environmental Planning and Assessment Act - 1979

ESD Ecologically Sustainable Development

FR NSW Fire & Rescue NSW

IPA Inner Protection Area

LGA Local Government Area

NCC National Construction Codes

NP National Park

NSP Neighbourhood Safer Place

OPA Outer Protection Area

PBP Planning for Bushfire Protection – 2006

ROW Right of Way

RF Act Rural Fires Act - 1997

RFS NSW Rural Fire Service

SEPP State Environmental Planning Policy

SFPP Special Fire Protection Purpose

SWS Static Water Supply

### 1.0 Introduction.

The development seeks approval for the construction of a new storage facility within an existing industrial allotment at 9 - 13 Cook Street, Forestville. The subject site will also be subject to a future subdivision application to excise the existing hardware store business and the proposed development into separate allotments. The subject property is mapped as bushfire prone land and therefore the application of Planning for Bush Fire Protection 2006 (PBP 2006) is relevant to this development proposal. It is noted that, following the proposed future subdivision, the new allotment and proposed storage facility site will no longer be bushfire prone land as it will be excised from the residual part of the property currently affected by the buffer zone from Category 1 Vegetation.

The aims of PBP 2006 are to provide for the protection of human life (including firefighters) and to minimise impacts on property from the threat of bush fire, while having due regard to development potential, on-site amenity and protection of the environment. This is achieved by determining available asset protection zones, applying the relevant construction requirements, ensuring adequate access and egress has been considered, providing safe service supply and adequate water provisions for occupants and attending emergency services.

The development is classified as infill and other development (section 4.3 PBP 2006) and assessed under section 4.14 of the Environmental Planning and Assessment Act 1979 (EP&A Act).

## 2.0 Property details.

Address: 9-13 Cook Street Forestville NSW 2087

Lot/DP: Lot 100 DP 615225 Zoned: IN2 Light Industrial

LGA: Northern Beaches Council

The subject site has street frontage and primary access to and from Cook Street to the west. The subject site abuts a mixture of developed uses including other light industrial premises to the west, residential property to the north and south, and a school and church / parish grounds to the east and north.

# 3.0 Legislative context.

Under Section 4.14 of the EP&A Act, Council can determine a development application on bushfire prone land providing;

Council is satisfied that the development conforms to the specifications and requirements of Planning for Bush Fire Protection that are relevant to the development or

Council has been provided with a certificate by a person who is recognised by the NSW Rural Fire Service as a qualified consultant in bush fire risk assessment stating that the development conforms to the relevant specifications and requirements *Planning for Bush Fire Protection*.

If the Council is satisfied that the development does not conform to the relevant specifications and requirements of *Planning for Bush Fire Protection* Council may grant consent but only if it has consulted with the Commissioner of the NSW Rural Fire Service concerning measures to be taken with respect to the development to protect persons, property and the environment from danger that may arise from a bush fire.

The highest bushfire attack level (BAL) to the proposed buildings has been determined to be BAL Low. Suitable recommendations have also been made herein to enable Council to issue development consent inclusive of conditions required to ensure compliance with all requirements of PBP 2006.

The proposal meets the aims and objectives of PBP 2006 by means of compliance with the deemed to satisfy provisions of that document. I am a person who is recognised by the NSW Rural Fire Service as a qualified consultant in bush fire risk assessment and I have attached a certificate to this report satisfying the requirements of s4.14. As such Council can approve the application without referral to the NSW Rural Fire Service.

