

Bushfire Hazard Assessment Report



121 Pacific Road Palm Beach NSW 2108

PREPARED FOR: Colin Bowers

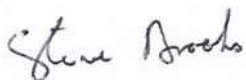
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List of Abbreviations

ABCB Australian Building Codes Board

APZ Asset Protection Zone

AS1596 Australian Standard 1596

AS3959 Australian Standard 3959-2009

BAL Bushfire Attack Level

BCA Building Code of Australia

DCP Development Control Plan

EP&A Act Environmental Planning and Assessment Act 1979

FDI Fire Danger Index

FRNSW Fire and Rescue NSW

GDA Geocentric datum of Australia

Ha Hectare

IPA Inner Protection Area

L Litre

LEP Local Environmental Plan

LGA Local Government Area

m Metre

MGA Map Grid of Australia

mm Millimetre

OPA Outer Protection Area

PBP Planning for Bushfire Protection – 2006

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

Executive Summary

Envirotech Pty Ltd has been commissioned to prepare a Bushfire Hazard Assessment Report for the proposed demolition of the existing dwelling and replacing it with a new residential dwelling and swimming pool at 121 Pacific Rd, Palm Beach. NSW 2108.

The proposal is “infill” development and has been identified as being Bushfire Prone Land and is subject to consideration under Section 4.14 of the Environmental Planning and Assessment Act 1979 (EP&A Act) (NSW RFS 2006).

The subject Lot is located within Northern Beaches Council LGA. The nearest Classified Bushfire Hazard Vegetation - Forest is 100+m West, of the proposed new dwelling, in McKay Reserve.

The subject Lot has a small area to the Western sector that is identified as being in a Buffer Zone of Category 1 Bushfire Hazard Vegetation, although it must be noted that the proposed building footprint is not located within the defined Buffer Zone of Category 1 Bushfire Hazard Vegetation.

The proposal is found to be in the BAL – LOW range as per Table 2.4.2 of AS3959-2009. It will also need to meet the requirements of Planning for Bush Fire Protection (NSW RFS 2006).

I believe this development proposal can comply with the requirements of both, AS 3959-2009 Construction of Buildings in Bushfire Prone Areas and Planning for Bushfire Protection 2006.

Aspect	North	South	East	West
Vegetation Type	Developed Land	Developed Land	Developed Land	Developed Land/Forest
Slope	N/A	N/A	N/A	N/A
Total APZ	100+m	100+m	100+m	100+m
BAL Rating	BAL-LOW	BAL-LOW	BAL-LOW	BAL-LOW

Table 1 – BAL Rating for the proposed new dwelling and swimming pool

1 Introduction

Envirotech Pty Ltd have been engaged by the proponent, Colin Bowers, to prepare a Bushfire Hazard Assessment Report for inclusion in a Development Application to Northern Beaches Council for the proposed construction of a new dwelling and swimming pool at 121 Pacific Rd, Palm Beach. NSW 2108 as required by Section 4.14 of the Environmental Planning and Assessment Act 1979.

The site has been identified as being Bushfire Prone Land as per Northern Beaches Council Bushfire Prone Land Map and therefore compliance with Bushfire Legislation is required. The subject Lot is identified as being partially within a Category 1 Bushfire Hazard Vegetation Buffer Zone.

The proposed development is Infill Development as defined by Planning for Bushfire Protection 2006 and this report has been prepared in accordance with the submission requirements of Section 4.14 of the Environmental Planning and Assessment Act 1979 and Section 4 of Planning for Bush Fire Protection (NSW RFS 2006).

Property Details

Name:	Colin Bowers
Council:	Northern Beaches Council
Address:	121 Pacific Rd, Palm Beach NSW 2108 Lot 17 DP 8595
Site Area:	3054sqm
Zoning	E4 – Environmental Living

2 Purpose of this Report

The purpose of this Bushfire Hazard Assessment Report is to provide the owners, consent authority and the NSW Rural Fire Service with an independent Bushfire Hazard Assessment for the subject Lot. The report makes recommendations and details how the development proposal complies/not complies with the aims, objectives and performance criteria of Planning for Bushfire Protection 2006.

