

# Planning For Bushfire Protection Pty Ltd



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Reference: 607

7<sup>th</sup> December 2011

## Bushfire Risk Assessment

In relation to proposed development at:

No 27 Castle Circuit, Seaforth

<i>This Assessment has been prepared and Certified by: Ronald Coffey BPAD – A Certified Practitioner FPAA Cert. No: BPD-PA 09328</i>	
Can this proposal comply with AS3959, 2009 + addendum to Appendix 3 of Planning for Bushfire Protection 2006 [PBP]?	<b><u>YES</u></b>
What is the recommended level of compliance AS3959, 2009?	<b><u>BAL 12.5</u></b>
Does this development comply with the requirements of PBP?	<b><u>YES</u></b>
Does this development comply with the Aims and objectives of PBP?	<b><u>YES</u></b>
Is referral to the NSW RFS required?	<b><u>NO</u></b>

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## **Introduction**

The purpose of this report is to determine the category of bushfire attack and subsequent construction standard for the proposed development of a new Class 1A dwelling at No 27 Castle Circuit, Seaforth.

The site is identified as 'bush fire prone land' for the purposes of Section 146 of the *Environmental Planning and Assessment Act 1979* and the legislative requirements for building on bushfire prone lands are applicable.

The proposed development is an infill development as defined within Chapter 4.3.5 of Planning for Bushfire Protection 2006 and this report has been prepared in accordance with the requirements of section 79BA of the Environment Planning and Assessment Act. This assessment includes an analysis of the hazard, threat and subsequent risk to the development proposal and provides recommendations that satisfy the Objectives and Performance requirements of the Building Code of Australia, Planning for Bushfire Protection 2006 [PBP] and Australian Standard AS3959, 2009.

The site was inspected: 7<sup>th</sup> December 2011

## 1) Location

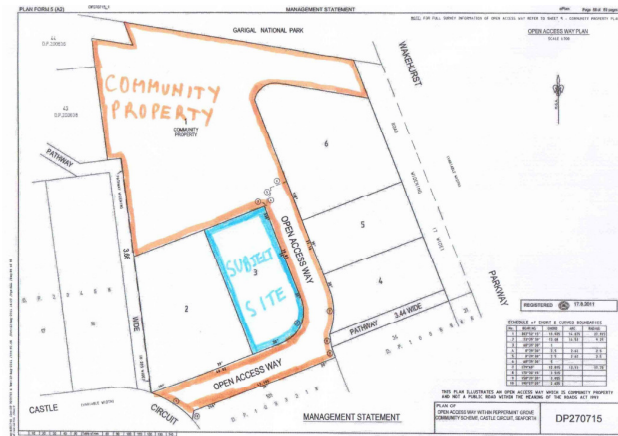
No 27 Castle Circuit, Seaforth

Lot 3, DP 270715

LGA – Manly

## 2) Development Proposal and Building Classifications

The proposal is for the construction of a new class 1a dwelling. The adjacent image shows a large portion of the subdivision [community property] set aside as an Asset Protection Zone [APZ] to the benefit of the remaining lots.