## 4.0 Referenced documents and people.

The following documents have been referenced in the preparation of this report;

- Warringah Local Environmental Plan 2011
- Warringah Development Control Plan 2011 (amended May 2016),
- Northern Beaches Council Bushfire Prone Land Map,
- AS3959 2009 Construction of buildings in bushfire prone areas,
- Planning for Bush Fire Protection 2006,
- Rural Fires Act 1997
- Rural Fires Regulation 2013
- 10/50 Vegetation Clearing Code of Practice
- NSW RFS Guide for bush fire prone land mapping V5b Nov 2015
- Ocean Shores to Desert Dunes David Andrew Keith 2004

The Building Plans and Elevations by SBA Architects Job 18241 Dwgs DA 000-003, 051-053, 200-203, 301, 305 & 401 and the Draft Plan of proposed subdivision by LTS Lockley ref 50471 002DP have been reviewed and relied upon in the preparation of this report. I undertook an inspection of the property on 18/12/2018, at that time free access was available within the subject site. I also rely on previous inspections of this area and the bushfire hazard assessment undertaken by me for development at 1A Landscape Avenue Forestville, at which time access into the bushfire hazard was undertaken.

## 5.0 Copyright, scope and disclaimer.

This assessment of possible bushfire impact (including smoke, ember, radiant heat and flame contact) and compliance with other matters such as access and service supply is pertinent to the subject site only. Where reference has been made to the surrounding lands, this report does not assess impact to those lands rather it is an assessment of possible bushfire progression and impact on or from those lands towards the subject site.

Apart from any use permitted under the Copyright Act 1968 no part of this document, including any wording, images, or graphics, can be modified, changed or altered in any way without written permission from Australian Bushfire Consulting Services Pty Ltd. This report may only be referenced, distributed or forwarded to other parties in its original format.

This report has been prepared as a submission document in support of a development application to Council and cannot be relied upon for commencement of works or construction until it has been included within the consent conditions issued by Council as part of the DA determination. The onus is on the applicant to cross reference this document with any conditions of consent issued by Council or any requirements supplied by the NSW Rural Fire Service following development approval. I can review and cross reference these documents however the onus is on the applicant / client to provide them to me and request this review.

Where any difference between this document and the development consent (or the NSW Rural Fire Service requirements) is found, the conditions of consent always take precedence until an application to review, amend or vary those conditions is approved.

The statements and opinions contained in this report are given in good faith and in the belief that such statements and opinions are correct and not misleading. AS3959 – 2009 states that "...there can be no guarantee that a building will survive a bushfire event of every occasion. This is substantially due to the unpredictable nature and behaviour of fire and extreme weather conditions". The NSW RFS state "Homes are not designed to withstand fires in catastrophic conditions". Correspondingly any representation, statement of opinion, or advice expressed or implied in this document is made on the basis that Australian Bushfire Consulting Services Pty Ltd is not liable 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 made by Australian Bushfire Consulting Services Pty Ltd.

# 6.0 Assessment summary table.

Aspect	North	Southeast	East	West
Vegetation Structure	n/a	Forest	n/a	n/a
Slope	n/a	10-15° downslope	n/a	n/a
Separation distance to proposed development	n/a	>190 metres	n/a	n/a
Separation distance to existing development	n/a	>136 metres	n/a	n/a
Features that may mitigate the impact bush fire on the proposed development.	The proposed development is separated from the hazard interface by developed and maintained residential land, managed school grounds, and the formed features within Landscape Avenue road reserve.			
Noteworthy landform & environmental features.	Maintained land around a church, parish offices, school, residential lots and other commercial development	Maintained land within school property, residential lots and Landscape Avenue road reserve	Maintained land within school property	Cook Street and maintained land around other commercial development
Threatened Species	n/a	APZ existing	n/a	n/a
Aboriginal Relics	n/a	APZ existing	n/a	n/a
Bushfire Attack Level	n/a	BAL Low	n/a	n/a
Required Construction Level	The highest Bushfire Attack Level to the existing hardware retail building onsite and proposed new development was determined from Table 2.4.2 of AS3959 – 2009 to be 'BAL Low'.			
Proposed Construction Level  AS3959 – 2009: This Standard does not provide construction buildings assessed in bushfire-prone areas in accordance of BAL—LOW. AS3959 – 2009. The Bushfire Attack Level Bainsufficient risk to warrant specific bushfire construction recommendations are required for the provide construction.			eas in accordance wi fire Attack Level BAI fire construction requ	th Section 2 as being L—LOW is based on irements.
	No construction recommendations are required for the proposed development nor are there any retrofitting measures necessary on the existing development.			

