

This Report has been prepared and submitted by R Coffey, FPA Australia, Certified Practitioner
Practitioner Certification No-PBD-PA-09328

Fire Base Consulting Fire Base Consulting



Building Construction in Bush Fire Prone Areas

Bushfire Risk Assessment

In relation to

Proposed Development at

No 28 Wakehurst Parkway, Seaforth

Prepared on behalf of

Peter Princi Architect

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3rd August 2007

Reference No – 511



These plans relate to Development

Consent No. 468/07

Contents

Introduction

- 1) Location
- 2) Zoning of Proposed Development Site and Adjoining Properties
- 3) Development Proposal and Building Classifications
- 4) Description of the Subject Property
- 5) Classification of the Vegetation on and surrounding the Site
- 6) Assessment of Slope on and surrounding the Site
- 7) Access and Egress
- 8) Water Supplies
- 9) Environment considerations
- 10) Bushfire Threat Assessment
- 11) Assessment of the extent to which the development proposal
Conforms or Deviates with Chapter 4 of Planning for Bushfire Protection
- 12) Recommendations
- 13) Summary
- 14) References
- 15) Further Readings

Introduction

This report has been commissioned by Peter Princi Architect to provide a bushfire risk assessment for the construction of a new class 1A dwelling at 28 Wakehurst Parkway, Seaforth.

The proposed development site has been identified as being on bush fire prone land, and the legislative requirements for building in bushfire prone lands are applicable.

The proposed development is an infill development as defined within Chapter 4.6 of Planning for Bushfire Protection 2006 [PBP] 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.

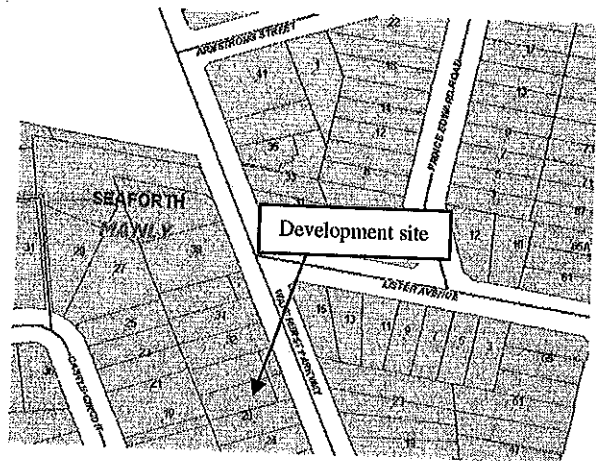
The site was inspected: 3rd August 2007

1) Location

No 28 Wakehurst Parkway, Seaforth

UBD Page 196 Reference Q6

LGA - Manly



2) Zoning of Proposed Development Site and Adjoining Properties

The site is zoned residential.

Properties adjoining the north, south and west boundaries and across Wakehurst Parkway to the east are similarly zoned residential. Further to the north is Garigal National Park.