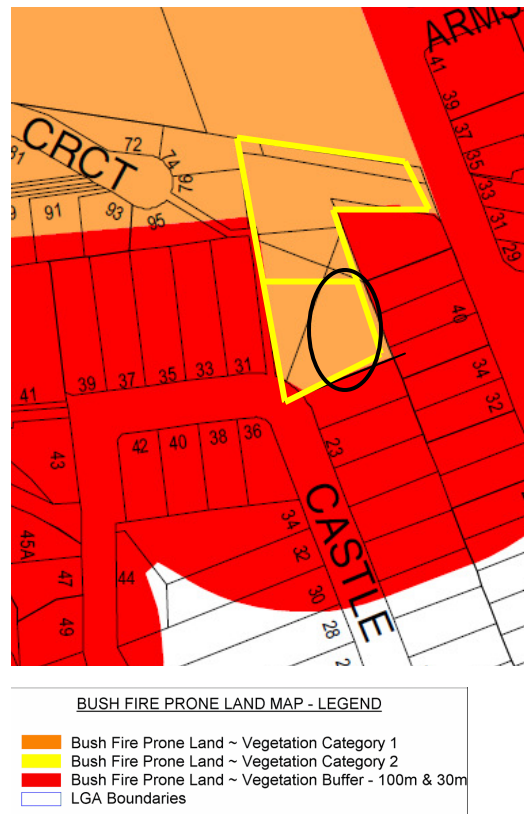


## 3) Description of the Subject Property

The development site is a residential lot facing south onto an access road off Castle Circuit.

The following sections 4-8 describe in detail the vegetation, slope, access and egress, availability of water supplies and environmental considerations for the site. The adjacent image is the bushfire prone land map for the area.

The bushfire prone land map for the area shows the area outlined in yellow as a hazard; however, this entire area has been cleared and approved for subdivision.



#### 4) Classification of the Vegetation on and surrounding the Site

The site is cleared for development and this report will include a recommendation that the entire of the subject site shall be established and maintained as an Inner Protection Area [IPA] in accordance with the requirements of PBP.



Properties south, east and west of the subject site are developed and maintained and there is no threat of bushfire attack from these directions for more than 100m.

45m north of the subject site is an area of bushland that is considered a threat from bushfire attack to the site. With reference to PBP and the bushfire prone land map for the area the classification of vegetation for this hazard is Forest.

The proposed new dwelling is set back 6m from the rear northern boundary of the subject site and the overall distance to the hazard at the closest point, from the development, is 51m.





## 9) Bushfire Risk Assessment

**Table 1;** Reference AS3959, 2009 Table 2.4.2

Determination of category of bushfire attack for the site and subsequent required building standards

Direction	Distance of APZ	Vegetation Classification	Assessment of Effective Slope	Anticipated Radiant heat	Bushfire Attack Level (BAL)
North	51m	Forest	10 degrees upslope	<12.5kw/m2	BAL 12.5
South	>140m	Developed sites	n/a	-	-
East	>140m	Developed sites	n/a	-	-
West & NW	64m	Forest	Across slope	<12.5kw/m2	BAL 12.5

Summary: Based upon the relevant provisions of PBP the anticipated radiant heat attack is for the site is <12.5kw/m2 and the subsequent minimum construction standard is BAL 12.5 AS3959, 2009.

**Inputs:**

Site Address: 27 Castle Circuit Seaforth

Aspect/Elevation: North

Assessed By (First Name/Last Name): Ronald / Coffey

Local Government Area: Manly

Located in Alpine Areas: ☐

Fire Weather Area/FFDI: Greater Sydney Region / 100

Vegetation Class: Forests (Wet & Dry Sclerophyll)

Effective Slope (Type/Value): Flat / 0 degrees

Site Slope (Type/Value): Downslope / 5 degrees

Separation Distance: 51 metres

**Commands:**

**Outputs:**

Radiant Heat Flux (RHF): 11.02 kW/m<sup>2</sup>

Bush Fire Attack Level (BAL): BAL-12.5

Description of Exposure Level: Attack by burning debris is significant with radiant heat. Radiant heat is unlikely to threaten building elements (eg unscreened glass). Specific construction requirements for ember protection and accumulation of debris are warranted.