3 Methodology of the Report

The methodology for the Bushfire Hazard Assessment adheres to the method described in Addendum: Appendix 3 of Planning for Bushfire Protection 2010;

- Determine all vegetation formations within 140m of the proposal.
- Determine the distance of each vegetation formation identified and the building.
- Determine the effective slope for each vegetation group.
- Determine the relevant FDI.
- Match the relevant FDI, appropriate vegetation, distance and effective slope classes to determine the category of bush fire attack applicable to the site.
- Determine the appropriate level of construction found in AS 3959-2009 Table 2.4.2.

4 Scope of the Report

This Bushfire Hazard Assessment Report and its' recommendations are limited to the subject Lot and the proposed development only and not neighbouring properties or lands. This report considers the current bushfire legislation, planning controls and standards for building in bushfire prone land areas.

This report is based on site plans, a site visit and relevant information from the local council and government agencies.

5 Proposed Development

The proponent, Colin Bowers, seeks to construct a new residential dwelling and swimming pool at 121 Pacific Rd, Palm Beach, NSW 2108. The subject Lot is known as Lot 17 DP 8595.

The proposal constitutes “infill” development as defined and as such must meet the specifications and requirements in Chapter 4 (section 4.3.5) of Planning for Bush Fire Protection (NSW RFS 2006).

6 Legislative, policy and planning requirements

6.1 Environmental Planning and Assessment Act 1979

The Environmental Planning and Assessment Act 1979 Section 4.14 requires that development on bush fire prone land comply with Planning for Bushfire Protection (NSW RFS 2006).

6.2 Building Code of Australia

The Building Code of Australia (2016) determines performance requirements and deemed-to-satisfy provisions for the construction of buildings in bush fire prone areas. Buildings primarily used as a residence are identified by the Building Code of Australia (2016) as Class 1 buildings.

6.3 Planning for Bushfire Protection

Development applications on Bushfire Prone Land in NSW are to satisfy the aims and objectives of Planning for Bushfire Protection (NSW RFS 2006). The proposed development is consistent with “infill development”. Bushfire protection measures incorporated into the proposed development meet the specific objectives and performance criteria of PBP.

6.4 Australian Standard 3959-2009

Deemed-to-satisfy construction standards for Class 1 buildings in a designated bushfire area are provided in Australian Standard 3959-2009 Construction of Buildings in Bush-fire Prone Areas and are to be applied in accordance with Appendix 3 of Planning for Bushfire Protection (NSW RFS 2006).

7 Bushfire Prone Land

The land has been identified on the Northern Beaches Council Bush Fire Prone Land Map which covers the entire site.

A copy of the bush fire prone land status is shown below (Figure 1).



Figure 1: - 121 Pacific Rd, Palm Beach. NSW 2108 Bushfire Prone Land Map (Northern Beaches Council 2019). It should be noted that the Bush Fire Prone Land Map above indicates that the site is partially within a Category 1 Bushfire Hazard Vegetation Buffer Zone.

8 Site Description

The property is known as 121 Pacific Rd, Palm Beach. NSW 2108 (Lot 17 DP 8595) and is within a residential area of Northern Beaches Council LGA. The lot has direct access to Pacific Rd which runs to the West of the proposal.

The subject Lot is surrounded by residential development to the North, South, East and West. To the West at 100+m from the proposed dwelling, is bushland which is deemed as being Category 1 Bushfire Hazard Vegetation within McKay Reserve.

The Northern Beaches Council Bushfire Prone Land Map indicates that the proposed development is located partially within a Category 1 Bushfire Hazard Buffer Zone.

The subject Lot is zoned E4 – Environmental Living and the proposed development is understood to comply with the requirements of Northern Beaches Council LEP and DCP.



Figure 2 - Street Location of Property (NSW Government 2019)



Image 1 - Site Aerial. (NSW Government 2019)

8.1 Vegetation

The vegetation that effects the development and is deemed the "Hazard" is mapped by Council on the applicable Bush Fire Prone Land map as Category 1 Bushfire Hazard Vegetation. The Lot is mainly cleared and the predominant Bushfire Hazard Vegetation formation using "Keith 2004" identification is Forest 100+m from the proposal to the West.

The subject Lot is located within other residential properties to the North, South, East and West and to the West at 100+m is Forest Classified Vegetation which is rated as Category 1 Bushfire Hazard Vegetation.

Northern Beaches Council has deemed the hazardous vegetation as being Category 1 Bushfire Hazard Vegetation. There is no bushfire hazard located on the subject Lot.

