

Bushfire Assessment Report

Proposed:
**Carport, Studio and
Swimming Pool**

At:
**6 Jacqueline Close
Bayview**

Reference Number: 220778

Prepared For:
John Wilson

21st February 2022



Prepared By:
**Bushfire Hazard Solutions
Pty Limited**

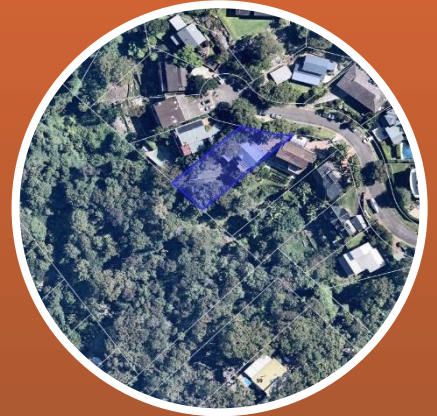
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**SILVER
MEMBER**
Fire Protection
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Contents

	<u>Page No.</u>
Copyright and Disclaimer	2
List of Abbreviations	3
1.0 Introduction	4
2.0 Purpose of Report	5
3.0 Scope of Report	5
4.0 Compliance Table and Notes	5 - 7
5.0 Aerial view of the subject allotment	7
6.0 Site Assessment	8 - 10
7.0 Bushfire Protection Measures	11 - 14
8.0 Recommendations	15
9.0 Conclusion	16
10.0 Annexure	17
- List of referenced documents and attachments	
- Attachments	

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S4.14 applications (under the Environmental Planning and Assessment Act 1979) and all infill development applications *may* be referred by Council to the NSW Rural Fire Service for review and concurrence during the DA process. S100B applications under the Rural Fires Act 1997 (subdivisions and Special Fire Protection Purpose Developments), Flame Zone determinations and Alternate Solutions *must* be referred by Council to the NSW Rural Fire Service for review and receipt of a Bushfire Safety Authority (BSA) or other such recommended conditions from the NSW Rural Fire Service before the consent can be granted.

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. BCBHS can review and cross reference these documents however the onus is on the applicant to provide them to us and request this review – Building Code and Bushfire Hazard Solutions Pty. Ltd. is not in a position to track every DA through Council and we rely upon the applicant to undertake this role as project co-ordinator.

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Version Control				
Version	Date	Author	Reviewed by	Details
1	21/02/2022	Duncan Armour	Ian Tyerman BPAD Accreditation No. 30356	Final Report

List of Abbreviations:

APZ	Asset Protection Zone
AS3959	Australian Standard 3959 – 2018
BAL	Bushfire Attack Level
BPMs	Bushfire Protection Measures
BPLM	Bushfire Prone Land Map
Council	Northern Beaches Council
DA	Development Application
ELVIS	Elevation and Depth Foundation Spatial Data
EP&A Act	<i>Environmental Planning and Assessment Act - 1979</i>
FRNSW	Fire and Rescue NSW
IPA	Inner Protection Area
NASH	National Association of Steel-framed Housing
NCC	National Construction Code
NP	National Park
NSP	Neighbourhood Safer Place
OPA	Outer Protection Area
PBP	<i>Planning for Bush Fire Protection – November 2019</i>
ROW	Right of Way
RF Act	<i>Rural Fires Act - 1997</i>
RFS	NSW Rural Fire Service
SEPP	State Environmental Planning Policy
SFPP	Special Fire Protection Purpose
SWS	Static Water Supply

1.0 Introduction

The development proposal relates to the construction of a carport, studio and swimming pool within an existing residential allotment located at 6 Jacqueline Close, Bayview (Lot 14 DP 216125).

The subject property has street frontage to Jacqueline Close to the northeast, abuts private residential allotments to the northwest and southeast and Kennedy Place Reserve to the southwest.

Properties considered to be affected by possible bushfire impact are determined from the local Bushfire Prone Land Map as prepared by Council and or the Rural Fire Service. All property development within affected areas is subject to the conditions detailed in the document 'Planning for Bush Fire Protection - 2019' (PBP).