PBP 2006 Ref.	Proposed Development Determinations
Property Access	Both the existing development and the proposed storage facility will retain primary street access to and from Cook Street to the west. The proposed access is 6.5 metres wide two way and provides a loop around a building to a one way exit back onto Cook Street. Greater than 4 metre vertical clearance is available where the access traverses through the building void. Additionally, access through the site to the existing hardware store yards is provided where suitable turning areas are retained. The proposal meets the requirements for fire appliance access detailed within s4.1.3 of PBP 2006.
Water Supply	Hydrants are available within Cook Street and Landscape Avenue available for the replenishment of fire service vehicles. Hydrants are also available within the subject site and hose reels are installed in locations that ensure coverage to the entire property is provided. It is assumed that where required services and equipment (fire protection measures) are to be provided within the proposed new building in accordance with Part E of the National Construction Code.
Evacuation	Evacuation is possible by utilising existing road infrastructure which is not altered as part of this application. It is encouraged 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.

# 7.0 Images and maps.



Image 01: Aerial image from NSW Land & Property Information / Spatial Information Exchange



Image 02: Aerial image from NearMaps.com online mapping services

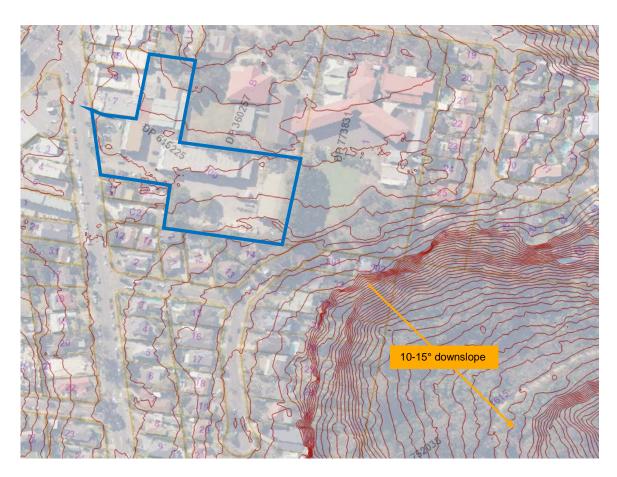


Image 03: 1 metre contour data from Aust. Gov. Elevation Information System (ELVIS)



Image 04: Topographic image from NSW Land & Property Information / Spatial Information Exchange

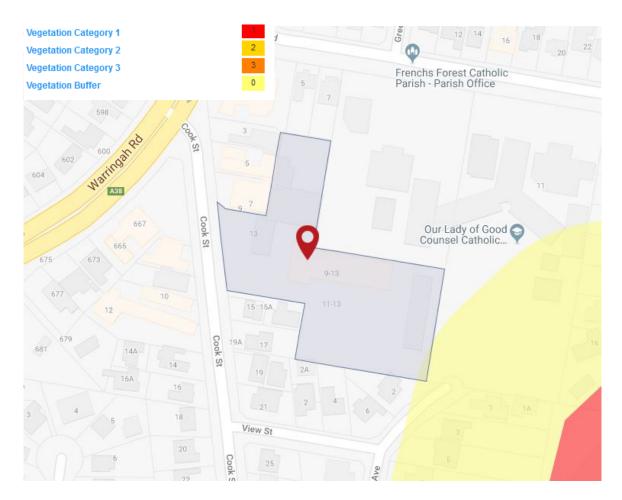


Image 05: Bushfire prone land map from Dept Planning Property Information.