Aspect	Vegetation Formation	Distance to Hazard
North	N/A Maintained/Developed Land	100+m
South	N/A Maintained/Developed Land	100+m
East	N/A Maintained/Developed Land	100+m
West	N/A Maintained/Developed Land	100+m

Table 2 – Distance to Classified Bushfire Hazard Vegetation



Image 2 – Indicates the distances to Classified Bushfire Hazard Vegetation from the proposed building footprint (NSW Government 2019)

8.2 Effective Slope

The slope that would most significantly affect a bushfire is assessed for 100 metres from the building. The slope that is measured is under the hazard. Since the nearest Classified Bushfire Hazard Vegetation is 100+m to the of the proposed development the need to assess the slope under the classified vegetation is not applicable.

Direction	Effective slope	Vegetation Type
North	N/A	N/A
South	N/A	N/A
East	N/A	N/A
West	N/A	N/A

Table 3 - Slope under Classified Bushfire Hazard Vegetation

North	South	West	East
<input type="checkbox"/> Upslope Flat	<input type="checkbox"/> Upslope Flat	<input type="checkbox"/> Upslope Flat	<input type="checkbox"/> Upslope Flat
<input type="checkbox"/> 0-5	<input type="checkbox"/> 0-5	<input type="checkbox"/> 0-5	<input type="checkbox"/> 0-5
<input type="checkbox"/> 5-10	<input type="checkbox"/> 5-10	<input type="checkbox"/> 5-10	<input type="checkbox"/> 5-10
<input type="checkbox"/> 10-15	<input type="checkbox"/> 10-15	<input type="checkbox"/> 10-15	<input type="checkbox"/> 10-15
<input type="checkbox"/> > 15-20	<input type="checkbox"/> > 15-20	<input type="checkbox"/> > 15-20	<input type="checkbox"/> > 15-20

Table 4 - Degree slope under the Classified Bushfire Hazard Vegetation N/A

9 Asset Protection Zones

Asset protection zones in Forest Classified Vegetation formations may be maintained as outer and inner protection areas. Outer protection areas may account for the outer 10m of the asset protection zone.

Asset protection zones will be managed in accordance with the requirements of Standards for Asset Protection Zones (NSW RFS 2005).

The current inner APZs from the proposed new dwelling are not applicable as the nearest Classified Bushfire Hazard Vegetation is 100+m to the West of the proposed dwelling.

Direction/Aspect	Effective slope	Current APZ	Vegetation Classification	Distance required by PBP	Compliance
North	N/A	100+m	N/A	N/A	Yes
South	N/A	100+m	N/A	N/A	Yes
East	N/A	100+m	N/A	N/A	Yes
West	N/A	100+m	N/A	N/A	Yes

Table 5 - Asset Protection Zone distances for the Classified Bushfire Hazard Vegetation



Image 3 – APZ Distances (NSW Government 2019)

The existing distances between the building footprint and hazard vegetation meet or exceed asset protection distances required by PBP and are contained within the property.

9.1 Roads and Access

The subject Lot has direct access to Pacific Rd which allows occupants an egress route to safety. Pacific Rd is an all-weather road and is suitable for fire appliances.

Pacific Rd is signposted, and residential properties are clearly numbered. The road cross fall is $< 10^\circ$ and the maximum gradient is $< 15^\circ$ and is 8m wide.

Should a bushfire occur in the area, the occupants are provided with a satisfactory egress route if they were required to evacuate the area.

The access/egress requirements for the proposal is satisfactory

9.2 Water supply, services and utilities

The site is connected to mains pressure reticulated water supply and there are fire hydrants located in Pacific Rd. The nearest Reticulated Mains Pressure Hydrants is located outside Nos. 115 & 123 Pacific Rd.

Furthermore, the proposal includes the construction of a swimming pool which can be utilised as a Static Water Supply.

Electricity transmission is via existing supply.

Gas services are to be located and maintained in accordance with Australian Standard 1596: The Storage and Handling of LP Gas and the criteria of Planning for Bushfire Protection (NSW RFS 2006).

9.3 Environmental impact

The proposal will not contribute to any negative Environmental Impact

10 Site constraints

The Lot has not been identified by Northern Beaches Council to contain any cultural or historically significant features on the subject Lot.

The subject Lot has been identified as being within a Terrestrial Biodiversity area by the NSW Government. Although, I am of the strong opinion that the proposed construction on the subject Lot will not affect the surrounding vegetation. It was evident, during the site inspection, that there are other residential dwellings neighbouring the subject Lot.