PBP formally adopted on the 1st March 2020 provides for the protection of property and life (including fire-fighters and emergency service personnel) from bushfire impact.

Northern Beaches Council's Bushfire Prone Land Map identifies the subject property as containing the 100 metre buffer zone from Category 1 Vegetation therefore PBP must apply in this instance.

The subject development relates to the construction of a carport, studio and swimming pool within an existing residential allotment. The development is classified as infill development and assessed under a s4.14 application of the *Environmental Planning and Assessment Act 1979* and Chapter 7 'Residential Infill Development' of PBP applied.

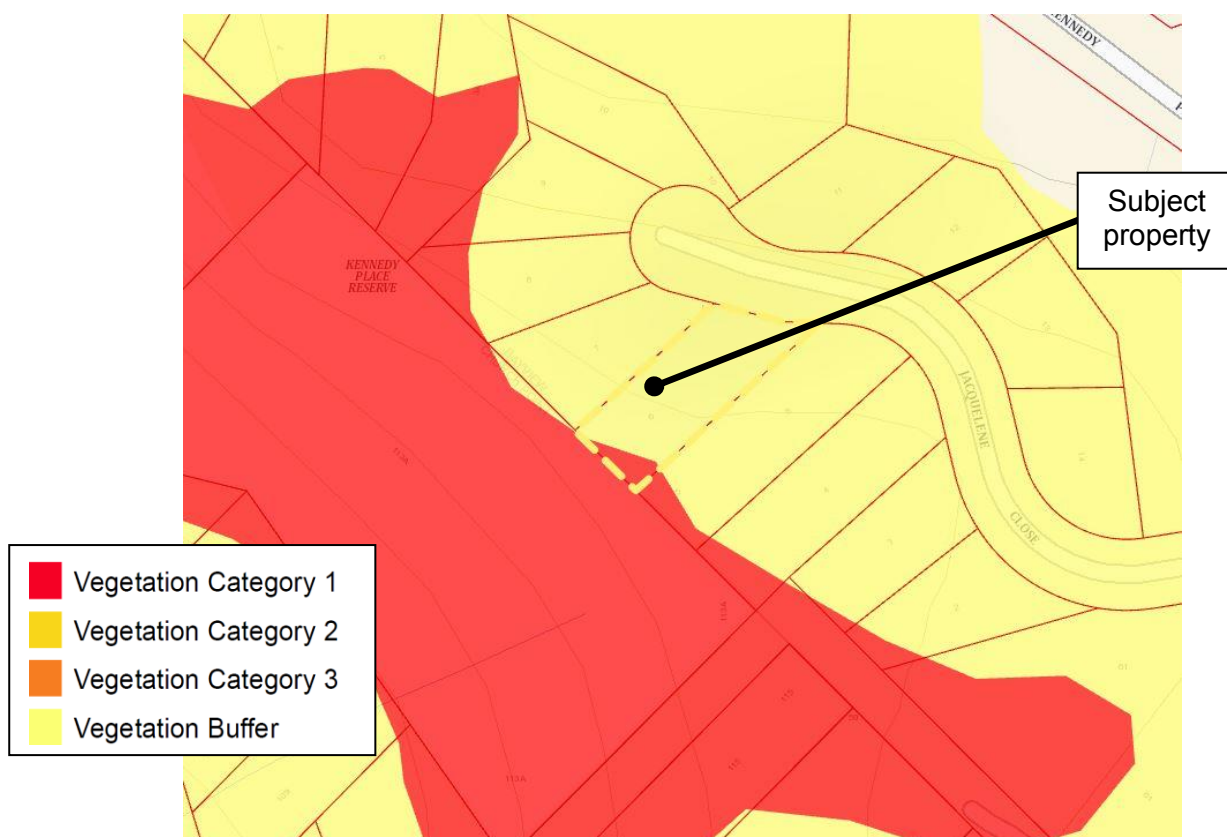


Figure 01: Extract from Northern Beaches Council's Bushfire Prone Land Map

2.0 Purpose of Report

The purpose of this Bushfire Assessment Report is to provide the owners, the NSW Rural Fire Service and Council with an independent bushfire assessment together with appropriate recommendations for both new building construction and bushfire mitigation measures considered necessary having regard to construction within a designated 'bushfire prone' area.