3) Development Proposal and Building Classifications

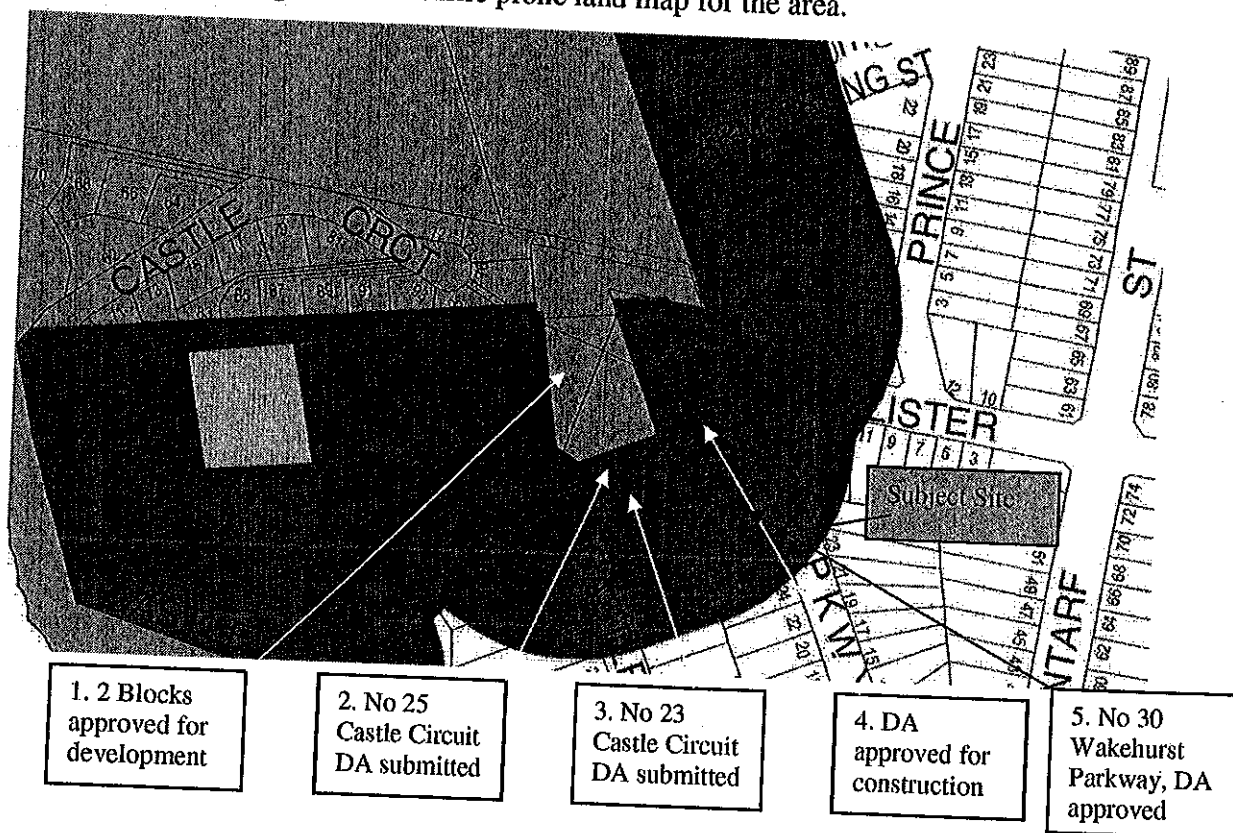
The proposal is for the construction of a new class 1A dwelling. The proposed residence is 2 stories and brick veneer.

4) Description of the Subject Property

The development site is a residential lot facing east onto the Wakehurst Parkway and accessed by a private driveway off Castle Circuit.

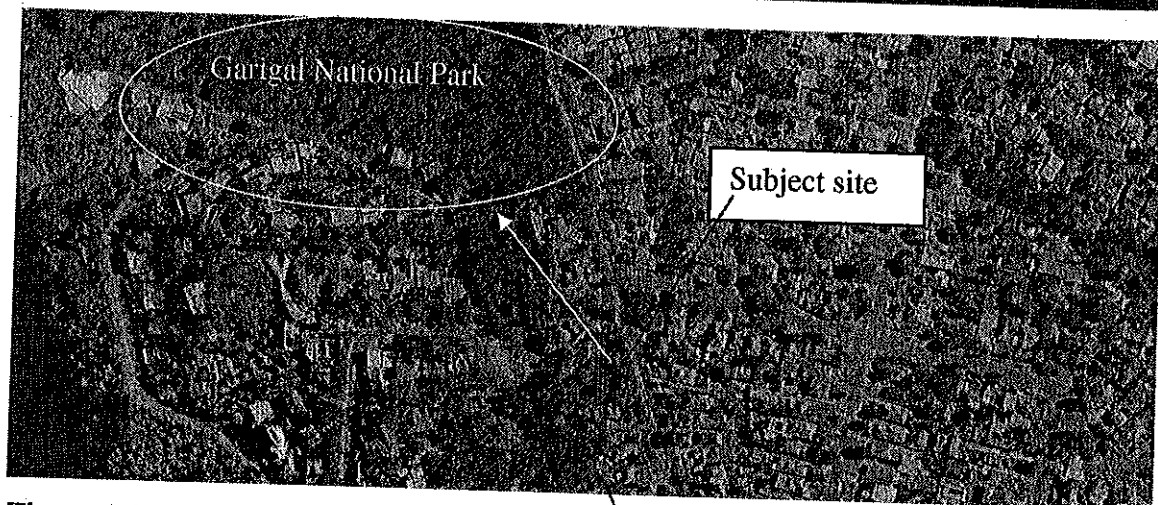
The following sections 5-9 describe in detail the vegetation, slope, access and egress, availability of water supplies and environmental considerations for the site.

The following image is the bushfire prone land map for the area.