Construction Section: Sect 3 & 5 of AS3959 and Sect A3.7 of PBP Addendum Appendix 3

## **10) Assessment of the extent to which the construction conforms or deviates from Chapter 4 of 'Planning for Bushfire Protection 2006'**

The proposed development conforms to the requirements of PBP for bushfire protection measures for infill development in relation to:

<u>Performance Criteria</u>	<u>Meets Performance Criteria?</u>	<u>Comment</u>
Asset Protection Zones	Yes	Asset protection zones are provided partially on site and by adjoining development and public roads.
Defendable Space	Yes	Defendable space is provided on all sides of the proposed building
Siting and design	Yes	The siting of the building has been determined in accordance with local council requirements and no advantage could be gained by recommending a re siting of the building.
Landscaping	Yes	The development application shall include recommendations that the site is managed in accordance with Inner Protection Area requirements of PBP.
Construction Standards	Yes	Construction standards have been recommended in accordance with the requirements of PBP
Access and Egress	Yes	The access and egress requirements have been designed to provide safe and effective evacuation from the subject site and appear to be adequate for fire brigade personnel and fire fighting equipment.
Water Supplies	Yes	The area has reticulated water supply and the nearest street hydrant is within the minimum required distance from the most distant point of the subject site in accordance with the requirements of PBP and AS2419.1 2005
Electricity & Gas supplies	Yes	This report shall recommend compliance with PBP 4.1.3 for services including electricity and gas.
Emergency and Evacuation Planning	Yes	The need to formulate an emergency evacuation plan has been discussed; however, an emergency evacuation plan is not recommended as a condition of consent.



## 11) Recommendations

The following recommendations are made for the bushfire protection measures for the proposed residential development of a new Class 1A dwelling at No 27 Castle Circuit, Seaforth and are based upon the relevant provisions of the NSW Rural Fire Service guideline entitled *Planning for Bushfire Protection 2006*.

- 1) Construction Standard: The proposed development shall be constructed to a minimum standard of BAL 12.5, AS3959, 2009 with the exception that the construction requirements shall be varied to comply with the requirements of Section A3.7 of the NSW Rural Fire Service Addendum to Appendix 3 of Planning for Bushfire Protection 2006.
- 2) Construction Standard Class 10a Buildings: Class 10a buildings shall comply with the requirements of AS3959, 2009 Part 3.2. *Construction Requirements for Specific Structures*.
- 3) Construction Standard Class 10b: At the planning stage, class 10b buildings in bushfire prone areas should be non-combustible. [Class 10b buildings include a retaining or free standing wall, swimming pool or the like.]
- 4) Fences and Gates: All new fencing and gates shall be constructed in accordance with the NSW Rural Fire Service guideline: Fast Fact – *Fences or Gates in Bushfire Prone Areas*. [Refer Section 14 of this report]
- 5) Electricity and Gas Supplies: As far as practical, new electricity and gas supplies shall be installed in accordance with the requirements of 4.1.3 of PBP. Note: 4.1.3 of PBP requires that ‘*where practical, electrical transmission lines should be underground*’ and ‘*the location of gas services will not lead to ignition of surrounding bushland or the fabric of the building*’.
- 6) Asset Protection Zones: At the commencement of building works and in perpetuity, the entire property shall be managed as an inner protection area as outlined within PBP and the NSW RFS document ‘Standards for asset protection zones.

The following points are a guide to Inner Protection area requirements.

The Inner Protection Area should comprise of the following:

- Minimal fine fuel on the ground;
  - Vegetation that does not provide a continuous path to the building for the transfer of fire;
  - Shrubs and trees that do not form a continuous canopy and vegetation is planted in clumps rather than continuous rows;
  - Species that retain dead material or deposit excessive quantities of ground fuel are avoided;
  - Shrubs and trees are pruned so that they do not touch or overhang the building; and
  - Vegetation is located far enough away from the building so that plants will not ignite the building by direct flame contact or radiant heat emission.
- 7) Emergency and Evacuation Planning: An emergency evacuation plan is not recommended as a condition of consent.
- 8) Water Supplies: Reticulated water supply is located on the adjoining road at regular intervals and is easily accessible. No additional water supplies have been recommended.

## 12) Summary

This report consists of a bushfire risk assessment for the proposed residential development of a new Class 1A dwelling at No 27 Castle Circuit, Seaforth.

The report concludes that the proposed development is on designated bushfire prone land and the legislative requirements for development in bushfire prone areas are applicable.