The recommendations contained within this report may assist in forming the basis of any specific construction conditions and/or bushfire mitigation measures that Council and/or the NSW Rural Fire Service may elect to place within any consent conditions issued for the subject Development Application.

3.0 Scope of this Report

The scope of this report is limited to providing a bushfire assessment and recommendations for the subject property. Where reference has been made to the surrounding lands, this report does not purport to directly assess those lands; rather it may discuss bushfire impact and/or progression through those lands and possible bushfire impact to the subject property.

4.0 Compliance Tables & Notes

The following table sets out the projects compliance with *Planning for Bush Fire Protection – 2019*.

	Northeast	Northwest	Southeast	Southwest
Vegetation Structure	Maintained curtilages	Maintained curtilages	Maintained curtilages	Forest
Slope	N/A	N/A	N/A	> 20 degrees down
Asset Protection Zone	N/A	N/A	N/A	>16 metres to pool >41 metres to carport
Significant Landscape Features	Jacqueline Close	Neighbouring private residential allotment	Neighbouring private residential allotment	Maintained grounds / Kennedy Place Reserve
Threatened Species	APZ Existing	APZ Existing	APZ Existing	APZ Existing
Aboriginal Relics	APZ Existing	APZ Existing	APZ Existing	APZ Existing
Bushfire Attack Level	N/A	N/A	N/A	BAL FZ
Required Construction Level	BAL FZ	BAL FZ	BAL FZ	BAL FZ

Compliance Summary of Bushfire Protection Measures			
Bushfire Protection Measure (s7.4 PBP)	Acceptable Solution	Performance Solution	Report Section
Asset Protection Zones	<input type="checkbox"/>	<input checked="" type="checkbox"/>	7.02
Construction Standard	<input type="checkbox"/>	<input checked="" type="checkbox"/>	7.03
Access	<input checked="" type="checkbox"/>	<input type="checkbox"/>	7.04
Water Supply	<input checked="" type="checkbox"/>	<input type="checkbox"/>	7.05
Gas and Electrical Supplies	<input checked="" type="checkbox"/>	<input type="checkbox"/>	7.05

Asset Protection Zones

The existing dwelling location within the subject site and allotment configuration precludes the ability to provide larger Asset Protection Zones. The available Asset Protection Zone (APZ) was measured to be >16 metres to the proposed pool and surrounds and >41 metres to the proposed carport and studio to the southwest and consists of maintained grounds within the subject property.

Construction Level

The highest Bushfire Attack Level to the proposed carport, studio and swimming pool was determined from Table A1.12.5 of PBP to be 'Flame Zone' and construction requirements within NSW are therefore outside the scope of AS 3959 – 2018. The proposed carport, studio and swimming pool will be constructed to section 9 (BAL FZ) under AS 3959 – 2018 and the additional construction requirements detailed in section 7.5 of PBP.

Access and Services

Guideline Ref.	Proposed Development Determinations
Property Access (Driveway)	The most distant external point of the subject dwelling is less than 70 metres of a public road supporting a hydrant network and therefore the Access requirements detailed in Table 7.4a of PBP are not applicable.
Water Supply	The most distant external point of the building footprint is less than 90 metres from an operational hydrant and therefore a Static Water Supply is not required in consideration AS2419.1 – 2017 (Appendix E, Figure E7) and Chapter 7 of PBP.
Evacuation	Evacuation is possible by utilising existing road infrastructure. It is encouraged that the occupants complete a Bush Fire Survival Plan.
Electrical Supply	Existing aerial supply provided.
Gas Supply	New connections must comply with Table 7.4a of PBP.