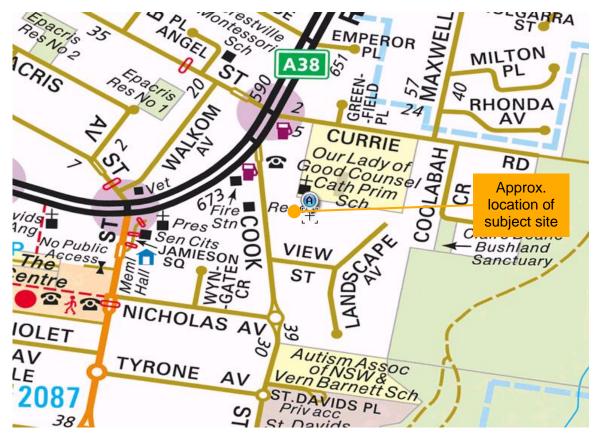


Image 06: Extract from street-directory.com.au

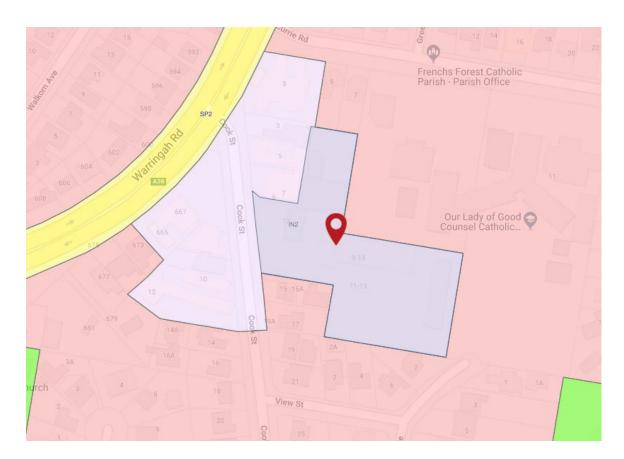


Image 07: Warringah Council LEP Zones from Dept Planning Property Information.

#### 8.0 Bushfire hazard assessment

Properties considered to be bushfire prone land are identified on Councils Bushfire Prone Land Map as being:

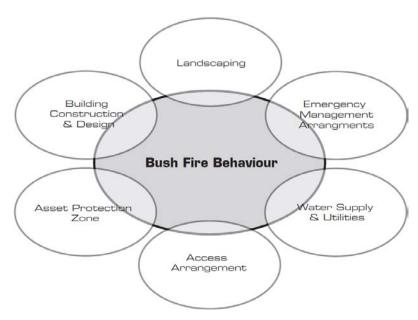
- within or within 100 m of Category 1 (high) hazards or,
- within or within 30 m of Category 2 (low) hazards or,
- within or within 30 m of Category 3 (medium) hazards.

The NSW RFS document PBP – 2006 is applicable to all development on bushfire prone land, this includes an assessment of the proposals adequacy in providing an appropriate combination of bushfire protection measures in terms of asset protections zones, landscaping, access and service supply. This document also provides a means of determining the necessary level of building construction under AS3959 - 2009. All development on bushfire prone land must be accompanied with a bushfire hazard assessment that includes;

- a statement that the site is bush fire prone land, where applicable.
- the location, extent and vegetation formation of any bushland on or within 100 metres of the site,
- the slope and aspect of the site and of any bush fire prone land within 100 metres of the site, which may determine the likely path of any bush fires,
- any features on or adjoining the site that may mitigate the impact of a high intensity bush fire on the proposed development, and
- a statement assessing the likely environmental impact of any proposed Bush Fire Protection Measures.
- whether any building is capable of complying with AS 3959-2009 in relation to the construction level for bush fire protection.

By incorporating bush fire protection measures into a development, the six objectives of PBP 2006 are addressed:

- 1. afford occupants of any building adequate protection from exposure to a bush fire
- 2. provide for a defendable space to be located around buildings
- 3. provide appropriate separation between a hazard and buildings which, in combination with other measures, prevent direct flame contact and material ignition
- 4. ensure that safe operational access and egress for emergency service personnel and residents is available
- 5. provide for ongoing management and maintenance of bush fire protection measures, including fuel loads in the asset protection zone (APZ)
- 6. ensure that utility services are adequate to meet the needs of fire fighters (and others assisting in bush fire fighting).



#### **8.1** Site

The site has street frontage and primary access to and from Cook Street to the west. The subject site contains existing commercial structures including a hardware store with attached awnings and other undercover areas for storage of hardware supplies. The property is predominately hard surfaced areas with very little landscaping and is surrounded by developed and maintained properties.