Figure 3 – Indicates that the entire site is rated as being within a Terrestrial Biodiversity area (NSW Government 2019).

11 Hazard Assessment Determination

11.1 Compliance with Australian Standard 3959-2009

The development would meet the requirements for building in a bushfire prone area to BAL – LOW, as described in AS 3959-2009.

The determination of Bushfire Attack Level (BAL) for the development has been made in accordance with the simplified procedure (or method 1) as described in AS 3959-2009.

The FDI for Northern Beaches Council LGA is 100.

Aspect	Distance to Vegetation	Vegetation Classification	Slope in degrees	Construction Requirements AS3959-2009
North	100+m	N/A	N/A	BAL-LOW
South	100+m	N/A	N/A	BAL-LOW
East	100+m	N/A	N/A	BAL-LOW
West	100+m	N/A	N/A	BAL-LOW

Table 6 - Calculation of Bushfire Attack Level (BAL)

The site has been found to be in the BAL-LOW range of which AS3959-2009 Section 4 does not provide construction requirements and is based on there being insufficient risk to warrant specific bushfire construction requirements.

The proposed construction of new dwelling and swimming pool must also comply with the specification and requirements of Section 4.3.5 of Planning for Bush Fire Protection, Infill development. This assessment is provided below in detail.

PBP allows where more than one facade is exposed to a hazard, then the facade with the highest requirement is used to determine the appropriate level of construction. Other facades may be reduced by one level of construction unless that facade is also subject to the same level of bush fire attack. Should the highest level be BAL-12.5 then the entire site shall be deemed as BAL -12.5.



Image 4 – Indicates the BAL-Ratings for each aspect of the proposed dwelling footprint (NSW Government 2019)

11.2 Compliance with Planning for Bushfire Protection

The following indicates that the proposed development complies/not complies with the Specific Objectives of PBP 2006 for Infill Development

Objective	Details
To ensure that the bushfire risk to adjoining land is not increased.	The proposed development of the construction of a new dwelling and swimming pool does not increase bushfire risk on adjoining lands.
To provide minimum defensible space.	The existing asset protection zones comply with the requirements of Section 3.3 and Appendix 2 of PBP.
To provide better bushfire protection than the existing situation. This should not result in any new works being exposed to a greater risk than the existing building.	The site has been found to be in the BAL-LOW range of which AS3959-2009 Section 4 does not provide construction requirements and is based on there being insufficient risk to warrant specific bushfire construction requirements.
To ensure that the footprint of the proposal does not extend towards the hazard beyond existing building lines on neighbouring land.	The footprint of the proposed development does not extend towards the hazard beyond existing building lines on neighbouring land.
To not increase bushfire management and maintenance responsibilities on adjoining landowners unless they have agreed to the development	The proposed development does not increase hazard or bushfire management responsibilities on adjoining landowners
To ensure Building design and construction enhance the chances of occupant and building survival	The proposed design and construction is consistent with the requirements of PBP and enhances the chances of occupant and building survival.

Table 7 - Specific Objectives of PBP 2006

The following indicates that the proposed development complies/not complies with the Performance Requirements of Chapter 4 of PBP 2006 for Infill Development

Performance requirement chapter 4 PBP	Acceptable Solution	Compliance
<p>In relation to Asset Protection Zones</p> <ul style="list-style-type: none"> • Provide a defensible space. • An asset protection zone is provided and maintained for the life of the development 	<p>APZ determined in accordance with Appendix 2 and Section 3.3 Exceptional Circumstances for APZs.</p>	<p>Complies</p> <p>The minimum APZ is 100+m from the proposal from the nearest Classified Bushfire Hazard Vegetation.</p>
<p>In relation to siting and design:</p> <ul style="list-style-type: none"> • The existing building are sited and designed to minimise the risk of bush fire attack 	<p>Buildings are designed and sited in accordance with the siting and design principles of PBP</p>	<p>Complies</p> <p>The proposed construction is designed to minimise the risk of bushfire attack and is in a cleared area allowing for firefighting on all sides.</p>
<p>In relation to construction standards:</p> <ul style="list-style-type: none"> • It is demonstrated that the proposed building can withstand bush fire attack in the form of wind, smoke, embers, radiant heat and flame contact 	<p>Construction determined in accordance with Appendix 3.</p>	<p>Complies</p> <p>The BAL has been determined as BAL-LOW of which AS3959-2009 Section 4 does not provide construction requirements.</p>
<p>In relation to access requirements:</p> <ul style="list-style-type: none"> • safe, operational access is provided (and maintained) for emergency services personnel in suppressing a 	<p>Compliance with section 4.1.3 for property access roads.</p> <p>Compliance with section 4.2.7 for access standards for internal roads.</p>	<p>Complies</p> <p>Yes - Existing Road system and driveway meet the width requirements and does not place Firefighters at risk.</p>