5.0 Aerial view of the subject allotment

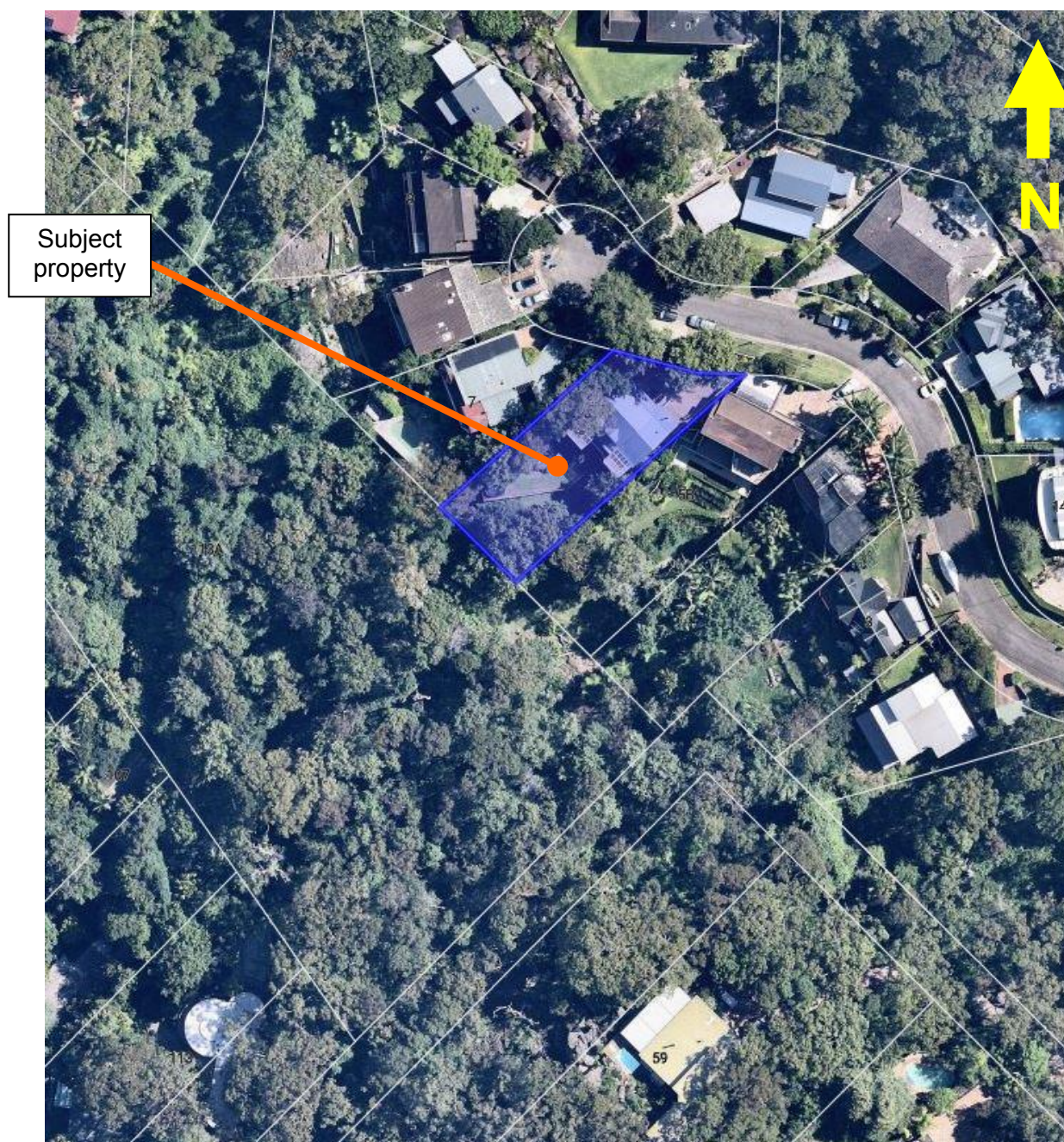


Figure 02: Aerial view of the subject area C/- Nearmap – January 2022

6.0 Site Assessment

6.01 Location

The subject property is known as 6 Jacqueline Close, Bayview (Lot 14 DP 216125) and is a residential allotment (Zoned C4: Environmental Living) located within Northern Beaches Council's Local Government Area.