The area identified as containing the bushfire hazard is Forestville Park which is located to the southeast of the subject site beyond developed and maintained land and Landscape Avenue.



Photograph 01: View east from Cook Street into the subject site.

## 8.2 Vegetation

In accordance with Planning for Bush Fire Protection 2006 the vegetation structure must be determined under Keith 2004 for a distance out to 140 metres from the subject site.

The vegetation to the southwest within Forestville Park was found to be dominated by eucalypts 10-20 m tall having crowns that touch and overlap (foliage cover of approx. 50-60%) with an understorey of small trees and shrubs. For the purposes of this assessment it has been determined that the vegetation present is classified as Dry Sclerophyll Forest. The vegetation was physically assessed as part of works previously undertaken in this area by me and has again been verified by aerial imagery available.

## 8.3 Topography

The slope must be assessed over a distance of at least 100m from the existing property boundary (or building footprint) towards the various vegetation communities constituting the hazard. In assessing the slope, it may be found that there are a variety of slopes covering different distances. The gradient within the hazard (vegetation) which will most significantly influence the fire behaviour must be determined. There was no bushfire prone vegetation found within the 100 metre assessment area however for completion a slope assessment of the vegetation to the southeast has been included. There is a large cliff along the hazard interface and the effective slope is that within the vegetation below this cliff. Again, the slope was assessed onsite using an inclinometer as part of works previously undertaken by me in this area and has again been verified from topographic mapping to be.

10-15 degrees downslope to the southeast

#### 8.4 Asset Protection Zones

An APZ is a buffer zone between a bush fire hazard and buildings, which is managed progressively to minimise fuel loads and reduce potential radiant heat levels, flame, ember and smoke attack. A fuel-reduced, physical separation between buildings and bush fire hazards is the key element in the suite of bushfire protection measures.

There are no minimum APZs required for commercial and industrial development however to meet the aims and objectives of PBP 2006 the development should:

- provide for a defendable space to be located around buildings
- provide appropriate separation between a hazard and buildings which, in combination with other measures, prevent direct flame contact and material ignition;

Neighbouring allotments and the land within Landscape Avenue road reserve to the southeast are managed as an asset protection zone. The separation from the hazard interface is such that the aims and objective of PBP 2006 have been achieved. The available APZ was measured onsite and from aerial imagery available to be >136 metres from the existing building onsite and >190 metres to the proposed new building footprint.

The asset protection zones are existing and there is no tree removal or vegetation modification necessary for bushfire protection and there are therefore no impacts on the environment of the bushfire protection measures.

To ensure that the property is maintained at safe levels of vegetation and that planting does not create a bushfire hazard, recommendations will be included within this report to ensure the subject site is maintained in accordance with Appendix 2 & 5 of PBP 2006.

#### 8.5 Access & egress

The intent of measures required by PBP 2006 is to provide safe access to / from the public road system for firefighters providing property protection during a bush fire and for occupants faced with evacuation. The performance requirement is that access to properties is provided in recognition of the risk to fire fighters and / or evacuating occupants.

Both the existing development and the proposed storage facility will retain primary street access to Cook Street to the west. The proposed access is 6.5 metres wide two way and provides a loop around a building to a one way exit back onto Cook Street. Greater than 4 metre vertical clearance is available where the access traverses through the building void. Additionally, access through the site to the existing hardware store yards is provided where suitable turning areas are retained. The proposal meets the requirements for fire appliance access detailed within s4.1.3 of PBP 2006.

#### 8.6 Services

Existing overhead electrical supply is available to the subject site and reticulated gas supply is available in this area. No new services will be installed within 140 metres of the bushfire prone vegetation and are therefore outside the scope of requiring any recommendations for bushfire protection.

Hydrants are available within Cook Street and Landscape Avenue available for the replenishment of fire service vehicles. Hydrants are also available within the subject site and hose reels are installed in locations that ensure coverage to the entire property is provided. It is assumed that where required services and equipment (fire protection measures) are to be provided within the proposed new building in accordance with Part E of the National Construction Code.