Performance requirement chapter 4 PBP	Acceptable Solution	Compliance
bush fire while residents are seeking to relocate, in advance of a bushfire.		Access available away from hazard.
<p>In relation to water and utility services:</p> <ul style="list-style-type: none"> adequate water and electricity services are provided for fire- fighting operations gas and electricity services are located so as not to contribute to the risk of fire to a building. 	Compliance with section 4.1.3 for services - water, electricity and gas.	<p>Complies</p> <p>The subject Lot is connected to mains pressure water supply.</p> <p>Electrical transmission lines are aboveground.</p> <p>Gas services, if proposed, will be installed and maintained in accordance with the requirements of AS 1596.</p>
<p>In relation to landscaping:</p> <ul style="list-style-type: none"> it is designed and managed to minimise flame contact and radiant heat to buildings, and the potential for wind driven embers to cause ignitions. 	Compliance with Appendix 5.	<p>Complies</p> <p>No significant planting will be undertaken under windows or other exposed elements of house.</p>

Table 8 - Performance Requirements of PBP 2006

12 Recommendations

As the proposed development site has been assessed as BAL-LOW there are no specific construction methods required by of AS3959-2009 Section 4 Construction for Bushfire Attack Level-LOW (BAL-LOW).

The entire site is deemed an Inner Protection Area and as such any landscaping gardens and the like should comply with Appendix 5 PBP 2006.

It is recommended Northern Beaches Council and the NSW Rural Fire Service approve the proposed new dwelling and swimming pool at 121 Pacific Rd, Palm Beach. NSW 2108 in respect to Bush Fire Requirements.

13 Conclusion

The proposed development relates to the construction of a new dwelling and swimming pool at 121 Pacific Rd, Palm Beach. NSW 2108.

The land on which the property is situated is classified as Bushfire Prone Land under the Northern Beaches Council Bushfire Prone Land Map (Northern Beaches Council 2019).

The proposed new dwelling and swimming pool at 121 Pacific Rd, Palm Beach NSW 2108 can meet the planning requirements of Planning for Bush Fire Protection (NSW RFS 2006) and, are capable of meeting Australian Standard AS3959-2009 and the Building Code of Australia in relation to construction (ABCB 2016).

The proposed development and existing asset protection zones comply with the specific objectives and requirements of Planning for Bushfire Protection (NSW RFS 2006).

It is the opinion of Envirotech Pty Ltd that the proposed development, with recommendations from this Report will provide a satisfactory level of bushfire safety to the property and satisfies the requirements of the NSW Rural Fire Service and Northern Beaches Council's obligations for this area.

14 References

Environmental Planning and Assessment Act 1979 (NSW).

Keith, D.A. (2004) From ocean shores to desert dunes: the vegetation of New South Wales and the ACT. Hurstville: Department of Environment and Conservation.

National Construction Code 2016, Building code of Australia, Volume 2: BCA Class 1 and Class 10 buildings. Canberra: Australian Buildings Code Board.

NSW RFS 2005, *Standards for asset protection zones*, NSW Rural Fire Service, Sydney.

NSW RFS 2006, *Planning for bushfire protection*, NSW Rural Fire Service, Sydney.

Rural Fires Act 1997 (NSW).

Standards Australia 2009a, *Construction of buildings in bushfire-prone areas*. AS 3959-2009. Available from: Standards Australia Online. [8 September 2014].

Standards Australia 2014a, *The storage and handling of LP gas*. AS 1596-2014. Available from: Standards Australia Online. [8 September 2014].

NSW Government *e-Planning Spatial Viewer* 2019

Northern Beaches Council *Bushfire Prone Land Map* 2019

Appendix A



Photo 1 – Indicates that the proposal meets the access/egress requirements for Pacific Rd (Steve Brooks 2019)



Photo 2 – Indicates the reticulated mains pressure fire hydrant located outside No. 123 Pacific Rd (Steve Brooks 2019)



Photo 3 – Indicates the proposal has no hazardous bushfire vegetation on it (Steve Brooks 2019)