The subject property has street frontage to Jacqueline Close to the northeast, abuts private residential allotments to the northwest and southeast and Kennedy Place Reserve to the southwest.

The vegetation identified as being the hazard is within Kennedy Place Reserve to the southwest of the subject dwelling.



Figure 03: Extract from Planning NSW showing the land zoning

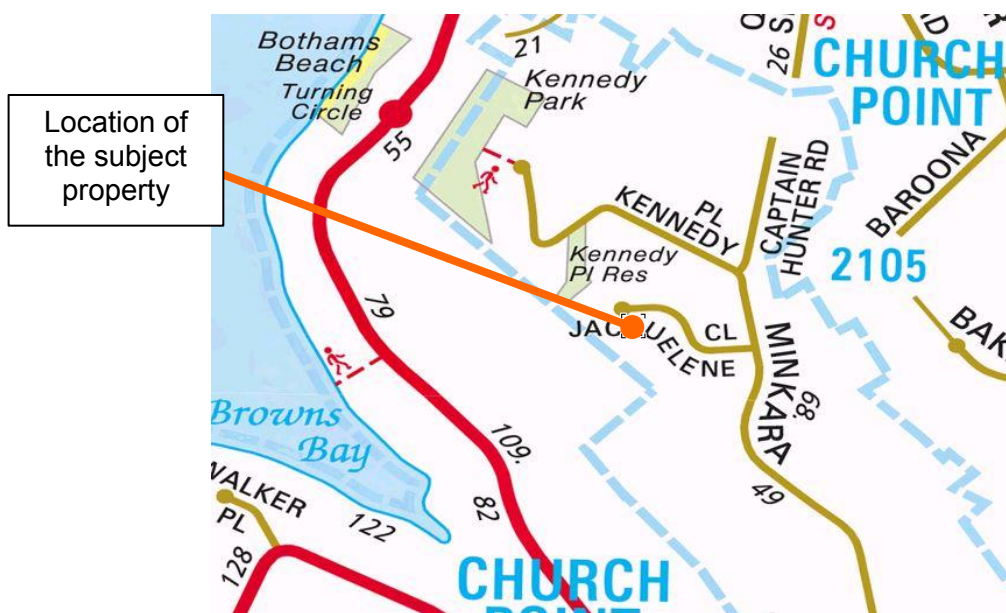


Figure 04: Extract from street-directory.com.au

6.02 Vegetation

The vegetation identified as being the hazard is within Kennedy Place Reserve to the southwest of the subject dwelling.

The vegetation posing a hazard was found to consist of trees 10 - 20 metres in height with 50 - 70% foliage cover, and an understorey of low trees, ferns and exotics.

For the purpose of assessment under PBP we have determined the vegetation posing a hazard to the southwest to be Forest.

Forest



Photograph 01: View into the vegetation within Kennedy Place Reserve



Forest

Photograph 02: View into the vegetation within Kennedy Place Reserve

6.03 Slope and Topography

The slope that would most significantly influence bushfire behaviour must be assessed for a distance of 100 metres from within the bushfire hazard. The most significant bushfire impact from the southwest is expected to be a bushfire travelling up slope toward the subject property.

The slope that would **most significantly** influence bushfire impact was determined onsite using an inclinometer and verified from topographic imagery to be:

- >20 degrees down slope within the hazard to the southwest



Figure 04: Extract from ELVIS – Geoscience Australia (1 metre contours)

7.0 Bushfire Protection Measures

7.01 Planning for Bush Fire Protection - 2019

Planning for Bush Fire Protection – 2019 (PBP) is applicable to development located on land determined as being 'bushfire prone' in accordance with the local Bushfire Prone Land Map.