#### 8.7 Construction

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 Bushfire 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.

For commercial and industrial buildings PBP 2006 states:

The BCA does not provide for any bush fire specific performance requirements and as such AS 3959 does not apply as a set of 'deemed to satisfy' provisions. The general fire safety construction provisions are taken as acceptable solutions, but the aim and objectives of PBP apply in relation to other matters such as access, water and services, emergency planning and landscaping/vegetation management.

In circumstances where the aim and objectives of PBP (section 1.1) are not met, then the construction requirements for bush fire protection will need to be considered on a case-by-case basis.

The proposed development meets the aims and objectives of PBP 2006 therefore construction details under AS3959 – 2009 only needs to be considered on a case by case basis.

The highest Bushfire Attack Level to the proposed development was determined from Table 2.4.2 of AS3959 – 2009 to be 'BAL Low'.

AS3959 – 2009: This Standard does not provide construction requirements for buildings assessed in bushfire-prone areas in accordance with Section 2 as being BAL—LOW. AS3959 – 2009. The Bushfire Attack Level BAL—LOW is based on insufficient risk to warrant specific bushfire construction requirements.

No construction recommendations are required for the proposed development nor are there any retrofitting measures necessary on the existing development.

#### 8.8 Risk

The level of risk is determined using the combination of likelihood and consequences. The purpose of analysing risk is to establish an understanding of the level of bushfire threat and will help to evaluate the appropriateness of bushfire protection measures recommended for a development application.

This section of the report is a predictive risk evaluation only and assumes development consent includes the recommendations contained within this report. It has been based on an abridged version of the assessment process detailed within the Bush Fire Risk Management Planning Guidelines for Bushfire Risk Management Committees. This evaluation does not reflect the Bushfire Attack Level determined under PBP 2006 or AS3959 - 2009.

The likelihood of a bush fire occurring can be determined using fire history data or local knowledge. The likelihood must be considered in the context of long term planning and not simply if a bush fire is likely to occur during the next five years. The consequences of a bush fire event can be determined by considering the vulnerability of the asset. Vulnerability is related to the capacity of an asset to cope with or recover from the impacts of a bush fire.

Likelihood Rating	Description and indicative probability	
Almost certain	Expected to occur, many recorded incidents, strong anecdotal evidence, high opportunity, reason or means to occur; may occur or be exceeded once in every 5 years.	
Likely	Will probably occur; consistent record of incidents and good anecdotal evidence; considerable opportunity, reason or means to occur; may occur or be exceeded once in every 10 years.	
Possible	Might occur; a few recorded incidents in each locality and some anecdotal evidence; some opportunity, reason or means to occur; may occur or be exceeded once in every 20 years.	
Unlikely	Is not expected to occur; isolated recorded incidents in this community, anecdotal evidence in other communities; little opportunity, reason or means to occur;	

Consequence Rating	Description and indicative result		
Minor	Inconsequential or no damage. Little or no disruption to occupation. Little or no financial loss.		
Moderate	Localised damage that is rectified by routine arrangements. Normal functioning with some inconvenience. Localised displacement of people who return within 24 hours. Personal support satisfied through local arrangements.		
Major	Significant damage that requires external resources. Displacement for more than 24 hours duration. Extensive resources required for personal support.		
Catastrophic	Extensive damage. Extensive personal support. General and widespread displacement for extended durations.		

Consequence Likelihood	Minor	Moderate	Major	Catastrophic
Almost certain	Medium	High	Extreme	Extreme
Likely	Low	Medium	High	Extreme
Possible	Insignificant	Low	Medium	High
Unlikely	Insignificant	Insignificant	Low	Medium

The bushfire risk to this development is determined to be <u>insignificant</u> and the package of bushfire protection measures recommended in section 9 of this report are considered <u>satisfactory</u>.