With reference to the above bushfire prone land map:

1. The next two adjoining blocks to the north of No 25 Castle Circuit have been subdivided by council and approved for development, these two blocks are shown as an extension of the hazard to the north;
2. No 25 Castle Circuit has been purchased for development;
3. No 23 Castle Circuit has submitted a development application for the construction of a new class 1A dwelling;
4. No 38 Wakehurst Parkway has a development application approved for the construction of a class 1A dwelling.
5. No 30 Wakehurst Parkway has recent DA approval for a similar 2 story dwelling with Level 1 construction standard AS3959, 1999. [No 30 is between the subject site and the hazard to the north]



The aerial photograph above shows the proximity of the subject site to the hazard to the north. Although the small section at the end of Castle Circuit is downslope to a gully the area of hazard circled is upslope at a minimum of 5-10 degrees away from the subject site.

5) Classification of the Vegetation on and surrounding the Site

This assessment will include recommendations that the entire of the site where not built on shall be established and maintained as an Inner Protection Area in accordance with the requirements of PBP.

Properties adjoining the south and west boundaries of the development site and across Wakehurst Parkway to the east are developed and maintained and there is no threat of bushfire attack from these directions for more than 100m.

Adjoining the northern boundary are developed sites then further to the north 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'.

6) Assessment of Slope on and surrounding the Site

The site slopes downslope from west to east at approximately 5 degrees and downslope from north to south at <5 degrees.

Slope away from the development site:

- North: The slope to the north is less than 5 degrees upslope initially then downslope into a narrow section of hazard towards a gully at the end of Castle Circuit where the slope then changes to 5-10 degrees upslope. Note the aerial photograph above.
- South: <5 degrees downslope
- East: <5 degrees downslope;
- West: <5 degrees upslope initially then downslope across Castle Circuit.

The slope of most significance in terms of bushfire attack is of the area circled in the aerial photograph above and this is 5-10 degrees upslope away from the subject site.

7) Access and Egress

The site has direct access to Castle Circuit and the Wakehurst Parkway, which are public roads, and access and egress for emergency vehicles and evacuation is in opposite directions and appears adequate.

8) Adequacy of water supply

The area has reticulated water supply and the nearest hydrant is in the Wakehurst Parkway 35m from the eastern boundary of the development site.

9) Environmental Considerations

The scope of this assessment has not been to provide an environmental assessment of the site; however, the site is a small residential Lot which is part of an approved subdivision and it appears that the proposed development will have no adverse environmental effect. A Statement of Environmental Effects shall be submitted with the development application.

10) Bushfire Risk Assessment

Table 1; Reference 'Planning for Bushfire Protection 2001' Table A3.3

Determination of Category of Bushfire Attack for the site and subsequent required building standards

Direction	Distance of Asset Protection Zone	Vegetation Classification	Assessment of Slope away from the development	Category of Bushfire Attack for the Site	Construction Standard Required
North	40-100m	Developed sites then forest	<5 degrees upslope for 45m then downslope across proposed development sites then 5-10 degrees upslope	Medium	Level 1 AS3959
South	>140m	Developed sites	<5 degrees downslope	Low	None
East	>140m	Developed sites	<5 degrees downslope	Low	None
West	>140m	Developed sites	<5 degrees upslope	Low	None

Summary: Based upon the relevant provisions of PBP the category of bushfire attack is for the site is 'Medium' and the subsequent minimum construction standard is Level 1 AS3959, 1999.

The decision to recommend level 1 construction standard is based on the following points:

- There are developed sites [or proposed to be developed by Manly Council] between the subject site and the hazard;
- The narrow strip of bush at the end of castle Circuit is approved by Manly Council for development;
- There is no line of sight between Garigal National Park and the subject site or proposed dwelling;
- The slope of most significance in terms of bushfire attack is of the area of Garigal National Park to the north of the subject site and this is a minimum of 5-10 degrees upslope away from the development; [Refer Aerial photograph]

11) Assessment of the extent to which the construction conforms or deviates from Chapter 4 of 'Planning for Bushfire protection 2001'

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

- Asset Protection Zones: Defendable space is provided on site. Asset protection zones are provided to the south east and west and by adjoining development and public roads and to the north by adjoining development and an increase in construction standards.