Bushfire prone land are defined as those areas;

- containing or within 100m of Category 1 Vegetation; or
- containing or within 30m of Category 2 or 3 Vegetation.

Northern Beaches Council's Bushfire Prone Land Map identifies the subject property as containing the 100 metre buffer zone from Category 1 Vegetation therefore the application of PBP must apply in this instance.

The application of Planning for Bush Fire Protection requires satisfactory demonstration of the aim and objectives and the following bushfire protection measures (BPMs):

- Asset Protection Zones
- Building construction, siting & design
- Access arrangements
- Water supply & utilities
- Emergency management arrangements
- Landscaping

As the proposal relates to the construction of a carport, studio and swimming pool the proposal must comply with the bushfire protection measures detailed within Chapter 7 'Residential Infill Development' of PBP.

7.02 Asset Protection Zones

The subject property is a residential allotment located in an area of similar properties. The vegetation identified as being the hazard is within Kennedy Place Reserve to the southwest of the subject dwelling.

The available Asset Protection Zone (APZ) was measured to be >16 metres to the proposed pool and surrounds and >41 metres to the proposed carport to the southwest and consists of maintained grounds within the subject property.

The existing dwelling location within the subject site and allotment configuration precludes the ability to provide larger Asset Protection Zones.

All grounds within the subject property are to be maintained in accordance with an Inner Protection Area (IPA) as detailed in the NSW Rural Fire Service's document 'Standards for Asset Protection Zones'.

7.03 Building construction, siting & design

Australian Standard 3959 – 2018 'Construction of buildings in bushfire-prone areas' (AS3959) specifies construction standards for buildings within various Bushfire Attack Levels as determined by Planning for Bush Fire Protection – 2019.

AS3959 provides for six (6) levels of building construction these being BAL - Low, BAL - 12.5, BAL - 19, BAL - 29, BAL - 40 and BAL - FZ.

Bushfire Attack Level	Maximum radiant heat impact (kW/m ²)	Level of construction under AS3959-2018
Low		No special construction requirements
12.5	≤12.5	BAL - 12.5
19	12.6 to 19.0	BAL - 19
29	19.1 to 29.0	BAL - 29
40	29.1 to 40.0	BAL - 40
Flame Zone	>40.0	BAL FZ No deemed to satisfy provisions

Table 01: Correlation between bushfire impact and AS3959

The highest Bushfire Attack Level to the proposed works was determined from Table A1.12.5 of PBP to be 'Flame Zone' and construction requirements within NSW are therefore outside the scope of AS 3959 – 2018. The proposed carport and studio will be constructed to section 9 (BAL FZ) under AS 3959 – 2018 and the additional construction requirements detailed in section 7.5 of PBP.

The proposed pool and surrounds will be constructed entirely from non-combustible materials.

7.04 Property Access

The subject property has street frontage to Jacqueline Close to the northeast. Persons seeking to egress from the subject property will be able to do so via the existing access drive and public roads.

The most distant external point of the subject dwelling is less than 70 metres from a public road supporting the operational use of fire fighting vehicles and therefore the Access requirements detailed in Table 7.4a of PBP are not applicable.

Access to the hazard is available via the subject and neighbouring properties for hazard reduction or fire suppression activities.

The existing access is considered adequate and will be enhanced as part of this development.

7.05 Water Supply & Utilities

Hydrants are available throughout Jacqueline Close and surrounding streets for the replenishment of fire service vehicles. The most distant external point of the building footprint is less than 90 metres from an operational hydrant and therefore a Static Water Supply is not required in consideration of AS2419.1 – 2017 (Appendix E, Figure E7) and Chapter 7 of PBP. Regardless the proposed pool provides an additional supply.

The existing dwelling has an aerial connection to the existing electrical network. This connection will not be altered as part of this application.

Any new gas connections must comply with Table 7.4a of PBP.

7.06 Emergency management arrangements

Evacuation is possible by utilising existing road infrastructure.