The proposed development will be constructed to the minimum standards required in accordance with the guidelines of *Planning for Bushfire Protection 2006*.

This report has considered all of the elements of bushfire attack and provided the proposed development is constructed in accordance with the recommendations included in section 11 of this report, it is my considered opinion that the development satisfies the Objectives and Performance requirements of the *Building Code of Australia, Planning for Bushfire Protection 2006 and Australian Standard AS3959, 2009*.

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*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, and although the standard is designed to improve the performance of such buildings, there can be no guarantee, because of the variable nature of bushfires, that any one building will withstand bushfire attack on every occasion.*

*This Report is a Bush Fire Hazard Assessment that provides the required information to assist Local Council and the Rural Fire Service in determining compliance in accordance with Planning for Bushfire Protection and AS 3959, 2009. The Local Council is the Final Consenting Authority and the construction of the building must comply with the recommendations included in the Council's conditions of consent.*

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Ron Coffey – Bushfire Safety Engineer  
Grad I Fire E [Institute of Fire Engineers - 1973]  
Grad Cert Fire Safety Eng [UWS - 2003]  
Grad Dip Building in Bushfire Prone Areas [UWS – 2005]  
Ass Prof Cert in Expert Evidence in the Land & Environment Court [UTS – 2005]  
Corporate Member - Institute of Fire Engineers  
Member - Fire Protection Association Australia



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*Fire Protection Association of Australia*  
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*Certification No BPD-PA09328*  
*02 99137907 0408220443*

### **13) References**

#### **Australian Building Codes Board**

Building Code of Australia

Volumes 1&2

Canprint

#### **Australian Building Codes Board [2001]**

Fire Safety Engineering Guidelines

Edition 2001

ABCB Canberra

#### **D. Drysdale D. [1998]**

Introduction to Fire Dynamics 2<sup>nd</sup> Edition

John Wiley & Sons Ltd

#### **NSW Government Environmental Planning and Assessment Act [1979]**

Part 79BA – Consultation and development Consent – Certain Bushfire Prone Land

NSW Government Printer

#### **Planning NSW [2006]**

Planning for Bushfire Protection 2006

A Guide for Councils, Planners, Fire Authorities, Developers and Home Owners

*This document provides the necessary planning considerations when developing areas for residential use in residential, rural residential, rural and urban areas when development sites are in close proximity to areas likely to be affected by bushfire events and replaces Planning for Bushfire Protection 2001.*

*[This document is essential reading: Download a copy from the RFS website or purchase a copy through the NSW Government Online Shop or phone 9228 6333](#)*

#### **Ramsay C & Rudolph L [2003]**

Landscape and Building Design for Bushfire Prone Areas

CSIRO Publishing

#### **Standards Australia [2009]**

Australian Standards 3959

Australian Building Code Board

## **14) Fences and Gates**

### **BAL 12.5 & BAL 19**

1. Where a timber fence does not connect to a dwelling and has a minimum of 1 metre separation from the dwelling then a fence may be constructed from hardwood, or non-combustible material.
2. Where a fence connects directly to or has less than 1 metre separation from a dwelling it should be constructed from non-combustible materials only.
3. In all cases where timber fences are proposed, care should be taken in the selection, location and maintenance of landscaping adjoining the fence. Unmanaged landscaping could promote fire activity due to ember, radiant heat and direct flame contact and then further impact timber fencing.

The above is based on the premise that construction for level 1 & 2 dwellings is sufficiently removed from the main fire front and won't be subjected to direct flame contact or extreme levels of radiant heat that may cause ignition of combustible materials. However, dwellings could still be exposed to significant levels of ember attack and relatively high levels of radiated heat that may cause fences to ignite.

### **BAL 29, BAL 40 &/or Flame Zone**

Dwellings assessed as requiring these construction levels shall have fencing constructed from non-combustible materials e.g. Sheet metal or masonry. This is due to the increased likelihood of direct flame contact causing ignition of combustible materials which may provide a fire path to the dwelling.