- **Siting and Design:** The building shall be sited in accordance with the requirements of Manly Council and to recommend a re siting would not provide an advantage in terms of mitigating the effects of bushfire attack;
- **Construction Standards:** The construction standards have been determined in accordance with Appendix 3 of PBP.
- **Access Requirements:** The access and egress requirements have been designed to provide safe and effective evacuation from the subject site and to provide effective access for fire brigade personnel and fire fighting equipment
- **Water Supplies:** The water, electricity and gas services to the site comply with the requirements of Chapter 4 of PBP
- **Landscaping:** The development application shall include recommendations that the site is landscaped and managed to minimise flame contact and radiant heat to the building.

12) Recommendations

The following recommendations are made for the bushfire protection measures for the proposed residential development of a new class 1A dwelling at No 28 Wakehurst Parkway, Seaforth and are based upon the relevant provisions of the NSW Rural Fire Service guideline entitled *Planning for Bushfire Protection 2006*..

- 1) The proposed development shall be constructed to a minimum standard of Level 1 AS3959, 1999;
- 2) 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 15 of this report]
- 3) Gutter guards that comply with the specifications of AS3959 shall be installed to prevent the build up of debris in the valleys gutters and downpipes;
- 4) The entire site where not built on shall be established and maintained as an Inner Protection Area in accordance with the requirements of Planning for Bushfire Protection.

13) Summary

This report consists of a bushfire risk assessment for the proposed residential development of a new class 1A dwelling at No 28 Wakehurst Parkway, 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 dwelling 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 12 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, 1999*.

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 has been prepared and submitted by R Coffey. FPA Australia, Certified Practitioner
Practitioner Certification No-PBD-PA-09328

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, 1999. The Local Council is the Final Consenting Authority.

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14) References

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Ramsay C & Rudolph L [2003]

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Second Edition 1999, amended 2001

Warrington Fire Research [2002]

Literature Review of Bushfire Construction Materials and Proposed Test Protocols for
Performance Assessment

WFRA Project No. 20551

Report Version 1.1

11th February 2002

15) Further Readings

Standards Australia can provide a complete version of AS 3959-1999 *Construction of Buildings in bushfire prone areas* and this can be accessed from their website: <http://www.standards.org.au/>

The NSW Rural Fire Service provides a list of publications that can be accessed from their website. The list below can be used as a guide and the website can be accessed as follows: <http://www.bushfire.nsw.gov.au/>
Go to 'Building in Bushfire Prone Areas' to see an abridged version of AS3959 in the 'Legal Obligations' section and all of the items listed below are in the 'Introduction - Publications' section.

Building in a Bushfire Prone Area

Bush fire prone lands are generally those forest or grasslands that, by virtue of their bushfire hazard and proximity to existing and proposed development, hold a significant risk to property in the event of a bushfire.

Planning for Bushfire Protection 2001 (This document is essential reading)

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.

Development Control Note 02 - Establishment of Easements for the purposes of Asset Protection Zones

This Development Control Note aims to provide guidance for the establishment of easements under section 88B or 88D of the Conveyancing Act 1919 for the purpose of providing Asset Protection Zones (APZ) on the adjoining land arising from a proposed development requiring a bush fire safety authority.

Development Control Note 01 - Fire Retardant Timber

This Development Control Note provides a guide for the use of fire-retardant-treated timber for the various levels of construction under Australian Standard AS3959 1999 *Construction of Buildings on Bushfire Prone Areas and Planning for Bushfire Protection 2001(PBP)*.

Development Control Practice Notes 02/2006 Fire Retardant Timber

This practice note supplements Development Control Note 01 regarding the RFS position on fire retardant timber.

Development Control Practice Notes 03/2006 French and Bi-fold doors

The purpose of this practice note is to provide performance criteria for French and Bi-fold doors in bush fire prone areas, Standard French and Bi-fold doors do not meet the requirements of Australian Standard 3959.

Fast Fact - Intumescent Paint Systems

This fact sheet clarifies the RFS position on use of intumescent paint systems which can be used as a performance solution for Level 3 construction.

Fast Fact - Dual Occupancy Developments

This Fast Fact sheet provides information on dual and multiple occupancy developments.

Fast Fact - Construction Levels

This Fast Fact clarifies the RFS position on varying construction levels for 79BA applications.

Fast Fact - Fences or Gates in Bush Fire Prone Areas

This fast fact provides advice on the RFS position for dividing fences in Bushfire prone areas.

Fast Fact - Swimming Pools as a Water Supply

This fast fact clarifies the RFS position on swimming pools as a water supply.