It is encouraged that the occupants complete a Bush Fire Survival Plan. The template for this plan is available at <https://www.rfs.nsw.gov.au/resources/bush-fire-survival-plan>.

7.07 Landscaping

Any new landscaping must comply with Section 3.7 'Landscaping' of *Planning for Bush Fire Protection* 2019.

7.08 Aim & Objectives of PBP

The following table details the aim and objectives of Planning for Bush Fire Protection 2019 and the proposals ability to comply.

Aim / Objective	Comment
The aim of PBP is to provide for the protection of human life and minimise impacts on property from the threat of bush fire, while having due regard to development potential, site characteristics and protection of the environment.	With the inclusion of the recommendations made herein it is of our opinion that the aim of PBP has been satisfied.
(i) afford buildings and their occupants protection from exposure to a bush fire;	The proposed carport, studio and swimming pool will be constructed to BAL Flame Zone under sections 3 and 9 of AS3959 – 2018, being the relevant BAL.
(ii) provide for a defensible space to be located around buildings;	There is a >16 metre APZ available to the east providing a defensible space for the building.
(iii) provide appropriate separation between a hazard and buildings which, in combination with other measures, prevent the likely fire spread to buildings;	The proposed carport, studio and swimming pool being constructed to BAL FZ, being the relevant Bushfire Attack Level, will minimise potential material ignition.

Aim / Objective	Comment
(iv) ensure that appropriate operational access and egress for emergency service personnel and occupants is available;	The most distant external point of the proposed footprint is less than 70 metres from a public road supporting the operational use of fire fighting vehicles and provides appropriate access and egress for emergency services.
(v) provide for ongoing management and maintenance of bush fire protection measures, (BPMs); and	<p>All grounds within the subject site will be maintained in accordance with an Inner Protection Area as detailed in Appendix 4 of Planning for Bush Fire Protection 2019 and the NSW Rural Fire Service publication 'Standards for Asset Protection Zones'.</p> <p>Any new landscaping is to comply with the provisions of Table 7.4a and Appendix 4 of PBP – 2019.</p>
(vi) ensure that utility services are adequate to meet the needs of firefighters.	Hydrants are available throughout Jacqueline Close and surrounding streets for the replenishment of fire service vehicles.

It is therefore of our opinion that the proposal can satisfactorily comply with the aim and objectives of Planning for Bush Fire Protection 2019.

8.0 Recommendations

The following recommendations are provided as the minimum necessary for compliance with Planning for Bush Fire Protection – 2019 and Australian Standard 3959 'Construction of buildings in bushfire-prone areas - 2018. Additional recommendations are provided to supplement these minimum requirements where considered necessary.

Asset Protection Zones

1. That all grounds within the subject property are to continue 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 4 of *Planning for Bush Fire Protection 2019*.

Construction

2. That all new construction to the proposed carport and studio shall comply with Australian Standard AS3959-2018 "Construction of buildings in bush fire-prone areas" Sections 3 & 9 (BAL FZ) & Section 7.5 of *Planning for Bushfire Protection 2019*.
3. The proposed pool and surrounds are to be constructed entirely from non-combustible materials

Landscaping

4. That any new landscaping is to comply with Section 3.7 'Landscaping' under *Planning for Bush Fire Protection 2019*.

Emergency management

5. That the occupants of the subject dwelling complete a Bush Fire Survival Plan.

9.0 Conclusion

Given that the property is deemed bushfire prone under Northern Beaches Council's Bushfire Prone Land Map any development would need to meet the requirements of Planning for Bush Fire Protection – 2019 and of the construction requirements of AS3959 – 2018. The determination of any bushfire hazard must be made on a site-specific basis that includes an assessment of the local bushland area and its possible impact to the subject property.

The subject property is a residential allotment within an area of similar properties. The vegetation identified as being the hazard is within Kennedy Place Reserve to the east of the subject dwelling. The vegetation posing a hazard was determined to be Forest.