## 9.0 Recommendations

## 9.1 Asset Protection Zones / landscaping

1. That all grounds within the subject property are to be maintained as an Asset Protection Zone / Inner Protection Area as detailed in the NSW Rural Fire Service's document 'Standards for Asset Protection Zones' and Appendix 2 and 5 of Planning for Bushfire Protection 2006.

#### 10.0 Conclusion

The subject property is determined to be bushfire prone land and the proposal must achieve compliance with the NCC by meeting the aims and objectives of PBP 2006.

This bushfire hazard assessment and determination has been made on a site-specific basis which includes an assessment of the local bushland area and its possible impact to the subject property. The highest Bushfire Attack Level to the proposed building was determined from Table 2.4.2 of AS3959 - 2009 to be BAL Low. Suitable recommendations have been made herein to enable Council to issue development consent inclusive of conditions required to ensure compliance with all requirements of PBP 2006.

The proposal meets the aims and objectives of PBP 2006 by means of compliance with the deemed to satisfy provisions of these documents. I am a person who is recognised by the NSW Rural Fire Service as a qualified consultant in bush fire risk assessment and I have attached a certificate to this report satisfying the requirements of s4.14. As such Council can approve the application without referral to the NSW Rural Fire Service.

In consideration of the bushfire risk posed to the proposed development in combination with the recommended bushfire protection measures contained within this report I am satisfied they will provide a reasonable and satisfactory level of bushfire protection to the proposed development.

I am therefore in support of the development application.

Australian Bushfire Consulting Services Pty Ltd

Wayne Tucker

Managing Director
G. D. Design in Bushfire Prone Areas.
Certificate IV Fire Technology
Ass Dip Applied Science
FPA Australia BPAD Level 3 Accredited Practitioner
BPAD Accreditation No. BPAD9399

# 11.0 List of attachments

Attachment 01: s4.14 Certificate



australianbushfire.com.au



ABN 23 622 676 493 PO Box 212 Berowra Heights 2082

# BUSH FIRE RISK ASSESSMENT CERTIFICATE

Issued in accordance with Section 4.14 of the Environmental Planning Act 1979 No.203

PROPERTY DETAILS	9-13 Cook Street Forestville NSW 2087 Lot 100 DP 615225			
DEVELOPMENT TYPE Commercial and industrial development			oment	
PLAN REFERENCE	Building Plans and Elevations by SBA Architects Job 18241 Dwgs DA 000-003, 051-053, 200-203, 301, 305 & 401 and the Draft Plan of proposed subdivision by LTS Lockley ref 50471 002DP			
BAL RATING	BAL Low	NOTE - If BAL FZ the application is to be referred to the NSW RFS.		
ARE ALTERNATE SOLUTIONS REQUIRED	No	NOTE - If YES the application is to be referred to the NSW RFS.		
IS REFERRAL TO NSW RFS REQUIRED	No	ABCS REF.	18-317	

I Wayne Tucker, of Australian Bushfire Consulting Services Pty. Ltd., hereby certify in accordance with Section 4.14 of the Environmental Planning Act 1979 No.203 that –

- 1. I am a person recognized by the NSW Rural Fire Service as a qualified consultant in bushfire risk assessment and
- 2. Subject to the recommendations contained in the Bush Fire Assessment Report, the proposed development conforms to specifications and requirements of the document entitled *Planning for Bush Fire Protection* (prepared by the NSW Rural Fire Service in co-operation with the Department of Planning) and any other documents as prescribed by Section 4.14 of the Environmental Planning and Assessment Act 1979 No.203.

Further, I am aware that the Bush Fire Assessment Report prepared for the abovementioned site is to be submitted in support of a Development Application for this site. This report will be relied upon by Council as the basis for ensuring that the bushfire risk management aspects of the proposed development have been addressed in accordance with the document entitled Planning for Bush Fire Protection 2006.

Issue date: 20/12/18

Australian Bushfire Consulting Services:

Wayne Tucker

Managing Director.
G. D. Design in Bushfire Prone Areas.
Certificate IV Fire Technology
Ass Dip Applied Science
FPA Australia BPAD Level 3 Accredited Practitioner
BPAD Accreditation No. BPAD9399