The highest Bushfire Attack Level to the proposed carport, studio and swimming pool was determined from Table A1.12.5 of PBP to be 'Flame Zone' and construction requirements within NSW are therefore outside the scope of AS 3959 – 2018. The proposed construction of a carport, studio and swimming pool will be constructed to section 9 (BAL FZ) under AS 3959 – 2018 and the additional construction requirements detailed in section 7.5 of PBP.

The existing water supply and access provisions are considered adequate, with the water supply being supplemented as part of this development.

In accordance with the bushfire safety measures contained in this report, and consideration of the site specific bushfire risk assessment it is our opinion that when combined, they will provide a reasonable and satisfactory level of bushfire protection to the subject development.

We are therefore in support of the development application.

Should you have any enquiries regarding this project please contact me at our office.

Prepared by
Building Code & Bushfire Hazard Solutions



Duncan Armour
Bushfire Consultant

Reviewed and endorsed by
Building Code & Bushfire Hazard Solutions



Ian Tyerman
Senior Bushfire Consultant
Graduate Certificate in Bushfire Protection
Planning for Bushfire Prone Areas - UTS Sydney
FPA Australia BPAD Level 2 Accredited Practitioner
BPAD Accreditation No. BPAD30356



10.0 Annexure 01

List of Referenced Documents

Australian Building Codes Board (2019). *National Construction Code Volume Two - Building Code of Australia*. ABCB

ELVIS -Elevation -Foundation Spatial Data. Elevation.fsdf.org.au. Available at: <http://elevation.fsdf.org.au/>

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NSW Department of Planning and Environment (2019). *Planning Portal*. Accessed at: <https://www.planningportal.nsw.gov.au/>

NSW Rural Fire Service (2019). *Planning for Bush Fire Protection. A Guide for Councils, Planners, Fire Authorities and Developers*.

NSW Government (2021). *The Central Resource for Sharing and Enabling Environmental Data in NSW*. Accessed at: <https://www.seed.nsw.gov.au/>

Rural Fire Service NSW (2005). *Standards for Asset Protection Zones*

Plans by Progressive Plans, Project No. 1010, Revision C, Dated 01.11.2021

Standards Australia (2018). *AS3959 Construction of buildings in bushfire-prone areas*.

Standards Australia (2014). *AS/NZS 1596 The storage and handling of LP Gas*

Acknowledgements to:

Geoscience Australia
Nearmaps
Street-directory.com.au

Attachments

Attachment 01: s4.14 Compliance Certificate



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BUSHFIRE RISK ASSESSMENT CERTIFICATE UNDER PART 4 DIVISION 4.3 SECTION 4.14 OF THE EP&A ACT 1979 NO 203

PROPERTY ADDRESS:	6 Jacqueline Close, Bayview
DESCRIPTION OF PROPOSAL:	Carport, Studio and Swimming Pool
PLAN REFERENCE: (relied upon in report preparation)	Plans by Progressive Plans, Project No. 1010, Revision C, Dated 01.11.2021
BAL RATING:	BAL Flame Zone
BUSHFIRE ASSESSMENT REPORT REFERENCE:	220778
REPORT DATE	21 st February 2022
CERTIFICATION NO/ACCREDITED SCHEME	BPAD30356

I Ian Tyerman of Building Code and Bushfire Hazard Solutions Pty Ltd hereby certify, in accordance with Part 4 Division 4.3 Section 4.14 of the *Environmental Planning and Assessment Act 1979 No 203*:

1. That I am a person recognised by the *NSW Rural Fire Service* as a qualified consultant in bushfire risk assessment; and
2. That subject to the recommendations contained in the Bushfire Risk Assessment Report the proposed development conforms specifications and requirements of the documents 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 Part 4 Division 4.3 Section 4.14 of the *Environmental Planning and Assessment Act 1979 No 203*.

I am aware that the Bushfire Assessment Report, prepared for the above mentioned site is to be submitted in support of a development application for this site and 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 *Planning for Bush Fire Protection 2019*.

Signature:  Date: 21st February 2022

